

EXECUTIVE SUMMARY

- At the request of Mountain View Conservation Society (MVCS), the Langley Field Naturalists (LFN) conducted a biodiversity study of MVCS's leased crown land, 62.7 hectares in north Langley. The study spanned 10 years, from 2009 to 2018.
- The MVCS's leased crown land consists of a diverse mixed forest, containing vernal ponds and a salmon stream (Davidson Creek).
- Historical biodiversity records for the site, dating back to 1969, were provided by renowned naturalist Glenn Ryder.
- Experts were consulted to assist with identification of some of the more challenging species.
- The site was found to have high biodiversity. A total of approximately 1638 species were identified over the 10 year study: 150 vertebrate, 649 invertebrate, 404 plant, 405 fungi and 6 protozoa species. Another 40 species were recorded by Glenn Ryder prior to the study and many more specimens were photographed (2275 Photos) and/or collected (16 vials in 70% alcohol) which have yet to be classified.
- Eleven species at-risk were recorded during the 10-year period.
- Two invertebrate species (spiders) found on the site have been found nowhere else in Canada.
- As well as having high biodiversity and rare or at-risk species, the forest acts as a significant carbon sink, helping to mitigate the effects of climate change.
- The site also has historical and archaeological values.
- The Langley Field Naturalists strongly recommend that the site be protected, designated as a Conservation Area or as an Ecological Reserve.

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The Langley Environmental Partners Society (Lisa Dreves), for mapping the trails using GPS ‘Trimble’ technology and plotting our data on Township of Langley maps and (other staff members) for Water sampling of Davidson Creek.

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- Bob Puls and Anthea Farr

Introduction

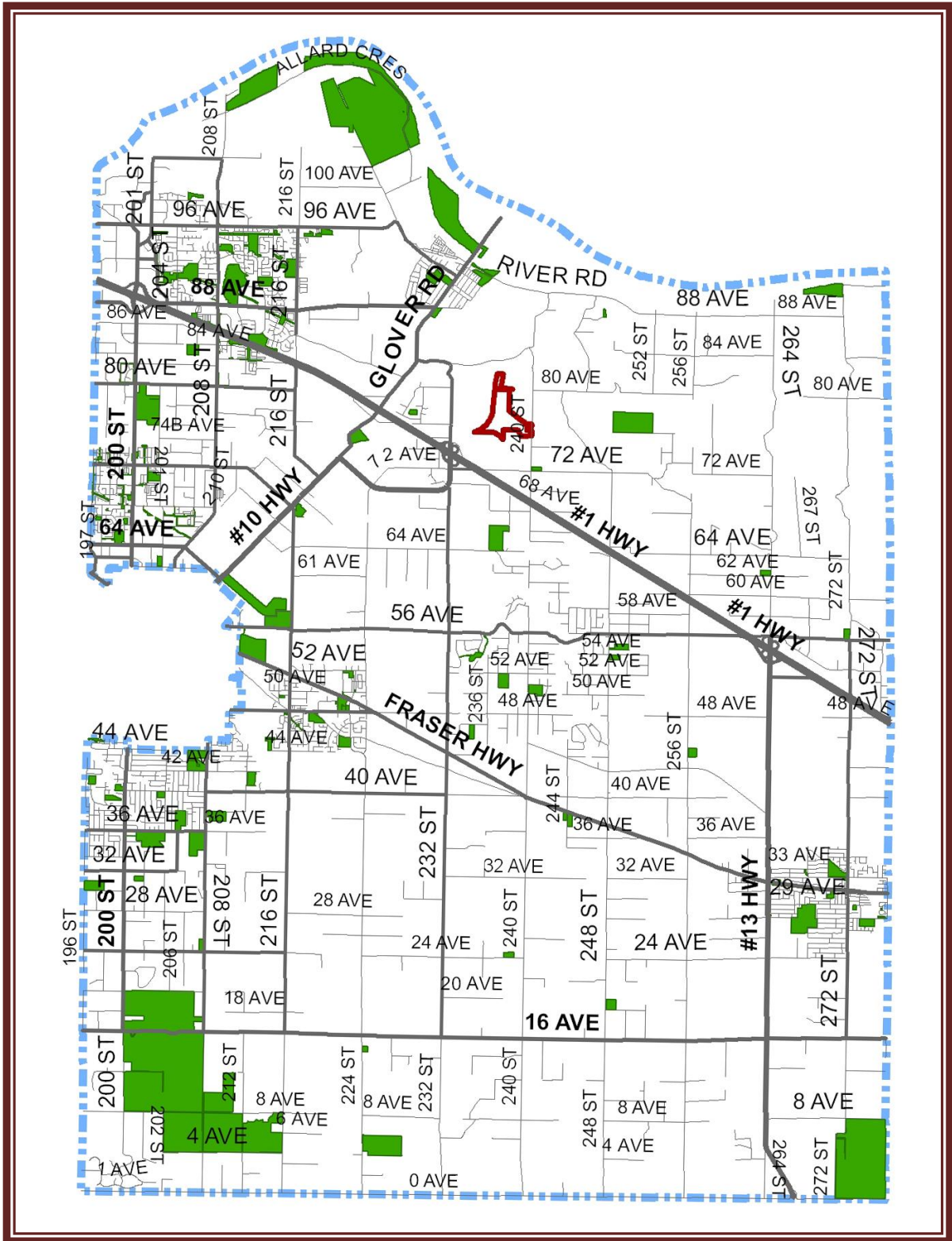
In 2008, the Langley Field Naturalists Society (LFN) was asked by Malcolm Weatherston, Director of Development for the Mountain View Conservation Society (MVCS), to conduct a biodiversity survey on crown land leased by MVCS. The LFN, a 40-year-old registered non-profit society, had experience doing biodiversity surveys at other Langley sites, notably Campbell Valley Regional Park, Forslund-Watson Wildlife Area, Brydon Lagoon, Langley Municipal Natural Park and Hope-Redwoods Natural Area.

To promote nature appreciation, understanding and conservation is the LFN's mandate. The Executive agreed that this survey, although larger in scope than most previous surveys, was consistent with the Society's goals. In early 2009, the LFN agreed to MVCS's request to conduct a biodiversity survey, using volunteer labour and expertise. The study continued into 2019, covering a ten year period.



Fig.1. Left to right: Anthea Farr, Bob Puls and Roy Yates explore the North Trail in the summer of 2009. Photo by Al Grass

Map 1: Langley Township showing the location of the Mountain View Conservation Society Leased Crown Land (in red) and Parks in (green)



Site Description

The MVCS crown land is a 62.7 hectare parcel of land in the northern part of Langley Township (Map 1). It is bounded on the north side by Mountain View Conservation Society property and by a blueberry and turf farm, to the south by another berry farm and the Southern Railway (former B.C. Electric railway line), to the east by 240th St. and to the west by the “CN” railway (Map 2).¹ The property is intersected by Davidson Creek and its tributaries (Map 3 *topo map*). Davidson Creek itself is a tributary of the Salmon River. Elevation on the property varies from 54 meters at the east end to 14 meters at the west end.

The land is covered by second-growth mixed coniferous and deciduous forest (Map 2). This mixed forest has a high diversity of trees throughout, but changes from conifer-leading at the higher elevations in the east to deciduous-leading at the lower elevations in the west.

Small shallow wetlands are also common in the west. These dry up in hot summers, as does the eastern portion of Davidson Creek. The lower portion of Davidson Creek runs year-long, as do the small creeks that feed into it from the eastern escarpment (where the turf farm is located).

There are several distinct but shallow forest ponds in the northeast quadrant; these are prone to drying up in dry summers. Two small deeper ponds exist on the west border near the CN tracks; these sometimes provide year-round water.

The MVCS crown land is above the Hoppington aquifer, and lies within the Salmon River Watershed.

^{1/} Although heavily used by CN, this piece of railway is actually owned by B.C. Railway, connecting the CN line to the Southern line. In this report we refer to it as “CN” railway.

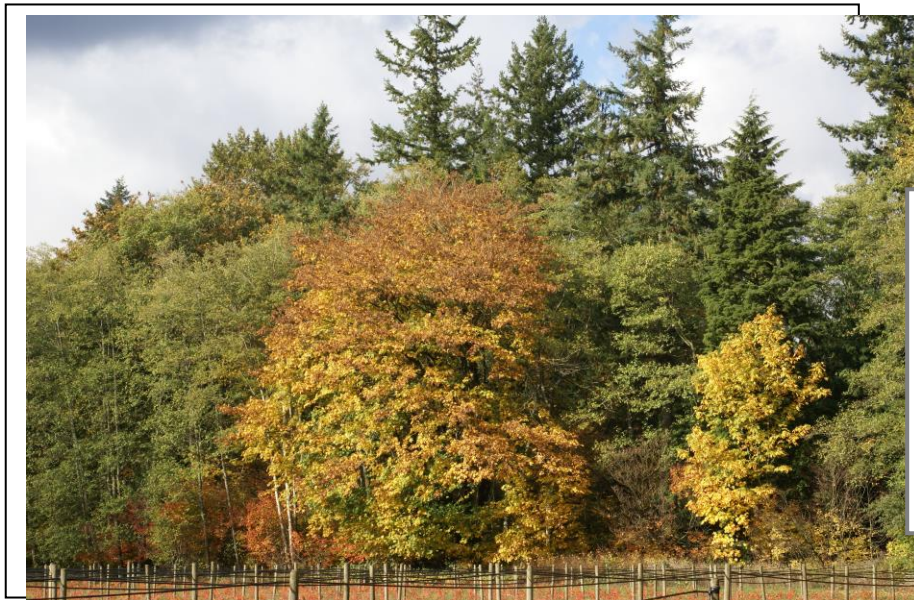
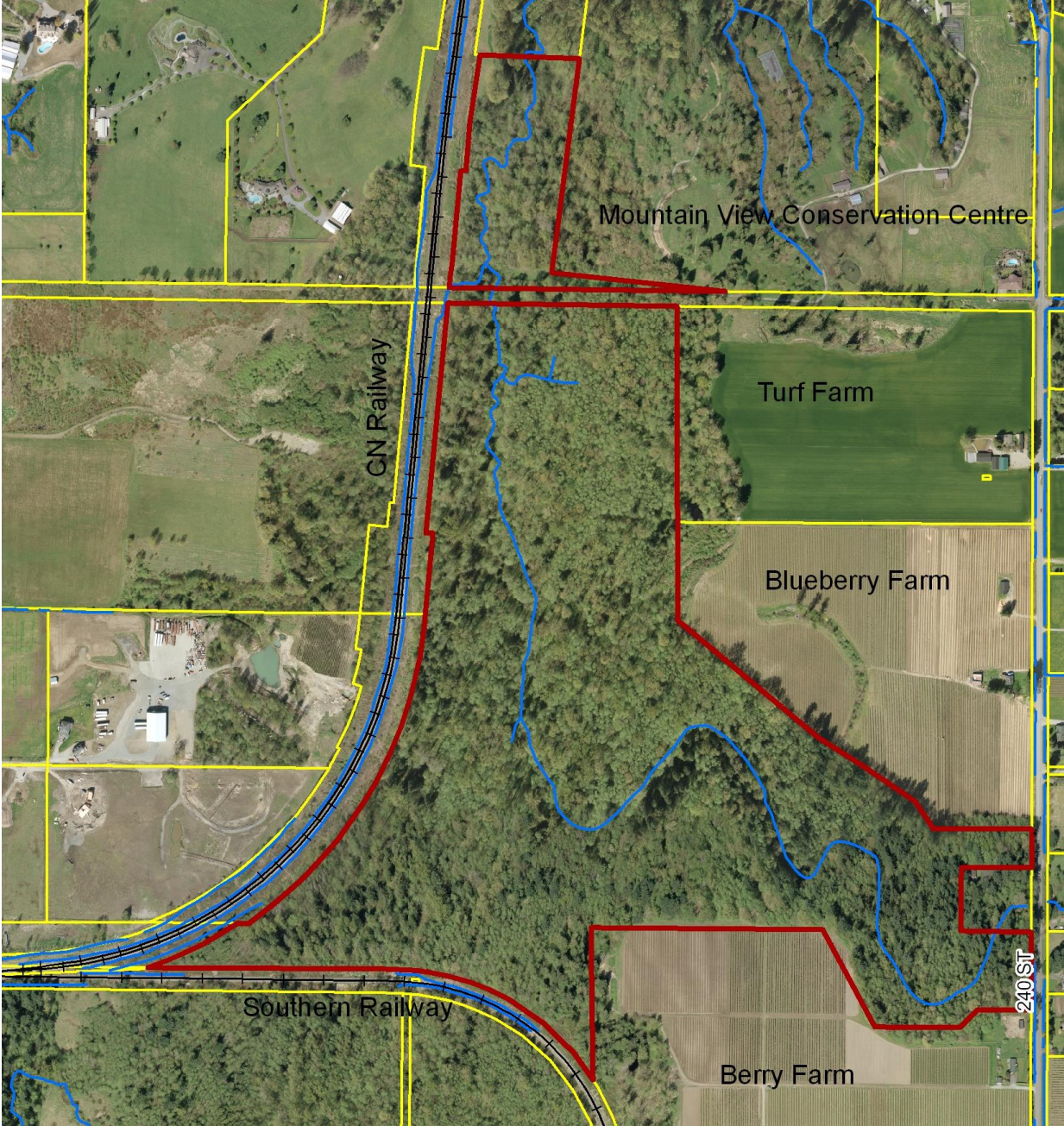
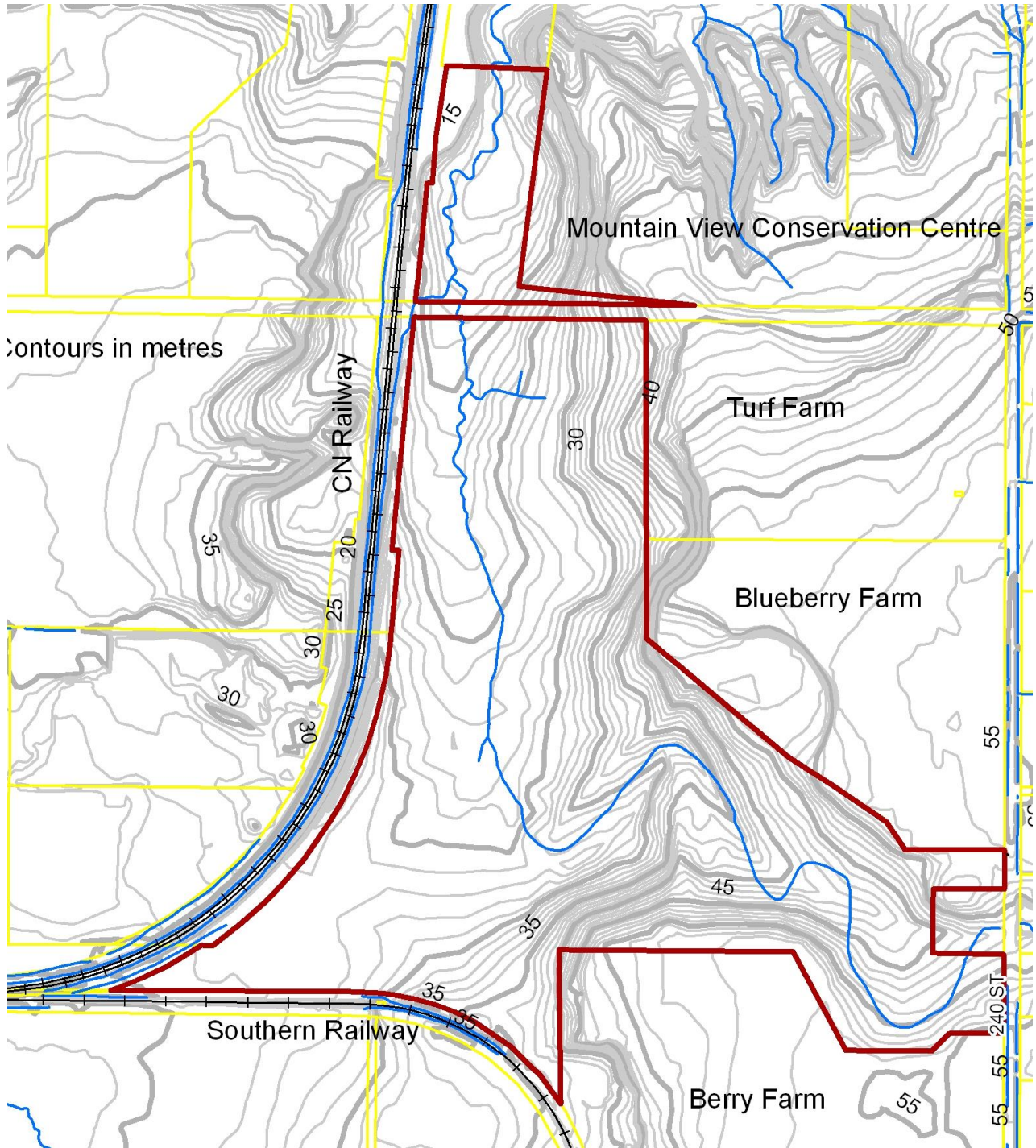


Fig.2. South boundary of the MVCS Crown Land from the Berry Farm.

Map 2: Aerial View of the MVCS Crown Land (outlined in red)



Map 3: Contour Map of the MVCS Crown Land



History

Old maps and artifacts found provide glimpses of a diverse human history. Construction of railways, settlements, logging, fire, bootlegging and blasting all contributed to changes in the landscape and its flora and fauna.

The earliest artifacts found were those from First Nations' fishing camps: old fire rings and a fragment of a bone needle alongside Davidson Creek (G. Ryder, pers. comm.). There have been no First Nations' middens found on the property but a possible site of pit houses remains.

Much greater impacts on the land occurred when access by road or railway was possible. A 1883 map shows the property to have been owned by the Dominion Saw Mill Co. Ltd. (Waite, 1977). In the 1880's, a sawmill was built, along with a brick forge and ten or more tarpaper shacks or cabins for migrant workers (primarily Chinese and Japanese) (G. Ryder, pers. comm.). All of these were located on the MVCS crown land.

The sawmill operation lasted about 39 years. During this period, old growth forest was logged, a log pond was constructed by damming Davidson Creek, dirt roads were built and, to the east of the railway, land was cleared to create pasture for horses and cattle (G. Ryder, pers. comm.). Horses were used for logging operations, whilst a steam engine powered the sawmill. Davidson Creek was probably named after Hugh Davidson who in 1888 opened up a General Store at Murray's Corners and in 1905 began farming on the Salmon River flats.

The B.C. Electric Railway along the southwest side of the property was completed in 1910 (Waite, 1977). Amesworth Station sat on the south border of the MVCS crown land. At least one railway worker also lived on the crown land (G. Ryder, pers. comm.).

In 1921, a large forest fire swept through, destroying all man-made structures and leaving only a few live trees and scattered old-growth cedar snags. This marked the end of the sawmill's operation and of its community.

In 1961, George and Bunty Clements purchased a house on 1.88 acres of private land on 240th St., a parcel bordered on the other 3 sides by the Mountain View Crown land. This acreage has some very large Douglas-fir trees that may have escaped the 1921 fire. The original house on the property was a small log building, owned by another "George" who was chief steward of the Legion. As well as tending the bar, he likely was also a bootlegger, based on the number of discarded whiskey bottles found (G. Clements, pers. comm.).

From 1961 to 2010, the Clements kept their property as a natural forest and maintained their own woodland trails. Over the decades, they also maintained many bird feeders (both seed and fat) that contributed to high numbers of songbirds, as well as songbird-eating raptors, on their own acreage and on the adjacent MVCS crown land. In 2010, both Bunty and George passed on and

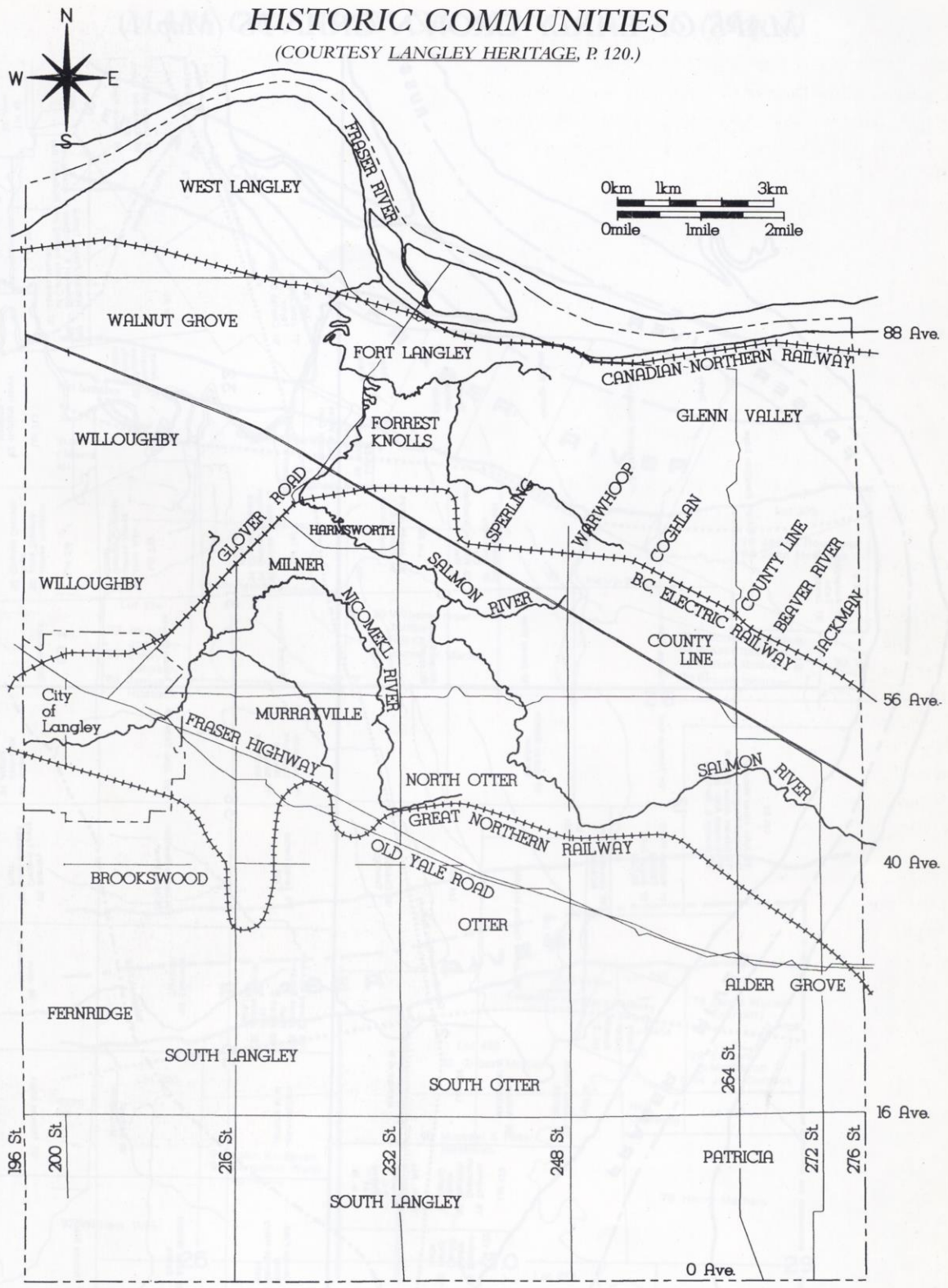
in 2011 the property was sold to Paul and Lisa Stokes, also devout naturalists; they have continued to maintain some of the trails in the eastern section of the site.

G. Ryder reported that in 1969 and through the 1970's, there was a large beaver pond on Davidson Creek (on the northwest corner of the property) that provided habitat for many aquatic birds and mammals. Viewed as an obstruction to salmon, this beaver dam was "blown up" by Fisheries in the late 1970's or in the 1980's. The beavers then built another dam near the old one; this too was "blown up" by Fisheries. Glenn figured at least 50 species were lost at this time, including the Pacific Water Shrew and the Mountain Beaver, as well as most waterfowl. Beavers recently (2016) created a new dam just north of Rawlison Ave. and some of us hope they may eventually replace the original dam further upstream on the Crown Land.

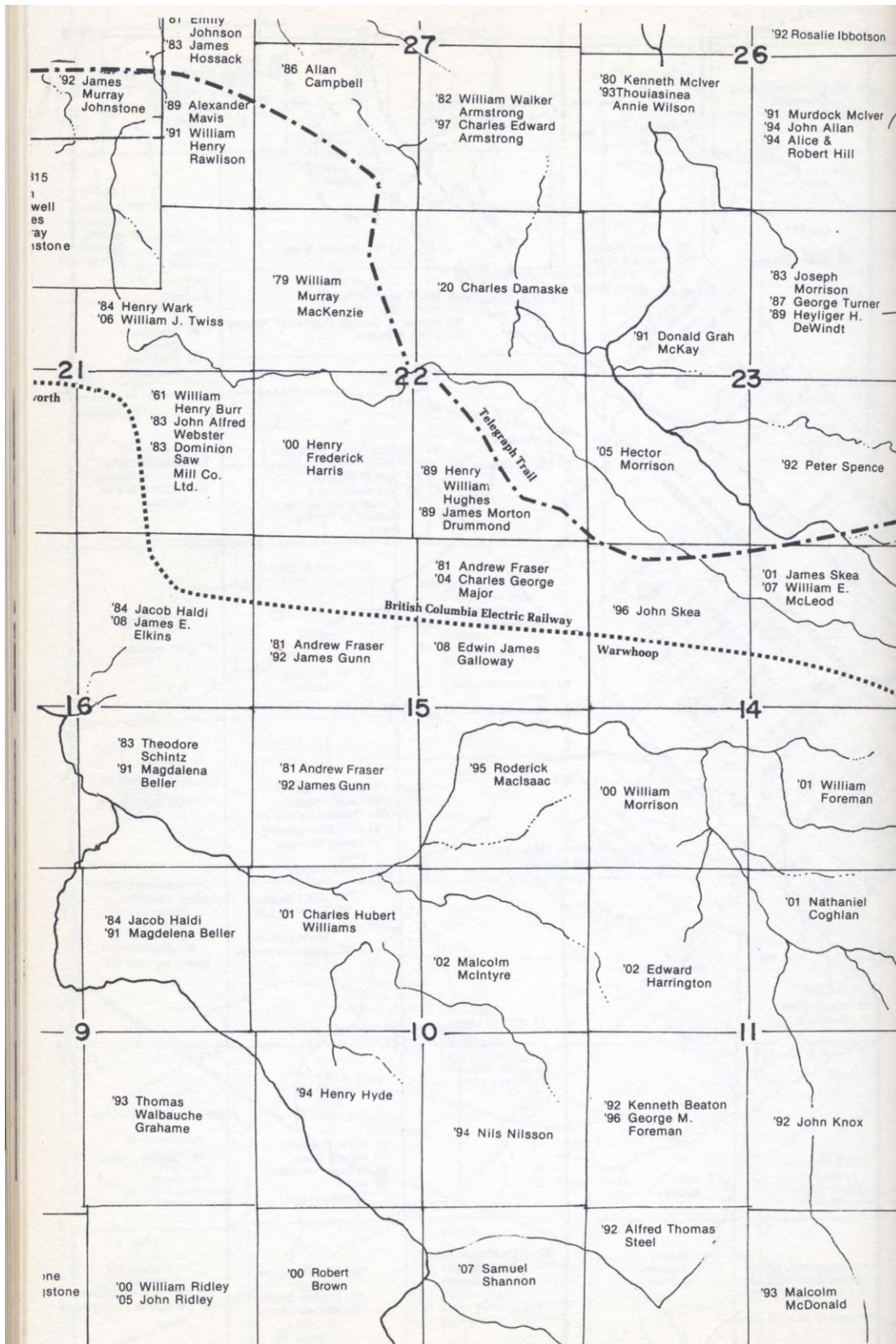
Fairly recent maps show a pond on the turf farm property, on the east escarpment very close to the MVCS property line. This pond appears to have been man-made with an earthen dam. It is unclear what its function was, but more recently (likely when the beaver pond was drained) the pond has been drained by someone cutting an approximately 7 meters-deep brake in this earthen wall. All of this man-made activity affected one of the main feeder creeks flowing into Davidson Creek on the MVCS crown land. Also, past and present dumping of yard waste and garbage over this escarpment have likely had negative impacts on Davidson Creek feeder streams.



Fig. 3. Inside the MVCS Crown Lands. (Left Fall 2009, right June 2013)



Map 4: Historic Map showing early Railways and Communities in Langley



Map 5: Early Map showing property owners prior to 1910

Methods

The Langley Field Naturalists created rough trails within the property for the sole purpose of conducting inventories (Map 6). Existing trails made by the Clements and by Glenn Ryder were also utilized. Surveys were conducted from February 2009 to January 2019, with records kept of all species of flora, fungi and fauna seen or heard in the vicinity of the trails. Signs of wildlife, such as tracks and scat, were also recorded. Owl pellets were collected to identify small mammal remains.

Surveys of pond and stream life were conducted using dip nets. Terrestrial invertebrates were initially found by chance encounters, sweep nets or by shaking branches above a white towel. Subsequently a Berlese funnel was employed for separating fauna from leaf litter and soil. Yellow 'Tanglefoot' sticky pads were hung for insect collection and moths and caddisflies were collected in a homemade moth trap using a compact fluorescent bulb to attract them. Drop (pit) traps were used to catch some of the ground beetles. Several Trail Cameras were installed at various locations on the trails, with only one being rugged enough to continue functioning to the present. Most small mammals were identified from dissection of owl pellets and examination of skulls. All specimens were photographed with digital cameras; some of the invertebrates caught in traps were photographed off site using a copying stand and natural or artificial light.

Identification of almost all invertebrates was by examination of photographs or collected specimens using published guides or, preferably, help from experts when available. These identifications were by far the most challenging part of the survey.

Identification of fungi and lichens was by visual examination and photographs, as chemical techniques were unavailable. Small samples collected were studied using a dissecting microscope. Diameters of the largest trees on the property were measured at breast height using a standard D-tape and age was calculated from tree cores.

Surveys were conducted at least once a month; most involved only portions of the trail being walked. Walking the entire trail system required at least 4-5 hours. The total number of days the property was visited was 55, with 290 person hours spent on site over the first year. An estimated additional 600 hours were spent off site identifying species found during the surveys. Many more hours accumulated over subsequent years. During the first 3 years, over 700 human hours were spent on the site. At least twice as many hours were spent off site, identifying species found during the surveys. Hundreds more hours accumulated in subsequent years.

To obtain information about the current status of species at risk in B.C., we used BC Species and Ecosystems Explorer <http://a100.gov.bc.ca/pub/eswp/>.

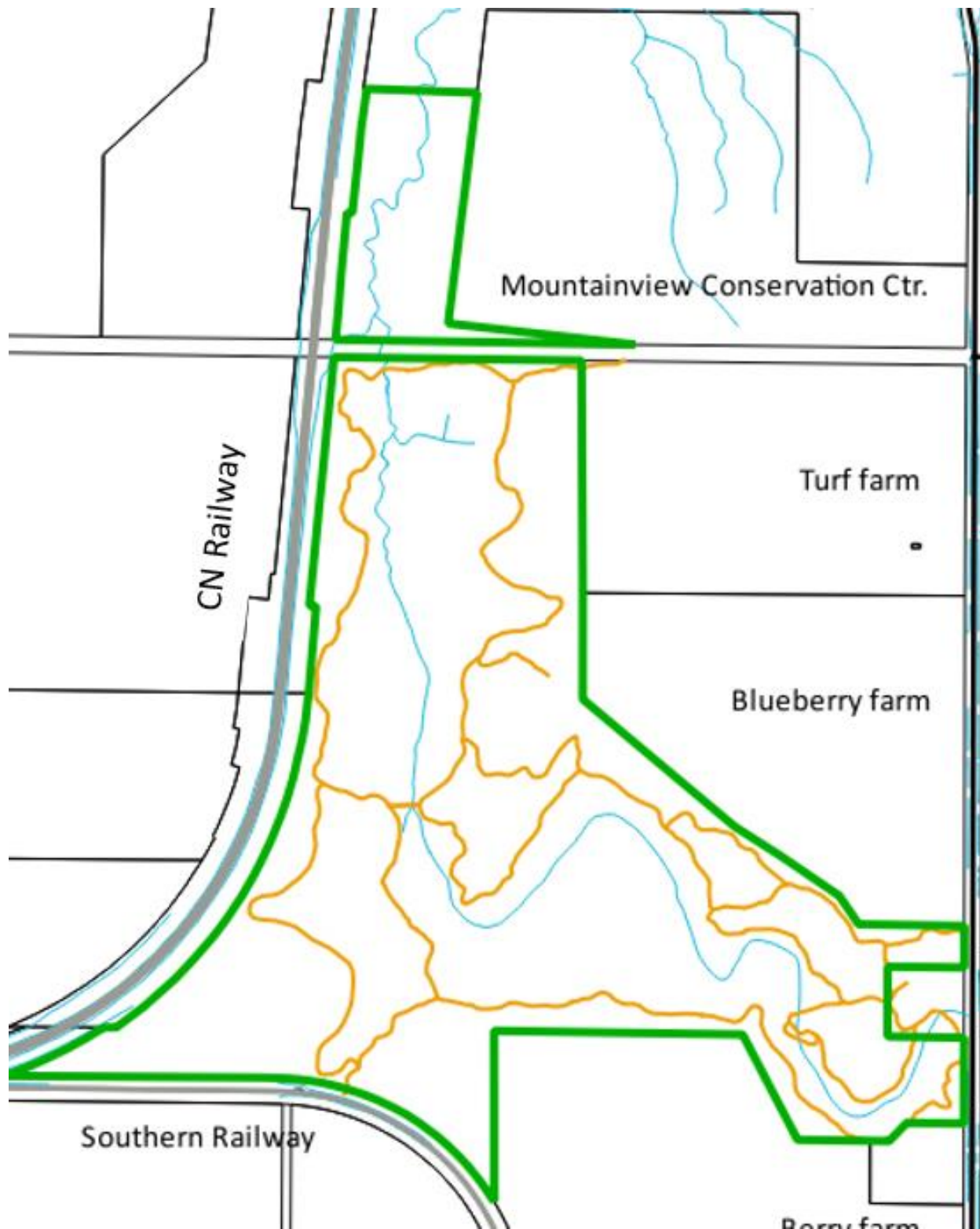


Fig. 4 & 5.

Top:
Lisa Dreves with the
'Trimble' GPS system
plotting the survey
trails.

Bottom:
Anthea Farr
measuring the DBH
of a tree.





Map 6: Survey trails (in buff) established on the MVCS Crown Lands

Biodiversity Survey Results

A very high diversity of flora, fungi and fauna was found on the MVSC crown land. Approximately 1643 species were recorded by the LFN between Feb. 2009 and December 2018. The number of species found in each broad group is shown in Table 1. A total of 403 floral, 405 fungal and 806 faunal species were documented, with many more unidentified. An additional 32 species (faunal) were recorded by G. Ryder on the site over a 44 year period.

Complete lists of species found in each category are presented in Tables 2-17. All species are listed alphabetically by their scientific names, with common names also given where possible. The exception is the bird table where space did not permit the inclusion of scientific names; bird species are generally listed in ornithological order.

Eleven species at-risk¹ were recorded on MVCS crown land during the 10 year study: 2 mammals, 4 birds, 1 amphibian, 1 fish, 2 invertebrates and 1 plant (listed below). Another 2 mammal and 1 reptile at-risk species are historical records for the site. On adjacent land, an additional 3 bird species at-risk were reported.



Fig.6.
We encountered many snags,
both on site and later off-site
(trying to identify specimens).

Crown land – 10 year study:

Red-listed: Snowshoe Hare (?), Barn Owl, Roell's Brothella Moss.

Blue listed: Trowbridge's Shrew, Olive-sided Flycatcher, Purple Martin, Barn Swallow, Red-legged Frog, Cutthroat Trout, Western Pondhawk, Yellow-legged Meadowhawk.

Crown Land – historical:

Red-listed: Keen's Myotis (?), Pacific Water Shrew, Western Painted Turtle.

Adjacent Property – recent:

Blue-listed: Western Screech Owl, Green Heron, Band-tailed Pigeon.

(?) = Confirmation requires further investigation.

^{1/} status from B.C. Species and Ecosystems Explorer

<http://a100.gov.bc.ca/pub/eswp>

Red-listed = Endangered or Threatened. Blue-listed = Species of concern (at-risk).

Also of note, 2 species of invertebrates on MVCS crown land have not previously been recorded in Canada. Both belong to the Araneae (spiders): *Ero tuberculata* and *Linyphia triangularis*.

Table 1. Summary of Species documented by the LFN on the MVCS Crown Lands

Flora, Fungi & Protozoa

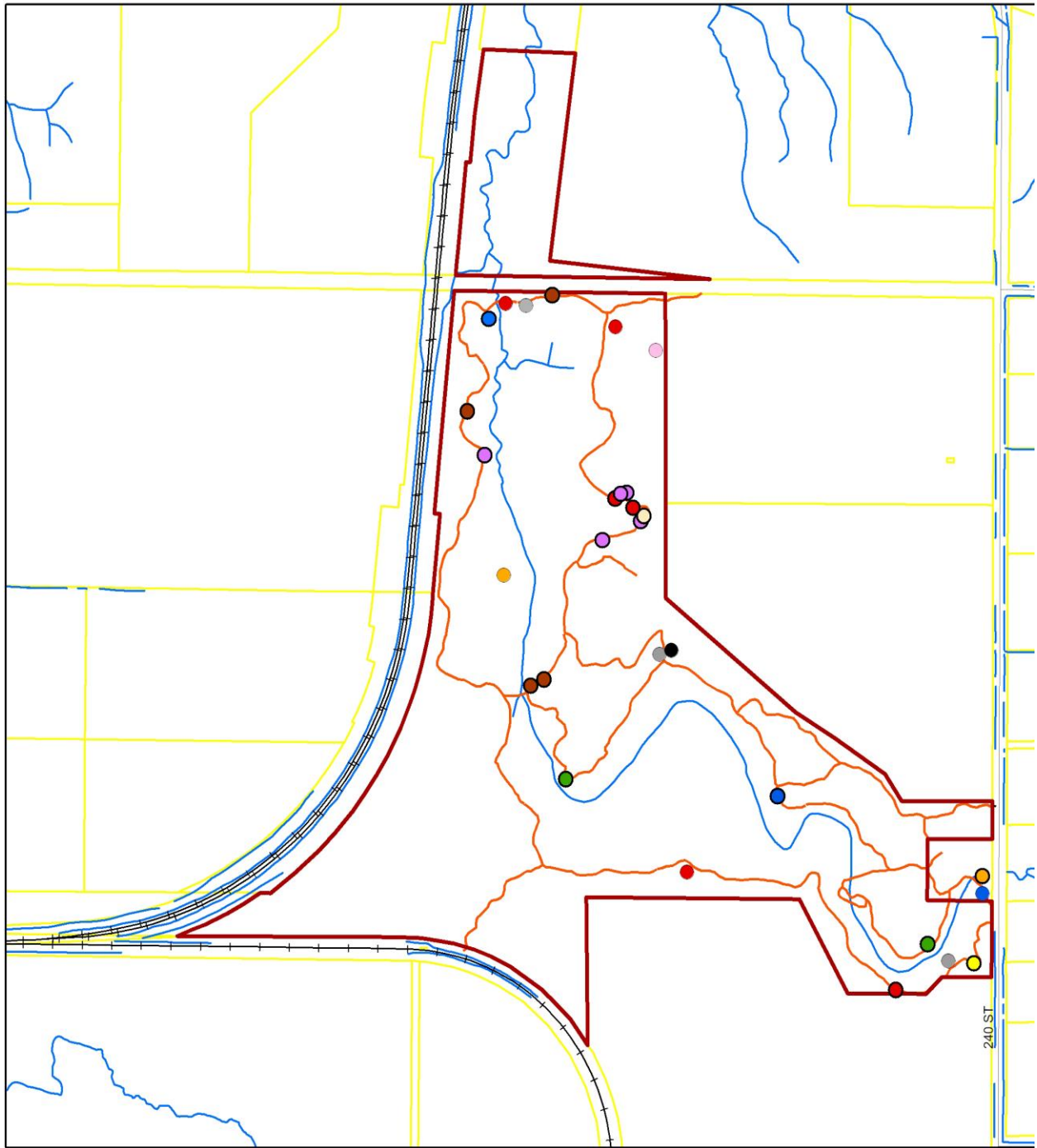
Flora	# Species
Trees - conifers	5
Tress - deciduous	9
Small trees & Shrubs	40
Forbs	126
Ferns & Fern Allies	11
Grasses, sedges & rushes	26
Mosses	50
Lichens	75
Liverworts	17
Algae & diatoms (microalgae)	32
Bacterial disease	2
Total flora	403
Protozoa	6
Fungi	
Fungi: white-spored gilled	152
Fungi: brown-spored gilled	43
Fungi: dark-spored gilled	16
Fungi: pink-spored gilled	4
Fungi: bolete	6
Fungi: polypore	43
Fungi: jelly type	15
Fungi: coral & club	14
Fungi: cup	18
Fungi morels & false morels	2
Fungi: crust & slime	48
Fungi puffballs & earthstars	12
Fungi: bird's nest	2
Fungi: other types	30
Total fungi	405

Table 1, continued.

Fauna	# Species
Vertebrates	
Mammals	34
Birds	98
Reptiles	5
Amphibians	7
Fish	7
Terrestrial invertebrates	
Gastropods (Slugs & snails)	11
Thysanura (Bristletails)	1
Dermaptera: Earwigs	1
Thysanoptera (Thrips)	1
Lepidoptera (Butterflies)	15
Geometridae (moths)	105
Noctuidae (moths)	87
Other moth families	47
Hymenoptera (Bees, wasps, ants)	49
Coleoptera (Beetles)	55
Orthoptera: (Grasshoppers & Katydid)	5
Embiopoda: (Webspinners)	1
Diptera (Two-winged flies)	53
Neuroptera (Lacewings)	2
Raphidioptera (Snakeflies)	2
Hemiptera (Sucking bugs)	22
Collumbola (Springtails)	16
Homoptera (Leafhoppers)	13
Araneae (Spiders)	75
Pseudoscorpions, Mites and Harvestmen	19
Polydesmidae (Millipedes & Centipedes)	8
Entognatha (Japygids)	1
Psocoptera (Barklice)	1
Crustaceans	3
Oligochaeta (Earthworms)	1
Hirudinae (Terrestrial Leeches)	1
Misc. Invertebrates	5

Table 1, continued.

Aquatic invertebrates	
Coleoptera: (Beetles)	7
Diptera: (Two-winged Flies)	14
Araneae: (Spiders & Mites)	1
Crustaceans: Malacostraca (Crayfish, shrimps,)	9
Mollusca - (Snails)	3
Plecoptera: (Stoneflies)	7
Odonata: (Dragonflies & Damselflies)	12
Ephemeroptera: (Mayflies)	6
Trichoptera: (Caddisflies)	18
Oligochaeta (aquatic earthworms)	1
Hirudinae (Leeches)	1
Miscellaneous invertebrates	6
Total of all species	1643



- | | | |
|----------------------|-------------------|---------------------|
| ● Big-leaf Maple | ● Pacific Dogwood | ● Trembling Aspen |
| ● Black Cottonwood | ● Paper Birch | ● Western Hemlock |
| ● Douglas-fir | ● Red Alder | ● Western Red Cedar |
| ● Pacific Crab Apple | ● Sitka Spruce | |

Map 7: Significant Trees in the MVCS Crown Land

Trees

A total of 5 species of conifers and 9 species of deciduous trees¹ were recorded by the LFN (Table 2a). The three main conifers, Douglas-fir, Western Redcedar and Western Hemlock, are most abundant on the higher, well-drained slopes in the east. Scattered Sitka Spruce grow in the moist lowlands in the west and north part of the property and a few Grand Fir are located by the residence and on the west boundary.

On the moist lowlands, deciduous trees dominate the mixed forest. The most abundant species are the Black Cottonwood, Red Alder and Bigleaf Maple. The stand of Trembling Aspen is on higher ground near the southeast corner. There are many Paper Birches, the majority of which are in poor physical shape, likely due to Birch borer insect infestation. Only one small (seedling) Horse Chestnut was found, located near the northeast property line.

^{1/} as categorized by Pojar and McKinnon (2004). “Small” trees are included under “Shrubs and Small Trees”.

Table 2a. Trees found on MVCS Crown Land

Conifers	
Grand Fir	<i>Abies grandis</i>
Sitka Spruce	<i>Picea sitchensis</i>
Douglas-fir	<i>Pseudotsuga menziesii</i>
Western Redcedar	<i>Thuja plicata</i>
Western Hemlock	<i>Tsuga heterophylla</i>

Deciduous trees	
Big-leaf Maple	<i>Acer macrophyllum</i>
Horse Chestnut (sapling)	<i>Aesculus hippocastanum</i>
Red Alder	<i>Alnus rubra</i>
Paper Birch	<i>Betula papyrifera</i>
Pacific Dogwood	<i>Cornus nuttallii</i>
Black Cottonwood	<i>Populus balsamifera</i>
Bitter Cherry	<i>Prunus emarginata</i>
Pacific Crab Apple	<i>Malus fusca</i>
Trembling Aspen	<i>Populus tremuloides</i>

Table 2b shows the diameters of some of the largest trees on the property, the locations of which are shown in Map 7. The largest trees found were a Sitka Spruce (178 cm dbh), a Western Redcedar (175 cm dbh), a Western Hemlock (201 cm dbh) and a Black Cottonwood (167 cm dbh).

Table 2b. Species & diameters of some of the largest trees

Tree species	Latitude	Longitude	DBH cm
Big-leaf Maple	49.08.378	122.33.655	119
Big-leaf Maple	49.08.431	122.33.579	79
Big-leaf Maple	49.08.869	122.34.032	82
Black Cottonwood	49.08.611	122.33.891	73
Black Cottonwood	49.08.613	122.34.000	98
Black Cottonwood	49.08.453	122.33.554	167
Douglas Fir	49.08.512	122.33.795	110
Douglas Fir	49.08.435	122.33.547	109
Douglas Fir	49.08.433	122.33.566	116
Pacific Crab-apple	49.08.599	122.34.948	19
Pacific Dogwood	49.08.818	122.33.931	17
Paper Birch	49.08.413	122.33.572	54
Paper Birch	49.08.622	122.33.917	60
Paper Birch	49.08.633	122.34.024	62
Red Alder	49.08.868	122.34.084	63.5
Red Alder	49.08.671	122.34.051	75
Red Alder	49.08.611	122.33.958	73
Sitka Spruce	49.08.599	122.34.071	178
Sitka Spruce	49.08.786	122.34.145	130
Sitka Spruce	49.08.877	122.34.048	120.5
Sitka Spruce	49.08.881	122.34.046	123
Trembling Aspen	49.08.387	122.33.556	25
Western Hemlock	49.08.725	122.33.963	122
Western Hemlock	49.08.725	122.33.963	125.5
Western Hemlock	49.08.672	122.34.016	201
Western Redcedar	49.08.441	122.33.708	139
Western Redcedar	49.08.532	122.34.014	175
Western Redcedar	49.08.869	122.33.919	99
Western Redcedar	49.08.876	122.34.128	103

Dr. David A. Jordan of Trinity Western University, with student Brad Dryburgh, took tree core samples of some of the larger trees in the area west of Davidson creek in the fall of 2012. Their results are summarized in Table 2c.

At some time in the future we hope to extend the sampling to the eastern section of the site. Ages greater than 100 years came as a surprise, as this indicates some of the trees survived the forest fire that wiped out the sawmill and worker's village in 1921.

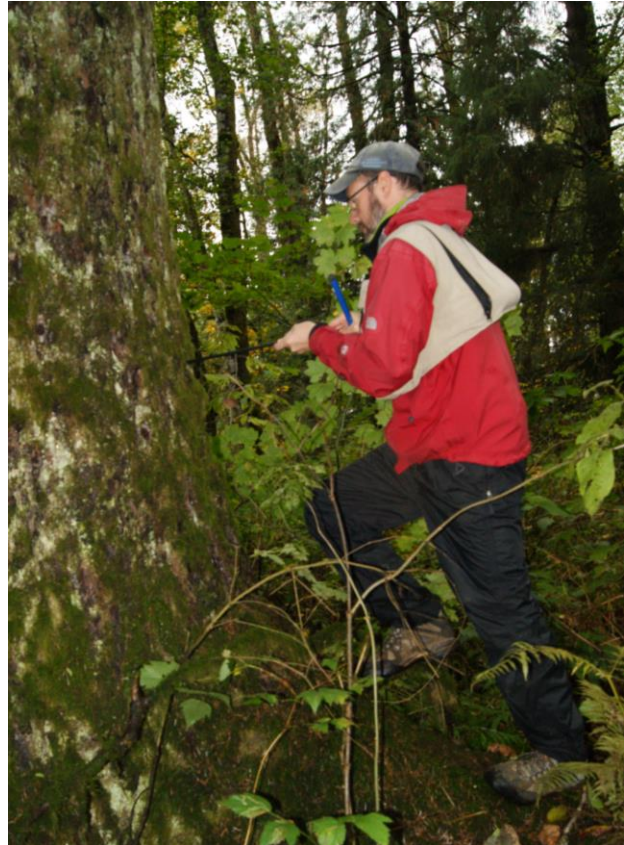


Fig.7. David Jordan taking a core sample

Table 2c. Estimated age of some of the largest trees

Species	Coordinates	Dbh (cm)	Inner Ring	Outer Ring	Age (years)	Estimated Age (years)
Black cottonwood	0531325 <u>mE</u> 5443326 <u>mN</u>	144	1910	2012	102	167
Douglas-fir	0531285 <u>mE</u> 5443205 <u>mN</u>	141.2	1891	2012	121	144
Sitka spruce #1	0531402 <u>mE</u> 5443215 <u>mN</u>	149.2	1933	2012	79	125
Sitka spruce #2	0531410 <u>mE</u> 5443469 <u>mN</u>	135.5	1934	2012	78	130
Western hemlock #1	0531453 <u>mE</u> 5443774 <u>mN</u>	139	1958	2012	54	80
Western hemlock #2	0531365 <u>mE</u> 5443371 <u>mN</u>	84.9	1917	2012	95	102
Western redcedar #1	0531466 <u>mE</u> 5443941 <u>mN</u>	137.3	1941	2012	71	106
Western redcedar #2	0531364 <u>mE</u> 5443497 <u>mN</u>	120.6	1914	2012	98	100-105

Shrubs and Small Trees

The mid and lower layers of the forest are also diverse. A total of 40 shrub and small tree species were recorded (Table 3).

Evergreen shrubs, such as Salal, Dull Oregon Grape and Trailing Blackberry, are most abundant in the higher, well-drained areas, where sufficient light filters through the canopy. On some slopes south of Davidson Creek, conifers block most of the light, resulting in little if any shrub growth.

In the moist lowlands, Salmonberry is one of the most abundant shrubs. Thickets of salmonberries attract hummingbirds in spring and many fruit-eating birds in summer.

In open areas, such as beside the railway tracks, and towards the top of the Turf farm escarpment, shrubs such as Himalayan Blackberry grow. Described by biologists as “edge habitat”, thickets of shrubs such as these provide food and cover for many species of birds and mammals.



Fig.8. Dull Oregon grape flower



Fig.9. Indian Plum fruit

Table 3: Shrubs and Small trees found on MVCS Crown Land

Shrubs and Small trees	
Vine Maple	<i>Acer circinatum</i>
Saskatoon Berry	<i>Amelanchier alnifolia</i>
Red-Osier Dogwood	<i>Cornus stolonifera</i>
Beaked Hazelnut	<i>Corylus cornuta var. californica</i>
Common Hawthorn*	<i>Crataegus monogyna</i>
Scotch Broom*	<i>Cytisus scoparius</i>
Salal	<i>Gaultheria shallon</i>
English Holly	<i>Ilex aquifolium</i>
Orange Honeysuckle	<i>Lonicera ciliosa</i>
Black Twinberry	<i>Lonicera involucrata</i>
Tall Oregon-grape	<i>Mahonia aquifolium</i>
Dull Oregon-grape	<i>Mahonia nervosa</i>
False Azalea	<i>Menziesia ferruginea</i>
Indian Plum	<i>Oemleria cerasiformis</i>
Devil's Club	<i>Oplopanax horridus</i>
Bitter Cherry	<i>Prunus emarginata</i>
Cherry Laurel	<i>Prunus laurocerasus</i>
European Oak	<i>Quercus robur</i>
Cascara	<i>Rhamnus purshiana</i>
Rhododendron sp.	<i>Rhododendron sp.</i>
Stink Current	<i>Ribes bracteosum</i>
Wild Gooseberry	<i>Ribes divaricatum</i>
Black Swamp Gooseberry	<i>Ribes lacustre</i>
Baldhip Rose	<i>Ribes viscosissimum</i>
Nootka Rose	<i>Rosa gymnocarpa</i>
Evergreen Blackberry	<i>Rosa nutkana</i>
Himalayan Blackberry	<i>Rubus discolor</i>
Thimbleberry	<i>Rubus parviflorus</i>
Salmonberry	<i>Rubus spectabilis</i>
Trailing Blackberry	<i>Rubus ursinus</i>
Hooker's Willow	<i>Salix hookeriana</i>
Pacific Willow	<i>Salix lucida</i>
Scouler's Willow	<i>Salix scouleriana</i>
Sitka Willow	<i>Salix sitchensis</i>
Red Elderberry	<i>Sambucus racemosa</i>
Mountain Ash	<i>Sorbus sp.</i>
Oakleaf Mountain Ash	<i>Sorbus x thuringiaca 'Fastigiata'</i>
Hardhack*	<i>Spirea douglasii ssp.douglasii</i>
Common Snowberry	<i>Symphoricarpos albus</i>
Red huckleberry	<i>Vaccinium parvifolium</i>

* = found only on the perimeter of the site.

Forbs

A wide variety of forbs carpets the forest floor, in both the conifer-leading and in the deciduous-leading mixed forest. The total number of species recorded, 125, are listed in Table 4.

Wildflowers such as Trillium, Pacific Bleeding Heart, and False Lily-of-the-Valley create colourful patches of blooms in the spring. Hooker's Fairybells are also relatively common.

No endangered or threatened forbs were found. Other species that were found are locally rare, such as the White Fawn Lily. The Western Tiger Lily can also become locally rare, as people like to pick it.

As on any acreage in the Lower Mainland, there are a number of introduced exotic species present, some of which can be invasive. To quote Al Grass, "it is only humans who label plants as good or bad". Some exotics benefit wildlife. For example, where native plants have been bulldozed, it may be only exotic plants that are enabling certain pollinating insects to survive.

The most worrisome exotic plants are those that spread rapidly, smother native plants, and create a mono-culture. Many of the invasives on the MVCS crown land that have come from neighbouring farms or from the railway lines, require full sunlight, and are thus limited to the perimeters (ie. Tansy Ragwort). Others were introduced by a soil deposit project that continued for 7 years at the south-west section of the blueberry farm.

There are invasives fully capable of spreading on the property. Herb Robert, found on the south side, does very well in partial shade and can thus thrive in a deciduous-leading mixed forest. Policeman's Helmet, found alongside Davidson Creek, can spread rapidly along stream banks, and has done so elsewhere in Langley (ie. along the Salmon River in Williams Park). Both of these plants may have the potential to out-compete native plants that are more beneficial to wildlife. English Ivy (listed in Table 4) can form dense mono-cultures even in complete shade, so may pose the most serious invasive threat. Cleavers is evident throughout much of the site in early Spring, but is unlikely to develop into the abundant growth found in more open spaces (i.e. farmland) where it can be a major problem. Another non-native and potentially invasive plant, found on the boundary of the turf farm and seen increasingly on field edges in Langley, is Purple Dead-nettle (*Lamium purpureum*). Reed Canary grass grows on the railway boundary wherever it is wet.

The LFN have been involved in a battle of epic proportions with an invasive plant, Yellow Archangel (*Lamium galeobdolon*), on another large forested acreage in Langley. Regrettably a small patch has been found on the MVCS crown land.

Table 4. Forbs found on MVCS Crown Land

Baneberry	<i>Actaea rubra</i>
Vanilla-Leaf	<i>Achlys triphylla</i>
Bugle (invasive)	<i>Ajuga reptans</i>
Red Root*	<i>Amaranthus retroflexus</i>
Pearly Everlasting*	<i>Anaphalis margaritacea</i>
Kneeling Angelica	<i>Angelica genuflexa</i>
Thale or Mouse-ear Cress*	<i>Arabidopsis thaliana</i>
Common Burdock*	<i>Arctium minus</i>
Great Northern Aster *	<i>Aster modestus</i>
Diverse-leaved Water-Starwort	<i>Callitriche heterophylla</i>
Evening Primrose*	<i>Camissonia biennis</i>
Shepherd's Purse*	<i>Capsella Bursa Pastoris</i>
Little Western Bitter-cress	<i>Cardamine oligosperma</i>
Angled Bitter-Cress	<i>Cardamine angulata</i>
Brewer's Bitter-cress	<i>Cardamine breweri</i>
Oaks Toothwort	<i>Cardamine nuttallii (pulcherrima)</i>
Western Bitter-cress	<i>Cardamine occidentalis</i>
Hoary Cress	<i>Cardaria draba</i>
Mouse-eared Chickweed	<i>Cerastium fontanum</i>
Lamb's Quarters*	<i>Chenopodium alba</i>
Chicory*	<i>Cichorium intybus</i>
Water Hemlock	<i>Cicuta douglasii</i>
Enchanter's Nightshade	<i>Circea alpina</i>
Canada Thistle*	<i>Cirsium arvense</i>
Bull Thistle	<i>Cirsium vulgare</i>
Miner's-lettuce	<i>Claytonia perfoliata</i>
Siberian Miner's-lettuce	<i>Claytonia sibirica</i>
Traveller's Joy	<i>Clematis vitalba</i>
Field Bindweed*	<i>Convolvulus arvensis</i>
Horseweed*	<i>Conyza canadensis</i>
Smooth Hawksbeard	<i>Crepis capillaris</i>
Hound's-Tongue*	<i>Cyanoglossum officinale</i>
Pacific Bleeding Heart	<i>Dicentra formosa</i>
Common Foxglove*	<i>Digitalis purpurea</i>
Hooker's Fairybells	<i>Disporum hookeri</i>
Fireweed*	<i>Epilobium angustifolium</i>
Purple-leaved Willowherb	<i>Epilobium ciliatum</i>
Annual Fleabane*	<i>Erigeron annuus</i>
Common Stork's-Bill*	<i>Erodium cicutarium</i>
White Fawn Lily	<i>Erythronium oregonum</i>
Tarary Buckwheat*	<i>Fagopyrum tataricum</i>

Hemp-nettle*	<i>Galeopsis tetrahit</i>
Cleavers	<i>Gallium aparine</i>
Dovefoot Geranium	<i>Geranium molle</i>
Herb-Robert	<i>Geranium robertianum</i>
Large-leaved Avens	<i>Geum macrophyllum</i>
Ground-ivy or Creeping Charlie*	<i>Glechoma hederacea</i>
Lowland Cudweed*	<i>Gnophalium palustre</i>
Long-bracted Green Orchid	<i>Habenaria viridis var bracteata</i>
English Ivy	<i>Hedera helix</i>
Slender Hawkweed*	<i>Hieracium gracile</i>
St. John's-wort*	<i>Hypericum formosum or perforatum</i>
Policeman's Helmet or Himalayan Balsam	<i>Impatiens glandulifera</i>
Wall Lettuce	<i>Lactuca muralis</i>
Prickly Lettuce*	<i>Lactuca serriola</i>
Yellow Archangel	<i>Lamium galeobdolon</i>
Purple Dead-nettle	<i>Lamium purpureum</i>
Nipplewort	<i>Lapsana communis</i>
Perennial Pea*	<i>Lathyrus latifolius or pratensis</i>
Narrow-leaved Everlasting Peavine	<i>Lathyrus sylvestris</i>
Least Duckweed	<i>Lemna minor</i>
Oxeye Daisy*	<i>Leucanthemum vulgare</i>
Tiger Lily	<i>Lilium columbianum</i>
Bird's Foot Trefoil*	<i>Lotus corniculatus</i>
Northern Water Horehound	<i>Lycopus uniflorus</i>
Skunk Cabbage	<i>Lysichiton americanum</i>
False Lily-of-the-Valley	<i>Maianthemum dilatatum</i>
Pineapple Weed*	<i>Matricaria discidea</i>
Black Medic*	<i>Medicago lupulina</i>
Alfalfa*	<i>Medicago sativa</i>
White Sweet-clover*	<i>Melilotus alba</i>
Small-flowered Forget-me-not*	<i>Myosotis laxa</i>
Mint sp.*	<i>Mentha sp.</i>
Water Cress	<i>Nasturtium officinalis</i>
Evening Primrose*	<i>Oenothera biennis</i>
Scotch Thistle	<i>Onopordum acanthium</i>
Mountain Sweet-Cicely	<i>Osmorhiza chilensis</i>
Suksdorf's Sorrel*	<i>Oxalis suksdorfii</i>
English Plantain*	<i>Plantago lanceolata</i>
Common Plantain*	<i>Plantago major</i>
Knotgrass*	<i>Polygonum aviculare</i>
Wild Buckwheat*	<i>Polygonum convolvulus</i>
Japanese Knotweed*	<i>Polygonum cuspidatum</i>
Redshank or Common Smartweed*	<i>Polygonum persicaria</i>

Self-Heal	<i>Prunella vulgaris</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Western Yellow-cress*	<i>Rorippa curvisiliqua</i>
Sheep Sorrel	<i>Rumex acetosella</i>
Broad-leaved Dock*	<i>Rumex obtusifolius</i>
Western Dock	<i>Rumex occidentallis</i>
Tansy Ragwort*	<i>Senecio jacobaea</i>
Common Groundsel*	<i>Senecio vulgaris</i>
Bladder Campion*	<i>Silene vulgaris</i>
Hedge Mustard	<i>Sisymbrium officinale</i>
False Solomon's-seal	<i>Smilacina racemosa</i>
Star-flowered False Solomon's-seal	<i>Smilacina stellata</i>
European Bittersweet*	<i>Solanum dulcamara</i>
Canada Goldenrod*	<i>Solidago canadensis</i>
Prickly Sow-thistle	<i>Sonchus asper</i>
Common Sow-thistle*	<i>Sonchus oleraceus</i>
Cooley's Hedge-nettle	<i>Stachys cooleyae</i>
Corn Spurry*	<i>Spergula arvensis</i>
Mexican Hedge-nettle*	<i>Stachys mexicana</i>
Northern Starwort*	<i>Stellaria calycantha</i>
Crisp Sandwort	<i>Stellaria crispa</i>
Chickweed*	<i>Stellaria media</i>
Clasping Twistedstalk	<i>Streptopus amplexifolius</i>
Tansy or Dune Tansy*	<i>Tanacetum bipinnatum or vulgare</i>
Dandelion*	<i>Taraxacum officinale</i>
Fringecup	<i>Tellima grandiflora</i>
Foamflower	<i>Tiarella trifoliata</i>
Youth-on-age	<i>Tolmiea menziesii</i>
Broad-leaved Starflower	<i>Trientalis latifolia</i>
Starflower	<i>Trientalis sp.</i>
Alsike Clover	<i>Trifolium Hybridum</i>
White Clover	<i>Trifolium repens</i>
Red clover*	<i>Trifolium pratense</i>
Western Trillium	<i>Trillium ovatum</i>
Stinging Nettle	<i>Urtica dioica</i>
Great Mullein	<i>Verbascum thapsus</i>
American Brooklime	<i>Veronica beccabunga ssp. Americana</i>
Thyme-leaved Speedwell	<i>Veronica serpyllifolia</i>
Tufted Vetch*	<i>Vicia cracca</i>
Hairy Vetch*	<i>Vicia hirsuta</i>
Common Vetch*	<i>Vicia sativa</i>
Yellow Wood Violet	<i>Viola glabella</i>

* = found only on the perimeter of the site

Ferns & Fern Allies

Ferns and their “allies” (ie. horsetails and clubmosses) are defined by Pojar and McKinnon as: “vascular plants (which all have internal tubes for transporting fluids) that reproduce not by seeds but by spores.” On the MVCS crown land, 8 fern, 2 horsetail and 1 clubmoss species were found (Table 5).

The most common ferns on the forest floor are sword fern, lady fern and spiny wood fern, typical of many Pacific Northwest forests. Licorice ferns are common on tree trunks, particularly bigleaf maple trunks. Bracken ferns are less common, but grow in some forest openings. Deer ferns grow in small isolated patches near the feeder creeks that flow into Davidson Creek. Several maidenhair ferns were found near one of the Clements’ trails, just north of Davidson Creek. It is not known if they were planted there or “arrived on their own”.

Common horsetails were found near the west ponds, between the railway tracks and the forest, and the lower sections of the east escarpment below the turf farm.

Table 5. Ferns & Fern Allies found on MVCS Crown Land

Ferns	
Maidenhair Fern	<i>Adiantum pedatum</i>
Lady Fern	<i>Athyrium filix-femina</i>
Deer fern	<i>Blechnum spicant</i>
Spiny Wood Fern	<i>Dryopteris expansa</i>
Oak Fern	<i>Gymnocarpium dryopteris</i>
Licorice Fern	<i>Polypodium glycyrrhiza</i>
Sword Fern	<i>Polystichum munitum</i>
Bracken Fern	<i>Pteridium aquilinum</i>

Horsetails	
Common Horsetail	<i>Equisetum arvense</i>
Giant Horsetail	<i>Equisetum telmatica</i>

Clubmosses	
Running Clubmoss or Snakemoss	<i>Lycopodium clavatum</i>



Fig. 10. Ferns, Horsetails, Grasses, Sedges and Rushes
(Top left clockwise) Spiny Wood fern, Maidenhair Fern, Tule sedge, Giant Horsetail.
(Bottom left to right) Sweet Vernal Grass, Tapered Rush, Slender Rush.



Grasses, Sedges and Rushes

No grasses, sedges or rushes are prevalent on the site due to shading from the forest. The most densely populated area is the low lying land adjoining the creek in the north-westerly section and along the railway/forest border. The invasive Reed-canary grass is well established there and competes with the native Stinging nettles.

Sedges were found in small clumps, or as individual plants, scattered along the survey trails throughout the site.

Table 6. Grasses, Sedges and Rushes found on MVCS Crown Land

Grasses, Sedges and Rushes		
Grasses	Bentgrass	<i>Agrostis sp.</i>
	Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>
	Alaska Brome*	<i>Bromus sitchensis</i>
	Wood Reedgrass	<i>Cinna latifolia</i>
	Orchard Grass*	<i>Dactylis glomerata</i>
	Hairy Crabgrass	<i>Digitaria sanguinalis</i>
	Barnyard Grass*	<i>Echinochloa crusgalli</i>
	Western Fescue	<i>Festuca occidentalis</i>
	Tall (Reed) Mannagrass*	<i>Glyceria grandis</i>
	Yorkshire Fog*	<i>Holcus lanatus</i>
	Perennial Ryegrass*	<i>Lolium perenne</i>
	Reed Canary Grass	<i>Phalaris arundinacea</i>
	Timothy Grass	<i>Phleum pratense</i>
	Annual Meadowgrass	<i>Poa annua</i>
Kentucky Bluegrass*	<i>Poa pratensis</i>	
Sedges	Dewey's Sedge	<i>Carex deweyana</i>
	Soft-leaved Sedge	<i>Carex disperma</i>
	Smooth Sedge	<i>Carex laeviculmis</i>
	Falkland Island Sedge	<i>Carex macloviana</i>
	Tule or Hard-stemmed Bulrush	<i>Scirpus lacustris</i>
	Small-flowered Bulrush	<i>Scirpus microcarpus</i>
	Cattail or Reedmace	<i>Typha latifolia</i>
Barren Fescue*	<i>Vulpia bromoides</i>	
Rushes	Tapered Rush	<i>Juncus acuminatus</i>
	Common Rush	<i>Juncus effusus</i>
	Slender Rush*	<i>Juncus tenuis</i>

Mosses & Liverworts

A high diversity of mosses and liverworts occurs on the site. The number of species documented was 51 mosses and 17 liverworts (Tables 7a & b).

Some of the mosses are widespread, occurring throughout much of the forest (i.e. wavy-leaved cotton moss, lanky moss and the *Mnium* family). Other mosses are less common and more localized on the property (i.e. step moss and crane's-bills). Tree limbs completely covered with cat-tail moss (*Isoetecium myosuroides*) are a common sight in the woods. One red- listed species, Roell's Brotherella moss (*Brotherella roellii*), was found on an old Douglas-fir stump by P. Henderson.

The liverworts found were found mostly in damp, shady areas on tree trunks or stumps.

Fig. 11. (Top left clockwise)
Oligotrichum parallelum, *Ceratodon purpureus*, *Plagiomnium insigne*, *Dicranoweisia cirrata*.



Table 7a. Mosses found on MVCS Crown Land

Mosses	
Creeping Feathermoss	<i>Amblystegium serpens</i>
Lapland Amphidium Moss	<i>Amphidium lapponicum</i>
Crane's-bill Moss	<i>Atrichum selwynii</i>
Crane's-bill	<i>Atrichum undulatum</i>
Golden Short-capsuled Moss	<i>Brachythecium frigidum</i>
Roell's Brotherella	<i>Brotherella roellii</i>
Wavy-leaved Cotton Moss	<i>Buckiella undulata</i>
Fire or Red-roof Moss	<i>Ceratodon purpureus</i>
Rough Moss	<i>Claopodium crispifolium</i>
Tree Climacium Moss	<i>Climacium dendroides</i>
Silky Forklet-moss	<i>Dicranella heteromalla</i>
Curly Thatch Moss	<i>Dicranoweisia cirrata</i>
Curly Heron's-Bill Moss	<i>Dicranum fuscescens</i>
Dusky Fork Moss	<i>Dicranum scoparium</i>
Dicranum Moss	<i>Dicranum tauricum</i>
Sickle Moss	<i>Drepanocladus uncinatus</i>
Willow Moss	<i>Fontinalis antipyretica</i>
Cord Moss	<i>Funaria hygrometrica</i>
Tangle Moss	<i>Heterocladium procurrens</i>
Clear Moss	<i>Hookeria lucens</i>
Golden Curl-moss	<i>Homalothecium aeneum</i>
Yellow Curl-moss	<i>Homalothecium fulgescens</i>
Nuttall's Homalothecium Moss	<i>Homalothecium nuttallii</i>
Step Moss	<i>Hylocomium splendens</i>
Coiled-leaf Moss	<i>Hypnum circinale</i>
Curly Hypnum	<i>Hypnum subimponens</i>
Cat-tail (Thread) Moss	<i>Isothecium myosuroides</i>
Oregon Beaked Moss	<i>Kindergia oregana</i>
Menzies' Palm Tree Moss	<i>Leucolepsis acanthoneuron (menziesii)</i>
Menzies' Neckera	<i>Metaneckera menziesii</i>
Douglas' Neckera Moss	<i>Neckera douglasii</i>
Wahlenberg's Spur-moss	<i>Oncophorus wahlenbergii</i>
Lyell's Bristle-moss	<i>Orthotrichum lyellii</i>
Shaw's Bristle-moss	<i>Orthotrichum speciosum</i>
Small Hair Moss	<i>Oligotrichum aligerum</i>
Large Hair Moss	<i>Oligotrichum parallelum</i>
Fountain Apple-moss	<i>Philonotis fontana</i>
Badge Moss	<i>Plagiomnium insigne</i>

Mosses, continued

Magnificent Moss	<i>Plagiomnium venustum</i>
Red-stemmed Feathermoss	<i>Pleurozium schreberi</i>
Awned Hair Cap Moss	<i>Polytrichum piliferum</i>
Fan Moss	<i>Rhizomnium glabrescens</i>
Hairy Lantern Moss	<i>Rhizomnium magnifolium</i>
Lanky Moss	<i>Rhytidiadelphus loreus</i>
Goose-necked Moss (Electrified cat tail)	<i>Rhytidiadelphus triquetrus</i>
Pipecleaner Moss	<i>Rhytidiopsis robusta</i>
Tetraphis Moss	<i>Tetraphis pellucida</i>
False-polytrichum	<i>Timmia austriaca</i>
Hairy Screw Moss	<i>Tortula ruralis</i>
Twisted Ulota	<i>Ulota obtusiuscula</i>



Fig. 12. Mosses

(Top left)
Buckiella undulata



(Top right)
Metaneckera menziesii



(Bottom left)
Leucolepsis menziesii

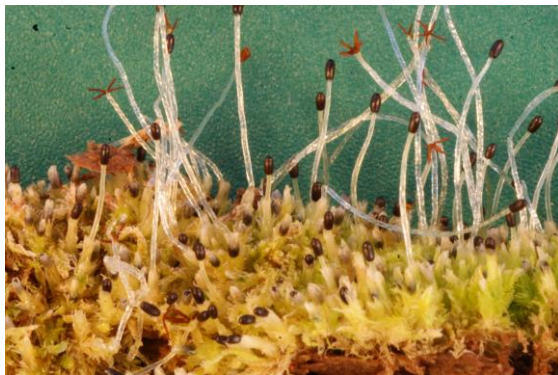


(Bottom right)
Neckera douglasii

Table 7b. Liverworts found on MVCS Crown Land

Liverworts	
Downy Veilwort	<i>Apometzgeria pubescens</i>
Three-toothed whip Liverwort	<i>Bazzania denudata</i>
Common Threadwort	<i>Cephaloziella divaricata</i>
Chiloscyphus Liverwort	<i>Chiloscyphus corda</i>
Hanging Millipede Liverwort	<i>Frullania nisquallensis</i>
Autumn Flapwort	<i>Jamesoniella autumnalis</i>
Jungermannia Liverwort	<i>Jungermannia sp.</i>
Little Hands Liverwort	<i>Lepidozia reptans</i>
Variable-leaved Crestwort	<i>Lophocolea cuspidata</i>
Veilwort	<i>Metzgeria conjugata</i>
Ladder Flapwort	<i>Nardia scalaris</i>
Ring Pellia	<i>Pellia neesiana</i>
Lesser Featherwort	<i>Plagiochila porelloides</i>
Cliff Scalewort	<i>Porella cordaeana</i>
Tree-ruffle Liverwort	<i>Porella navicularis</i>
Radula Liverwort	<i>Radula sp.</i>
Yellow-ladle Liverwort	<i>Scapania bolanderi</i>

Fig. 13. Liverworts (Top left clockwise)
Bazzania denudata. *Cephaloziella divaricata*. *Porella navicularis*. *Pellia neesiana*.



Algae, Diatoms, Protozoa and Bacteria

Algae, Diatoms and Protozoa were found in various stagnant pools, ponds or puddles during the wet seasons. Identification was limited by our expertise and likely many more species could be found by experts. Bacteria were not cultured but a couple of disease caused by bacterial were noted; Cane Gall (on Blackberry) *Agrobacterium rubi* and Bacterial Wetwood caused by a mixture of bacteria of which the instigator has not yet been recorded.

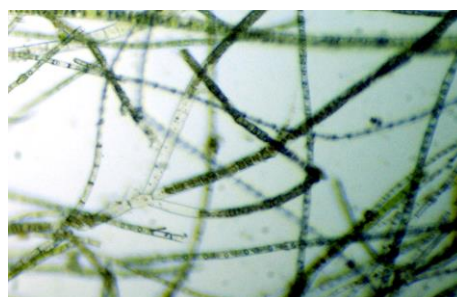
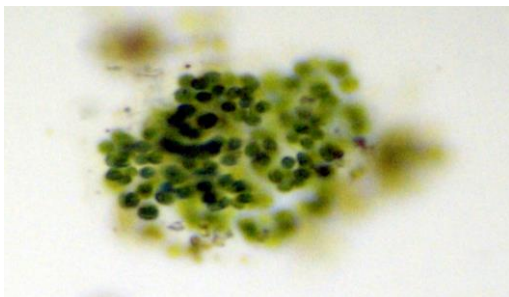
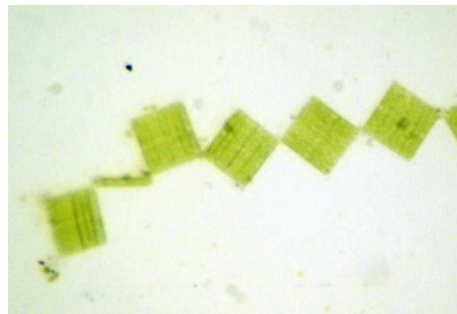
Table 8. Algae found on MVCS Crown Land

Algae	
Green Algae - (single cell banana shaped)	<i>Actinastrum sp.</i>
Filamentous Green Algae	<i>Anabaena sp.</i>
Colonial mucilage Blue-green Algae	<i>Aphanocapsa sp</i>
Single cell with radiating spines	<i>Chaetophora sp.</i>
Green Algae	<i>Chlamydomona sp.</i>
Cyanobacterium	<i>Chroococcus sp.</i>
Filamentous Green Algae	<i>Cladospora sp. (Mougeotia?)</i>
Green Algae - (microscopic single cell)	<i>Closterium sp</i>
Colonial Mucilage Green Algae	<i>Dictyosphaerium sp.</i>
Green Algae	<i>Draparnaldia sp.</i>
Green Algae - (urn shaped)	<i>Dynobryon sp.</i>
Cyanobacterium	<i>Gloeotrichia sp.</i>
Colonial Mucilage Algae	<i>Microcystis sp. (flos-aquae?)</i>
Green Algae	<i>Netrium sp.</i>
Green Algae - (coiled)	<i>Ophiocytium sp.</i>
Flat, leaf-shaped unicellular Algae	<i>Phacus sp.</i>
Single cell Algae	<i>Pleurotaenium</i>
Unicellular Green Algae	<i>Scenedesmus dimorphus</i>
Filamentous Charophyte Green Algae	<i>Spirogyra sp.</i>
Filamentous Green Algae	<i>Stigeoclonium sp.</i>
Blue-green Algae	<i>Stigonema</i>
Unidentified Algae 1 - Apr.2015	?
Algae	<i>Trachelomonas sp.(hispidia?)</i>
Green Algae	<i>Trochiskia sp.</i>
Planktonic Green Algae	?
Filamentous Hair Algae	?

Protozoa	
Protozoan	<i>Acanthocystis sp.</i>
Protozoan	<i>Didinium</i>
Protozoan	<i>Diffugia</i>
Protozoan - (microscopic single cell)	<i>Euglena sp.1</i>
Protozoan - (microscopic single cell)	<i>Euglena sp.2</i>
Protozoan	<i>Frontonia sp.</i>

Diatoms (microalgae)	
Diatom	<i>Fragilaria sp.</i>
Diatom	<i>Pinnularia sp.</i>
Diatom	<i>Synedra sp.</i>
Diatom	<i>Tabellaria sp.</i>
Diatom	<i>Hyalodiscus</i>
Diatom	<i>Melosira varians</i>

Fig. 14. Algae (Top left clockwise)
Closterium sp., *Anabaena sp.*, *Stigeoclonium sp.*, *Microcystis sp.*



Lichens

Lichens are abundant on the site, occurring on bark, branches, logs, soil and leaf litter. No large exposed rocks were found on the property, so lichens requiring a rock substrate were not observed. A total of 72 species have been identified to date (Table 8b). Species in this table are grouped according to growth forms listed by Pojar and McKinnon (2004): Dust, Club, Crust, Scale, Leaf, Shrub and Hair. They were identified visually, without chemical assistance and samples were collected as voucher samples, but have not yet been submitted and verified.

The group with the most species found was the Leaf (aka foliose) group. No B.C. lichens listed by E-Flora as being threatened or endangered were found, but there are few lichenologists in our province and much that is unknown. One species of invasive lichen was found, the Yellow scale or Sunburst lichen (*Xanthoria parietina*). This lichen arrived in B.C. from the U.S.A. and has spread rapidly in southwestern B.C. in recent years (T. Goward, pers. comm.). It is highly tolerant of pollution, so can live in urban as well as rural areas.

Fig. 15. Lichens

(Top left) *Graphis scripta* (Top right) *Cladonia deformis*
(Bottom left) *Leptogium saturninum* (Bottom right) *Hypogymnia inactiva*



Table 8b. Lichens found on MVCS Crown Land

Dust Lichens	Gold Dust Lichen Fluffy Dust Lichen (green) Fluffy Dust Lichen (grey) Dust Lichen Red Dust Lichen	<i>Chrysothrix candelaris</i> <i>Lepraria lobificans</i> <i>Lepraria pacifica</i> <i>Lepraria sp.</i> <i>Unidentified</i>
Club Lichens	Pixie-cup Lichen Lipstick Cladonia Cup Lichen Common Powderhorn Lesser Sulphur-cup Finger Pixie-cup Trumpet Lichen Smooth Cladonia Lipstick Powderhorn Pixie-cup Lichen Lipstick Cladonia Cup Lichen Mealy Forked Cladonia Dragon Cladonia Cladonia Scales Thorn Cladonia Mealy Forked Cladonia	<i>Cladonia asahinae</i> <i>Cladonia bacillaris</i> <i>Cladonia bellidiflora</i> <i>Cladonia coniocerea</i> <i>Cladonia deformis</i> <i>Cladonia digitata</i> <i>Cladonia fimbriata</i> <i>Cladonia gracilis</i> <i>Cladonia macilenta</i> <i>Cladonia asahinae</i> <i>Cladonia bacillaris</i> <i>Cladonia bellidiflora</i> <i>Cladonia scabriuscula</i> <i>Cladonia squamosa</i> <i>Cladonia sp.</i> <i>Cladonia uncialis</i> <i>Cladonia scabriuscula</i>
Crust Lichens	Tiny Button Lichen Common Button Lichen Button Lichen Gray-rimmed Firedot Lichen Hidden Goldspeck Lichen Common Goldspeck Lichen Pencil Script (on Red Alder bark) Northern Crimson Dot Lichen Lecidella Lichen (Green Lichen) Ragged Wart Lichen Bark Barnacle	<i>Buellia punctata</i> <i>Buellia stillingiana</i> <i>Buellia sp.(punctata)</i> <i>Caloplaca cerina</i> <i>Candelariella aurela</i> <i>Candelariella vitellina</i> <i>Graphis scripta</i> <i>Lecidea cinnabarina</i> <i>Lecidella euphorea</i> <i>Melanelia sp.</i> <i>Pertusaria ophthalmiza</i> <i>Thelotrema lepadinum</i>
Leaf (foliose) Lichens	Fruiting Honeycomb Lichen Gilded Sunshine Antlered Perfume Lichen Speckled Greenshield Forking Bone Lichen Deflated Tube Lichen	<i>Cavernularia lophyrea</i> <i>Cetraria (Vulpicida) pinastri</i> <i>Evernia prunastri</i> <i>Flavopunctelia flaventior</i> <i>Hypogymnia inactiva</i> <i>Hypogymnia metaphysodes</i>

Leaf Lichens, continued	Hooded Bone Lichen	<i>Hypogymnia physodes</i>
	Fairy Puke Lichen	<i>Icmadophila ericetorum</i>
	Multicolored Rim Lichen	<i>Lecanora pacifica</i>
	Bearded Jelly-skin Lichen	<i>Leptogium saturninum</i>
	Lettuce Lung Lichen	<i>Lobaria oregana</i>
	Lungwort, Lung Lichen	<i>Lobaria pulmonaria</i>
	Tree-flute Lichen (holes in leaves)	<i>Menegazzia massal</i>
	Naked Kidney Lichen	<i>Nephroma bellum</i>
	Pimpled Kidney	<i>Nephroma resupinatum</i>
	Smooth Saucer Lichen	<i>Ochrolechia laevigata</i>
	Tundra Saucer Lichen	<i>Ochrolechia upsaliensis</i>
	Green-pea Mushroom Lichen	<i>Omphalina umbellifera</i>
	Gingerbread	<i>Pannaria mediterranea</i>
	Granulating Crottle	<i>Parmelia hygrophila</i>
	Wax-paper Lichen	<i>Parmelia sulcata</i>
	Dog Lichen	<i>Peltigera canina</i>
	Membranous Dog-lichen	<i>Peltigera membranacea</i>
	Frog Pelt Lichen	<i>Peltigera neopolydactyla</i>
	Whitewash Lichen	<i>Phlyctis argena</i>
	Treelfute Lichen (holes in leaves)	<i>Physcia semipinnata</i>
	Hoodless Rosette	<i>Physcia tenella</i>
	Ragbag Lichen	<i>Platismatia glauca</i>
	Tattered Rag Lichen	<i>Platismatia herrei</i>
	Dotted Ramalina	<i>Ramalina farinacae</i>
	Woolly Foam Lichen	<i>Stereocaulon tomentosum</i>
	Pin Lichen	<i>Stenocybe pullatula</i>
	Peppered Moon	<i>Sticta fuliginosa</i>
Hooded Sunburst Lichen	<i>Xanthoria fallax</i>	
Sunburst Lichen	<i>Xanthoria parietina</i>	
Pincushion Orange Lichen	<i>Xanthoria polycarpa</i>	
Shrub Lichens	Mealy Shadow Lichen	<i>Phaeophyscia orbicularis</i>
	Blood-spattered Beard	<i>Usnea wirthii</i>
Hair Lichens	Seaside Beard	<i>Usnea esperantiana</i>
	Lustrous Beard	<i>Usnea glabrata</i>
	Methuselah's Beard	<i>Usnea longissima</i>

Fungi

A remarkable diversity of fungi was found on the property, with new species appearing every month of the year. Also new species appeared every year, while others did not reappear over the duration of the study. The total number of species recorded was 405. These can be divided into 12 broad groups (Table 9). Among these groups, white-spored gilled fungi were most numerous, with 152 species. Table 10 (pages 44 to 56) lists all of the species found under each group heading. Common names are included for species that have them.

No attempt was made to document the multitude of microfungi on the property, although one species (*Encoelia furfuracea*) was identified on the root of a Red Alder tree. All native trees and most other native vascular plants in the Pacific Northwest have been found to have microfungi on their roots (F. Bunnell, pers. comm.). This is a symbiotic relationship that in most cases benefits both the plant and the fungus. The fungi help the plant's roots to absorb minerals and water from the soil and in return the fungi receive energy (carbohydrates) from the plant. To further highlight how much of a challenge documenting the microfungi would be, scientists have found several dozen species of microfungi on and inside a single conifer needle.

Although most microfungi are unseen, they are nonetheless vitally important in the ecosystem. As well as helping vascular plants grow, they have another key role: decomposition. Without fungi, we would soon be "buried" in plant and animal matter that could not decompose. Fungi are also a major food item for MVCS crown land animals such as the Northern Flying Squirrel.

Table 9. Broad groups of Fungi found on MVCS Crown Land

Fungi	
Fungi: white-spored gilled	152
Fungi: brown-spored gilled	43
Fungi: dark-spored gilled	16
Fungi: pink-spored gilled	4
Fungi: bolete	6
Fungi: polypore & tooth	43
Fungi: jelly type	15
Fungi: coral & club	14
Fungi: morels & false morels	2
Fungi: cup	18
Fungi: crust & slime	48
Fungi: bird's nest	2
Fungi: puffballs & earthstars	12
Fungi: other types	30
Total number of fungal species	405

Table 10. Fungi found on MVCS Crown Land

White-spored Gilled Mushrooms	
	<i>Amanita augusta</i>
Gemmed or Jonquil Amanita	<i>Amanita gemmata</i>
Fly Agaric	<i>Amanita muscaria</i>
Death Cup	<i>Amanita phalloides</i>
Smith's Amanita	<i>Amanita smithiana</i>
Grisette	<i>Amanita vaginata</i>
Honey Mushroom	<i>Armillaria bulbosa (gallica)</i>
Violet Webcap	<i>Armillaria mellea (hinnulea) or Cortinarius violaceus</i>
Honey Mushroom	<i>Armillaria mellea complex</i>
Honey Mushroom (white spored)	<i>Armillaria nabsnona</i>
Honey Mushroom	<i>Armillaria ostoyae</i>
Conifercone Cap (on Sitka Spruce cone)	<i>Baeospora myosura</i>
Snowy Waxcap	<i>Camarophyllus virgineus</i>
Chanterelle	<i>Cantharellus cibarius</i>
Shaggy Parasol	<i>Chlorophyllum brunneum</i>
Olivier's Shaggy Parasol	<i>Chlorophyllum olivieri</i>
Shaggy Parasol	<i>Chlorophyllum rachodes</i>
	<i>Chrysomphalina aurantiaca</i>
	<i>Chrysomphalina grossula</i>
	<i>Clitocybe albirhiza</i>
	<i>Clitocybe avellaneialba</i>
Black-and-white Clitocybula	<i>Clitocybe atrialba</i>
	<i>Clitocybe diatreta.</i>
Crowded White Clitocybe	<i>Clitocybe dilatata</i>
Clubfooted Clitocybe	<i>Clitocybe clavipes</i>
Funnel Cap	<i>Clytocibe gibba</i>
	<i>Clitocybe intermedia</i>
Cloudy Clitocybe	<i>Clitocybe nebularis</i>
	<i>Clitocybe sclerotoidea</i>
	<i>Clitocybe sinopica</i>
	<i>Clitocybe geotropa</i>
	<i>Clitocybula atrialba</i>
Clustered Collybia	<i>Collybia acervata</i>
Buttery Collybia	<i>Collybia butyracea</i>
Piggyback Shanklet Hairy-rooted Collybia	<i>Collybia cirrhata</i>
Oak-loving Collybia	<i>Collybia dryophila</i>
Mushroom-loving Collybia	<i>Collybia tuberosa</i>
Headlike Cordyceps	<i>Cordyceps capitata</i>
Golden Scruffy Collybia	<i>Cyptotrampa asprata (Collybia lacunosa)</i>

White-spored Gilled Mushrooms, continued	
Winter Chanterelle	<i>Craterellus tubaeformis</i>
	<i>Crepidotus herbarum</i>
Clustered Collybia	<i>Gymnopus acervatus</i>
Oak-loving Collybia (Russet Toughshank)	<i>Gymnopus dryophilus</i>
	<i>Gymnophus erythropus</i>
Wood Woollyfoot	<i>Gymnopus, Marasmius or Collybia peronatus</i>
Wood Woollyfoot	<i>Gymnopus peronatus</i>
	<i>Gymnopus striatipes (Collybia cylindrospora)</i>
(Tiny white mushroom)	<i>Hemimycena (Omphalia, Mycena) candida</i>
Shoehorn Oyster Mushroom	<i>Hohenbuehelia petaloides group (formerly Pleurotus)</i>
Witch's Hat	<i>Hygrocybe conica</i>
Vermilion Waxcap	<i>Hygrocybe miniata</i>
Scarlet Waxy Cap	<i>Hygrocybe punicea</i>
False Chanterelle	<i>Hygrophoropsis aurantiaca</i>
	<i>Hygrophoropsis morganii</i>
Tawny Almond Waxy Cap	<i>Hygrophorus bakerensis</i>
Ivory Waxy Cap	<i>Hygrophorus chrysodon</i>
Inocybe-like Waxy Cap	<i>Hygrophorus inocybiformis</i>
	<i>Hygrophorus limacinus</i>
	<i>Inocybe assimilata</i>
Common Laccaria	<i>Laccaria bicolor</i>
	<i>Laccaria montana</i>
Golden Milkcap	<i>Lactarius alnicola</i>
	<i>Lactarius aquifluus</i>
Kauffman's Milk Cap	<i>Lactarius kauffmanii</i>
Orange Milky Cap	<i>Lactarius luculentus</i>
	<i>Lactarius occidentalis</i>
	<i>Lactarius olympianus</i>
	<i>Lactarius pallescens</i>
Ugly Milk-cap	<i>Lactarius plumbeus (turpis)</i>
	<i>Lactarius pseudomucidus</i>
Red Hot Milk Cap	<i>Lactarius rufus</i>
Orange Milk Cap	<i>Lactarius subflammeus</i>
	<i>Lactarius sp.</i>
	<i>Lentinellus montanus</i>
	<i>Lentinellus ursinus</i>
Black-eyed Parasol	<i>Lepiota atrodisca</i>
Stinking Parasol	<i>Lepiota cristata</i>
	<i>Lepiota decorata</i>
Smooth Lepiota	<i>Lepiota naucina</i>
Parasol	<i>Lepiota procera</i>

White-spored Gilled Mushrooms, continued

Shaggy Parasol	<i>Lepiota rachodes</i> <i>Lepiota rubrotincta</i> (rubrotinctoides)
Skullcap Dapperling	<i>Leucocoprinus brebissonii</i>
Bitter False Paxillus	<i>Leucopaxillus amarus</i>
Large White Leucopaxillus	<i>Leucopaxillus albissimus</i> <i>Lichenomphalia umbelifera</i>
Fried Chicken Mushroom	<i>Lycophyllum decastes</i> <i>Marasmiellus candidus</i>
Fairy Ring Mushroom	<i>Marasmius oreades</i>
Pleated Marasmius	<i>Marasmius plicatulus</i>
Garlic Parachute	<i>Marasmius scorodonius</i>
Orange Pinwheel	<i>Marasmius siccus</i> <i>Mycena acicula</i>
Scarlet Mycena	<i>Mycena adonis</i> <i>Mycena amabilissima</i> <i>Mycena aurantiomarginata</i> <i>Mycena aurantiidisca</i> <i>Mycena citrinomarginata</i>
Bark Mycena	<i>Mycena clavicularis</i>
Delicate mycena (Smith cap)	<i>Mycena delicatella</i>
(Yellow Stemmed Mycena)	<i>Mycena epipterygia</i> <i>Mycena fragillima</i>
Common Bonnet	<i>Mycena galericulata</i> <i>Mycena griseoviridis</i>
Bleeding Mycena	<i>Mycena haematopus</i> <i>Mycena inclinata</i>
Mycena sp. (on Big-leaf Maple seed)	<i>Mycena sp. unclassified</i> <i>Mycena oregonensis</i> <i>Mycena maculata</i>
Fairy Bonnet	<i>Mycena pura</i> <i>Mycena sanguinolenta</i> <i>Mycena sp. unclassified</i>
Fairy Bonnet	<i>Mycena sp.</i>
Brown Fairy Bonnet	<i>Mycena stipata</i> <i>Mycena strobilinoides</i>
Mycena sp.	<i>Mycena sp (stylobates)</i> <i>Myxomphalia maura</i>
Lichen Agaric	<i>Omphalina ericetorum</i> or <i>Lichenomphalia umbelifera</i>
Western Jack O' Lantern	<i>Omphalotus olivascens</i>
False Oyster Mushroom	<i>Panellus mitis</i> <i>Panellus longinquus</i>
Late Oyster Mushroom	<i>Panellus serotinus</i>

White-spored Gilled Mushrooms, continued

Oyster Mushroom	<i>Pleurotus ostreatus</i>
Angel Wings Mushroom	<i>Pleurotus porrigens</i>
Angel Wings Mushroom	<i>Pleurotus populinus</i>
Angel Wings Mushroom	<i>Pleurotus pulmonarius</i>
	<i>Resinomycecia rhododendri</i>
Buttery Collybia	<i>Rhodocollybia butyracea</i>
Spotted Toughshank	<i>Rhodocollybia maculata</i>
Winecork Brittlegill	<i>Russula adusta</i>
Cascade Russula	<i>Russula cascadenis</i>
Bicolored Russula	<i>Russula bicolor</i>
Short-stemmed Russula	<i>Russula brevipes</i>
	<i>Russula crassotunicata</i>
Fragile Brittlegill	<i>Russula fragilis</i>
	<i>Russula raoultii</i>
Rosy Russula	<i>Russula sanguinea</i>
Crab Brittlegill	<i>Russula xerampelina</i>
Fircone Cap	<i>Strobilurus trullisatus</i>
White Knight	<i>Tricholoma album</i>
Booted Tricholoma	<i>Tricholoma caligatum</i>
	<i>Tricholoma flavobrunneum</i>
Booted Knight	<i>Tricholoma focale</i>
	<i>Tricholoma imbricatum</i>
	<i>Tricholoma inamoenum</i>
Spotted Tricholoma	<i>Tricholoma pardinum</i>
Red-brown tricholoma	<i>Tricholoma pessundatum</i>
	<i>Tricholoma populinum</i>
	<i>Tricholoma saponaceum</i>
Russet Scaly Tricholoma	<i>Tricholoma vaccinium</i>
Streaked Tricholoma	<i>Tricholoma virgatum</i>
Golden Trumpet	<i>Xeromphalina campanella</i>

Fig. 19. (Left) *Amanita muscaria*, (Right) *Pleurotus porrigens*



Brown-spored Gilled Mushrooms	
Acute Webcap	<i>Cortinarius acutus</i>
	<i>Conocybe aurea</i>
Pearly Webcap	<i>Cortinarius alboviolaceus</i>
	<i>Cortinarius anomalus</i>
	<i>Cortinarius aurantiobasis</i>
	<i>Cortinarius brunneus</i>
Dog Cortinarius	<i>Cortinarius caninus</i>
Cinnamon Cortinarius	<i>Cortinarius cinnamomeus</i>
Scaly Cortinarius	<i>Cortinarius cotoneus or clandestinus</i>
	<i>Cortinarius gladicolor</i>
	<i>Cortinarius laniger</i>
	<i>Cortinarius lilacinus</i>
Purple-staining Cortinarius	<i>Cortinarius mutabilis</i>
	<i>Cortinarius obtusus</i>
	<i>Cortinarius riederi</i>
	<i>Cortinarius sp.</i>
	<i>Cortinarius vibratilis</i>
Flat Crep	<i>Crepidotus applanatus</i>
Peeling Oysterling	<i>Crepidotus mollis</i>
	<i>Galerina sp.</i>
	<i>Gymnopilus bellulus</i>
Common Rustgill	<i>Gymnopilus penetrans</i>
Big Laughing Gym	<i>Gymnopilus ventricosus</i>
Poisonpie	<i>Hebeloma incarnatum or crustuliniforme</i>
Inocybe sp.	<i>Inocybe fastigiata?</i>
White Fibrecap	<i>Inocybe geophylla</i>
	<i>Inocybe hirsuta var. maxima</i>
	<i>Inocybe mixtilis</i>
	<i>Inocybe pusio</i>
	<i>Inocybe sp.</i>
	<i>Melanophyllum haematospermum</i>
Velvet-footed Pax	<i>Paxillus atrotomentosus</i>
Inrolled (Common) Paxillus	<i>Paxillus involutus</i>
	<i>Phaeocollybia attenuata</i>
Gilled Bolete	<i>Phylloporus (Paxillus) rhodoxanthus</i>
Alder Scalycap	<i>Pholiota alnicola</i>
	<i>Pholiota astragalina</i>
Golden Pholiota	<i>Pholiota aurivella</i>
Lubricous Pholiota group	<i>Pholiota decorata</i>
Flaming Pholiota	<i>Pholiota flammans</i>
Bristly Pholiota	<i>Pholiota squarrosoides</i>
	<i>Psilocybe corneipes</i>



Fig. 20 (Top left clockwise)

- Pholiota squarrosoides*
- Stropharia ambigua*
- Fomes fomentarius*
- Dacrymyces palmatus*
- Pluteus cervinus*
- Verpa bohemica*



Dark-spored Gilled Mushrooms	
Prince Mushroom	<i>Agaricus augustus</i>
Inky Mushroom	<i>Agaricus moelleri</i>
Pine Spike	<i>Chroogomphus vinicolor</i>
Wooly Inkcap	<i>Coprinopsis lagopus</i>
Inky Cap	<i>Coprinus atramentarius</i>
Mica Cap or Glistening Inkcap	<i>Coprinus micaceus</i>
Japanese Umbrella Inky	<i>Coprinus plicatilis</i>
Smokey-gilled Woodlover	<i>Hypholoma capnoides</i>
Sulphur Tuft Mushroom	<i>Hypholoma fasciculare</i>
	<i>Naemataloma (Hypholoma) sp.</i>
	<i>Psathyrella candolleana</i>
	<i>Psathyrella caput-medusae</i>
Conifer Psilocybe	<i>Psilocybe pelliculosa</i>
	<i>Psilocybe pelliculosa</i>
Questionable Stropharia	<i>Stropharia ambigua</i>
Conifer Roundhead	<i>Stropharia hornemannii</i>

Pink-spored Gilled Mushrooms	
Livid Entoloma	<i>Entoloma lividum</i>
Steel-blue Entoloma	<i>Entoloma nitidum</i>
Deer Mushroom	<i>Pluteus cervinus</i>
Fawn Mushroom	<i>Pluteus cervinus var.alba</i>

Bolete Mushrooms	
Yellow-Fleshed Boletus	<i>Boletus chrysenteron</i>
Ruby Bolete	<i>Boletus rubellus</i>
Bolete Mushroom	<i>Boletus smithii</i>
Bitter Bolete	<i>Boletus sp.</i>
Short-stemmed Slippery Jack	<i>Suillus brevipes</i>
Blue-staining Slippery Jack	<i>Suillus tormentosus</i>

Polypore Fungi & Tooth Fungi

Bondarzew's Polypore	<i>Bondarzewia montana (mesenterica)</i>
Tiger's Eye	<i>Coltricia perenis</i>
Beefsteak Fungus	<i>Fistulina hepatica</i>
Tinder Polypore	<i>Fomes fomentarius</i>
Larch Polypore	<i>Fomitopsis officinalis</i>
Red-belted Conk	<i>Fomitopsis pinicola</i>
Artist's Conk	<i>Ganoderma applanatum</i>
Varnished Conk	<i>Ganoderma lucidum</i>
Varnished Conk	<i>Ganoderma oregonense</i>
Rusty-gilled Polypore	<i>Gloeophyllum saepiarium</i>
Conifer Coral Hericium	<i>Hericium abietis</i>
Conifer-base Polypore	<i>Heterobasidion annosum</i>
Orange Hydnellum (Tooth fungi)	<i>Hydnellum aurantiacum</i>
Hedgehog Mushroom	<i>Hydnum repandum</i>
Chicken-of-the-Woods	<i>Laetiporus gilbertsonii</i>
Sulphur Shelf	<i>Laetiporus sulphureus(conifericola)</i>
Multicolor Gill Polypore	<i>Lenzites betulina</i>
White Marasmius	<i>Marasmiellus canidus</i>
Dyer's Polypore	<i>Phaeolus schweinitzii</i>
False Tinder Polypore	<i>Phellinus igniarius</i>
	<i>Phellodon tomentosus</i>
Jelly Bracket	<i>Phlebia tremellosa</i>
Birch Polypore	<i>Piptoporus betulinus</i>
Black-footed Polypore	<i>Polyporus badius</i>
Cinnabar Polypore	<i>Polyporus cinnabarinus</i>
Elegant Polypore	<i>Polyporus elegans(varius)</i>
Hexagonal-pored Polypore	<i>Polyporus mori</i>
Dryad's Saddle	<i>Polyporus squamosus</i>
	<i>Polyporus zelleri (Oligoporus obductus)</i>
(Wood rot fungus)	<i>Poria sp.</i>
Orange Poria	<i>Poria spissa</i>
Split-pore Polypore	<i>Schizopora paradoxa</i>
Hairy Turkey Tail	<i>Trametes hirsuta</i>
White Rot	<i>Trametes pubescens</i>
Turkey Tail (dark & light sp.)	<i>Trametes versicolor</i>
Crimped Gill	<i>Trogia (Plicatura) crispa</i>
White Cheese Polypore	<i>Tryomyces chioneus</i>

Jelly Fungi	
Purple Jelly-drop Cups	<i>Ascocoryne sarcoides</i>
Yellow Fairy Cups	<i>Bisporella citrina</i>
Orange Jelly Fungus	<i>Dacrymyces palmatus</i>
Tiny Orange Balls	<i>Dacrymyces stillatus</i>
Branched Orange Balls	<i>Dacrymyces sp.</i>
White Jelly Fungus	<i>Ductifera pululahuana(Exidia alba)</i>
Toothed Jelly Fungus	<i>Pseudohydnum gelatinosum</i>
Brown Witch's Butter	<i>Tremella foliacea</i>
Yellow Witches Butter	<i>Tremella lutescens</i>
Witch's Butter	<i>Tremella mesenterica</i>
(White-rot Fungus)	<i>Trametes pubescens</i>
Crust/jelly Fungus - Orange	Unidentified
Club/jelly Fungus - Yellow	Unidentified
Club/jelly Fungus - Red	Unidentified
Club/jelly Fungus - Cream	Unidentified

Coral & Club Fungi	
Clublike Tuning Fork or Finger Jelly	<i>Calocera cornea</i>
Yellow Staghorn Fungus	<i>Calocera viscosa</i>
Crown-tipped Coral Fungus	<i>Clavicornia pyxidata</i>
	<i>Cudonia circinans</i>
Star Jelly (actually a bacterial colony)	<i>Nostoc sp. of Cyanobacteria</i>
Upright or Striaght Baranched Coral	<i>Ramaria concolor (or stricta)</i>
Crested Coral Fungus	<i>Ramaria (Clavulina) cristata</i>
Pink Coral Mushroom	<i>Ramaria formosa complex</i>
(Coral Fungus)	<i>Ramaria velocimutans</i>
(Coral Fungus)	<i>Ramaria acrisiccenscens</i>
Upright or Straight-branched Coral	<i>Ramaria stricta</i>
(Club Fungus)	<i>Typhula erythropus</i>
Carbon Antler	<i>Xylaria hypoxylon</i>
Dead Man's Fingers	<i>Xylaria polymorpha</i>

Morels and False Morels	
Hooded False Morel	<i>Gyromitra infula</i>
Early (False) Morel	<i>Verpa bohemica</i>

Cup Fungi	
Orange-Peel Fungus	<i>Aleuria aurantia</i>
Yellow Fairy Cups Fungus	<i>Bisporella citrina</i>
Blue Stain Fungus	<i>Chlorociboria aeruginascens</i>
Stalked Hairy Fairy Cup (on Alder cone)	<i>Dasyscyphus virgineus</i>
Stalked Fairy Cup (on Salmonberry)	<i>Dasyscyphus bicolor</i>
	<i>Discina perlata</i>
Scurfy Alder Cup	<i>Encoelia furfuracea</i>
Vulcan Pixie Cup	<i>Geopyxis vulcanalis</i>
(on owl pellet)	<i>Onygena corvina</i>
(Cup Fungus)	<i>Peziza badia</i>
Domestic Cup Fungus	<i>Peziza domiciliana</i>
Spreading Brown Cup Fungus	<i>Peziza repanda</i>
Bladder Cup	<i>Peziza vesiculosa</i>
	<i>Phaeohelotium subcarneum</i>
	<i>Rutstroemia sp (Rutstroemia luteovirescens)</i>
Scarlet Cup	<i>Sarcoscypha coccinea</i>
	<i>Sarcosoma mexicana</i>
Eyelash Cup Fungus	<i>Scutellinia scutellata</i>

Bird's Nest Fungi	
Bird's Nest Fungus	<i>Cyathus Striatus</i>
Jellied Bird's Nest Fungus	<i>Nidula candida</i>

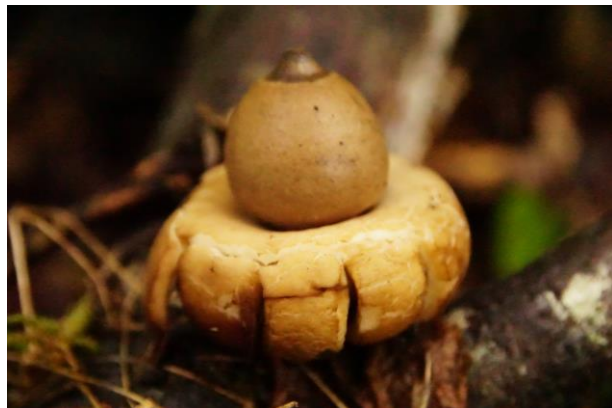
Puffballs & Earthstars	
Carbon Balls	<i>Daldinia concentrica</i>
Carbon Ball	<i>Daldinia grandis</i>
Black Knot	<i>Dibotryon morbosum</i>
Rounded Earthstar	<i>Geastrum saccatum</i>
Soft Puffball	<i>Lycoperdon molle</i>
Dusky Puffball	<i>Lycoperdon nigrescens</i>
Gem-studded Puffball	<i>Lycoperdon perlatum</i>
Wolf-fart Puffball	<i>Lycoperdon pyriforme</i>
Puffball sp.	<i>Lycoperdon sp.</i>
Pear-shaped Puffball	<i>Morganella (Lycoperdon) pyriformis</i>
Scaly Earthball	<i>Scleroderma verrucosum</i>
Meadow Puffball	<i>Vascellum pratense</i>

Crust Fungi

Silverleaf Fungus	<i>Chondrostereum purpureum</i>
(Crust Fungus)	<i>Coniophora puteana</i>
(Hard Black nodules)	<i>Hypoxylon sp. (multiforme)</i>
Brittle Cinder	<i>Kretzschmaria deusta</i>
Two-tone Parchment	<i>Laxitextum bicolor</i>
(Crust Fungus)	<i>Meruliopsis corium</i>
(Crust fungus)	<i>Meruliopsis sp.</i>
Rosey Crust Fungus	<i>Peniophora incarnata</i>
(Pink Crust Fungus)	<i>Peniophora polygonia</i>
Stringy Butt Rot	<i>Perreniporia subacida</i>
(Orange Crust Fungus)	<i>Phlebia radiata (merismoides)</i>
(Crust Fungi)	<i>Phlebia spp. (several)</i>
Trembling Merulius	<i>Phlebia tremellosa (Merulius tremellosus)</i>
	<i>Pycnoporellus alboluteus</i>
(Orange Crust Fungus)	<i>Radulum orbiculare</i>
Hairy Parchment	<i>Stereum hirsutum</i>
False Turkey-tail	<i>Stereum ostrea</i>
Red Heart Rot	<i>Stereum sanguinolentum</i>
Silky Parchment	<i>Stereum striatum</i>
Crowded Parchment (False Turkey-tail)	<i>Stereum complicatum</i>
Hairy Parchment (False Turkey-tail)	<i>Stereum hirsutum</i>
Red Tree Brain	<i>Stereum rufum</i>
False Turkey-tail	<i>Stereum versicolor</i>
	<i>Trichia decipiens</i>
Carbon Cushion	<i>Ustulina deuta</i>



Fig. 20.
(Left) *Nidula candida*
(Below) *Gastrum saccatum*



Slime Mold Fungi (Myxomyces)	
Carnival Candy Slime (Orange Slime Mold)	<i>Arcyria denudata</i>
Tapioca Slime Mold	<i>Badhamia sp.</i>
Coral Slime Mold	<i>Brefeldia maxima</i>
Silverleaf Fungus (Crust Fungus)	<i>Ceratiomyxa fruticulosa</i>
(Black/brown Slime Mold)	<i>Chondrostereum purpureum</i>
(Mauve Slime Mold)	<i>Coniophora puteana</i>
(Black short stalked balls)	<i>Comatricha nigra</i>
(White or red short stalked balls)	<i>Comatricha typhoides</i>
Scrambled-egg Slime Mold (Orange Ball - Slime Mold sp.)	<i>Diderma floriforme</i>
(White Slime Mold sp.)	<i>Enerthenema papillatum</i>
(White Slime Mold)	<i>Fuligo septica</i>
(Red Slime Mold)	<i>Fuligo sp.</i>
(Slime Mold)	<i>Fuligo sp.</i>
Egg-shell Slime Mould	<i>Hemitrichia calyculata</i>
Wolf's Milk Slime Mold (White Slime mold)	<i>Hemitrichia clavata</i>
(Clam-like Slime Mold)	<i>Lamproderma (Collaria) arcyrionema</i>
(Grey-blue Slime Mold)	<i>Leocarpus fragilis</i>
(White-blue grey Slime Mold)	<i>Lycogala epidendrum</i>
Many-headed Slime Mold	<i>Mucilago crustacea</i>
Chocolate Tube Slime	<i>Physarum bivalve</i>
Fucous Slime Mold	<i>Physarum cinereum</i>
Chocolate Tube Slime	<i>Physarum globuliferum</i>
Brown Slime Mold	<i>Physarum notabile</i>
	<i>Physarum polycephalum</i>
	<i>Stemonitis axifera</i>
	<i>Stemonitis fusca</i>
	<i>Stemonitis splendens</i>
	<i>Trichia favoginea</i>

Fig. 21. *Ceratiomyxa fruticulosa*



Other types of Fungi	
(Cantharellus retirugus)	<i>Arrhenia retiruga</i>
Leaf spot (on Alder)	<i>Cercospora sp.</i>
Leaf spot (on Cottonwood)	<i>Ciborinia whetzelii</i>
Microfungi (on Alder)	<i>Encoelia furfuracea</i>
Powdery Mildew (on Salmonberry)	<i>Erysiphales sp.</i>
Ascomycete infestation of Clavulina crista	<i>Helminthosphaeria clavariae</i>
Orange Hydnellum	<i>Hydnellum aurantiacum</i>
Strawberries and Cream	<i>Hydnellum peckii</i>
(Bolete parasitic fungus)	<i>Hypomyces chrysospermus</i>
Lobster Mushroom	<i>Hypomyces lactifluorum</i>
(Parasitic fungus on liverwort)	<i>Hypomyces mold sp.</i>
Fox Lentinellus	<i>Lentinellus vulpinus</i>
(Unidentified mucor sp.1)	<i>Mucor sp.?</i>
(Unidentified mucor sp.2) on coyote scat	<i>Mucor sp.?</i>
Muscinipta genus (only member)	<i>Muscinipta laevis (Cyphellostereum laeve)</i>
Nectria Canker (on Maple)	<i>Nectria cinnabarina</i>
(Tiny 2 mm fungus)	<i>Nivatogastrum (or Pholiota) sp.</i>
(Ascomycetes)	<i>Polycephalomyces tomentosus</i>
Corky Rough-bark disease of Aspen	<i>Rhytidiella baranyayi</i>
Tar-spot Fungus (on Maple)	<i>Rhytisma punctatum</i>
	<i>Rutstroemia (Lanzia) luteovirescens</i>
Cottony rot on Maple	<i>Sclerotinia sclerotiorum</i>
(Parasitic fungus on mushroom)	<i>Sepedomium on Paxillus sp.</i>
Cauliflower Fungus	<i>Sparassis crispa</i>
Black Earth Tongue	<i>Trichoglossum hirsutum.</i>
Fairy Thread	<i>Typhula phacorrhiza or Macrotyphula juncea</i>
Powdery Mildew (on Big-leaf Maple)	<i>Uncinula bicornis</i>
(Tiny fungus on Vine Maple)	<i>Unidentified (Nectria sp.)</i>

Mammals

A total of 29 species of mammals were recorded by the LFN in the past 10 years. An additional 8 species were recorded by G. Ryder over a period of 44 years. The largest mammal recorded by the LFN was a black bear while the smallest was a deceased White-footed (Deer) Mouse.

We recorded 2 species at-risk^{1/}, Trowbridge's shrew (blue-listed) and Snowshoe hare (*ssp. Washingtonii*) (red-listed). More observations would be helpful for positive confirmation of the latter. G. Ryder's historical records also included Snowshoe hare, as well as the Pacific water-shrew (red-listed) and although unconfirmed, Keen's long-eared Myotis (blue-listed).

Black bear scats, containing apple seeds, were observed by the LFN in Nov and Dec. 2009 on all sides of the MVCS crown land and in later years a few were photographed by our trail cameras. It is not surprising that large mammals such as black bears use the property as part of their range. Black bears have been reported to the northwest (Brae Island) and to the east (Ponder Park and West Creek Wetlands).

Neither is G. Ryder's record of a cougar surprising. A number of years ago, the LFN found cougar tracks on the Willoughby escarpment and a cougar was photographed by a remote motion-sensing camera on Brae Island. The cougar's main source of food is deer; many deer images were captured by our trail cameras

G. Ryder believed that 4 species he recorded were no longer present: the North American porcupine, the mountain beaver, the red fox and the Western spotted skunk, however, red foxes have been recorded elsewhere in Langley Township in recent years.

The mountain beaver colony used to be east of Davidson Creek on a west-facing slope. The subspecies of mountain beaver that occurs in the Fraser Valley (*Aplodontia rufa rufa*) is rated by COSEWIC^{2/} as a species of Special Concern (SC) although in B.C. it is no longer considered at-risk.

Most of the mouse and shrew species recorded were found in dissected owl pellets collected on the site. In recent years, virtually no owl pellets have been found. Trowbridge's shrew bodies, or parts thereof, were found by G. Ryder in the past underneath Saw-whet Owl roost trees. This shrew, as noted above, is blue-listed. Although relatively common, local populations may be at risk due to habitat loss caused by rapid urban growth (Nagorsen, 1996).

^{1/} Status from B.C. Species and Ecosystems Explorer <http://a100.gov.bc.ca/pub/eswp>

Red-listed = Endangered or Threatened, Blue-listed = Species of concern (at-risk).

^{2/}COSEWIC (Committee on the Status of Endangered Wildlife in Canada) assigns the following symbols:

SC = Species of Special Concern, T = Threatened, E = Endangered.

The Pacific water shrew, a red-listed species, was observed in the beaver pond, now long gone. However, G. Ryder believed this species might exist on the property, as there remains potentially suitable habitat. Pools in streams are also used by Pacific water shrews, and the well-drained forested slopes preferred in winter still exist on the MVCS crown land (G. Ryder, pers. comm.).

The American shrew mole was found throughout the woods, dead on the survey trails. G. Ryder found them underneath logs, plywood, or even plastic tarps. It is rated CF 2.

The little brown Myotis (bats) recorded by the LFN were seen flying in and out of the woods alongside the “CN” Railway tracks on the west side of the property. The additional bat species recorded by G. Ryder were identified by analyzing owl pellets or, more often, by direct observation (climbing trees and finding individual roosting bats underneath loose bark). None are recent records, but that may be partly due to G. Ryder’s decision to stop climbing trees in his senior years. The identification of the Keen’s long-eared Myotis is unconfirmed because cranial measurements (number of mm between upper premolar and molar) are required to distinguish it from the Western long-eared Myotis (Nagorsen and Brigham 2003). As can be imagined, this type of measurement is difficult to obtain with a live bat.

The Keen’s mouse was found dead near the “CN” tracks in 2009, one of many animals G. Ryder discovered as railway carnage. Records of live animals by G. Ryder included a bobcat and a snowshoe hare, both seen near the “CN” tracks in winter, and a short-tailed weasel.

Trail cameras were used on the survey trails from 2011 to the present. During this period, we recorded sightings of 724 coyote, 355 Black-tailed deer, 64 Eastern Grey squirrel, 14 Raccoon, 8 Black bear, 5 Cottontail rabbit, 3 Striped Skunk and 2 Douglas squirrels. Leucistic deer were recorded a number of times with differing colour patterns.

Fig. 22.
Glenn Ryder’s drawing of a Pacific water-shrew family seen at MVCS following their mother, holding on to each others tails.

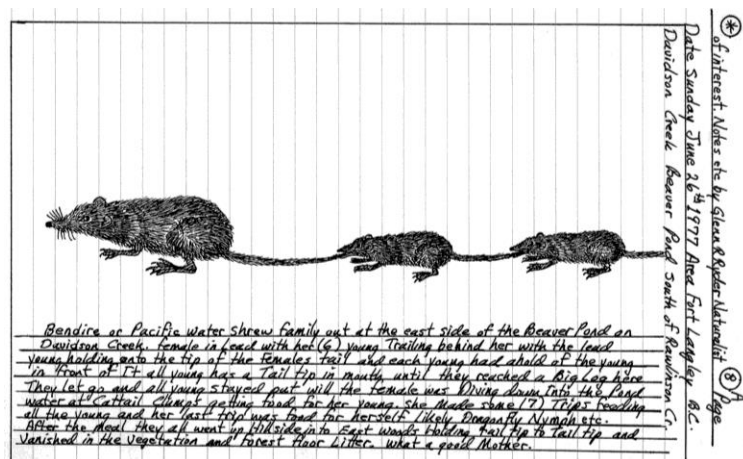


Table 11. Mammals found on MVCS Crown Land

Mammals	
Coyote	<i>Canis latrans</i>
Beaver	<i>Castor canadensis</i>
Southern Red-backed Vole*	<i>Clethrionomys gapperi</i>
Virginia Opossum	<i>Didelphis virginiana</i>
Northern Flying Squirrel	<i>Glaucomys sabrinus</i>
Snowshoe Hare	<i>Lepus americanus washingtonii</i>
Bobcat	<i>Lynx rufus</i>
Striped Skunk	<i>Mephitis mephitis</i>
Creeping Vole*	<i>Microtus oregoni</i>
Townsend's Vole*	<i>Microtus townsendii</i>
Long-tailed Weasel	<i>Mustela frenata</i>
Little Brown Bat	<i>Myotis lucifugus</i>
Short-tailed Weasel	<i>Mustela erminea</i>
Long-tailed Weasel	<i>Mustela frenata</i>
American Mink	<i>Mustela vison</i>
Townsend's Chipmunk	<i>Neotamias (Tamias) townsendii</i>
Shrew-mole	<i>Neurotrichus gibbsii</i>
Black-tailed Deer	<i>Odocoileus hemionus ssp. columbianus</i>
Keen's Mouse	<i>Peromyscus keeni</i>
Deer Mouse	<i>Peromyscus maniculatus</i>
Heather Vole*	<i>Phenacomys intermedius</i>
Common Raccoon	<i>Procyon lotor</i>
Cougar	<i>Puma concolor</i>
Black Rat	<i>Rattus rattus</i>
Coast Mole	<i>Scapanus orarius</i>
Eastern Grey (Black) Squirrel	<i>Sciurus carolinensis</i>
Common Shrew	<i>Sorex cinereus</i>
Dusky Shrew*	<i>Sorex monticolus</i>
Trowbridge's Shrew	<i>Sorex trowbridgii</i>
Vagrant Shrew	<i>Sorex vagrans</i>
Eastern Cottontail	<i>Sylvilagus floridanus</i>
Douglas Squirrel	<i>Tamiasciurus douglasii</i>
Black Bear	<i>Ursus americanus</i>
Pacific Jumping Mouse*	<i>Zapus trinotatus</i>

(* from owl pellets)

Additional Mammal Species recorded historically by Glenn Ryder

Mountain Beaver (H)	<i>Aplodontia rufa</i>
North American Porcupine (H)	<i>Erethizon dorsatum</i>
Silver-haired Bat (Nre)	<i>Lasioncyteris noctivagans</i>
California Myotis (Nre)	<i>Myotis californicus</i>
Keen's Long-eared Myotis (Nre)	<i>Myotis keenii</i>
Pacific Water Shrew (Nre)	<i>Sorex bendirii</i>
Western Spotted Skunk (H)	<i>Spilogale gracilis</i>
Red Fox (H)	<i>Vulpes vulpes</i>
(Nre) = Not recent: may or may not still be present;	
(H) = Historical: no longer believed to be present	

Trail Camera records for the MVCS Crown Lands from 2011-2018

Coyote	724
Black-tailed Deer	355
Western Grey Squirrel	64
Raccoon	14
Black Bear	8
Eastern Cottontail Rabbit	5
Striped Skunk	3
Douglas Squirrel	2



Fig. 23. Trail camera photos.
(Left) Black-tailed deer buck
(Below) Curious coyote



Birds

A total of 98 bird species were recorded by the LFN over the period of the survey (Table 12.); 12 of these were “fly-overs” (species flying over the property). Table 12 also shows the month in which each species was recorded, species listed in the BC Field Ornithologists order. The number shown in each square is the highest number of individual birds seen at one time during the month. An additional 36 species were recorded by G. Ryder in years prior to the study.

Birds most frequently recorded by the LFN were the Black-capped Chickadee, Northwestern Crow, Dark-eyed Junco, Red-breasted Nuthatch, American Robin, Song Sparrow, Spotted Towhee, Pileated Woodpecker and Pacific (Winter) Wren.

Four species of owls were recorded by the LFN: Barn Owl, Great Horned Owl, Barred Owl and Northern Saw-whet Owl. G. Ryder reported that Western Screech-owls used to be seen at the south end of the property, but have rarely been observed in recent years.

The Western Screech-owl that occurred here (*Megascops kennicotti subsp. kennicotti*) is blue-listed, a COSEWIC species of special concern (SC) and ranks 1 (top priority) in the B.C. Conservation Framework. Three other blue-listed species recorded on the site are the Olive-sided Flycatcher (COSEWIC T; CF 2), the Barn Owl (COSEWIC SC; CF 2) and the Band-tailed Pigeon (COSEWIC SC; CF2). The Common Nighthawk is also rated as CF priority 2.

The Bank Swallow record is an unusual sighting for this area. The LFN observed 2 pairs of Bank Swallows nesting on the south-facing side of a large sand ridge on the blueberry farm, just north of the MVCS crown land. Trees on the MVCS crown land were used by these swallows for perching. Although LFN informed the land fill operator about the nest, a pile of soil close to the nests was removed before the nesting season was over. It is not known if the young fledged successfully. After the nesting season, heavy machinery removed much of the sand ridge, destroying the nest holes.

A number of G. Ryder’s species were observed many years ago, on or adjacent to the beaver pond that no longer exists. These included the Pied-billed Grebe, Green Heron, Hooded Merganser, Virginia Rail, Solitary Sandpiper, Common Snipe, and Lazuli Bunting.

G. Ryder also noted that a pair of Belted Kingfishers used to nest in a steep clay bank above Davidson Creek. A few years ago this nest was vandalized (a hockey stick was found jammed into the hole); since then no kingfishers have nested on the property.

Birds known to nest on the site are American Robins, Brown Creepers, Black-capped Chickadees, Cedar Waxwings, Pileated Woodpeckers, Common Ravens, Red-tailed Hawks, Stellar’s Jays, Pacific-slope Flycatchers and likely others whose nests have not been observed.

Table 12. Bird Species recorded over the past 10 years by the LFN at MVCS Crown Land.

SUMMARY TABLE

1. Cackling Goose	34. Hairy Woodpecker	68. Varied Thrush
2. Snow Goose*	35. Northern Flicker	69. European Starling
3. Canada Goose	36. Pileated Woodpecker	70. American Pipit
4. Trumpeter Swan*	37. Olive-sided Flycatcher	71. Cedar Waxwing
5. Wood Duck	38. Western Wood Pewee	72. Orange-crowned Warbler
6. Mallard*	39. Alder Flycatcher	73. Yellow Warbler
7. Ruffed Grouse	40. Willow Flycatcher	74. Yellow-rumped Warbler ^{/1}
8. California Quail	41. Hammond's Flycatcher	75. Black-throated Gray Warbler
9. Great Blue Heron	42. Pacific-slope Flycatcher	76. Townsend's Warbler
10. Turkey Vulture*	43. Warbling Vireo	77. MacGillivray's Warbler
11. Bald Eagle	44. Red-eyed Vireo	78. Common Yellowthroat
12. Northern Harrier	45. Steller's Jay	79. Wilson's Warbler
13. Sharp-shinned Hawk	46. Northwestern Crow	80. Western Tanager
14. Cooper's Hawk	47. Common Raven	81. Spotted Towhee
15. Red-tailed Hawk	48. Purple Martin*	82. Fox Sparrow
16. American Kestrel	49. Tree swallow*	83. Song Sparrow
17. Sandhill Crane*	50. Violet-green Swallow*	84. White-crowned Sparrow
18. Merlin	51. Bank Swallow	85. House Sparrow
19. Killdeer	52. Barn Swallow*	86. Golden-crowned Sparrow
20. Spotted Sandpiper	53. Black-capped Chickadee	87. Dark-eyed Junco
21. Glaucous-winged Gull*	54. Chestnut-backed Chickadee	88. Black-headed Grosbeak
22. Rock Pigeon*	55. Bushtit	89. Red-winged Blackbird
23. Eurasian-collared Dove	56. Red-breasted Nuthatch	90. Brewer's Blackbird
24. Barn Owl	57. Brown Creeper	91. Brown-headed Cowbird
25. Great-horned Owl	58. Bewick's Wren	92. Bullock's Oriole
26. Barred Owl	59. House Wren	93. Purple Finch
27. Northern Saw-whet Owl	60. Pacific Wren	94. House Finch
28. Black Swift*	61. American Dipper	95. Red Crossbill
29. Anna's Hummingbird	62. Golden-crowned Kinglet	96. Pine Siskin
30. Rufous Hummingbird	63. Ruby-crowned Kinglet	97. American Goldfinch
31. Belted Kingfisher	64. Townsend's Solitaire	98. Evening Grosbeak
32. Red-breasted Sapsucker	65. Swainson's Thrush	
33. Downy Woodpecker	66. Hermit Thrush	
	67. American Robin	

* indicates only seen flying over the site.

^{/1} Both the Myrtle and the Audubon subspecies were recorded.

Additional Species recently reported by G. Blankstein on his property adjacent to Crown land:

Green Heron, Golden Eagle, Band-tailed Pigeon, Western Screech Owl

Birds of Mountain View Crown Lands - 2009

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Canada Goose									10			
Trumpeter Swan *		12									8	
Great Blue Heron									1	1	1	
Turkey Vulture*				1	1	1						
Bald Eagle		1	1	1								
Sharp-shinned Hawk	1											
Cooper's Hawk			1		1							
Red-tailed Hawk	1	1	1	1	1			1	1	1	1	
Killdeer*		2			2			1				
Glaucous-winged Gull *	1						1					1
Rock Pigeon*			1	6	1							
Barn Owl			1		1							
Great Horned Owl	2				1							
Barred Owl					1			1		1		
Northern Saw-whet Owl			1							1		
Black Swift*					2							
Rufous Hummingbird			2	1	1							
Downy Woodpecker	1	1		1	1					2		2
Hairy Woodpecker		1	1	4			2			1		4
Northern Flicker		1					1	2	3	4	2	1
Pileated Woodpecker		2	2	3	2	1	2	2	2	2	2	1
Western Wood Pewee				1	4	3						
Willow Flycatcher					2	8						
Pacific-slope Flycatcher				5	1	2						
Red-eyed Vireo					2							
Steller's Jay		2	1	1	3	3		3	2	2	4	
Northwestern Crow	14	4	10	4	6	2	13	20	4	10	4	6
Common Raven	1	1	2					1		1	1	1
Bank Swallow				4	4	1						
Barn Swallow*				2								
Black-capped Chickadee	9	7	6	7	7	7	2	12	10	20	10	6
Chestnut-backed Chickadee	10	1		1		2		3	2	4	4	2
Bushtit												
Red-breasted Nuthatch	2	3	2	3	3		1	4	4	2	1	1
Bewick's Wren		2	1	1	1	1				1		1
House Wren						1						
Pacific Wren	2	6	8	3	13	4	3	3	1	4	5	2
Golden-crowned Kinglet	2	2						2	1	5	6	3
Swainson's Thrush				2	11	9	2					
Hermit Thrush			1	1				1				
American Robin	6	4	7	7	6	7	1	7	4	1	1	20
Varied Thrush		2								8	2	
European Starling	8		2	2	3	4			4	25		25
Cedar Waxwing					6	1	4			1		
Yellow Warbler				2								

2009 Species cont'd.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Yellow-rumped Warbler - Audubon			5						1			
Black-throated Gray Warbler					1							
Brown-headed Cowbird					2							
Common Yellowthroat Warbler				2		3						
Wilson's Warbler					4	3						
Western Tanager					1	1						
Spotted Towhee	2	1	4	8	5	5		2	3	2	6	5
Song Sparrow		4	5	10	4	5	1	4	2	5	3	3
White-crowned Sparrow			1	2	2	2		1	2			
Golden-crowned Sparrow				1						4		
Dark-eyed Junco	6	1	4	2	4	2		2	5	4	10	4
Black-headed Grosbeak				6	4	1						
Brewer's Blackbird		6										
Brown Creeper		2	6	1	5	1		2		3		1
Purple Finch				1								
House Finch								4				
Pine Siskin	2		2									
American Goldfinch				5	2	1	2	6	2	2		

* indicates seen flying over site.

Birds of Mountain View Crown Lands - 2010

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Canada Goose*				2								2
Trumpeter Swan*												
Mallard Duck				2								
Great Blue Heron								1				
Turkey Vulture*						2						
Bald Eagle			1									4
Sharp-shinned Hawk												
Cooper's Hawk								2	1	2		
Red-tailed Hawk			3	3	2	2		1	2	3	2	2
Killdeer					1	1						
Glaucous-winged Gull*	1		6					1	2			
Rock Pigeon*			18		1			1				
Barn Owl												
Great-horned Owl												
Barred Owl		1				1	1	2				
Northern Saw-whet Owl												
Black Swift*												
Hummingbird, Rufous						1	1					
Red-breasted Sapsucker												
Downy Woodpecker	2	2					1	1		2		1
Hairy Woodpecker	4	2	2	2	1	1	1	1	1	3	1	4
Northern Flicker	1	2	4	1			1	2	1	3	2	2
Pileated Woodpecker	1		2	2			3	1	2	2	1	1
Western Wood Pewee							1	4				
Willow Flycatcher						2		3				
Pacific-slope Flycatcher						4	1					
Red-eyed Vireo												
Steller's Jay		1	4	2	1	3	2	4	3	4	2	4
Northwestern Crow	6	6	6	4	3	3	6	6	6	2	2	5
Common Raven	1		1					2	2	2	2	4
Tree Swallow*						1						
Violet-green Swallow*						1						
Bank Swallow												
Barn Swallow*								8				
Black-capped Chickadee	6	7	10	8	1	4	4	10	4	9	10	6
Chestnut-backed Chickadee	2	2	6	4			2	2	6		1	2
Bushtit		6										
Red-breasted Nuthatch	1		2	3		4	4	1	2	1		
Creepers, Brown	1	1						2		5	1	
Bewick's Wren	1	1						4				
House Wren												
Pacific Wren	2	6	9	7	4	7	3	2	2	6	8	12
Golden-crowned Kinglet	3			2						12		7
Ruby-crowned Kinglet											5	
Swainson's Thrush					2	10	7	3				
Hermit Thrush											1	

2010 Species cont'd.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
American Robin	20	4	10	11	2	9	4	20	2	5	6	1
Varied Thrush										2	6	
European Starling	25		6	2	2	1			6			
Cedar Waxwing												
Orange-crowned Warbler					1							
Warbler, Yellow								1				
Yellow-rumped Warbler- Audubon												
Yellow-rumped Warbler- Myrtle												
Black-throated Gray Warbler												
Common Yellowthroat					3	1						
Wilson's Warbler												
Western Tanager												
Spotted Towhee	5	2	4	5	6	10	10	8	2	5	1	2
Fox Sparrow												
Song Sparrow	3	4	6	8	6	2	1	7		6	3	6
White-crowned Sparrow						6	2	4	2			
Golden-crowned Sparrow												
Junco, Dark-eyed	4		7	6		5	2			2		
Black-headed Grosbeak					5	6	1					
Red-winged Blackbird												
Brewer's Blackbird												
Cowbird, Brown-headed												
Purple Finch												
House Finch												
Pine Siskin												
American Goldfinch						2		6				
Evening Grosbeak											15	

* indicates seen flying over site.

Birds of Mountain View Crown Lands - 2011

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Canada Goose*			1	4								
Swan, Trumpeter *												
Wood Duck						5						
Mallard Duck												
Ruffed Grouse	1											
Great Blue Heron												1
Turkey Vulture*							1					
Bald Eagle	2	1	1	3								3
Sharp-shinned Hawk												
Cooper's Hawk									1			
Red-tailed Hawk	1	1	2	2	2	2	3		1		1	1
Killdeer					2							
Spotted Sandpiper					2							
Glaucous-winged Gull *					9							
Rock Pigeon*				8	4	1						
Barn Owl												
Great-horned Owl												
Barred Owl				1	1				1			
Northern Saw-whet Owl												
Black Swift*									4			
Rufous Hummingbird					2	2						
Red-breasted Sapsucker		1		2		2						
Downy Woodpecker			1	3		1					1	
Hairy Woodpecker		1	3	2	3	1		1				2
Northern Flicker	1	1	1	1	2	3	2			1		
Pileated Woodpecker	2	1	1	1	2	1		1	2			
Pacific-slope Flycatcher						5						
Western Wood Pewee						5	5	2				
Hammond's Flycatcher					4	1	2					
Willow Flycatcher						6	2					
Red-eyed Vireo					6				2			
Steller's Jay	1		2	4	3	5	2	1	3			3
Northwestern Crow		8	15	10	6	6	5	2			2	2
Common Raven		2	2	2	1	2	2	1	1		2	
Tree Swallow *												
Violet-green Swallow*					3	3						
Bank Swallow												
Barn Swallow*					4		4					
Black-capped Chickadee	2	7	11	12	6	4	8	8	16	4	5	6
Chestnut-backed Chickadee			2	2	2	2			10		4	
Bushtit											75	
Red-breasted Nuthatch			5	2	3	3	1	2	3			
Brown Creeper	1		1	1	2	4			4			
Bewick's Wren		1	4	1	1			1				

2011 Species cont'd.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
House Wren												
American Dipper										1		
Pacific Wren, (Winter)	5	8	15	18	8	10	2	3	5	4		4
Golden-crowned Kinglet	4		4	4							4	1
Ruby-crowned Kinglet				1								
Swainson's Thrush					8	17	12	3	1			
Hermit Thrush				1								2
American Robin		3	9	14	12	11	8	2	120			
Varied Thrush	4		2	2							2	
European Starling		4	1	1	2	2	2		50			
Cedar Waxwing							1	1				
Orange-crowned Warbler									2			
Yellow Warbler												
Yellow-rumped Warbler- Audubon				1	2							
Yellow-rumped Warbler- Myrtle												
Black-throated Gray Warbler												
Common Yellowthroat					4	1						
Wilson's Warbler					3	7	2		2			
Western Tanager					4	2	2	2	4			
Spotted Towhee	5	2	6	7	8	10	5	2	6		1	3
Fox Sparrow												
Song Sparrow		6	3	6	6	4	3	2	2	1		4
White-crowned Sparrow				2	6	9	2		6			
Golden-crowned Sparrow												
Dark-eyed Junco			11	4	8	8	4	3			75	
Black-headed Grosbeak					11	9	1					
Red-winged Blackbird				1		1						
Brewer's Blackbird												
Brown-headed Cowbird				1		1						
Bullock's Oriole					2							
Purple Finch				4	1							
House Finch									10			
Pine Siskin			36	8				2				80
American Goldfinch				2	6	4	2					
Evening Grosbeak				2								

* indicates seen flying over site.

Birds of Mountain View Crown Lands - 2012

<i>Species</i>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Snow Goose*												42
Canada Goose*	20				2			2			6	
Trumpeter Swan*											14	
Wood Duck												
Mallard Duck*												12
Ruffed Grouse												
Great Blue Heron												1
Turkey Vulture*						4	1	1				
Bald Eagle	2									1		2
Sharp-shinned Hawk												
Cooper's Hawk												
Red-tailed Hawk	1			2	1	4	1	1		1	1	1
Merlin							2					
Killdeer					2							
Spotted Sandpiper						2						
Glaucous-winged Gull*	2			1								1
Rock Pigeon*												
Barn Owl												
Great-horned Owl		1	1									
Barred Owl	1											
Northern Saw-whet Owl										1		
Black Swift*												
Rufous Hummingbird				2		1						
Red-breasted Sapsucker												
Hairy Woodpecker				2	1			1		3	1	1
Pileated Woodpecker	1		2	2	1	1				2	1	1
Northern Flicker			1		2			2	1	3	1	1
Bewick's Wren							4	4				
Pacific-slope Flycatcher						1						
Downy Woodpecker		1		1		1		1		1		
Alder Flycatcher						4						
Hammond's Flycatcher						2						
Willow Flycatcher						4	1	1				
Warbling Vireo						2	1	1				
Red-eyed Vireo								2				
Steller's Jay	2	2	1	3	2	4	2	3	2	3	1	1
Northwestern Crow	1	25	1	2		5	6	3		3	3	6
Common Raven	1	1	1					1	1	1	1	1
Tree Swallow*												
Violet-green Swallow*								2				
Bank Swallow												
Barn Swallow*								1				
Black-capped Chickadee	4		10	13	8	7	2	10	7	6	12	6
Chestnut-backed Chickadee	2			3					4		1	1

2012 Species cont'd.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bushtit										7		
Red-breasted Nuthatch			1	2	1	3		2	1	1		
Brown Creeper				2					1			
House Wren												
Pacific Wren	3	5	13	12	7	8	3	2	5	2	5	8
American Dipper												
Golden-crowned Kinglet	15									4	5	8
Ruby-crowned Kinglet										4	2	
Swainson's Thrush					2	11	8	4				
Hermit Thrush												
American Robin	1	37	18	9	6	10	4	17	2	5	7	2
Varied Thrush		1									6	
European Starling		50						3			1	
Western Wood Pewee						2	2	4				
Wilson's Warbler				1		4						
Yellow-rumped Warbler- Audubon												
Yellow-rumped Warbler- Myrtle												
Cedar Waxwing								4				
Black-throated Gray Warbler												
Orange-crowned Warbler												
Common Yellowthroat												
Yellow Warbler												
Western Tanager						2						
Spotted Towhee			2	4	2	6	5	8		2	3	2
Fox Sparrow												
Song Sparrow	2		1	2	5	2	5			5	4	2
White-crowned Sparrow				2		4	3					
House Sparrow								2				
Golden-crowned Sparrow												
Dark-eyed Junco	6	15		4	3	1	2		3	1	11	30
Evening Grosbeak												
Red-winged Blackbird												
Brewer's Blackbird												
Brown-headed Cowbird												
Bullock's Oriole												
Purple Finch												
House Finch												
Pine Siskin	100										30	38
Black-headed Grosbeak					2	5	2					
American Goldfinch						3	4	2				

* indicates seen flying over site.

Birds of Mountain View Crown Lands - 2013

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Snow Goose*												
Canada Goose*		28			3							90
Trumpeter Swan*												
Wood Duck												
Mallard Duck*						2	2	4				
Ruffed Grouse												
Great Blue Heron												
Turkey Vulture*									1			
Bald Eagle					1	2						
Sharp-shinned Hawk		1				1						1
Cooper's Hawk			1	1		1						
Red-tailed Hawk	1		1	2	2	1	1			1		1
Merlin			1									
Killdeer												
Glaucous-winged Gull*					1	1						1
Rock Pigeon*												
Barn Owl												
Great-horned Owl	1			1								
Barred Owl												
Northern Saw-whet Owl												
Black Swift*												
Rufous Hummingbird				1		1						
Red-breasted Sapsucker			1	1		1						
Hairy Woodpecker	1				1	1	1			1	1	1
Pileated Woodpecker	2	1	1	1	1	2				1	2	
Northern Flicker	1	1	2	2	1	1	1	3	2	2	1	1
Bewick's Wren		1		1	1			1	2	1		1
Olive-sided Flycatcher					1							
Alder Flycatcher				1					1			2
Hammond's Flycatcher						4	2	5				
Willow Flycatcher												
Warbling Vireo					7	12	6	5				
Red-eyed Vireo					1							
Steller's Jay	3		3	3	4	3	4	2	2	3	1	3
Northwestern Crow	1	3	4	10	4	3	20				3	3
Common Raven	1	1	2	2	4	1	1			2		1
Tree Swallow*												
Violet-green Swallow*						2	2					
Bank Swallow												
Barn Swallow*							4					
Black-capped Chickadee	5	4	7	5	7	12	12	15	6	6	4	2
Chestnut-backed Chickadee				4		2	4		1			
Bushtit			2					21	5			
Red-breasted Nuthatch				2				2		1		

2013 Species cont'd.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Brown Creeper				1								
House Wren												
Pacific Wren	9	6	6	10	9	10	6	10	2	3	2	7
American Dipper												
Golden-crowned Kinglet	5											
Ruby-crowned Kinglet				3						1		
Swainson's Thrush	1											
Hermit Thrush				1	6	16	14	4				
American Robin	2											
Varied Thrush			2	7	7	10	10	5		35	5	
European Starling	1	1	2	1						2		
Western Wood Pewee					2				1			
Wilson's Warbler					1	5	3	3				
Yellow-rumped Warbler- Audubon												
Yellow-rumped Warbler- Myrtle												
Cedar Waxwing						4	1					
Black-throated Gray Warbler												
Orange-crowned Warbler					1							
Common Yellowthroat					2	2	1					
Yellow Warbler												
Western Tanager					1	4	3					
Spotted Towhee	4	3	2	3	5	4	5	1	1	2	2	1
Fox Sparrow	2											
Song Sparrow	6	5	8	6	6	5	2	2	2	3	2	2
White-crowned Sparrow				3	2	2						
House Sparrow												
Golden-crowned Sparrow												
Dark-eyed Junco	28		5	2	2	1	2		2		1	
Black-headed Grosbeak					5	7	2					
Red-winged Blackbird												
Brewer's Blackbird												
Brown-headed Cowbird												
Bullock's Oriole												
Purple Finch						1			5			
House Finch				1								
Pine Siskin	50	45	20		5							
American Goldfinch				1	3	1	2	4	5			
Evening Grosbeak												

* indicates seen flying over site.

Birds of Mountain View Crown Lands - 2014

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Snow Goose*										86		
Canada Goose*	25							6				11
Swan, Trumpeter *												
Wood Duck												
Mallard Duck*												
Ruffed Grouse												
Great Blue Heron		1										
Turkey Vulture	1						2					
Bald Eagle	4		1	1			2					
Sharp-shinned Hawk												
Cooper's Hawk				1		1						1
Red-tailed Hawk	1		1	1	1		1					1
Merlin												
Sandhill Crane*	1											
Killdeer					3							
Spotted Sandpiper												
Glaucous-winged Gull*	4			4				1				
Rock Pigeon*	4				3							
Barn Owl												
Great-horned Owl												
Barred Owl			1					2				1
Northern Saw-whet Owl												
Black Swift*												
Hummingbird, Rufous					1	1						
Red-breasted Sapsucker												
Downy Woodpecker	1		1									
Hairy Woodpecker			2	2								1
Northern Flicker	5		2		1		1		1	2	1	2
Pileated Woodpecker	2		1	1	1	2	1	1				1
Western Wood Pewee						4	3					
Olive-sided Flycatcher												
Alder Flycatcher												
Willow Flycatcher					3	5	2					
Hammond's Flycatcher												
Pacific-slope Flycatcher						2	2					
Warbling Vireo						4						
Red-eyed Vireo												
Steller's Jay	3	2	2	2	4	6	3	2		1	1	2
Northwestern Crow	3	4	2	2	5	3	2	1		6		5
Common Raven	2		2	2	2	1		1		1	2	1
Tree Swallow*												
Violet-green Swallow*												
Bank Swallow												
Barn Swallow*												

2014 Species cont'd.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Black-capped Chickadee	4	3	15	6	5	2	6	6	7	5	3	5
Chestnut-backed Chickadee			2			9		10			2	4
Bushtit			6					4	12	10		
Red-breasted Nuthatch			1	2	1	1		1				
Brown Creeper	3		1									1
Bewick's Wren			1	2	1	1	1				1	
House Wren												
Pacific Wren	7	2	10	8	4	8	1		1	2	1	2
Dipper, American												
Golden-crowned Kinglet	7			3						1		4
Ruby-crowned Kinglet				4								
Townsend's Solitaire												
Thrush, Swainson's					6	15	5		2			
Hermit Thrush												
American Robin	1	5	9	7	6	7	4	35	3		1	
Varied Thrush			3							1		
European Starling	20				1			1				
Cedar Waxwing								2				
Orange-crowned Warbler				2								
Yellow Warbler												
Yellow-rumped Warbler- Audubon				2								
Yellow-rumped Warbler- Myrtle												
Black-throated Gray Warbler												
Common Yellowthroat				1	1							
Wilson's Warbler												
Western Tanager						2						
Spotted Towhee	3	3	2	4	5	3	2	3	1		4	2
Fox Sparrow	4											
Song Sparrow	2	3	3	2	3		1		2	5	1	7
White-crowned Sparrow				4	2	1	1					
Golden-crowned Sparrow												
House Sparrow												
Dark-eyed Junco		1		2	3						4	2
Black-headed Grosbeak					6	5						
Brewer's Blackbird												
Red-winged Blackbird												
Cowbird, Brown-headed				2								
Purple Finch												
Bullock's Oriole												
Finch, House												
Crossbill - Red												15
Pine Siskin												
American Goldfinch				4	2	3	2					
Evening Grosbeak												

* indicates seen flying over site.

Birds of Mountain View Crown Lands - 2015

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cackling Goose*			1									
Snow Goose*												
Canada Goose*			30									
TrumpeterSwan *												
Wood Duck												
Mallard Duck*												
Ruffed Grouse												
Great Blue Heron												
Turkey Vulture*					1							
Bald Eagle	2			1					1			
Sharp-shinned Hawk												
Cooper's Hawk												
Red-tailed Hawk	2		1	2		1			1		1	
American Kestrel				1								
Sandhill Crane*												
Merlin												
Killdeer												
Spotted Sandpiper												
Glaucous-winged Gull *											1	
Rock Pigeon*												
Eurasian-collared Dove	1		2	2								
Barn Owl												
Great-horned Owl												
Barred Owl			1								1	
Northern Saw-whet Owl												
Black Swift*												
Rufous Hummingbird				1								
Red-breasted Sapsucker				1								
Downy Woodpecker									2		1	
Hairy Woodpecker						1		1	1			
Northern Flicker	3	2	2	2		1	1	2	2	1	1	
Pileated Woodpecker	1	1	1	2		2			2		1	
Olive-sided Flycatcher												
Western Wood Pewee					2	2	3	4				
Alder Flycatcher												
Willow Flycatcher												
Hammond's Flycatcher												
Pacific-slope Flycatcher					2	1	4	4				
Warbling Vireo												
Red-eyed Vireo												
Steller's Jay	5	1	2	5	1	1	2	1	5	1	3	
Northwestern Crow	6	2	2	2	2	1		4	1		3	
Common Raven	1	2			1	2	2	1	3		1	
Tree Swallow *												

Violet-green Swallow *												
Bank Swallow												
Barn Swallow*												
Black-capped Chickadee	5	6	2	7	1	2	3	4	7	1	3	
Chestnut-backed Chickadee				1				2				
Bushtit												
Red-breasted Nuthatch						2			2			
Brown Creeper	7			1								
Bewick's Wren	1	2	1		1		1					
House Wren												
Pacific Wren	5		13	7	4	2	8	3	4	1	4	
American Dipper												
Golden-crowned Kinglet	9										7	
Ruby-crowned Kinglet			1	2					1			
Townsend's Solitaire												
Swainson's Thrush					7	7	12					
Hermit Thrush												
American Robin	22		3	4	7	10	5	3	7			
Varied Thrush			1	5								
European Starling	35	1	1	2				1				
Cedar Waxwing												
Orange-crowned Warbler						2						
Yellow Warbler												
Yellow-rumped Warbler - Audubon				2								
Yellow-rumped Warbler- Myrtle												
Black-throated Gray Warbler												
MacGillivray's Warbler						1						
Common Yellowthroat												
Wilson's Warbler												
Western Tanager						1	1	1				
Spotted Towhee	3	3		6	2	4	7	2	4		4	
Fox Sparrow												
Song Sparrow	2	5	4	6	4	2	2		7	1	4	
White-crowned Sparrow				2	2	3						
House Sparrow												
Golden-crowned Sparrow												
Dark-eyed Junco		6	2	1							1	
Black-headed Grosbeak					3	4						
Red-winged Blackbird												
Brewer's Blackbird												
Brown-headed Cowbird												
Bullock's Oriole												
Purple Finch												
House Finch		2	1									
Red Crossbill												
Pine Siskin												
American Goldfinch						2						
Evening Grosbeak												

Birds of Mountain View Crown Lands - 2016

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cackling Goose*												
Snow Goose*												
Canada Goose*			7									
TrumpeterSwan *			3									
Wood Duck												
Mallard Duck*												
Ruffed Grouse												
Great Blue Heron						1					1	
Turkey Vulture												
Bald Eagle		1	1	2							1	
Sharp-shinned Hawk												
Cooper's Hawk												
Red-tailed Hawk			1	2		2	1				1	
American Kestrel					1							
Sandhill Crane*												
Merlin												
Killdeer												
Spotted Sandpiper												
Glaucous-winged Gull *			1									
Rock Pigeon*												
Eurasian Collared-Dove			1	1	1				1			
Barn Owl												
Great-horned Owl				2								
Barred Owl			1		1							
Northern Saw-whet Owl												
Black Swift*												
Rufous Hummingbird			1	1								
Belted Kingfisher			1									
Red-breasted Sapsucker			1	3								
Downy Woodpecker												
Hairy Woodpecker			3	3		1	1	1	4	3	1	
Northern Flicker		1	2	2							2	
Pileated Woodpecker												
Olive-sided Flycatcher					5	5	5	1				
Western Wood Pewee												
Alder Flycatcher						7						
Willow Flycatcher												
Hammond's Flycatcher					2	2	1					
Pacific-slope Flycatcher												
Warbling Vireo						4						
Steller's Jay			6	6	2	3	3		2	2	1	
Northwestern Crow	2	1	6	5		3		1	2		2	
Common Raven			1	2	2				1	2	2	
Purple Martin												

Tree Swallow *												
Violet-green Swallow *												
Bank Swallow												
Black-capped Chickadee			10	5		2	3	2	6	1	3	
Chestnut-backed Chickadee												
Bushtit			10									
Red-breasted Nuthatch				6	4		3	1	1	1		
Brown Creeper		2	2									
Bewick's Wren			1		1						1	
House Wren												
Pacific Wren			6	12	9	9	1		2		4	
American Dipper												
Golden-crowned Kinglet			2								5	
Ruby-crowned Kinglet												
Townsend's Solitaire												
Swainson's Thrush					8	9	4					
Hermit Thrush												
American Robin	2		6	13	6	7	4	1	10	1	1	
Varied Thrush												
Starling, European			2	1	2				8		10	
Cedar Waxwing												
Orange-crowned Warbler						1						
Yellow Warbler												
Yellow-rumped Warbler - Audubon												
Yellow-rumped Warbler- Myrtle												
Black-throated Gray Warbler					2							
Townsend's Warbler				1								
MacGillivray's Warbler												
Common Yellowthroat				1		6						
Wilson's Warbler					2	2						
Western Tanager						4						
Spotted Towhee	1		3	2	6	6		2	3		3	
Fox Sparrow												
Song Sparrow			6	7	3	6		1	3	4	3	
White-crowned Sparrow					2							
House Sparrow												
Golden-crowned Sparrow												
Dark-eyed Junco			1							10		
Black-headed Grosbeak					6	2		1				
Red-winged Blackbird												
Brewer's Blackbird												
Brown-headed Cowbird												
Bullock's Oriole												
Purple Finch												
House Finch				1								
Red Crossbill												
Pine Siskin												
American Goldfinch				1		2						

Birds of Mountain View Crown Lands - 2017

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cackling Goose*											1	
Snow Goose*												
Canada Goose*									1		50	
Trumpeter Swan *											5	
Wood Duck												
Mallard Duck*												5
Ruffed Grouse												
Great Blue Heron												
Turkey Vulture*									2			
Bald Eagle				2								
Sharp-shinned Hawk											1	
Cooper's Hawk										1	1	
Red-tailed Hawk				1				1			1	
American Kestrel												
Sandhill Crane*												
Merlin												
Killdeer												
Spotted Sandpiper												
Glaucous-winged Gull *					2							
Rock Pigeon*												
Eurasian-collared Dove				1	2		2					
Barn Owl												
Great-horned Owl												
Barred Owl								1			1	
Northern Saw-whet Owl												
Black Swift*												
Anna's Hummingbird			2									
Rufous Hummingbird												
Belted Kingfisher												
Red-breasted Sapsucker												
Downy Woodpecker					1			1			2	
Hairy Woodpecker						1		1	2			3
Northern Flicker					1	2		2	2			1
Pileated Woodpecker					2			1	1	1	2	1
Olive-sided Flycatcher												
Western Wood Pewee					5	4	3	2				
Alder Flycatcher												
Willow Flycatcher									2			
Hammond's Flycatcher												
Pacific-slope Flycatcher					3	6	2					
Warbling Vireo												
Red-eyed Vireo												
Steller's Jay			1	1	2	3	1	2	3		2	7
Northwestern Crow			5	1	4	4	2	3		4	4	1

2017 Species cont'd	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Common Raven			1	2				2	3			1
Purple Martin												
Tree Swallow *												
Violet-green Swallow *												
Bank Swallow												
Black-capped Chickadee			6	3	4	1	3	7	4		5	3
Chestnut-backed Chickadee									7		2	8
Bushtit												
Red-breasted Nuthatch				2	2	2	1					
Brown Creeper					1				2		3	3
Bewick's Wren												
House Wren												
Pacific Wren				6	5	3		1		1	6	10
American Dipper												
Golden-crowned Kinglet											9	31
Ruby-crowned Kinglet											1	
Townsend's Solitaire												
Swainson's Thrush					7	10	10		1			
Hermit Thrush												
American Robin			8	6	5	7	6	10	12	1		
Varied Thrush			4									2
European Starling				1		1	1					
American Pipit									7			
Cedar Waxwing								1				
Orange-crowned Warbler					4	2						
Yellow Warbler												
Yellow-rumped Warbler- Audubon				4	2		1	1	2			
Yellow-rumped Warbler- Myrtle												
Black-throated Gray Warbler												
Townsend's Warbler												
MacGillivray's Warbler							1					
Common Yellowthroat				2		1						
Wilson's Warbler												
Western Tanager						2		1				
Spotted Towhee			2	2	2	6	2	2				1
Fox Sparrow												2
Song Sparrow			6	1		2			1		4	5
White-crowned Sparrow				2	2	2	1					
House Sparrow												
Golden-crowned Sparrow												
Dark-eyed Junco				3	5	1			1			1
Black-headed Grosbeak					7	6	1					
Red-winged Blackbird												
Brewer's Blackbird												
Brown-headed Cowbird												
Bullock's Oriole												
Purple Finch				1	1							

2017 Species cont'd	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
House Finch												
Red Crossbill												
Pine Siskin												
American Goldfinch						2						
Evening Grosbeak												

* indicates seen flying over site.



Fig.24. Male Hairy Woodpecker

Birds of Mountain View Crown Lands - 2018

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cackling Goose*	5											
Snow Goose*												
Canada Goose*			1						5			
Trumpeter Swan *												
Wood Duck												
Mallard Duck*			2									
Ruffed Grouse												
California Quail					1	1						
Great Blue Heron												
Turkey Vulture												
Bald Eagle	1	2	1	1								
Northern Harrier										1		
Sharp-shinned Hawk											1	
Cooper's Hawk					1	2				2		
Red-tailed Hawk					1			1	1	1		
American Kestrel												
Sandhill Crane*												
Merlin												
Killdeer												
Spotted Sandpiper												
Glaucous-winged Gull *												
Rock Pigeon*												
Eurasian-collared Dove			2	1								
Barn Owl												
Great-horned Owl					2						1	
Barred Owl				1				1			1	
Northern Saw-whet Owl												
Black Swift*												
Anna's Hummingbird	1		1	1	2	2	1	1	2	1		
Rufous Hummingbird												
Belted Kingfisher												
Red-breasted Sapsucker												
Downy Woodpecker	1	2	1	1			2	3		1		
Hairy Woodpecker	1	2	2	2	2	5	2	1	2	1		
Northern Flicker			3	2	1	1		1	1	3	1	
Pileated Woodpecker	1		2	1	1			1		1		
Olive-sided Flycatcher												
Western Wood Pewee					4	5	3	3	1			
Alder Flycatcher												
Willow Flycatcher												
Hammond's Flycatcher					2							
Pacific-slope Flycatcher					6	5	2					
Warbling Vireo					2							
Red-eyed Vireo						2	1					

2018 Species cont'd.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Steller's Jay	1	2	3	1	2	2	3	7	1	2	1	1
Northwestern Crow	4	7	5	1	2	2	1	3	3	2	2	2
Common Raven	1		2	2	1			3	1			
Purple Martin*								5				
Tree Swallow *												
Violet-greenSwallow *			1	1	2							
Swallow, Bank												
Swallow, Barn*					1			10				
Chickadee, Black-capped	2	6	9	4	2	3	6	8	8	9	3	4
Chickadee, Chestnut-backed	10	3	5	4	5	2	6	7	8	5	3	
Bushtit												
Red-breasted Nuthatch					1	1			2	2		2
Brown Creeper	9	2	6	4	5	3	5	6	5	5	2	
Bewick's Wren			1		1			1				
House Wren												
Pacific Wren	8	11	16	18	3	7	3	3	1	8	7	3
American Dipper												
Golden-crowned Kinglet	22	14	11	5	1	2			1	20	8	
Ruby-crowned Kinglet				5								
Townsend's Solitaire												
Swainson's Thrush				1	7	11	5	2				
Hermit Thrush												
American Robin			12	15	10	8	7	30	5	2		
Varied Thrush	4		2	5						6	1	
European Starling			2	3	2	4	1	1	1			
American Pipit												
Cedar Waxwing					2	3	5	15	14			
Orange-crowned Warbler					1	1						
Yellow Warbler												
Yellow-rumped Warbler- Audubon			1	2	3	1			2	3		
Yellow-rumped Warbler- Myrtle												
Black-throated Gray Warbler					2	2						
Townsend's Warbler												
MacGillivray's Warbler												
Common Yellowthroat												
Wilson's Warbler					3	3						
Western Tanager					2	2	1					
Spotted Towhee			9	2	6	8	3	4		1		
Fox Sparrow				1								
Song Sparrow	7	6	6	9	5	5	2			4	1	2
White-crowned Sparrow				6	3	4	3	1				
House Sparrow												
Golden-crowned Sparrow												
Dark-eyed Junco	29	42	50	5	2	1	5	8	2	15	2	3
Black-headed Grosbeak					7	6	3	2				
Red-winged Blackbird				1								
Brewer's Blackbird												

2018 Species cont'd.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Brown-headed Cowbird												
Bullock's Oriole												
Purple Finch				3	2	2	2	2		2		
House Finch				6					1	1	2	
Red Crossbill												
Pine Siskin					2					10	10	
American Goldfinch					3	2	2	1		3		
Evening Grosbeak												
Additional species reported by G. Blankstein at MVCS and adjacent to Crown Land in 2018												
Green Heron												
Golden Eagle												
Band-tailed Pigeon												
Western Screech Owl												

* indicates seen flying over site.



Fig.25. Pacific-slope Flycatcher on nest to left, eggs below.



Amphibians

A total of 7 amphibian species were recorded by the LFN during the survey, with an additional 3 species recorded by G. Ryder over a period of 44 years (Table 13). The only amphibian species at-risk found was the Red-legged frog, which is blue listed. The Western toad is no longer labelled at-risk in B.C., though it is still assessed as a species of concern by COSEWIC (Committee on the status of endangered wildlife in Canada).

When conducting surveys, the LFN frequently heard Pacific Chorus Frogs croaking, either in the north or the south half of the property. Bullfrog tadpoles were found only in the deep ponds on the west border, near the CN tracks. Long-toed Salamander larvae were found both in the deeper (west) ponds and in shallow (eastern) forest ponds.

The fact that the eastern ponds dry up in summer ensures that Bullfrogs cannot successfully breed there (Bullfrog tadpoles require 2 years to mature). Hence Long-toed Salamanders are “safe” from bullfrog predation in such ponds, but may ultimately perish if the water dries up before they have matured into adults (Fig. 26.). In the deepest western pond, where both species occur, there is abundant cover for the salamanders to hide under.

The 3 additional species recorded by G. Ryder were expected to be on the property, as they occur elsewhere in the Lower Mainland in similar habitats. Any of these species can be found anywhere on the MVCS crown land; there is no location on the property that is far from water or that lacks moist soil (ie. underneath logs).



Fig. 26. “Crowded with nowhere to go”

These long-toed salamander larvae, likely doomed, were found in tiny muddy depressions in a rapidly drying forest pond on the east side. An early hot dry season narrowed their window of time in which to metamorphosize. An increasing number of such wetlands and their inhabitants may be victims of climate change. On the MVCS crown land, this underscores the need to protect deeper ponds such as those on the west side.

Table 13. Amphibians found on MVCS Crown Land

Northwestern Salamander	<i>Ambystoma gracile</i>
Long-toed Salamander	<i>Ambystoma macrodactylum</i>
Ensatina	<i>Ensatina eschscholtzii</i>
Pacific Chorus Frog	<i>Pseudacris regilla</i>
Red-legged Frog	<i>Rana aurora</i>
Green Frog	<i>Rana clamitans</i>
Bullfrog	<i>Rana catesbetana</i>

Additional Species recorded by Glenn Ryder Prior to 2008

Western Toad	<i>Anaxyrus (Bufo) boreas</i>
Western Red-backed Salamander	<i>Plethodon vehiculum</i>
Northern Rough-skinned Newt	<i>Taricha granulosa</i>



Fig. 27.

(above): Long-toed salamander. Found under leaf litter beside the west pond in February 2010.

(right): Pacific Chorus Frog. Found near Davidson's Creek.



Reptiles

Five kinds of snakes (species or sub-species) were recorded by the authors during the study (Table 14); one lizard and one turtle species were recorded by G. Ryder prior to 2008.

The Common Garter Snake (Fig. 28) was found in the forest near the southern trail, close to the berry farm; they have also been seen along the railway right of ways.

G. Ryder reported that he found Northern Alligator Lizards on the more open slopes (ie. above the railway tracks on July 13, 2007). The only species at risk observed on the property was the Western Painted Turtle (a red-listed species) which is a historical record; it lived in the large beaver pond that no longer exists.

Table 14. Reptiles found on MVCS Crown Land

Western Terrestrial Garter Snake - Coast ssp.	<i>Thamnophis elegans terrestris</i>
Western Terrestrial Garter Snake - Wandering ssp.	<i>Thamnophis elegans vagrans</i>
Northwestern Garter Snake	<i>Thamnophis ordinoides</i>
Common Garter Snake - Valley ssp.	<i>Thamnophis sirtalis fitchi</i>
Common Garter Snake - Puget Sound ssp.	<i>Thamnophis sirtalis pickeringii</i>

Additional Species recorded by Glenn Ryder prior to 2008

Northern Alligator Lizard (2007)	<i>Elgaria coerulea</i>
Western Painted Turtle (1970-80)	<i>Chrysemys picta</i>

Fig. 28.
A Common Garter snake photographed on the western border of the site.



Fish

Seven species of fish were recorded (Table 15.). The cutthroat trout were caught in traps in Davidson Creek by biologist Dr. Mike Pearson in 2014 and recorded by us in subsequent years. The native cutthroat trout *Oncorhynchus clarkia clarkia* is a blue-listed species. We observed Coho and steelhead fry in Davidson Creek in May of most years. Later in summer, when the eastern portion of the creek dried up, some coho fry were trapped in isolated pools. When this had occurred in past years, the Clements' had scooped up the fry and carried them, in a bucket, downstream to where the channel was still flowing (G. Clements, pers. comm.). No such "rescue" effort was carried out in 2009; a number of Coho fry likely perished, but the new owners of the 'Clement' property continued the rescue in subsequent years.

Also observed in an isolated pool was a western brook lamprey (Figure 29.). This species is non-parasitic (with the exception of one famous population on Vancouver Island). Although listed as a species "of special concern" in Oregon, it is not considered a species at risk in B.C.

In the fall of 2009, only three adult Coho salmon were seen: one alive, heading upstream and two dead (one in the pool below the culvert under 240th street and the other near the centre of the property). Future years provided various levels of Coho. No adult Steelhead have been seen.

Table 15. Fish found in Davidson Creek on MVCS Crown Land

Fish	
Largescale Sucker	<i>Catostomus macrocheilus</i>
Three-spine Stickleback	<i>Gasterosteus aculeatus</i>
Western Brook Lamprey	<i>Lampetra richardsoni</i>
Cutthroat Trout	<i>Oncorhynchus clarkia clarkii</i>
Chum Salmon	<i>Oncorhynchus keta</i>
Coho Salmon	<i>Oncorhynchus kisutch</i>
Steelhead	<i>Oncorhynchus mykiss</i>



Fig. 29.
Photographed in June 2009, this western brook lamprey could not escape, as the creek section it was in had been reduced to isolated pools.

Invertebrates

Over the years, the LFN recorded 650 species of invertebrates: a total of 563 species of terrestrial invertebrates and 78 species of aquatic invertebrates (species which require water for all or part of their life cycle). Note that these numbers are approximate, as some larval and adult forms listed as separate species may, in fact, be the same species. Identification of invertebrates can be challenging and, to put it in simple terms, the naturalists “did their best”.

A summary of the number of species found in each group is shown in Table 16a & b. The group of insects with the most species was Lepidoptera (butterflies and moths).

An additional 8 terrestrial invertebrates were recorded in Langley by G. Ryder over a 44 year period. Table 16b (pages 85 to 108) lists all of the species found, under group headings. Terrestrial invertebrates are listed in 17a and aquatic invertebrates are listed in 17b. Common names are included where possible, but many species do not have common names.

Most of the aquatic invertebrates were found in the west ponds. Caddisflies, midges, and mayflies were also found in Davidson Creek and its tributaries; the immature stoneflies were found only in the main channel. Winged adult stoneflies were found throughout the site, all of which is relatively close to the creek.

Two species at risk found: the Western Pondhawk (*Erythemis collocata*) and the Yellow-legged (Autumn) Meadowhawk (*Sympetrum vicinum*). These are blue-listed, in the insect order Odonata (dragonflies). Two species of spiders (were found that have not been previously recorded in Canada. It should be noted, however, that most invertebrates in B.C. have not been adequately censused to determine whether or not they are at risk.



Fig. 30. Change in status:
Once blue-listed, the
Pacific Sideband Snail
(*Monadenia fidelis*) is now
yellow-listed (stable). It
occurs throughout the
property.

Table 16a. Summary of the number of species found in each group of terrestrial invertebrates

Terrestrial invertebrates	
Gastropods (Slugs & Snails)	11
Thysanura (Bristletails)	1
Dermaptera (Earwigs)	1
Thysanoptera (Thrips)	1
Lepidoptera (Butterflies)	14
Lepidoptera (Geometridae moths)	105
Lepidoptera (Noctuidae moths)	87
Lepidoptera (Other moth families)	47
Hymenoptera (Bees, Wasps, Ants)	49
Coleoptera (Beetles)	55
Orthoptera (Grasshoppers & Katydid)	5
Embioptera (Webspinners)	1
Diptera (Two-winged flies)	53
Neuroptera (Lacewings)	2
Raphidioptera (Snakeflies)	2
Hemiptera (Sucking bugs)	22
Collumbola (Springtails)	16
Homoptera (Leafhoppers)	13
Araneae (Spiders)	75
Pseudoscorpions, Mites and Harvestmen	19
Polydesmidae (Millipedes & Centipedes)	8
Entognatha (Japygids)	1
Psocoptera (Barklice)	1
Crustaceans	3
Oligochaeta (Earthworms)	1
Hirudinae (Terrestrial Leeches)	1
Misc. Invertebrates	5
Total	598

Table 16b. Summary of the number of species found in each group of aquatic invertebrates

Aquatic invertebrates	
Coleoptera (Beetles)	7
Diptera (Two-winged Flies)	14
Araneae (Spiders & Mites)	1
Crustaceans	9
Mollusca - (Clams & Snails)	3
Plecoptera (Stoneflies)	7
Odonata (Dragonflies & Damselflies)	13
Ephemeroptera (Mayflies)	6
Trichoptera (Caddisflies)	18
Oligochaeta (aquatic earthworms)	1
Hirudinae (Leeches)	1
Miscellaneous invertebrates	6
Total	86

Table 17a. Terrestrial Invertebrates

Gastropods: (Slugs & Snails)	
Pacific Banana Slug	<i>Ariolimax columbianus</i>
Darkface Arion Slug	<i>Arian distinctus</i>
Chocolate Arion Slug	<i>Arion rufus</i>
Dusky Arion Slug	<i>Arion subfuscus</i>
Grove Snail	<i>Cepacea nemoralis</i>
Toothless Column Snail	<i>Columella edentula</i>
Robust Lancetooth Snail	<i>Haplotrema vancouverense</i>
Pacific Sideband Snail	<i>Monadenia fidelis</i>
Reticulate Taildropper Slug	<i>Prophysaon andersonii</i>
Yellow-bordered Taildropper Slug	<i>Prophysaon foliolatum</i>
Northwest Hesperian Snail	<i>Vespericola columbianus</i>

Table 17a. cont'd

Dermaptera: (Earwigs)	
European Earwig	<i>Forficula auricularia</i>

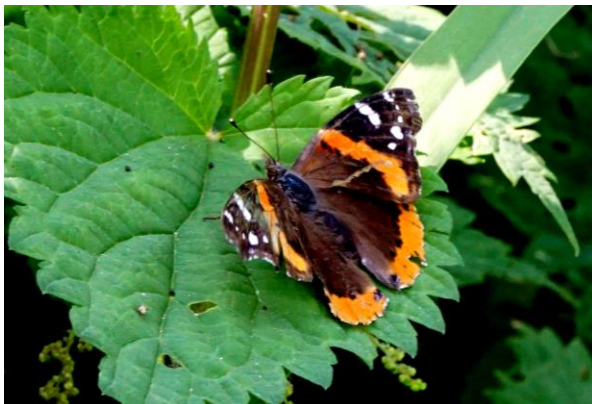
Thysanoptera: (Thrips)	
Western Flower Thrip	<i>Frankliniella occidentalis</i>

Lepidoptera: (Butterflies)	
Milber's Tortoiseshell	<i>Aglais milberti</i>
Arctic Skipper	<i>Carterocephalus palaemon</i>
Western Spring Azure	<i>Celastrina echo</i>
Mourning Cloak	<i>Nymphalis antiopa</i>
Woodland Skipper	<i>Ochlodes sylvanoides</i>
Western Tiger Swallowtail	<i>Papilio rutulus</i>
Margined White	<i>Pieris marginalis</i>
Veined White	<i>Pieris oleracea</i>
Cabbage White (one spot = male)	<i>Pieris rapae</i>
Green Comma	<i>Polygonia faunus</i>
Satyr Anglewing or Comma	<i>Polygonia satyrus</i>
Checkered White	<i>Pontia protodice</i>
European Skipper	<i>Thymelicus lineola</i>
Red Admiral	<i>Vanessa atalanta</i>
Painted Lady	<i>Vanessa cardui</i>

Additional Species recorded by Glenn Ryder

Lorquin's Admiral	<i>Limenitis lorquini</i>
Pale Swallowtail	<i>Papilio evrymedon</i>

Fig. 31. (Left) Red Admiral - *Vanessa atalanta*
(Right) Woodland Skipper - *Ochlodes sylvanoides*.



Lepidoptera: (Geometridae moths)

Fall Cankerworm	<i>Alsophila pometaria</i>
American Barred Umber	<i>Anagoga occiduaria</i>
Variable Carpet Moth	<i>Anticlea vasiliata</i>
The Infant	<i>Archiearis infans</i>
(Small white moth)	<i>Aspiates sp.</i>
Oak Besma	<i>Besma quercivoraria</i>
Peppered Moth	<i>Biston betularia</i>
Yellow-dusted Cream Moth	<i>Cabera erythemaria</i>
Grey Scoopwing Moth (caterpillar & adult)	<i>Callizzia amorata</i>
Pale Beauty Moth	<i>Campaea perlata</i>
Gray Spruce Looper Moth	<i>Caripeta divisata</i>
	<i>Ceratodalia gueneata</i>
Morbid Owlet Moth	<i>Chytolita morbidalis</i>
Western Spruce Budworm Moth	<i>Choristoneura occidentalis</i>
Mottled Gray Carpet Moth	<i>Cladara limitaria</i>
Barberry Geometer Moth	<i>Coryphista meadii</i>
Sweetfern Geometer Moth	<i>Cyclophora pendulinaria</i>
Marbled Carpet Moth	<i>Dysstromma manicata or citrata</i>
(Carpet Moth)	<i>Dysstroma colvillei</i>
(Carpet Moth)	<i>Dysstroma (probably) sobria</i>
Orange-barred Carpet Moth	<i>Dysstroma hersiliata</i>
Formosa Carpet Moth	<i>Dysstromma formosa</i>
Small Phoenix	<i>Ecliptoptera silaceata</i>
Small Engrailed Moth	<i>Ectropis crepuscularia</i>
Milky White Carpet Moth	<i>Enchoria lacteata</i>
Packard's Girdle	<i>Enypia packardata</i>
(Carpet Moth)	<i>Entephria lagganata</i>
	<i>Epirrhoe plebeculata</i>
Autumnal Moth	<i>Epirrita autumnata</i>
Western Winter Moth	<i>Erannis vancouverensis</i>
Barred Yellow Moth	<i>Eulithis propulsata</i>
Northwest Phoenix Moth	<i>Eulithis xyliana</i>
Sharp-angled Carpet Moth	<i>Euphyia intermediata</i>
	<i>Eupithecia olivacea</i>
	<i>Eupithecia ammonata</i>
Common Eupithecia Moth	<i>Eupithecia miserulata</i>
	<i>Eupithecia perfusca</i>
	<i>Eupithecia pseudotsugata</i>
	<i>Eupithecia ravocastaliata or nevadata</i>
	<i>Eupithecia sp.1</i>

Lepidoptera: (Geometridae moths) cont.

(Geometridae Moth) (caterpillar)	<i>Eupithecia sp. (misturata?)</i>
	<i>Eupithecia maestosa?</i>
	<i>Eupithecia sp. - 2.3 mm</i>
Little Tan Moth	<i>Eupithecia unicolor</i>
	<i>Eustroma semiatrata</i>
Dyar's Looper Moth	<i>Gabriola dyari</i>
Pistachio Emerald Moth	<i>Hethemia pistasciaria</i>
Common Emerald Moth	<i>Hemithea aestivaria</i>
	<i>Hydriomena edenata</i>
	<i>Hydriomena californiata</i>
	<i>Hydriomena marinata</i>
Renounced Hydriomena Moth	<i>Hydriomena renunciata</i>
California Cloverworm (Bomolocha) (larva & adult)	<i>Hypena californica</i>
Variegated Snout-moth	<i>Hypena palparia</i>
Single-dotted Wave Moth	<i>Idaea dimidiata</i>
Bent-line Gray Moth	<i>Iridopsis larvaria or emasculatum</i>
Hemlock Looper	<i>Lambdina fiscellaria</i>
Hemlock Angle Moth	<i>Macaria fissinotata</i>
Lorquin's Angle Moth	<i>Macaria lorquinaria</i>
Birch Angle Moth	<i>Macaria ulsterata or aemulataria</i>
Pale-marked Angle Moth	<i>Macaria signaria</i>
Ruddy Metarrhantis	<i>Metarrhantis duaria</i>
Western Carpet Moth	<i>Melanolophia imitata</i>
Western White-ribboned Carpet Moth	<i>Mesoleuca gratulata</i>
Horned Spanworm Moth	<i>Nematocampa resistaria</i>
Brown-lined Looper Moth (adult & caterpillar)	<i>Neocalcis californiaria</i>
Phantom Hemlock Looper	<i>Nepytia phantasmaria</i>
Bruce Spanworm ("Winter Moth")	<i>Operophtera bruceata</i>
Spring Cankerworm Moth	<i>Paleacrita vernata</i>
Perizoma Carpet Moth	<i>Perizoma grandis</i>
Behr's Pero Moth	<i>Pero behrensaria or morrisonaria</i>
Rindge's Pero Moth	<i>Pero mizon or morrisonaria</i>
Western Pero Moth	<i>Pero occidentallis</i>
Walnut Spanworm Moth	<i>Phigalia plumogeraria</i>
Brown Angle Shades Moth	<i>Phlogophora periculosa</i>
Straight-lined Plagodis Moth	<i>Plagodis phlogosaria</i>
Barred Umber	<i>Plagodis pulveraria</i>
George's Carpet Moth	<i>Plemyria georgii</i>
Porcelain Gray Moth	<i>Protoarmia porcelaria</i>
Pale Glyph	<i>Protodeltote albidula</i>
Scallop Shell	<i>Rheumaptera undulata</i>

Lepidoptera: (Geometridae moths) cont.	
Omnivorous Looper Moth	<i>Sabulodes aegrotata</i>
Brown-tipped Thorn	<i>Selenia alciphearia</i>
Wave Moth	<i>Scopula sp.</i>
	<i>Stenoporpia excelsaria</i>
September Thorn Moth	<i>Tetracis (Synaxis) pallulata</i>
Northern Thallophaga	<i>Thallopaga hyperborea</i>
Taylor's Thallophaga Moth	<i>Thallopaga taylorata</i>
White-striped Black Moth	<i>Trichodezia albovittata</i>
	<i>Triphosa affirmata</i>
Tissue Moth	<i>Triphosa haesitata</i>
False Celery Moth (Crambid Snout Moth)	<i>Udea profundalis</i>
Washington Udea Moth	<i>Udea washingtonalis</i>
Welsh Wave Moth	<i>Venusia cambrica</i>
(Carpet Moth)	<i>Venusia obsoleta</i>
Pearsell's Carpet Moth	<i>Venusia pearselli</i>
	<i>Venusia sp.</i>
	<i>Xanthorhoe alticolata</i>
	<i>Xanthorhoe algidata</i>
Western Red Twin-spot Moth	<i>Xanthorhoe defensaria</i>
	<i>Xanthorhoe fossaria</i>
Labrador Carpet Moth	<i>Xanthorhoe labradorensis</i>
Toothed Brown Carpet Moth	<i>Xanthorhoe lacustrata</i>
Red Carpet Moth	<i>Xanthorhoe munitata</i>
(Carpet Moth)	<i>Xanthorhoe pontiaria</i>

Fig. 32. (Left) Hemlock Looper - *Lambdina fiscellaria*,
(Right) Western White-ribboned Carpet Moth - *Mesoleuca gratulata*.



Lepidoptera (Noctuidae moths)	
	<i>Abagrotis (probably) baueri dark form</i>
Variegated Brindle	<i>Abrostola urentis</i>
Fingered Dagger Moth	<i>Acronicta dactylina</i>
Vancouver Dart Moth	<i>Agrotis vancouverensis</i>
Green Arches Moth	<i>Anaplectoides prasina</i>
Yellow-Headed Cutworm	<i>Apamea amputatrix</i>
Thoughtful Apamea	<i>Apamea cogitata</i>
Ignorant Apamea	<i>Apamea indocilis</i>
Large Looper Moth	<i>Autographa ampla</i>
Wavy Chestnut	<i>Autographa mappa</i>
	<i>Behrensia conchiformis</i>
Cattail Borer Moth	<i>Bellura obliqua</i>
Mottled Rustic Moth	<i>Caradrina morpheus</i>
White Underwing	<i>Catocala relicta</i>
Enigmatic Dart Moth	<i>Cerastis enigmatica</i>
Little White Lichen Moth	<i>Clemensia albata</i>
	<i>Cosmia praeacuta</i>
Olive Green Cutworm	<i>Dargida procincta</i>
	<i>Diarsia esurialis</i>
Rosey Dart Moth	<i>Diarsia rosaria</i>
	<i>Egira hiemalis</i>
Western Woodling Moth	<i>Egira rubrica</i>
Pink-patched Looper Moth	<i>Eosphoropteryx thyatyroides</i>
Three-Spotted Sallow Moth	<i>Eupsilia tristigmata</i>
American Angle Shades Moth (larva & adult)	<i>Euplexia benesimilis</i>
Great Brocade	<i>Eurois occulta</i>
(Noctuoidea Moth)	<i>Euxoa perexcellens</i>
Red-backed Cutworm	<i>Euxoa sp. ochrogaster (light form)</i>
	<i>Euxoa vetusta</i>
	<i>Feltia mollis</i>
Comstock's Sallow	<i>Feralia comstockii</i>
Deceptive Sallow Moth	<i>Feralia deceptiva (or comstockii?)</i>
Major Sallow Moth	<i>Feralia major</i>
Matthew's Ghost Moth	<i>Gazoryctra mathewi</i>
(Gazoryctra moth)	<i>Gazoryctra mcglashani</i>
Double Dart	<i>Graphiphora augur</i>
Alder Quaker Moth	<i>Homorthodes communis</i>
Dimorphic Bomolocha	<i>Hypena bijugalis or palparia</i>
California Bomolocha	<i>Hypena californica</i>

Lepidoptera (Noctuidae moths) cont.

	<i>Hypena modestoides</i>
	<i>Hypena humuli</i>
	<i>Hyppa contrasta</i>
	<i>Hyppa sp.</i>
Double Lobed	<i>Lateroligia ophiogramma</i>
Oregon Wainscot Moth	<i>Leucania oregona</i>
American Brindle	<i>Lithomoia germana</i>
Nameless Pinion	<i>Lithophane innominata</i>
Nameless Pinion	<i>Lithophane dilatocula</i>
	<i>Lithophane pertorrida</i>
Wanton Pinion Moth	<i>Lithophane petulca</i>
Silver-spotted Tiger Moth	<i>Lophocampa argentata</i>
Lesser Wainscot Moth	<i>Mythimna oxygala</i>
White-dotted Prominent	<i>Nadata gibbosa</i>
Lesser Yellow Underwing	<i>Noctua comes</i>
Greater Yellow Underwing	<i>Noctua pronuba</i>
Flame-shouldered Dart Moth	<i>Ochropleura implecta</i>
	<i>Oligocentria pallida</i>
Red-washed Prominent	<i>Oligocentria semirufescens</i>
Speckled Green Fruitworm Moth	<i>Orthosia hibisci</i>
	<i>Orthosia pacifica</i>
Protector Quaker Moth	<i>Orthosia praeses</i>
Transparent Quaker Moth	<i>Orthosia transparens</i>
Dark-spotted Palthis Moth	<i>Palthis angulalis</i>
Pearly Underwing	<i>Peridroma saucia</i>
Stormy Arches Moth	<i>Polia nimbosa</i>
Tufted Thyatirid Moth	<i>Pseudothyatira cymatophoroides</i>
Speckled Black Pyla Moth	<i>Pyla fusca</i>
Banded Woollybear Caterpillar	<i>Pyrrharctia isabella</i>
	<i>Pseudorthodes irrorata</i>
Plain Schizura	<i>Schizura apicalis</i>
Herald Moth - caterpillar & adult	<i>Scoliopteryx libatrix</i>
Yellow Woolly Bear Caterpillar & Moth	<i>Spilosoma virginica</i>
Cinnabar Moth	<i>Tyria jacobaeae</i>
Lesser Black-letter Dart Moth	<i>Xestia c-nigrum</i>
Inferior Dart	<i>Xestia plebeia</i>
	<i>Xestia mustelina</i>
	<i>Xestia smithii</i>
American Swordgrass Moth	<i>Xylena nupera</i>
Bruce's Swordgrass Moth	<i>Xylena sp (brucei?)</i>
Elder Moth	<i>Zotheca tranquilla</i>

Lepidoptera (Other Families of Moths)		
Fairy Moth	<i>Adela septentrionella</i>	Adelidae
Fairy Moth	<i>Adela sp.</i>	
Montana Six-plume Moth	<i>Alucita montana</i>	Alucitidae
(Small black & white moth)	<i>Argyresthia goedartella</i>	Argyresthiidae
Webworm	<i>Eudonia rectilinea</i> <i>Evergestis pallidata</i>	Crambidae
	<i>Agonopterix or Ethmia sp</i>	Depressariidae
Arched Hooktip Moth	<i>Drepana arcuata</i>	Drepanidae
Two-lined Hooktip	<i>Drepana bilineata</i> <i>Euthyatira pudens</i>	
Lettered Habrosyne	<i>Habrosyne scripta</i>	
Yellow-spotted Tiger Moth	<i>Lophocampa maculata</i>	Erbidae
	<i>Monochroa placidella</i>	Gelechiidae
	<i>Ethmia sp.?</i>	Gelechioidea
Lappet Moth	<i>Phyllodesma americana</i>	Lasiocampidae
Forest Tent Caterpillar Moth	<i>Malacosoma disstria</i>	
Double Little Spot	<i>Epimartyria bimaculella</i>	Micropterigidae
Lichen Bagworm	<i>Dahlica lichenella</i>	Psychidae
Oregon Catoptria Moth	<i>Catoptria oregonica</i>	Pyraloidea
Cranberry Girdler	<i>Chrysoteuchia topiaria</i>	
Bold-feathered Grass Moth	<i>Herpetogramma pertextalis</i>	
Zigzag Herpetogramma Moth	<i>Herpetogramma thestealis</i>	
Lucerne Moth	<i>Nomophila nearctica</i>	
Crowned Phlyctaenia Moth	<i>Phlyctaenia coronata</i>	
Salebriaria Moth	<i>Salebriaria sp.(roseopunctella?)</i>	
	<i>Achyra occidentalis</i>	Pyraustine
Yellow Snout-moth	<i>Rivula propinqualis</i>	Rivulinae
Bedstraw Hawkmoth	<i>Hyles gallii</i>	Sphingidae
Blind Eyed Sphinx	<i>Paonias excaecatus</i>	
	<i>Eudarcia eunitariaeella</i> <i>Nemapogon acapnopennella</i> <i>Oenoe hybromella</i>	Tineidae
Case-bearing Clothes Moth (larva)	<i>Tinea pellionella or irrepta larva</i>	Tineoidea
Spring Spruce Needle Moth	<i>Acleris maximana</i>	Tortricidae
Orange Tortrix	<i>Archips pachardiana</i> <i>Argyrotaenia franciscana</i> <i>Argyrotaenia sp. (citrana?)</i>	
Celypha Moth	<i>Celypha cespitanus</i>	
Broken-banded Leafroller	<i>Choristoneura fractivittana</i> <i>Epinotia albangulana</i> <i>Eulia ministrana</i>	

Lepidoptera (Other Families of Moths) cont.		
Cottonwood Twig Borer	<i>Gypsonoma haimbachiana</i>	Tortricidae
Olethreutes Moth (Tussock Moth)	<i>Olethreutes cespitana</i> or <i>bipartitoma</i>	
(Olethreutes Moth)	<i>Olethreutes deprecatorius</i>	
Iron-lined Olethreutes	<i>Olethreutes glaciana</i>	
Holly Tortrix Moth	<i>Olethreutes sp.</i>	
(Olethreutinae Pitch-blister Moth)?	<i>Rhopobota naevana</i>	
	<i>Retinia sabiniana</i> or <i>taedana</i>	

Fig. 33. (Top left clockwise) Enigmatic Dart - *Cerastis enigmatica*, Matthew's Ghost Moth - *Gazoryctra mcglashani*, Cinnabar Moth - *Tyria jacobaeae*, Lettered Habrosyne - *Habrosyne scripta*.



Hymenoptera: (Bees, Wasps, Ants & Sawflies)		
Wasps	Braconid Wasp	<i>Aleiodes pseudoterminalis</i>
	Thread-waisted Wasp sp.	<i>Ammophilia sp.</i>
	Braconid Wasp sp.	<i>Apanteles sp.</i>
	Sand Wasp	<i>Bembix sp. (americana)</i>
	Brachonid Wasp	<i>Cotesia sp.</i>
	Ichneumon Wasp	<i>Cryptus sp.</i>
	Willow Gall Wasp	<i>Cynipidae sp.</i>
	Thimbleberry Stem Gall Wasp	<i>Diastrophus kincidii</i>
	Ichneumon Wasp	<i>Enicospilus sp.</i>
	Potter Wasp	<i>Eumenes sp.(crucifera)</i>
	Solitary Grass Carrier Wasp.	<i>Isodontis elegans</i>
	Leucospirid Wasp	<i>Leucospidae sp.</i>
	Ichneumon wasp	<i>Netelia sp.</i>
	Ichneumon Wasp	<i>Ophion sp.</i>
	Black & Gold Paper Wasp	<i>Polistes dominula</i>
	Gorytini Sand Wasp sp.	<i>Psammaletes sp.</i>
	Horntail sp. (wasp)	<i>Siricidae sp.</i>
	Mud Dauber Wasp sp.	<i>Sphecidae sp. (nest)</i>
	Bald-faced Hornet	<i>Vespula maculata</i>
	Western Yellow Jacket	<i>Vespula pensylvanica</i>
Bees	Burrowing Bee	<i>Andrena sp.</i>
	Digger Bee	<i>Anthophora sp.</i>
	Domestic Honey Bee	<i>Apis mellifera</i>
	Two Form Bumble Bee	<i>Bombus bifarius bifarius</i>
	California Bumble Bee	<i>Bombus californicus</i>
	Yellow-fronted Bumble Bee	<i>Bombus flavifrons</i>
	Common Eastern Bumble Bee	<i>Bombus impatiens</i>
	Orange-rumped Bumble Bee	<i>Bombus melanopygus</i>
	Mixed Bumble Bee	<i>Bombus mixtus</i>
	Nevada bumble Bee	<i>Bombus nevadensis</i>
	Red-belted Bumble Bee	<i>Bombus rufocinctus</i>
	Sitka Bumble Bee	<i>Bombus sitkensis</i>
	Van Dyke Bumble Bee	<i>Bombus vandykei</i>
	Yellow-faced Bumble Bee	<i>Bombus vosnesenskii</i>
	Small Carpenter Bee	<i>Ceratina sp.</i>
	Plasterer Burrowing Bee	<i>Colletes inaequalis</i>
	Sweat Bee	<i>Halictus sp.</i>
	Yellow-faced Bee	<i>Nomada sp.</i>

Hymenoptera: (Ants & Sawflies) cont.		
Ants	Formicinae Ant	<i>Polyergus breviceps</i>
	Ant (red)	<i>Formica sp.</i>
	Ant (small black)	<i>Formica sp.</i>
	Ant (tiny red)	<i>Formica sp.</i>
	Ant (small black)	<i>Formica neogagates</i>
	Ant (medium red with black abdomen)	<i>Formica sp.</i>
	Western Thatching Ant	<i>Formica obscuripes</i>
Sawfly	Willow Apple Leaf Gall (sawfly)	<i>Pontania californica</i>
	Sawfly sp. (larva)	<i>Tenthredinidae family?</i>
	Sawfly sp. (adult)	<i>Tenthredo verticalis</i>
	Cimbicid Sawfly	<i>Trichiosoma triangulum</i>



Fig. 34. (Top left clockwise) Western Thatching Ant - *Formica obscuripes*,
Bumble Bee - *Bombus sp.* Carrion Beetle - *Nicrophorus marginatus*, **Sand**
Wasp - *Bembix sp. (Americana?)*,

Coleoptera: (Beetles)

Two-spotted Ladybug	<i>Adalia bipunctata</i>
Alder Flea Beetle	<i>Altica ambiens</i>
Seed Eating Ground Beetle	<i>Amara sp.</i>
Ambrosia Beetle sp. - compacted frass tubes	<i>Ambrosia sp. (Scolytidae)</i>
(Click Beetle)	<i>Ampedus balteatus</i>
Flower Long-horned Beetle	<i>Analeptura lineola</i>
Minute Ground Beetle (1.5 mm.)	<i>Bembidion sp.</i>
Short-winged Flower Beetle (on nettle)	<i>Brachypterus sp.</i>
Long-horned Beetle	<i>Brachysomida californicus</i>
Metallic Wood-Borer (False Click Beetle)	<i>Buprestidae sp.</i>
Ground Beetle	<i>Carabus serratus</i>
Ground Beetle	<i>Carabus granulatus</i>
European Ground Beetle	<i>Carabus nemoralis</i>
Rove Beetle (from Bald-hip Rose flower)	<i>Carpelimus sp.</i>
Small Carrion Beetle (3.0 mm)	<i>Catopocerus sp.</i>
Yellow Douglas-fir Borer	<i>Centrodera spurca</i>
Long-horned Beetle (~6 mm)	<i>Cerambycidae family</i>
Checkered Beetle	<i>Chariessa elegans</i>
Seven-spotted Ladybird Beetle	<i>Coccinella septempunctata</i>
Three-banded Ladybird Beetle	<i>Coccinella trifasciata</i>
Black-and-Red Stink Bug	<i>Cosmopepla lintneriana</i>
Rare Snail Eating Beetle	<i>Cychrus tuberculatus</i>
Western Blood-red Ladybird Beetle	<i>Cycloneda polita</i>
Douglas-Fir Twig Weevil	<i>Cylindrocopturus furnissi</i>
Checkered Beetle sp.	<i>Cymatodera sp.</i>
Dermestid Beetle (from pupa)	<i>Dermestidae sp.</i>
Fire-colored Beetle (adult & larva)	<i>Dendroides concolor</i>
Golden Net-winged Beetle	<i>Dictyopterus simplicipes</i>
Black Lampyrid (Firefly)	<i>Ellychnia hatchi</i>
Punctate Blister Beetle	<i>Epicauta puncticollis</i>
False Click Beetle	<i>Eucnemidae sp.</i>
Asian Ladybird Beetle	<i>Harmonia axyridis</i>
Spotted Ladybird Beetle	<i>Hippodamia convergens</i>
Community Wireworm	<i>Melanotinae sp.</i>
Rose Curculio (Weevil)	<i>Merhynchites bicolor</i>
Root-eating Beetle	<i>Monotoma sp.</i>
Flat Brown Scavenger Beetle	<i>Necrophilus hydrophiloides</i>
Six Spotted Sexton Carrion Beetle	<i>Nicrophorus defodiens</i>
Sexton or Marginated Burying (Carrion) Beetle	<i>Nicrophorus marginatus</i>
Cereal Leaf Beetle	<i>Oulema melanopus</i>

Coleoptera: (Beetles) cont.	
Rove Beetle (1.8 cm)	<i>Philonthus sp.</i>
Weevil sp.	<i>Pissodes sp.</i>
Stag-Beetle sp.	<i>Platyceroides sp.</i>
Northern Psyllobora Lady Beetle	<i>Psyllobora borealis</i>
Common Black Ground Beetle	<i>Pterostichus sp.</i>
Woodland Ground Beetle	<i>Pterostichus sp.3</i>
Black Ground Beetle (1.3 cm)	<i>Pterostichus sp.(amethystinus or herculaneus)</i>
Snail-eating Ground Beetle	<i>Scaphinotus angulatus</i>
Snail-eating Ground Beetle	<i>Scaphinotus angusticollis</i>
Bark Beetle	<i>Scolytidae family</i>
Rugose Stag Beetle	<i>Sinodendron rugosum</i>
Water Skater Rove Beetle	<i>Steninae sp.</i>
Rove Beetle sp.	<i>Tachinus sp.</i>
Carrion Beetle (6 mm from mouse carrion)	<i>Unidentified</i>
Powder Post Beetle	<i>Unidentified</i>

Orthoptera: (Grasshoppers & Katydid)	
Fork-tailed Bush Katydid	<i>Scudderia furcata</i>
Camel Cricket	<i>Ceuthophilus sp.(maculatus?)</i>
Two-striped Grasshopper	<i>Melanoplus bivittatus</i>
Spur-throated Grasshopper sp.	<i>Melanoplus sp.</i>
American Grasshopper	<i>Schistocerca americana</i>

Embioptera: (Webspinners)	
Webspinner sp.	<i>Oligotoma sp.</i>

Fig. 35. (Left) Fork-tailed Bush Katydid - *Scudderia furcate*, (Right) Yellow-legged Meadowhawk (female) – *Sympetrum vicinum*



Diptera: (Two-winged Flies)

Tree-hole Mosquito	<i>Aedes triseriatus</i>
Silverleaf Whitefly	<i>Bemisia argentifolia</i>
Parasitic Tachina (fly hatched from caterpillar pupa)	<i>Ceromasia auricaudata</i>
Syrphid Fly	<i>Chalcosyrphus Xylotomina sp.</i>
Midge sp.	<i>Chironomus sp.</i>
Snow Fly	<i>Chionea alexandriana</i>
Dull Four-spined Legionnaire Soldier Fly	<i>Chorisops tibialis</i>
Coelopod Fly	<i>Coelopod sp.</i>
Aspen Gall Midge	<i>Contarinia petioli</i>
Wood-boring Crane Fly	<i>Ctenophora apicata</i>
Syrphid Fly (Bumble bee like)	<i>Criorhina nigraventris</i>
No-see-um ?	<i>Culicoides sp.?</i>
Flower Fly	<i>Didea fasciata</i>
March Fly	<i>Bibio vestitus</i>
Dance Fly sp.	<i>Empis sp.</i>
Early Tachinid Fly	<i>Epalpus signifer</i>
European Drone Fly	<i>Eritalis tenax</i>
Syrphid, Hover or Flower Fly	<i>Eristalis flavipes</i>
Flower or Hover Fly	<i>Eupeodes lapponica</i>
Marsh Loving Hover Fly	<i>Helophilus fasciatus</i>
Giant Crane Fly	<i>Holorusia rubiginosa</i>
Syrphid Fly	<i>Leucozon (isochryosyphus) xylotoides</i>
Robber Fly	<i>Laphria sp.</i>
Western American Deer Ked	<i>Lipoptena depressa</i>
Green Bottle Fly	<i>Lucilia sericata</i>
Greenbottle Blow-fly	<i>Lucilia cornicina</i>
Flower or Hover Fly	<i>Meliscaeva cinctinella</i>
Fly	<i>Musca sp.</i>
Fungus Gnat	<i>Mycetophilidae sp.</i>
Thick-headed Fly sp.	<i>Physocephala sp.</i>
Gall Midge (on willow)	<i>Rabdophaga salicis</i>
Flesh Fly	<i>Sarcophaga pernix</i>
Golden-haired Dung Fly	<i>Scathophaga stercoraria</i>
Pied Hover Fly	<i>Scaeva pyrastris</i>
Flower Fly	<i>Sericomyia chrysotoxoides</i>
Alderfly sp.	<i>Sialis sp.</i>
Black Flies	<i>Simulium spp.</i>
Syrphid Fly	<i>Somula decora</i>
Small Dung Fly	<i>Sphaerophoria contigua</i>
Syrphid Fly sp.1	<i>Myathropa florea</i>
Syrphid Fly sp.2	<i>Syrphus torvus</i>
Syrphid Fly sp.3	<i>Sphaerophoria sp.</i>

Diptera: (Two-winged Flies) cont.	
Syrphid Fly sp.4	<i>Syrphus ribesii</i>
Syrphid Fly sp.5	<i>Myolepta strigilata</i>
Syrphid Fly sp.6	<i>Hadromyia chrysosomidia</i>
Syrphid Fly sp.7	<i>Syrphidae fly sp.7</i>
Syrphid Fly	<i>Syritta pipeins</i>
Tachinid Fly	<i>Tachinid sp.</i>
European Crane Fly	<i>Tipula paludosa</i>
Syrphid Fly	<i>Toxomerus sp.</i>
Winter Crane Fly	<i>Trichocera sp.</i>
Flower Fly	<i>Xylota sp.(flavifrons)</i>
Pale Green Assassin Bug	<i>Zelus luridus</i>

Neuroptera (Lacewings) + Raphidioptera (Snakeflies)	
Western green Lacewing	<i>Chrysopa majuscula</i>
Brown Lacewing	<i>Hemerobius pacificus</i>
Snakefly	<i>Agulla species</i>
Stigmatic Snakefly	<i>Negha inflata</i>

Hemiptera: (Sucking Bugs)	
Green Stink Bug	<i>Acrosternum hilare</i>
Plant Bug (green)	<i>Adelphocoris sp.?</i>
Black and Red Spittlebug (on Salmonberry)	<i>Aphrophora sp.</i>
Green Spittlebug (nymph)	<i>Aphrophora sp.</i>
Aphid	<i>Aphis sp.</i>
Green Aphid	<i>Aphis sp.</i>
Black-and-red Stink Bug	<i>Cosmopepla lintneriana</i>
Black-spotted Brown Reduviid (Assasin Bug)	<i>Diaditus pictipes</i>
Red-Cross Shield Bug	<i>Elasmotethus cruciata</i>
Birch Bug	<i>Elasmucha lateralis</i>
(Stilt Bug - Western sp.)	<i>Jalysus sp.</i>
Glover or Purple Scale	<i>Lepidosaphes gloveri or beckii</i>
Western Conifer Seed Bug	<i>Leptoglossus occidentalis</i>
Tarnished Plant Bug	<i>Lygus lineolaris</i>
Tarnished Plant Bug	<i>Lygus sp.</i>
Western Damsel Bug (Adult & nymph)	<i>Nabis alternatus</i>
Minute Pirate Bug	<i>Orius sp.</i>
Meadow Spittlebug	<i>Philaenus spumarius</i>
Magnificent Pedica Crane Fly	<i>Pedicia magnifica</i>

Hemiptera: (Sucking Bugs) cont.	
Spined Stink Bug	<i>Podius maculiventris</i>
Long-tailed Mealybug	<i>Pseudococcus longispinus</i>
Stink Bug	<i>Zircona caeruleus</i>

Collembola: (Springtails)	
Snow Flea	<i>Achorutes sp.</i>
Snow Flea (Isotominae)	<i>Archisotoma sp.</i>
(Entomobryinae)	<i>Cyphoderus sp.</i>
Globular Springtail (Sminthuridae)	<i>Dicyrtomina ornata</i>
	<i>Folsomia quadrioculata</i>
	<i>Proisotoma frissoni</i>
Snow flea (Neanuridae)	<i>Hypogastrura nivicola (armata)</i>
Springtail (Hypogastruridae sp.)	<i>Hypogastrura pseudoarmata</i>
	<i>Hypogastrura manubrialie</i>
Springtail (Odontellidae sp.)	<i>Odontellidae sp.</i>
	<i>Orchesella albosa</i>
Globular Springtail (Sminthuridae)	<i>Ptenothrix atra</i>
Globular Springtail (Sminthuridae)	<i>Ptenothrix beta</i>
Globular Springtail (Sminthuridae)	<i>Ptenothrix costanea</i>
Springtail (Pseudachorutes sp.)	<i>Pseudachorutes sp.</i>
(Tomocerinae)	<i>Tomolonus sp.</i>

Homoptera: (Leafhoppers)	
Leafhopper	<i>Agallia sp.?</i>
Leafhopper	<i>Alebra sp</i>
Leafhopper	<i>Cicadella sp.?</i>
Beet leafhopper	<i>Circulifer tenellus</i>
Leafhopper	<i>Chlorotettix sp.(tergatus?)</i>
Leafhopper	<i>Dikrella cruentata</i>
Virginia Creeper Leafhopper	<i>Erythroneura ziczac</i>
Leafhopper	<i>Extrusanus sp.(extrusus?)</i>
Leafhopper	<i>Menosoma sp.</i>
Leafhopper	<i>Neocoelidia (tuberculata?)</i>
Six-spot (Aster) Leafhopper sp.	<i>(Macrosteles quadrilineatus?)</i>
Mealybug	<i>Pseudococcus sp.</i>
White Apple Leafhopper	<i>Typhlocyba pomaria</i>

Araneae: (Spiders)

Orb Weaver Cross Spider	<i>Araneus diadematus</i>
Hackle-mesh Weaver	<i>Callobius pictus</i>
Hackle-mesh Weaver	<i>Callobius sp. (imm.)</i>
Dwarf Weaver	<i>Ceraticelus fissiceps</i>
Sheet-web Spider	<i>Ceratinops inflatus</i>
Sheet-web Spider	<i>Ceratinops inflatus</i>
Cave Spider	<i>Cicurina idahoana</i>
Wynoochee Spider	<i>Cicurina tersa</i>
Mayday Spider (Hahniidae)	<i>Cryphoeca exlineae</i>
Cybaeidae	<i>Cybaeota nana</i>
Cybaeidae	<i>Cybaeota shastae</i>
Cybaeid Spider	<i>Cybaeus eutypus</i>
Water Spider	<i>Cybaeus reticulatus</i>
Orb Weaver	<i>Cyclosa conica</i>
Fishing Spider	<i>Dolomedes sp.(triton?)</i>
Jumping Spider	<i>Eris marginata?</i>
Bronze Jumper	<i>Eris militaris</i>
Pirate Spider	<i>Ero tuberculata</i>
Sheet-web Spider	<i>Frederickus coylei</i>
Stealthy Ground Spider	<i>Gnaphosa sp.(imm.)</i>
Cribellate or Heckle Band Orb Weaver Spider	<i>Hyptiotes gertschi</i>
Sheet-web Spider	<i>Kaestneria pullata</i>
Sheet-web Weaver	<i>Lepthyphantes zibus</i>
Common Hammock-weaver	<i>Linyphia triangularis</i>
Blanket or Sheet-weaving Spider	<i>Linyphiidae family</i>
Wolf Spider	<i>Lycosidae sp.</i>
Redwood Flora Spider	<i>Metellina curtisi</i>
Autumn Spider (Common Orb Weaver)	<i>Metellina segmentata</i>
Green Linyphiidae	<i>Microlinyphia dana</i>
Sheet-web Spider	<i>Microneta viaria</i>
Flower Crab Spider	<i>Misumena vatia</i>
Crab Spider sp.	<i>Misumenops sp.</i>
Striped Flat Sheet-Web Spider	<i>Nerienne digna</i>
Filmy Dome Spider	<i>Nerienne radiata</i>
Scaffold web Spider	<i>Nesticus silvestrii</i>
Sheet-web Spider	<i>Oreonetides filicatus</i>
Lynx Spider	<i>Oxyopes sp.?</i>
Crab Spider	<i>Ozyptila pacifica</i>
Crab Spider	<i>Ozyptila praticola</i>
American House Spider	<i>Parasteatoda tepidariorum</i>
Thin-legged Wolf Spider	<i>Pardosa concinna</i>
Thin-legged Wolf Spider	<i>Pardosa mackenziana</i>

Araneae: (Spiders) cont.	
Thin-legged Wolf Spider	<i>Pardosa sp.(imm.)</i>
Thin-legged Wolf Spider	<i>Pardosa tesquorum</i>
Thin-legged Wolf Spider	<i>Pardosa vancouveri</i>
Jumping Spider	<i>Pellenes levii</i>
Jumping Spider	<i>Phanias albeolus</i>
Jumping Spider	<i>Phidippus multiformis</i>
Philodromid Crab Spider	<i>Philodromus dispar</i>
Antmimic Spider	<i>Phrurotimpus borealis</i>
Forest Spider	<i>Pimoa altiocolata</i>
Wolf Spider	<i>Pirata montanus</i>
Hammock Spider	<i>Pityohyphantes costatus</i>
Cobweb Weaver	<i>Platnickina tincta</i>
Cobweb Weaver	<i>Robertus vigerens</i>
Tangle-web Spider	<i>Rugathodes sexpunctatus</i>
Zebra Spider	<i>Salticid scenicus</i>
Cobweb Weaver	<i>Steatoda albomaculata</i>
Cobweb Weaver	<i>Steatoda hespera</i>
Dwarf Weaver	<i>Tachygyna ursina</i>
Sheet-web Spider	<i>Tapinocyba dietrichi</i>
Sheet-web Spider	<i>Tenuiphantes zelatus</i>
Sheet-web Spider	<i>Tenuiphantes zibus</i>
Long Jawed Spider	<i>Tetragnatha versicolor</i>
Long Jawed Spider	<i>Tetragnathid sp. (imm.)</i>
Running Crab Spider	<i>Thanatus coloradensis</i>
Variable Cobweb Weaver	<i>Theridion varians</i>
Crab Spider	<i>Thomisid sp. (imm.)</i>
Running Crab Spider	<i>Tibellus oblongus</i>
Running Crab Spider	<i>Tibellus sp. (imm.)</i>
Minute Haplogyne Spider	<i>Usofila pacifica</i>
Sheet-web Spider	<i>Walckenaeria cornuella</i>
Sheet-web Spider	<i>Walckenaeria directa</i>
Sheet-web Spider	<i>Wubana pacifica</i>
Sheet-web Spider	<i>Zygottus corvallis</i>

Entognatha: (Diplura)	
Japygid Dipluran	<i>Metajapyx sp.</i>

Thysanura: (Bristletails)	
Jumping Bristletail (outdoor species)	<i>Machilidae sp.</i>

Pseudoscorpions, Harvestman & Mites	
Pseudoscorpion	<i>Chernetidae sp.</i>
Pseudoscorpion	<i>Pseudotyranochthonius Beier (Gracilis?)</i>
Pseudoscorpion	<i>Larca chamberlin (notha?)</i>
Pseudoscorpion	<i>Pseudogarypinus Beier (frontalis?)</i>
Harvestman	<i>Hesperonemastoma modestum</i>
Harvestman	<i>Leiobunum exilipes</i>
Harvestman	<i>Leptobunus parvulus</i>
Harvestman	<i>Liopilio glaber</i>
Harvestman	<i>Nelima paessleri</i>
Harvestman	<i>Ortholasma pictipes</i>
Harvestman	<i>Paroligolophus agrestis</i>
Harvestman	<i>Rilaena triangularis</i>
Harvestman	<i>Togwoteus biceps</i>
Brown Harvestman	<i>Phalangium opilio</i>
Willow Mite Galls	<i>Eriophyid mite sp. (Aculops tetanothrix)</i>
Misostigmatan Mite	<i>Misostigmatan sp.</i>
Spider Mite	<i>Panonychus sp? (Tetranychidae)</i>
Poecilochirus Mite (on Carrion Beetle)	<i>Poecilochirus sp.</i>
Velvet Mite	<i>Trombidium sp.</i>

Polydesmidae: (Millipedes & Centipedes)	
Soil Centipede	<i>Arenophilus bipuncticeps</i>
Millipede	<i>Bollmaniulus sp.</i>
Cyanide Millipede	<i>Harpaphe haydeniana</i>
The Brown Centipede	<i>Lithobius forficatus</i>
Polyzonid Millipede	<i>Octoglena anura</i>
Greenhouse Millipede	<i>Oxidus gracilis</i>
Flat-Backed Millipede	<i>Polydesmus angustus</i>
Criptopid Centipede	<i>Theatops sp.</i>

Malacostraca: Crustaceans	
Rough Sowbug or Woodlouse	<i>Porcellio scaber</i>
Sowbug	<i>Oniscus asellus</i>
unidentified	<i>Terrestrial isopod</i>

Oligochaeta (Earthworms) + Hirudinea (Leeches)	
Earthworm	<i>Lumbricoides terrestris</i>
Leech - terrestrial	<i>Hirudinea sp.</i>

Psocoptera (Barklice)	
Barklice	<i>Psocoptera sp.</i>

Miscellaneous Invertebrates	
Taenia sp. (in coyote scat)	<i>Taenia sp.</i> (probably <i>crassiceps</i>)
Nematode sp.#1?	Phylum: <i>Nematoda</i> ?
Nematode sp.#2	Class: <i>Chromadorea</i> ?

Fig. 36. (Top left clockwise) Cross Orb Weaver - *Araneus didematus*, Flower Crab Spider - *Misumena vatia*, Mixture of Soil Mites etc. from Berlese funnel, Pirate Spider - *Ero tuberculata*.



Table 17b. Aquatic Invertebrates

Coleoptera: (Beetles)	
Diving Beetle (adult)	<i>Acilius sp.</i>
Diving Beetle (larva)	<i>Acilius sp.</i>
Predaceous Diving Beetle (larva)	<i>Dytiscidae</i>
Whirligig Beetle	<i>Gyrinus sp.</i>
Water Scavenger Beetle (larva)	<i>Hydrophilidae sp.</i>
Backswimmer	<i>Notonectidae family</i>
Predaceous Diving Beetle	<i>Sanfilippodytes terminalis</i>

Diptera: (Two-winged Flies)	
Tree-hole Mosquito	<i>Aedes triseriatus</i>
Phantom Midge (larva)	<i>Chaoborus sp.</i>
Non-Biting Midge (larva) (Bloodworm)	<i>Chironomid sp.</i>
Bloodworm Midge sp. (pupa)	<i>Chironomid sp.</i>
Mosquito sp. (larva)	<i>Culicidae family</i>
Winter Mosquito	<i>Culiseta inornata</i>
Dixid Midge (larva)	<i>Dixidae sp.</i>
Phantom Crane Fly (larva)	<i>Ptychopteridae sp.</i>
Water Strider	<i>Gerris buenoi</i>
Water Strider	<i>Gerris incurvatus</i>
Common Water Strider (skater)	<i>Gerris remigis</i>
Kyak Pond Skater	<i>Limnporus notabilis</i>
Rat-tailed Maggot (Flower Fly larva)	<i>Syrphidae sp.</i>
Midge	<i>Tanytarsus sp.</i>

Araneae: (Spiders & Mites)	
Water Mite sp.	Unidentified

Crustaceans	
Shrimp (Sideswimmer or Scud)	<i>Amphipoda sp.</i>
Shrimp - unidentified	<i>Anisogammarus or neomysis.</i>
Aquatic Sow Bug	<i>Asellus sp.</i>
Water Flea	<i>Cladoceran sp. (probably Daphnia sp.)</i>
Copepod - Cyclops	<i>Cyclops sp.</i>
Clam Shrimp	<i>Cyzicus sp.</i>
Copepod - Diaptomus	<i>Diaptomus sp.</i>
Signal Crayfish	<i>Pacifastacus leniusculus</i>
Aquatic Isopod sp.	<i>Unidentified</i>

Mollusca (Snails & Clams)	
Physid Freshwater Snail	<i>Physidae sp.</i>
Pea or Finger Nail Clam	<i>Pisidium sp.</i>
Planorbid (Ramshorn) Freshwater Snail	<i>Planorbis sp.</i>

Plecoptera: (Stoneflies)	
Appalachian Springfly (Stonefly larva)	<i>Isogenoides hansonii</i>
Green-winged Stonefly	<i>Isoperla sp.</i>
Spring Stonefly	<i>Nemouridae sp.</i>
Common Stonefly (larva)	<i>Perlidae sp.</i>
Perlodid Stonefly (larva)	<i>Perlodidae</i>
Stonefly (larva)	<i>Pteronarcys sp.</i>
Winter Stonefly	<i>Taeniopteryx nivalis</i>

Odonata: (Dragonflies & Damselflies)	
Darner sp. (larva)	<i>Aeshnidae sp.</i>
Paddle-tailed Darner	<i>Aeshna palmata</i>
Shadow Darner	<i>Aeshna umbrosa</i>
Enallagma (Bluet) sp.	<i>Enallagma sp.</i>
Northern Bluet	<i>Enallagma annexum</i>
Western Pondhawk	<i>Erythemis collocata</i>
Swift Forktail Damselfly	<i>Ishnura erratica</i>
Western Forktail	<i>Ishnura perparva</i>
Common (Northern) Spreadwing	<i>Lestes disjunctus</i>
Common Whitetail Skimmer	<i>Libellula lydia</i>
Red-veined Meadowhawk	<i>Sympetrum madidum (female)</i>
White-faced Meadowhawk	<i>Sympetrum obtrusum</i>
Yellow-legged Meadowhawk	<i>Sympetrum vicinum</i>

Ephemeroptera: (Mayflies)	
Small Minnow Mayfly (larva)	<i>Baetidae family</i>
Mayfly sp. (adult)	<i>Baetidae family</i>
Spiny Crawler Mayfly (larva)	<i>Ephemerellidae sp.</i>
Mayfly (nymph)	<i>Ephemeroptera</i>
Prong-gilled Mayfly (larva)	<i>Leptophlebiidae sp.</i>
Light Cahill - Flatheaded Mayfly (larva)	<i>Stenacron interpunctatum</i>

Trichoptera: (Caddisflies)	
Giant Orange Sedge	<i>Dicosmoecus gilvipes</i>
Caddisfly (adult)	<i>Ecclisomyia sp.</i>
Betten's Silverstreak Caddisfly	<i>Grammotaulius bettenii</i>
	<i>Halesochila taylori</i>
Great Silver-stripe Sedge	<i>Hesperophylax designatus</i>
Tan Caddisfly	<i>Hydropsyche cockerelli</i>
Common Netspinner Caddisfly (larva)	<i>Limnephilidae sp.</i>
Caddisfly	<i>Lepidistoma sp.</i>
Northern Caddisfly (adult)	<i>Limnephilidae sp.</i>
	<i>Nemotaulis hostilus</i>
Great Late Summer Sedge	<i>Onocosmoecus unicolor</i>
Caddisfly sp. (adult)	<i>Phryganeidea sp</i>
Caddisfly sp. (adult)	<i>Phychoglypha sp.</i>
Free-living Caddisfly (larva)	<i>Rhyacophila sp.</i>
Caddisfly - black legs (larva)	<i>Limnephilidae sp.</i>
Caddisfly - striped legs (larva)	<i>Limnephilidae sp.</i>
Caddisfly sp.1. (adult)	<i>Trichoptera sp.</i>
Caddisfly sp.2. (adult)	<i>Trichoptera sp.</i>

Oligochaeta + Hirudinae		
Oligochaeta	Aquatic earthworm	<i>Oligochaeta (family Tubificidae?)</i>
Hirudinae	Leech - aquatic (grey colour)	<i>Hirudinea sp.</i>

Discussion:

This site is a very special place. Its value is largely due to its rejuvenation as a diverse mixed forest, with good representation of the local conifers and deciduous trees that are endemic to the area. This is after being logged in the late 1800's/early 1900's and abandoned after a fire in 1921. As the site has been left undisturbed for nearly 100 years, this has allowed a build-up of un-compacted organic matter and the resultant presence of an incredible variety of at least 400 fungal species. Also included in our tallies are several species at risk or rare species.

The fact that this crown land has a long-term record of observations is a huge asset for documenting population trends and changes. Glenn Ryder's records, which go back to 1969 and earlier for other sites in Langley, provide insight as to which species historically occupied this site but are now absent. This information could help future managers decide which species at-risk could be candidates for re-establishment. Water quality analyses for Davidson Creek are shown in Appendix 1. Page 124.

Mountain View Crown Land meets requirements for both B.C. Conservation Lands (ie. Wildlife Management Areas) and for B.C. Protected Areas (ie. Ecological Reserves). Conservation Lands include habitat that is vital for sensitive, vulnerable or at-risk species or habitat supporting unusually high species productivity or diversity. The property does contain species at-risk and we believe that the species diversity is unusually high.

The purpose of Ecological Reserves is to reserve Crown land for ecological purposes, including the following areas:

- a) areas suitable for scientific research and educational purposes associated with studies in productivity and other aspects of the natural environment;
- b) areas that are representative examples of natural ecosystems in British Columbia;
- c) areas that serve as examples of ecosystems that have been modified by human beings and offer an opportunity to study the recovery of the natural ecosystem from modification;
- d) areas where rare or endangered native plants and animals in their native habitat may be preserved;
- e) areas that contain unique and rare examples of botanical, zoological or geological phenomena.

Addressing the first point, this property is ideally located for scientific research and educational purposes, with both Trinity Western University and Kwantlen University's Langley campus only short distances away.

The second point is also relevant. President Mike Fenger of the Friends of Ecological Reserves made a number of compelling points in the Spring/Summer 2018 LOG (Friends of Ecological

Reserves Newsletter). He emphasized that we need a World-Class ER system in B.C. to gather and assess ecosystem data for management and limits in a world of rapidly changing climates. He also pointed out that additional ERs are particularly needed for low elevation sites on the coast (and in the southern interior).

Mountain View Crown Land would be an excellent candidate to help fill this void for low elevation coastal reserves.



Fig. 37.
Davidson
Creek – lower
reaches.
Photographed
in March 2010



Left. Fig. 38
Cooley's Hedge-
nettle was found in
the more open
wetter areas.



Right. Fig. 39
Hooker's Fairybells
occurred on more
shady, drier sites.

Recommendations

1. We strongly recommend that this site be preserved in its natural state, either as a Conservation Land (ie. Wildlife Management Area) or as a Protected Area (ie. Park or Ecological Reserve). The reasons for either designation are compelling:

- The site has exceptionally high biodiversity.
- The site has multiple species at-risk, including the Red-legged Frog and ownbridge's Shrew. There may also be opportunities to bring back extirpated species at risk.
- The site provides an important forest buffer for the captive breeding facilities that house two of B.C.'s most endangered species, the Spotted Owl and the Vancouver Island Marmot.
- The site contains a salmon stream (Davidson Creek) used by Coho, Chum, Cutthroat and Steelhead.
- The site is close to other important habitats, including the Salmon River and field habitats. Davidson Creek functions as a wildlife corridor connecting different habitats.
- The forest acts as a significant carbon sink, helping to mitigate the impacts of climate change.
- With many years of observations already documented, the site is well suited for the monitoring of long-term trends caused by a changing climate.
- The site has historical and archaeological values.

2. We recommend that monitoring of the site should continue, to document trends within this ecosystem and the status of species at risk. The nearby Trinity Western University, with its excellent environmental programs, would be a good candidate for doing long-term monitoring.

Fig. 40. Cedar snag charred by 1921 forest fire



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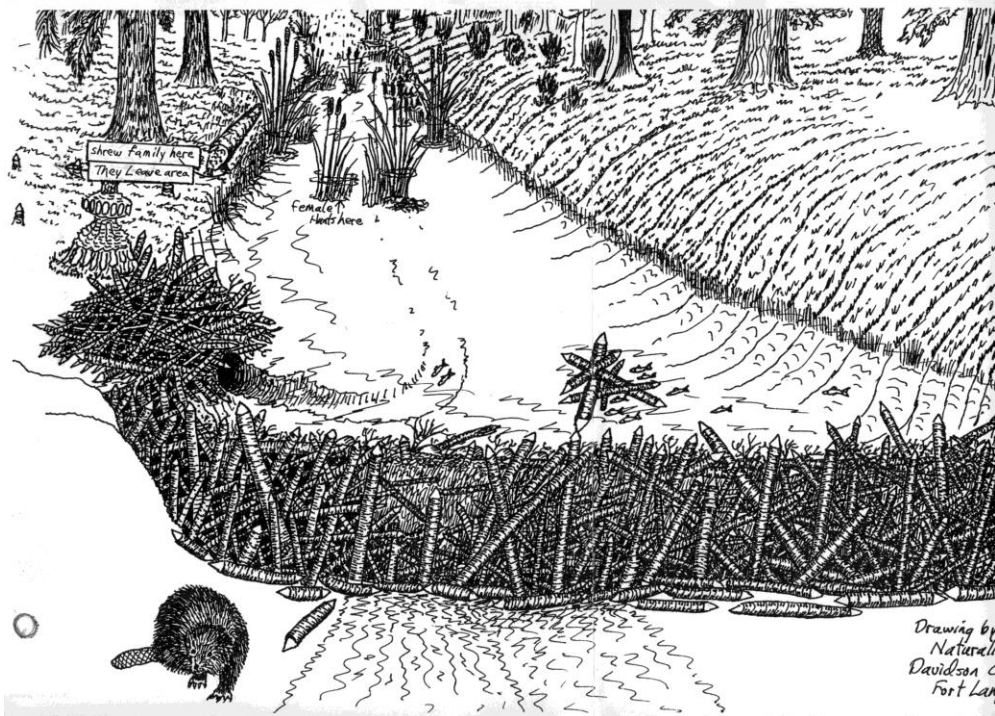
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Fig. 41.
Sitka Spruce - *Picea sitchensis*.
Leaves and cone inset below



Appendices



Drawing by Glenn & Ryder
Naturalist June 26 1977
Davidson Creek Beaver Pond
Fort Langley B.C. ©

Appendix 1: Water Quality in Davidson Creek

Davidson Creek (Salmon River watershed) Water Sampled by LEPS (Site code S-05) at Latitude 49.14092 Longitude -122.5591 (7600 block of 240th Street).													
Date and Time	Water Temperature (°C)	Air Temperature (°C)	pH	Dissolved Oxygen (mg/l)	DO saturation %	Spec. Cond. (uS/cm)	Conductivity (uS/cm)	Salinity (ppt)	Ammonia (mg/l)	Nitrate (mg/l)	Phosphate (mg/l)	Turbidity (NTU/FAU)	Total Dissolved Solids (mg/l)
2013-08-26 13:50:00	17.0	NULL	7.25	4.80	50	NULL		NULL	0.18	NULL	0.62	5.15	NULL
2013-10-23 12:30:00	9.7	NULL	7.00	6.20	54	NULL		NULL	0.40	0.20	0.29	1.83	NULL
2013-12-19 10:30:00	0.6	NULL	6.75	12.20	84	NULL		NULL	0.19	0.84	0.00	4.40	NULL
2014-03-14 11:55:00	9.6	NULL	6.90	11.00	97	NULL		NULL	0.33	0.40	0.24	29.87	NULL
2015-02-21 12:00:00	7.4	11.0	7.60	10.00	82	NULL		NULL	0.01	0.23	0.05	4.40	NULL
2015-03-14 11:30:00	11.0	13.0	7.50	8.80	80	NULL		NULL	0.26	0.00	0.00	60.18	NULL
2015-10-20 11:15:00													
2016-02-10 11:17:00	5.8	8.0	7.50	11.40	92	44.7	28.3	0.00		NULL	NULL	8.30	29.1
2017-12-20 12:45:00	4.1	4.0	6.25	12.50	96	86.3	51.1	0.00		NULL	NULL	6.47	56.2
2018-01-25 13:04:00	5.2	10.9	6.50	12.60	101	NULL		NULL	0.00	0.72	0.01	6.73	NULL
2018-03-17 11:15:00	5.9	11.0	6.50	12.70	102	NULL		NULL	0.08	0.75	0.01	3.66	NULL
2018-08-21 12:00:00													
2018-12-14 14:45:00	6.3	7.5	6.50	11.30	94	NULL		NULL	0.00	1.22	0.14	4.13	NULL
2019-01-29 14:45:00	3.2	9.0	6.50	14.00	104	NULL		NULL	0.00	1.06	0.03	7.20	NULL

Notes

2013-08-26 13:50:00	Salmon fry trapped in small pool
2013-10-23 12:30:00	Pooled water and leaf litter
2013-12-19 10:30:00	Good flow, freezing air temperature
2014-03-14 11:55:00	Good flow, vegetation in water, Himalayan blackberry, garbage on bank
2015-02-21 12:00:00	
2015-03-14 11:30:00	Fast moving, brown water, lots of sediment in water
2015-10-20 11:15:00	Dry and full of debris
2016-02-10 11:17:00	6-10 cm water level
2017-12-20 12:45:00	
2018-01-25 13:04:00	
2018-03-17 11:15:00	Property on east side of 240, at 7634A 240 St. has restricted water flow, built a log/stone dam. West side natural.
2018-08-21 12:00:00	Dry
2018-12-14 14:45:00	Fast moving current
2019-01-29 14:45:00	Water very low

Appendix 2: Unidentified species

Species	Unidentified Photos actual #	Preserved Specimens in 70% alcohol
Algae	38	
Lichens	60	
Mosses	97	
Fungi	231	
Insects larvae	10	
Insects aquatic	6	1
Caddisfly	25	
Stonefly	20	
Bees	42	
Ants	36	1
Wasps	47	1
Beetles	301	2
Weevils	68	
Leafhopper	3	1
Moths	220	
Springtails	31	2
Thrips?	10	
Flies misc.	400	4
Flies - Syrphidae	102	
Flies - Tachnid	138	
True Bugs	25	1
Slugs	10	
Mites	50	1
Opiliones	115	1
Spiders	190	1
Total photos	2275	Total vials 16

Many species collected and/or photographed remained unidentified at the time of writing. The majority of these are insects and the numbers recorded in Appendix 2 are arbitrary as in many cases, specimens were collected, rather than photographed in the field, 3 or more shots were taken of each specimen (dorsal, ventral and side view).

Additionally many small flying insects were caught on sticky yellow paper, very few of which have been identified.

The vials of preserved specimens each contain (in 70% alcohol) numerous specimens collected by Berlese funnel or sweep net.

Some will likely be replicates of species already identified; regardless many more species may still remain to be added to the report tables.

Appendix 3: History of the Property

The early maps of Langley Township (>1910) show the British Columbia Electric Railway, which opened in 1910, running through Section 21 of the Township of Langley. This forms part of the southern boundary of the Crown Lands that are currently leased by the Mountain View Conservation Society. The map of Crown Grants illustrated in Don Waite's "Langley Story" shows this as part of the SE portion of section 21, which in 1861 was owned by William Henry Burr, in 1883 by John Alfred Webster and later in 1883 by the Dominion Saw Mill Company Ltd. The NE quarter section was owned in 1884 by Henry Wark and in 1906 by William J. Twiss. A spur of the CN Railway now runs through Glen Valley joining the BC Electric Railway in almost the centre of Section 21, forming the western boundary of the Crown Land property.

Situated close to the border of the two quarter sections are the remains of an old sawmill. The Dominion Sawmill Company operated at New Westminster; the Provincial Archives hold fonds covering the 1883-1885 period of the company's existence. It is possible that the mill site on the Crown Lands was established by the Dominion Company since they, at one time, owned the land.

Artifacts found at the site include many old bottles, some bearing the name of the Vancouver Brewing Company and others the Victoria Brewing Company B.C. Several of the bottles were embossed with the instruction "NOT TO BE SOLD". In addition to the bottles, old crocks (whiskey) have been found as well as clear glass bottles with "Tizer" tops. The site west of Davidson's Creek contained broken 'Ironstone China' from Globe Potteries, England, whilst the site to the east of the creek contained much broken Japanese china. A TEIKOKU beer bottle was also found at the site.

At the sawmill location, three circular saw blades remain as well as a Kalamazoo Home stove front and various unidentified cast iron grids. Bricks at the site include some light-coloured clay stamped ETNA, which seem to derive from the 'Atlas & Etna Brick Works' of Armadale, England. Some red clay bricks are marked CLAYBURN (with the N backwards) and would have come from the Clayburn Brick Works at the foot of Sumas Mountain in Abbotsford municipality. Other bricks are unmarked. A double-headed axe head was also present as well as enamelware. On the eastern site various pieces of leather boots and ironware (kettle, pans etc.) remain.

A thick metal box cover (electrical?) was cast with the inscription PATENTED MAY 6TH & 12TH 1903 and an old electrical 'post & beam' insulator was found, indicating electricity was present at the site. Electricity came to the area in 1910 when the B.C. Electric Railway was built. Glenn Ryder's archeological inventory and notes are now held by Simon Fraser University.

Fig. 42.

Examples of bricks found by Glenn Ryder during his excavation of the sawmill site.



Fig. 7. A well-worn Clayburn firebrick, ca. 1905-09, pulled from an abandoned kiln in a rival brickyard in Port Moody, B.C. Note the backwards final "N" of "CLAYBURN" in the frog, an error which is not frequent in other Clayburn products of the era. (Photo by the author.)



Etna Brickworks, Bathville, Armadale, West Lothian began operation in the 1860's and, among other fireclay products, produced a common building brick. It first appeared on the Ordnance Survey Map of 1897 and from 1905 it was operated by United Collieries Ltd. The works are situated between Bathville Pipe Works and Atlas Brickworks (NS96NW 38). The Ordnance Survey Map showed two 10 chamber Hoffman Kilns which were also shown on the map of 1897. The westernmost kiln was still standing in 1978 but out of use.



Armadale has been a successful centre for the production of bricks, pipes and tiles, as well as other fireclay products. Local fireclays achieved an international reputation for their consistency as well as their high alumina content for heat resistance.

Kalamazoo Stove Company

From Wikipedia, the free encyclopedia

The **Kalamazoo Stove Company** (1902-1952) of Kalamazoo, Michigan operated with the slogan "A Kalamazoo ~ Direct to You." This was one of the first manufacturing plants to deal directly with the customer instead of employing the use of retail stores.



Kalamazoo Stove produced several million stoves and furnaces over its fifty-year existence: 100,000 of these in its peak production year, 1937. That year, the name was changed to *Kalamazoo Stove and Furnace Company*.

Among the innovations in stove design that came out of this company were the oven door window, which allowed the user to see what was being cooked without opening the door, and a thermometer mounted on the oven door.

The fact that most of their models were powered by wood or coal resulted in the company's demise in 1952, with their customer base shifting to gas and electric models offered by other companies.

Fig. 43. Other artifacts found by Glenn Ryder are shown in the following photographs.



History of The Dominion Saw Mill Company Limited; 1882-1921.

Compiled from the Archaeological Notes of Glenn Ryder

The company started work on the Fort Langley B.C. lumber mill in 1882. It was finished in 1883, along with some of the cabins or houses built for the workers, at which time the mill started producing lumber.

The Brick Forge building was built next to the mill at a later date. *[Ed. Note: Forge building built out of brick, not a building built to forge bricks!]*.

A Log Pond was made on Davidson Creek; the creek was dammed below the Mill and Brick Forge building. The Creek waters backed up around the corner and into the Creek Canyon. Some roads were put through the area in an East/ West and North/ South direction. The road that ran from the flats on top of the hill above the Creek Canyon, on the west side, needed a trestle, so one was built over the Log Pond. Davidson Creek enters this point from the east where it crossed Brown Road (240th street). Another road crossed Davidson Creek just north of the old Brick Forge building.

In the early Spring of 1969 I first visited these woodlands. At the old big Red Cedar stump I came upon remains of old graniteware items and old coloured glass. This was the site of the west house where I found, in the ground at the base of a large old Sitka Spruce tree, some nice collectible bottles. From here I branched out searching the area, until one day I found the piles of bricks and I knew I had come across the site of the old sawmill.

It was on Tuesday, March 4th 1969 that I first entered the woodlands off Davidson Creek, West of Brown Road and South of Rawlison Crescent. On this date I found the old remains of the Dominion Saw Mill Co. Ltd. In his book 'The Langley Story' 1977, Don Waite had the mill in the wrong place in his maps for the Fort Langley area.

At the time I was just looking for old bottles and other collectibles.

The Dominion Sawmill and Brick Forge was made from bricks of many types; there were many yellow type bricks that came all the way from Scotland, these being the ETNA. bricks from the Almond Valley, Scotland, ETNA works at Armadale, Bathville. ETNA bricks works was established in 1860 and modernized in the 1880's. "I wrote to them about these bricks, but they had no records of bricks shipped to British Columbia during any of the early years of 1882-1885. However bricks were ordered from this company". *[Ed. Note: the bricks may have arrived as ballast onboard ships and been purchased in B.C.]*

The lumber mill, built on the west side of Davidson Creek on a bit of a hill, had a steam engine to power the mill saws. Four circular saw blades have been unearthed at the site and remain there. The other buildings on the site were for the men or families who worked at the mill and forge. Those who worked in the woodlands in the area were Chinese and Japanese and they lived in pretty poor run down tar-paper shacks or cabins scattered about in the woodlands. The man

living in the southwest cabin had a bicycle to peddle to work or other places such as Harmsworth station on the BC Electric Railway. The BCER was built in 1910 and an old road goes from the mill site to the railway bed. "I concluded these cabins were nothing more than tar-paper shacks due to my finding these metal discs with a nail in the middle that hold tar-paper in place".

The Old Brick Forge

This building was built with such bricks as these:

ETNA a yellow brick

Red Brick with no name - likely a Baker Brick

GART & CRAIG bricks made by two brothers, either normal in shape or angled heat bricks.

CLAYBURN bricks of several types;

Plain with the name inset [*Ed. Note: N printed backwards in some*]

Heat Bricks made to fit around an archway in the forge.

GLENBOIG - an odd brick was also found.

"I also found the lock for the door of the Brick Forge building. It was a nice solid bronze lock called a Six-lever Sargent #35. The two keys were also found while screening the soil at the site".

The Mill:

"The mill site had a generator as I found many brushes plus remains of old light bulbs at the mill house sites".

The mill building or the building that housed the generator had a good sized old stove to heat the place. It was called a KALAMAZOO HOME stove. I only found the front with its name [*Ed. Note: see write up on the Kalamazoo stove (page 121)*].

The mill was powered by a steam engine which was likely brought into the woodlands on large wooden skids and wheels that were taken off at some point prior to leaving the road. Today there is little left of it; only rusted items and lots of heavy cast iron beams or grids that are warped out of shape, probably by the heat of the forest fire. The mill is thought to have worked for 39 years.

Artifacts found include brass valves and rusty old pipes plus lots of old metal, and lots of aqua coloured glass rods that would show water. These may have been part of the engine. There were no tools that would have been used to maintain the equipment, or any brass gauges, but there is still much ground to be explored.

Pipes were found in the ground heading towards Davidson Creek, but they have not been traced to their end. The mill site seemed to have had some brickwork as bricks extend into the mill area. I unearthed metal deep down through the soil and into the clay.

The Mill Site

The cabins, shacks or houses numbered about 10 (*Ed. Note: Glenn was working on #11 at the*

time he passed away). Some were close to each other and some were scattered well away from each other.

The **West house** must have been occupied by a man and wife as a hair piece was found whilst screening. It was a large Bobby-pin. The man was likely a horse logger as I found old harness under the ground and other pieces to do with horse logging. I found the remains of a log hook (*peavey?*) plus the head of a broad axe down inside a hollow cedar stump. This family also had a number of bricks, likely borrowed from the mill site but apparently never used for anything.

The **North house** site or Tar-paper shack just had a lone Chinese worker who drank a lot of beer of many types. It seems he also had a liking for 'Peppermint Extract' as I found thick aqua small bottles at the site, some 30+, whilst screening the soil. Also found some Canadian and Chinese coins. It was at this site that I found black & white glass half-beads for some form of board game. This man had a well dug near the low level of Davidson Creek. Parts of the stove have been found, legs and lid, but nothing with a name to identify the manufacturer. His bed was a fold out from a steel framed couch.

The **South house** site belonged to a family. The man served in a war as I found war medal hangers, some three in all, but never found the medals. They were likely sold to buy beer etc. This family had at least one child, likely a small girl, as I found a baby sized gold ring in the screen box. Also found was a gold wedding ring with the diamond missing.

The family likely was at the mill for some time as the dolls' heads got bigger, ranging from small porcelain heads to large porcelain heads made in Germany. Cast iron toys from the 1880's era indicated they also raised a boy. These included trains, an old car, goat pulling a cart, and a fire truck warped from the heat of the forest fire that swept the area in approximately 1921. There was also a glass train that held candy, the glass now amethyst in colour.

There were also a few bricks found at this site. The house was situated near the high trestle that crossed the log pond on Davidson creek. A row boat was used on the log pond as I found oarlocks deep in the mud bottom of the pond site.

At this south house site I found only parts of their cook stove and an upright heater. Lots of beer and liquor bottles of all sorts plus chinaware that was mostly broken. Bowls and plates from the Vancouver General Hospital and Vancouver's old Stanley Hotel, along with a good mix from England and elsewhere. A number of harmonicas went through the forest fire; some were plain, others top of the line models. I also recovered gold filled watches and pocket watches with gold chains that had gone through the fire, as well as some 'Plain Jane' watches and rusted out remains of various clocks and a gramophone. There were pots, pans, kettles, coffee pots, and Graniteware plates, some of which I kept.

There was a door handle from an early car at this site, but nothing more.

All of the houses, cabins and shacks had coal-oil lamps as I found remains at them all.

The **House just to the north of the ‘South House’** on the west of the Davidson Creek log pond had scattered broken glass from bottles, jars, chinaware, etc. A large metal box that had mostly rusted away was found, but I have not done much screening at this site to date (2010). There was a nice large blue & white graniteware pot with the bottom missing, but some kids who were in the neighbourhood took it home. There were also logging horse items and remains of harness at the site.

Across the creek on the east side stood **two more houses**; the more easterly one had a well dug down into the soil and clay. There was also an outhouse hole with a large snag top that fell right into the hole and is still solid wood.

The area had roads, but no car or truck parts have been located. *[Ed. Note: there are some remains near the top of the escarpment on the south side of the creek not far from 240th and an old car on the Clements property, but these are likely later models].* There are some signs of horse drawn wagons, but most wood items burnt or have rotted away, and the steel remains quickly rust away.

I found the steel end of a springboard that fitted into a notch cut into a tree for the logger to stand on. It still had wood attached to it but it had gotten broken. The people who lived at the edge of the log pond drank a lot of beer and other liquor and threw the bottles into the water. They were then used for target practice with choice stones. Many were broken. One old blackish green thick glass bottle was found in the deep mud in the old pond bottom. It was a collectable one with ‘New Westminster Breweries Sapperton New Westminster BC’ embossed on the side - these bottles are quite rare now. This bottle is the oldest from the start of the brewery in 1884 or earlier.

On the east side of Davidson creek and above the log pond I found old dishes and bowl remains, some of which I kept and glued back together as they are quite showy. East of the last house site, at an old road sign, I found the remains of an old barb-wire fence line. The people here had a horse plus a pony as I found many small horseshoes. They may have also had a cow or two as some land was cleared, judging by signs in the area. From here the hogs back road led to the top of the hill from which the trestle crossed the Davidson Creek canyon. This road most likely continued to Brown road. There was also a lower road that left the east end of the hogs-back road. It ran through the woodlands to the north east, an area dotted with fire blackened Cedar snags, all which remained after the forest fire. In some spots I have found old cables used as chokers and old logging work. *[Ed. Note: there is still an old piece of logging equipment at the top of the escarpment at the west end of the turf farm].*

At the **South House** at the base of a steep hill I found remains of an early Singer sewing machine, just bits and pieces. In earlier diggings I had found two medallions made of bronze metal with a hole punched through them so a person could wear it around their neck. One was from the Seattle Fall Fair of either 1905 or 1909. The other was a medallion from a Fall Fair in New Westminster BC. It also was from 1905 or 1909.

These items were given to the Fort Museum (*Langley Centennial Museum? Ed.*) some years back along with a bunch of other items from this site.

Other items donated to the museum at this time were from the Black Glass Camp at the old Hudson's Bay Company farmland on the east side of Glover road and the south side of the Salmon River. Items included clay pipes, a pipe with a head of an (East) Indian man wearing a turban and old glass bottles from 1840-1850 made of black glass.

Fig. 44. Trail camera photo of Glenn Ryder on a trail clearing visit in 2012.

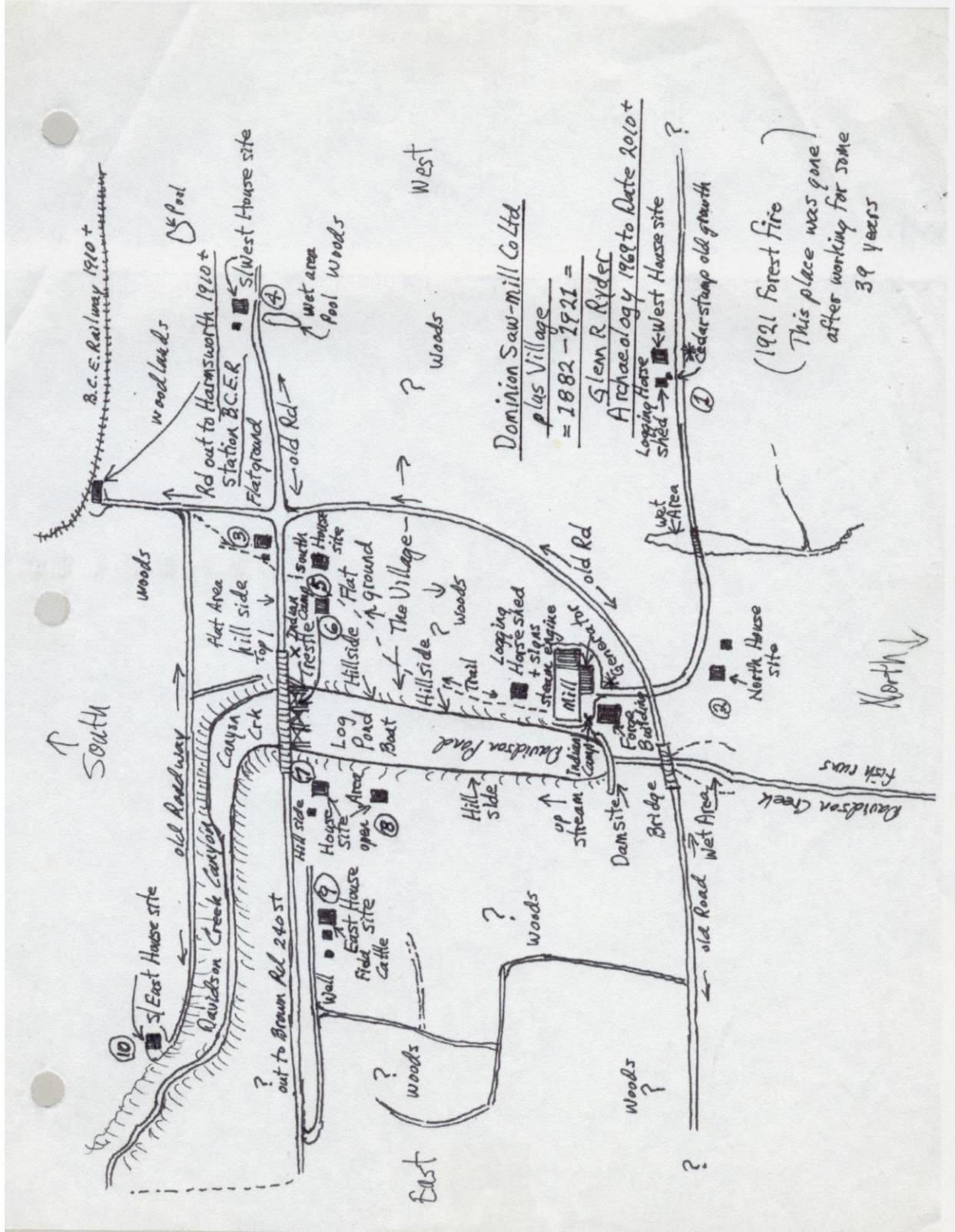


The old log pond bottom silt and mud at Davidson Creek has never dried out enough to do the work needed to retrieve the remains of items thrown into the pond such as collectible bottles. Every year, even in August and September, it has still been too wet to explore this

area. But in all Chris Buis of Bradner Road and myself (Glenn) have taken out more than 2000 bottles, jars, chinaware etc. I found some Sterling silver spoons etc. inside a sealed fruit jar which were in fine shape as well as some other items.

On the following pages are copies of Glenn's drawing of the plan of the Dominion Sawmill site, prior to the 1921 fire which destroyed it (Map 7a.), a drawing of the bronze plaque from the generator (Map 7b), as well as a trail map of the site showing locations of archaeological features.

Glenn R Ryder's notes transcribed by Bob Puls, April 2010.



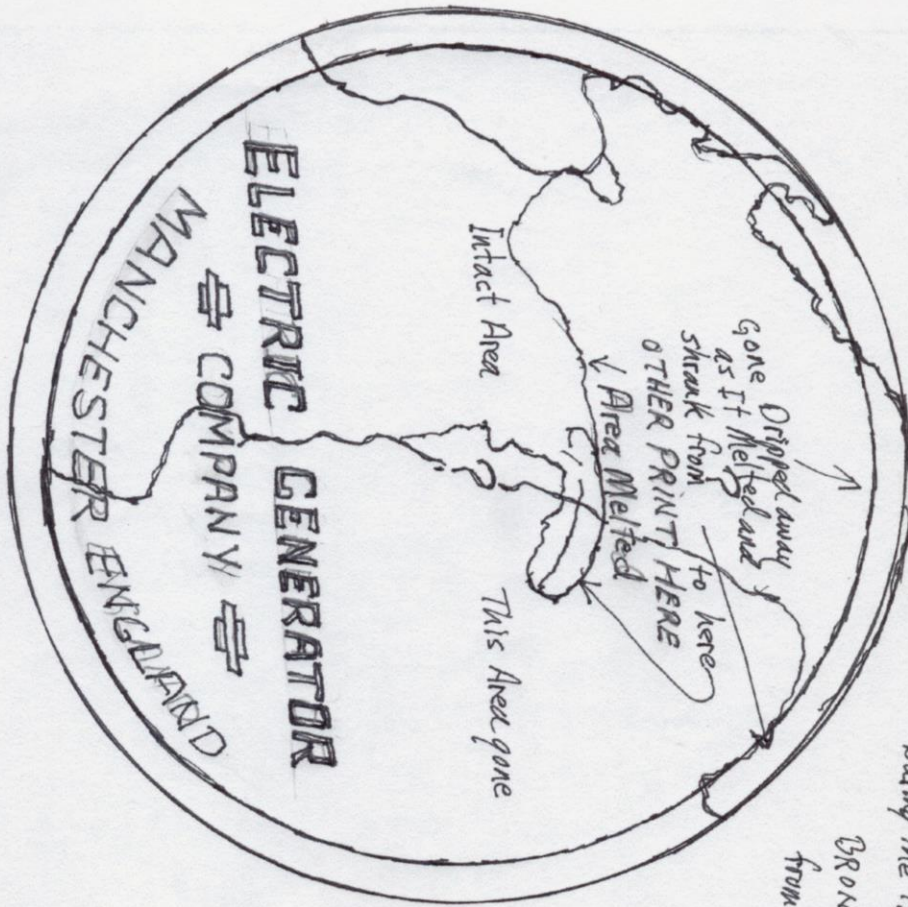
Dominion Saw-mill Co Ltd
 plus Village
 = 1882 - 1921 =

Stem R Ryder

Archaeology 1969 to date 2010+

Logging House
 shed → West House site

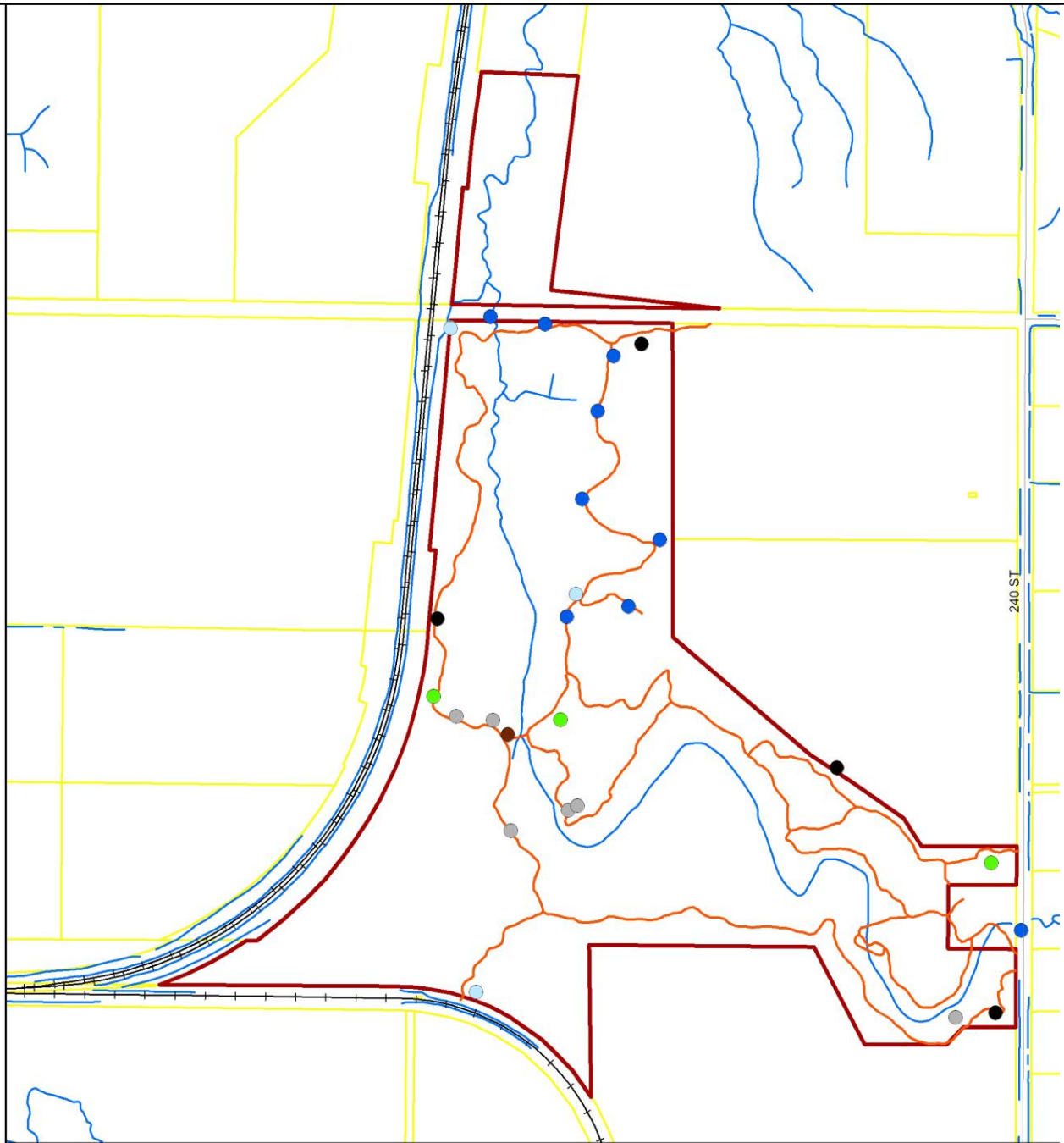
(1921 Forest fire)
 (This place was gone)
 after working for some
 39 years



6 x 6 inches
 NATURAL SIZE
 BRONZE MEDALLION

Had been on side of the
 generator and was Melted off
 During the 1921 forest fire
 BRONZE MEDALLION
 from the 1880s

Map 8. Map showing the location of some of the archaeological sites identified by Glenn Ryder.



- Bear scat
- Archaeological site
- Pond
- Sawmill site
- Stream crossing
- Unique flora

Appendix 4: George and Lorna (Bunty) Clements

and the Mountain View Crown Land:

(as printed, with some photographs changed, in the LFN Newsletter of March 2009)

Anthea and I met 84 year old George Clements on Friday 27th February 2009. The Langley Field Naturalists are preparing to undertake a bio-diversity study on crown land leased by the Mountain View Conservation Society, and it was whilst returning from a trail blazing venture that we met him on the trail.

George and Bunty Clements live in a small house on 2 acres of land ('Tranquillus' 7621-240th Street) that is surrounded by the crown lands. They purchased the property in 1961 and have lived there ever since. George was an Abbotsford school teacher. Bunty was the founder of 'Ban The Leg-Hold Trap' campaign, now known as "Fur-Bearer Defenders" of which she is president and has passionately lobbied throughout Canada and Europe on behalf of her passion. Anthea described her 'as a force to be reckoned with'. They still run the organization from their home, although they have a staff of 5 or 6 in Vancouver. George informed us that Bunty is currently suffering from terminal



cancer, but despite this she still goes out to feed the birds regularly at several feeder stations on the crown land. They have a shed full of bird feed and also purchase apples for the birds in bad weather.



George said that we were the first people he had seen on the crown land since they moved there, although I think this was somewhat exaggerated. He took us back to his home and showed us where the trails he had installed and maintained start in his yard and told us we are welcome to access them from his property. We can park in his yard as long as we don't block Bunty's view of the bird feeders. This will save us a lot of work; the trail we have initiated actually runs into and follows one of the Clements' trails.

George has led many school groups through the crown lands but doesn't have a list of the Flora & Fauna recorded over the years. He mentioned that Davidson's Creek that runs through the property is seasonal on the section on his acreage, and that every summer they scoop thousands of fry from the remaining pools, as the stream dries, and move them to an area of running water. From an historical point of view, George told us that there was a 'midden' on the property and Glenn Ryder had collected many artifacts from there.

Apparently local kids found the midden and smashed much of the remains. The original house on the property was a small log building which had been moved onto a concrete basement prior to the Clements' purchase. The previous owner was also named George and this was 'George's Place'. George we were told was the Steward and bartender at the Legion and when the Legion closed at eleven pm. those who had not 'had enough' regrouped at George's. George was a bootlegger, the grounds were equipped with a paved driveway and another escape route should the place be raided. There was also a lovers lane (George's words) through the forest along which he still finds discarded whiskey bottles.

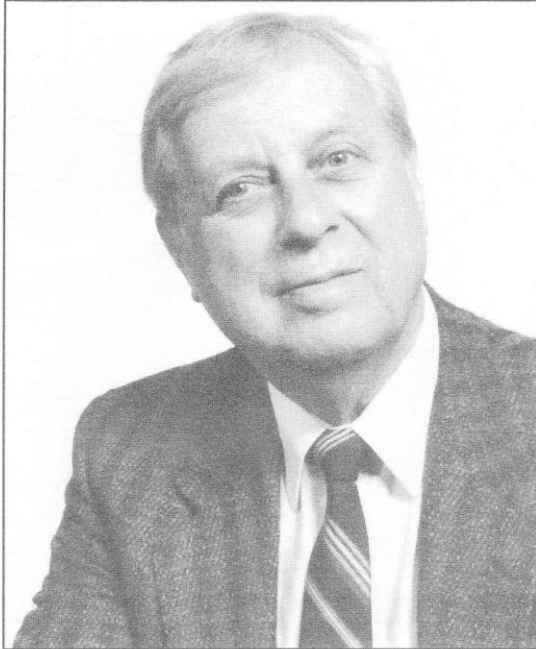


Anyway our survey has just become a lot easier as there are already trails on both sides of the creek and we just have to tidy them up. George was somewhat scathing of the bright pink survey tape we have used to find our way - not adding to the wild ambiance it seems - so once the trails are cleared we may need to remove it.

Details of the 'Fur-Bearer Defenders' can be found on the WEB at www.banlegholdtraps.com



We had started our trail blazing from the northeast corner of the crown lands on Feb 23rd (2009) as reported to the executive: "Yesterday I finally made a start on the trail-blazing at Mountain View and this morning (Feb. 24th) Roy Yates joined me. We quit just in time as the rain started on the way home. Progress has been much better than expected as the underbrush is quite sparse and so far we have not run into any major obstacles. We started at the north corner where the property is bounded by 240th street and have paralleled the blueberry farm boundary almost reaching the point below the soil deposit operation where the boundary turns due north along the western end of the turf farm. The little lake shown at the junction of the Turf and Blueberry farms unfortunately is non existent - just a muddy pool at present. On route we ran into an old trail which we followed until it turned south and we continued west. Then it snowed again! Anthea and I encountered the old trail again on the 27th and continued to follow it to a small southerly flowing creek, which is as far as we have gone". The property is quite magical in the snow.



CLEMENTS, George V.
M.N. # 2296

On June 13th, 2010, we sadly said goodbye to George V. Clements, a Langley resident born in Vancouver, BC., who lived a full and passionate life for 84 years. The love of his life, wife of 58 years, Lorna Catherine ("Bunty") Clements, predeceased him by 3 months.

At age 16, George joined the Merchant Navy and served nearly two years. He then joined the Canadian Army. He was very proud of his commitment and part in helping his country through his military service. In his later years, he joined with a group of fellow veterans in speaking to groups of young people about its significance. He also spoke at local Remembrance Day.

George made a commitment early on in life to help keep the world free from unnecessary suffering and killing. He with his wife, was well known as a dedicated, longtime Director and spokesperson of Fur-Bearer Defenders, a non-profit society working to stop trapping cruelty and protect fur-bearing animals. Their legacy of hope and positive change will be continued by all who have learned from them, and cared and worked beside them. George also had a successful career for many years as a teacher, and school Principal.

A Service of Remembrance was held for George on Sunday October 3rd, in Burnaby, B.C. and a memorial website has been created for him at:

www.memorialwebsites.legacy.com/GeorgeClements

George was laid to rest together with his wife in the veterans section of Fort Langley Cemetery. May they rest in the peace as they so deeply deserve.



George Clements and Anthea Farr Feb. 2009



**Appendix 5. 2011 Letter to The Township of Langley
regarding the Mountain View Conservation Society
and
The Proposed Purchase of the Clements property**

Summary

Prior to his death George Clements gave Mountain View Conservation Society (MVC) first option to the purchase of his property. For some time MVC have been trying to raise funds to purchase the property but have not been able to do so at this time. The executor's lawyer is now pressing her to list the property for sale on the open market, thereby introducing a degree of urgency in securing this property.

The property is of immense natural heritage value and has a strong historical importance.

MVC will soon be contacting the Township of Langley to assist in whatever way possible to secure this property in perpetuity as a public resource. This letter is by way of requesting the Township to assist in securing this property.

History

Several years ago MVC secured a long term lease agreement from the provincial government to manage a 188 acre parcel of crown land that adjoins their property. Restrictive covenants and provincial regulations probably classify the parcel as a 'Wildlife Area' with similar regulations to those pertaining to the Forslund/Watson property for which the Langley Field Naturalists (LFN) has a management agreement. MVC asked LFN if they would be willing to determine what was on this Crown land prior to their deciding how to manage it.

Two years ago the LFN commenced a voluntary biodiversity study on the Mountain View Crown Lands (MVCL) and an initial report was delivered to MVC after a one year study. The study has continued and to date we have identified 900+ species of flora and fauna (several red-listed), with an additional 300 as yet unidentified species (mainly insects) that make this environment their home. The property is, we believe, unique in that it is an undisturbed, diverse, second growth, riparian forest that has had no human intervention for approximately 100 years. The site is a priceless piece of Langley's natural heritage.

The Clements property is a privately owned 2.5 acre parcel fronting on 240th street that lies within the MVCL. The Clements maintained the property as a wildlife reserve and acted as unofficial wardens for the Crown Land from 1960 until their passing last year. They installed trails and made these available for school ecology tours for 40 years. As such this piece of property is an integral part of the Wildlife Area and should be re-united with it.

From an historical aspect the property housed a 'Dominion Sawmill' from about 1886 with several workers homes, and a saw mill pond. A forest fire swept the site in about 1917 and since

this time the land has not been utilized other than by nature. The logging pond has gone but Davidson Creek, a salmon spawning tributary of the Salmon River, bisects the property. The age of the Clements house has not yet been researched, but it is a log house (on a concrete basement) and is of historical interest. I have not approached the Langley Heritage Society or TOL Heritage committee at this time, but it is possible the LHS might be interested in managing the house if the TOL purchase the property.

The Wildlife Area was to be featured in the last issue of ‘Sideroads’ published by the Times, but this has been delayed due to time constraints on the reporters. I am willing to show the Clements property and Crown Lands to any Councillors and staff who would like a tour, with the proviso that I would have to secure a key to the house from the executor should you want to see inside it.

Securing this property would be a great boost to the moral of those of us who have agreed to assist the TOL with their newly established long term Heritage Strategy plan. I will retain further history, location, maps and biodiversity information until such time as MVC have contacted you directly.

Bob Puls, President, Langley Field Naturalists
Secretary LEPS directors
Member Langley Heritage Society
Member Board of Directors Campbell
Valley Park Partners Association
Member Langley Centennial Museum,
Living History Group.



Cardamine nuttallii (pulcherrima) -
Oaks Toothwort

Appendix 6. Mountain View Conservation Society

Langley Field Naturalist's executive meeting, March 23rd 2011

Present; Bob Puls, Joan Taylor, Rhys & Annabel Griffiths, Anne Gosse, Kathy Masse, Roy Yates, Chester Murray.

Malcolm Weatherstone welcomed us to the M.V. Visitor Centre and outlined the state of the situation at the site. They are switching completely from exotic species to native species: Native species will be raised under the supervision of the Ministry of Environment. This is as a result of continuing SPCA harassment. The site will concentrate on educational school tours emphasizing potential extinction of species.

The Spotted Owl program will continue under the daily management of MOE staff. MOE have cancelled the volunteer owl watch program and no volunteers will be employed at this stage. MV intend to build a secondary back-up facility to supplement the current main and isolation facilities. A WEB Cam has been set up, but is not online yet. It will be accessed through the MV WEB site when fully functional. The intent is to release any raised birds, mainly in the Skagit area of BC/USA. They are considering setting up separate foundations for the Owl and Vancouver Island Marmot captive breeding projects.

The Vancouver Island Marmots are just waking up. This is also an MOE project, but the marmots are not as sensitive to human interaction as they are released in isolated wilderness alpine meadows, sites accessed by helicopter. They are first acclimatized to wild conditions over winter at a special facility at Mt. Washington. They are then released in the following spring. The program has been very successful. There will be a dig at the MV site this week to check on the breeding colony.

The Oregon Spotted Frog project is entering the breeding stage. Raised adults are released in local sites, which they used to inhabit and have been rejuvenated. It is hoped the release /rearing site at MV will be suitable for use soon.

Nest boxes for the American Kestrel program at TWU are planned.

Some of the species at risk that are being discussed for raising are: Pacific Water Shrew, Red-legged Frog, Coho Salmon, Salish Sucker and Nooksack Dace.

LFN involvement:

Suggestions were discussed: Regular Sunday afternoon nature walks featuring biodiversity, with possible access to the Crown Lands.

We suggested a grant application for LFN to write the curriculum might be acceptable, but could not commit to regular provision of leaders.

Setting up, monitoring and maintaining the current and future nest boxes on site and in the Crown Lands.

Use of the MV facilities were offered for executive meetings or other LFN events.

Appendix 7. LFN Volunteer hours at MVCS Crown Lands (2009-2013).

Date 2009	Hours	Name	Day
23-Feb	3.0	Bob	1
24-Feb	3.0	Bob	2
24-Feb	3.0	Roy	
26-Feb	2.0	Bob	3
27-Feb	3.0	Bob	4
27-Feb	3.0	Anthea	
06-Mar	5.0	Bob	5
06-Mar	4.0	Roy	
10-Mar	2.0	Bob	6
13-Mar	2.0	Bob	7
23-Mar	3.0	Bob	8
26-Mar	4.0	Bob	9
26-Mar	4.0	Roy	
26-Mar	4.0	Anthea	
27-Mar	4.0	Bob	10
27-Mar	4.0	Roy	
30-Mar	2.0	Bob	11
05-Apr	2.0	Bob	12
06-Apr	5.0	Bob	13
06-Apr	4.0	George	
15-Apr	5.0	Bob	14
15-Apr	5.0	Roy	
21-Apr	2.5	Bob	15
21-Apr	2.5	Anthea	
21-Apr	2.5	Annabel	
21-Apr	2.5	Joan	
29-Apr	4.0	Bob	16
29-Apr	4.0	Roy	
10-May	2.0	Bob	17
22-May	2.0	Bob	18
22-May	2.0	Anthea	
22-May	2.0	Corey	
25-May	4.0	Bob	19
05-Jun	5.0	Bob	20
05-Jun	4.0	Roy	
05-Jun	4.0	Wim	

Date 2009	Hours	Name	Day
05-Jun	3.0	Anthea	
05-Jun	3.0	Corey	
12-Jun	3.0	Bob	21
12-Jun	3.0	Anthea	
12-Jun	3.0	Corey	
22-Jun	2.5	Bob	22
22-Jun	2.5	Roy	
26-Jun	3.0	Bob	23
03-Jul	2.5	Bob	24
10-Jul	3.0	Bob	25
10-Jul	3.0	Roy	
10-Jul	3.0	Anthea	
10-Jul	3.0	Joan	
10-Jul	3.0	Anne	
10-Jul	3.0	Al	
05-Aug	2.0	Bob	26
05-Aug	2.0	Anthea	
21-Sep	2.0	Bob	27
22-Sep	4.0	Bob	28
23-Sep	3.0	Bob	29
23-Sep	3.0	Anthea	
23-Sep	3.0	Roy	
28-Sep	4.0	Bob	30
02-Oct	3.0	Bob	31
02-Oct	3.0	Roy	
02-Oct	3.0	Al	
02-Oct	3.0	Anthea	
07-Oct	4.0	Bob	32
19-Oct	2.0	Bob	33
19-Oct	2.0	Rhys	
24-Oct	2.0	Bob	34
03-Nov	4.0	Bob	35
03-Nov	4.0	Anthea	
12-Nov	4.0	Bob	36
17-Nov	1.0	Bob	37
02-Dec	5.0	Bob	38

Date 2009	Hours	Name	Day
02-Dec	5.0	Lisa	
04-Dec	1.0	Bob	39
23-Dec	2.0	Bob	40
Year 2010			
16-Jan	3.0	Bob	41
19-Jan	1.0	Bob	42
03-Feb	2.0	Bob	43
05-Feb	3.0	Bob	44
05-Feb	3.0	Anthea	
05-Feb	3.0	Roy	
09-Feb	1.0	Bob	45
16-Feb	2.0	Bob	46
23-Feb	3.0	Bob	47
23-Feb	3.0	Roy	
02-Mar	4.0	Bob	48
04-Mar	2.5	Bob	49
04-Mar	2.5	Roy	
10-Mar	2.5	Bob	50
10-Mar	2.5	Roy	
12-Mar	2.5	Bob	51
12-Mar	2.5	Lisa	
16-Mar	2.0	Bob	52
20-Mar	2.0	Bob	53
23-Mar	4.0	Bob	54
26-Mar	2.0	Bob	55
30-Mar	3.0	Bob	56
05-Apr	3.0	Bob	57
09-Apr	2.5	Bob	58
09-Apr	2.5	Roy	
09-Apr	2.5	Al	
17-Apr	4.0	Bob	59
22-Apr	3.0	Bob	60
30-Apr	2.0	Bob	61
06-May	1.0	Bob	62
28-May	1.0	Bob	63
03-Jun	2.0	Bob	64
14-Jun	5.0	Bob	65
16-Jul	2.0	Bob	66

Date 2010	Hours	Name	Day
21-Jul	4.0	Bob	67
03-Aug	1.5	Bob	68
03-Aug	1.5	Alex	
04-Aug	4.0	Bob	69
06-Aug	4.0	Bob	70
13-Aug	3.0	Bob	71
18-Aug	4.0	Bob	72
18-Aug	4.0	Roy	
20-Aug	4.0	Bob	73
23-Aug	3.0	Bob	74
25-Aug	3.0	Bob	75
27-Aug	1.0	Bob	76
01-Sep	2.0	Bob	77
04-Sep	2.0	Bob	78
08-Sep	2.0	Bob	79
09-Sep	2.0	Bob	80
10-Sep	2.0	Bob	81
22-Sep	2.0	Bob	82
25-Sep	3.0	Bob	83
27-Sep	2.5	Bob	84
27-Sep	2.5	Roy	
01-Oct	3.0	Bob	85
02-Oct	3.0	Bob	86
03-Oct	2.0	Bob	87
10-Oct	5.0	Bob	88
13-Oct	4.0	Bob	89
16-Oct	4.0	Bob	90
19-Oct	1.5	Bob	91
21-Oct	4.0	Bob	92
27-Oct	4.0	Bob	93
27-Oct	4.0	Roy	
03-Nov	2.0	Bob	94
08-Nov	2.0	Bob	95
12-Nov	1.5	Bob	96
16-Nov	1.5	Bob	97
24-Nov	2.0	Bob	98
02-Dec	2.5	Bob	99
02-Dec	2.5	Bill	

Year 2010	Hours	Name	Day	Comment	Findings
04-Dec	2.0	Bob	100		
22-Dec	1.0	Bob	102	Beetle hunt.	
				Winter moth	
26-Dec	2.0	Bob	103	found	
28-Dec	2.0	Bob	104	Raked trail	
29-Dec	2.0	Bob	105	no snow	
Year 2011					
01-Jan	2.0	Bob	106	frosty	
01-Feb	2.5	Bob	107	cold	Red-breasted Sapsucker
10-Feb	2.5	Bob	108		Bobcat tracks
01-Mar	2.0	Bob	109	Hail	only coyote tracks
03-Mar	2.0	Bob	110	Set camera	
04-Mar	2.0	Bob	111	Moved camera	no pictures
06-Mar	2.0	Bob	112	Set new camera	no pictures
08-Mar	1.0	Bob	113	Moved my camera	coyote on MV's
18-Mar	3.0	Bob	114	Set moth trap	coyote on my camera
				Moved MV	
22-Mar	2.5	Bob	115	camera	coyote on my camera
23-Mar	2.5	Bob	116		
29-Mar	2.0	Bob	117	Format disc	
31-Mar	2.0	Bob	118	Checked camera	MV is OK
07-Apr	6.0	Bob	119	Trail blazing	checked moth trap
07-Apr	5.5	Roy	119	Trail blazing	Got to rail line
16-Apr	3.5	Bob	120	Field trip	18 present
17-Apr	1.0	Bob	121	Camera check	New moth
23-Apr	3.5	Bob	122	Bird count	2 new moths
03-May	2.5	Bob	123	Bird count	checked cameras
10-May	2.5	Bob			moved RB's camera
17-May	2.5	Bob		Bird count	checked cameras
24-May	3.5	Bob		Bird count	checked cameras
26-May	3.0	Bob		Bird count	Insect collection
30-May	3.0	Bob		Bird count	Insect collection
04-Jun	3.0	Bob		Bird count	Insect collection
06-Jun	2.5	Bob		Bird count	Insect collection
08-Jun	2.5	Bob		Bird count	Insect collection
10-Jun	2.0	Bob		Bird count	Upper Creek dry
12-Jun	3.0	Bob		Bird count	Insect collection
14-Jun	2.0	Bob		Bird count	Insect collection

Year 2011	Hours	Name	Day	Comment	Findings
16-Jun	2.0	Bob		Bird count	Insect collection
21-Jun	2.0	Bob		Bird count	Insect collection
July	20.0	Bob		Moth trap	Insect collection & ID
09-Aug	2.0	Bob		Bird count	Search for source of Davidson Creek
11-Aug	2.0	Bob		Creek survey	Found source of creek water
16-Aug	2.0	Bob		Camera check	Returned Metro Van. Camera to Roger
25-Aug	2.0	Bob		Press trip	Dan Ferguson
01-Sep	2.0	Bob		Bird count	Took dog - lots of Robins & migrants
03-Sep	3.0	Bob		Full circle	Removed moth trap.
27-Oct	2.0	Bob		Bird count	Collected camera disc (120 photos)
10-Nov	2.0	Bob		Bird count	Checked camera
30-Nov	2.0	Bob		Bird count	Raked trails, 2 coho in creek
08-Dec	2.0	Bob		Bird count	Raked trails, 6 dead coho in creek
09-Dec	2.0	Bob		Bird count	Glenn reported 26 Coho
30-Dec	2.0	Bob		Owl boxes	Installed 2 Screech Owl boxes
Year 2012					
06-Jan	2.0	Bob		Bird count	Full circle
10-Jan	3.0	Bob		Signs	Installed 5 signs and 2 boundary posts
19-Jan	1.5	Bob		Snow	Moved camera
10-Feb	1.5	Bob		Bird count	Moved camera - vandalized
10-Feb	1.5	Alex		Bird count	
17-Feb	2.0	Bob		Bird count	Camera not working
08-Mar	2.0	Bob		Bird count	Checked moth trap
20-Mar	4.0	Bob		Circle walk New trail	Replaced camera
23-Mar	3.0	Bob		inspection New trail	Bird count
23-Mar	2.0	Anthea		inspection New trail	Fawn Lilies in bud
23-Mar	2.0	Corey		inspection	Snake seen x2
27-Mar	1.5	Bob		Moth trap	Still no pictures on trail cam. Installed salamander board at west end of south trail.
31-Mar	1.5	Bob		Salamander board	240 pictures on cam, most blank. Collie for company. Red-legged frog and spawn
09-Apr	4.0	Bob		Bird count	
13-Apr	5.0	Bob		Orientation	Brown Creeper nest
13-Apr	5.0	Roy		Orientation	Fawn Lilies in flower
13-Apr	5.0	John		Orientation	Red-legged Frog in east pool.
20-Apr	2.0	Bob		Bird count	

Year 2012	Hours	Name	Day	Comment	Findings
25-May	3.5	Bob		Orientation tour	
25-May	3.5	Wendy		Orientation tour	
25-May	3.5	Paul		Orientation tour	
25-May	3.5	Lawren		Orientation tour	
12-Jun	2.0	Bob		move camera	Long-toed salamanders in east pool
15-Jun	3.0	Bob		Bird count	Camera installed S of Davidson's Crk.
19-Jun	1.0	Bob		Check camera	One coyote on camera
21-Jun	2.0	Bob		Bird Count	
02-Jul	2.0	Bob		Check camera	One black bear, snowshoe hare
11-Jul	2.0	Bob		Bird count	
03-Aug	3.0	Bob		Bird count	Camera on video?
09-Aug	3.0	Bob		Bird count	
01-Sep	2.0	Bob		Bird count	
04-Sep	2.0	Bob		Bird count	
06-Sep	2.0	Bob		Bird count	
09-Sep	2.0	Bob		Bird count	
04-Oct	3.5	Bob		Bird count	
19-Oct	4.0	Bob + TWU		Tree ageing	David Jordan & Brad cored some conifer trees on SW trail.
19-Oct	4.0	D.Jordan		Tree ageing	West trail camera: lots Glenn photos, grey squirrels, skunk, coyotes, few deer. Deer less since cougar seen. Moth trap (12V. UV) installed NW corner - not much action
19-Oct	4.0	D. Clement		Tree ageing	Moved second trail camera from SW to NE trail - no pictures Nov.5th
19-Oct	4.0	Brad		Tree ageing	
01-Nov	2.0	Bob		Bird count	
05-Nov	3.0	Bob		Bird/Fish count	20 pairs Coho seen by Paul & Lisa + 3 pair by Bob. 14 TRSN seen by Glenn
08-Nov	2.0	Bob		Bird count	Checked moth trap - removed battery
15-Nov	2.0	Bob		Bird count	Removed moth trap.
12-Dec	2.0	Bob		Bird count	Checked trail cameras - no pictures
13-Dec	2.0	Bob		Bird count	Moved trail camera #2. new batteries #1
14-Dec	2.0	Bob		Bird count	Trail raking (N) replaced batteries in trail camera #2
21-Dec	1.0	Bob		Camera check	Camera 2 - 2 unknown people, one coyote, no deer
24-Dec	1.5	Bob		Camera check	Camera 2, reset date & time and speed
28-Dec	2.0	Bob		Camera check	Camera #1 no pictures. Walked W Loop met Glenn.

Year 2013	Hours	Name	Day	Comment	Findings
17-Jan	3.5	Bob		Camera check	met Glenn on way out. Removed camera
24-Jan	2.0	Bob		Camera check	Camera #2 batteries dead - no pictures put old batteries back in 35%
01-Feb	2.0	Bob		Camera check	Camera #1 SD cards faulty, returned with good card.
07-Feb	2.0	Bob		Camera check	Camera #2 batteries dead no pictures, brought camera home - must be shorting.
09-Feb	2.0	Bob		Bird count	Beetle tracks on Maple - chambers 2x0.5 cm
15-Feb	2.0	Bob		Bird count	Tree frogs calling. Found raptor pellet that contained small bird skeleton.
17-Feb	2.0	Bob		Trail clearing	Cleared fallen trees from trails with chain saw. Replaced Camera #2 with Moultrie M100.
27-Feb	1.0	Bob		Camera check	Moultrie working OK - 1 coyote. Found rodent skull left by raptor.
04-Mar	3.0	Bob		Bird count	Met Phil & Glenn on way out, no pictures on trail cam, Townsend Shrew, checked sal. Trap (Millipede & beetle).
09-Mar	2.0	Bob		Insect collecting	Checked trail camera 2, only 2 photos, collected spiders
01-Apr	2.0	Bob		Returned moth trap	Added 2nd set of UV LED's to trap (diferent wavelength) and sited trap in NW corner of site near creek
03-Apr	2.0	Bob		Checked moth trap	4 moths and one beetle in trap. Caught some aquatic bugs in creek. Glenn thinks COHA nesting in SW corner.

Records of site visits and hours spent were not kept after 2013 other than in the blogs and timelines.

Total number of hours from Feb. 23, 2009 to April 3, 2013: 716

Appendix 8. MVCS and LFN Activity 2009-2018

Time-line and Blog

May 2009:

Trails are complete and in use for the study. A round trip of the 150 acres takes about 4 hours, but no-one has actually done that yet.

Anyone who has time to spare and can help record anything that grows, flies, crawls or runs on the site is invited to call Bob and arrange for a guided (long or short) tour. I need all the help I can get as everything is appearing rapidly at present.

To date we have recorded 50 bird species, 40 trees & shrubs, 40 forbs (wild-flowers & grasses), 6 ferns, 12 mosses & liverworts, 12 fungi, 6 mammals, 4 slugs & snails, 2 fish, 1 frog, 5 butterflies & moths, 4 bees & wasps, and 37 bugs various.

We are trying to photograph everything we see for our report to Mountain View Conservation Society.

Weather notes:

Cold wet long spring - plants 3 weeks late flowering.

Late May to early June unusually hot & dry - leaves noted to be falling from some trees.

Davidson's Creek was dry from at least 240th street to several hundred meters into the reserve, from late May until mid October, when after a couple of fairly heavy rainstorms it was seen to running again on the 19th.

The cottonwoods produced a very high level of seeds (and wool) in 2009, coating the forest floor and fern leaves.

A little rain fell in September, but not enough to regenerate the creek. Clear skies, cool nights and warm days led to an abundant mushroom bloom in the last week of September to first week of October.

Heavy rain fell in mid October (16-17th), ground very dry until then. Trees turning colour in mid October.

Mid November: most of the deciduous leaves had fallen. No salmon in creek yet. New mushrooms still being found.

June 22nd:

Roy and I went in search of the 'Source of the Nile', well Davidson's Creek really. The creek was dry at 240th and we walked along the creek bed until we reached the first sign of water. This was at a small pond at N.49'08.482, W122'33.776 on my GSP meter. It is where the creek makes a sharp turn to the north after running primarily west.

The pond was only a few inches deep and about a meter in diameter, but contained many coho salmon fry and a few larger finger-lings (probably Steelhead trout).

The creek at this point becomes densely overgrown and bounded to the south by a steep cliff - it was difficult to proceed so we abandoned our search for the source of water. The contour map indicates that the stream level at this point is around 40 (presumably feet above sea level) and

2009 cont'd.

that it drops to 14 by the time it reaches Rawlison Crescent. George Clements told us he thinks it is just seepage that fills the creek, and as the elevation drops, more water flows from the water table. We continued downstream on the south side, but this trail is high on the top of about a twenty foot cliff.

Whilst on this mission we had the bonus of sighting and photographing a Barred Owl and not more than 50 feet from it a Great-horned Owl. We also added a few more plants to the inventory.

We will make further attempts to monitor the creek from the north side.

Once it dropped down the escarpment to the lower levels, water continued to flow throughout the year, being fed by two or three springs flowing from the eastern escarpment- in this area it contained fish fry and insect larvae.

Meanwhile a rescue attempt for the stranded fish in the pools needs to be attempted.

November 3rd:

Bob & Anthea made the first complete circle tour of the site; it took four hours with the usual breaks for nature observations, tree measurements and lunch. Mushrooms were still being added to the ever increasing list.

November 12th:

Bob explored a new loop trail which followed the south fork from the north trail to Davidson Creek, west past the Japanese archaeological site, and following a Glenn Ryder trail continued along the creek to where the trail crossed over to the old mill site. Crossing back over the creek, Glenn's trail continued north west until it re-connected with our north trail.

In an attempt to trace the side streams feeding Davidson creek, a survey trail was blazed along the north side of creek #1. The elevation rose steadily until the streamlet divided into two at a point where the land rose steeply to a higher elevation swamp. This was close to the escarpment that borders the west end of the turf farm. A very large fallen tree stump (with a well used hollow centre) is located here. No attempt was made to proceed further. A *Scleroderma verrucosum* - Scaly Earthball was found at this point, bringing the fungal count to 130 species.

Most of the deciduous leaves have fallen, but there is still no sign of spawning salmon in the creek.

November 27th:

First Coho salmon found - one dead, one live.

November 17th:

A bear scat was found on the road to the land-fill site, seemed to contain mushrooms.

December 2nd:

A bear scat found on west trail which contained apples. No salmon were seen.

Bob & Roy guided Lisa Dreves around the perimeter trail carrying the LEPS Tremble GPS unit. We recorded the trails and many way points (Trees & trail junctions) which Lisa will map for us.

Fall 2011:

With the unusually long wet spring and lack of summer, our attempt to put a new trail into the south west corner of the property was only partially successful. Roy and I did manage to get through to the railway track, but we have not yet joined up with the south trail to complete a loop. Hopefully we can complete this in the fall. Meanwhile Glenn Ryder has opened up a trail alongside the Mountain View fence on the west from Rawlison Crescent, which allows much easier access to the west trails without having to wait for the ever increasing number of trains to pass on the railway tracks.

Metro Vancouver lent me a trail camera and I purchased an identical one of my own which have been constantly monitoring trails. I move them periodically but seem to have found fairly good locations. Coyotes and Black-tailed deer are most frequently recorded, but I have also captured opossum, raccoon, Black squirrels, trespassers and most recently the Black bear. Still no sign of the bobcat or Red fox that we're hoping to photograph. Metro Vancouver has now repossessed their camera as they wished to place it in Derby Bog where there may have been possible sightings of a Red fox.

Meanwhile the biodiversity study continues to grow. My moth trap has been most productive with 160 species of moths identified (tentatively) to date and new ones turning up every other day. Beetles and crane flies also get trapped adding to the diversity. Bird life has been much as usual with a red-breasted sapsucker nest being the highlight. One new flower is *Habenaria viridis var bracteata* – a Long-bracted Green Orchid, which Glenn uncovered during his trail blazing.

Meanwhile Mountain View Conservation Society are negotiating with the Furbearer's Association to purchase the Clements property on a mortgage type agreement whereby they would pay for it in annual instalments over a set number of years.

The total species count for the study is now at 1331 of which about 250 (mainly beetles and flies) are still unidentified.

December 2011:

Coho salmon returned to spawn in Davidson's Creek again in November; Bob saw 2 live and later 6 dead, Glenn Ryder saw 26 live.

Glenn has provided Mountain View with more data and drawings, including a view of the old beaver dam and lake that was removed by the Ministry of Environment. Malcolm Weatherstone is to copy the material for us.

Glenn has also found 7 pit house sites on the property, together with a hammer stone, related to First Nations use in the past. Glenn would like us to add the sites to the maps of the property that LEPS made for us.

Fall 2011 cont'd.

We have still to install the owl boxes that the LFN purchased for the site. Glenn has advised me to mount them on Alder trees as this discourages Grey Squirrels from taking them over. I hope to accomplish this before Christmas.

Glenn saw an American Dipper on Davidson's Creek this year in the section where the pipeline corridor crosses the creek – another new species for the biodiversity list.

My moth trap has resulted in 174 identified species to date with at least 25 more as yet unidentified. The bird list now totals 79 species.

The Clements' property has been sold, with completion in mid-December. Hopefully the new owner will be cooperative. The property has been surveyed so we now know where the boundary lines lie.

My trail camera has acquired many photos of coyotes and Black-tailed deer, with the occasional raccoon, Grey squirrels, opossum and a Black bear.

Trail camera photo of Glenn Ryder taken on August 14th 2013 – probably the last picture of Glenn taken before his untimely death.



2012:

LFN Annual Report.

Weather:

2012 delivered another very wet Spring and early Summer followed by the longest dry spell on record. This eventually gave way to the usual wet, warm November and December.

Improvements:

Glenn Ryder has been busy during the year improving the trails along the west side of the Mountain View property, beside the railway tracks, and the west trail through the forest. Glenn then continued the trail that Roy Yates and Bob had initiated into the south west corner of the site, where the railways join. Glenn has improved this trail dramatically and continued it to join the south boundary trail in the south west corner, thus creating a nice loop trail. Hopefully we will be able to get LEPS (Lisa) to walk this trail in 2013 with the GPS and add it to the map.

Recently Glenn constructed a bridge across the Davidson Creek tributary that we have to cross at the north-west corner of the site. In December B.C. Hydro cut all the trees/shrubs that were growing under the power lines beside which the trail runs. This improves the view, but removes a lot of wildlife cover from beside the railway tracks.



Glenn's bridge



Bob's Moth trap

Bob purchased a second trail camera for use on the site.

Bob also converted his moth trap from 120V to 12V and replaced the compact fluorescent bulb with UV LED's and relocated it to the north-west corner of the site.

Two salamander boards have been located at strategic sites.

The Clements property has been sold to Paul & Lisa with their three young children. They are very environmentally aware and eventually will build a new house and workshop on their property. Meanwhile we have reactivated our trail that runs to the north of their property so that we can still access the site from 240th street.

Survey:

The total number of species found on the site is presently sitting at 1427.

New species are still being found but not at the same rate as in the previous two years.

New fungi seem to appear each year, with previous species no longer seen; they seem to produce fruiting bodies on a cyclic schedule governed by time or weather. We now have over 300 species identified.

2012 cont'd

The moth trap was extremely successful at the Clements site, but has not been nearly as productive with the new light and siting. Insects continue to be the most challenging species to identify. I had meant to concentrate on beetles this year, but that never seemed to 'get off the ground'.

The salamander boards have not produced any results yet, but they are really designed for the spring when salamanders travel to spawning sites.



Red-legged Frog

The most exciting addition to the inventory was the cougar which followed Glenn for a short way along the trail in the summer. Glenn thinks the cougar is still around and this is borne out by the disappearance of the deer herd. We used to get deer photos every time I checked the cameras, but since the cougar sighting I have captured virtually none.

There was a strong run of Coho

salmon in the fall once the rains had filled the creek. We estimated at least 40 pairs (with several jacks) spawned on the site, with several Bald Eagles feeding on the carcasses.

Several mature Red-legged frogs were seen during the year and many spawned in the seasonal ponds on the site; hopefully the tadpoles matured prior to the ponds drying in the summer.

In November David Jordan with grad student Brad, of TWU, were escorted around the west trails to do some core sampling of the larger trees. We wondered whether some of the larger trees were fairly ancient, but initial results indicate that the bigger trees had wide growth rings, indicating rapid growth under ideal conditions. Estimated ages (with formal results pending) were around 80 – 100 years, which coincides with the time of the great fire which, it now seems, wiped out all of the forest as well as the mill and houses around 1921.



David Jordan & Brad core-sampling Western Red Cedar

October 2013

Glenn Ryder died on October 3rd 2013. Glenn was a founder and Life Member of the LFN and one of the team that lobbied to establish Campbell Valley Regional Park.

I had seen Glenn on the Mountain View Crown Land lease only the week before and though he was becoming increasingly frail as the years passed, there was no indication that he was not long for this world – his death was a complete shock.

Glenn's last environmental project on the biodiversity site was to clear an area near the northwestern boundary to restore it for salamander and frog habitat. He dug a small pond with an island in the centre.

Glenn was still doing some industrial archaeological excavating and was working on the site of the 11th house. He had raked up quite a lot of glass, found a large chain and assorted metal which included what he described as a toy fire engine. Other artifacts which he had left at the site (and I collected) were two intact bottles, a spoon with the inscription 'NEVADA SILVER O.S.CO.' on the handle, a talcum powder bottle cap, a drill bit, and an as yet unidentified object that might have been a lock. A few flatware / tableware manufacturers in the late 1800's and early 1900's had non-silver alloys called "Nevada Silver" or "Nevada Silver Metal." One of these was Daniel & Arter of Birmingham, England ("Nevada Silver D&A"). I wasn't able to find a reference to the O.S.Co. Certain alloys, referred to as Venetian silver and Nevada silver, consist of nickel and silver. Although they're solid metal rather than plated, they contain less silver than sterling does. These lower-grade compounds are often less costly than silver plate but don't polish up as brightly.

Wayne Campbell is the executor of Glenn's will and is looking for a home for Glenn's collections and records at UBC or SFU where it will be accessible for future reference. Glenn had copious wildlife records dating back to the 1940's. Glenn was an accomplished artist and drew all the illustrations for the 'Birds of Langley as seen in Campbell Valley Park' published in 1980 by the LFN.

Although Glenn was shy, reclusive (we affectionately referred to him as 'the invisible man'), and penniless, he made up for his eccentricity with a lifetime of natural exploration, largely in the Fraser Valley, and shared this information with local councils, ministries, museums and educational facilities. Largely self-taught, Glenn's knowledge of wildlife was immense and recognised throughout the field. Last year (2012) he was awarded 'The Steve Cannings award' by the B.C. Ornithologists for exceptional contributions to ornithology in British Columbia.

I will miss meeting Glenn out in the Crown Lands.

March 31st 2014

A sunny Spring day, but cool.

Re-deployed the moth trap with replacement battery.

Installed beetle trap at same site. (need GPS).

Checked both trail cameras – both need new batteries, many deer pictures including ‘Pinto’ deer, but no coyotes!

Blue beetle on yellow card, caught snake-headed fly and then a spider in Moultrie camera case.

Found North-western salamander spawn in small creek on west entry trail.

20 species of birds noted.

No sign of spawn in Glenn’s salamander site as yet, water level steady.

Trillium coming into bloom as is *Oemleria cerasiformis* - Indian Plum, and *Cardamine nuttallii* (*pulcherrima*) - Oaks Toothwort – Spring has arrived.

Photographed Valley Garter Snake (subspecies of Common garter snake).

April 1st (no joke)

A beautiful warm sunny day.

Checked moth trap, negative electrode disconnected, no moths; reconnected wire.

Beetle traps – one beetle, one centipede. Taken home for ID and Photo.

Trap GPS location UTM: 0531905, 5443388.

Replaced batteries in both trail cameras.

Photographed Northwestern Garter Snake (subspecies of Common garter snake).

Caught and photographed Green Frog in Glenn’s pond – released.

Hairy Woodpecker nest GPS 0531426, 5443715.

12 species of birds recorded.

April 3rd

Did Marvin Marsh and Gordon’s Brook bird count, then checked Purple Martin nest boxes at Brae Island. On way home checked the moth and beetle traps at MV. Light still working in moth trap but no insects caught.

One beetle collected from beetle jar.

April 4-15th

Several visits over this period.

Green frog caught in stream crossing trail by MV fence.

Large European ground beetle caught in drop trap as well as many smaller ground beetles and centipedes.

Moth trap not very effective but several small wood-borer beetles caught.

New liverwort found (*Cephaloziella divaricate*) on SW loop trail.

Several butterflies appeared (Margined White and Milbert's Tortoiseshell).

Trillium in full bloom, only one Fawn Lily flower.

April 19th 2014

Moth trap empty, beetle traps – only regular ground beetles.

Moultrie trail camera – dead batteries (2 weeks!) seem to be 259 pictures of night-time nothing.

From now on will only put 4 batteries in cameras.

May 7th

Missed several trip blogs (too busy).

Moultrie camera not yet fixed.

Moth trap still empty (not bright enough)

Spent 2 hours with Dr. Robb Bennett and Darren Copley at Royal B.C. Museum in Victoria on May 5th where I was shown how to catch more spiders. Two spiders identified that have never been recorded in Canada. Most samples were immature and not identifiable.

Learnt that different species of spiders mature at different times of the year, so will have to continue to monitor constantly. Set up pit fall traps with ‘plumbers antifreeze’ (ethanol) in bottom. Found some beetles and mites in the dry traps and dung beetle in one that had been baited with meat, but filled with rain water after cover shifted by some beast.

Have ordered a ‘Berlese funnel’ used to collect spiders and beetles from moss, lichens, soil or leaf mulch. Will only be able to do one sample at a time, so will be in use continually to cover all sample types and substrates.

May 24th

Made several trips in May to check beetle/spider traps.

Traps on north trail have been fairly productive.

Those placed on west trail have been catching slugs which make a sticky gooey mess of the contents of the trap. Seems drier areas are more productive. Will try under big trees and at mill site.

Moultrie trail camera is dead, have ordered a new replacement one (\$100).

Moth trap returned home to check it out.

This time the red battery clip was not making contact with the wire. Fixed and added a 12v brake and running light to the set up. Put battery on charger and got the impression that the solar panel had been charging it backwards – need to figure out which is the positive terminal! Now the UV section is not working!

Set up the new Berlese funnel with moss from trees and branches on west trail (dry) – got a few spiders, beetles, mites and flies. Second run underway using ground moss from north trail.

Caught several moths with new butterfly net which is much more effective than the old smaller one.

Bird counts down due to nesting (quiet time). No flycatchers yet!

Glenn’s pond dropped to 6” water during dry week but has since regenerated.

Paul has trimmed some of the north trail, but a dead tree has also been felled (not sure by whom).

Have lost my monopod walking stick – had to purchase new one (\$90).

May 30th

Checked the trap line on 27th and again this morning – bright sunny day, but rain in week has regenerated the streams and ponds. Glenn’s pond has gone from 6” water back up to 18”.

2014 cont'd.

Added second pop-bottle ground trap to north trail, first one at 0531831; 5443413, new one at 0531798, 5443467. Gradually moving along both trails, but weather so wet trapping not good. Caught slugs again in the west trail traps. Location of the main trap on west trail is currently 531458, 5443955. Catching small and occasional large spiders, beetles, mites, springtails, flies, and other miscellaneous invertebrates.

Moth trap has now been abandoned as cannot get it to work effectively on 12v. – auto brake light bulb ran battery flat in 24 hrs.

Caught swallowtail butterfly today, but dragonflies were elusive.

June 2nd

Checked and moved pit traps on north trail; not much in them, GPS; 0551733, 5443497.

Checked and moved pit traps on west trail, likewise not much in them, GPS; 0531452, 5443878; 0531440, 5443866; 0531426, 5443836; and 0531417, 5443823.

Collected leaf litter for Berlese funnel.

Berlese funnel produced 80 spiders from north trail leaf litter.

May quit pit traps in favour of Berlese sampling.

Entrance trail along boundary needs weed-eating.

June 9th

Monday – sunny and dry. Took Joanne on tour of the north trail as far as the Mountain view boundary.

Collected the two pit traps from the north trail.

Installed the new Moultrie camera in the old site.

Did a bunch of trail brushing on the way.

Found 3 Pacific sideband snails.

Collected a bumble bee. Photographed a slime mould.

Berlese funnel yielded about 25 spiders – reloaded with leaf mulch from north trail.

Not much in two pit traps so will discontinue for now.

June 12th

Thursday, had rained but now clear. Grass wet on way in but dry on way out – need to weed-eat trail.

Decommissioned all (4) pit traps – only about 4 spiders between them. One can had 10 slugs covering the bottom, with a Caxton beetle attracted by the smell. Left the traps beside an old snag.

Glenn's pond down to 5 inches of water. Two green Frogs sitting on island – never moved!

Lots of birds singing – saw Western Tanagers and Warbling Vireos. Several unidentified calls.

Collected Scout Guard camera SD card – 18 pictures but only 2 deer captured.

Caught a small moth (two actually but one escaped in sun room during photo attempt).

Caught a large ground beetle (snail eating type) in one of the beetle traps.

July 14th

Took weed-eater down the north trail as far as the Moultrie camera.

Collected SD card – some blank frames.

July 18th 2014

Visited the west trail with weed-eater. Greeted by a coyote as I climbed up slope from railway to the trail. Only managed to get half way along the railway trail before ran out of gas. Tremendous growth of brambles, Reed-canary grass, nettles, etc. Will need another trip to complete trail to entrance. Once on the site the trail is not too bad. Collected SD card from Scout Guard Trail Camera.

Glenn's pond is now completely dry after about a two week hot, dry spell.

Collected Berlese funnel sample from the camera locality. (Extracted 1 large & 18 small spiders).

July 21st

Still hot and dry. Collected SD card from Moultrie camera.

Photos better but only one buck deer captured, lot of blanks. Reset camera to high from enhanced quality. Added 4 more batteries but needs new set.

Swept trail for spiders (collected 82 spiders).

Collected Berlese funnel sample from 240th Street entrance (extracted 170 spiders).

July 22nd

Continued weed-eating entrance trail along railway, ran out of gas with about another hour's work to reach site entrance.

Swept trail on way back for spiders – (collected 21 spiders).

Met Mike Pearson on 240th as he was collecting fish traps from Davidson Creek. Many Coho fry (250) trapped in pool west of culvert. He caught Cutthroat trout and three-spined stickleback which I have added to inventory.

July 28th

Continued weed-eating entrance trail along railway. Made it to the west entrance.

August 13th

Led the LFN Wednesday evening walk, along the west trail, commencing at 6:30 pm. Eight participants: Roy Yates, Joan Wilmshurst, Joanne Rosenthal, Rose Dendewich, Margaret Holford, Shirley Farris, Caroline McDogal, Ryan Usenik. Weather had cooled from 35C and rain the day before but was cloudy and humid, rain having fallen during the day. Progress was slow and we only reached the site of the trail camera. I switched SD card and we returned to vehicles. Examination of the SD at home revealed 123 photos which included deer, coyote, raccoon, Black squirrels, and rabbits, plus one still unidentified trespasser/poacher. He is always carrying a bag, but don't know what he is collecting. No bear signs or photos.

August 14th

As we hadn't reached the mill site on the Wednesday walk I returned to the site this morning. Met Paul at 240th street entrance and we had a chat – he is concerned about the future protection of the site and we discussed options. Paul noted that Coho made it through the 240th Street culvert last fall and spawned upstream. He is trying to increase the water retention of the pool west of the culvert to enhance the survival rate of the 250 fry stranded in the pool when this

2014 cont'd.

section of Davidson's Creek dries up. Paul also reported Barred Owls on his property, 2 this week and up to 4 last year. He has not seen any signs of the Black bear this year. I proceeded to Moultrie trail camera and checked SD card – seemed to be some malfunction. Replaced card with the other 4 meg. And put in 8 new batteries.

Continued to mill site and collected material for Berlese funnel. Used sweep net on return and collected very wet samples. Back at the farm I sorted the spiders from the sweep material and placed the new sample in the Berlese funnel.

Examination of the SD card showed 26 photos, 3 of which were faulty; the rest revealed deer and coyotes, but no bear.

August 23rd

Walked into Glenn's archeological site northeast of the creek, where the trestle used to cross.

Collected material for Berlese funnel and did a sweep on return (labelled; MV.SB47 Aug.23rd, Berlese funnel-Archeological site East of the creek. N531581.E5443364).

Funnel was a bit overloaded so collected spiders but left the lower layer in the funnel when next collection was added.

The trail is very overgrown and needs clearing.

August 29th

Collected Berlese funnel material from the south east corner of the property and added it to the remnants of the previous collection. Now removing some of the top, dry, material each day so the lower layers dry out more quickly. (labelled; MV.SB48 Aug.29th).

September 3rd

Collected the Scout Guard SD card in the afternoon and counted birds. Brambles have grown 6 feet since last on the entrance trail.

Didn't do any survey work this trip.

SD card had 200 photos – rabbit, squirrel, coyotes and deer, plus a new couple of trespassers and all the LFN tour photos, which were in black and white due to low light and were no good.

November 6th

Collected SD card from Scout guard; had to trim brambles again from entry trail.

November 7th

Collected SD card from Moultrie and spider material from south trail, both sweep and for Berlese; wet but mild.

November 13th

Clear sunny but cold day. Still some frost on ground in shade at noon.

Walked the west loop, and collected spider sample material from drier areas in the region near the railway convergence.

Few fungi so far – some old huge Russula, one Questionable stropharia and unidentified LBJ's.

December 2nd 2014

Visited the Moultrie camera on the north trail. Took some photos of the Soil Deposit; still no sign of it being completed. Appears to be over-filled!

Replaced batteries in camera which seem to have given out on Nov. 11th as no photos after that. Usual deer and coyote pictures. Took some photos of snow on ferns for the LFN newsletter. Encountered a large flock of small birds, hard to count as mixture of Chickadees, Kinglets, Brown Creeper and possibly others. Saw a Cooper's Hawk chasing Red-tail Hawk out of a Douglas Fir tree.

Sparse crop of fungi this year, apparently some areas have been good and others poor in the valley. Still haven't seen any salmon in Davidson Creek. The ground was too frozen to collect spider sample.

December 4th

Visited other camera on west trail; switched SD cards (144 pictures on SD). Most of the pictures had no wildlife on them, but deer and one coyote on others. Nice close view of Pacific Wren on way in, but camera in backpack. I looked up into hemlock tree to see a Barred Owl watching me. Fairly large flock of birds feeding in top of conifers; too big for Pine Siskins although had forked tail but unable to see colour. Put them down as Red Crossbills by sound and feeding habit; a new species for the site.

Black bear caught on the trail camera September 19th 2015



January 8th 2015

Sunny but frosty in Aldergrove. Foggy, but not frozen, at Mountain View. Met Gareth at 9:30 am at 240th entrance for birding walk and trail camera check.

Kinglets, Chickadees, Brown Creepers, Towhees and Song sparrows recorded.

Batteries dead in camera – changed SD card but will have to return with new batteries.

Found skeletal remains of one salmon by brook. No live salmon seen this fall.

Lot of trees down and will need to take in chain saw to clear trail. Left at 11.15 am.

January 9th

Returned with chain saw and cleared fallen trees as far as the trail camera. Changed batteries in camera – records show last changed in Dec. so shouldn't have run down in a month!

Cut 2 feet off the top of the dead alder that the Hairy woodpeckers had been chipping away at and took it home for examination. Findings were a bunch of beetle larvae of varying sizes and one adult beetle, identified as a Rugose Stag Beetle. The larvae also appear to be this species, with the exception of one larva of a different beetle family.

Paul came out to visit – reported few Coho this year but did see about 12. Also found smaller fish in ditch beside road which could have been cutthroat trout. I re-checked our old photo of a steelhead fry and concluded the identification was correct.

January 12th

As on the 8th, a sunny but frosty Aldergrove; foggy, but not frozen, at Mountain View. Took a couple of fence boards to build bridge across stream crossing entry trail near the crown land entrance. Need to take spade and reconfigure stream path.

Checked trail camera and found batteries to be dead. Brought camera home as had been thinking of re-siting it.

The SD card had photos of a buck on Dec 12th, a coyote on Dec. 29th and a pair of coyotes on Jan.1st, at which point it continued to take photos until it ran out of batteries or SD space – 1767 photos.

January 20th

Redeployed the Scout Guard camera in a new site closer to the west entrance, where the deer trail heads across Davidson Creek.

Took chain saw and cleared some of the area around the camera as well as cutting up trees that had fallen across the trail recently. Little bird life, although the weather was fine.

January 29th

Sunny, warm, beautiful day. Set out on west trail at 10:30 am.

Checked the Scout Guard camera – 40 pictures (but only one showed a deer). Camera is pointed too high so will angle down on next visit. Walked the loop trail but saw sparse bird life and not much else. Some vine maples down which need Swede saw to clear them. Found Glenn's old leaf rake which we had missed.

January 30th 2015

Another warm, sunny day, so walked the north trail to check on the Moultrie camera. Found the batteries dead, so brought the camera home.

Continued along the trail to just past the wooden culvert – many trees down across the trail and will need the chain saw to clear some of it. 13 species of birds today, better than yesterday's 7.

February 23rd

Checked SG camera and adjusted height (lower): only deer on camera. It took 400+ pictures after I installed it and only shut off after I returned past it.

Wrote to Moultrie regarding failed camera on March 2nd.

March 17th

Checked the SG camera, once again 400+ photos. Several strips of 1 hour duration before camera turned off. May try setting it to video!

Little bird activity, despite fine warm weather.

Glenn's pool at 23" but no frog or salamander spawn visible.

March 18th

Cool damp morning, but rain stopped as I entered north trail. Collected Moultrie trail camera security box. So there is no longer a trail camera on the north trail.

Continued to vernal pond – checked salamander trap, nothing again. Moved trap closer to pond.

Dipped pond for samples, collected bloodworms (Non-biting midge larvae), Phantom midge larvae (new species), Pea clam, and jelly with single egg and jelly with embryo. The egg jelly has been transferred to a plastic container and placed in my pond to see what develops from it.

Pacific Wrens were in full mating call this morning. Skein of geese flew over in which there was at least one Cackling Goose (new species). A Barred Owl called but did not respond to my I-pod call.

March 27th

Took Alex on an aquatic insect fishing trip to Davidson Creek on the west trail.

Discovered that my Scout Guard Trail camera had been stolen; with the Moultrie dead and the Scout Guard gone this terminates the survey with motion sensor cameras.

I had borrowed a stream collecting net from LEPS and we managed to catch three fish (Coho fry), and quite a few invertebrates of various kinds still to be identified. 12 species of birds were recorded on this trip.

We also saw 6 young Garter Snakes.

April 7th

Installed Al's trail camera to check on owl nest box. Did bird count and pond dipping. Saw one garter snake. Went on west trail past saw-mill site and on to the SW pond. Found a Brown Creeper nest near south end of trestle site. Only one fawn lily flower this year. Trillium are in bloom. Checked Glenn's owl box - no occupants.

April 14th 2015

Collected the trail camera from the west trail; it is working but no action at nest box – will relocate it to the old north site.

Did some more pond-dipping, but this time with a bucket to collect smaller critters. At least 5 small frogs jumped into Glenn's pond as I approached. Examination of the samples showed cyclops, leeches, many insect larvae and masses of a curious bivalve, not yet identified, that skittered around as fast as beetles. A couple of new algae turned up: *Anabaena* sp. and *Closterium* sp.

A Red-breasted Sapsucker was drumming on a hydro pole by the railway, two Ruby-crowned Kinglets were flitting around and a new species for the site, an American Kestrel, was seen flying from the site (bird species #91).

April 21st

I walked the north trail to the drained pond clearing. Redeployed the Bushnell camera at the hemlock tree site; N0531675, E5443691. Will likely move it to the site of the Moultrie later. Did pond dipping at vernal pond by salamander trap; trap empty but long-toed salamander tadpoles were found in the pond. Also took sample from the stream by cedar tree; transparent shrimp detected and some small larvae but not much else.

Of note today was the presence of Varied Thrushes; I heard 5 and saw two; strange since they have been inconspicuous this winter. Anne also heard one on the Houston Trail. I saw my first Arctic Skipper of the year today.

April 29th

Collected trail camera and moved it back to the previous Moultrie site and changed the SD card. Two coyote were detected on April 27th. Did some pond dipping in vernal pools near the first site of the trail camera – many algae species and tiny crustaceans and pond invertebrates were found. Birds were quiet, only 9 species heard.

May

Collected SD card from camera – no pictures. Reset camera.
Driest May on record.

June 9th

Walked north trail to camera leaving at 12.45 pm. Collected SD card and did bird count – 18 species including MacGillivray's Warbler, a new species for me although Glenn had recorded them in the past.

June 17th

Discovered a flycatcher nest at the 240th (north trail) entrance.

June 18th

Photographed the flycatcher on her nest and when she left photographed the 4 eggs. She has not made a peep, so have tentatively identified her as a Pacific-slope Flycatcher and filled in a breeding Bird Nest Card. The nest is on an alder 1.74 m above the ground at UTM. 532154/5443306.

2015 cont'd.

I then proceeded along the south trail. The creek is dry but still has water in the pool downstream of the 240th road culvert. Robins were giving alarm calls, but I didn't see any raptors or owls. Scat that looked like a small bear scat was photographed. Found colony of sand (mining) wasps at the far end by the Dreidiger's garbage dump (new species) and a domestic bee's nest in a Maple tree.

July 1st

Flycatcher still sitting – not a peep to identify her.

July 3rd

Flycatcher eggs have hatched – no parents around, no songs for identification. Collected SD card from trail camera, then continued around the south portion of the north loop trail and brushed it out a bit. Too hot to do more, 30C in the shade. Did a bird count.

July 17th

The flycatchers had flown by the beginning of the week, birds in the vicinity responded to PSFC calls and were heard peeping. Again today a family of PSFC was observed in the forest. Collected camera SD card, brushed out more trail until reached area where tree fall has blocked trail. I will need a saw to get through. Not much bird life and no photos on camera, but put lock back on this time.

I met Paul who had seen Douglas squirrel and also chipmunks around his home.

July 24th

I received a phone call from Gordon Blankstein thanking me for the inventory which I had E-mailed to him some time ago, and which he had only just read. He was most impressed and asked if he could send a copy to the Ministry of Forests, to which I agreed (Sylvia Letay already has a copy).

Gordon listed off some species that he has seen that are not on the list; these were mostly on Mountain View property, but have been added as outside Crown Land Boundary.

August 10th

The hot weather continues and the Western Hemlock seem to be shedding a lot of needles. Replaced the SD card in the trail camera and did a bird count on the north trail, very quiet, only 8 species. Counted 16 relatively new coyote scats on this section of the trail. I heard a Douglas squirrel. Collected some forbs from the forest edge on the soil deposit site and discovered 12 were new species which brings the total species to over 1700. I also collected three spiders from the ground which may be new to the list. I photographed a polypore fungi on a dead Paper Birch and collected a little brown gilled species (BUM) for identification.

August 11th

I took a 2 hour trip with Alex into the west trail this morning. We couldn't make it all the way along Glenn's trail due to the excessive growth of blackberries, so we completed the walk to the trail entrance along the railway tracks. Then we went fishing in Davidson Creek. Someone had

2015 cont'd.

been in earlier and cut a lot of brush from the side of the stream. We caught Steelhead (Rainbow) fry, Cutthroat trout fry and Coho fry, but no invertebrates.

August 18th

I took a trip to check out the trail camera – still not working. Formatted the SD cards and hope this time I have got it right. Little bird life but did manage to log 9 species. Photographed some of the soil deposit weeds on the property boundary that may invade the site. Still no rain and very dry.

September 4th

On Friday, August 28th the hot dry summer finally ended with 12 mm of rain and on Saturday another 12 mm accompanied a vicious wind storm with winds peaking at 90+ km/hr. Today was my first visit to the site after this storm and a total of about 90 mm of rain in the past week. Many branches had come down but only one Birch tree was actually down on the north trail to the camera site. I recorded 12 species of birds and noted that the *Pholiota* mushrooms had burst forth after the rain. The trail camera finally worked and contained 54 photos, depicting deer, coyotes and a Grey squirrel.

September 21st

Cloudy morning with promise of sunshine later; it arrived just as I left. Started down west trail at 11.45 am. it is quite overgrown and as before I left trail for railroad tracks when couldn't proceed any further. Nice examples of *Amanita muscaria* on the west trail. Once in the Crown Land, forest trails not too bad except for a few areas and some windfall, but not as bad as expected after the storm on 28th of August. Photographed and collected a few mushrooms.

Glenn's salamander pond was still totally dry.

Got as far as the Saw Mill site and on into Glenn's archaeology area and then turned for home.

September 29th

Clear day, heavy dew. Walked the south trail starting at 10.30 am returning to my truck by 1.00 pm.

Only 12 species of birds seen or heard, and Davidson Creek is still dry from 240th to the spring site. Photographed 12 species of mushrooms and collected some for spore prints – nothing unusual.

The trail was in reasonable shape with just a few smaller trees fallen across it – will take hand saw next trip.

The small pond by the railway at the trail west end has water in it, but I did not do any pond dipping. Heard a Douglas squirrel and Pacific Chorus frogs.

October 9th

Quick trip to retrieve trail camera SD card today.

Photographed and collected a few more mushrooms for ID.

Only 5 species of birds recorded: STJA, SOSP, PAWR, BCCH, and NOFL.

I did hear several Pacific Chorus frogs ribbiting.

2015 cont'd.

Trail camera pictures included Eastern cottontail, coyotes, one Black-tailed buck and a Black bear. The last photo didn't record and then there was nothing for 2 weeks, so I fear another camera failure.

October 15th

Another trip to check the trail camera – it has worked fine with coyote and deer pictures. Most of the mushrooms had gone and few new ones have replaced them. I did find what I think is an Earth Tongue growing out of a wood-boring beetle hole in a piece of bark. Birds same as last trip.

November 10th

Trip to collect camera SD card – 160 pictures, deer, Coyotes, Grey squirrel and Black bear. Walked the north trail to camera, then the south loop and crossed the creek to return the last stretch on the south trail. Little bird life today with only 8 species seen or heard. Leaves are falling, first light frost last night.

No fish seen in the creek although water is now running but not as yet very deep. Weather was cool, cloudy but no rain.

November 27th

Met Gareth at the Rawlison overpass at 10 am and we set out along the approach trail to the site with the intent of clearing the blackberries from the worst part of the trail. Ground was frosty which made the cutting of Reed-canary grass much easier with a brushing hook. Only managed to clear about half of the section that was blocked and didn't make it to my target of where the culvert under the railway empties water from the west across the trail. Spent 2 hours and called it quits at noon. We will have to schedule another work party soon. Only 4 species of birds recorded in those 2 hours: SOSP, SPTO, STJA and NOFL.

November 30th

Cold, clear, frosty morning. Walked trail to camera starting at 10 am and switched SD card. Eleven species of birds recorded on this outing as well as a Douglas squirrel.

The trail camera had 176 photos, the first 30 of which were of one buck that spent a long time in front of the camera. One set of shots contained a Pacific Wren in the centre of the frame which was a great guide to the sensitivity of the camera. Also recorded a pair of Eastern Grey squirrels, one black, one grey. Another set showed 4 Coyotes, and 4 Black-tailed deer. Battery life down to about half. No salmon seen in the creek which has relatively low water level and many blockages with riff-raff along its length.

December : No visits

January 8th 2016

Today was cold, 2C and slightly foggy. The only birds heard were a couple of crows and robins and one Spotted Towhee that responded to 'pishing'.

Collected SD card from trail camera and was serenaded by a Douglas squirrel.

SD card contained 120 pictures, mostly Coyotes with a few Grey squirrels and Black-tailed deer.

The Soil Deposit on the adjoining property is now complete. Several trees on the edge have been removed, possibly from the crown land but hard to tell. Some erosion is taking place and washing onto the crown land. Much garbage remains along the edge.

February 8th

Changed the SD card in the trail camera – 325 photos in last month, 35 Coyotes, Grey squirrel and possible Douglas squirrel. No deer at all – have to wonder if the cougar has been back.

Heard Douglas squirrel and the Pacific Chorus frogs are calling – there is virtually no water sitting on the site, so not sure where the frogs will spawn.

Very few birds, only 4 species: two BRCR, a PIWP, one crow and a juvenile BAEA.

March 4th

Today was a trail clean-up project at which Gareth, Wim and Tom helped me clear the remainder of the west approach trail that Gareth and I had started on in November. It went much quicker with 4 helpers and we had time to continue into the crown land where we found several trees had fallen, some across the trail. Tom plans to go out with a chain saw and clear these before our field trip on Friday, March 11th.

March 8th

I walked the north trail, starting at about 11 am ostensibly to change the SD card in the trail camera, exactly a month after the last change. It contained 162 pictures: 25 Coyotes, 3 deer and 11 of squirrels (grey and black). Good news is that the deer are back even if all the photos were of the same animal (which I think they were). Gordon Blankstein told me last week that 3 deer have been poached from the site recently. The bad news is that the squirrels were invasive Eastern Grey's and not a Douglas squirrel was seen or heard. The Pacific Wrens have started their spring mating songs, and the Northern Flickers and Pileated Woodpeckers were very vocal.

Having visited the Beaty Museum at UBC yesterday with Lisa and Meg from LEPS where we viewed their lichen collection and discovered very few vouchered specimens from the Fraser Valley, we concluded that a collection should be started. So I commenced today with about 20 species which I now have to photograph, identify, package and freeze for 2 weeks before we can take them in. GPS locations and the substrate on which they were growing have been recorded as required for the museum collection.

March 11th 2016

Wednesday night and all day Thursday we experienced a full gale force wind with rain. We lost power Wednesday night and it finally came back on at 7.55 am Friday morning. Tom had planned to clear the wind-falls on the trail on Thursday but sensibly did not go out in the wind. So Friday morning I set out with a group of 11 naturalists, somewhat apprehensive as to what we would find fallen on the trail. We progressed in the usual slow LFN style, with most of the women not having read the 'bring rubber boots' warning, until we reached the temporary bridge across the trail at which they refused the water jump and headed up to the railway and back down to the trail at the Trans-mountain Pipeline crossing. By this time we had seen many lichens including a piece of *Lobaria* (Lungwort) which was in the Mountain View property and not accessible to us.

Continuing along the Crown Land west trail, we made it to the Fawn Lily site by 11 am, at which point we turned for home. Meg then discovered a piece of *Usnea longissimi* – Methuselah's Beard, a new lichen species for the site – turned out there was a mass of it growing right up the south side of the trunk of just one Red alder tree.

Twenty species of birds were tallied, including a pair of Brown Creepers entering a probable nest site and our first Rufous Hummingbird (male) of the year. Gareth spotted a Red-breasted Sapsucker.

March 18th

Took another trip in to the trail camera and changed SD card – seems I have miss-set it and it is now taking photos once/hour as well as when motion activated. Deleted many frames (200)! I collected some more lichen specimens, in particular *Leptogium saturninum* which I knew occurred just past the trail camera location. They have been photographed and added to the collection which now numbers 50 MV specimens. Currently I am entering them into the Museum Excel spreadsheet.

March 22nd

Walked the west trail as far as the Fawn lily patch – no flowers yet. Saw white-wash below the first cedar tree and looked up to find a Barred Owl looking down at me – 'who, who - Anne where are you', sorry not with me today!

Collected more lichen samples and found some new ones, now have 33 identified and 16 still to be pinned down. Climbed the fence to collect the *Lobaria* we had seen on the 8th which turned out to be *oregana* rather than *pulmonaria*.

A Douglas squirrel greeted me on the return trip.

April 8th

Collected the SD card from the trail camera and a few more lichen specimens. Fallen trees are blocking the trail and in need of chain saw work.

April 22nd

Walked the north trail from 240th Street again and collected the SD card from the trail camera. Some deer are back and appear to have leucistic characteristics with at least four individuals having been documented. Continued along the trail to where it is blocked by fallen branches and collected a couple more lichens.

2016 cont'd.

On the return trip I photographed what I took to be a Yellow-headed Bumble bee, but it didn't look quite right. Further scrutiny revealed its identity as *Bombus impatiens*, the Common Eastern Bumble Bee, an import from the east which seems to have been naturalized in the Fraser Valley, a new species for the site. Then I spotted a warbler singing in the tree tops which had much yellow on the head; playing warbler songs on my I-pod identified it as a Townsend's, another new species and the 100th bird species recorded on the site. My lichen collection for the site is now at 84, but I only have 62 identified so there must be some duplication or additional species to be identified.

Bleeding heart are in full bloom and the trilliums are about over. The deciduous trees are all in bloom. Many Red-breasted Nuthatches were calling loudly and I estimated at least 3 pairs were present.

Many Oyster mushrooms had blossomed forth on alder logs and a new polypore, *Polyporus zelleri* was found.

April 28th

Tom W and I walked the west side loop trail with chain saw and clippers. Started at 9.30 am and left by 12.30 pm.

We made it around the loop and cleared many downed trees from across the trail. A lot of large trees, cottonwoods, birch and alder have blown down in the last 6 months since I last walked this trail. We need another visit to complete clearing west of the creek, at which time I should be able to walk the trail with my GPS and add it to the map.

Saw two owls, one sounded like a Barred, but the one I photographed was definitely a Great-horned. Several times small birds flew up from our feet on the entrance trail, possibly nesting wrens although we found no nest. Saw a Red Admiral butterfly and a couple of Garter snakes by the railway.

May 20th

Friday with nothing on my calendar and a visit to MV long overdue. Weather is good sun and cloud 20C with a few showers in the last few days but quite dry.

Davidson Creek has dried out but there is still a pool at the culvert under 240th with fish trapped in it. Passed this info on to LEPS.

Birds were singing and I logged 20 species including Black-throated Grey Warbler and Wilson's Warbler. A Barred Owl called and Robin's, BHGB, PAWR, were most vocal.

Collected SD card from trail camera, almost 600 photos, (camera taking timed pictures again!) 8 coyotes and 2 rabbits.

Followed trail as far as the entrance to the clearing just past the two big hemlocks and on to the old roadway. Many trees are down and clearing is required; the top has come out of one of the hemlocks and some of the maples. One tree (Cedar) is uprooted and fallen onto the edge of the cleared area.

June 14th

Stopped raining in Aldergrove so went to MV to collect SD card from camera. Well it hadn't stopped raining in Ft Langley; got soaked on quickest trip in and out to the camera.

Pictures of deer with a very young fawn and the usual array of Coyotes.

June 2016 cont'd

The only birds were BCCH, BHGB, PAWR and SWTH.

June 17th

Beautiful day so visited west trail. Lots of birds singing AMRO, WIFC, COYE, and SWTH along the railway trail. The trail is so overgrown I simply couldn't get through and reverted back to the railway as far as the pipeline crossing. Even inside the forest, parts of the trail are overgrown. I had Glenn's manual weed-whacker with me and managed to clear a way through but only got about as far as my old trail camera site. The birds continued to sing including WETA, OCWA, WWPE, BCCH, WIWA, BHGB and REVI and I used my Ibird PRO to help identify their songs as the only one I actually saw was the Wilson's Warbler.

There was a dead Garter snake by the overpass which I spotted on the way in. I photographed it having decided it had been beaten to death (possibly human induced). From the photograph it clearly had eight upper labials, putting it in the Western Terrestrial Garter Snake group, and appeared to be the Wandering Garter Snake subspecies *Thamnophis elegans vagrans* (a new species for the list).

Decided I am coming down with a cold so gave up and headed home.

July 26th

Visit to collect SD card from trail camera (200 pictures).

I met Paul at the trail head. He saw very few salmon last fall but there were fry and some larger fish stranded in the pool by the highway in the Spring. He caught 100 and released them downstream of the beaver dam on Rawlison. He couldn't catch the larger fish which were likely Cutthroat trout, but the raccoons fished them out. Paul has brushed the trails he uses and we now need to do the ones we use.

A black bear was caught on camera on June 14th along with deer, Coyotes and squirrels. RBNU were singing, but not much else. A nearby STJA gave a perfect RTHA call.

Use of the sweep net on the return hike produced an assortment of spiders and a micro-moth which unfortunately vanished whilst I tried to transfer it to a container.

August 9th

Tuesday morning and a special trip to change the batteries in the trail camera. I forgot the replacement SD cards, so switched with the one from my camera.

Few birds, only 9 species heard.

No new species, but trimmed the trail a bit with Glenn's weed whacker.

3 deer photos, 16 Coyotes and one black squirrel.

September 9th

9.30 am walked the north trail from 240th taking weed-eater with me. Started weed-eating at end of Clements trail (already cleared by Paul) and proceeded towards trail camera. Made it almost that far, before running out of gas – as did the weed-eater. Collected SD card and headed home. The Fir cone fungi are fruiting *Strobilurus trullisatus* as well as still a few Black-eyed Parasol mushrooms *Lepiota atrodisca*.

2016 cont'd.

Lots of American Robins were seen flying in and out of the Blueberry field. The soil deposit site is finally being cultivated, 7 years after the 'one year' project was started.

The camera card caught 19 deer with one leucistic fawn, 46 Coyote, 6 Black Eastern squirrel, 1 Grey Eastern squirrel, 2 Eastern Cottontail rabbit, and 2 white Retriever dogs off leash and unaccompanied.

September 30th

Beautiful, warm day although the bush was wet. Took Oscar (a dog) for a walk at 9:30 am along the west trail. Trail needs clearing as far as the site entrance. Once on the site trails, it is not too bad but still needs work.

This was primarily a mushrooming trip as well as dog exercise. Wasn't easy spotting mushrooms when continually being pulled along at a pace faster than I had planned.

Found an *Amanita muscaria* (orange) on the trail in to the site and then collected 20 specimens from the forest. These have been photographed and set for spore print, probably nothing new to add to the inventory. Only got as far as the saw-mill site before heading for home.

October 5th

Walked the south trail from 240th as far as the railway. Picked up a number of drink cans for deposit return.

Collected mushrooms for identification, now up to 380 species. Few birds seen or heard.

October 7th

Walked the north trail from 240th to collect camera data. When I reached the camera I discovered it was not turned on; darn, lost a month's data.

Collected 30 mushroom species for identification, they seem to be at their peak now. Again few birds, only 5 species.

Walked back along the blueberry field; the soil deposit site has now been planted but they have pushed all of their garbage into the crown land. Will send a letter of complaint to the ministry. Did hear a couple of Douglas squirrels.

November 3rd

Only 7 species of birds noted on visit to the trail camera. I collected a few more fungi specimens and keep adding to the total – now at 395 for the site. The trail camera caught deer, Coyotes and black squirrels. Weather continues to be very wet with October having had measurable rain on 28 of 31 days.

November 8th

Record breaking warm day for November (20C) and I walked the west trail. Slow going as much trimming required on the approach trail. Some more debris had fallen on the trail which also required moving. Glenn's pond is full and a Pileated Woodpecker was exploring the ground nearby. Collected a few more mushrooms, a new *Russula* and some of the large *Russula*'s were found under the Hemlock trees. Only made it as far as the saw-mill site before returning home. No fish observed in the creek.

November 25th 2016

A very wet and windy night, but morning was clear and bright, so a trip to look for salmon seemed in order. Only a couple of large mushrooms had pushed up through the fallen leaves and very few birds calling. I did add a flock of GCKI to the November list. Collected the camera SD card.

Took the circle trail from the camera site and found it needed much pruning. Found one salmon on the bank with large scat by it, might have been a bear or big coyote, 2 more salmon on the bank seen on the trail, but none in the brook. Douglas squirrel chattered at me.

The camera contained 410 photos, but 260 were of the same family group, which included a leucistic fawn that stayed in front of the camera for 1.5 hours. Usual coyotes and black/grey squirrels but nothing new.

Trail camera photo of Black-tailed deer with leucistic fawn.



2017

January 31st

First visit since November: cool, clear day after months of winter. Lots of branches on the trail, saw needed for some clearing. Changed SD card in camera and replaced batteries which were dead. Found grey *Mycena* and some Scarlet-cup fungi.

Camera had only few pictures, the batteries having died on last day of November – missed 2 months of data including all the snow.

Did not see or hear a bird on the site.

March 2nd

No visits in February due to snow.

Today's visit was to change the trail camera SD card – there were about 180 photos which included a few deer (buck) frames and a couple of Eastern Grey (black) squirrels, but predominately coyotes. Only four species of birds heard, NWCR, CORA, VATH and AMRO. Collected a few beetles under bark of fallen alder – awaiting identification. Nothing else of interest was noted.

March 17th

Walked the west trail as far as the sawmill site. CN have run an excavator along the right-of-way as far as where the trail drops down to the impenetrable part where the blackberries have overgrown Glenn's efforts. Quite a mess, but will be interesting to see if anything new appears in the aftermath. Spotted a pair of Anna's Hummingbirds, which is a new record for MV. Only 7 species of birds seen today.

Patches of sticky, whitish fungi have appeared; I photographed and brought one home for spore print and ID – don't think it is a new one though.

Mosses are at their best and I will try and get Phil to come out and do another moss survey as I think I have missed some.

Trails need fair bit of clearing and trimming after the winter snow has brought many smaller trees down.

April 4th

Trip to check camera and collect some mosses. Camera readout not working, but 240 pictures on card. Mostly Coyotes, and deer with one leucistic fawn and one Raccoon.

Moss collection added four new species to the list which is now at 44.

Nine species of birds recorded.

April 7th

Trip to replace camera batteries, which did not restore readout. Will have to check in a week to see if it is still recording. Only six species of birds recorded. Collected some more mosses for identification – rain stopped play.

April 11th

Took old camera to check SD card on trail camera – no new photos, so brought camera home.

2017 cont'd.

Collected a few more mosses, liverworts and lichens, some from high up on a tall birch that had fallen.

Still very few birds on site.

April 19th

Checked SD card on camera as suggested by Bushnell technician and the camera came back to life – returned it to the original site today. Walked the north loop and collected a few more bryophyte specimens. Again few birds evident on the site (species), but the YRWA's were present and the PAWR's were singing.

April 25th

Took Ted Lightfoot on an orientation walk along the West trail; we made it as far as the Sawmill site doing trail maintenance on the way. Ted's machete was impressive in removing larger branches which I normally would have used a saw on.

Few birds in evidence but we did find an American Robin's nest with 2 eggs and 2 young at head height beside the trail.

Collected one bracket fungus for identification, and found several *Verpa bohemica* - Early Morel in one area, most having had their tops eaten.

May 2nd

Entered the site at 8:45 am to retrieve camera SD card and do a bird count (15 species recorded). Fairy-bells and Bleeding Heart in flower. Collected a mushroom from fallen Maple tree, and a few more lichens from a fallen high branch.

Camera had still malfunctioned taking photos continually for 6 hours on April 18th and 22nd but then seemed to sort itself out; there were 1500+177 photos on card!

May 23rd

Beautiful sunny day. Entered north trail at 10 am and retrieved SD card. Bird count, 15 species, but probably more that I could not ID. The WWPE's are back.

SD card contained 117 photos and camera is now functioning properly again, photos were all deer or Coyotes.

Continued as far as vernal pond where salamander hatchlings were photographed.

Trail needs clearing.

June 20th

Dull day, 20C but damp. Went to change SD card and brushed some of the trail with Glenn's old weed whacker. 21 species of birds recorded, no new flora or fauna. 156 photos, just coyotes and deer as usual.

July 9th

Collected camera SD card. Deer and coyotes as usual.

August 11th 2017

Met Gordon Blankstein today who informed me that he had seen a baby Black bear this morning. He has also seen a Bobcat and a Cougar took one of his steers in April. Apparently 3 elk were seen in the area but were shot by hoodlums. Barred Owls nested by the Spotted Owl enclosure. Plans are in the works to annex the Spotted owl breeding facility onto the crown lands and designate the site as a Wildlife Area.

August 17th

Changed SD card in the trail camera, mostly deer and Coyotes with one black squirrel and one unidentified animal whose head was not in the frame. One fawn was leucistic. 11 species of birds recorded, including a Barred Owl which flew into a nearby tree. 3 Douglas squirrels were heard chattering.

August 29th

It was 6:30 pm when Tom, Marnix and Victor joined me for an orientation tour at the 240th entrance.

We walked the trail to the trail camera site and then on to the start of the old roadway where the pond dam had been breached. This took an hour so we turned back along the same trail with the light fading by 8:30. The boys logged 10 species of birds of which Tom and I would probably only have seen or heard 5! We did see a Barred Owl in the same area as the one I photographed on the 17th. We will schedule other visits to explore some of the loop trails and the western trail when we can get together.

October 12th

Quick visit to change camera SD card, but found I hadn't turned the camera back on – another month's data lost!

It has rained a little and cooled at night, so the mushrooms are sprouting up. Found Bristly Pholiota - *Pholiota squarrosoides*, Common paxillus - *Paxillus involutus*, Death Cap - *Amanita phalloides*, Honey Mushroom - *Armillariella mellea*, Black-eyed Parasol - *Lepiota atrodisca*, Shaggy parasol - *Chlorophyllum olivieri*, Angel Wings - *Pleurotus porrigens* and Rounded Earthstar - *Geastrum saccatum*.

Met Paul and had a chat.

October 4th

Cleared part of the Trestle Trail, but the weed-eater was not running too well. Got most of the way towards the trestle site.

October 31st

Returned to the trail camera and changed SD card. Then worked the Trestle Trail from the camera end. It looked like Marnix had cleared the trail as far as Davidson Creek but had then lost it. I cleared this remaining section with the weed-eater and ran out of gas just as I reached the section I had cleared from the other end, so the loop is now open.

November 11th 2017

Marnix & Victor posted a bird survey on eBird (18 species).
Ted and Linda have cleared the trail into the old mill site.

November 25th

Changed batteries and SD card in trail camera, on this 1 hour foray.

Only 7 species of birds recorded; saw and heard a Douglas squirrel and the frogs were calling on this warm day (10C) for November.

Strange looking barrels and tubs photographed on eastern edge of property on the blueberry farm. Camera recorded usual coyotes, one buck, Grey and Black squirrels and our first Douglas squirrel actually caught on camera. Said squirrel was chattering at me today and the frogs were calling. Nice photo of Golden-crowned Kinglet.



(Right)
Golden-crowned Kinglet

December 23rd

Marnix submitted an eBird report
with 17 species listed.

Trail camera picture of a Pinto (leucistic) young Black-tailed deer in the snow.



2018

January 14th

Quick visit to collect camera SD card. No birds seen due to fog, but heard Raven, Crow and Geese.

Some trees in need of a chain saw to remove from trail.

Photos showed mainly coyotes, a couple of deer and a few squirrels (Black & Grey). One photo of Grey squirrel was followed with photo of coyote with squirrel in its mouth – well done!

Another showed a coyote with prey which looked like a bird, possibly a duck.

Some photos of Coyotes in snow.

March 15-16th

Checked trail camera, batteries dead.

Did bird count, less species and numbers than Marnix & Victor got.

200+ photos on camera, mostly Coyotes, few deer and Western Grey squirrels (formerly called Eastern Grey Squirrel).

Blueberry farmer has bulldozed further into the site.

Returned following day to replace camera batteries.

April 26th

Hot dry day: took a sweep net and collected a few flies, beetles and spiders for identification later.

Collected some algae from the vernal pond and a swamp on the north trail.

Changed the SD card in the camera; usual Coyotes, deer and rabbit, one deer was a 'pinto'.

Flowers in bloom were Trillium, Bleeding heart, Baneberry, Oregon grape, Indian plum, Miner's lettuce, Hooker's fairybell, Elderberry, Salmonberry, Bittercress, Yellow wood violet.

Found a coast mole dead on the trail and saw several Cabbage white butterflies. Yellow-faced bumblebees were present.

May 16th

I arranged for a trail clearing visit to the area west of Davidson Creek. Ted and Gareth attended and we cleared as far as the Mill site. Had hoped to walk and GPS the loop trail but was too hot and wet to make it that far.

Found a group of Devil's club, which I hadn't seen before. Fringe-cup and False Lily-of-the-valley were in full bloom.

Took water sample from Glenn's salamander pond which was almost dry, and another from Davidson's where many Coho fry were visible.

Lots of birds singing but only recorded 11 species.

Ted checked the last Screech Owl box that Glenn had installed and was surprised when a Deer mouse launched itself from the box just missing his ear!

2018 cont'd

June 19th

A beautiful, sunny, hot day. I walked the east trail from 240th to the trail camera. Photographed a Western Leafcutter bee at the entrance – a new species for the site. The trails are getting overgrown and will need some work. Logged 14 species of birds – only half the 29 species that Marnix counted on June 10th; I must have heard many that I couldn't identify. Many shrubs in fruit – Salmonberry, Indian plum, Red Elderberry and Red Huckleberry to mention a few. The mosquitoes were abundant and hungry. A few mushrooms were evident. Upon reaching the trail camera I discovered it had been vandalized, but fortunately they couldn't cut the cable locking it to the tree although they left it facing upwards. 21 photos of Coyotes and only one deer, but a nice photo of the vandal. It seemed the batteries were dead so will have to return to replace them. Came back along the edge of the blueberry field and photographed a Western Pondhawk, another new species of dragonfly. Several Western swallowtail butterflies and Margined whites were seen.

June 21st

Returned to fix the trail camera, inserted new batteries and re-aligned camera. Mosquitos still hungry and prolific. Found some Japanese knotweed on boundary of fill site – pulled it. Also a new weed I can't identify at present. (It was Corn Spurrey).

July 24th

Marnix did bird count on June 24th (30 species) and July 22nd (23 species). Checked trail camera, 156 pictures; 14 Coyote, 8 deer, 10 rabbit and 1 squirrel. Need trail brushing team. No mosquitoes!

August 12th

Marnix and Victor did a bird count listing 22 species of which one was Purple Martin (5), a new species for the site. The Purple Martins are nesting in the boxes installed several years ago off Brae Island.

August 17th

Checked trail camera, 178 photos; 17 Coyote, 4 deer, 3 Western grey squirrel, 4 rabbit, 1 Douglas squirrel. Weather hot and dry for 2 months now, everything very dry. 9 species of birds with at least 15 Cedar Waxwings seen feeding in blueberries. Photographed some of the plants along blueberry border and talked to owner about not pushing their garbage into the Crown Land and encroaching on our territory – he will cooperate. Photographed one fly and one bumblebee – *Bombus flavifrons* - Yellow Head B.B. Bacterial Wetwood is occurring again this year with one dying Red alder at the 240th Street entrance weeping brownish sap from its upper limbs.

2018 cont'd.

August 31st

Checked the trail camera again and reset the date and time. The card contained over 50 photos of the same black Western Grey squirrel as well as 10 Coyote, one rabbit and a deer.

12 species of birds were recorded with about 30 American Robins feeding on the blueberries.

I employed the sweep net on the trail and collected 31 spiders, 4 assassin bugs, 2 centipedes, 10 flies, 3 mosquitoes, 1 snail and 8 leafhoppers.

Found several *Ramaria stricta* Coral mushroom specimens covered in secondary fungal growth.

September 2nd, 9th & 11th

Viktor submitted eBird counts for the 2nd (19 species) and 9th (6 species) and Bob saw some Canada geese fly over on the 11th.

The reason for the visit on the 11th was to check out a fungus Victor had photographed on the 9th, that looked like a slime fungus but was white rather than the usual yellow of *Fuligo septica* - Scrambled-egg Slime mold. Finding the specimen exactly where Viktor said it was, it was now yellow and crusted over confirming my initial identification. I also found some *Leucoprinus brebissonii* specimens and lots of Pine-cone fungi.

With rain on the weekend some of the Banana slugs have made an appearance.

October 10th

Gareth arranged a work party for today and seven (magnificent) trail clearers were waiting at the entrance when I arrived. Gareth, Ryan, Wim, Ted, Tom, Herman and I started from the 240th Street entrance, with assorted tools, at 9:00 am on a nice cool dry morning. We reached the end of the trail, at the Mountain View southern fence by about 10:30 am, having located the trail without too much difficulty. On the way back we tidied up and widened it a bit. There are still a few pieces requiring the use of a chainsaw which can be taken care of later.

On route we encountered a few mushrooms, Shaggy Parasol, Amanita muscaria, Black-eyed Parasol, Angel Wings, Sulphur Tuft, Questionable Stropharia, and Honey mushrooms but nothing new. Not many birds were recorded due to the commotion we made and we were not really paying attention. The trail camera had the usual array of photos of Coyotes, deer, squirrels, and a rabbit. The curious photos were of a Coyote that appeared to have been operated on – it had about a 6” square of hair shaved off its back with an apparent scar showing. It was photographed on several days. A picture of an unknown visitor appeared on September 4th at 19.56 (8 pm) in the dark, he was wearing rubber boots and carrying a machete.

Another anomaly was the presence of a deer hunter’s hide in a tree on the blueberry farm boundary in the south-west corner of the farm. This has been reported to Jack Trudgian, Ministry Conservation Officer.

The Pacific Crab Apple tree has fruit on it this year confirming its identification.

Tom found a young Oak tree that had germinated beside the trail – no doubt a Jay or squirrel placement. Bob found the ‘Pink Panther’ (chewed rubber toy) near the MV property line.

2018 cont'd.

Viktor posted an eBird list for Saturday 6th containing 18 species, one of which was a Northern Harrier – a new record bringing the total to 100 species for the site.

October 20th

As reported at the October LFN General meeting, Wim and I discovered on Wednesday, October 17th, that Dirt Bikers or Mountain Bikers or Motorised Trail Bikers – whatever they are called, had invaded the Mountain View survey trails west of Davidson Creek and turned them into a bike course.

I have informed the Ministry (Scott Barrett)(now Ian Blackburn), Gordon Blankstein (lease holder) 604-603-0092, Jack Trudgian (Conservation Officer) and Eric Balke (our F/W liaison) of the situation and requested immediate action.

Gordon called me today and has agreed to talk to the Dreidiger's to see if they are aware of the biker's intrusion as they seem to be entering from their property. He will report back when he has talked to them.

The reason for this report is that Gordon has offered to transfer the lease of the Crown Lands to the LFN!

At this time we are not sure if that is possible, but even if he has to drop the lease and have it reassigned to us that can probably be done.

The lease costs \$1/year.

Initially the municipality waved property taxes since the Mountain View Conservation Society were a non-profit. But since the society was dissolved they are now assessing him for property taxes. Gordon believes we could re-instigate waving of the taxes if we took it over.

I have included Nichole in this email is because I feel LEPS taking on the lease, or a joint LEPS/LFN arrangement, might be a better option.

Please give this some thought and Lisa please add it to the next executive meeting agenda, and consider inviting Gordon to that meeting if you think the plan is feasible or advisable.

Meanwhile I will get back to updating/completing the Biodiversity report, which currently runs to 175 pages, as ammunition for protecting this site as a Wildlife or Nature Area or Reserve.

November 6th

Letter from Eric Balke:

My apologies for the slow response to your email.

Unfortunately, I am not involved with Mountain View. I just chatted with Ian Blackburn who is involved in the property. Because there is no land use designation or protection afforded to this Crown Land, it is treated as any other Crown Land. For inappropriate use and destruction of the land, you may report it to the Conservation Officer Service

(<https://forms.gov.bc.ca/environment/rapp/>) or Compliance and Enforcement

(<https://www.for.gov.bc.ca/hen/nrv/report.htm>).

2018 cont'd.

Ian did mention that Gord (owner of adjacent land on which the Spotted Owl Breeding facility is located) is trying to sell his private land. Ian reached out to the Nature Trust and several other organizations about trying to acquire it. The land is very expensive, so right now there does not appear to be any explicit interest in purchasing that land. If the property is sold, Ian hopes to continue the lease for the spotted owl facility. There is some uncertainty as to the exact future of the facility because the land is for sale.

Ian also mentioned that the Ministry is entertaining implementing a Land Act section 16 reserve for the Provincial Crown Lands. This would temporarily withdraw the Crown land from disposition for 2-5 years, though it is renewable. This is one of the mechanisms for setting aside land before designating it as Provincial Conservation Land by another mechanism (e.g., Transfer of Administration via Land Act section 106). To implement a section 16 reserve, consultation will be necessary, which can take time.

In summation, the property is on the Ministry's radar. The next steps are uncertain, though the section 16 sounds promising. For any encroachment or disturbance issues, the COS or NROS are the folks who can take care of it.

November 6th & 8th

On the 6th I walked the south trail and discovered the bikers had been entering at at least three points from the Driediger's property. Staff members I talked to had not seen anyone, neither had Lisa (or Paul) Stokes.

Lisa informed me that Coho had spawned in the creek last fall but none have been seen yet this year. I didn't see any. I saw a Great-horned Owl and found a mushroom that keyed out as *Amanita smithiana*, a new species.

On the 8th I returned to the site and posted four 'No Trespassing' signs at the bikers' entry points and mounted a trail camera at the main entry point – it doesn't work, but they won't know that. We will now have to wait and see.

Several mushroom species evident, the *Amanita*'s from the 6th seem to have completely disappeared but I found Wood Woolley-foot, a bolete, False oyster's, a *Collybia*, Ink caps and various LBJ's.

20 Dark-eyed Junco's were feeding in the blueberries and a Chickadee was heard.

December 4th

Fine day, zero degrees. Several mushrooms found, all frozen.

Saw Western Grey squirrel and heard a Douglas squirrel.

Changed SD card in camera, found batteries to be dead (November 11th last photo),

Recorded 5 Coyote, 5 deer, 5 Western Grey squirrels (black and grey), 1 Douglas squirrel, Marnix and unknown family with teenage girl.

December 7th

Spoke with Gordon Blankstein. **To be continued----**



Appendix 9. Mountain View Railway Boundaries History

The Mountain View Crown Lands are bounded by two railways; the former BCER/Hydro Railway to the south and the CN spur connecting the CN line to the BCER/Hydro line to the west. The following history is taken from a blog by former Langley Township Mayor Rick Green.

Minutes of the Corporation of the Township of Langley Special Meeting September 24th, 1968.

Mayor Poppy was in the chair with Alderman Barichello, Blair, Booth and Shuster in attendance.

Topic for discussion, B.C. Hydro Railway. In attendance were Hunter Vogel MLA, William Mearns Vice President of B.C. Hydro, D. King and R. Martin of B.C. Hydro.

A full explanation and discussion took place with respect to the proposed Rawlison Crescent rail flyover from the mainline in Fort Langley connecting up to the Interurban Corridor by 232nd and Highway #1. This section, known as the Pratt Livingston corridor runs through to Cloverdale where it separates and runs straight through to Roberts Bank. This was being proposed for the purposes of serving the NEW (at the time) proposed Roberts Bank Port for the purposes of Coal shipments.

Minutes of the Corporation of the Township of Langley Special Meeting November 12th, 1968

RE Roberts Bank Railway:

Alderman Booth asked if any further information regarding the location of the railway link near Fort Langley has been provided to the municipality. Mayor Poppy replied that no information had been received to this date, and also pointed out that the decision to locate the railway in this vicinity had been made without any consultation at the local level whatsoever.

INFORMATION FACT – In 1968, in order to create a cost effective access to the NEW Delta Port Coal Terminal the WAC Bennett Government decided to route the heavy rail coal trains through Langley using the (Fort Langley) Livingston to Cloverdale section of the BCER/Hydro rail line. The entire Lower Mainland Planning Board was disbanded by the WAC Bennett Gov't. as a result of the planning Board's opposition to the Langley routing. Langley was NOT consulted. Today the Township of Langley sees about 12 – 14 trains a day (coal and containers) that are 12,000 ft to 14,000 ft in length. With the advent of Terminal 2 at Roberts Bank it is public knowledge that we will be seeing upwards of 35 trains a day. How will this interface with car and truck traffic in the Township and the City?

FAST FORWARD TO

B.C. Government Press Release re sale of B.C. Hydro's Freight Division to ITEL of Chicago dated July 27th, 1988.

"B.C. Government names ITEL Rail Corp. as successful bidder in sale of B.C. Hydro's Freight Division. (Otherwise known as the Interurban Rail Corridor) C.P. Rail acquires operating rights to strategic trackage for Roberts Bank Coal Port. (Otherwise known as the Pratt Livingston Corridor roughly 232nd through to Cloverdale) a 21 year renewable agreement at either parties request. Passenger rights were protected in perpetuity as part of the ITEL sale and for 21 years as part of the CP agreement expiring in August of 2009 FOR THE Pratt Livingston Corridor."

The terms and conditions pertaining to this sale seemed to disappear from public view or for that matter from the records of B.C. Hydro between B.C. Hydro, CP Rail and ITEL of Chicago.

FAST FORWARD TO

Mayor Rick Green Township of Langley uncovered the previously unknown Master Agreement between B.C. Hydro, ITEL and CP Rail in April of 2009.

This Master Agreement could not be found by the Township and its lawyers going back to 2005. It was uncovered by myself within 24 hours of learning about it in 2009. "To the surprise of many passenger rights were spelled out in detail as a condition of this sale. Use for passenger service is to be at no cost!" It also spelled out that passenger use on the joint section known as the Pratt Livingston Corridor (approx. 232nd Street through to Cloverdale) was subject to a 21 year clause renewable at either parties wishes due to expire in August of 2009.

INFORMATION FACT – Through the efforts of Mayor Green (Township of Langley) and all Mayors South of the Fraser, these passenger rights were renewed in April of 2009, four months before they were lost forever.

Press Release – January 6th 2019.

Research entitled "A sustainable Lower Mainland organized around the historic Interurban rail line" is being conducted by Professor Patrick Condon and Master Degree students at UBC. The research will delve into the benefits of activating state-of-the-art passenger rail service in the Fraser Valley on the existing rail corridor between the Pattullo Bridge and Chilliwack. The report is expected to be delivered by May of 2019.

(Ed. Comment; should this go ahead, protection of the Mountain View site will become even more critical.)

Appendix 10. Kinder/Morgan’s Transmountain Pipeline Expansion.

The Transmountain Pipeline (TMX) runs through the Mountain View Crown Lands in an east-westerly direction (photo below).

The TMX company have proposed twinning this pipeline, installed in 1953, adding a larger pipe to dramatically increase the transportation of liquefied tarsand bitumen to the terminal in Vancouver for tanker shipment overseas.

There continues to be immense public pressure to stop this project, resulting in the Canadian Government purchasing the existing pipeline from Kinder/Morgan and thereby inheriting the expansion controversy.

To determine the details and effect it could have on the Mountain View site, a meeting was held at Mountain View with TMX officials, as well as several other public meetings and hearings.

MVCS required answers on several important issues.

1. It was confirmed that their right-of-way would need to be widened to accommodate the project. In response to the question “which side of the existing pipeline would need to be extended”? the response was “we don’t know on which side of the current right-of-way the pipeline is located”! Not a very confidence-building statement! It was considered worth knowing whether more or less trees were at risk.
2. How was the pipeline going to cross the railway, that wasn’t there when the current pipeline was installed? Cut and bury or directional drill?
3. How was the line going to cross Davidson Creek, a salmon spawning stream? Cut and bury or directional drill?
4. How would the construction disturbance affect the Spotted Owl breeding colony which is now closer to the pipeline than it was when the discussion took place? No one knows the answer.

Hopefully these issues will be resolved should the project eventually go ahead.



NOTES