

GRIFFIN MOUNTAIN (SOUTH SLOPES) AND EAST OF WAP LAKE

ECOLOGICAL RESERVE # 43

REPORT OF SURVEY - 1985

Malcolm E. Martin,
North Okanagan Naturalists' Club,
Vernon.

February 1986.

GRIFFIN MOUNTAIN (SOUTH SLOPES) AND EAST OF WAP LAKE

ECOLOGICAL RESERVE # 43

This reserve dating from September 1972 was established "To conserve juxtaposed secondary successional and climax plant associations in the IWH(b), extensive alluvial flats and waterfowl nesting areas, subalpine floating bogs and climax plant associations of the ESSFx zone. Some alpine plant associations are developed close to the top of Mt. Griffin". In appendix 2 to "Ecological Reserves in British Columbia" the application for status as a reserve reads - "Wap Lake: a drainage system, running off the Mabel Lake valley", however, except on the smallest scale no fully enclosed drainage system is included.

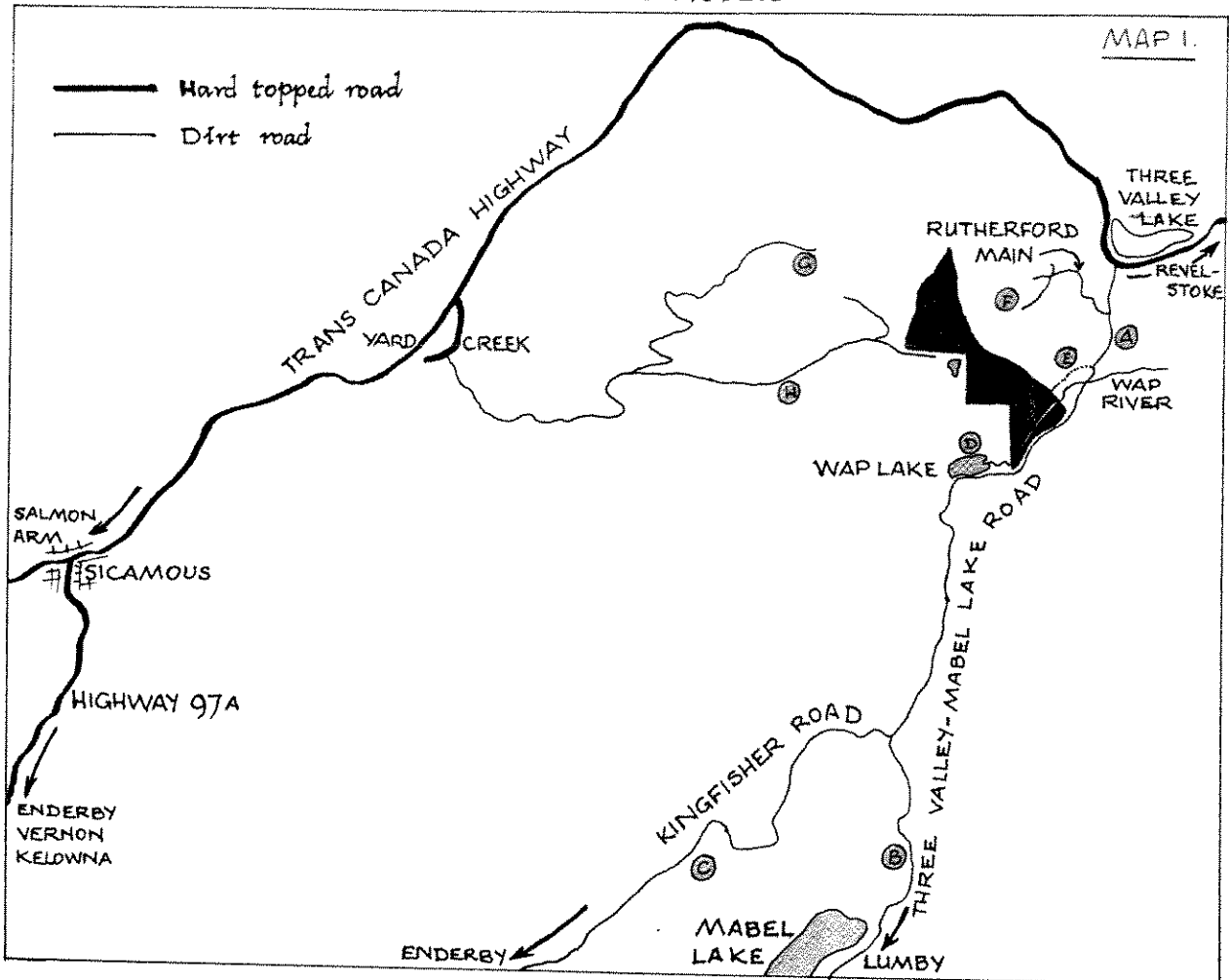
Previous study of the reserve was by B.E.C. Fraser and Brenda Harbinson, Selkirk College, Castlegar, in connection with the original application for reserve status. Their report has not been seen. Earlier, J. Macoun visited the general area for the purpose of collecting late in the summer of 1889 while Chief Botanist to the Government in Ottawa, although it is unlikely that he ventured as far south off the road as the reserve itself.

LOCATION AND ACCESS

In a straight line Wap Lake is 26km (16 miles) southwest of Revelstoke, slightly more by road. It falls on the north-east end of a broad, rounded feature known as Hunter's Range, part of the Shuswap Highland. This area is divided off from the higher and more rugged Gold Range of the Monashee Mountains to the east by the Wap River valley.

Most convenient means of access is from the Trans Canada Highway via the Three Valley Lake - Mabel Lake Forest Road (marked as "A" on Map 1). From the south (B) or from Enderby (C) the same road involves a long rough ride. Forging the Wap River itself to reach the greater part of the reserve on its far side is a problem and no mean feat at any time of the year due to deep pools; during the run-off period crossing is out of the question. Alternatives to this are by portable boat across Wap Lake (D) or on foot (E) from north of the bridge where Wap River passes under the road, from which point a rough trail has been partly marked.

LOCATION AND ACCESS



The upper part of the reserve may be approached from Rutherford Main, (F), which was in good condition in 1985. From there it necessitates rough going on foot from the east which is more thickly vegetated than the drier south slopes reached by a long access from Yard Creek on the Trans Canada Highway (H). An offshoot from this road leads to the open alpine meadows of the ridge top and a lengthy hike to the summit of Griffin Mountain (G).

GENERAL DESCRIPTION

WITH its long axis running from valley bottom below 550m (1,800 ft.) to the highest point above 2140m (7,000 ft.), the reserve covers a range of elevation that must be as great as any in the E.R. system. Its 1375ha (3,400 acres) forms an irregular wedge with its base in the Wap River valley and apex on the peak of Griffin Mountain cutting across all the horizontal biotic zones in between. Several streams have their source high on the upper flanks, draining snow-melt in an early

tumultuous flow that drops dramatically to a modest trickle in summer.

- Four broad divisions can be identified (see Map 2) -
- (i) Valley wetlands,
 - (ii) Montane forest (corresponding to the Interior Western Hemlock biogeoclimatic zone - IH),
 - (iii) Subalpine forest (corresponding to the Engelmann Spruce/Subalpine Fir zone - ES),
 - (iv) Alpine meadow (with forest stringers)

These are roughly outlined on Map 2 and will be described later with sub-divisions as necessary. These broad divisions can also be related in a general way to topographic conditions in that the steep valley slope rising above the wetlands falls neatly into the Montane Forest category; where the slope eases off on to what may be called the Cariboo Lake Terrace, Subalpine Forest takes over.

GEOLOGY

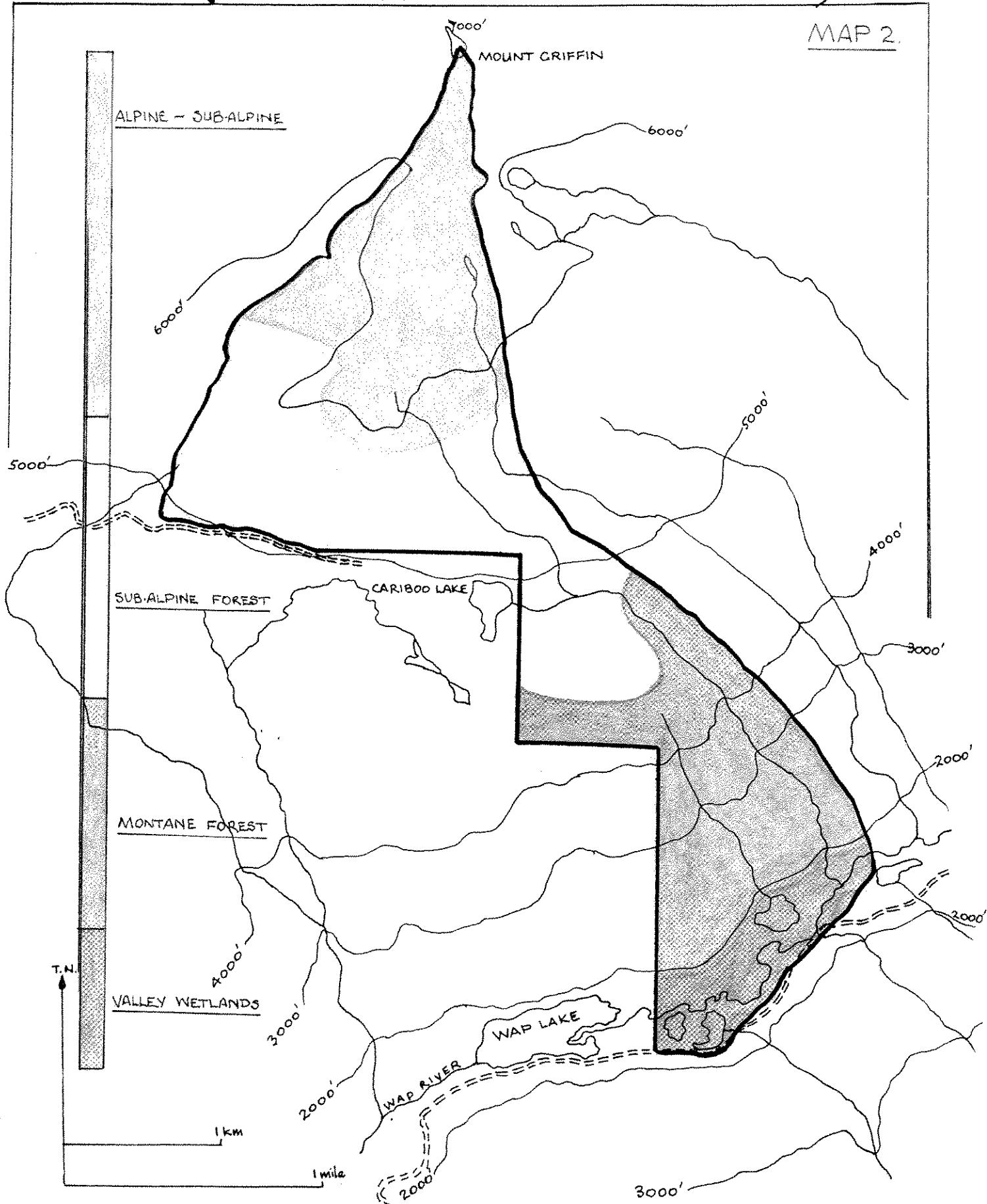
Bedrock of this part of British Columbia comprises a melange of highly altered old sediments known as the Shuswap Meta_morphic Complex. Composition is given as granitoid gneiss, paragneiss, schist, minor quartzite, marble and amphibolite, though few of these constituents appear to occur within reserve boundaries. No mapping is known to have been carried out on Griffin Mountain, and while detailed surveying in recent years has taken place not far away to the east in the Gold Range, the picture developing there is one of such intricacy and variation that it is unwise to attempt extrapolating into the subject area. Age quoted is useful only on the broadest scale being described as Proterozoic and Palaeozoic.

Such samples as were examined during the 1985 survey were either brown-weathering micaceous schists or very light pegmatitic rock containing small garnets. This latter may correspond with apparently similar intrusions mapped elsewhere in the vicinity as leucoquartz monzonite of Devonian age. Large sheets of mica up to 8cm long (about 3 inches) were noticed just west of the summit.

History of each glacial episode started with ice advancing from east of north, leaving in its wake a thin residue of glacial till over the whole upland area. Except where talus now covers it and bog has resulted in areas of organic deposit, this till would be classed as mainly podzol. One section possibly differing is that of "Cariboo Lake Terrace". This flat area of irregular drainage west of Cariboo Lake may just extend into the reserve and possibly reflects the location of temporary ponding of melt water against the edge of ice at that time still filling Wap River valley. If this was the case underlying soil may have developed based on lake silt and clay.

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MAP 2.



Post-glacial lake development was a common feature of the deglaciation phase in interior valleys, though no evidence of terrace or beach deposits can be identified nor, perhaps, should be expected in so narrow a valley as that of the Waipapa which at a later date may have acted as a drainage channel for melt water from farther north. The best evidence may be Waipapa Lake itself and the wetlands along the base of the reserve, possible remnants of a larger body of water. Where road cuts cause exposures along the Three Valley - Mabel Lake road they appear to be of unsorted materials, rounded and sub-angular, without obvious bedding which may argue more in favour of outwash rather than recent creek deposits. Minor amounts of fan material can be found where creeks reach the valley floor.

CLIMATE

Reporting stations at Revelstoke and Sicamous are almost equidistant east and west of Griffin Mountain and give a reasonable approximation of conditions at valley level. These show most recent 30-year records as follows:-

Mean daily temperature in °C.

Revelstoke (443m)

-6.6 -2.3 0.7 6.4 12.5 15.9 18.4 17.6 12.8 6.9 0.7 -3.8 6.6°C

Sicamous (427m)

-5.0 -1.4 2.4 7.3 13.1 17.1 20.0 19.2 14.0 7.7 1.5 -2.6 7.8°C

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Average

Total precipitation in mm.

Revelstoke

122 90 88 59 53 65 57 42 59 84 85 144 947mm

Sicamous

77 48 37 32 51 64 46 53 56 51 66 80 661mm

In 1985, after a winter of about average snowfall, the Three Valley - Mabel Lake road was still impassable to most vehicles at the end of April. During May it was washed out in several places due to high temperatures causing rapid melt.

PLANT ASSOCIATIONS

One point that soon becomes apparent at Griffin Mountain is the narrowness of the reserve compared with its length, varying from 3000m (less than 2 miles) at its greatest to as little as 600m (about 660 yards) at its least. This means that most of a visitor's time is spent trying to reach it

laterally rather than actually traversing within the reserve. As biotic zones are distributed horizontally, this is not necessarily disadvantageous but it does mean that many of the observations recorded are probably outside the boundary, though characteristic of that height above valley level. This is true of many of those observations used to compose plant associations as well as the species lists in subsequent sections.

RIVER VALLEY (see Map 3)

The one section where this does not follow is the valley bottom each side of the Wap River. There variation from one community to another is controlled by factors other than elevation, resulting in an irregular fabric of interwoven zones. Map 3 attempts to give some indication of this on a gross scale but difficulty of travel on the ground makes its conclusions and divisions very approximate.

WILLOW/ALDER THICKET (zone Al.a.)

----- *Salix sitchensis*/*Alnus incana* -----

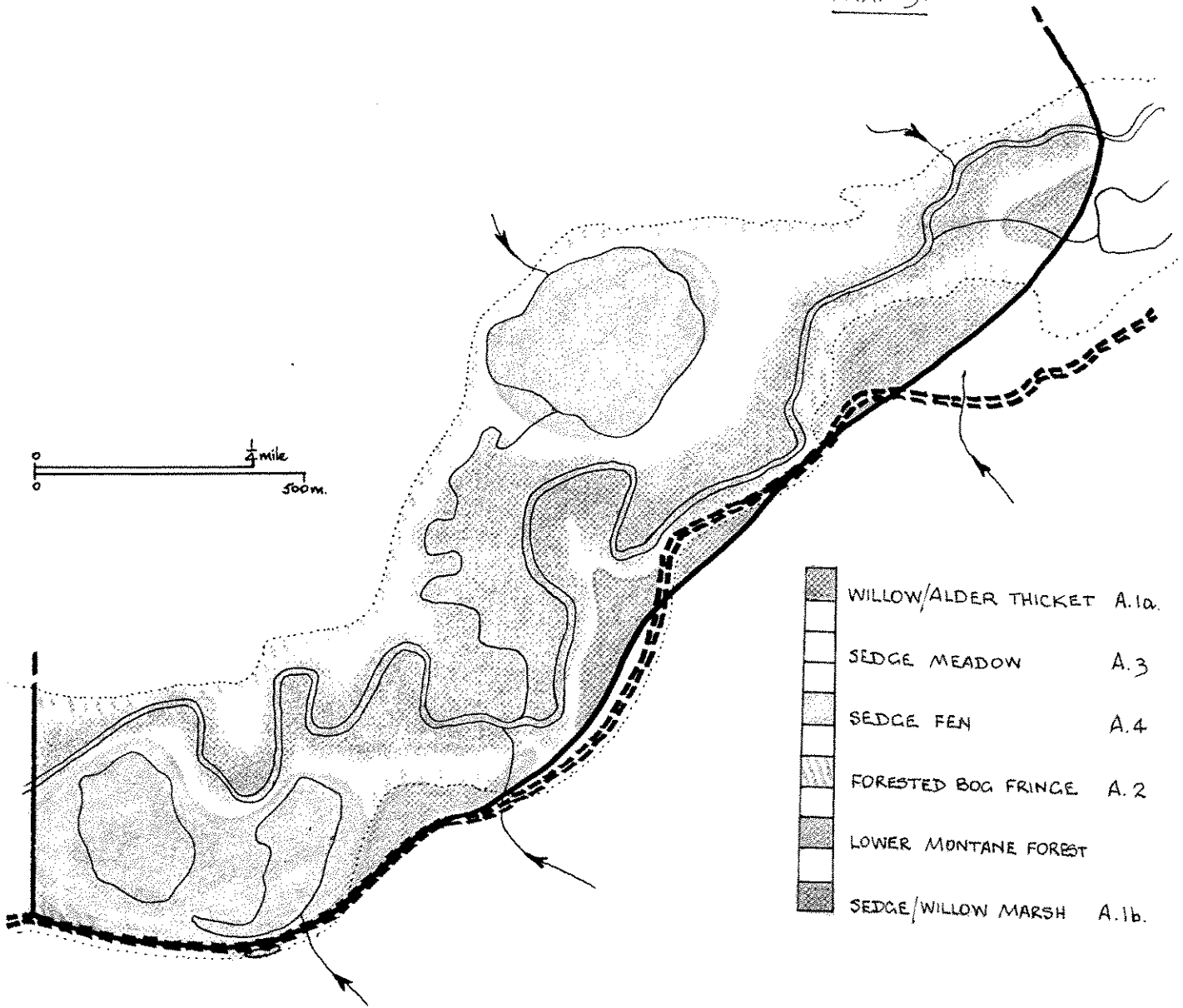
Salix sitchensis
Alnus incana
Lonicera involucrata
Spiraea douglasii
Cornus sericeus
Viburnum opulus
Rhamnus alnifolia

Generally this zone follows the river and over much of its extent had been subjected to seasonal flooding during 1985. Whether this would be true every year is not entirely clear but does seem to have been a factor to some degree. The disturbance and erosion caused by flowing water minimized the herb layer and none is shown participating in the assemblage above. It may be that later in the season annual plants and those that can regenerate from rootstocks fill this niche but it was not possible to examine this possibility during the summer. Where ground was slightly higher, and particularly where the actual banks of the river had been built up, forbs were present, though too irregularly to make a well-defined association. These included the following -

shrubs listed above
Athyrium filix-femina
Equisetum arvense
Viola glabella
Dryopteris cristata
Sanicula marilandica
Streptopus amplexicaule
Veratrum viride
Smilacina racemosa

WAP RIVER VALLEY

MAP 3.



SEDGE/BILLOE MARSH (zone Al.b)

_____ - Salix sitchensis/Spiraea douglasii - Carex aquatilis -
Sphagnum squarrosum.

Salix sitchensis
Spiraea douglasii
Salix sp.
Cornus sericeus
Viburnum opulus
Alnus incana

Carex aquatilis
Lysichiton americanum
Potentilla palustris
Poa palustris
Platanthera dilatata

Sphagnum squarrosum

This zone may be more extensive than mapped. It tends to occur on the east side of the valley and although wet, often with standing water, it does not appear over-run by spring freshet as is the previous section. Shrub growth is less allowing easier access except for the necessity of wading.

Unlike the situation in zone 3, standing water is sufficient to deter turf-making plants leaving Carex aquatilis and possibly other sedges as the most obvious indicators.

FORESTED BOG PRINGE (zone A 2)

Thuja plicata (Tsuga heterophylla) - Alnus incana - Scirpus microcarpus/Lysichiton americanum. - Musci

Thuja plicata
Tsuga heterophylla
Betula occidentalis

Alnus incana
Cornus sericeus
Lonicera involucrata

Scirpus microcarpus
Lysichiton americanum
Equisetum fluviatile
Equisetum arvense
Athyrium filix-femina
Platanthera hyperborea
Menyanthes trifoliata
Viola glabella
Carex diaporum

Mnium sp.

As at Mara Meadows Ecological Reserve, this assemblage is restricted to a narrow linear strip at the base of slopes. It was found fairly consistently on the west side of the valley but may not necessarily be as continuous as indicated. On the east side only two similar repetitions were noted fringing the small incursions of Lower Montane Forest.

Widely spaced trees interspersed with stagnant pools are characteristic, resulting in a very hummocky surface. In places springs issue forth from the base of the forested slope above.

SEDGE MEADOW (zone A 3)

Picea spp./*Thuja plicata* - *Alnus incana*/*Salix pedicellaris* -
Carex sp. - *Sphagnum squarrosum*.

Picea spp. (*P. engelmannii*/*P. glauca* complex)
Thuja plicata (stunted)
Tsuga heterophylla

Alnus incana
Salix pedicellaris
Lonicera involucrata

Carex buxbaumii
Carex limosa
Trichophora caespitosa
Menyanthes trifoliata
Petasites sagittata
Drosera anglica
Viola palustris
Aster borealis
Circuta douglasii

Sphagnum squarrosum
Campylium stellatum

Of all the wetland zones this by far carries the greatest number of individual species, being particularly rich in carices of which the dozen species listed probably does incomplete justice to the great variety present.

Visually, this zone can be easily identified by its open wet meadows divided by strips and clumps of rather impoverished trees. The surface is fully turfed and it is possible to imagine Sedge Meadow and Sedge/Willow Marsh as somewhat interchangeable according to whether less or more surface water is present. Although Map 3 shows most of zone A 3 present on the west side of the river, large areas were found east of it elsewhere outside the reserve. The moss flora is extensive.

SEDGE PEN (zone A 4)

----- - Nuphar polysepalum/Carex aquatilis/Equisetum
fluviatile

(a)	(b)
Nuphar polysepalum	Spiraea douglasii
Carex aquatilis	Alnus incana
Equisetum fluviatile	
Carex rostrata	Glyceria striata
Utricularia vulgaris	Calamagrostis canadensis
Menyanthes trifoliata	Agrostis stolonifera
Potamogeton sp. (?natans)	Carex stipata

In the main, this zone provides few problems in identification - open water, surrounding sedge beds - and the only real difficulty is a somewhat artificial one in deciding how to deal with the edge of the narrow strip of road causeway built across the base of one of the pools. It is here that the grass species occur and several shrubby plants, (b) above, although it should be stressed close examination might show these also occurring elsewhere around the edge. As these species are more in keeping with damp conditions than with the road right-of-way they have been retained in this zone.

Depth of water is unknown but probably is not great as water lily is established apparently throughout. Although Wap River water flow varies considerably during each season there did not appear to be a wide change in surface level of the individual pools.





MONTANE FOREST (see Map 4)

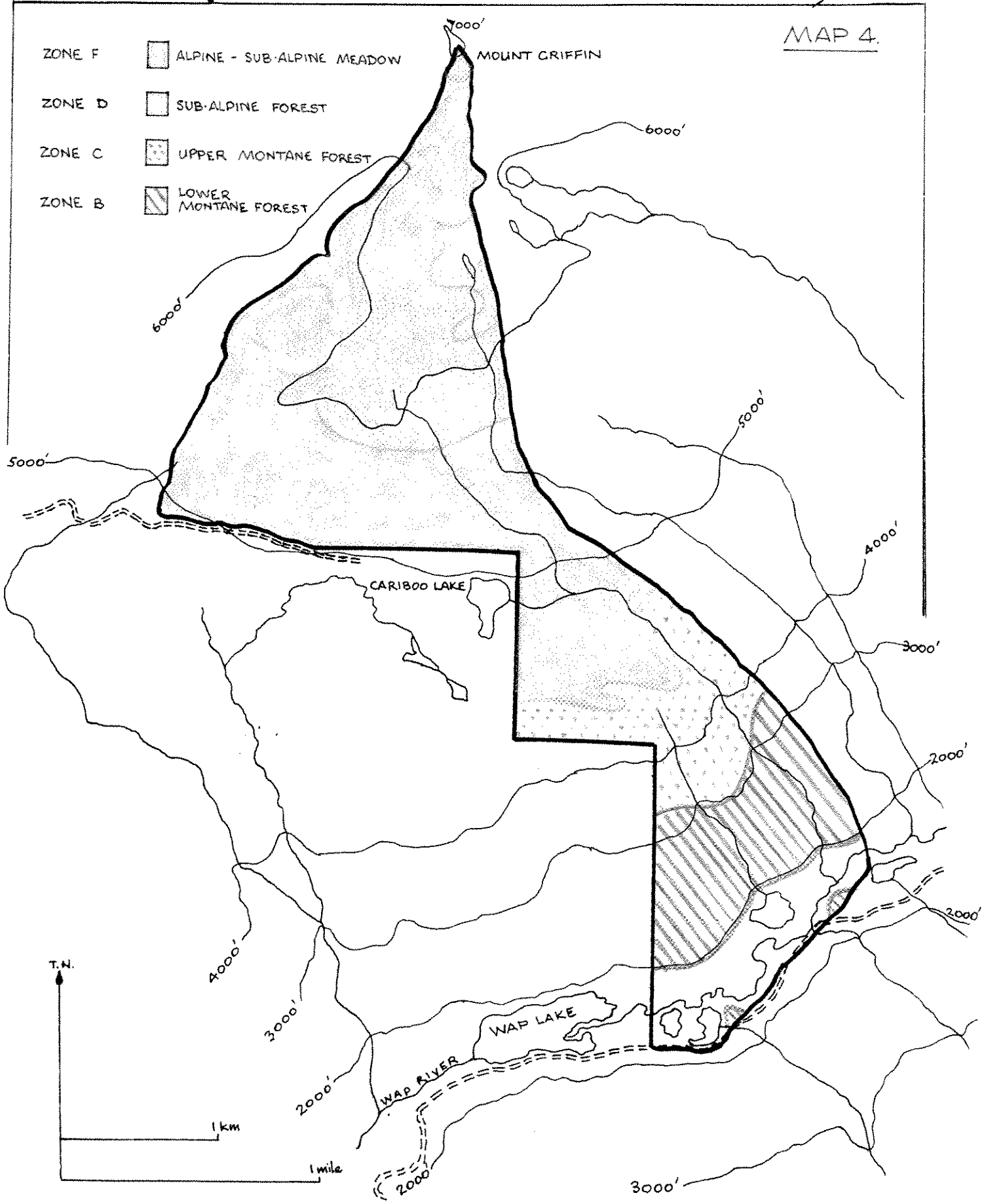
Montane Forest comprises that area above valley bottom (or in most cases above zone 2 - Forested Bog Fringe) and below the gradational boundary with Subalpine Forest. It has been divided into two sections to make Lower Montane Forest and Upper Montane Forest based on presence of species that reflect a difference in moisture conditions as well as elevation. In turn each is divided into wetter and drier sub-divisions. No doubt a more detailed study could justify differentiation between, for example, wet conditions due to seepage and wet conditions surrounding a stream course. Also the many rock outcrops within both sections could well be treated separately.

In many respects, Upper Montane Forest tends to be a broad transition zone into sub-alpine conditions, however, the combination of species recommends considering it as a distinct entity.

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MAP 4.

- ZONE F  ALPINE - SUB-ALPINE MEADOW
- ZONE D  SUB-ALPINE FOREST
- ZONE C  UPPER MONTANE FOREST
- ZONE B  LOWER MONTANE FOREST



LOWER MONTANE FOREST -XERIC (zone B 1)

Pseudotsuga menziesii (Tsuga heterophylla) - Vaccinium membranaceum - Asarum caudatum/Clintonia uniflora - Hylocomium splendens/Rhytidiadelphus triquetrus

(a)	(b)	(c)
Pseudotsuga menziesii	same	Pseudotsuga menziesii
Tsuga heterophylla		Tsuga heterophylla
Pinus monticola		Betula papyrifera
Betula papyrifera		Populus balsamifera
		Acer glabra
Vaccinium membranaceum	Sorbus scopulina	
Taxus brevifolia		Corylus cornuta
Vaccinium parvifolium		Amelanchier alnifolia
Asarum caudatum	Tiarella unifolia	Paxistema myrsinites
Paxistema myrsinites	Osmorhiza depauperata	
Gymnocarpium dryopteris	Disporum hookeri	Tiarella unifoliata
Clintonia uniflora	Aralia nudicaule	Disporum hookeri
Viola orbiculata	Hieracium albiflorum	Smilacina racemosa
Gaultheria ovalifolia		Pteridium aquilinum
Chaemophila umbellata		Gymnocarpium dryopteris
Hylocomium splendens		Lycopodium spp.
Rhytidiadelphus triquetrus		Feather mosses
Pleurozium shreberi		
Peltigera aphthosa		

Although this area is mapped as falling into the IH Biogeoclimatic zone, its south to south-east aspect allows a high proportion of Douglas-fir over large portions, forming the predominant cover especially up-slope. Over much of its extent shade is continuous resulting in a sparse shrub understory and a rather limited number of herb participants, (a) above, although feather mosses are everywhere plentiful. This assemblage is augmented by additional species, (b) above, where more light is available.

List (c) is more characteristic of the two small selectively logged areas east of the Wap River.

Lower MONTANE FOREST - HUMIC (zone B 2)

Tsuga heterophylla (Thuja plicata/Betula papyrifera) - Lonicera involucrata - Rubus parviflorus/Valeriana sitchensis

Tsuga heterophylla
Thuja plicata
Betula papyrifera
Pinus monticola
Pseudotsuga menziesii
Populus tremuloides

Lonicera involucrata
Oplopanax horridum

Valeriana sitchensis
Rubus parviflorus
Viola glabella
Platanthera hyperborea
Dryopteris cristata
Disporum hookeri

Hylocomium splendens
Phytidiadelphus loreus
Hypnum circinale
Rhizomnium spp.

Much of the lowest slopes directly above the Wap River valley tend to be damper and therefore of this zone, but it also includes areas bordering the course of streams and indentations in the hill outline where humidity remains higher. As in the previous zone, dense cover diminishes light reaching the forest floor reducing the herb layer to few species but encouraging a generous moss flora. The more southern of the two Lower Montane Forest areas on Map 3 might properly be placed in this zone having a high proportion of Thuja plicata along with Populus balsamifera.

Under these damp conditions a number of west coast species appear and this phenomenon is discussed further under the section listing all taxa found at Griffin Mountain.

UPPER MONTANE FOREST -XERIC (zone C 1)

Pseudotsuga menziesii (Tsuga heterophylla) - Rhododendron albiflorum/Vaccinium membranaceum - Tiarella unifoliata/Paxistema myrsinites

Pseudotsuga menziesii
Tsuga heterophylla
Pinus contorta
Abies lasiocarpa
Picea engelmannii

Rhododendron albiflorum
Vaccinium membranaceum
Sorbus scopulina

Tiarella unifoliata
Paxistema myrsinites
Smilacina racemosa
Arnica latifolia
Listera cordifolia
Luzula hitchcockii

In many respects this forms the transition from Krajina's IH to his ES zones. Douglas-fir still predominates rather than Hemlock, and Subalpine Fir and Engelmann Spruce begin to appear. Locally on suitably dry sites Lodgepole Pine occurs in quantity. This steeper slope had been classed as having a high Ecological ^{sensitivity}/Assessment by Ministry of Forests due to having severe soil, steepness and regeneration problems.

UPPER MONTANE FOREST - HUMIC (zone C 2)

Pseudotsuga menziesii/*Tsuga heterophylla* - *Lonicera involucrata*/*Alnus incana* - *Valeriana sitchensis*/*Epilobum anagallidifolium*

Pseudotsuga menziesii
Tsuga heterophylla
Betula papyrifera
Pinus monticola
Thuja plicata

Lonicera involucrata
Rhododendron albiflorum
Alnus incana
Salix sp. (?barclayi)

Valeriana sitchensis
Epilobum anagallidifolium
Veratrum viride
Carex macrochaeta
Carex macloviana
Platanthera stricta

Musci spp.

Rather than the many small seeps and wet areas that occur haphazardly, it is the north and east slopes of streams that attract Hemlock and Birch; the undergrowth there being more like that of the previous section than that of the obviously wet, moss-covered pockets of the seeps and springs.

SUB-ALPINE FOREST (zone D)

Abies lasiocarpa (*Picea engelmannii*) - *Vaccinium membranaceum*/
(*Rhododendron albiflorum*) - *Luetkia pectinata*/*Agoseris thurberiana*

(a)
Abies lasiocarpa
Picea engelmannii

Vaccinium membranaceum
Rhododendron albiflorum

Luetkia pectinata
Agoseris thurberiana

(b)
Abies lasiocarpa
Picea engelmannii

Ribes lacustre

Lupinus arcticus
Valeriana sitchensis

(a)	(b)	(c)
Antennaria pulcherrima	Erigeron peregrinus	
Erigeron peregrinus	Arnica latifolia	
Arnica latifolia	Trollius laxus	
Sibbaldia procumbens	Valeriana sitchensis	
Lycopodium ^{Alpinum} alascensis	Lycopodium ^{Alpinum} alascensis	

As stringers of Sub-alpine Forest occur right to the summit of Griffin Mountain, it is arguable whether this zone truly corresponds to Krajina's AT. In part, at least, dryness must inhibit tree growth and encourage open meadows compared with what might be under damper regimes.

Over most of their extent these meadows carry an assemblage close to list (a) above. Where snow hollows hold spring moisture longer a greater variety of forbs is found with a tendency to less grass, as in (b). List (c) portrays the Subalpine Fir stringers which although outwardly similar to Sub-alpine Forest (zone D) are considerably impoverished in number of species.

and

In exposed places a close examination in/ among the sedges that comprise most of the ground cover reveals pioneering species of alpine liverworts and lichens with a few mosses. These appear in the checklists except for crustose lichens which were collected but not identified.

Exposed rock faces on the highest ridges would probably justify a separate small category although insufficient time was available for detailed study during this season. Protected crevices carry a small penstemon, possibly P. ellipticus, past anthesis when seen. Mosses include alpine Kiaeria species.

Grazing leases exist on Hunter's Range west of the reserve and were seen to be in use in 1985. Cattle are not impeded in any way from entering the reserve as they roam across these upper meadows and, doubtless, do range the higher slopes of Griffin Mountain. Little damage was seen except where habitual crossing of gullies at the same place has led to the clearing of bare tracks.

ROADSIDE (zone G)

In areal extent the narrow strip of road running along the short south side of the reserve forms a very minor fraction of the overall acreage yet, such is the nature of distribution along routes of travel, the number of plant species present is disproportionately high. It must be admitted that some of the observations may not have been within the boundaries but ease of seed distribution along

a right-of-way means they could just as well have occurred there, being controlled not so much by specific habitat as by chance. In fact, so heterogeneous is plant distribution that a list of typical components is not easy to compile. In general, list (a) below includes those species fairly frequent along the drier sections and list (b) where damp roadsides were present.

(a)	(b)
Salix bebbiana	Salix sitchensis
Sambucus racemosa	
Trifolium repens	Rubus parviflorus
Epilobum angustifolium	Carex mertensii
Tiarella unifoliata	Juncus ensifolius
Trifolium aureum	
Poa pratense/P. compressa	
Trifolium pratense	
Aster ciliolatus	

Several "weedy" introductions are more characteristic of warmer and lower zones of the province than the Interior Hemlock of the valley bottom and have probably arrived in or on vehicles.

CHECKLIST OF VASCULAR PLANTS

In previous reports on other E.R.s an attempt was made to incorporate phenological information on the list of species to the extent of showing when each item was seen in flower. Although this information was collected at Griffin Mountain and the dates are on file, it would require a considerably more elaborate list to present this material in an understandable and useful manner. With over 1500m (5,000 ft.) difference in elevation from the summit to Wap River valley, instances were met where there was as much as two months' difference in flowering dates between individuals at the two extremes of range. Unless elevation were to be reported in each case a list of flowering dates would be pointless.

After each taxon, there follows a list of zones in which it was found, these being the same zones used for Plant Associations, i.e. -

- A.1a. Willow/Alder Thicket
- A.1b. Sedge/Willow Marsh
- A.2 Forested Bog Fringe
- A.3 Sedge Meadow
- A.4 Sedge Fen

- B.1 Lower Montane Forest - Xeric
- B.2 Lower Montane Forest - Humic
- C.1 Upper Montane Forest - Xeric
- C.2 Upper Montane Forest - Humic
- D Sub-Alpine Forest
- E Sub-Alpine Bog
- F Alpine/Sub-Alpine Meadow
- G Roadside

Abundance is an approximation as indicated by the number of symbols, viz.

- **** plentiful throughout the zone(s) shown,
- *** scattered throughout or plentiful in a more limited area,
- ** localized in small numbers,
- * only one or two specimens seen.

Worthy of note are two assured (*Dryopteris cristata* and *Agrimonia striata*) and one tentative record of species listed in "The Rare Vascular Plants of British Columbia" (*Carex vulpinoidea*). Only the Agrimony could be considered possibly in danger and then only if the Three Valley - Mabel Lake road were to be widened.

Recurrence of coastal plants in the "Wet Belt" of the Interior is a well-recorded phenomenon and several on the checklist fall into that category - *Adiantum pedatum*, *Asplenium trichomanes*, *Vaccinium parviflorum* and *Arctium lappa*; *Achlys triphylla* was identified by its leaves but not seen in flower and one chance find of *Rubus spectabilis* (unfortunately not collected) occurring in the valley bottom just outside the reserve may be the first record in the interior of the province.

Other interesting observations were of *Polystichum braunii*, *Veronica officinale* and *Arabis lyrata*, below its usual range and presumably introduced along the road.

Lycopodiaceae	<i>Lycopodium alpinum</i>	F	****
	" <i>annotinum</i>	B.2 C.2	***
	" <i>complanatum</i>	B.2	**
	" <i>obscurum</i>		
	var. o.	B.2 C.2	**
	" <i>sitchensis</i>	D	***
	<i>Huperzia selago</i>		
	var. <i>Selago</i>	D	*
Equisetaceae	<i>Equisetum arvense</i>	A.1 A.2 C.1	****
	" <i>fluviatile</i>	A.2 A.5 C.1	****
	" <i>palustre</i>	A.3 E	**
	" <i>sylvaticum</i>		
	var. <i>sylvaticum</i>	A.2 C.2	**

Adiantaceae	Adiantum pedatum var. aleuticum	B.2	***	
Aspleniaceae	Asplenium trichomanes var. disjunctum	B.2 D	**	
	Athyrium filix-femina var. cyclosorum	A.2 A.3 B.1 C.1	****	
	Cystopteris fragilis	B.2	*	
	Dryopteris assimilis	B.2	**	
	" cristata	A.1a B.2	**	
	" filix-mas	B.2	*	
	Gymnocarpium dryopteris	B.2 C.2	****	
	Polystichum braunii " lonchitis	B.2 B.2 D	** ***	
Dennstaedtiaceae	Pteridium aquilinum var. aquilinum	B.2 G	***	
Polypodiaceae	Polypodium hesperium	B.2	**	
Cupressaceae	Thuja plicata	A.2 A.3 B.2	***	
Pinaceae	Abies lasiocarpa var. lasiocarpa	C.1 D F	****	
	Picea engelmannii and glauca	A.2 A.3 C.2 D	***	
	Pinus contorta var. latifolia	C.1	**	
	" monticola	B.2 C.2	***	
	Pseudotsuga menziesii var. glauca	B.1 B.2 C.1 C.2	****	
	Taxus brevifolia	B.2	**	
	Tsuga heterophylla	A.2 A.3 B.1 B.2 C.2	****	
Salicaceae	Populus balsamifera var. trichocarpa	B.2	***	
	P " tremuloides	B.1 B.2	**	
	Salix bebbiana	G	***	
	" pedicellaris	A.3	**	
	" sitchensis	A.1a A.1b G	****	
	" sp.	A.3 C.2	**	
Betulaceae	Alnus incana " viridis	A1 A2 A3 A4 C2 C2	**** *	
	Betula occidentalis " papyrifera	A2 B1 B2 C1 C2	*** ***	
	Corylus cornuta var. californica	B2	***	
	Aristolochiaceae	Asarum caudatum	B2	***
	Polygonaceae	Rumex acetosella	G	*
Portulacaceae	Claytonia lanceolata	D	**	
	Montia parvifolia	B1 G	**	

Caryophyllaceae	Cerastium fontanum sub. triviale	G	**
Nymphaeaceae	Nuphar lutea sub. polysepala	A5	****
Ranunculaceae	Actaea rubra sub. arguta	B2 C2	**
	Aquilegia formosa sub. formosa	C2	**
	Caltha leptosepala	E	***
	Delphinium nuttallianum	D F	**
	Pulsatilla occidentalis	C1 D E F	***
	Ranunculus acris sub. a.	G	**
	" eschscholtzii	F	**
	" uncinatus	A2 B1	***
	Thalictrum occidentale	C2	**
	Trollius laxus sub. albiflorus	E F	****
Berberidaceae	Achlys triphylla	B2	*
Brassicaceae	Arabis lyrata	G	*
	Cardamine pensylvanica	B2	**
Droseraceae	Drosera anglica	A3 A4	****
	" rotundifolia	A3	***
Saxifragaceae	Leptarnyna pyrolifolia	C2 D E	***
	Mitella breweri	C2 D	***
	" sp. (?pentandra)	F	***
	Saxifraga ferruginea	C1 D E F	***
	Tiarella unifoliata	B1 B2 C1 G	****
Parnassiaceae	Parnassia fimbriata var. fimbriata	E	**
Grossulariaceae	Ribes lacustre	B2 C2 D	***
	" laxiflorum	D	*
Rosaceae	Agrimonia striata	G	**
	Amelanchier alnifolia	A2 B2	**
	Aruncus dioicus	G	***
	Crataegus douglasii var. d.	B2	**
	Fragaria virginiana	B2	**
	Geum aleppicum	G	**
	" macrophyllum	B2 G	***
	Luetkia pectinata	C 1 D F	****
	Physocarpus capitus	G	***
	Potentilla norvegica	G	*
	" palustris	Alb A5 C2	***
	Rosa nutkana var. hispida	B1 G	**

	Rubus idaeus		
	sub.melanolasius	G	**
	" parviflorus		
	sub. parviflorus	B2 C2 G	****
	" pedatus	A3 C2	***
	" spectabilis	A 1a	*
	Sibbaldia procumbens	D F	**
	Sorbus scopulina		
	var. scopulina	B2 C1 A2	***
	" sitchensis		
	sub. sitchensis	C2	*
	Spiraea douglasii		
	sub. menziesii	Ala Alb A4	****
Fabaceae	Lupinus arcticus	C2	***
	" sp.	C2	**
	Melilotus alba	G	**
	Trifolium aureum	G	***
	" pratense	G	***
	" repens	G	****
	Vicia americana	G	*
	" cracca	G	***
Apocynaceae	Apocynum androsaemifolium	G	**
Celastraceae	Paxistema myrsinites	B1 C1	****
Aceraceae	Acer glabrum var.douglasii	B2	**
Rhamnaceae	Rhamnus alnifolia	A1	**
Violaceae	Viola glabella	A1 A2 B2 C2	****
	" orbiculata	B1	***
	" palustris	A2 A3 C2 E	***
Onagraceae	Circaea alpina	B2	**
	Epilobum anagallicifolium	C2 D E G	***
	" angustifolium	C D G	***
	" ciliatum		
	var. purshii	A3	**
Araliaceae	Aralia nudicaulis	B1B2	***
	Oplopanax horridus	B2	**
Apiaceae	Circuta douglasii	A3	***
	Heracleum sphondylium		
	var. montanum	C2 G	**
	Osmorhiza depauperata	B1	***
	Sanicula marilandica	A1 A3	***
	Sium suave	A3 A4	**
Cornaceae	Cornus canadensis	A2 A3 B1	****
	" sericea	Ala Alb A2	***

Ericaceae	Cassiope mertensiana	D F	***
	Chimaphila umbellata		
	sub. occidentalis	B1	**
	Gaultheria ovatifolia	B1 C1	***
	Kalmia microphylla	A3 C2 E	**
	Phyllodoce empetriformis	D	**
	" glandulifera	F	**
	Rhododendron albiflorum	C1 C2 D	***
	Vaccinium membranaceum	B1 C1 D	***
	" myrtilloides	B2	*
	" oxyccoccus	A3 C1	***
	" parvifolium	B2	**
Pyrolaceae	Orthilia secunda	B1 C1	**
	Pyrola asarifolia	A3 B2	**
Monotropaceae	Monotropa uniflora	B2	*
Primulaceae	Trientalis europaea		
	sub. arctica	A3 A2	**
Menyanthaceae	Menyanthes trifoliata	A2 A3 A4	***
Lamiaceae	Mentha arvensis		
	sub. borealis	A4	**
	Prunella vulgaris		
	sub. lanceolata	A3 G	***
Scrophulariaceae	Castilleja miniata	D	**
	Mimulus guttatus	A2 G	***
	" lewisii	B2 E	**
	Pedicularis bracteosa	C1	**
	Penstemon sp. (?ellipticus)	F	**
	Veronica officinalis	G	**
	" serpyllifolia	G	*
	" wormskjoldii	D E	***
Lentibulariaceae	Utricularia vulgaris		
	sub. macrorhiza	A4	***
Plantaginaceae	Plantago major	G	***
Rubiaceae	Galium triflorum	A3 G	**
Caprifoliaceae	Linnaea borealis		
	sub. americana	B1	***
	Lonicera involucrata	A1 A2 A3 B2 C2	***
	" utahensis	C1	**
	Sambucus racemosa		
	var. leucocarpa	A3 C2 G	***
	Symphoricarpos albus	B2	*
	Viburnum opulus sub.trilobum	B2	**
	" edule	Ala Alb A2	***
Valerianaceae	Valeriana sitchensis	B2 C2 D F	***

Asteraceae	Achillea millefolium	G	*
	Adenocaulon bicolor	B2	**
	Anaphalis margaritacea	C1 G	***
	Antennaria neglecta		
	var. howellii	G	*
	" pulcherrima	D F	***
	Agoseris glauca		
	var. dasycephala	F	**
	Arctium lappa	G	**
	Arnica latifolia	C1 F G D	****
	" mollis	A3	*
	Aster borealis	A3	***
	" engelmannii	C1	**
	gillolatus	G	***
	" laevis	G	**
	" modestus	C2 G	***
	Centaurea sp.	G	*
	Cirsium vulgare	G	***
	Erigeron peregrinus	C2 D F	***
	" philadelphicus	G	**
	Hieracium albiflorum	B1 B2	***
	" gracile	D	***
	" scouleri	G	*
	" umbellatum	B2 G	**
	Lactuca biennis	G	**
	Leucanthemum vulgare	G	***
	Petasites sagittatus	A3	***
	Senecio pauperculus	A3	**
	" triangularis	Alb A3 C2 D E F	****
	Solidago canadensis		
	var. salebrosa	A3 G	**
	Taraxacum officinale	G	**
Potamogetonaceae	Potamogeton sp. (?natens)	A4	***
Juncaceae	Juncus arcticus		
	var. ater	F G	**
	" drummondii	C1 D F	***
	" ensifolius	G	**
	" Mertensianus	E	****
	" tenuis	A3	**
	Luzula hitchcockii	C1 D F	***
Cyperaceae	Carex aquatilis	Alb A3 A4	****
	" brunnescens	F	***
	" Buxbaumii	A3	****
	" canescens	A3	**
	" cusickii	A3	*
	" dispermum	A2 C2	****
	" interior	A3	***
	" laeviculmis	G	**
	" lanuginosa	A3	***
	" lenticularis	A3	
	" limosa	A3	***

	Carex macloviana	C2	***
	" macrochaeta	C2 E	****
	" mertensii	A3 C2 G	***
	" nigricans	F	****
	" sp. (?petasata)	A3	**
	" rostrata	A3 A4	***
	" stipata	A4	***
	" sp. (?vulpinoidea)	A3	*
	Eriophorum angustifolium	E	***
	" chamissonis	A3	**
	Scirpus lacustris	A3	**
	" microcarpus	A2 G	***
	Trichophorum caespitosum	A3	***
	" alpinum	A3	**
Poaceae	Agrostis scabra	G	***
	" stolonifera	A3 A4 G	***
	"thurberiana	C1 D	***
	Bromus ciliatus	A3	**
	Calamagrostis canadensis	A4	**
	Cinna latifolia	A4	*
	Deschampsia elongata	G	***
	Glyceria striata	A4	***
	Orizopsis asperifolia	B2	*
	Poa compressa	G	***
	" interior	G	**
	" palustris	A1b	**
	" pratensis	G	***
	Stipa occidentalis		
	var. minor	G	**
	Vahlodea atropurpurea		
	sub. paramushirensis	C1 D F	***
Sparganaceae	Sparganum emersum		
	var. angustifolium	A4	***
Typhaceae	Typha latifolia	A3	***
Araceae	Lysichiton americanum	A1b A2 B2	****
Liliaceae	Clintonia uniflora	B1 C1	***
	Disporum hookeri		
	var. oreganum	B2 C1	***
	Erythronium grandiflorum	D	**
	Lilium columbianum	B1	**
	Smilacina racemosa	A1 B2 C1	***
	" stellata	B2 C2	**
	Streptopus amplexifolius		
	var. chalazatus	A1 B2	***
	" roseus		
	var. curvipes	B1 B2 C1 C2 D	***
	Tofieldia glutinosa	A3 E	**
	Veratrum viride	A1 C2	***

Orchidaceae	Calypso bulbosa	B1	**
	Corallorhiza maculata	B1 B2	**
	" striata	B2	**
	Goodyera oblongifolia	B1	***
	Listera cordata	C1	***
	Platanthera dilatata	Alb A3 G	***
	" hyperborea	A2 B2 C2 D G	****
	" orbiculata	B2	**
	" stricta	B2 C2	**

A number of identifications were made by Dr. A. Ceska of the Provincial Museum to whom thanks are due.

LICHENS

None of the following collection has been substantiated by an authority in the field.

		zones									
		<u>G</u>	<u>A1 - 3</u>	<u>A4</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>scree</u>	<u>F</u>	
Alectoria	sarmentosa					X					
Bryoria	fuscescens					X					
"	pseudofuscescens						X				
Cetraria	arenaria									X	
"	chlorophylla				X						
"	? islandica									X	
"	nivalis									X	
"	pinastri				X						
Cladina	arbuscula				X						
Cladonia	bellidiflora	X									
"	? botrytes									X	
"	cenotea									X	
"	chlorophaea				X						
"	coniocraea				X						
"	crispata				X						
"	decorticata									X	
"	deformis					X	E				
"	ecmocyna					X					
"	gracilis				X						
"	? mateocytha						X				
"	ochrochlora				X						
"	phyllophora					X					
"	pyxidata				X						
"	squamosa	X			X						
Hypogymnia	imshaugii				X						
"	? occidentalis						X				
"	physodes				X	X	X				
"	tubulosa					X					
Icmadophila	ericetorum				X						
Lobaria	pulmonaria				X						

	<u>G</u>	<u>A1 - 3</u>	<u>A4</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>scree</u>	<u>F</u>
Neohroma bellum				x	x				
" helveticum				x					
" resupinatum				x					
Parmelia saxatilis				x					
" sulcata				x					
Parmeliopsis hyperoptera					x				
Peltigera aphthosa				x					
" canina		x		x					
Platismatia glauca				x	x				
" herrei					x	x			
Stereocaulon tomentosum				x					
Umbilicularia phaea				x					

MOSESSES

Several of the moss flora, also, tend to be predominantly coastal residents notably Rhytidiadelphus loreus, R. squarrosus, Rhytidiopsis robusta, Claopodium bolanderi and Hypnum circinale. Confirmation of the named sphagnum mosses was given by Olivia Lee of U.B.C. Herbarium, apart from which the collection made at Griffin Mountain has not been examined or checked by any expert in this field.

Aulocomnium androgynum				x					
" palustre					x		x		
Bartramia pomiformis					x				
Blindia acuta				x					
Brachythecium sp.				x					
Bryum sp.								x	
" ? uliginosum		x							
" ? weigelii							x		
Calliergon cordifolium				x					
Calliergonella cuspidata		x							
Campylium radicale		x							
" stellatum		x							
Claopodium bolanderi					x				
Climacium dendroides			x						
Dichelyma uncinatum				x					
Dicranum fuscens				x					
" muehlenbeckii						x			
" undulatum			x						
Drepanocladus aduncus			x						
" revolvens		x							
" uncinatus						x			
" ? vernicosus					x				
Fontinalis hoellii		x							
Grimmia alpicola		x		x	x				
" montana		x							x
Hypnum circinale				x					
Ziaeria ? blyttii									x
" starkei									x
? Leptodictium riparium		x							

	<u>G</u>	<u>A1-3</u>	<u>A4</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>scree</u>	<u>F</u>
Orthotricium sp.				X					
" ? affine				X					
" speciosum		X							
Philonotis fontana	X						X		
Plagiomnium cuspidatum				X					
" insigne			X						
Plagiothecium cavifolium				X	X				
Pleurozium shreberi				X	X				
Pogonatum urnigerum						X			
Pohlia cruda	X			X					
" ? elongata									X
" erecta									X
" wahlenbergii							X		
Polytrichum formosum						X			
" juniperinum	X								
" piliferum									X
" strictum							X		
Ptilium crista-castrensis				X					
Racomitrium canescens									
var. ericoides	X								
var. ? epilosum							X		
" heterostichum					X			X	X
" sudeticum								X	
Rhizomnium gracile						X			
" magnifolium						X			
" nudum					X				
Rhytidiadelphus loreus				X					
" squarrosus				X					
" triquetrus				X					
Rhytidiopsis robusta					E				
Sphagnum girgensohnii		X							
" squarrosum		X	X						
" carnsdorfii				X					
" sp.							X		
Tomenthypnum nitens	X								

HEPATICES

Barbilophozia barbata				X		X			X
" ? hatcheri						X			
Bazzania denudata						X			
Cephalozia lunulifolia				X		X			
Junggermannia pumila				X					
"? exsertifolia				X					
Preissia quadrata					X				
Ptilidium pulcherrimum				X					
? Radula bolanderi		X							
? Scapania undulata				X					

FUNGI

As different fungi fruit at different intervals after onset of autumn rains and as only one visit was made during this period, it seems likely that only a portion of those fungi possibly present may have been seen; of these an equal number remained unidentified as are listed below.

Armillariella mellea
Boletus mirabilis
" ? porosporus
" zelleri
Cantharellula umbonata
Clavaria pulchra
Clavariadelphus subfastigiatus
Collybia butyracea
Coprinus atramentarius
Cortinarius bulbosa
" dilutus
" turmalis
Crucibulum levis
?Cystoderma cinnabarinum
Daedalea unicolor
Fomes fomentarius
" pinicola
Galerina stylifera
Ganoderma applanatum
Gloeophyllum saepiarium
Gymnopilus sapineus
Hygrocybe conica
Hygrophorus eburneus
Hygrophoropsis aurantiaca
Hypomyces lactifluorum
Laccaria laccata
Leccinum sp.
Mycena epipterygia
" maculata
Panellus mitis
Phellinus ignarius
?Pholiota astragalina
Pleurotus porrigens
Polyporus elegans
Ramaria aurea
" sp.
Rozites caperata
Russula aeruginea
" brevipes
" emetica
" ? paludosa
Tremella mesenterica
Tyromyces albellus
Vibrissia truncorum
Yellow slime mold

BIRDS

With the relative narrowness of the reserve and the mobility of birdlife it would be even more fastidious to report only those sightings within the exact boundaries than it would be in the case of plants. Waterfowl, for instance, use all the large or small bodies of water impartially from Wap Lake itself to a pond near the Wap River bridge 5km (3 miles) north-east. Not all ponds were visited due to difficult access or even seen from a distance because of the shrubby growth filling most of the valley bottom so an accurate assessment of the area's value for breeding was not easy to gain. Although a fair number and variety of water birds was seen there were times when, and undisturbed locations where, their sparseness was surprising.

The Common Loon and American Bittern observations in June fell within a critical period and presumably reflect breeding by these species. The latter, heard but not seen, occurred among dense Willow/Alder Thicket rather than water-side reeds which might have been considered more probable. For those used to seeing summer visits by Eastern Kingbirds in dry Okanagan grassland, the same species hawking for insects from a perch in the midst of the Sedge Fen area seemed incongruous. In the same way, the adaptable American Robin appeared quite at home among wet surroundings. Commonest waterside warbler in the bottom-lands was McGillivray's with lesser numbers of Yellowthroat.

Although no Pileated Woodpeckers were recorded there were fresh rectangular holes in forest trees so this bird probably ought to have been included on the checklist. At height, Boreal Chickadee were common along with Red Crossbill, and the Golden Eagle sighting was right over the summit ridge.

Common Loon (9/6)	Grey Jay (26/7,16/8)
Great Blue Heron (13/7)	Raven (9/6)
American Bittern (9/6)	Black-capped Chickadee (5/7,16/9)
Mallard (27/5,9/6,16/9)	Mountain Chickadee (13/7,16/8)
Ring-necked Duck (9/6,13/7)	Boreal Chickadee (26/7,16/8)
Blue-winged Teal (9/6)	House Wren (20/5,27/5,13/7,16/9)
Common Merganser (9/6)	Swainson's Thrush (9/6)
Golden Eagle (16/8)	Varied Thrush (27/5,9/6,5/7,13/7,16/9)
Osprey (9/6)	American Robin (9/6,13/7)
Common Snipe (13/7, 4 eggs)	Cedar Waxwing (13/7,16/9)
Spotted Sandpiper (27/5,9/6)	Golden-crowned Kinglet (5/7)
Rufus Hummingbird (27/5,9/6)	Red-eyed Vireo (9/6)
Belted Kingfisher (9/6,16/9)	Warbling Vireo (13/7)
Common Flicker (9/6)	Yellowthroat (13/7)
Hairy Woodpecker (9/6)	McGillivray's Warbler (9/6)
Eastern Kingbird (9/6)	Red-winged Blackbird (9/6,13/7)
Olive-sided Flycatcher (27/5)	Song Sparrow (9/6,13/7,16/9)
Empidonax Flycatcher (Wilson?)	Red Crossbill (5/7,26/7)
Tree Swallow (9/6) (13/7)	Dark-eyed Junco (5/7)
Northern Rough-winged swallow (9/6)	Pine Siskin (13/7,16/8)
Steller Jay (16/9)	Pine Grosbeak (26/7)
	White-crowned Sparrow (16/9)

MAMMALS

Within this moderate distance of Revelstoke it would be surprising if the Wap Lake - Griffin Mountain area were not regularly hunted. In particular, access to Upper Montane Forest from forestry roads fanning out from the top of Rutherford Main would not be difficult in fall, but no shells or cartridges were noticed.

Tracks of deer were scattered lightly through suitable broken forested areas, and the Sedge Meadows with surrounding willow, dogwood and other shrubs, would provide wintering grounds to support a moderate number. In one part of Lower Montane Forest, larger ungulate droppings were seen that may have been Elk (although none are mapped as present according to the Provincial Museum handbook), or conceivably Mountain Caribou (which are so mapped), after all, the lake above is known as Cariboo Lake and a herd is reported on the north side of the Trans Canada Highway not far away.

Another intriguing indication in early summer was the presence of large, widely-spaced tracks deeply impressed in wet, mossy humus just above valley floor level along with a wet, dark pile of scat that seemed to fit the presence of Moose.

Tracks of Black Bear, rather than the animals themselves, were plentiful and noticeable in the flood plain of Wap River where declining water level had left layers of silt. It may be that at this time of late spring-early summer a large proportion of the total population is present here before dispersing up-slope as snow clears. At one spot in the alpine meadows extensive old excavation of a former ground squirrel colony, now grassed over, showed activity by one or other of the native bears.

Both Columbian Groundsquirrels and Hoary Marmots occurred in light numbers in the upper meadows, the former on drier, south-facing slopes and marmot in damper, boulder-strewn areas. One Pine Chipmunk was seen but Red Squirrel were fairly common in the Montane Forest. Trapping for small rodents at road level resulted in White-footed Mice only and was not attempted elsewhere due to long intervals between visits.

What appears to be a recent beaver lodge in the bottom wetlands was examined by binoculars and in places there were old beaver gnawings, although nothing really fresh. It is not known, but would not be surprising, if a trapping permit covers this area. At one point in Willow/Alder Thicket along the Wap River a hauling-out site appeared to be in current use. Apart from one small hardwood branch on the ground, there were no signs of trunks having been gnawed so it might argue for River Otter rather than being the work of a beaver. Nearby

droppings were from a meat-eater, not a vegetarian.

HERPETILES

So poor a list of recorded species must reflect on the observer rather than the area and, perhaps, points up the weakness of one person attempting a fairly comprehensive review of a large reserve in one season.

Common Garter Snake

Western Toad

Spotted Frog

ARANEAE

Spiders having been such a lightly examined field, it continues to be fruitful to make a collection in each E.R. surveyed. In the case of Griffin Mountain, the recurrence of coastal plants in the Interior Wet Belt raises the question whether this is true also of other life forms and, with five species of spider found that had previously been recovered only in or west of the Coast Range, this does appear to be true (those marked "W" on the following list). In addition, three others (marked by an asterisk) were registered for B.C. for the first time. Even with these interesting results a full survey was not carried out as several pit-fall traps in Montane Forest habitat were disturbed by animals resulting in incomplete representation from these areas.

Determination of species was made by Dr. C.D. Dondale of Biosystematics Research Institute, Ottawa, whose assistance is greatly appreciated.

Dictynidae	Dictyna peragrata	
Amaurobiidae	Calliplus wabritaskus	
Linyphiidae	Aphileta misera	*
	Lepthyphantes intricatus	*
	" sammamish	W
	" zebra	
	Neriene digna	
	Oreonetides filicatus	*
	Wubana pacifica	W
Erigonidae	Entelecara erecta	
	Sissicottus orites	
	Walkenaeria atrotibialis	
	" directa	

Araneidae	Araneus nordmanni	
	Cyclosa conica	
Tetragnathidae	Tetragnatha versicolor	
Agelenidae	Cryphoeca peckhami	W
	Cybaeus morosus	
	" reticulatus	W
Lycosidae	Pardosa dorsuncata	
	" xerampelina	
	Arctosa sp.	
Philodromidae	Philodromus alascensis	

CONCLUSION

At present little in the nature of hazards appears to endanger this reserve and no un-natural change is taking place; for this reason no survey blocks were established. The possible presence of cattle seasonally in the alpine meadows has already been referred to. At the Upper Montane Forest level one of the forestry tracks from Rutherford Main has been driven west towards the boundary of the reserve and survey lines marked, probably outlining blocks to be cut in the future, but it is not possible on the ground to tell how close these may be.

Small, primitive campsites are situated near Cariboo Lake, and at road level on Wap Lake and Wap River, all outside the reserve. Potentially there could be fire danger from these points.

One rumour regarding Department of Highways plans for the Okanagan had an improved (hardtopped ?) road running from Enderby to Three Valley Gap. Should this ever materialize it would involve widening of the existing road running along the south-east side of the reserve and, more importantly, require some in-filling where this dirt road crosses the Sedge Fens. None of this seems likely in the foreseeable future.

Inconvenient access will continue to make Griffin Mountain - Wap Lake Reserve difficult for casual visits. Problems of logistics, however, also serve to protect the area. As different sections have to be approached from widely separated starting points it is physically impossible for all parts to be seen in one day.

The reserve appears to have been located to cover

characteristic regional processes rather than to protect any specific rarities. For example, no outstanding new discoveries, other than those below, were made in the valley-bottom wetlands and yet a few miles south the unprotected Grant's Bog is believed to harbour specimens of two plants far out of their accepted range. Would the E.R. Branch be open to a proposal for another reserve so near to an existing one?

The discovery of Achlys triphyllum and Rubus spectabilis during the 1985 season, together with previous finds such as Equisetum telmateia in the same general area suggests that further more detailed examination could produce other west coastal species not recorded from interior locations previously.



M.E.Martin,
North Okanagan Naturalists' Club,
Vernon, B.C.,
February, 1986.

GRIFFIN MOUNTAIN ECOLOGICAL RESERVE
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Amendment to 1985 Report

During the 1985 survey of this reserve the summit area was seen only in mid-August when most of the early floral display had finished, so an additional visit was made to supplement and amend some of the previous data collected.

Forest coverage maps of the area treat the upper slopes as Alpine Meadow and this was carried forward into the 1985 survey. Closer inspection indicates sufficient tree growth dividing open stretches to suggest it should be categorised as Sub-alpine Forest (Englemann spruce - Sub-alpine fir -- parkland, ESSF p) except the small immediate summit area. Only the uppermost 100m might be regarded as krumholtz below which tree growth is reduced though rarely to the same extent.

INSECTS Gaps among rock slabs forming the summit cairn are apparently used by Laddbird beetles for massed hibernation. Movement by the rocks or succumbing to the elements has left many dead bodies. Comparing the carapace pattern with those described in C.W.Leng's Catalogue showed them to be Hippodamia glacialis lecontei Muls., a sufficiently alpine-sounding name for this altitude.

MAMMALS Just below the summit on a steep, fairly moist slope Jumping mice were found, aided in their escape by leaping downhill. None was caught for identification but from distribution maps would probably have been Meadow jumping mice (Zapus hudsonicus).

VASCULAR PLANTS One addition only was made to the floral list, that being Juniperus communis L., occasional on open upper slopes, however, with the advantage of seeing flowering at its peak season the opportunity is taken of slightly revising the list of dominant plants as shown on page 12 of the February 1986 report.

Spring Beauty (Claytonia lanceolata) is included as one of the most prevalent and widespread taxa on these upper slopes, a fact not obvious a few weeks later when plants have withered and disappeared.

Lists (a), (b) and (c) are retained from the original report to cover general distribution, damper areas and Sub-alpine fir stringers respectively.

(abies lasiocarpa) - - - Carex nigricans/Claytonia lanceolata/
Lycopodium alpinum

(a)

Carex nigricans
Claytonia lanceolata
Carex brunnescens
Vahlodia atropurpura
Lycopodium alpinum
Luzula hitchcockii
Juncus douglasii
Antennaria pulcherrima
Arnica latifolia

(c)

Abies lasiocarpa

Luetkia pectinata
Cassiope mertensiana
Phyllodoce glandulifera.

(b)

Carex nigricans
Claytonia lanceolata
Juncus douglasii
Juncus arcticus
Senecio triangularis
Pulsatilla occidentale
Lycopodium alpinum
Erigeron peregrinus
Arnica latifolia
Trollius laxus
Mitella breweri
Caltha leptosepala

LICHEN Two typically arctic lichens were collected in the summit area - Solorina crocea and Rhizocarpon geographicum - and Lecidea ?granulosa at lower elevation. None was on the previous list.

BIRDS Clark's nutcracker and Fox sparrow were recorded in 1986, both in the Sub-alpine Forest Zone.

M.E.Martin
February 1987

