

Report on botanical surveys in the Incomappleux River, 2004

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Abstract: A survey was conducted for rare plants and lichens in the Incomappleux River area in August 2004. No new populations of rare vascular plants were detected in the Incomappleux Canyon, but two red-listed plant species in British Columbia, Loesel's twayblade orchid (*Liparis loeselii*) and ochroleucous bladderwort (*Utricularia ochroleuca*) was found in a wetland near the mouth of Kelly Creek. Several oceanic lichen species were newly found in the oldgrowth forest below Battle Brook, including the smoker's lung lichen (*Lobaria retigera*), *Cavernularia hulthenii* and numerous crustose species. These new finds again underline the importance of the Incomappleux River as a concentration of rare plants and oceanic lichens species in inland British Columbia.

Background

Following surveys for lichens in the Incomappleux River in 2002 and 2003 there has been a steadily increasing interest in the flora of this remote valley located SE of Revelstoke in the Selkirk Mountains. The history of the botanical exploration of area begins with lichen surveys in the autumn of 2002 (Spribille 2002). This initial survey concentrated on collecting intuitively controlled "grab" data from a series of points in the lower Incomappleux, the Incomappleux Canyon, and the upper reaches on the east bank below the confluence of Battle Brook. This survey resulted in the detection of nearly 20 species otherwise considered to be oceanic, i.e. to occur primarily in coastal regions (Spribille 2002). Also, one of the samples collected near the confluence with Battle Brook was later analyzed by Trevor Goward and tentatively identified as a new species to science, in the macrolichen genus *Pseudocyphellaria*. A BC Forest Service ecologist, André Arsenault, later conducted surveys of his own in the area. During a subsequent return trip by Spribille to the area in 2003, a cursory survey was conducted of both macro- and microlichens over the course of two days. One new oceanic macrolichen was found, a rock-dwelling species (*Pilophorus cereolus*) and several new oceanic crustose species were detected, including *Graphis scripta* and *Porpidia carlottiana* (Spribille, unpubl.). Also, during a brief stop in the lower canyon of the river, several rare fern species, including *Cryptogramma stelleri*, *Asplenium trichomanes* subsp. *trichomanes*, *A. trichomanes* subsp. *quadrivalens* and *A. viride* were found (Spribille & Bjork, unpubl.). It was also believed that the rare hybrid species *Asplenium adulterinum* had been found but specimens were later assigned to *A. viride* by an expert in the genus. In all, around 600 lichen specimens were gathered in the collecting of the first two years.

Need for more surveys

The first two years of surveys allowed an insight into the lichen diversity of especially the upper reach of the Incomappleux River. However, the surveyed area is still but a fraction of the total area of the Incomappleux Valley and the searches were not systematic. It was determined that a return survey would be necessary to search for a) hybrids of the ferns *Asplenium trichomanes* and *A. viride*, which are likely to occur in the lower canyon, an area

that was up until 2003 searched by botanists for scarcely more than an hour in total; and b) an effort should be made to try to relocate the putative new *Pseudocyphellaria* near Battle Brook.

The present report summarizes the results of two more trips were taken into the Incomappleux River in 2004, on 4 and 8 August, respectively, and includes supplementary observations gathered during a survey on 12 September with a mycological foray. The first field day concentrated on surveying the cliffs for rare ferns and other vascular plants, while the second day was spent surveying for lichens on the east bank of the river below the confluence of Battle Brook.

Materials and methods

The survey was intuitively controlled and focused on areas most likely to contain rare plants or have the highest diversity. Collections were made and dried (lichens) and pressed (vascular plants) for future deposit as scientific specimens in the herbarium of the University of British Columbia (UBC).

Survey results

- *Day 1 (4 Aug 2004): Survey in Incomappleux Canyon*

This area is characterized by a narrow band of old-growth cedar-hemlock forest, demarcated on the one side by the main Incomappleux road and on the other walled in by 20-30 metre slate cliffs. The day of the survey was at the peak of a long, hot, dry weather and the hauling of trucks out of the Incomappleux had left a ubiquitous coating of fine dust on the vegetation even up in the rocks many metres from the road.

No ferns were found that appeared to match the type of the hybrid-origin *Asplenium adulterinum*. Overall vascular plant diversity in the canyon is low. Dominant species are the trees *Thuja plicata* and *Tsuga heterophylla*, with various ferns in the understorey (*Athyrium filix-femina*, *Gymnocarpium disjunctum* [UBC!], *Dryopteris carthusiana* etc.) as well as herbs (*Tiarella trifoliata* var. *unifoliata*, *Clintonia uniflora*, i.a.). A few species of note are present: *Huperzia chinense*, a clubmoss (vascular plant) growing especially on large boulders under the forest canopy, and a peculiar interior form of maidenhair fern (*Adiantum aleuticum*, for want of a better name, part of *A. pedatum* in the broad sense - → UBC!; this species also occurs, though less luxuriously, in the upper Incomappleux).

Asplenium trichomanes is one of the most common fern species in the canyon, occurring in cliff crevices as well as on humus under other vegetation in the forest. Hundreds, if not thousands of clumps were seen over a distance of several hundred metres. Less common is *Asplenium viride*, of which perhaps only 50-100 clumps were observed. *Cryptogramma stelleri*, seen in a brief stop in 2003 by T. Spribille and C. Bjork, was not observed. A significant amount of dead vegetation was observed in the crevices of the rocks, especially among the ferns. These appear to have fallen victim to the extremely low moistures in autumn of 2003. Perhaps as much as 25% of the population of *Asplenium trichomanes s.lat.* appears to have succumbed. This may also be the case for *C. stelleri*.

Amongst the lichens worthy of note in the canyon are *Sticta fuliginosa*, *Nephroma helveticum* and *Polychidium dendriscum* on hemlock branches, not heretofore recorded in the canyon area, and *Gyalecta cf. jenensis* on rock walls.

- *Day 2 (8 Aug 2004): East bank below Battle Brook*

A full day was spent in this area, which was already the subject of two previous surveys in 2002. Notwithstanding the previous searches, several new lichens came to light during the 2004 survey. The smoker's lung lichen (*Lobaria retigera*) was discovered new to the Incomappleux from a relatively confined area near the large turquoise spring on the east bank. This thus becomes the southernmost locality for this species in inland British Columbia and the first record south of the Adams Valley east of Vavenby (T. Goward, pers. comm.). Smoker's lung lichen appears to be localized in a small area perhaps no larger than 100 metres long by 50 metres wide, close to the main river and up to the lip of the bench above the river. Here, it can dominate the cyanolichen vegetation of hemlocks. Another significant find was two small thalli of *Cavernularia hultenii*, likewise a range extension from the Adams Valley. Both of these species are oceanic lichens used for delineating the inland rainforest by Goward & Spribille (2004) and further underline the role of the Incomappleux River Forest as inland rainforest.

There had been some suggestions that especially the oceanic cyanolichens – lichens with cyanobacteria as the photosynthesizing partner – had declined or died back in the Incomappleux Forest since the severe dry autumn of 2003. The present survey however was unable to verify this. To the contrary, all of the expected oceanic lichen species were found in cursory observations along the trail, including *Sphaerophorus globosus*, *S. tuckermannii*, *Pseudocyphellaria anomala*, *Nephroma occultum*, *Sticta fuliginosa*, *Lichinodium canadense*, *Sticta wrightii* (dendrisocauloid form), *Hypogymnia oceanica* and *Spilonemella americana*. Localized dieback was observed, however, in a hemlock looper-affected dieback patch at the confluence of the Incomappleux River and Battle Brook, an area otherwise previously known for high concentrations of oceanic macrolichens. Even here, however, it was easy to find populations of *Pseudocyphellaria anomala*, *Sticta fuliginosa*, *Sticta wrightii* (dendrisocauloid form), *Lobaria linita* and the COSEWIC Species of Concern *Nephroma occultum*. Most of these species occurred on short (3-5 m tall) hemlock trees, many of which were however defoliating.

Pilophorus clavatus, a species discovered in the area in 2002 and known from only three inland localities in total, was found to be locally common on exposed granite boulders along the footpath into the confluence area (ca. 10 patches seen, several hundred individual podetia).

- *Red-listed Species at Kelly Creek Wetland*

One of the most significant events of the survey of the 8th of August was the discovery of Loesel's twayblade orchid (*Liparis loeselii*) in a wetland at the mouth of Kelly Creek on the Incomappleux River, at mid-valley between the upper Incomappleux oldgrowth area and the canyon. Loesel's twayblade orchid is red-listed with the BC Conservation Data Centre (BC Species and Ecosystems Explorer 2003). The large wetland complex includes open sedge meadow, marsh, shrub carr, floating mats and open ponds. In a cursory examination of the floating mats that lie closest to the main Incomappleux Road (East Road), five plants of *Liparis loeselii* were found, one in flower, three in fruit and one vegetative. Photos were taken of two of the plants by Craig Pettitt and will be deposited at the University of British Columbia Herbarium as vouchers. The discovery of *Liparis loeselii* represents only the third record of this species in Canada west of Saskatchewan and only the fifth site in the mountains

of western North America. An occurrence record for this species is being filed with the BC Conservation Data Centre in Victoria.

During a repeat visit to the wetland during a mycological survey of the Incomappleux Forest on 12 September 2004 with Oluna and Adolf Češka, Viktoria Wagner and Curtis Bjork, another red-listed species, the ochroleucous bladderwort (*Utricularia ochroleuca*) was found. This is a “carnivorous” plant that catches small underwater insects in bladder-like “traps” it carries on modified leaves. The Incomappleux site becomes one of few sites in British Columbia. The species is considered to be extremely rare in the province and for a long time was known only from Liard Hot Springs near the Yukon border (A. Češka, pers. comm.). A siting form for the species is also being submitted to the BC Conservation Data Centre.

References

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