

# Mount Sabine Ecological Reserve #19

## Warden Report for 2023



Yellow columbine (*Aquilegia flavescens*) in Mount Sabine Ecological Reserve (Photo by Jenny L. Feick)

**Report completed by:** Jenny L. Feick, PhD, ER Warden for Mount Sabine Ecological Reserve

**Report completion date:** September 4, 2023

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Exploring and contemplating the future of Mount Sabine Ecological Reserve on June 16, 2023. L to R: Wayne Stetski, Trevor Kinley, Ian Adams, and Ian Hatter.

## Acknowledgements

Thanks to Ian Hatter, Ian Adams, Trevor Kinley, and Wayne Stetski for assisting me to explore the Mount Sabine ER on June 16, 2023 and their contributions to and feedback on the drafts of this report. I am especially grateful to Ian Adams and Trevor Kinley as we could not have accessed the ER without their help. I appreciate Dr. Jim Pojar, Hans Roemer, and Dr. Jack Maze for their useful insights on the history of the Mount Sabine ER specifically, to Bristol Foster and Louise Goulet for also responding to my inquiry about the history of the ER Program, and to Kari Stuart-Smith for information on timber cruising history in the vicinity of the ER. BC Parks deserves credit for maintaining the ER Warden Program, their stewardship of existing ecological reserves in B.C. and their support of the BC Parks iNaturalist Project. Thanks also to the Friends of Ecological Reserves for advocating on behalf of these protected areas and for providing a repository of historical and contemporary information about B.C.’s ERs on their website.

**Image Credits:** All photographs in this report were taken by Jenny L. Feick unless otherwise credited. The sources for maps and other images appear in the text.

## Ecological Reserve Warden Trip Report Summary

**ER Name:** Mount Sabine Ecological Reserve      **Ecological Reserve #:** 19

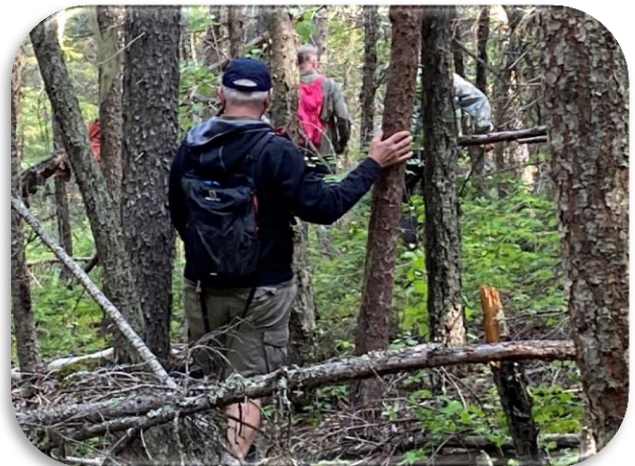
**Trip Date:** Friday, June 16, 2023 (only one visit possible due to access challenges)

**Field Trip Participant Names:** Jenny Feick and Ian Hatter, of Invermere, B.C. accompanied by ER warden, Wayne Stetski (Gilnockie Creek ER). We were driven and assisted by Ian Adams of Cranbrook, B.C. and Trevor Kinley of Invermere, B.C.

**Number of volunteer hours logged:** Three hours at the ER plus one hour travel time to/from Mt Sabine ER from Canal Flats (travel time from Invermere to Canal Flats included with the report on visit to Columbia Lake ER the same day). Many more hours spent on follow-up actions and the report (ca. 50 hrs).

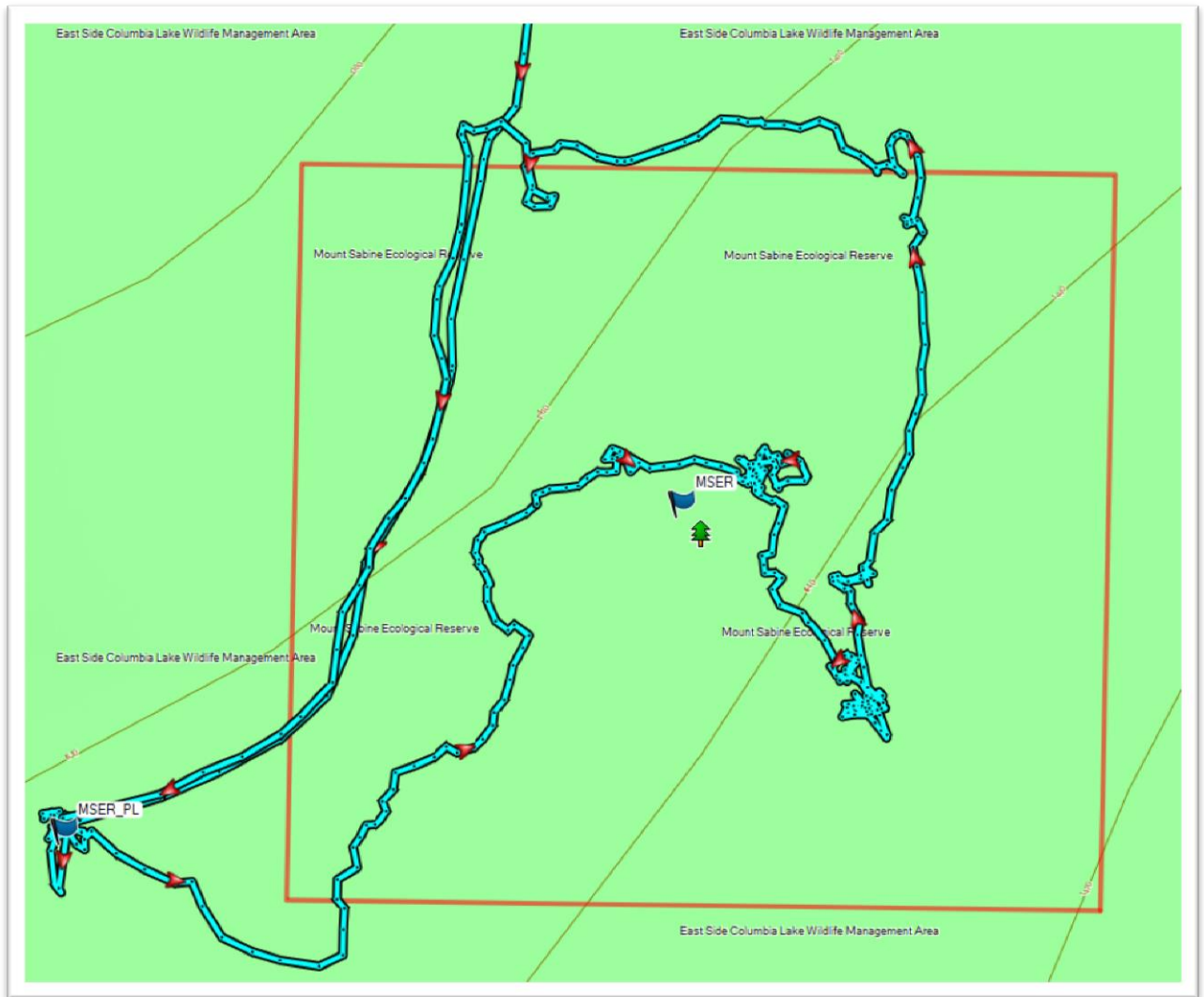
### Extent of the ecological reserve visited, or tour route

- Trevor Kinley drove Ian and me in his 4WD truck from Invermere to Canal Flats where we met Ian Adams and Wayne Stetski, who drove from Cranbrook. We parked Trevor's truck at the lower part of Columbia Lake ER. From there, all five of us went the rest of the way in Ian Adams' Ford F-150 4x4 half ton pickup. We drove to the south end of the ER on a side access road and parked along the road in the same location that Ranger Liza Pegura showed us to use in September 2022.
- Water damage on the steep rocky access road since the last visit on Sept. 10, 2022 has deepened the ruts and potholes, making the road difficult for even 4WD trucks.
- Instead of walking the perimeter as we did in 2022, we walked into the centre of the ER and throughout the interior of the ER in search of the fen and Engelmann spruce forest for which this ER was initially established (See Garmin GPS track on next page).
- Ian Adams, Ian Hatter and I noted birds seen and/or heard. We used the Merlin app to assist in identification of bird songs. Ian Adams posted the [checklist report on eBird](#).
- I took pictures of organisms and posted them on the [iNaturalist project for this ER](#). ER boundaries showed up so that it was clear which observations were in the ER or on its perimeter (see map on page 17 of this report).





- For navigation, Ian Hatter used a Garmin GPSMAP 64sx (See Garmin GPS track). Ian Adams used Avenza in the field, which uses a georeferenced PDF map that he created in a GIS with various layers. Both he and Ian Hatter used the ER boundaries from the BC Protected Areas linework available from the BC Data Catalogue, [here](#). Trevor Kinley used the Gaia app on his iPhone.
- Deadfall and vegetation obstructed walking a straight line. Thus, the route that we did was irregular (see below for the Garmin GPS track made by ER Warden Ian Hatter).
- We saw evidence of past logging operations and timber cruising in the ER, i.e., many old stumps, all with lichen, moss and fungi growing on them, plus numerous different coloured flagging tape on trees and on the ground, and several timber cruising plaques inside the ER. Ian Adams took one to show Kari Stuart-Smith, who works for Canfor.



## Purpose and Objectives for This Site Visit

### Purpose:

To assess condition since last site visit in 2022, continue to learn about the Mount Sabine ER and its values from one another, and develop recommendations for future monitoring.

### Objectives:

1. Try to find the fen and Engelmann spruce/subalpine fir forest surrounding it, the original reason why the Mount Sabine ER was established in 1971 according to Botanist Dr. Jim Pojar and Dr. Jack Maze, Professor Emeritus of Botany, UBC;
2. Check the condition of the access road and compare it with its condition in 2022;
3. Check to see if the boundaries of the ER were still unmarked;
4. Check to see if the directional sign with the map was still in the wrong location;
5. Assess the basic condition of the ER and identify any obvious damage and threats;
6. Record natural history observations (evidence of wildlife, and vegetation, especially the species/plant communities related to the purpose of the ER), including posting images on iNaturalist of key plant species and making an eBird report; and
7. Discuss potential ideas for inventory and monitoring activities for 2023 and beyond and develop recommendations for BC Parks for efficient and effective monitoring methods in this ER.



Typical forest scene within the Mt. Sabine ER

### Background for Objective #1

The [BC Parks webpage for the Mount Sabine ER](#) states that its Original Purpose was “preservation of a forest site representative of the Montane Spruce Zone east of the Rocky Mountain Trench”. This information is the same as what appears on the [Friends of Ecological Reserves \(FER\) webpage for this ER](#) and on page 2-19A in the BC Parks publication from November 1992, [Guide to Ecological Reserves in British Columbia](#).

A suggestion made in my 2022 annual report on the Mount Sabine ER was to document the history of this ER and “to contact Bristol Foster, Hans Roemer, and Jim Pojar to better understand how this site was selected and why the boundaries are where they are.” I agreed to contact individuals involved in the early days of the ER Program about the rationale for the boundaries for Mount Sabine ER.

In response to my email inquiry of September 27, 2022, Dr. Jim Pojar said that “The original proposal for Mt. Sabine Ecological Reserve was #46, submitted by Dr. Jack Maze, UBC Botany. From the application it appears that he was particularly interested in an open ‘vernally moist *Carex* meadow’ surrounded by a closed forest dominated by *Picea engelmannii*, *Abies lasiocarpa*, and *Pinus contorta*. He’s still around so you could ask him ([erry@shaw.ca](mailto:erry@shaw.ca)). He noted that the 50 acre (20.23 hectare) parcel was bordered by logging "in the near past" and most of the surrounding area had been logged. He said it was in the Engelmann Spruce-Subalpine Fir zone (ESSF); in those days we hadn't yet recognised the Montane Spruce zone (MS). He didn't mention Douglas-fir or western larch.” On August 21, Dr. Jim Pojar sent me Dr. Jack Maze’s International Biological Program Assessment Report, including the UTM coordinates (50°11’N, 115°57’W), size (50 ha), elevation (4500 feet asl), and a topographic map with the location.

When I contacted Dr. Maze in September 2022, he wrote that “The nature of many of those early ecological reserves had a lot of input from Vlad Krajina and he had his own set of rules, none of them written down. The shape may well have been the result of negotiations with the representative from, I think, the Ministry of Lands.” Mt Sabine ER ended up being 7.9 hectares (19.5 acres) in size, 39% of what Dr. Maze originally proposed.

Botanist Hans Roemer responded with, “Why only a 7.9 ha square for Mt. Sabine ER? It is easy to forget that what goes in as an ecological reserve proposal and what comes out as an established ecological reserve are rarely the same, both in boundary configuration and in size. While I admit not knowing the exact answer, I would assume that no sane ecologist would deliberately choose a little square for the proposed boundaries of an ecological reserve. All it takes is a 'high mineral potential' of the surrounding area and substantial parts of a proposed reserve could have been "chopped", a familiar story to all of us who worked in Ecological Reserves.”

Ian Adams, while out to Ram Creek ER with the Rocky Mountain Naturalists in early August 2023, spoke with Marianne Nahm, the current president and longtime RMN member, about Mount Sabine possibly being "in the wrong place". Marianne recalled a similar discussion years ago with Peter Davidson, the previous ER Warden for Mount Sabine ER. So, there seems to be a suspicion that the boundaries do not encompass the key area that Dr. Jack Maze proposed. However, where exactly the seasonally moist *Carex* meadow is located, remains unknown.



Ian Adams, Ian Hatter, Trevor Kinley and Wayne Stetski searching for the vernal moist *Carex* meadow for which the Mt Sabine ER was established.



## Plant and Animal Species Observed

The link to all of the iNaturalist observations for the [Mount Sabine ER Project](https://www.inaturalist.org/projects/mount-sabine-ecological-reserve) is <https://www.inaturalist.org/projects/mount-sabine-ecological-reserve> As of August 19, 2023, this ER had 74 observations of 52 species made by three observers (Jenny Feick, Liza Pegura and Ian Adams) that have been verified by 21 identifiers. Note: these figures change each time another observation is added. See map on page 17 for locations of observations. The project for this ER is part of the overall iNaturalist [BC Parks Ecological Reserves Project](#). See also Appendix A: Tracking Biodiversity – Toward a Species List for Mount Sabine Ecological Reserve, pages 23-24.

### Forest Composition:

- Edges of the ER are comprised of mixture of Douglas-fir and Western larch, with some lodgepole pine. A few stands of Engelmann spruce exist in the middle of the ER (see picture of spruce stand below).
- Many of the mature Subalpine fir trees are dead or dying.
- Many mature paper birch trees are dead or dying, except near the middle of the ER (see picture on right).
- Deciduous tree recruitment includes some paper birch and trembling aspen saplings.
- Conifer regeneration is mostly Douglas-fir and lodgepole pine, with some subalpine fir, Engelmann spruce and white spruce (see picture below right).
- The tallest trees are Englemann spruce (see picture below left) in the interior of the ER and Western larch near the perimeter.





### Shrub Layer:

- Rocky Mountain maple, Western snowberry, Canada buffalo-berry (pictured on right), prickly rose (pictured below left), creeping mahonia (pictured below right), mock azalea, Utah honeysuckle (pictured below left) Saskatoon (pictured below right), Scouler's willow, swamp currant, Sitka alder, and common juniper.
- Shrub species that were flowering included Canada buffaloberry, prickly rose, and creeping mahonia.
- Some species had berries forming (picture of Utah honeysuckle below left, Saskatoon below right).



## Ground Cover:

### *Non-vascular Plants*

- Mosses included red-stemmed feather moss (pictured below left), *Austria timmia* moss on the forest floor (see below right), and fragile fork-moss on downed logs.



### *Graminoids*

- Pine reed grass is the dominant grass (see picture on the right).
- No sedges or rushes were found. In his 1970 IBP assessment report, Dr. Jim Maze listed four sedge species (*Carex flava*, *C. vesicaria*, *C. aperta*, and *C. norvegica* = *C. media*) growing in a 25-acre wet meadow.



### *Forbs*

- We saw pearly everlasting and yellow sweet vetch blooming along the access road near the border of the ER.
- We observed showy aster, Western meadow-rue, bearberry, Canada bunchberry, pipsissewa (also called prince's pine), one-sided wintergreen, Western rattlesnake plantain (an orchid), Western roughleaf violet, Northern bedstraw, wild strawberry, purple clematis, twinflower, yellow columbine (pictured on front cover), bronze bells, curved beak lousewort, heartleaf and broad-leaved arnica, mountain sweet-cicely, Hooker's pusseytoes, and birch-leaf spirea (formerly called shiny leaved meadowsweet), which was just starting to flower.



- All of the above were observed to be flowering except showy aster, Western meadow-rue, bearberry, wild strawberry, mountain sweet-cicely, Western roughleaf violet, and pipsissewa (some plants still had last year's seed heads).



Clockwise from upper right: Curved beaked lousewort, bunchberry, bronze bells, twinflower

### *Fungi and Lichens*

- Fungi observed included *Cystodermella granulosa* (pictured next page top left) and northern red belt (a conk). One fungi on an old subalpine-fir tree trunk could not be identified using iNaturalist because of the amount of sap build-up on the organism.
- Saw the yellow spots on the leaves of veiny meadow-rue that are evidence of a multiflora rose rust (*Phragmidium rosae-multiflorae*) infection.
- Lichens seen included wolf lichen, smooth horn lichen, veinless pelt lichen (pictured next page top right), and freckled pelt lichen.





### Animal Species Observed or Evidence of Wildlife

#### *Mammals:*

- We observed ungulate scats (pictured clockwise from upper left: elk, spring scat of deer, moose, and winter scat of deer). Mule and white-tailed deer scat look similar.



- We heard many and saw some American red squirrels. We found several of their middens, many very large (two pictured at top of next page).



### *Birds:*

- In [the eBird checklist report that Ian Adams submitted](#), he recorded eight species and 15 individual birds. These consisted of: one ruby-crowned kinglet, two red-breasted nuthatches, three Swainson's thrushes, two cedar waxwings, three pine siskins, one dark-eyed junco, one yellow-rumped warbler, and one Townsend's warbler. Most of these were sound observations heard by our group and confirmed using the Merlin app.
- We saw evidence of pileated and other woodpecker excavations (one woodpecker hole pictured above), confirming that the ER provides important habitat for woodpeckers.



### *Arthropods:*

- We saw the vivid red sign of maple erenium mites on Rocky Mountain maple leaves.
- We saw a flower crab spider on yellow sweet-vetch near the access road just outside the ER (pictured below). These spiders catch insects that land on flowers, inject them with venom and digestive enzymes, and then suck out the predigested innards. Their fangs cannot pierce human skin and their venom is too weak to adversely affect people.





## Public Access Issues

- The perimeter of this ER remains unmarked, and public confusion continues about where exactly the ER boundaries are located. Garmin GPSMAP does not identify Mount Sabine ER. One has to import a KMZ\_KML file converted to a GPX file in order to view the boundaries on the GPSMAP.
- As in 2022, we found numerous examples of different coloured flagging tape (blue, yellow and red) on trees and on the ground throughout the ER. We saw several timber cruising plaques inside the ER dating from Dec 2004 and January 2005 (see picture below left). Details on any forest harvest plans related to this cruising activity by Tembec Industries are not available. Most likely possible cutblocks were set up in error and once planners realized they were in an Ecological Reserve, planning was stopped (K. Stuart-Smith, Canfor, pers. comm.).
- Timber harvesting took place here decades ago based on the condition of the stumps, which have significant lichen, moss and fungi growth on them (see picture below right). The old logging road (now the access road to the ER) goes through the western portion of the ER (see pictures on page 16 of this report). In his 1970 report recommending a 50-acre (20.23 hectares) site on Mount Sabine as an ER, UBC Botanist Dr. Jack Maze noted that recent logging bordered the parcel and that most of the surrounding area had already been logged.



- The road conditions have deteriorated dramatically since the last site visit to this ER on September 10, 2022 (see pictures on page 16 of this report).
- Realistically, only ATVs, ORVs and trail bikes can now drive to the Mount Sabine ER. It is inaccessible by 2WD and AWD vehicles, and even most 4WD trucks. Neither Ian Adams nor



Trevor Kinley said they would feel comfortable about making another trip up that access road unless some basic road maintenance is carried out.

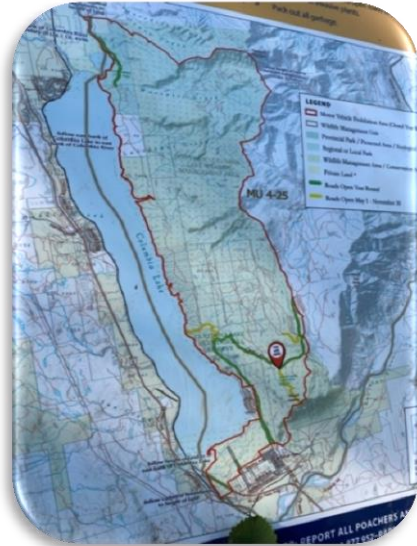
- It is still unclear which government agency is responsible for this access road. The Village of Canal Flats posted a cautionary sign at the start of the access road indicating that it is an “unmaintained trail” (see picture below). Does this mean that it is under their jurisdiction?



### Signage Issues

- The boundaries of Mount Sabine ER are still not marked in any way.
- The proliferation of flagging tape and timber cruising plaques left by logging companies is confusing and misleading (see picture to right).
- No signs or markers of any kind inform people that this is an ecological reserve, and what that means in terms of protection and what can be done/not done within the ER.
- The one directional sign on the access road is still in the wrong location. Thus, people who look at it will turn up the wrong road, which dead ends in an old logging landing. Access to the ER is further up the road at a different side road (see pictures and map on next page).





## Maintenance Issues

- The access road's condition has deteriorated significantly over the winter of 2022/23 (see two examples at top of next page). Clearly, no maintenance was done on this road.





### Visitor Activities

- The access road is used often by recreational ATVs. We observed many quads while on the road and heard a few others while we were in the ER. We saw no other trucks.
- The road provides access to a popular climbing area (Asimov Wall) outside of the ER.
- Part of the access road cuts right through the ER (see pictures below of Ian Adams' GPS maps in his truck and on his iPad showing we are on the road and in the ER).



### Warden Activities

- We walked into the centre of the ER and explored in various directions looking for the seasonally moist *Carex* meadow (see GPS track on page 4 of this report).
- I took pictures of timber cruising plaques. Ian Adams took one of the plaques to get additional information about it from Kari Stuart-Smith who works for Canfor.



- Ian Adams and I recorded observations of plant, fungi and lichen species made by field trip participants, as well as birds. We noted other evidence of animal species (bird song, ungulate scat).
- Ian Adams posted an [eBird report](https://ebird.org/checklist/S141934910) – see <https://ebird.org/checklist/S141934910>.
- Ian Adams and I both took pictures of organisms and we each posted observations to iNaturalist (see map below).



## Wardens' Conclusions, Proposals and Suggestions

### Conclusions

- During our exploration of the ER on June 16, 2023, field trip participants could find no evidence of there being a recent mature forest of subalpine fir, Engelmann spruce and lodgepole pine and found no sign of any wet sedge meadow, nor any *Carex* species inside the ER boundaries nor anywhere near the perimeter of the ER. The area we travelled through is comprised of a post-logging mishmash of species.

- Sadly, this is a rather mediocre piece of ground, ecologically. It likely would have been even less impressive following logging operations. In his report, Dr. Jack Maze mentions logging in the Mount Sabine area that would have taken place in the 1960s. He thus recommended protecting an area that still had intact forest around a seasonally wet sedge meadow. However, it appears from the stumps and age of trees inside the ER that trespass logging took place in the ER in the mid-1990s and plaques left by timber companies proves that additional timber cruising operations took place within the ER's boundaries as late as 2004/05.
- It seems pretty clear that either the original descriptions or understandings based on Dr. Jack Maze's report were wrong (right location but wrong description) or more likely that the wrong geographical references were used in describing it (right description but wrong location).



#### Follow-up on Suggestions Made in 2022 – Items Completed and/or Underway

- One suggestion from last year's annual report that was completed related to documenting the history of this ER. I contacted Bristol Foster, Hans Roemer, Jim Pojar and others to better understand how this site was selected and why the boundaries are where they are. See Background for Objective #1, pages 5-6 of this report. All agreed that it would be worthwhile to continue to find out more about the history of this ER.
- When asked, BC Parks regional staff said that they were reasonably certain that the boundary was never officially surveyed with corner pins. At least no one was aware of any official record of this having been done. Presumably, some sort of survey would have informed the gazetting process following the Order in Council in May 1971 to establish this ER and the ER boundaries that appear in the BC Data Catalogue, on topographic maps, GPS apps like Gaia and Strava, and on iNaturalist.



- Ian Hatter, Trevor Kinley, Liza Pegura and I inadvertently investigated adjacent Crown land in the East Side Columbia Lake Wildlife Management Area for ecological and biological values while exploring the ER perimeter on September 10, 2022 due to the discrepancies with the Gaia app leading to uncertainty about where the boundaries were. Part of the route taken on June 16, 2023 also took field trip participants just outside of the ER to avoid difficult terrain and deadfall. As a result, some observations we posted on iNaturalist turned out to be just outside the ER.
- Following the field trip, I contacted Dr. Jim Pojar and obtained a copy of Dr. Jack Maze’s 1970 proposal, including the UTM coordinates he used and a topographic map showing the approximate location. Trevor Kinley used Google Earth to try to locate any potential remnants of sedge meadows and mature Engelmann spruce forest within or adjacent to the ER. More systematic work using satellite imagery, a drone and ground-truthing is needed to try to find the ecological values that were to be protected by this ER.



Due to the difficulty of access and dense vegetation, employing a drone and one or more wildlife cameras would make ongoing monitoring of the Mount Sabine ER more effective and efficient.

### Follow-up on Suggestions Made in 2022 –Tasks Remaining

- The following tasks mentioned in the 2022 annual report still need to be done. They are listed in order of priority.
  1. BC Parks Ranger - Move the directional sign that is in the wrong place to the correct location.
  2. BC Parks Ranger and/or ER Warden(s) – Obtain generic BC Parks Ecological Reserve signs and clearly mark the boundary of the ER (see map on page 18) using agreed upon boundaries (recommend the ER boundaries that appear in the BC Data Catalogue). Remove all other flagging tape and timber cruising markers.

3. ER Wardens and BC Parks - Discuss acquiring and setting up at least one wildlife camera to document wildlife use of the area for a specified time with a schedule for accessing, downloading and sharing the pictures obtained.
4. ER Wardens and BC Parks – Discuss using a drone to help to monitor this ER. A drone may have greater success finding the seasonally wet *Carex* meadow, the reason Dr. Jack Maze originally proposed the site be set aside as an ER. Wayne Stetski volunteered to email BC Parks staff to get the conversation started. See Appendix B for correspondence on this topic on pages 25 and 26 of this report. I learned on August 10, 2023 that Parks Canada is using a drone to monitor vegetation in response to climate change in Mount Revelstoke and Glacier national parks and would be willing to assist BC Parks with doing something similar. All appropriate permits for using a drone for monitoring and research purposes would need to be applied for and obtained.
5. BC Parks Regional Staff and ER Wardens - Clarify which agency (Village of Canal Flats, a timber company, or most likely, the Ministry of Forests District Office in Cranbrook?) is responsible for road maintenance in the area and see if some minimal level of maintenance can be done as far as the Mount Sabine ER.
6. BC Parks Area Manager – If no evidence of an official survey can be found, arrange to have an official survey of the boundary scheduled and conducted.
7. ER Wardens - Set up biodiversity monitoring plots and a schedule to inventory the baseline biodiversity and monitor change in species composition with climate change.

### New Suggestions in 2023

- Field trip participants discussed the ecological merits of the Mount Sabine ER as it is currently configured. An option is to keep the ER boundaries as is and officially redefine its purpose to focus on monitoring vegetation change over time given past land use (logging) and climate change. This would fit with one of the ecological purposes listed in the *Ecological Reserves Act* for an ER – “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”.
- Another option is to further explore inside the ER and adjacent parts of the East Columbia Wildlife Management Area to try to find the seasonally moist *Carex* meadow or fen (if it hasn’t dried up) in the original 50-acre parcel proposed for protection by Dr. Jack Maze in 1970 (based on the topographic map and UTM coordinates in Dr. Jack Maze’s International Biological Program Assessment Report) and recommend to BC Parks that the ER boundaries be relocated to include it. The feasibility of making such a boundary adjustment should be discussed with BC Parks staff, land use planning staff, and others as required.



- On August 22, Trevor Kinley provided Google Earth maps showing other likely areas in the vicinity of the Mount Sabine ER within the East Columbia Lake Wildlife Management Area. “Perhaps the little wetland at UTM 11 586520 x 5562300 (see Figure A below), which is just off the same road about 2.5 km the NNE, might be what was originally targeted. If you’re on Google Earth, go to the 2005 imagery and zoom in to that spot – it looks like it had been logged in the last few decades prior to that (the 1985 imagery is a bit too fuzzy to be of much use there). Or maybe the intended spot was the larger wetland at 11 587300 x 5563700 (see Figure B below). The latter actually does look like it fits the description and has enough forest around it to be possibly suitable. It’s about 10x the size of the first one – maybe 4 ha of wetland. I can see various other little bits of wetland up on that mountain and plateau.”



- Wayne Stetski told us that when he was District Manager for the East Kootenays, he and his BC Parks staff considered giving up the Mount Sabine ER if they could use its hectares to potentially create a new ER in the region or add acreage to the Columbia Lake ER. Several ecologically important wetlands and tufa deposits lay just outside the Columbia Lake ER, which was set aside “to protect calciocolous vegetation<sup>1</sup> and ecosystems representative of the Interior Douglas-fir.” This course of action was not pursued as there was a risk that giving up Mount Sabine ER would just result in one less ER with no guaranteed compensation in hectares protected.
- The situation is more complicated now. BC Parks lost its authority to designate new protected areas on Crown land in 2017 when the Ministry of Environment and Climate

<sup>1</sup> Calciocolous vegetation includes plants that thrive in lime-rich (or calcareous) soil. The word is derived from the Latin 'to dwell on chalk'. An individual “calcium-loving” plant species is called a calcicole, calciphyte or calciphile.

Change Strategy was established to focus on environmental policy and the Ministry of Forests, Lands, Natural Resource Operations and Rural Development was established to oversee natural resource management and land use planning on Crown land. Also, the implementation in 2021 of the [new modernized land use planning process](#), is not explicit on how new protected areas can be identified, assessed, and designated and its outcomes are reconciliation, a strong, sustainable economy, and resource stewardship.

- No field trip participant recommends giving up the area protected by the Mount Sabine ER given the recent experience with the Big White ER. When Big White Ski Resort began to cut a new run in what was thought to be the ER, it was discovered that BC Parks had made a clerical error in identifying the boundary location. This error was “corrected” in 2021, the 50th anniversary of the passing of the *Ecological Reserves Act*, by cutting 3.5 hectares from the ER, resulting in **fewer** hectares protected<sup>2</sup>.



If the seasonally wet *Carex* meadow and surrounding Engelmann spruce forest cannot be found within the current boundaries of the Mount Sabine ER, BC Parks may need to officially redefine this ER’s purpose to focus on monitoring vegetation change over time given past land use (logging) and climate change.

<sup>2</sup> See <https://ecoreserves.bc.ca/2021/01/29/big-white-ski-resort-proposed-master-plan-update-and-ecological-reserve-concerns/> and <https://ecoreserves.bc.ca/2021/02/22/update-big-white-proposed-development/>.



## Appendix A: Tracking Biodiversity – Toward a Species List for Mount Sabine Ecological Reserve

This list includes both the common and scientific names for species mentioned in the Mt. Sabine Field Trip Reports in September 2022 and June 2023. Naming protocols follow iNaturalist and eBird.

### Animals

#### Arthropods

Bowl-and-doily spider, (*Frontinella pyramitela*)

Flower crab spider, (*Misumena vatia*)

Maple erenium mite (*Aceria calaceris*)

#### Birds

Ruby-crowned kinglet, (*Corthylio calendula*)

Red-breasted nuthatch, (*Sitta canadensis*)

Swainson's thrush, (*Catharus ustulatus*)

Cedar waxwing, (*Bombycilla cedrorum*)

Pine siskin, (*Spinus pinus*)

Mountain chickadee, (*Poecile gambeli*)

Dark-eyed junco, (*Junco hyemalis*)

Yellow-rumped warbler, (*Setophaga coronata*)

Townsend's warbler, (*Setophaga townsendi*)

Black-backed (three-toed) woodpecker, (*Picoides arcticus*)

Pileated woodpecker, (*Dryocopus pileatus*)

#### Mammals

American black bear, (*Ursus americanus*)

American red squirrel, (*Tamiasciurus hudsonicus*)

Moose, (*Alces alces*)

Rocky Mountain elk, (*Cervus canadensis* ssp. *canadensis*)

Rocky Mountain mule deer, (*Odocoileus hemionus* ssp. *hemionus*)

White-tailed deer, (*Odocoileus virginianus*)

#### Lichens

Dog pelt lichen (*Peltigera canina*)

Freckled pelt lichen, (*Peltigera aphthosa*)

Veinless pelt lichen, (*Peltigera malacea*)

Wolf lichen, (*Letharia vulpina*)

Smooth horn lichen, (*Cladonia gracilis*)

#### Fungi

Conifer mazegill, (*Gloeophyllum sepiarium*)

Rufous milkcap, (*Lactarius rufus*)

No common name, (*Cystodermella granulosa*)

Northern red belt, (*Fomitopsis mounceae*)

## Plants

Austria timmia moss, (*Timmia austriaca*)  
Bearberry, (*Arctostaphylos uva-ursi*)  
Birch-leaved spirea, (*Spiraea betulifolia* var. *lucida*)  
Broad-leaved arnica, (*Arnica latifolia*)  
Bronze bells, (*Anticlea occidentalis*)  
Canada Buffaloberry, (*Shepherdia canadensis*)  
Canadian bunchberry, (*Cornus canadensis*)  
Creeping mahonia, (*Berberis repens*)  
Common juniper, (*Juniperus communis*)  
Curved-beak lousewort, (*Pedicularis contorta*)  
Douglas fir, (*Pseudotsuga menziesii*)  
Englemann Spruce, (*Picea engelmannii*)  
Fragile fork-moss, (*Dicranum tauricum*)  
Heartleaf arnica, (*Arnica cordifolia*)  
Hooker's pusseytoes (*Antennaria racemosa*)  
Lodgepole pine, (*Pinus contorta* var. *latifolia*)  
Mock azalea, (*Rhododendron menziesii*)  
Mountain sweet-cicely (*Osmorhiza berteroi*)  
Multiflora Rose Rust (*Phragmidium rosae-multiflorae*)  
Nodding thread moss, (*Pohlia nutans*)  
Northern bedstraw, (*Galium boreale*)  
One-sided wintergreen, (*Orthilia secunda*)  
Paper birch, (*Betula papyrifera*)  
Pearly everlasting, (*Anaphalis margaritacea*)  
Pine reed grass, (*Calamagrostis rubescens*)  
Prickly rose, (*Rosa acicularis*)  
Pipsissewa, (*Chimaphila umbellata*)  
Purple clematis, (*Clematis occidentalis*)  
Red-stemmed feather moss, (*Pleurozium schreberi*)  
Rocky Mountain maple, (*Acer glabrum*)  
Saskatoon, (*Amelanchier alnifolia*)  
Scouler's willow, (*Salix scouleriana*)  
Showy aster, (*Eurybia conspicua*)  
Sitka alder, (*Alnus alnobetula* ssp. *sinuata*)  
Subalpine fir, (*Abies lasiocarpa*)  
Swamp currant, (*Ribes lacustre*)  
Twinflower, (*Linnaea borealis*)  
Utah honeysuckle (*Lonicera utahensis*)  
Veiny meadow-rue (*Thalictrum venulosum*)  
Western larch, (*Larix occidentalis*)  
Western meadow-rue, (*Thalictrum occidentale*)  
Western rattlesnake plantain, (*Goodyera oblongifolia*)  
Western roughleaf violet, (*Viola orbiculata*)  
Western snowberry, (*Symphoricarpos occidentalis*)  
White spruce (*Picea glauca*)  
Wild strawberry, (*Fragaria vesca*)  
Yellow columbine, (*Aquilegia flavescens*)  
Yellow sweet-vetch, (*Hedysarum sulphurescens*)



## Appendix B: Correspondence re: Ecological Reserves and Drones

18 Jun  
2023, 09:37

### Email from Wayne Stetski

<wayne.stetski@gmail.com>

to Steven, Marika, cc: Ian, Jenny

Hi Steven - hope life is treating you well!

Last week Jenny, Ian and I spent half a day bushwhacking through Mt. Sabine ER looking for a fen that was critical to the establishment of the ER. We were using the best technology currently available in mapping on our devices.

We never did find it (could be changes to watercourses or a misplaced boundary on establishment) but we were thinking how helpful a drone would have been to narrowing down the search.

That led to further thinking and discussion to how helpful drones could be to managing the backcountry in BC Parks given limited Ranger presence.

Is this something you would be interested in? If you wanted to purchase and tryout the use of a drone in ER management and/or Parks, the Kootenays would be a great place to start!

Wayne Stetski  
ER Warden  
250.919.9187

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### Email From: Jenny Feick

To: Steve Bercek, cc: Wayne Stetski

18 Jun 2023,  
10:06

Hi, Steven. Following up on Wayne's email, using a drone to monitor this quite inaccessible ER was something I suggested in my annual report last year for Mount Sabine ER.

### Email from Steven Bercek

**From:** Bercek, Steven ENV:EX <[Steven.Bercek@gov.bc.ca](mailto:Steven.Bercek@gov.bc.ca)>  
**Sent:** Thursday, August 3, 2023 3:28 PM  
**To:** Vander Steen, Benjamin ENV:EX <[Benjamin.VanderSteen@gov.bc.ca](mailto:Benjamin.VanderSteen@gov.bc.ca)>  
**Subject:** FW: Ecological Reserves and Drones

FYI – Use of Drones in PPPA and ER is not allowed. New Regulations coming into effect this fall (Sept/2023 re: ERs). Unless maybe for research with PUP.

### Email from Chris Price

----- Forwarded message -----

**From:** Price, Chris ENV:EX <[Chris.Price@gov.bc.ca](mailto:Chris.Price@gov.bc.ca)>  
**Date:** Fri, Aug 4, 2023 at 10:28 AM  
**Subject:** RE: Ecological Reserves and Drones  
**To:** [wayne.stetski@gmail.com](mailto:wayne.stetski@gmail.com) <[wayne.stetski@gmail.com](mailto:wayne.stetski@gmail.com)>  
**CC:** Zealand, Kate ENV:EX <[Kate.Zealand@gov.bc.ca](mailto:Kate.Zealand@gov.bc.ca)>, Hoskins, Becs ENV:EX <[Becs.Hoskins@gov.bc.ca](mailto:Becs.Hoskins@gov.bc.ca)>, Vander Steen, Benjamin ENV:EX <[Benjamin.VanderSteen@gov.bc.ca](mailto:Benjamin.VanderSteen@gov.bc.ca)>, Welsh, Marika ENV:EX <[Marika.Welsh@gov.bc.ca](mailto:Marika.Welsh@gov.bc.ca)>

Hi Wayne,

I have been asked to respond back to your e-mail. My apologies on the delay, I just received this e-mail from Steven Bercek who is leaving on a Temporary Assignment for another ministry. I don't know if you have received a response on this, so if you have you can probably disregard this e-mail.

I agree that drones are very useful for certain park management activities and we have, on occasion, authorized the use of drones for research or other purposes within parks and protected areas. Drone use is primarily regulated by the Federal Government and any requests for the use of drones must comply with any and all applicable federal regulations in addition to any authorization we provide.

Drone use in ecological reserves is restricted to either a permit authorizing the use, or for management, research or educational purposes conducted on behalf of the Minister.

So it is certainly an option where it is appropriate. Regional staff would be the ones that would consider requests for the use of drones in parks and ER's under permit or for management purposes. Please continue to reach out to them with any ideas or suggestions you have for park management improvements.

Cheers,  
Chris.

*Chris Price* (he\him)  
Safety, Compliance and Enforcement Specialist  
BC Parks, Regional Operations Branch  
Ministry of Environment and Climate Change Strategy  
778-671-0132