

Coats Marsh and surrounding public lands

Paper on the ecology of the region on Gabriola Island, BC based on field observations 2009–2019 with emphasis on future land-use zoning and management

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Definitions and acronyms

Words in italics have a particular meaning in [this paper](#) and in its supplements ([Ref. 9](#) (hydrogeology); [Ref. 13A](#) (flora); [Ref. 13B](#) (fauna); [Ref. 3A](#) (geology)) that sometimes differs from their more general meaning. See also the Gabriola Streamkeepers glossary ([Ref. 9G](#)).

area specifically one of the six areas identified in the first pages of this paper.

region all six of the *areas* identified in the first pages of this paper.

closed basin basin receiving water from surrounding upland only, no inlet or outlet channel.

ecological reserve specifically as used in the Islands Trust Land Use Bylaws a reserve established by the Province on Crown Land of which there is none in the *region*. The term is also used without italics in its more general sense.

(*Genus species*) scientific name of flora and fauna. The italics are conventional usage.

(*Order great group, subgroup*) Canadian System of Soil Classification.

lake see *marsh*.

marsh specifically the body of open water in Coats Marsh RP, but generally a shallow-water wetland, flooded year round and without trees. Some times identified as “the lake” here and in the Coats Marsh field notes, even though the wetland is technically too shallow to be classified as such.

spring “spring” in its general sense of an artesian flow of groundwater to the surface. It does not include, as it sometimes does on Gabriola, drainage from the surrounding upland, *subsurface* flows, or seepages.

subsurface in the context of Gabriola hydrology, water flow (runoff) just a few metres at the most below the surface. Not groundwater.

swamp specifically meadows in the *region* that are temporarily flooded each winter, few trees, but surrounded by forest.

weir the concrete structure with wooden baffle at the outlet of the *marsh* in Coats Marsh Regional Park. The headwaters of Coats Marsh Creek.

707 CP the 707 indicated the area of this community park in acres at the time it was first proposed. “Acres” was later dropped from its official name to avoid the need for re-naming the park every time its acreage changed.

> (<) greater (less) than

AMSL above (the current) mean sea level

ATV all-terrain vehicle
BC British Columbia
BC species status list: see red-, blue-, and yellow-listed
BHcirc. breast-height circumference (of trees)
blue-listed species of concern on the BC species status list
ca. circa
CP Community Park
F Islands Trust Forestry Zone
Fig. figure number
ft. foot, feet
GaLTT Gabriola Land and Trails Trust
GSK Gabriola Streamkeepers
IT Islands Trust
L/s litres per second
LTC Islands Trust, Gabriola Island Local Trust Committee
LUB Land Use Bylaw (of the LTC)
m metres
mm millimetres
MOTI Ministry of Transportation and Infrastructure
NE northeast
NW northwest
OCP Official Community Plan (of the LTC)
P Park Zone (of the LTC)
P4 Ecological Protection Zone, an LTC zone currently only in a study phase
p. page number
para. paragraph
pp. page number range
POSAC Parks and Open Spaces Advisory Committee (area B of the RDN)
R Islands Trust Resource Zone
RAR Riparian Area Regulations (provincial)
red-listed an endangered species on the BC species status list
RDN Regional District of Nanaimo
ref. reference document
REM remainder of a section or sub-section, land-survey term
RP Regional Park (of the RDN)
RR Islands Trust Residential Resource Zone
SE southeast
SEI Islands Trust Sensitive Ecosystems Inventory

SEM Islands Trust Sensitive Ecosystems Mapping System
TEM Terrestrial Ecosystem Mapping of the Coastal Douglas-Fir Biogeoclimatic Zone
sp. species (singular)
spp. species (plural)
ssp. subspecies
Sec. Section (land-survey term)
SW southwest
TNT The Nature Trust of British Columbia
var. variety (of a species)
VI Vancouver Island
VIP Vancouver Island land-survey Plan
W west
yellow-listed a native species apparently secure but on the BC species status list

Legal boundaries within the *region of interest*

Definitions

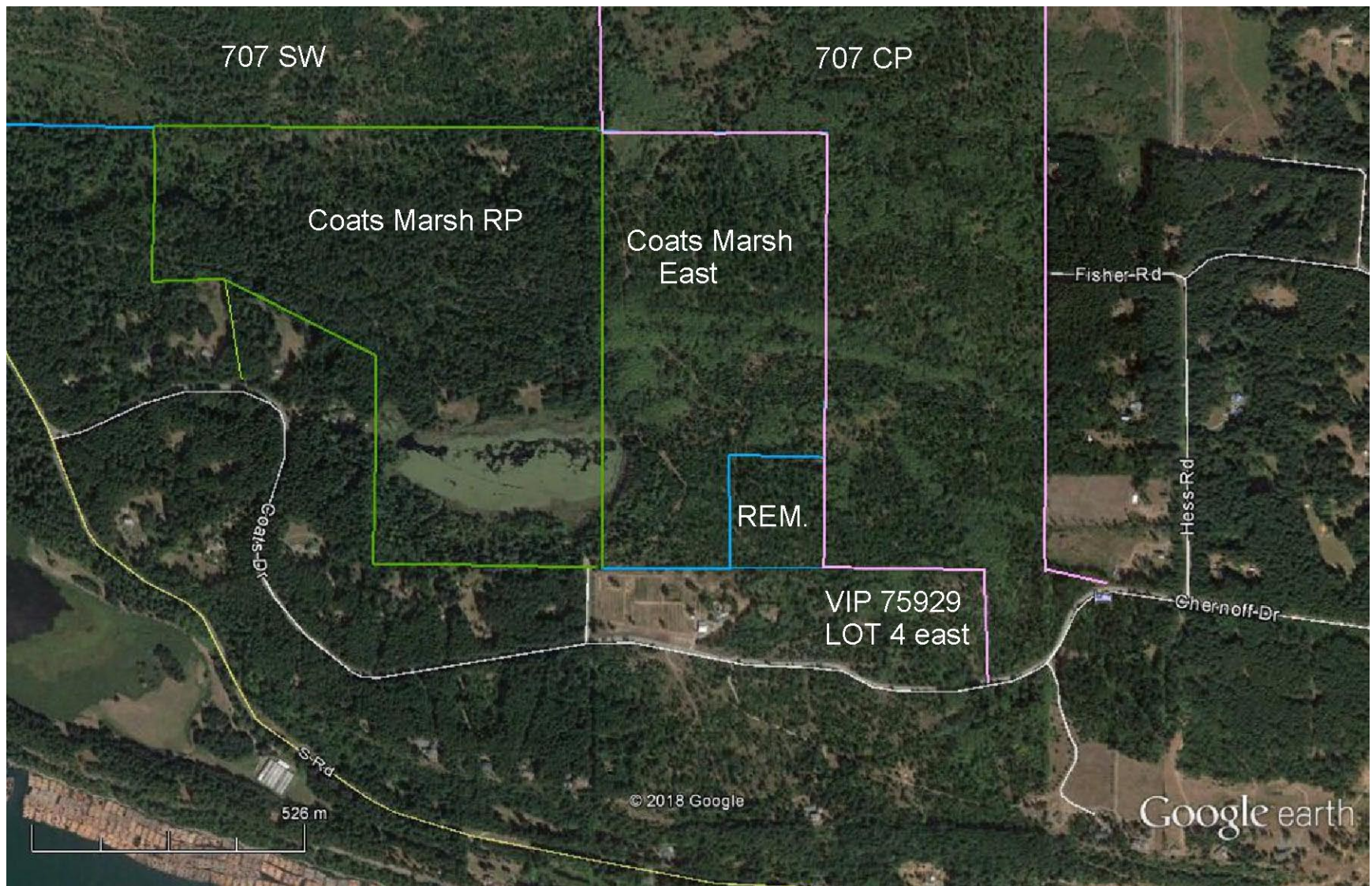
The *region* considered in this paper is the six *areas* shown in the following map.

The six *areas* identified in the map are:

- [1] Coats Marsh RP (Regional Park)
- [2] Coats Marsh East (W½ of NE¼ Sec. 10 except remainder)
- [3] REM. (Remainder of W½ of NE¼ Sec. 10)
- [4] VIP 75929 LOT 4 east
- [5] 707 CP (Community Park), consisting only the partial area of the park shown
- [6] 707 SW (southwest) (SE¼ Sec. 13 except.. and SW¼ of Sec.14), consisting only the partial area shown.

Islands Trust - Local Trust Committee (LTC) Zoning

- [1] Coats Marsh RP. Currently zoned Resource (R). This needs to be re-zoned Park (P) and the existing densities extinguished as requested by The Nature Trust of BC (TNT) who co-own the park with the RDN. The RDN have no objection to such a change. This has been an on-going project with the LTC since May 2015.
- [2] Coats Marsh East. Currently zoned Forestry (F) but destined shortly to become zoned Park (P).
- [3] REM. Privately owned. Zoned Forestry (F) and, despite being only 3.5 hectares, retaining principal and accessory uses, setbacks etc. applicable normally to 60-hectare parcels with this zoning. Access to any dwelling built on this parcel would be via Stanley Place and a driveway along the southern boundary of Coats Marsh East [2] crossing East Path Creek. The Ministry of Transportation and Infrastructure (MOTI) would be responsible for approving any such driveway, which in a riparian area would be subject to provincial regulations.
- [4] VIP 75929 LOT 4. Privately owned. The entire lot is zoned Resource (R). There is no formal legal division between east and west.
- [5] 707 Community Park. Zoned Park (P).
- [6] 707 SW. Currently zoned Forestry (F) but destined shortly to become zoned Park (P).



Park (P) Zones

P zones under the current Official Community Plan (OCP) Land Use Bylaw (LUB) No. 177 Section D - Recreation and Institutional Zones are:

- P1 Provincial and Regional Parks (D.4.1);
- P2 Passive Recreation Community Parks (D.4.2); and
- P3 Active Recreation Community Parks (D.4.3).

All three of these park zones allow for human activity. The term *ecological reserves* in the LUB refers only to reserves established by the Province on Crown Land and so have no bearing on the *region*. Moves to create a fourth park zone (P4 Ecological Protection Zone) are currently only in a study phase.

In the proposed P4 zoning, non-human ecological concerns would be paramount, no infrastructure would be allowed, tourism would not be encouraged, and wildlife habitat would be left undisturbed. Given the IT mandate to “preserve and protect”, P4 zoning, including where necessary and achievable “effective P4-type zoning” within P1 regional parks and P2 community parks, would seem to be an essential tool of the LTC.

Relationships between areas

Of the six *areas*, I will assume for present purposes that the 707 SW land [6] will become integrated with the 707 CP [5], noting here that the official name of this Community Park is “707 CP” not “707 acre CP”, so re-naming will not be called for.

I am not assuming here that Coats Marsh East [2] will also be integrated into the 707 CP [5], on the contrary, I want to argue here that this should not be the case; however, I have been told by the RDN that Coats Marsh East [2] cannot be integrated into Coats Marsh RP [1] because, despite the logic of so doing, under the terms of its acquisition Coats Marsh East [2] must become a community park, not a regional park.

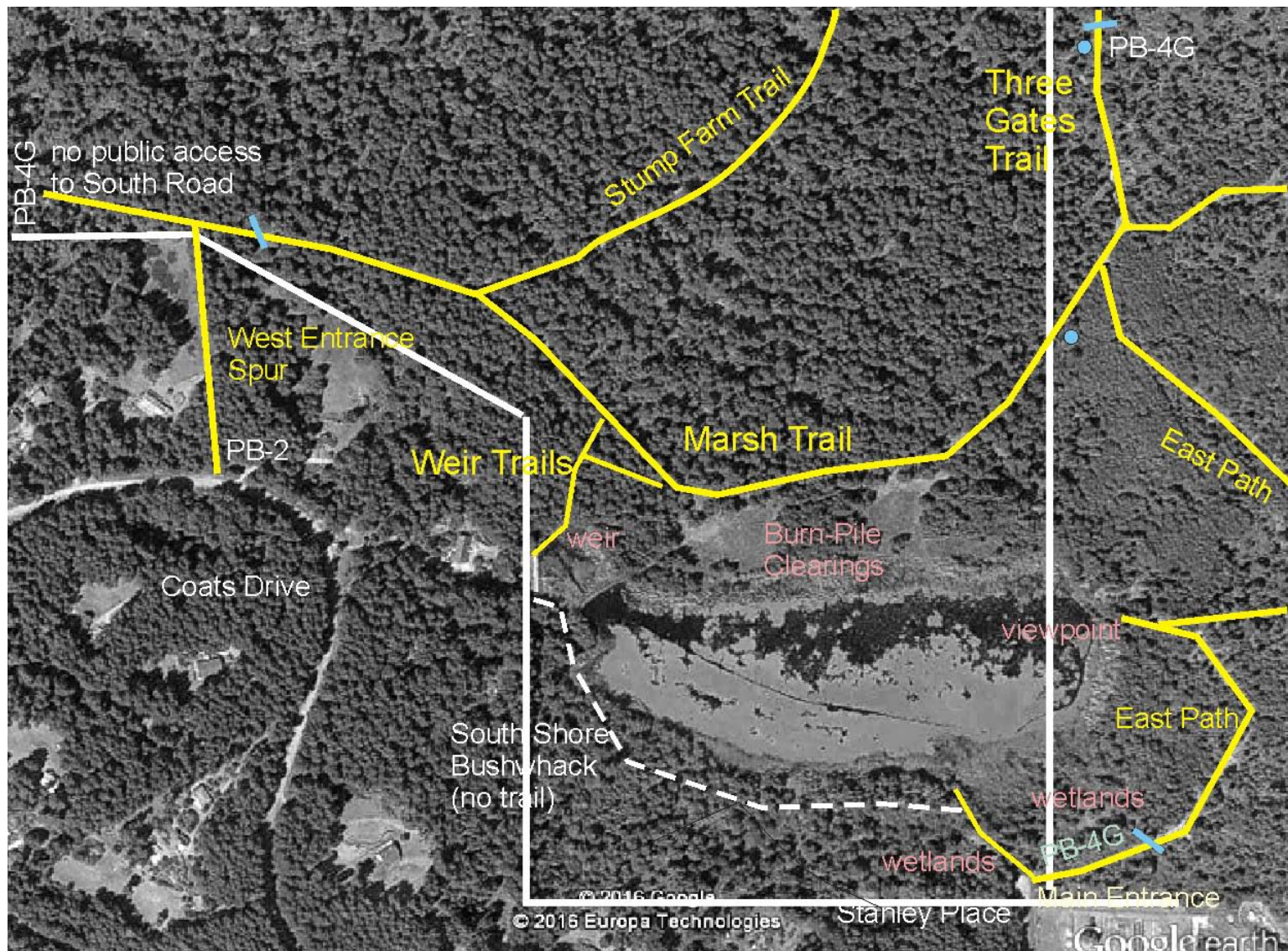
The whole of VIP 75929 LOT 4, bounded by Coats Drive to the south, is privately owned. The eastern approximate half of LOT 4 [4] is undeveloped and is a *swamp* ecologically integrated with the *marsh* in the Coats Marsh RP [1] to which it is connected by the watercourse of East Path Creek. The western approximate half of LOT 4, bounded by Stanley Place to the west, has dwellings and a cultivated orchard and so is not involved in this discussion.

Current trails, placenames, and access

Trail and placenames are as defined in [Ref. 14](#), extracts of which are included here showing the ecologically sensitive parts of the *region*. The names in this reference sometimes differ from, or add to, the official names assigned by the RDN-POSAC, sometimes without public scrutiny, for several reasons, the main two being:

- some names pre-date official naming and are still in use (by me at least); and
- some names have no official name because they are “side” trails, or are deemed (optimistically) to be “closed”, or are user-created trails.

Signage in the 707 CP has been criticized in the past, it being based on naming “branches” of the network rather than its “nodes”, a trend started by GaLTT volunteers who at the outset were over-fond of signing “loops”. Loops may leave trail users lost if they stray off them because some users have little idea where they are without signage. This is dangerous. Maps that show only authorised trails and do not acknowledge trails that are unofficial, yet nevertheless exist, can confuse. ([Ref. 14G](#), [Ref. 14R7](#), [Ref. 14RC](#))



southern part of COATS MARSH RP and West Entrance Spur (road allowance)

Current trails in Coats Marsh RP [1]

The Management Plan reads: "...because of the sensitivity of developing plant communities and wildlife species within the park, all park trails and designated recreational areas in Coats Marsh RP are for pedestrian use only, with no access for dogs and horses. As with all other Regional and Community Parks, off road vehicle and ATV use are prohibited." ([Ref. 1](#), p.19, para. 3.3.5)

A contentious issue with trails in the Coats Marsh RP *area* is the proposed development of the South Shore Bushwhack along the southern shore of the *marsh*. ([Ref. 15](#)) If this were to proceed, this would lead to a serious degradation of the wildlife habit in the marsh that is used by ducks that breed in tree cavities some distance from the water's edge, and is quite contrary, according to this Management Plan quote: "...the main management objective for the Coats Marsh Regional Park property as identified by the Ecological Gift's program, the TNT/RDN Lease Agreement, and community consensus, is environmental conservation. Human access to the park property is secondary..." ([Ref. 1](#) p.19, para. 3.3.5).

Fortunately, plans to develop this trail were held in abeyance by the RDN following letters from GaLTT, Gabriola Streamkeepers (GSK), and myself, and with support from TNT pending the then possible acquisition of the East Path which provides north-south connectivity.

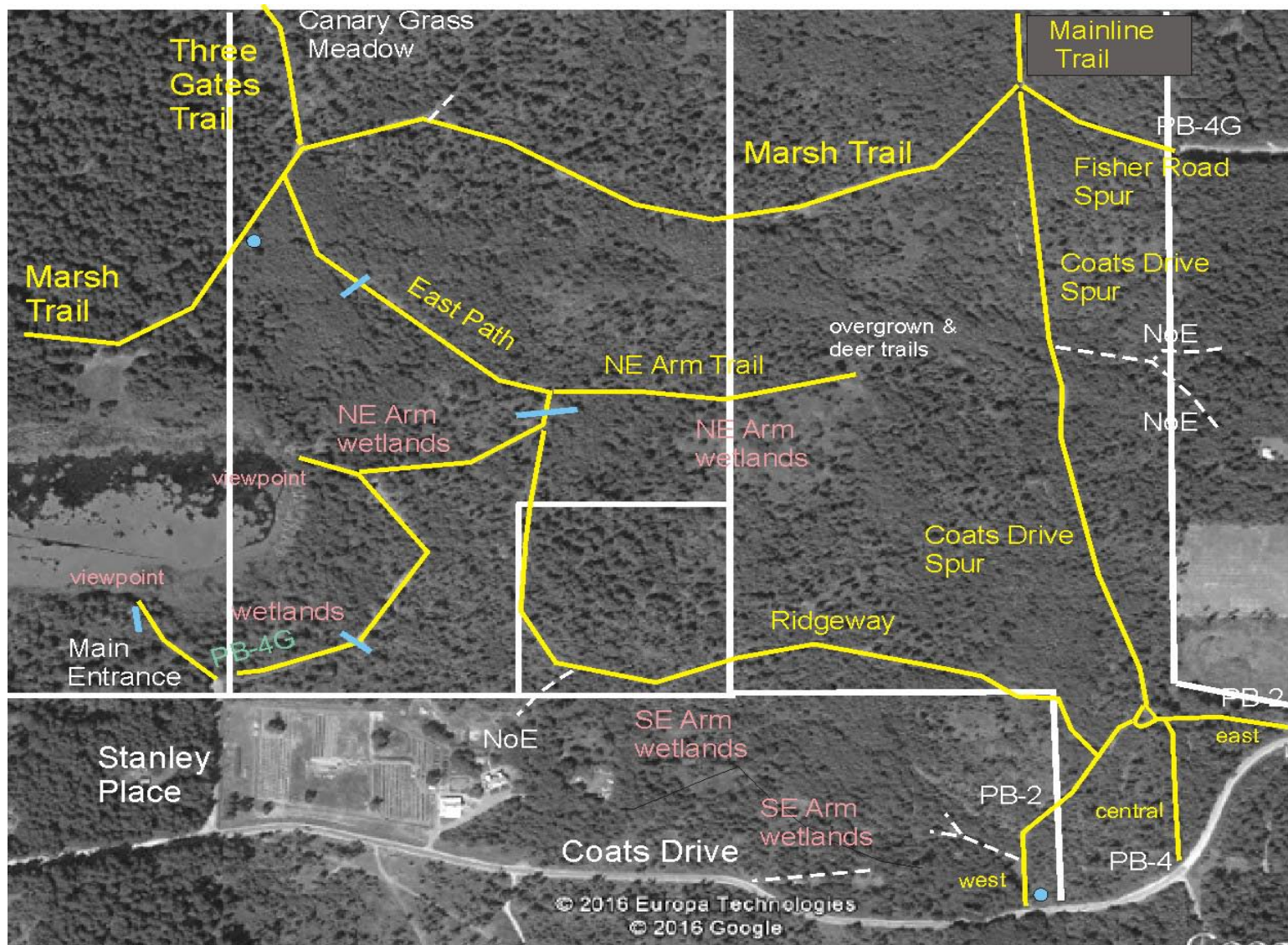
The Stump Farm Trail leading across to the Three Gates Trail can be open for public use now that all the buildings on the old Stump Farm site have been demolished.

The current Management Plan for the Coats Marsh RP specifically calls for avoidance of trail building in ecological sensitive areas. ([Ref. 1](#) p.15, para. 3.2) A quote from the Management Plan consultants about one such area, which I fully agree with, reads:

"...the wildlife habitat area as shown... has a large proportion of mature, dying, and dead alder and maple, plus a cedar snag and a veteran fir. All of these trees have high wildlife value. These trees are potentially more hazardous to park users than trees in most other area of the park. We suggest that this area not be identified on park maps and that trails not be located in immediate proximity to this area. It would be best to not bring attention to this area and to leave it to the birds, bats and other wildlife." ([Ref.1A](#), pp.24–25)

This recommendation was adopted as a policy in the final version of the plan: "...the development of trails in the northwest corner of the park, in the vicinity of a valuable habitat area should be avoided". ([Ref. 1](#), para. 3.3.3)

The construction of mountain-bike trails ([Ref. 14MB](#)) without due process, while currently tolerated in the 707 CP, should not be acceptable in the Coats Marsh RP [1] and by extension in at least some parts of Coats Marsh East [2].



southern part of COATS MARSH EAST, REM, SE corner of 707 CP, and VIP 75929 LOT 4

Current trails in Coats Marsh East [2] and the REM [3]

Coats Marsh East has been well served by the opening up of the whole of the Marsh Trail from east (the Fisher Road Spur in the 707 CP) to west (the West Entrance Spur in Coats Marsh RP shown in the previous trail map). It also provides connectivity with the Three Gates Trail in the 707 SW.

The East Path connects the Main Entrance of the Coats Marsh RP on Stanley Place with the Marsh Trail and ultimately to all the 707 CP trails.

To offset these advantages is the serious potential loss of usage of the Ridgeway that runs diagonally across Coats Marsh East and through the REM, skirting the NE point of LOT 4, to the far SE corner of the 707 CP. This trail will not be easy to re-route around the private REM land because of swamps both north and south of it.

The NE Arm Trail skirts along the northern edge of the NE Arm wetland beginning in the west as an old logging road before ending close to the eastern boundary of Coats Marsh East. Continuing directly east from here into the 707 CP enters an area in the NE Arm wetland overgrown with reed canary grass with a high deer population in the late-spring fawning season.

There is currently no trail between the REM and Stanley Place along the southern border of Coats Marsh East, which is where one would need to be if the REM were to be developed.

Current trails in VIP 75929 LOT 4 east [4]

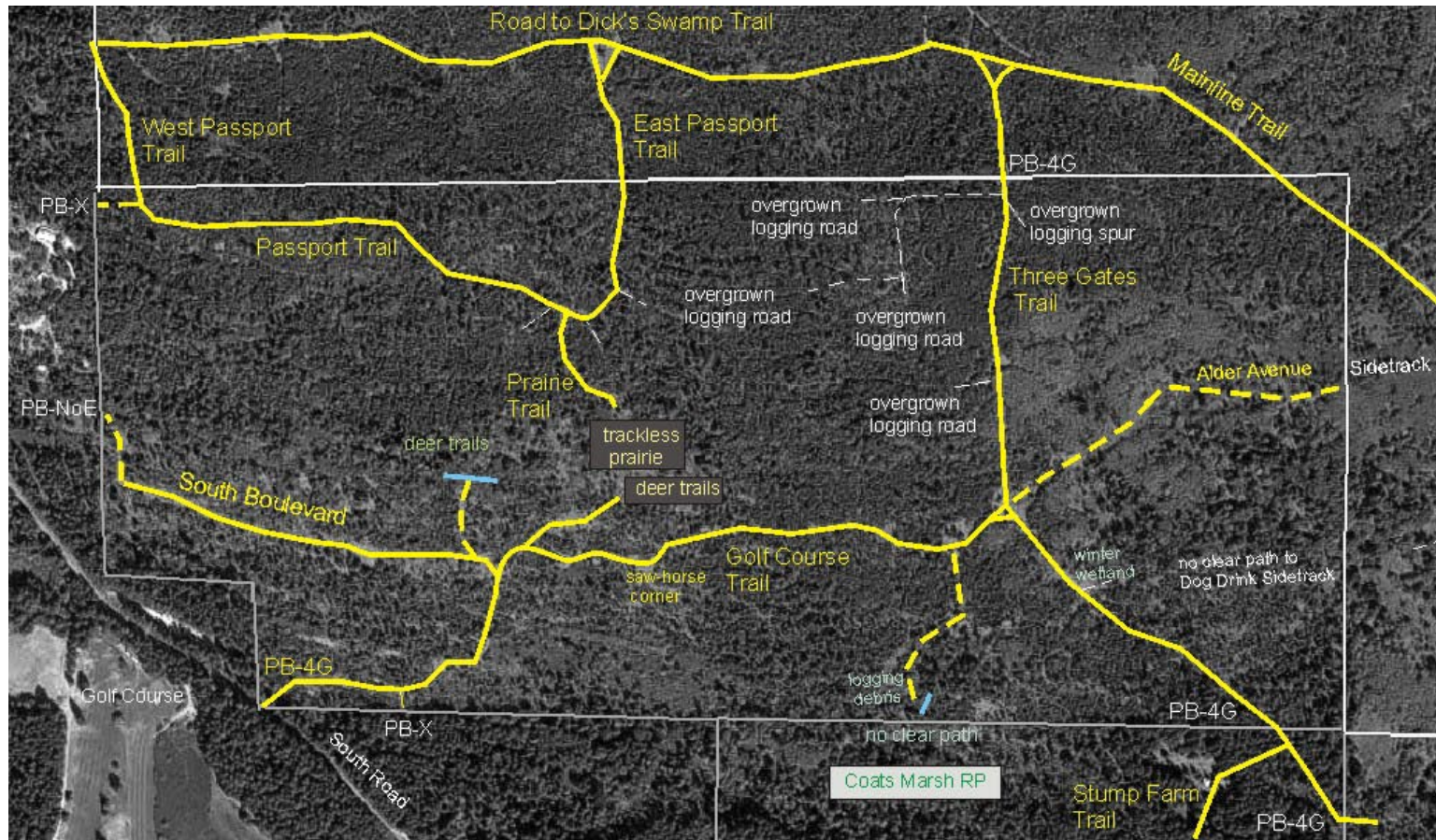
There are no trails in LOT 4 east except for the long-established informal Coats Drive Spur (west) leading from the 707 CP which wanders a few metres across the border before reaching the road. *Area* [4] is flooded in winter.

Current trails in the 707 CP [5]

Existing official 707 CP trails are classified as MAIN or SIDE. There are in addition to official trails a number of WOODLAND trails with their own names constructed informally by bikers for use by bikers. Not all of these are mapped.

MAIN trails are multi-use (hiking, running, biking, dog-walking, and horseback riding), are named, and are wide enough for wheelchair and emergency vehicle access. SIDE trails are narrow, unnamed trails, infrequently used, provide access for hiking and biking only, and pass through environmentally sensitive areas.

Unfortunately the distinction between MAIN and SIDE trails together with closed and unofficial trails is frequently unrecognized or not observed, particularly by dog-walkers and horse-riders. This may create problems where 707 CP side trails cross over into the environmentally more sensitive Coats Marsh RP and its adjacent areas where an extension of the regional park management principles is warranted. WOODLAND trails constructed by bikers, which in general are environmentally sensitive are nevertheless advertised on the web which has the negative effect of increasing biker traffic. This will eventually lead to conflict with other users. Multi-usage of trails only works when the density of all of the separate classes of users remains low.



707 SW

Current trails in 707 SW [6]

The existing trails are in good shape and no new trails are required as discussed later in this paper. The previous owner of the land while generously allowing public access required that there be no hunting, no dogs off-leash, and no vehicles.

This is in keeping with the widely and strongly expressed view by Gabriolans that the 707 CP management should focus on letting the park heal with minimum intervention; that the park plays a vital role in providing habitat for indigenous plants and animals; that the habitats and ecosystems that are evolving in the 707 CP need to be preserved and protected; and that there should be minimal and non-invasive signage, as well as minimal trail construction, keeping the paths as natural as possible. ([Ref.2](#), pp.8–9)

The Alder Avenue is an informal WOODLAND trail developed by bikers who have taken care to construct a bridge across the runoff channel from Randy Hollow wetlands in the 707 CP to Coats Marsh Creek. ([Ref. 14](#), map E2) It is only infrequently used and requires a modicum of navigational skills.

The Golf Course Trail provides unimpeded access to South Road. The Three Gates Trail linking the north of the 707 CP with the south is a popular alternative route to the Mainline Trail.

Management Plans

Management Plans exist for both Coats Marsh RP ([Ref. 1](#)) and the 707 CP ([Ref. 2](#)), but neither includes *areas* [2] and [6]. Both plans are due shortly for revision, particularly the Coats Marsh RP Plan, which in some respects is badly out-of-date.

Region's geology—a summary

To be found in [Ref. 3A](#), February 2019. There are no geological related issues, but it's the geology, particularly that of the soil, that for the most part determines the nature and locations of ecosystems.

Region's hydrogeology

To be found in [Ref. 9](#). Originally written in May 2015 this file has had major additions in February 2019 including a map of creeks and wetlands. See also [Ref. FN-C](#).

Region's wetlands and riparian areas

The *lake* and its catchment and riparian areas including the NE and SE Arm wetlands and East Path Creek are valuable ecological resources for Gabriola. Wetland ecosystems provide habitat for aquatic wildlife, are complex and distinct from the surrounding forest, provide forage and have high prey densities, provide drinking water for terrestrial animals, and are rare.

There are several issues needing to be addressed.

Considerations needs to be given most urgently to the fact that research has shown that the *marsh* is most definitely not sourced from groundwater springs contrary to many old anecdotal reports that it is. Summer water levels depend critically on both the activity of beavers who have enhanced the water storage capacity with their dam, and the lack of leakage through the wooden baffle at the weir. This baffle has already sprung a leak which at the moment is minor, but should the baffle fail completely the *marsh* will be drained and the area ecologically devastated.

Dealing with the baffle will offer an opportunity to review what are optimal water levels, the capacity of the pond leveller, and so on. These issues are discussed in [Ref. 9](#).

Proposals described in the current Management Plans for boardwalks and a trail along the shoreline of the *lake* greatly underestimate the very negative effect such structures would have on the wildlife in the *marsh*. ([Ref. 13C](#))

Having an administrative boundary separating the east shore of the *marsh* and the catchment area of the *marsh* from the rest of the *marsh* is going to create problems in an area that is so obviously ecologically integrated. An example of this is how to manage usage of trails that cross seamlessly into Coats Marsh RP [1] from the 707 CP [5], 707 SW [6], and Coats Marsh East [2].

Although some areas of the 707 CP are designated for limited access (low impact, pedestrian and bike access only) because of their ecological sensitivity, many trail users will be unaware of these restrictions.

Until these issues are resolved, no new cross-boundary trails should be contemplated.

Other considerations include more explicit bans on what is not allowed in ecosystem sensitive areas, for example, use of watercraft on the lake, use of drones over the lake, and ice skating.

On the issue of watercraft, the RDN Park Bylaw No. 1399, which states that "...dragging a canoe through the bush to the lake is expressly forbidden", has been interpreted by some to mean that carrying a canoe to the lake is acceptable practice and have published an account of a canoe trip to Coats Marsh RP on social media. Somewhere in the plan a statement is needed to the effect that use of watercraft of any kind (except under appropriate permit) is forbidden. An informative sign at the park entrance may also be required.

I am not aware of any use of drones for photography, but it is perhaps only a matter of time.

When the lake is iced over, ducks take refuge in the reedy margins and in the old cistern at the east end of the lake, which for some reason retains a small area of open water. The birds are very vulnerable to disturbance at these times and I always curtail my visits for this reason.

Creeks, wetlands, and riparian areas in Coats Marsh East [2] and VIP 75929 LOT 4 east [4] have to date received no official recognition of any kind.

Region's facilities

The section of the Coats Marsh Management Plan proposing facility development ([Ref. 1](#) p.20, para. 3.3.8) without regard as to how it would be accessed by vehicles should be scrapped and the Stump Farm clearing, once home to ladies' tresses (*Spiranthes romanzoffiana*) but now probably lost, left to recover naturally. A facility in one of the burn-pile clearings would damage habitat for insects and the several bird species and bats that feed on them, and interfere with the ducks' usage of the reedy shore-line for shelter. One of the key requirements in the process of balancing the needs of wildlife and providing human access, is that the access be light, not be encouraged in the way a facility would do.

Region's flora—a summary

To be found in [Ref. 13A](#).

The Islands Trust Sensitive Ecosystems Mapping (SEM) system ([Ref. 10](#)) which is based solely on aerial photographs, not ground surveys, is now out-of-date and lacks any reference to the

disproportionately important small riparian areas in the *region*, especially in Coats Marsh East [2]. It has become of very limited value as a planning tool.

Of the 123 species of wildflowers positively identified in the *region* to-date, one—angled bittercress (*Cardamine angulata*), ([Ref. FN-F](#), p.F72)—is BC status red-listed (endangered), 58 are yellow-listed (native, apparently secure), and four have unassigned status. About half of the species are exotic (introduced).

Region’s fauna—a summary

To be found in [Ref. 13B](#).

The *lake* is habitat for some sixteen species of swans, geese, ducks, and waders. They use it for wintering, breeding, as a moulting site, and as a migration stop-over.

None of the waterfowl except for a few mallards are year-round residents, but it is a popular place to overwinter especially among buffleheads, ring-necked ducks, and American widgeons. Other seasonally common birds are northern shovelers, migrant trumpeter swans, migrant Canada geese, migrant mallards, American coots, and wood ducks. In the breeding season, some with ducklings, are hooded mergansers, pied-billed grebes, gadwalls, and blue-winged teals. Also seen, but rarely, are green-winged teals, ruddy ducks, and yellowlegs.

Some of these nest in tree cavities some distance from the shore, hooded mergansers and wood ducks for example, which appear with ducklings every year, which emphasizes the importance of keeping human disturbance of the riparian area around the lake to an absolute minimum particularly of course in the breeding season.

Nearly all of these species will fly away to distant parts of the lake when humans openly approach the shore, and some birds on migration when so alarmed will leave the area and not return. ([Ref. 13C](#)) Lack of disturbance is especially important when ducklings are present as they make easy prey for predators, mainly eagles, when forced to flee from reeds into the open.

The absence of fish contributes to the abundance of dragonflies, damselflies, mayflies, and other insects that are prey for several species of birds. Frogs are numerous, including blue-listed red-legged frogs. BC’s only newt, the rough-skinned newt, is also found here.

Issues

Issues arising from the addition of new public spaces to the *region* are:

Issue 1: how to provide protection to the creeks, swamps, and riparian environments in Coats Marsh East [2] and adjoining private land [4].

In principle, protection could be afforded to Coats Marsh East simply by making the entire *area* a new community park with a management plan that is practically identical to that of Coats Marsh RP. Ideally, protection would be extended to the adjoining land by a negotiated Conservation Covenant Agreement between the land owner and GaLTT. ([Ref. 10C](#)) The advantage of having the whole of Coats Marsh East protected more strongly is that an inventory of environmentally sensitive areas within this *area*, something that does not exist at the moment, would not be necessary, as it would be if Coats Marsh East were to become an integral part of the 707 CP.

While making Coats Marsh East a new CP neatly resolves the problem of having an administrative boundary running right through the open water of the *lake*, which makes absolutely no ecological sense whatsoever, it would add to the cross-boundary trail issue, which is Issue 2.

Issue 2: how to manage trails like, for example, the Marsh Trail (a potential MAIN trail) that passes westward through the 707 CP [5], Coats Marsh East [2], the Coats Marsh RP [1], and via the Three Gates Trail (a potential MAIN trail) into the 707 SW [6].

This is a new issue. It did not arise earlier because there were no public trails, only privately owned trails that the public used with tacit consent, between Coats Marsh RP and the 707 CP.

A broad approach to this dilemma is to create zones within existing administrative domains such that the specific trails where this is a problem are from the trail users' perspective not confusingly subdivided. This should be done in such a way that the trail user is made aware of restrictions on trail usage right at the outset. Thus somebody using a trail that crosses from the 707 CP to Coats Marsh RP would need to be advised of restrictions at the trail head within the 707 CP, while somebody using the same trail in the reverse direction from within Coats Marsh RP would not.

The number of posted signs needed is actually quite small, provided that no new cross-boundary trails are constructed, and provided a few minor exceptions are allowed. There is no absolute necessity that ecological boundaries be determined by legal ones.

The Marsh Trail between its eastern end at the junction of the Mainline Trail, Fisher Road Spur, and Coats Drive Spur, and its midway end at the junction of the Three Gates Trail could be regulated as a 707 CP trail. If then the East Path is regulated in the same restricted manner as the Marsh Trail as it passes through the Coats Marsh RP, as it must be, only one informative sign is required at the junction of the Three Gates Trail and the Marsh Trail from the east.

Similarly, if the Three Gates Trail is regulated along its length as a 707 CP Trail (it currently clips the corner of the Coats Marsh RP), then only one informative sign would be required at the northeast end of the Stump Farm Trail within the Coats Marsh RP.

On the question of new trails, I would be strongly against any new trail from Coats Marsh East into the 707 CP along the NE Arm Trail extending into a high-usage deer fawning area at the east end of the NE Arm wetland. Converting deer trails to dog-walking trails is not conservation. And likewise any new trail from the 707 SW Golf Course Trail to the Coats Marsh RP Stump Farm Trail through an area identified in the current management plan as being of high wildlife value, sufficiently so that it was recommended by consultants that this area not be identified on park maps and that trails not be located in its immediate proximity.

Covering the *region* with a "cobweb" of trails for the benefit of human users is not in keeping with the notion of preserving and protecting at least some natural areas for the benefit of wildlife, and for those few humans who enjoy and learn from exploration. Trails everywhere create zoo-like islands of wildlife habitat more appropriate to an urban park than a natural forest.

And that's it. In passing however, I note that the current signage at the entrances of the Coats Marsh RP at Stanley Place and the West Entrance Spur off Coats Drive makes no mention of the environmental sensitivity of the park and its pedestrian use only of trails.

Issue 3: how to manage the East Path in Coats Marsh East [2]. On one hand, this trail provides connectivity with the Marsh Trail and the *region*-wide trail system beyond. On the other hand it will provide direct access to the environmentally sensitive east shore of the *lake* via the short “viewpoint” spur. Ideally the spur would acquire P4 zoning; it would be closed. Even allowing that East Path should become pedestrian only by one means or another, it leaves the issue of disturbance of waterfowl by humans wanting to have a view of the lake. Physically closing the spur is unlikely to be effective. The only mitigating solution, practical but not ideal, may be placing informative signage at the entrance to the spur.

A similar problem occurs at the weir. Ducks in the weir pool always fly as soon as anyone approaches the deck from the Weir Trail [1]. The pool and its environs has been used in the past in the breeding season by hooded mergansers, blue-winged teals, and mallards. The minor weir trail through the woods parallel to the Marsh Trail is narrow, moss-covered, and where calypso orchids (*Calypso bulbosa*) bloom in abundance in the spring and should not be open to cyclists as the current signage suggests (Sept. 2019) contrary to the current RP Management Plan.

Issue 4: how to mitigate if possible the loss of access to the Ridgeway [3].

There is really no good solution to this. Making a new trail has disadvantages as discussed in Issue 2. The RDN should continue to press for this small remainder to be sold to them so that it can be added to Coats Marsh East. At the time of acquisition, the land owner was prepared to give the RDN, GaLTT, the Islands Trust Conservancy, or any other similar organization a right of first refusal if it were to come on the market. This should not be forgotten.

Reference documents

Coats Marsh RP

Ref. 1: Coats Marsh Regional Park — 2011–2021 Management Plan, RDN Recreation and Parks Department, August 29, 2011. Online at <https://www.rdn.bc.ca/2222>

Ref. 1A: Coats Marsh Regional Park — 2011–2021 Management Plan, Appendix A, Ecological Features and Management Recommendations

707 CP

Ref. 2: 707 Community Park — 2010–2020 Management Plan, RDN Recreation and Parks Department, August 2010. Online at <https://www.rdn.bc.ca/cms.asp?wpID=2019>

Ref. 2B: 707 Community Park — 2010–2020 Management Plan, Appendix B, 707CP Public Meetings

Ref. 2F: 707 Community Park — 2010–2020 Management Plan, Appendix F, 707CP Ecological Inventory

Geology—bedrock and soil

Ref. 3: Doe, Nick, Fractures in Gabriola Formation sandstone and their effect on aquifers, *SILT* 20, March 2017. Online at <https://nickdoe.ca/pdfs/Webp573.pdf>

Ref. 3A: Doe, Nick, Geology of Coats Marsh area, February 2019, revised February 2020. Online at <https://nickdoe.ca/pdfs/Webp691.pdf>

Ref. 4: E.A. Kenny et al., Soils of the Gulf Islands of British Columbia, vol. 4, Soils of Gabriola and lesser islands, Agriculture Canada, 1990. Online at http://www.env.gov.bc.ca/esd/distdata/ecosystems/Soils_Reports/bc43-4_report.pdf

Ref. 5: Doe, Nick, Gabriola's glacial drift - 13, Ice-age fossil sites on Gabriola, *SILT* 8-13, January 2014. Online at <https://nickdoe.ca/pdfs/Webp533.pdf>

Hydrogeology

Ref. 6: Madrone Environmental Services, Gabriola Island Riparian Area Regulation Stream Identification, February 24, 2012. Online at

<http://www.islandstrust.bc.ca/media/342841/gbrtriparianarearegulation.pdf>

Ref. 7: Doe, Nick, Locations and names of wetlands and waterways on Gabriola. Online and regularly updated at <https://nickdoe.ca/pdfs/Webp661.pdf>

Ref. 8: Doe, Nick, Non-marine weathering of sandstone and mudrock, *SHALE* 25, pp.31–49, March 2011. Online at <https://nickdoe.ca/pdfs/Webp54c.pdf>

Ref. 9: Doe, Nick, Hydrogeology of Coats Marsh, Gabriola Island, May 2015 plus 2019 and 2020 Addenda. Online at <https://nickdoe.ca/pdfs/Webp668.pdf>

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