

Gabriola Streamkeepers—Water levels and quality

Observations at Coats Marsh, Gabriola Island

—with notes on Coats Marsh Creek, East Path Creek, and Stump Farm Streams.

References:

[RDN Coats Marsh Regional Park](#), 2011–2021 Management Plan, Appendix A.

[Coats Marsh hydrology](#) .

Coats Marsh RP and 707 CP Trail [Maps](#): Maps Y and Z.

Gabriola Stream and Wetlands [Atlas](#) .

Coats Marsh Species [Checklists](#) .

Field observations—2016 (April—June)

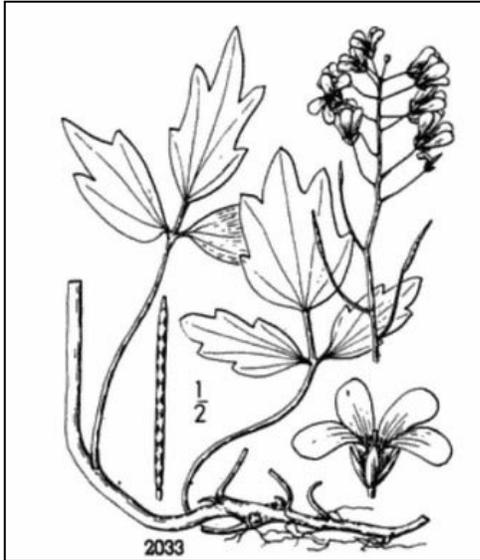
THIS FILE ([Field Observations 2016-2](#)) IS A SUPPLEMENT TO:

“[Observations at Coats Marsh, Gabriola Island](#)” File: 673.

For an up-to-date list of supplements see [here](#) .

April 1, 2016 (day +258)

No rain. Level at the cistern +24 mm SCB, a drop of 15 mm in 3 days. Level at the weir +305 mm WPB (scale), a rise of 12 mm. Sill +34 mm.



Cardamine angulata. Leroy Abams, *Illustrated Flora of the Pacific States*, Vol.2, pp.280 & 284, Stanford University Press, 1944. Found in NE Arm. *Cardamine nuttallii* in Coats Marsh RP and Canary Grass Meadow.

Bottom right: Fairy slipper (*Calypso bulbosa*) in Coats Marsh RP.



So which picture was taken in the marsh and which was not? Both photographs were taken in early April.

The blossoms in the upper picture are of the tall variety of Oregon-grape, *Mahonia aquifolium*, which blooms earlier than the dull variety, *M. nervosa*. Although most Oregon-grapes in the park are *M. nervosa*, there are some *M. aquifolium* plants in the brush and this is one of them.



One Hul'qum'inum word for yellow, *luluts'*, is the same as their word for the Oregon-grape; the plant is a source of a yellow dye used by basket makers.

So the flowers in the lower picture were not seen in the park, right? Well, wrong. These commercial cultivars were growing in the west thistle-and-broom field (an old burn-pile clearing) on the north side of the lake. Oh well!

what's one more non-indigenous species. Some people just don't see the point of nature reserves.

Coats Marsh Creek flows strongly over, in places, sandstone ledges downstream of the bridge. Very lively; a "proper" brook. Stump Farm Number One Stream, having been joined by Number Two, is flowing at several litres/sec at its confluence with the larger creek.

April 4, 2016 (day +261)

Rain since last record 5.5 mm. Level at the cistern +34 mm SCB, recorded with bare feet as I forgot my gumboots again, a rise of 10 mm in 3 days. Three geese on the lake, the one gander making frequent and seemingly unnecessary raucous alarm calls. Buffleheads are still here, discreetly busying about in the reeds along the south shore; planning to be here all summer perhaps. A hawk of some kind (sharp-shinned?) circling above the trees vulture-like. Violet-green swallows over the lake. Evergreen violets, *Viola sempervirens*, and wild strawberries, *Fragaria virginiana*, (photos) beside the trail.



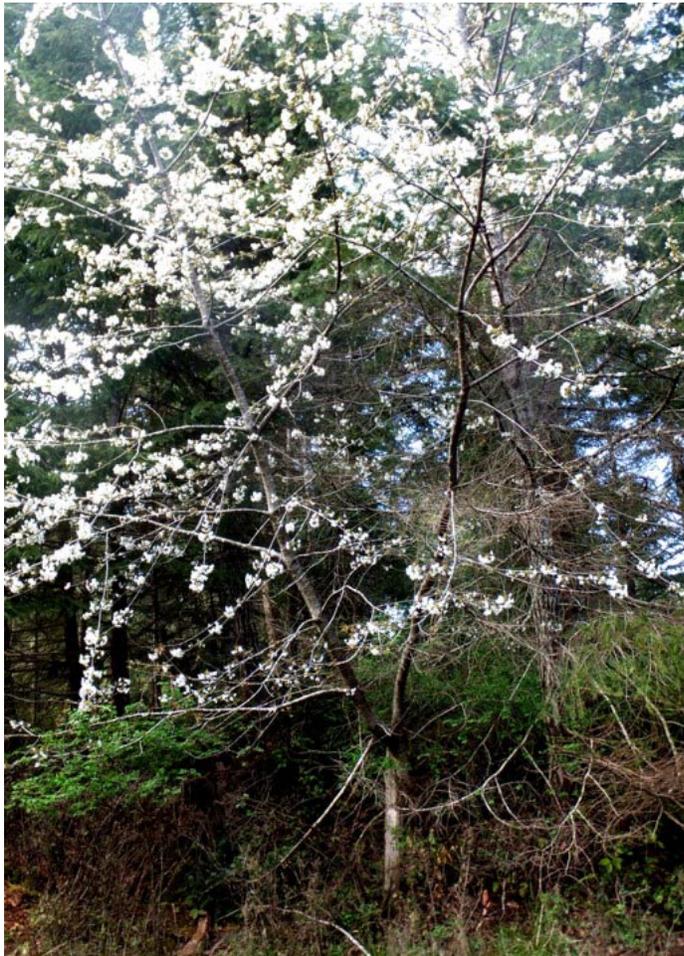
The flow of Stump Farm Number One Stream has already abated. Scarcely any flow as it leaves Canary Grass Meadow.



Wandering through the meadow - not too mucky if you keep to the mossy hummocks - came across red-berried holly; a big-leaf maple in flower; bitter-cherry trees, *Prunus emarginata*, festooned with blossoms; lots of *Cardamine angulata*; a few deep-pink veined, Siberian spring-beauties (candyflowers), *Claytonia sibirica*; and a red-flowering currant bush, *Ribes sanguineum*.



Don't go into the meadow by the way without a compass; if the sun is obscured, the wind fickle, the rivulets aren't running, and the geese on the lake are quiet; you'll soon lose all sense of direction. The deer paths and faint traces of old logging routes are seductive, but, unless you're a deer, go nowhere in particular; and, after a



while, that tall mop tree on the skyline that you've been using as a landmark will begin to look like all the others.



April 8, 2016 (day +265)

Rain 2mm. Level at the cistern +37 mm SCB, a rise of 3 mm. Just rain? Level at the weir +235 mm WPB (scale), a drop of 70 mm in 7 days. The pond leveller is draining the bay, but the beaver dam is retaining the water the marsh will need this coming summer.

East Path Creek dry, as is the NE Arm all the way from the spillway to within 30 metres of so of the lake. Contribution to the lake probably less than 1 L/s. On, and beside, the trail, garter snakes (black with yellow stripe, no red), and very blue violets, *Viola adunca* perhaps.

The wind gusts through the canopy with the sound of beaches on the outer coast, and, on the trails below, fresh air ruffles your hair as it wafts like currents beneath the waves.

April 11, 2016 (day +268)

No rain. Level at the cistern +35 mm SCB, a drop of 2 mm. Level at the weir +213 mm WPB (scale), a drop of 22 mm in 3 days.

Light breeze. Distant bird songs, now so familiar you have to pay attention to hear them. Buffleheads, two or three honkers, and mallards. Hiking the primitive trail along the south shore disturbs the ducks now and is not a good idea.

Pools in the woods that have not dried out have become stagnant.



Photo left: Wetland south of the lake and trail. It looks like good skunk cabbage habitat, but, despite extensive searches, I can't find any here or elsewhere in the park.

Photo above: Yet skunk cabbage is abundant in wetland along Chapple Creek.



Photo: *Dents-de-lion*. Wide grassy trails are convenient routes for people, but they're not the only intruders who find them so.

Isn't that right Daisy?

It's sometimes hard to be hard on weeds. They're successful, adaptable; are good eating for some; and most are as pretty as any other flower when you look closely.

Candyflowers so common in the NE Arm near the lake you sometimes have to watch your feet to avoid trampling them. There are yellow violets there too. Fairy slippers numerous in mossy places at the west end.

The bed of Stump Farm Number Two Stream is mucky, but mostly dry with only small lingering quagmires here and there.

April 14, 2016 (day +271)

Rain 3.5mm. Level at the cistern +38 mm SCB, a rise of 3 mm. Level at the weir +210 mm WPB (scale), a drop of 3 mm in 3 days.

WATER QUALITY TEST (Lake east end)

specific conductivity 88 μ S/cm (pre-cal 64 μ S/cm at 15.8°C)
[this is greater than that of East Path Creek, so the creek is not a major source of dissolved minerals]

pH = ~~6.2~~ 6.4 clear, no turbidity

DO 9.6 mg/L (saturation 100%, 16.5°C, 748 mm.Hg).

WATER QUALITY TEST (Coats Marsh Creek)

specific conductivity 106 μ S/cm (pre-cal 65 μ S/cm at 11.5°C)

pH = ~~6.5~~ 6.7, pale yellow

DO 8.9 mg/L (saturation 89%, 14.4°C, 750 mm.Hg).

April 18, 2016 (day +275)



No rain. Level at the cistern +36 mm SCB, a drop of 2 mm. Must be similar to the level it was last May when, not knowing about the beaver dam, I was surprised to see it so high. Likely this "extra" water will be much needed again this summer.

Level at the weir +192 mm WPB (scale), a drop of 18 mm in 4 days. Water over the baffle and through the pond leveller is running light now -- Coats Marsh Creek down to 3.8 L/s and dawdling along at 16 seconds per metre.

Shafts of sunlight dappling the shade; tranquil, no breeze and relatively little bird-song; the air temperature that of red-wine in a crystal glass; the delicious smell of Douglas-fir resin dispelling the mustiness of winter. Buttercups (*R. occidentalis* and *R. uncinatus*). Woodpecker (female, hairy?). Ducks on the lake in only pairs or small groups, and very shy.

April 21, 2016 (day +278)



Rain 3 mm. Level at the cistern +32 mm SCB, a drop of 4 mm. Level at the weir +171 mm WPB (scale), a drop of 21 mm in 3 days. Water through the pond leveller just a dribble. Coats Marsh Creek down to less than two litres/sec. The dry is nigh.

Woodpecker (unseen); dogwood with showy white bracts; occasional frog; redwings and towhees; ducks in pairs (mallards, buffleheads, ring-necked?); purplish-pink dovesfoot cranesbill,



Geranium molle, never convinced these are, along with herb-Robert, noxious weeds; the broom in the old burn-pile clearings is blooming; arbutus suffering as they seem to be everywhere; sedges inflorescencing (they look like *Carex elata* to me but they're less-exotic slough sedges); strawberries, blue violets, candyflowers, and miner's-lettuce; picture-perfect *Amanita pantherina*; midges I had to dispel by waving my metre-long measuring stick like a codger shaking his cane at hooligans; many plants and bird songs I don't know;

sky, *stratus fractus*, off-white with the translucidity of a duck-egg

shell; the winter creek beds now black soil with deer prints.

April 22 & 23, 2016 (day +279-80)

In Canary Grass Meadow, mats of ~~bunchberries~~ bedstraw? possibly blue field madder (right), a large sprawling red-berry elder in creamy-white bloom; a red-rosewood-flowered gummy



gooseberry bush (*Ribes lobbii*), and a garter snake. The meadow is mostly dry but there's still some standing water hidden from the lightly-shod incautious in rills and runnels among the reeds.



Above: The Arbutus are suffering badly, possibly fatally, from leaf loss this year.

Left: Slough sedge (*Carex obnupta*).



Right & below:
Hi! We're from
England. Nice
marsh you have
here.



On the Marsh Trail, among the ribwort plantain and the lavender-pink flowering vetch: small-flowered nemophila (*Nemophila parviflora*), rare on the mainland but at home here on the Gulf Islands; broad-leaved



starflowers (*Trientalis latifolia*); and miner's-lettuce.

The miner's-lettuce up in the parks tends to be tiny with discs $\approx 15\text{mm}$ across compared to the salad-sized ones down here on the south shore where saucer-shaped discs $\approx 40\text{mm}$ across are common.



April 25, 2016 (day +282)

Rain 9 mm. Level at the cistern +33 mm SCB, effectively no change. Level at the weir +177 mm WPB (scale), an inconsequential rise of 6 mm in 4 days. Stability. Water still running through the pond leveller, just skimming off the rain. Coats Marsh Creek down to about one litre/sec.

One mallard duckling doing well. Mother swam out a little from the shore as I approached instead of taking flight as she normally would, quack quack, quacking, and out of the reeds darted the little one, paddling to her very effectively like crazy. Mother wasn't satisfied, so I guess there were more, too shy or too young. I may have to reduce my data-collecting visits here for a few days. There were a pair of mallards in the weir bay too and a Canada goose. Three buffleheads, one male two females, out on the water not looking like they were going anywhere soon.

The *A. pantherina*'s are plentiful and vandals haven't mindlessly kicked them over yet. More garter snakes.



A day of blue; blue sky; blue rain-jacket, the air still cool in the shade; blue Thrifty's shopping bag with my notebook and stuff; fluttering pale-blue butterflies in sunny spots along the trail, "spring azures" or "blues", though I prefer their more formal name *celastrina* (*C. ladon*); damselflies with blue-tipped abdomens (*Ischnura cervula*); blue-eyed darners; and a blue RDN park notice with a longish, but very incomplete, list



of things you shouldn't do in the park.

April 28, 2016 (day +285)

No rain. Level at the cistern +19 mm SCB, a rather startling drop of 14 mm in 3 days. The air is warming, so evaporation will be becoming significant, but it's not warm enough I would have thought for that much drawdown. Level at the weir +171 mm WPB (scale), a drop of 6 mm. Water has stopped flowing over the sill but continues to drizzle out

of the pond leveller. Coats Marsh Creek sluggish and quiet, preparing to pond, and down to much less than one litre/sec.

Walk with Bill Merilees and Kent Anders, well-known naturalists from Nanaimo, together with Gabriola's Phyllis Fafard along East Path and into Canary Grass Meadow.

Several bufflehead families out on the water near the south shore. They nest in cavities in the trees, but not out of sight of the water, which is something to remember when injudiciously planning intrusive trails deep into a nature reserve as the RDN are at the moment doing.



The spring surge of rather little white flowers is ebbing, mostly candyflowers, strawberries, and daisies remaining. A rattlesnake plantain (an orchid); false morel; spotted coralroots (another orchid); and vanilla leaves. Lots of *Inocybe* spp. "little brown mushrooms" (LBMs) though I grew up knowing them as toadstools. Some salal plants have blossoms.

April 29, 2016 (day +286)

No rain. Level at the weir +168 mm WPB (scale), a drop of 3 mm. Coats Marsh Creek has stopped flowing, but water drains still from the pond leveller like a tap with a leaky washer.

Swallows winging about in an old burn-pile clearing, now a weedy and broomy greensward. If only my camera were as fast. They were hunting damselflies, Pacific forktails. After 20 minutes the show was over and they were gone.

Elusive white, or perhaps dun-tinted, butterflies, probably with darker markings, but if so, nothing striking and without bright colour. Small, smaller than the blues. Endlessly bobbing and

weaving, fluttering in the shade of the Douglas-firs from one patch of sun to another, never ever still. Skippers would be a good name for them, but I've no idea if that's right. I think I'll just call them *bianchi*.

Ant hill near the beaver dam is 2½ feet high (*Formica obscuripes*). OK, OK, you've seen taller ones.



May 1, 2016 (day +288)

Rain? There's a cobweb in the gauge. Level at the cistern +14 mm SCB, a drop of 5 mm in 3 days. Level at the weir +168 mm WPB (scale), no change. Watershields are appearing in the shallows.



The May-Day dance floor. Not nearly as tranquil as it looks.

It being May Day, Walpurgistag, an' all, I sat quietly by the lake in the sunshine watching a swarm of mayflies. They were jigging up and



down like young people do in nightclubs. Every now and then a bouncer-eluding dragonfly would cruise through the crowd flying more or less horizontally, and I wasn't sure if they were hunting and confused by the verticality of the action, or whether they were just, like the rest of the crowd, looking for a hot date. No sign of fish though, only rising marsh-gas blebs and diving beetles dimpling the surface; in mayfly time, any fish would be feeding on nothing else.

Photo left: Two dancers, top right and bottom left.

Out on the water, several duck families, mallards and buffleheads, the young ones growing up so fast they were adventurously mingling with the adults creating a measure of parenting anxiety. A bald eagle was watching too.

Blues and blue-tipped damselflies all around me as I sat. At one point, butterflies at my feet and on my notebook and pen, which happens to be blue, five in all, and the damselflies on my measuring stick; one even resting peacefully for a while on the nail of my thumb.

A few *bianchi* in the woods and on the trail, their nimbleness matching their ungoogleability. The shafts of summery sunlight are speckled with the wings of busy insects.

May 4, 2016 (day +291)

Rain 1 mm. Level at the cistern +9 mm SCB, another drop of 5 mm in 3 days. Level at the weir +158 mm WPB (scale), a drop of 10 mm. Sun and cloud, warm dry NW wind, the sort to encourage evaporation.

Swallows very active skimming over the water surface. A few ducks in the distance, possibly ring-neckeds. Clumps of yellow pond-lilies (*Nuphar polysepalum*) in bloom.

Walk with Lyndon Turvey, a lacustrine invertebrate expert, but not much to see without sampling equipment beyond a few diving beetles. Next time.





May 5, 2016 (day +292)

In the clearings, brambles blooming among the blooming salal (*Rubus ursinus*, *Gaultheria shallon*). The first step to a new batch of wild-berry jam.

Several kinds of butterflies: red admirals, apricot-coloured fritillary-like ones? grey hairstreaks with orange spots, brown

elfins, and "blues".

There were more, but I'd rather they remained nameless than risk doing them any harm.



A coal-fired NW tradewind swaying the shrubs and trees; relative humidity only 30%.

May 7, 2016 (day +294)

No rain. Level at the cistern -3 mm SCB, a drop of 12 mm. Level at the weir +145 mm WPB (scale), a drop of 13 mm. Pond leveller dribbling.

Mallard families about, one mother with a raft of at least eight ducklings, maybe ten, all huddled close to each other and to her, wending their way briskly but carefully in and out of the reedy margin.



A very handsome hooded merganser couple crossing the lake. Lots of violet-green swallows, maybe some tree swallows too. A lone Canada goose, very quiet. Has it been left behind or has it chosen to have been?



Roses are out (*Rosa gymnocarpa*). There aren't many in the park, more in the 707 CP, but some where East Path Creek flows in winter.

Left: Not all introduced species are obnoxious weeds. Black medic (nonsuch, *Medicago lupulina*), which is common in the park's launds and ways, is, some say, the true shamrock of the Irish.

The boreal tradewind still blows strong; the evening soundscape mostly the startlingly-loud susurrus from the trees and the calls of the redwing sentinels around the marsh. The nimbus cloud-cover, purple-grey in the dusk like a bruise, being driven up and away to the east without a drop of rain. Only windswept cirrus and patches of clear sky low on the horizon in the direction of the setting sun.

May 10, 2016 (day +297)

Actually, to be honest, the park has its fair share of introduced and invasive plant species, especially in the grassy areas where anything growing there is probably also growing in your lawn.¹

Today, I came across a large, but lone, English hawthorn covered in mayflowers in the NE Arm (while in my hence-permitted shirt-sleeves). This is listed by Nanaimo City as a "priority invasive plant", though it is not one that comes to my mind first. There is horror-of-horrors, Scotch broom despite the 2011-2021 RDN/TNT Management Plan to be rid of it. And among many others seen while nuddling along are tiny white-flowered plants that I suspect are related to stickyweed (*Galium aparine*), except these were too small to be those and they weren't sprawling over everything.



¹ Jane James and Phyllis Fafard, *Gabriola Plants Checklist*, Gabriola Historical & Museum Society, 2007, lists 416 species of which 136 (33%) are introduced. Many introduced species are agricultural and lawn weeds, but some are medicinal herbs once used by both indigenous and immigrant women who must have learned from each other, and a few are ornamental or culinary.



The old burn-pile clearings and four-wheeler trails are where to find such contemptibles.

Left: Colourful residents of the marsh, one native and one introduced, living modestly in the weedy patches: bicoloured flaxflowers (*Linanthus bicolor*) and really-tiny, pale-yellow-to-blue forget-me-nots (*Myosotis discolor*).

May 11, 2016 (day +298)

No rain. Level at the cistern -17 mm SCB, a drop of 14 mm. Level at the weir +128 mm WPB (scale), a drop of 17 mm. Pond leveller dry, no water over the baffle, and creeks all dry, so, assuming infiltration is very low, which it probably is, evapotranspiration may currently be close to 4 mm/day.



The Canada goose is now accompanied by a noisy gander. Few ducks out in the open but there's some quacking going on. Dragonflies—darners. Rare (for the marsh) blue-eyed Marys.

Picture left was actually taken a few steps into the forest from the Folklife Village parking lot. Pictures taken in the marsh are too blurred, and I can't find the flowers again.

May 15, 2016 (day +302)

No rain. Level at the cistern -29 mm SCB, a drop of 12 mm. Level at the weir +119 mm WPB (scale), a drop of 9 mm. There still is some drainage into the creek from the the pipe on the left bank from the private property adjoining the park. Not enough to provide any flow downstream, but a little surprising given the lack of rain for several weeks. This is nothing new though, owners suspect some near-surface reservoirs of water in the forest upstream of the property.



Not many ducks in the open, one mallard couple in weir bay, two mallard families on the lake but with only 2 or 3 beginning-to-look-grown-up ducklings each; just possibly a hooded merganser (female) in the reeds on the south-east side. Two geese on one of the south-shore grassy patches.

A new hatch of damselflies, ~~boreal~~ bluets (*Enallagma carunculatum?*), the males more blue than the still-numerous forktails, and the females are a dull olive-green. If you sit down, they'll come and sit on you.

Twinflowers out. Ox-eye daisies starting to bloom.



Left: Twinflowers (*Linnaea borealis*) on the Marsh Trail. They hang like lanterns, and you have to tickle them under their chins to get them to show their faces.



Above: A starwort (possibly *Stellaria borealis*) in the Canary Grass Meadow.

Below Left: Erratics like this are common in both the 707 CP and CM RP. This particular one appears to consist mostly of quartz and

plagioclase with only isolated mafic crystals, which are mostly biotite. The texture is too coarse for it to be *aplite*, so the rock is probably a *leuco-granodiorite* or *leuco-tonalite*.

This doesn't give us much of a clue as to whence the ice brought it; however, three other erratics I looked at in Coats Marsh are, like this one, intrusive, but with more usual amounts of both biotite and hornblende. So although these might be Vancouver Island Jurassic intrusives, my guess is that they are all slightly-later arrivals from the Coast Mountain Plutonic Complex. This would fit with the presence of biotite, which is rare in Vancouver Island granodioritics; the lack of basaltic boulders; and with the near-by presence in the 707 CP of volcanic erratics, which undoubtedly were brought here in the final stages of the last ice age from the direction of Howe Sound.

Don't, by the way, think of hammering these rocks at this time of year. It's a very good way of generating sparks.



May 17, 2016 (day +304)



Day of rocks and rud. Some Oregon-grape leaves showing reds from bronze to vermilion. I used to think this was seasonal, but it looks more and more to me that these leaves are being attacked by a pathogen. A pileated woodpecker in flight with a heron-like posture, but with a bright red crest. A cinnabar moth in a grove of alders in the Canary Grass Meadow. Late in the day, a red-winged blackbird showing off its splendid epaulets lit up by the sinking sun as it hunts dragonflies from its pole-perch by the water.



One of the *bianchi* (April 29) fluttered in front of my face and was easy to imprison in well-cupped hands. It even rested enough for me to photograph it, before it flitted off into the woods unharmed. Some kind of day-flying moth, ~~but I still have no idea what its "proper" name is~~ (Western white-ribboned or half-white carpet moth, *Mesoleuca gratulata*. Jeremy Tatum, Patrick Lilley).

May 20, 2016 (day +307)

Rain 15 mm. Level at the cistern -31 mm SCB, a drop of 2 mm. Level at the weir +134 mm WPB (scale), a rise of 15 mm.

Mallards, one with a sizeable family, at least five or six. Two vultures circling. Swallows swooping and soaring this way and that over the water feeding on flying things smaller and drabber than damselflies. Two geese on the south shore again.

The spring flowering has transitioned; roses have faded; every last dandelion has clocked out; mostly only black medics, crimson-tipped white daisies, and a few wild strawberries remain. Even the muted wine-dark redness of the oceanspray's new growth, not a unique attribute in these coastal forests, now catches the eye amongst all the greens. Towering cumulus in the east is glowing, unphotographed, in the light of yet another sunset.

May 22, 2016 (day +309)

No rain. Level at the cistern -34 mm SCB, a drop of 3 mm. Level at the weir +134 mm WPB (scale), no change. Drainage from the private



property continues to drindle into puddles, but the sill, leveller, and the creek downstream are dry.

No ducks, but two vultures circling in hawk-like fashion. The goosey couple are preening on the south shore. Many violet-green swallows; woodpeckers; a song sparrow having a bath; towhees; humming birds, their wings sounding like they're driven by rubber bands; and a *piik-piik*-ing American robin, not at all pleased by my presence.



Watershield now covering perhaps a third of the surface, a few with flowers, the colour of hardhack blossom. I wonder how these plants affect the rate of evapotranspiration?



A new hatch of damselflies and dragonflies, some of the latter large, brownish with yellow markings, female darners perhaps, with the unsettling habit of hovering, facing you, only a little more than arm's length away, like drones with hi-tek sensors feeding gigabytes of data into vast and sinister far-away databases.

Four-spotted skimmers, smaller and far less formidable, near the beaver dam. The lesser insects dimple the surface like raindrops, but, alas, no fish respond to their allure. I see only blebs, beetles, boatmen, and tadpoles.

Herb-Robert down by the bridge, not the more commonly seen dovesfoot cranesbill. The

wind-waved grasses of the old burn-pile clearings are yielding the swards to stinging nettles, bull thistles, Canada thistles, broom, bracken, burdock, hairy hawkbits, sheep sorrel, vetch, cleavers, foxgloves, ox-eye daisies, and all kinds of other botanical riff-raff. Tansy ragwort must be there too for the cinnabar moths are on patrol.



Four-spotted skimmer.

Not all of these are introduced, I thought; in the east clearing, there're patches of weedy, but all-American, wild carrots (*Daucus pusillus*), their white flowers so small you almost need a loupe to see them. But no, turns out they're not carrots, these pretty little things are "obnoxious weeds", bur-chervils *Anthriscus caucalis*.

The 2011-2021 RDN/TNT Management Plan for the park calls for an



educational facility to be built here. I don't know why. It already is one. A textbook example of a disturbed-site, ideal for the study of a vibrant wasteland community.

Meanwhile, the dry channels from the NE Arm spillway down through the bush to the lake have become blue rivulets of forget-me-nots (*Myosotis laxa*) with islets of yellow monkey-flowers, tastefully-cropped by the deer (*Mimulus guttatus*).

May 27, 2016 (day +314)

Rain 10mm. Level at the cistern - 43 mm SCB, a drop of 9 mm (20mm evapo. over 5 days less 10mm rain, makes sense). Level at the weir +128 mm WPB (scale), a drop of 6 mm. Drainage from the private property continues.



Showers. Glimmery sunshine and dark heavy rain-clouds that are under-performing. The wind nothing more than occasional small pockets of cold air from above, ruffling the lake's sky-mirrored surface as if something mysterious were moving beneath it. A woodpecker, so unbelievably loud, its bursts of drumming echoing all around the lake like a lone voice in a hushed and darkened theatre.

Two families of mallards, one including a proud male with several ducklings, everyone sticking close to the reedy shore. A hooded merganser mother² with a flotilla of chicks, at least 6 maybe 8. Exciting. Hooded mergansers nest in secluded tree-cavities and their presence here might be due in no small measure to the activities of the beavers. By raising and keeping the water level high, they've turned encroaching alders into snags to the benefit of all who create cavities in the decaying wood, and to all that use them.



May 29, 2016 (day +316)

Along the Three Gates Trail, chestnut-backed chickadees with a flock of garrulous fledglings. Often heard, but seldom seen in the marsh.

Blue-eyed grass (*Sisyrinchium idahoense* var. *macounii*) on the wayside of the 707 CP's Mainline Trail.

On the Marsh Trail, one tall, yellow-flowered, cabbagey, field mustard, conspicuous, but looking though it would be more at home in a veggie garden. Twinflowers are abundant under conifers.

² It is normal for male hooded mergansers to leave the scene once incubation begins.

June 1, 2016 (day +319)

Rain 10mm. Level at the cistern -55 mm SCB, a drop of 13 mm. Level at the weir +120 mm WPB (scale), a drop of 8 mm.

So quiet when the splattering of passing showers on the salal eases off. With no wind, you can smell the water when you wade, and there's a scent of crushed vegetation underfoot when you walk through the meadows. The clouds are motionless, smokey, layered, a jumble.

Only a few solitary female mallards out on the water, hard to spot as they serenely make their way through the watershed like ice-breakers through pack ice. Swallows and blackbirds.



On the trails, woodland tarweeds (*Madia madioides*), each daisy-like bloom, seemingly unremarkable, but on closer inspection,

revealing curious, starfish-shaped, florets within their central discs.



On the fringes of the riparian woods, silvery-voiced Pacific wrens. And a pair of house finches, the raspberry-rinse of the male a little faded, but the couple looking contented enough.

June 4, 2016 (day +322)

Rain trace. Level at the cistern -65 mm SCB, a drop of 10 mm. Level at the weir +107 mm WPB (scale), a drop of 13 mm.

A sunny morning. Breeze, enough to creakily rub together the boles of some of the crowded, spindly conifers. The flowering reed canary grass, now taller than me, bowing in the wind.



Mallards, females (or juveniles?), one with four ducklings. Hooded merganser out there too with her ducklings, one choosing to scamper over the leaves of the watershield instead of doing the ice-breaker thing.

Two vultures, occasionally mobbed. Brightly-red-winged blackbirds as always. A few swallows. Lots of

dragonflies including one black-and-white-winged eight-spotted skimmer (*Libellula forensis*).



East end especially alive with birdsong. There must be wrens, kinglets, nuthatches, song sparrows, but they're all so secretive I can't sort them for sure by sound alone. Robins. Two-together fox sparrows (or juvenile towhees?) in dense, reedy-rosy thickets at the water's edge. Hoods (and bibs?) like towhees, but slate-grey, smaller, but surprisingly big for sparrows if that's what they were, lots of streaks, nothing rufous, nothing white, too big to be MacGillivray's and anyway no yellow. But to make up for that non-yellowness, a handsome male common yellowthroat (*Geothlypis trichas*) in a brief, but no-nonsense sighting.

The shrubs and trees in the East Path Creek catchment (dogwood, oceanspray, hardhack, roses, willows,³ alder, Indian plum, red-flowering currant, cherry)⁴ is better habitat for birds. In the west-end, Doug-fir forest, there's often near silence, not broken even by the mournful cry of a varied thrush as you occasionally hear elsewhere on the island.

Violet-tinged marsh violets (*Viola palustris*), mimulus, Siberian spring-beauties, and forget-me-nots on the floodplains of East Path Creek and the NE Arm.



³ Some willows are tall (24') and one, stem broken, still living, is big (DBH \approx 0.79m). Mostly Sitka, I think, but you may "scoul-"; your opinion "var-y"; and we'll need somebody to "e-lucida-te". Large willows growing in the near-by 707 CP are Scouler's. Rob Brockley: The very large one here is probably *Salix lucida*.

⁴ Western redcedars are also more common in this area than in most other parts of the park.



June 10, 2016 (day +328)

Rain 4mm. Level at the cistern -82 mm SCB, a drop of 17mm in 6 days. Level at the weir +61mm WPB (scale), a drop of 46mm. Drainage from the private property ≈ 0.5 L/s. Since May 11 (298), when flow into Coats Marsh Creek from the weir and pond leveller ceased, the cistern level has dropped at 3.5 mm/day after accounting for rain.



Mixed-bag weather. Lake quiet. Whites. A white foxglove, a pair of white-crowned sparrows with young, white clover, oceanspray, and ox-eyes white-dotting the launds, 4-foots, and waysides. Honeysuckle, the pink kind, not the orange one; self-heals; creeping buttercups; and many grasses flowering.





June 14, 2016
(day +332)

Rain 19mm, considerably more than on El Verano. Level at the cistern -71 mm SCB, a rise of 11mm. Level at the weir +70mm WPB (scale), a rise of 9mm.



Birds lower down than usual, presumably because of the rain despite its spottiness. The list is

not at all remarkable other than that the birds were all seen clearly without binoculars: white-crowned sparrow, fox sparrow, northern flicker, spotted towhee, rufous hummingbird, and chestnut-backed chickadee. A flock of five or six ducks on the lake taking flight as soon as I appeared. White on the wings, all looking the same. Juvenile mallards? Yarrow, St. John's wort (*H. perforatum*), and, on the Weir Trail, purple but-actually-dirty-yellow cudweed. I like the yarrow, it's a friendly import.



June 17, 2016 (day +335)

Rain 3.5mm. Cistern level -81 mm SCB, a fall of 10mm. Level at the weir +64mm WPB (scale), a fall of 6mm. Private property drain still running.

Several ducks and a few ducklings, well-camouflaged as they wend through the watershed, skimming as they go. An adult male mallard preening, starting to moult perhaps; haven't seen a green-head for a while.

Hairy cats ear, smooth hawksbeard, wall lettuce, wood groundsel, woodland tarweed, nipplewort ... sunflowers galore. ~~I'd love to add "nipplewort" to the list, but can't; it grows everywhere it seems, except in the marsh.~~ They're all originally from somewhere else, but then so is most of the human population of Gabriola, including myself. Some are pinpoints of bright-yellow on long, wiry, almost-invisible stems...in the forest shade, they look like lights at nightfall from houses in a village far down in a valley below.



~~White-tail~~ Eight-spotted skimmer at the marsh. Photo taken in the Somerset pit on the GaLTT Gabriola end-to-end trek.

There's no mistaking these weeds' liking for trails and their track spaces (4-feet). Go into the bush along the south shore, for example.

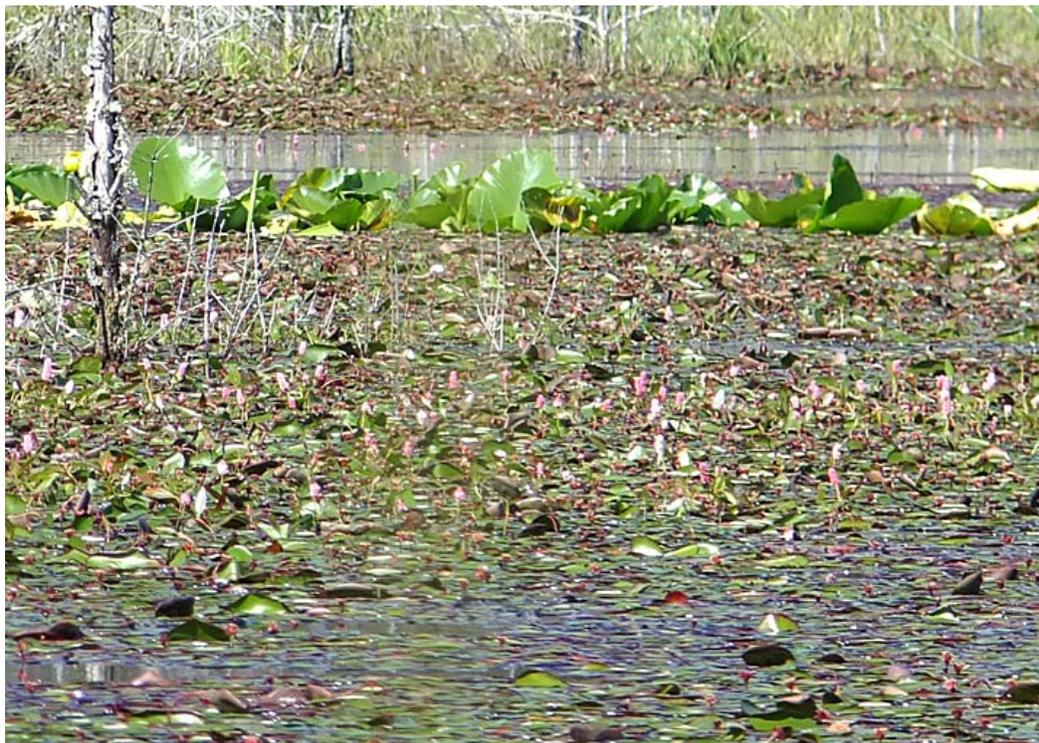


Beyond red-stemmed, pink-tinted flowers of the salal and occasional bunches of raspberry-jelly-red salmonberries, there's almost nothing but dead leaves and tree bark that isn't green.

Shoulder-high thickets of salal aren't these weeds' favourite stage in the forest's sere, nor, come to that, are they mine, but then, among them are the snags used by those marsh-dwellers that drum for borers, creating cavities for birds and bats.

The first Canada thistle is out on the north shore... yes, they too are from somewhere else. The bull thistles are not in such a hurry.

Dragonflies and damselflies, pale-blue dashers perhaps, white-tail or eight-spotted skimmers, and several other skimmer species.



Some of the males seeming to be having a hard time finding the right kind of female

...feel free to supply your own wisecrack.

June 22, 2016 (day +340)

Rain 18.0mm. Cistern level -80 mm SCB, a rise of 1mm. Level at the weir +78mm WPB (scale), a rise of 14mm. Private property drain still running; where is the water coming from? Maybe time to look again at the idea that it's leaking through the berm.



Overcast; the lake has an any-minute-now-it's-going-to-rain-again tranquility. The air is soft. A few of everything (swallows, dragonflies, ducks), not many of anything. Ravens calling; otherwise, mostly all I hear is mild tinnitus.



Yeah! nipplewort at the west end of the park close to a glade full of vanilla-leaf near the creek. But the *fleurs du jour* are tarweeds for their unphotographical 3-D effect.

The west burn-pile clearing, not content with ox-eyes, has Shasta daisies. They're double the diameter, and twice as tall.

A spotted coralroot (*Corallorhiza maculata*), looking droopy and alone beneath crowded juvenile firs near the beaver dam.



The young chickadee families are a delight; stand still, on the Marsh Trail and they gather and circle around, coming closer and closer, chatting away, full of curiosity. It's better than having monkeys.

June 24, 2016 (day +342)



Eastern eyebright (*Euphrasia nemorosa*) beside the Marsh Trail at the west-end gate. Pretty little things. Labelled

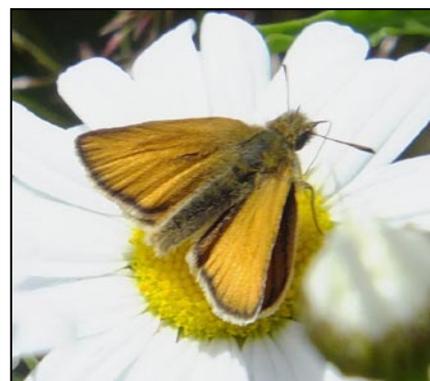
"weedy" by some, don't know why.

Handsome mushroom breaking free from the mossy duff. *Russula* I guess, a *Mischpilz* possibly, but I didn't munch it just to find out.



European (Essex) skippers in, where else? the clearings.

Flock of five flickers in the west one with fledglings in the trees.





Sheep sorrel there is at its weedy best. St. John's wort also out.

Flock of five juvenile dabbling ducks in Weir Bay.

More mushrooms after rain, *R. xerampelina* and puffballs (eßbar).

Foamflowers (*Tiarella trifoliata*) on the banks of Coats Marsh Creek. Nearby, some path-finder (*Adenocaulon bicolor*), so-called because



it has arrow-head-shaped leaves that are white-haired when turned over. Its miniscule flowers are whitish with green club-shaped fruits.

On the beaver dam, some, or perhaps all, of the 15 species of sedges (with edges) that have been found on the island, but I only noticed the blondes ... and of course the carpet heads of the new crop of tawny tassel-topped bulrushes (*Carex exsiccata* and *Typha latifolia*).

A wren of the *idunno* species. Spittlebugs (cuckoo spit) abundant.





June 25, 2016 (day +343)

Rain 16.0mm. Cistern level -71 mm SCB, a rise of 9mm. Level at the weir +91mm WPB (scale), a rise of 13mm.

Tadpoles at the weir, some breathing air.

Ravens conversing more loudly than the red-wings. The blackbirds sometimes "chek-chek-chek" as if they had hiccups these days. A bald eagle hunting or bathing in the reeds, and another pair jostling playfully as they flew over the lake. Swallowtails.



Fresh creamy oceanspray, pink honeysuckle, yellow bartsia, and two more flowers that had me sprawling on the East Path amongst channery to picture them (pincushion plant, *Navarretia squarrosa*, and Scouler's harebell, *Campanula scouleri*).



The less-common tufted vetch (*Vicia cracca*) in the west clearing. Interesting to see that the Himalayan blackberry bush noted in the CM-RP Management Plan (Appendix A pp.20 & 37)





recommended for removal is still there. In December 2010, the "infestation" appeared to be "minimal as compared to other sites in the local area".

In June 2016, nothing had changed.

Nearby, there's plants that look awfully like wild marjoram (*Origanum vulgare*). If

that's what they are, what are they doing out here in the woods?



Damselflies and green darners, some with confusingly-blue rear-ends.

Left: yellow bartisia (*Parentucellia viscosa*)



Several cedar waxwings (a family?) near the entrance.

June 29, 2016 (day +347)

No rain. Cistern level -90 mm SCB, a drop of 19mm. Level at the weir +70mm WPB (scale), a drop of 21mm.

Sunny; muggy, but, now and then, a gentle puff of cooler, drier air... but no whispering through the firs to cover the sound of flies in the greenswards, or the tread of your feet on dead arbutus leaves.

Song sparrows in the clearings feeding on grass seed. Moulting ducks looking dishevelled.

Blue damselflies as always..~~boreal~~ tulle bluets. Dragon flies: blue dashers,

~~white tail~~ skimmers, ~~cherry-faced~~ red western meadowhawks



The red-faced ones for a long while refused to face the camera... In the old days they would have cost me a roll of film.

The lake quiet but for the occasional quack. Everything dozing in the sun.

June 30, 2016 (day +348)

Say what you like about the old burn-pile clearings, these wastelands are always full of surprises.



The east clearing particularly (shown) is infested now with thistles with a very prickly attitude. Mostly Canada thistle, *Cirsium arvense*, (left), but some bull thistle too, *Cirsium vulgare*, (right), which has just begun to bloom.



The west clearing (shown) has thistles too, but their numerous companions are ox-eye daisies, stinging nettles, and broom. But that's far from all there is. There 're horsetails for a start!

On following the guidance of the deer through the thistles, I came across lovely butterflies, really handsome large black-and-white Lorquin's admirals with small orangey-red spots on the tips of their wings (*Basilarchia lorquini* possibly ssp. *ilgae*). I imagine they're there for the purple-bloomed hardhack down near the water.

Purple must be in as there were also pink yarrow, oregano, and the last of the foxgloves.

Cinnabar-moth caterpillars on





tansy ragwort (*Senecio jacobaea*), not yet in bloom but getting there.

Near the entrance to the clearings on the Coats Marsh Trail, common centaury (*Centaureum erythraea*), and a patch of common cudweed (*Filago vulgaris*), their verticality making them look like trees, or one of those chemical gardens that kids grow. There's probably some in your driveway.

◇

Continued in the next file [here](#).

Previous file [here](#).

