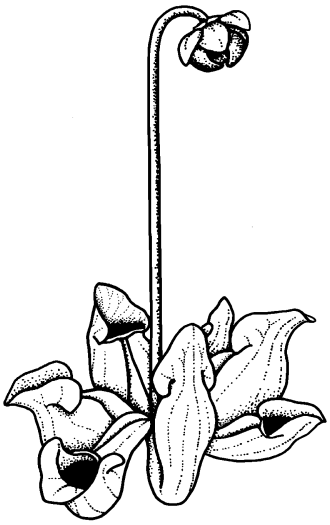

Sarracenia

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Trillium cernuum Steady Brook 2020.06.06 Jill Brown

From the Editor

Firstly I should apologise for letting other obligations take precedence over editing Sarracenia for so long. I am now free of the main one and should have more time to sort out the backlog of articles, and maybe, even add something of my own.

Two articles on new locations for rare plants were almost ready so I start with them. Tom Clench has informed me that since his original discovery he has found many more sites for Little Floating Hearts in the same watershed, and that there is a suggestion that it is also elsewhere. (Maybe there's field trip in here.)

On-line Botany.

Some of you are, I know, already following the Facebook "Wildflowers of Newfoundland" www.facebook.com/groups/newfoundland.wildflowers/

There are some beautiful pictures on this site and comments at all levels of expertise. Several of the pictures in this issue began there (copied with permission of course).

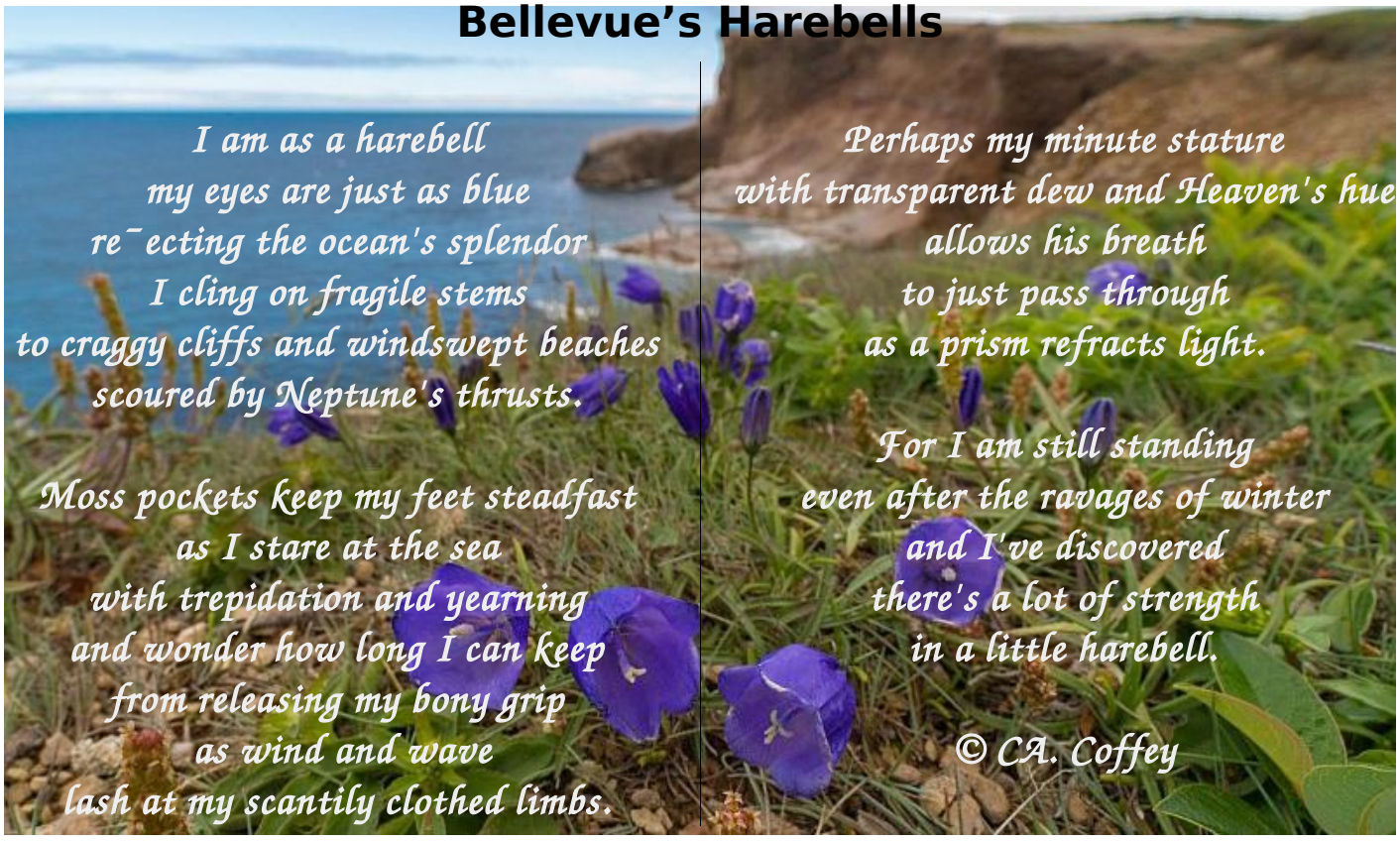
I was particularly taken by Jill's lovely picture of *Trillium cernuum* that appears on the cover; amazingly it was taken with her iPhone. The "Five Signs of Spring" pictures all come from this site too.

Did you know that there are actually forensic botanists? If you have half an hour to spare listen to: https://www.bbc.co.uk/programmes/m000cz0p Patricia Wiltshire's life is an example to all who have early problems with education. She's now a professor and uses botany to solve murders. (Also a downloadable podcast.)

Every so often Kew Gardens publishes a report on the state of the world's plants, which you can download free as a PDF document. https://stateoftheworldsplants.org/. The latest is from 2017. There's also one on fungi.

Carole Anne's poem (below) was written for her mother. The picture is by Gene Herzberg.

Bellevue's Harebells



Small Roundleaf Orchid — report of a new location in NL.

By Andrus Voitk

Every year we have made at least one spring or early summer pilgrimage to the limestone barrens of the Great Northern Peninsula, primarily, after another long winter, to visit our orchid friends foremost among them the pretty *Calypso bulbosa* (Fairy Slipper) and *Galearis rotundiflora,* (Small Roundleaf Orchid). For various reasons this regular journey had to be suspended in 2018. Imagine our delight, when we discovered that to make up for it, the kind *Galearis rotundifolia* decided to make the trip south to visit us, instead!

You may know the species as *Amerorchis rotundifolia*, but in 2009 this monospecific genus was moved into *Galearis*, based on molecular studies.(Bateman et al., 2009) Further molecular work also placed the Asian genus *Neolindleya* into *Galearis*, (Lin et al., 2014) suggesting that initially the genus may have evolved from the Asian side of the Bering Strait. Now its species are distributed in the Northern Hemisphere between Greenland and China, thus excluding Europe. *Galearis rotundifolia* is the North American northern calciphilic species of the genus, found in wetlands wherever limestone exists from Greenland to Alaska. In NL it is a favourite on our northernmost limestone barrens, with a handful of reports from somewhat more southern locations.

Figure1: *Some known sightings of G.rotundifolia South of Burnt Cape and the Strait of Belle Isle.*

Figure2: *Galearis rotundifolia*

John Maunder supplied the following records for this area shown as cirlces on the map:

- 1991, Port au Choix (Barbace Cove); Luc Brouillet and collaborators
- 1960, Main Brook (10 miles south); Tony Damman
- 1956, Beaver Brook, Canada Bay; A. F. Donly
- 1950, Wild Cove, near Corner Brook; Ernie Rouleau

Figure 3: Orchid Habitat

- 1948–1950 Dormston Quarry, Corner Brook (3 sightings); Ernest Rouleau

These non-limestone barrens sites are shown as circles on Fig. 1. To the south of Port au Choix no *Galearis*. Have been found on “limestone barrens”. There is also a large gapof about 195 km between the Port au Choix population and the non-limestone-barrens populationsfound in the Corner Brook area. To these sites now must be added a site (star on Fig. 1) close to Humber Village. The habitat (Figure 3) is a narrow fen with various herbaceous and bushy plants, primarily surrounded by black spruce, and occasional larch. For almost two decades we have visited this fen regularly several times each year to enjoy flowering of its long-time denizens, *Cypripedium parviflorum* var. *makasin* in June and *C. reginae* in July. When these are finished, *Platanthera dilatata* appears; so far we have not found other orchids there. This year (2018) two separate groups of *G. rotundifolia*, 4–10 cm tall and in full bloom (Fig. 2) were seen on July 9, one of 3 individuals and the other of 6, both near black spruce.

Fig. 1 suggests that the proximal Humber Valley region is favourable to this beautiful orchid, and likely more concerted searches might produce additional records. Although of striking beauty, the inflorescence is relatively short, and may be overlooked among the taller surrounding plants of a forest fen, whereas even the dwarf barrens orchids stand out more conspicuously among their flatter barrenland plant companions. The plant is know for its preference of cool habitats, and the very long winter in our area, with the last snowfall at the end of June, may have contributed to its flowering for the first time in our neighbourhood this year (2018).

References

1. **Bateman RM, James KE, Luo Y-B, Lauri RK, Fulcher T,Cribb PJ, Chase MW (2009):** Molecular phylogenetics and morphological reappraisal of the *Platanthera* clade (*Orchidaceae: Orchidiniae*) prompts expansion of the generic limits of *Galearis* and *Platanthera*. Annals of Botany 104:431–445.
2. **Jin W-T, Jin X-H, Schuiteman A, Li D-Z, Xiang X-G, Huang, W-G, Li J-W, Huang L-Q (2014.):** Molecular systematics of subtribe *Orchidinae* and Asian taxa of *Habenariinae* (*Orchideae, Orchidaceae*) based on plastid matK, rbcL and nuclear ITS. Molecular Phylogenetics and Evolution. 77: 41–53.

{N.B. Because of the rarity of this species the exact location has been omitted from this article. Anyone with a legitimate interest should get in touch with the author. Ed.}

Little Floating-heart (*Nymphoides cordata*) on Random Island:

New locality for an S2 Rank Aquatic plant.

By Tom Clenche

Abstract:-

Little Floating-heart (Nymphoides cordata) (Menyanthaceae) is a small aquatic plant species previously known from only 8 localities on the Island of Newfoundland, Canada. Its General Status, in the province of Newfoundland and Labrador, is S2, imperiled. In the summer of 2018, a ninth locality was discovered in a small salmon pool/swimming hole near Hickman's Harbour, on Random Island, and in a much smaller pool only about 200 m downstream from the outlet of the first. The Hickman's Harbour occurrences, which are located about 73.5 km away from the closest previously known occurrence, are the first ones known for Random Island.

Random Island is located on the north side of Trinity Bay, near the town of Clarenville, on the east coast of the Island of Newfoundland, Canada. It is considered to be Newfoundland's largest coastal island, with an area of 310 km^2 [1] .It is surrounded by two glacial fjords, each averaging about 2 km wide. There are eleven listed communities on the island.

The central portion of Random Island is boreal forest with numerous ponds, streams, rivers, and other wetlands. The western end of the island has some forest, numerous bogs, and other wetlands, but few open ponds. The eastern end of the island is high barrens, with a few ponds including the two largest ones on the island.

Map showing the Rattle and Lower pools.

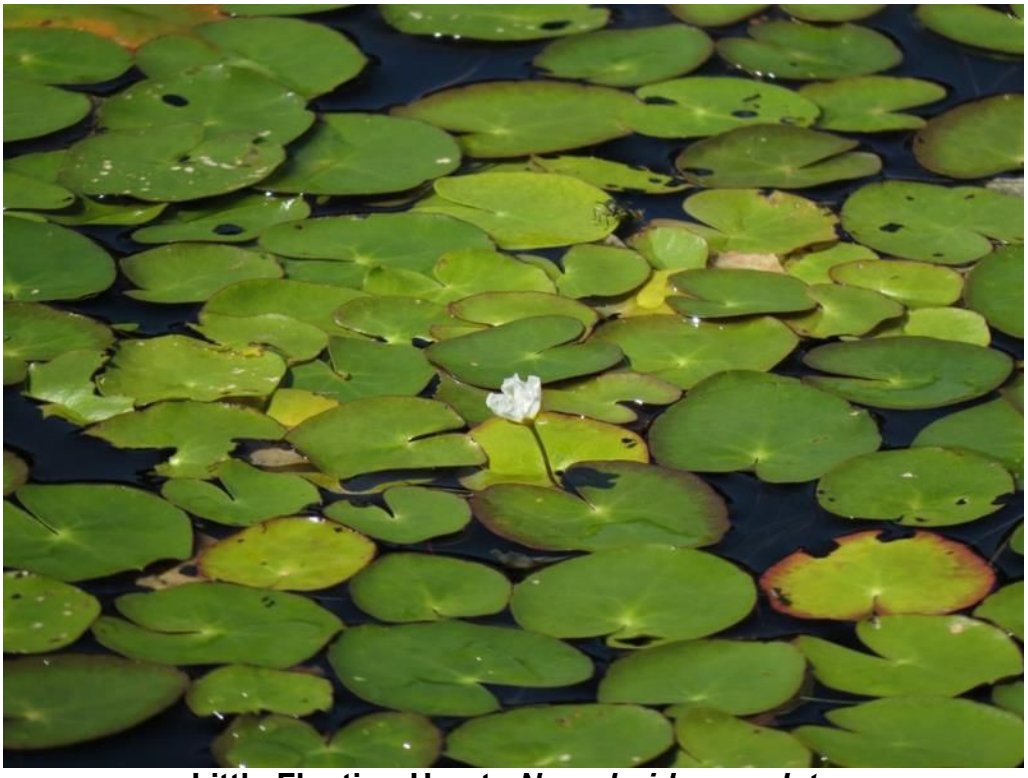
The Rattle is a popular fishing and swimming area located in the community of Hickman's Harbour on the central portion of Random Island. It is located near the

ocean outlet of one of the island's largest watersheds – the Hickman's Harbour Watershed - which encompasses numerous ponds of various sizes along with many other wetlands. The upstream end of The Rattle is a stream that flows a short distance from a pond, over rocks of various sizes. The main swimming area is "The Rattle Pool", a large pool approximately 35 x 50 m with an overall area of approximately 1100 m2 (48° 6'54.54"N 53°45'7.00"W). Water depths reach a maximum of approximately 4 m in the centre. The pool is mostly mud bottomed, with some large rocks, many of which were placed there over the years by people building wharves for salmon/trout fishing and swimming. On the south side of the pool, there is a beach of small stone (pea gravel), which was placed by local residents to enhance the area for swimming, sunbathing and other family activities. To the east is a large, recently-built home overlooking the pool. The remainder of the pool and stream is surrounded by boreal forest. Downstream from the pool, the stream flows out towards the sea along a much wider bed with a bottom of rock and mud. The Rattle Pool is known to be inhabited by numerous species of fish including Brook Trout (*Salvelinus fontinalis*), Brown Trout (*Salmo trutta*), Atlantic Salmon (*Salmo salar*) and the Three-spined Stickleback (*Gasterosteus aculeatus*). It is alleged that American Eel (*Anguilla rostrata*) also inhabits this area, but I have not observed this directly. Aquatic plants include Fragrant White Waterlily (Nymphaea odorata), Yellow Pondlily (*Nuphar variegata*) and Small Forget-me-not (*Myosotis laxa).* Belted Kingfisher *(Megaceryle alcyon)* have been observed frequently over the pool and the brook.

Just seaward of The Rattle Pool, the stream is crossed by a gravel road leading to a graveyard. Later, this same stream passes through a narrow rock gorge before falling into another pool, which will here be called "The Lower Pool" (48° 6'48.57"N 53°44'59.14"W), on its way, via a larger pond, to a smaller, shallow, pond that flows into Hickman's Harbour. From the graveyard road, now named "Rattle Road", a walking path about 80 m long leads to The Rattle Pool. The Lower Pool is also accessed from this road.

On 18 August 2018, I was walking around the perimeter of The Rattle Pool, observing and photographing plants, animals and insects, when, at the outlet of the pool, in water less than 30 cm deep at the time of observation, I observed what I thought, at first, was a dwarf waterlily, but which turned out to be a distinct species – Little Floating-heart (*Nymphoides cordata - Menyanthaceae*).

My identification was later confirmed by Todd Boland (Botanical Garden, Memorial University of Newfoundland) and John Maunder (Provincial Museum of Newfoundland and Labrador - retired). Both of these experts agreed that this was the first record of the species for Random Island; an exciting find, particularly since the General Status of *Nymphoides cordata*, in the province of Newfoundland and Labrador, is S2, Imperiled [2,3].



Little Floating Heart, *Nymphoides cordata*

John Maunder provided me with a list of all previously known locations of Little Floating-heart on the Island of Newfoundland:

1. Just north of Burgeo
2. Rushy Pond, at Beothuk Park, just west of Grand Falls

3. Backwaters of the Exploits River, west of Grand Falls near Red Cliff
4. Gambo River backwaters, below the TCH
5. Junction Pond, Whitbourne
6. Island Pond, just north of Colinet
7. Collin's Pond, a little west of Colinet at the highway junction to Branch
8. Snow's Pond (above North River), Conception Bay

The closest of these previously known localities is Snow's Pond, 73.5 km away.

The stems of Little Floating-heart sprout from rhizomes buried in the bottom. Each stem bears a single floating leaf less than 5 cm long. Just below the leaf, there may or may not be a clump of succulent, tuberous, "water roots" resembling tiny bunches of bananas. Tiny (10 mm diameter), white, five-petaled flowers, with yellow-green centres, also emerge from the stem, just below the leaf, and curve up to surface next to the leaf. Although multiple flowers are produced on each stem, they usually surface one at a time.

Little Floating-heart is usually found growing in ponds or slow flowing streams less than 2 m deep [4]. I have observed it attempting to grow in water depths greater than 2 m, but have never seen the leaves break the water surface during the growing season.

Returning to The Rattle, subsequent to my initial discovery, I attempted to describe better the Little Floating-heart populations located there. Two main clusters occurred in The Rattle Pool. One was found at the location furthest away from both the inlet and outlet of the pool. The other was found along the outlet of the pool, growing among, and along the edge of a group of Fragrant White Waterlily. In total, I estimated that there were 500-1000 individual leaves present in The Rattle Pool.

Rattle Pool

I then investigated The Lower Pool, located about 200 m downstream from the outlet of The Rattle Pool. This pool is much smaller, having a width of approximately 20 m. It is also quite shallow with water depths of less than one metre at the time of observation. There appeared to be several hundred healthy plants in this pool. It is possible that the species is more widespread on Random Island than previously thought.

Both of the Random Island locations of the Little Floating-heart were subject to abnormally heavy flooding as a result of heavy rainfall during Hurricane Igor, which occurred on 21 September, 2010, when the area received over 200 mm of rainfall within a four hour period. Several roads, and buildings, located within the watershed were washed away at locations both upstream and downstream of the Little Floating-heart pools.

On the upstream side, a takeout restaurant was heavily damaged and all of the cooking oils and other materials were washed into the flood waters and swept downstream in the direction of the pools containing Little Floating-heart. Debris in the form of a metal road culvert remains present in The Lower Pool where the secondary population of Little Floating-heart was discovered.

In this same pool, there is evidence of alteration of both the pool size and depth in the form of rocks deposited along the downstream edge of the pool. Local residents confirmed to me that the outlet of The Rattle Pool has decreased in depth due to the effects of Hurricane Igor. In the past, children swam in the shallow river outlet, something that will no longer be possible due to lack of water depth. On the other hand, this disturbance event may have actually made The Rattle Pool outlet a more suitable environment for the growth of Little Floating-heart.

So, in spite of the changes wrought by Hurricane Igor in 2010, or maybe because of them, Little Floating-heart appears to be quite healthy in the Hickman's Harbour watershed.

Nonetheless, both of the Random Island populations face immediate threats from upstream sources. Continued housing, cottage and industrial development upstream of the Little Floating-heart sites could threaten the plants via various forms of pollution. Indeed, upstream within 1000 metres, are a school, an operating gas station, an old abandoned auto repair centre and an automotive scrapyard. In addition, a new industrial garage is under development within this zone. Further upstream are numerous cottage developments, several sand and gravel pits, and a large saw mill operation, with other commercial activities taking place at a saw-mill site.

Lower Pool

It would be a great loss to science and nature if this newly discovered population of such a rare plant were to be wiped out by human caused factors, or accident, within just years or decades of being discovered.

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4. Boland, Todd. 1997. Wildflowers and Ferns of Newfoundland: Field Guide. Boulder Publications.

Acknowledgements:

I would like to thank:

My son Thomas, for introducing me to "The Rattle" which quickly became our favourite swimming hole.

Edward (Bud) Vincent who kindly donated two kayaks to allow me (along with my son) to continue the exploration of ponds and other waterways on Random Island to see if any more colonies of *Nymphoides cordata* exist in this area. Who knows what else we may find!!

Dr. Yolanda Wiersma for her continued support of my interest in the flora and fauna of Newfoundland, and for agreeing to assist me in my efforts to compose this paper. I would also like to thank her for starting https://nlnature.com , a great source of reference and inspiration for my citizen science efforts.

And to **Todd Boland** and **John Maunder** for expert advice on the identification and to John and Yolanda for helpful comments on earlier drafts of this article.

Five signs of Spring.

By Howard Clase

Canada Mayflower.

When Leila and I first began to explore the Avalon woods over 50 years ago we learned that there were five native plants to look for early in the year (June!): Canada Mayflower, *Maianthemum canadense,* Corn Lilly, *Clintonia borealis,* Bunchberry, *Cornus canadensis,* Starflower, *Trientalis borealis,* and Goldthread, *Coptis trifolia*. (Gene Herzberg's picture shows well the distinctive yellow spoon-shaped staminodes of the latter species.) These five plants have been beautifully photographed this spring and posted onto the “Wildflowers of Newfoundland” Facebook site by various contributors and I have selected these illustrations from among them. The Bunchberry is by Matt Levesque and the other four are by Gene Herzberg. Thanks for permission to use them. However, in recent years I feel that the last of these, Goldthread, has become quite scarce, I have not seen it myself, but there have been a few web postings. Maybe due to climate or some other environmental change?

Bunchberry

Corn Lilly & Spring Azure butterflies.

Starflower

Goldthread

Notes to contributors.

Sarracenia is prepared using Apache OpenOffice – a free office suite that offers capabilities far beyond the needs of the ordinary user, and is largely compatible with MSOffice. (The latest version is AOO4.1.7) As a fan of AOO I would be happy to help anyone who is interested in trying it out, It includes several other programs as well as the word processor such as the equivalents of excel and powerpoint.) It runs under Windows, Mac and Linux operating systems. It would help me as editor if contributors would take note of the following guidelines when submitting articles, I will be happy to discuss the details, and I will send proof copies to authors whenever possible.

General.

I will be responsible for the overall format and layout of the magazine. Contributors should keep to default formatting as far as possible. Please avoid excessive use of the space bar and block capitals. Leave the the fancy formatting to me! Don't spend a lot of time on formatting it to look “just right”, I shall probably have to undo it all and start again, and sometimes it has proved very difficult for me to remove all the Word hidden formatting instructions – it has even crashed my computer.

Text.

Text should be supplied without embedded pictures or tables, but type styles like italics, underlining, etc. should be included. The “native” format for AOO is Open Document Text (.odt) but I can also handle files in .rtf, .doc, .docx, and .wpd formats. All word processors give the option of saving in rich text format (.rtf), this preserves italics etc. Please do not use simple text (.txt) as all these styles will be lost. Typos may be corrected, but changes of substance will only be made after consultation with the author. It is my normal practise to send proofs to authors before publishing.

Pictures and Tables.

These should be supplied separately; pictures preferably as Jpeg files, raw formats like tiff are very bulky and will have to be converted. Please do not resize to very small sizes, such as are usually used in e-mails, these may not contain enough detail when printed, even though they look fine on the screen, but very large files can be resized, 5 MB maximum if possible. Pictures will likely be cropped – but leave that to me, it depends upon the space available. You should indicate in the text where you would like them to be placed if it isn't obvious. Captions may be included at the end of the text or separately as convenient.

Hard copy.

Material which is already printed will have to be scanned into electronic form, (I can do this). Illustrations will be kept as is, but text will either be re-typed or converted via an optical character reader. The format may be changed, but I shall only do this in consultation with the author.

Scientific Names.

All articles should include both the scientific name and the common name of each plant at least once, normally at first mention. The main text may use either. Only scientific names will be indexed. Scientific names will be italicised, they need not include authorities if they follow those in the on-line “Flora of Newfoundland and Labrador” by Susan J. Meades and William J. Meades: ***https://newfoundland-labradorflora.ca/ .***

Index of Scientific Names