



Sarracenia

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Newsletter of the Wildflower Society of Newfoundland and Labrador
c/o Botanical Garden, Memorial University of Newfoundland, St. John's, NL, A1C 5S7

Any articles from members would be most welcomed and may be sent via email to todd.boland@warp.nfld.net or via regular mail

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Fall/Winter Programs

Of Pollen and Glaciers *February 4, 2004*

Studies of pollen enable scientists to form pictures of past landscapes and climate. Dr. Joyce Macpherson, editor of *Natural Environment of Newfoundland Past and Present* will talk on the pollen record of postglacial vegetation changes in the St. John's area.

Alien Attack! *March 3, 2004*

Did you know 1/3 of the province's flora has been introduced? Dr. Wilf Nicholls, curator of the Memorial University Botanical Garden, will talk of the joys and problems caused by invasive plants.

A Taste for Wildflowers *April 7, 2004*

Greg Stroud, the Head Interpreter for Terra Nova National Park, will introduce us to plants that may tickle your taste buds. Bring a friend and learn about edible wild plants, their characteristics and uses.

The Orchid Hunter *May 5, 2004*

Have you ever wondered:

How many wild orchids are there in

Newfoundland?

Which are considered rare?

Which are endangered?

Are there any imports that grow wild?

Why is Newfoundland a favourite hot spot for orchid lovers?

Join Andrus Voitk on a photographic overview of the thrilling journey to track down all the wild orchids known to grow on the island of Newfoundland, some very rare, some just recently discovered and one recently re-discovered, spattered with a first-hand description of the excitement of the hunt, by someone just back from the front lines. Pretty pictures galore!

Please note that this meeting is also our AGM.

River Banks and Abandoned Mine Sites

President's Message - An Overview of the Upcoming Summer Field Trip

It seems we will meet many members of the Pea Family, Fabaceae, this summer on our annual field trip. The most distinctive

feature of this family is the flower shape. The sepals are united into a tube. There are 5 petals; the broad upper one is called the standard, the 2 side ones the wings, and the 2 lower ones the keel. The keel petals, which are often joined at their lower edges, enclose the 10 stamens. The stamens are fused into a tube, either 9 of them or all 10, and this tube encloses the carpel which later forms the pod. The leaves have stipules and are usually compound, sometimes forming tendrils. The family includes a wide variety of plants from trees to tiny vetches and clovers.

John Maunder, Curator of Natural History, Provincial Museum of Newfoundland and Labrador, has described to me some of the plants we should expect to see.

On the rocky banks and flood plains of the Exploits, there are various sites where some of the rare local members of the Fabaceae grow. John will introduce us to the "Fab Four": a smooth, elegant variety of the Alpine Sweetvetch, *Hedysarum alpinum*; Brunet's Milkvetch, *Astragalus alpinus var. brunetianus* (rare); and two forms [hairy and smooth] of the "Exploits River variety" of the Elegant Milkvetch, *A. eucosmus var. facinorum*. Confused? Make yourself familiar to this family by checking out the beautiful photos on his website - <http://nfmuseum.com/flora.htm>.

Another plant of interest in this area is Cutleaf Anemone *A. multifida var. multifida* (rare). We may also encounter this member of the Buttercup Family on the Baie Verte Peninsula.

Apocynaceae, the Dogbane Family, is represented on the island by two species and a hybrid between them. We should be lucky enough to see all three.

Spreading Dogbane, *Apocynum androsaemifolium* ssp. *androsaemifolium*; Indian Hemp (rare), *A. cannabinum*; and Intermediate Dogbane, *Apocynum x floribundum* are all found in central Newfoundland.



Apocynum cannabinum

Photo: John Maunder

The banks of the Exploits provides a habitat for another rare plant in this province, Showy Balsam Ragwort, *Packera paupercula*. On the roadsides just east of Grand Falls, we will also see its big sister, the Golden Ragwort, *P. aurea*. The Asteraceae Family is one of the largest plant families and is well represented in this province. A fairly recent arrival to the island is Meadow Goatsbeard, *Tragopogon pratensis*. In England, the tall, yellow wildflower is called Jack-go-to-bed-at-noon. The seed head is globe-shaped like that of a dandelion, but more striking. The round blow-balls would certainly add interest to a dried floral arrangement.

Besides white thistles and lots of butterflies, on the Baie Verte Peninsula we can expect to see Field Oxytrope, *Oxytropis campestris*, another plant from the Pea Family though it is uncommon there. It likes

calcareous rocks and gravels. *Oxytropis* means "sharp keel" in Latin. Tilt Cove will be one of our main stops because of the orchid, *Dactylorhiza*. However, when I visited there in 1995, I also saw Yellow Vetchling, *Lathyrus pratensis*, growing near the road in the little community. Another pea!

The Marsh Orchid, *Dactylorhiza* sp., was discovered in recent years in Tilt Cove. Now a ghost town, but once a lucrative mining town during the latter part of the nineteenth century, Tilt Cove is 50 kilometres from Baie Verte. Another variety of this rare orchid was discovered in 1996 at Pippy Park during the construction of the Outer Ring Road. These are two of the only three known sites in Canada for the beautiful, magenta-coloured orchid. The other site is in Timmins, Ontario.

There are lots of trails and places to explore on the Baie Verte Peninsula, and narrowing them down will be a challenge. Besides Tilt Cove, Smith's Harbour will most certainly be one place we will have to go because of limestone caves that give Limestone Park its name. There is very little limestone in central and eastern Newfoundland and it will be interesting to see what we find.

Later this spring a full itinerary will be drawn up and distributed to those signed up. In the meantime, Howard Clase has posted some information on the website he designed for our society.

Check out

<http://www.chem.mun.ca/~hclase/wf/>

The last leg of our trip will be to Main River near the communities of Pollard's Point and Sop's Arm. Our group has never ventured to this area and it promises to be an exciting place for naturalists to visit. New member, Carl

Munden wrote me ".....a wonderful trail that starts right across the road from the campground. This trail has old growth, coastline, open and shrubby areas and even a fresh water swamp habitat. It is about half to a kilometre long".

Hiking boots, rubber boots, bug jackets, insect repellent, sun block, rain gear, cameras, water bottles, binoculars, notebooks, field guides, bring it all and come prepared for an exhilarating time!

Our first meeting place will be on Sunday, July 18 at approximately 2:30 P.M. at Gillingham's Irving, Trans Canada Highway, Bishop's Falls.

Glenda Quinn

P.S. The botanical name for the Tilt Cove Orchid is *Dactylorhiza majalis subsp. praetermissa var. junialis*. Put that in your pipe and smoke it!

The Great Newfoundland Orchid Hunt

by Andrus Voitk

The thrill of unexpectedly coming upon several spectacular orchids in full bloom suggested a project to photograph all orchids on the island of Newfoundland – something that turned into a three year undertaking. After a few lucky initial finds the idea of turning the result into a poster seemed appealing. This is a brief account of the hunt.

As with many such projects, its initial seeming simplicity became the trap for the unwary. When I showed my first eight orchids to a flower enthusiast, I was told the number on the island was double that.

Having already eight, another eight seemed easy. Seeking further information, I was advised the true number was 20. Todd Boland's article in a ten-year-old issue of Wildflower named 31 species. More difficult, but still doable. Susan Meades' web site named 44. This was already a significant undertaking, but since the project was by now under way, my wife Maria and I resolved to pursue it, provided nobody upped the ante again.

In an effort to avoid confusion, argument and, mostly duplication of seemingly similar pictures, we decided to eliminate hybrids. For ease, we also decided to ignore differentiation of forms. This reduced the number of species to 40. Now the search was on in earnest!

The first two summers were a series of pleasant hikes for us, photographing what orchids we happened to find along the way. It also gave us several pleasant camping trips, exploring areas of the province. This netted us about 75% of the known species. The last summer was devoted to the remaining 25%. It was much different from the previous two. Now we had no time to camp, hike or to enjoy the scenery. It was a matter of traveling to a site where an orchid was expected to bloom, snap its picture and travel to the next site. A network of assistants had been developed, who reported on locations and blooming times or helped us with the hunt. We moved back and forth across the island with our most wanted list, and crossed them off one by one. During the last six weeks we logged over 8,000 km on our car to find only a small handful of species.

Some of our rare orchids are known from only a few locations, some from only one. The location is often a jealously guarded secret, for in many cases the orchidophile may turn out to be the orchid's worst enemy. The location of these sites did not prove to be a difficulty. Once

enough work had been done to garner some credibility with the botanists, they were very generous with their help and time. Secret sites were revealed on condition they not be divulged to anybody. This proved to be a far more difficult constraint than locating the flowers, for how do you refuse to divulge a location to a professor of botany or even the provincial botanist in charge of rare flowers? The ability to keep our word in this regard opened up the remaining secret sites to us. It seemed the guardians of the sites, when they saw we would not divulge other sites to them, felt they could safely divulge theirs to us!

Much more difficult than finding secret sites was differentiating between similar species. The humble bog candle or scent-bottle (*Platanthera dilatata*) comes in a range of sizes, from small fragile spikes with a few blooms to stately robust plants nearing three feet, yet is considered the same flower, no matter what. Its green petalled counterpart, however, which also comes in a similar spectrum, is considered as two: the fragile one is *P. aquilonis* and the robust one *P. huronensis*. Where to draw the line? The extremes are easy, but there is a large gray area in between.

Similar problems are presented by the purple fringed orchids, one large flowered and one small flowered (*P. psycodes* and *P. grandiflora*). The Codroy Valley is a particularly productive area for these flowers, but it would seem that there is so much crossbreeding back and forth among these, that a pure growth of one or the other species is hard to come by. Hybridization with the white ragged fringed orchid (*P. lacera*) does not help this search; neither do white forms of the purple ones! It seems that in other areas the difference may be more evident

because of separate blooming times, but our relatively short summers tend to crowd blooming times together, facilitating cross breeding. Often features of both species could be found in the same plant, sometimes simultaneously, sometimes with the passage of time.

What made the differentiation of the above examples even more difficult was the statement that size was not a reliable differentiating variable between the large and small species: one may find a large specimen of the small plant and a small specimen of the large! This was nowhere more evident than in the differentiation between the round leaved orchid (*P. orbiculata*) and its large leaved cousin, Goldie's large leaved pad orchid (*P. macrophylla*). On some Gros Morne trails large specimens, four times the size of the "normal" flowers, turned out to be large specimens of the



Arethusa bulbosa

Photo: Graham Giles

small plant. Near Salmonier Park we were shown some "normal" sized specimens, which on closer examination turned out to be small specimens of the large leaved species. The tip-off here is spur size; the cut-off is 29 mm.

Search for *P. macrophylla* revealed a relative disaster: its known site in Salmonier Park has been lost, apparently without anyone's

notice, when a storm in 1994 blew down the trees where these flowers grew. Increased sunlight allowed meadow plants to move in and the orchids disappeared. Very few specimens can be found elsewhere in the province.

Of special annoyance were the three introduced species. All required travel away from the West Coast. The Tilt Cove orchid (*Dactylorhiza majalis* ssp. *praetermissa*) has been here for about 100 years, but true to Newfoundland accounting, is still considered a cfa. A European species, not known in North America, it is also found in Alaska and Timmins, Ontario, both mining towns like Tilt Cove. In all three instances it is thought to have been introduced by soil and seed contamination on mining equipment imported from Great Britain. Two imports, *Dactylorhiza* aff. *praetermissa* and *Epipactis helleborine*, grow in St. John's, unfortunately blooming a month apart, necessitating two separate journeys to be photographed.

Apart from three historic species which we have not found, the most difficult orchid to find proved to be white adder's tongue (*Malaxis monophylla*). After repeated searches in reputed sites, we found only a single specimen in a habitat much like the ones recommended to us earlier. Next in elusive rarity was the auricled twayblade (*Listera auriculata*). Again, countless trips to countless known sites failed to turn up specimens. A specimen in the Montreal Herbarium was noted as coming from a region behind St Paul's Inlet and eventually a search of the area did indeed yield 12-20 plants, found after intense search by several people. Despite other reported sightings from the past in more accessible areas, so far this has remained the only site where this flower has been seen by us.

Other rare orchids did not prove to be problematic. Although rare, if the correct habitat is searched, there are plenty of frog orchids (*P. viridis*), Hooker's orchids (*P. hookerii*) Newfoundland orchids (*Pseudorchis albida*) and others. Even the pert calypso (*Calypso bulbosa*), once located, has plentiful specimens in the few sites where it grows. The good news is that striped coral root (*Corallorhiza striata*), previously known from one (secret) location only, has been found in a second location. Although not sworn to secrecy, we won't reveal that one either!

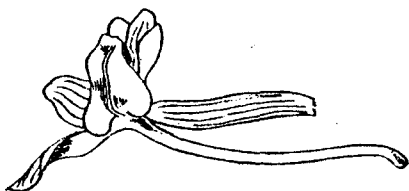
Of the four known historic species, one, white adder's tongue (*Platanthera foetida*, previously known as *Piperia unalascensis*), was relocated a few years ago. Of some concern is that going to its (secret) site some three years after the last visit by a botanist, the number of specimens seen was many-fold less than previously noted.

Although we were content to let the historic orchids remain historic, two factors prompted us to search for them. Firstly, one (*P. foetida*) had been relocated, increasing the likelihood of relocating the remainder (*Listera borealis*, *Goodyera oblongifolia* and *Liparis loeselii*). Secondly, Prof Paul Martin Brown from Florida has reported seeing all three in Newfoundland. Unfortunately, several trips to sites he specified exactly, at times he indicated as ideal, e as well as before and after, failed to turn up any evidence of them. We felt the easiest of these to locate should be *G. oblongifolia*. Its collection site has been reasonably well documented with the existing herbarium specimen in Montreal, corresponds to the site described by Brown and is readily and unmistakably identified on the map from the description. This resulted in a two days' camping on Serpentine Lake by four people, without sign of an orchid which should be reasonably easily seen and identified. After

considerable searches for the three, we decided to revert to the original plan and consider them as historic, not identified by us.

This project has been a fantastic journey, an unparalleled adventure. Apart from our own neighbourhood in Humber Village, we have traveled to St John's twice, to Cheeseman Park twice, to Salmonier Park, to Tilt Cove, with great adventures camping on Shelley Island in Fleur de Lys afterward, covered all the walking and hiking trails of Gros Morne and much of the non-walking area around uncountable times, taken three trips to Burnt Cape and the Northern Peninsula, and, finally, explored almost the entire limestone barrens along the west coast, from St Anthony to Stephenville Crossing and below. We have had uncounted adventures and pleasant encounters, making the poster a secondary by-product.

Thus, a poster of 37 orchids was produced. This did not come about by our efforts alone, just casually traipsing about the woods. It was the result of many good people's efforts and much help. Although the list may be incomplete, help in this undertaking was given by Todd Boland, Paul Martin Brown, Michael Burzynski, Nathalie Djan-ChÈkar, Howard & Leila Clase, Henry Mann, Anne Marceau, John Maunder, Carl Munden and Wilf Nicholls. The poster is donated to the MUN Botanical Gardens, to further its aims, which are ours, in hopes it will help preserve for all Newfoundlanders for all time this incredible heritage.



Profile on Photographer, Lydia Snellen, FCPAC, EFIAP

By: Carmel Conway

It was in 1995 that I joined the Wildflower Society and this was largely due to the photography of **Lydia Snellen**. Since that time I continue to find her work exciting, magnificently beautiful and always fresh!

Glenda Quinn originally introduced me to the Society. I live with my family in Pippy Park and though I have always been a nature lover, I was not able to identify many of the plants and trees on our property. Glenda felt the Society's talks and slide presentations might be of interest to me. I did find it difficult to imagine that a group of people met on a regular basis to discuss wildflowers. So I attended my first meeting with apprehension. Most of the people at the meeting seemed to be serious minded experts and I felt quite out of place. The presenter that night was photographer, Lydia Snellen, and her talk and slide show was entitled Wildflowers along the Waterford River Valley.

Well when the room darkened, and Lydia's images appeared, I was totally transfixed. To walk along a path and catch the late afternoon sun hitting a small patch of wild lily-of-the-valley, or to see some filtered light passing through a lone moccasin slipper is one thing, but to see nature's beauty transformed so wonderfully across the screen was something else! Lydia's dewy dogberry reds, and vibrant crimson-coloured rose hips and shades of pink in a single blade of grass were like a brilliant bonfire of colour! She seemed to take me so close to her subject that it felt personal. They were more than photographic images, they were art. Moreover, I was not only awed by such splendour but by the articulate and youthful woman who discussed her slides with such

modesty. The show lasted just over an hour, but I wanted to see more!

Lydia Snellen was born in the Netherlands in 1928 and has been living with her family here in St. John's since 1970. She lives in a beautiful old home nestled in the Waterford Valley surrounded by the loveliest of flowers and trees.

Her photography began when she started taking pictures of Newfoundland landscapes, fishing boats and pretty coloured houses to send back home to her family and friends. To her surprise many people wanted a copy of her images and she began selling her photos at the Cod Jigger and Macy's.

Since 1976 she has been entering the Arts and Letters Competition, where 29 of her prints have been accepted, and she captured first and second place prizes, including numerous honourable mentions. She has been exhibiting her nature photography since 1980 at the Memorial University Botanical Garden.

In 1981 Lydia joined the local Camera 35 Club, where she served on the executive for eleven years. In 1997 she became the first Honorary Lifetime Member of Camera 35 Club, and continues to be a very active member. Her slides and prints have earned her many of the club's ribbons and trophies.

When speaking with Lydia about her photography in the early 1980's she becomes quite excited! She laughs as she says "I was bitten by the close-up bug!" She experimented with many close-up lenses but today favours her 100 mm Vivitar macro lens and her trusty old OM 1 camera mounted on a tripod.

Nationally, she was won some 42 honorary mentions and 10 medals with some

200 of her images accepted in International Photo Salons throughout the world. She received two successive international distinctions - AFIAP and EFIAP/Artistic and Excellence FIAP/la Federation Internationale de l'Art Photographique.

In May of 1993, Photo Digest did a "12 by 12" feature which consisted of a photo and article honouring a female photographer from each Canadian province. Lydia was selected to represent Newfoundland and she featured an iceberg photo.

In 1999, thirty three of her slides were chosen for the Grand Concourse Walker's Map and Handbook, which had been designed to help walkers identify some of the wildflowers along the 29 trails in the city.

In the summer of 2001 her Mating European Skipper was profiled on the cover the magazine, American Entomologist. In the summer of 2003, her artificial Cornysyrup Flower graced the cover of Canadian Camera, the magazine of the Canadian Association for Photographic Art. In August of 1999, she had her one and only exhibition called Inspired by Nature at the Eastern Edge Gallery.

Lydia continues to be a regular presenter for the Camera 35 Club, Friends of the Garden, The Wildflower Society, and her topics have included: *Butterflies and other Garden Critters*, *The Hidden Sex Life of 20 Trees and Shrubs in St. John's*, and *Wildflowers along the Waterford River Valley*.

Lydia Snellen is a gifted photographer. With her sharp camera eye she is able to push us to view nature more closely. She has always encouraged photographic pursuit and its excellence. Her images reflect not only her commitment to her craft, but her incredible love of nature and life!

Of Rocks, Ponds, Ducks and Stoneworts

by Henry Mann

I joined the Wildflower Society naturalists at L'Anse-au-Clair, Labrador on the evening of July 27, 2003 for the annual field trip. New acquaintances were made and old ones renewed over dinner at the Northern Lights Hotel. In addition to eight Newfoundland representatives we hosted five guests from Nova Scotia who brought with them bountiful enthusiasm and a broad background of observations.

After braving driving rain the following day exploring the cliffs at L'Anse-Amour, we headed north to Red Bay, Mary's Harbour and Battle Harbour. A few of us would venture on to Cartwright at the end of the week, but most would return to the Island on the following Saturday. The new gravel highway beginning at Red Bay was smooth and in very good condition all the way to Mary's Harbour. North of Red Bay the countryside is an open vista of hills and valleys, rocks, ponds, peatlands and heaths with only scrub spruce in more sheltered areas. Wherever there was a bit of stunted woodland, "komatik" sleighs used to collect wood by skidoo in winter were scattered along the roadside. As the road neared Mary's Harbour, substantial forests of black spruce and scattered larch occurred in sheltered valleys with trees up to eight inches in diameter, occasionally up to ten inches (20-25 cm). Deciduous trees were distinctly uncommon in these black spruce forests. At times the woods opened up into extensive patches of yellow-green Reindeer Lichens among the sparsely scattered trees. Everywhere bedrock and glacially transported boulders dotted the landscape. Mostly, soil cover is thin above bare rock or gravel deposits.

As the road is newly built, almost no vegetation occurs in the rocky, gravelly ditches with the exception of small patches of fireweed which were in early to mid-bloom. Perhaps it was my imagination, but the Labrador fireweed seemed to have a deeper more vibrant magenta color than that on the Island. In wet areas several species of cottongrass (Eriophorum) put on impressive displays, especially the rusty-headed kind. Near Mary's Harbour sheep laurel and bog laurel were in full bloom along with fireweed. Other plants in bloom included crackerberry and twinflower, but my purpose in this article is not to detail the wildflowers. That will be left for others to do. I wish to talk about stoneworts.

The portion of Labrador we visited is certainly a land of stone, but unfortunately yet interestingly enough, not of stoneworts. Before I attempt to explain why this is so, perhaps I should address the first question that is always asked when these plants are mentioned; i.e. "What are stoneworts?", and the second also, "What good are they?"

There are about a dozen species of stonewort in Newfoundland, perhaps 300 to 400 worldwide, depending on who is counting. They are small green "plants" ranging in size from a few centimeters to half a meter in length which grow on the bottom of lakes, ponds, and streams. In some ways they look like miniature horsetails (Equisetum) having a similar body plan of a stem with whorls of branches along it. Like the horsetails they reproduce by spores, but unlike the horsetails they are not vascular plants, being more closely related to the green algae. Three genera of stoneworts (charophytes) are known from our province, Chara, Nitella, and Tolypella. Only the first two groups are common. Chara and Nitella can be distinguished by

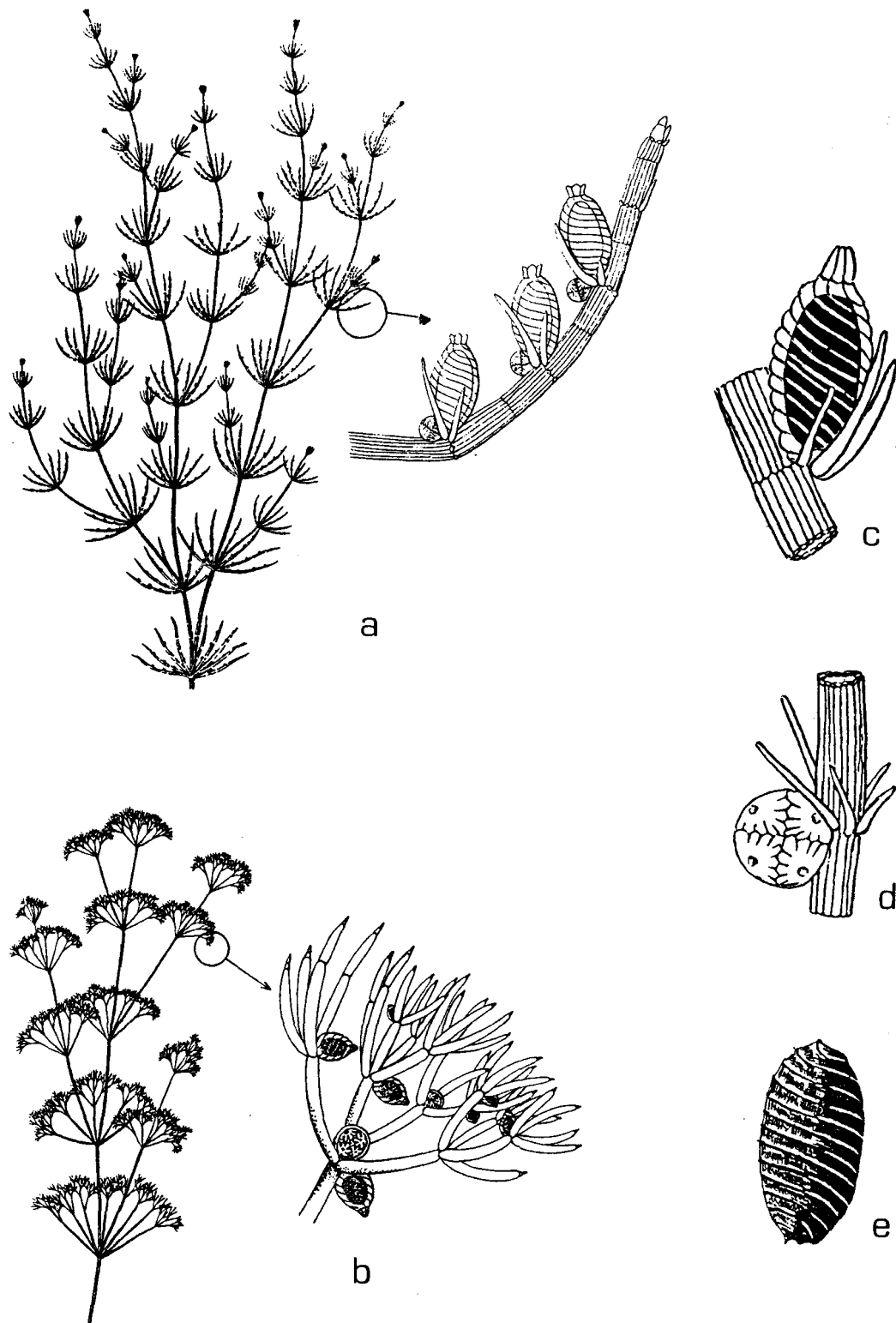


Figure I. a. Chara with enlarged branchlet. b. Nitella with enlarged branchlet. c. female gametangium. d. male gametangium. e. spore.

the structure of their branchlets as illustrated in Figure I a and b. Those of *Nitella* are forked one or more times. On their branchlets occur male and female reproductive structures which are often orange in colour when mature (Figure I, c,d). Each female reproductive structure produces one big spirally grooved spore internally (Figure I,e) which can be the size of the period at the end of this sentence and which appears black to the naked eye. The plants produce a network of root-like threads (rhizoids) which anchor them in the pond bottom. Although not truly "plants" in the modern sense, they mimic the form of higher plants with apparent stems, roots, leaves, and even colourful reproductive structures. One might say that they are "plants" that do not want to be algae, would rather be land plants, probably tried it in the past, but decided that life in water was more preferable or perhaps safer.

Charophytes are modern descendants of similar ancient aquatic plants which gave rise to all our land plants hundreds of millions of years ago. Because they are hidden from view beneath the waves and because they are neither typical algae or higher vascular plants, they have been largely ignored by algologists and vascular botanists alike. For example, only one individual in Canada is currently actively involved in the study of their taxonomy, ecology, and biogeography. Few charophytologists exist elsewhere in North America; most are located in Europe, Asia and Australia. Some study living stoneworts, others fossil forms, and some investigate the functioning of their easily manipulated huge cells (cell physiology). Much work still needs to be done on their taxonomy and ecology in North America if we are to understand them more fully.

When the question "What good are they?" is asked about any group of living organisms it usually means "Can I eat them?, Can I sell them?, or Can I make something with them?" Well, we do know that stoneworts sometimes "stink", but whether their unique chemistry will someday lead to cures for disease, respite from aging, or products of human commerce is unknown at present. However, we do know that two traditional beloved pastimes of Newfoundlanders would not exist in the absence of stoneworts. Most ponds, lakes and slow moving streams on the Island are well endowed with a significant flora of stoneworts often forming dense miniature aquatic forests. Within these dense forests all manner of aquatic invertebrates feed and reproduce. These Lilliputian gardens are also nursing beds for small fish as well as food supermarkets for larger fish, ducks, and shorebirds. In addition to feeding on invertebrate animals, ducks and geese also prefer to eat the stoneworts directly because of their nutrient rich reproductive structures and their "bulbils" which are tiny starch-filled "tubers" in the rooting system. Some species growing in calcium rich waters produce a crusty limestone covering that is also desirable to waterfowl to help grind food in their crops. This rough hard coating is the source of the common names "stonewort" and "brittlewort".

So you see, stoneworts directly and indirectly produce much of the food for waterfowl and also for trout and other fish. Sportfishing and waterfowl hunting adds millions to the provincial economy each year. We should enthusiastically thank our stoneworts for this good fortune and for a lot of enjoyment associated with it!

Our North American "Dr. Stonewort" Vernon W. Proctor of Texas has

demonstrated that the ingested stonewort spores can pass through waterfowl and shorebirds and still germinate. In addition their tiny spores can be carried on muddy feet and feathers from pond to pond through the characteristic feeding behaviour of ducks, geese and shorebirds. From a stonewort's point of view, ducks are merely "distribution vehicles" and when ducks finally evolved back in the mists of time, stoneworts began utilizing them to travel to the ends of the earth and to diversify.

I have collected charophytes (stoneworts) in Labrador, but in this part, L'Anse-au-Clair to Mary's Harbour and Battle Harbour, they are as "scarce as hens teeth". Even though our wildflower group included some of the "sharpest" birders in the Atlantic Region, no-one saw a duck other than a merganser on any of the scores of freshwaters we encountered. But the equation, "no ducks equal no stoneworts" is only a part of the answer. Fundamentally it is the climate and geology which determines the absence of both ducks and stoneworts. A glance at a geology map of the area shows that except for a small section near the straits, mainly granitic and other rocks of low solubility (acid rocks) occur. These are also deficient in most of the nutrients for plant growth. Plants need about fifteen different minerals besides air and water for normal growth. Only a few of these are available in any quantity from the local bedrock.

Most of the ponds we encountered tended to be devoid of any kind of higher vegetation except some aquatic mosses which can grow under very acid and nutrient poor conditions. Occasionally encountered were yellow pond lilies, carex sedges and water horsetails, but even in these ponds the bottoms were free of vegetation including the ubiquitous stoneworts. Conductivity

readings taken at Mary's Harbour River and a pond near Red Bay indicated only a tiny quantity of minerals dissolved in the water, much less than is normally found in charophyte rich ponds on the Island. It would also be interesting to know the concentration of the 15 plant nutrients, but this would require detailed laboratory analysis. Interestingly enough, the Battle Harbour islands are largely granite, however, on the smaller community island some ponds had veins of limestone rock passing through them. These had a slightly richer aquatic flora than those entirely in granite basins, including *Callitriche*, *Hippuris*, *Isoetes*, aquatic *Senecio*, and a few other species. In these ponds the basic, more soluble limestone rock was adding nutrients, keeping the water less acid, and allowing for more vegetation diversity. These ponds were also more open to salt spray drift than those we examined on the larger Caribou Island. Ocean salt spray in moderation would help fertilize these pools. In the presence of incoming "stonewort dispersal vehicles" these ponds may have the ability to support a stonewort flora, however, being a tiny island oasis in a "sea" of sterile granite means that the spores simply have not arrived since the ice sheet faded away not too long ago.

Climate also certainly plays a role in this rather barren windswept corner of Labrador as can be seen in the terrestrial vegetation. Growing seasons are short and waters remain cold throughout the year. On the last week of July/first week of August sizeable snow patches still hung on some northerly slopes with arctic/alpine species like *Phyllodoce caerulea* and *Salix herbacea* growing nearby. Low vegetation productivity of waters results in poor invertebrate productivity (except mosquitoes and blackflies!!) and poor trout productivity

which also leads to poor waterfowl and stonewort habitat. Perhaps the relative absence of aquatic predators such as dragonflies partially contributes to the infamous hordes of biting flies so characteristic of the area.

To support some of my speculations on rocks, ducks and stoneworts, it should be noted that although not common, stoneworts have been collected from the lower straits area near L'Anse-au-Clair (thanks to John Maunder) where the substrate is more a mixture of rock types including limestones. For example on the cliffs accessed by the Battery Hiking Trail calcium loving plants grow in the same general area as "acid rock" plants. Stoneworts are also known from the warm oasis of the lower Churchill River Valley in central Labrador and in the ponds towards Labrador City which are noticeably richer in emergent vegetation and in ducks. North of the Goose Bay to Labrador City corridor lies totally uncharted territory relative to stoneworts. Climate and geology will play their roles here as well, but localized areas of occurrence possibly exist. Look for ducks and geese. There you will find stoneworts!

Requests for Specimens

Should readers encounter these "plants", I would be happy to accept specimens from Insular Newfoundland, Labrador, or from anywhere in North America. Distributions of many species are still poorly known and all finds are of some interest. Entire plants or portions can be gently flattened, air-dried and then protected from damage between stiff paper or cardboard sheets. If possible liquid preserved material is preferable immersed in 70 percent rubbing alcohol compound available at any drugstore or in 5 percent

formalin. Exact location collected, date, and type of water body is useful information. Contact me at (709)637-6245 or hmann@swgc.mun.ca, or send specimens to me c/o Environmental Science/Biology, Sir Wilfred Grenfell College, Corner Brook, NL A2H 6P9.

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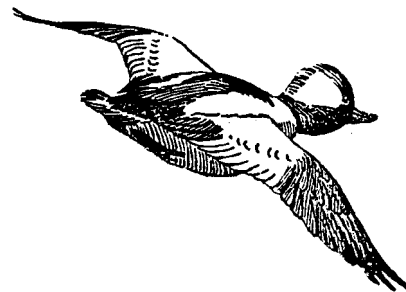
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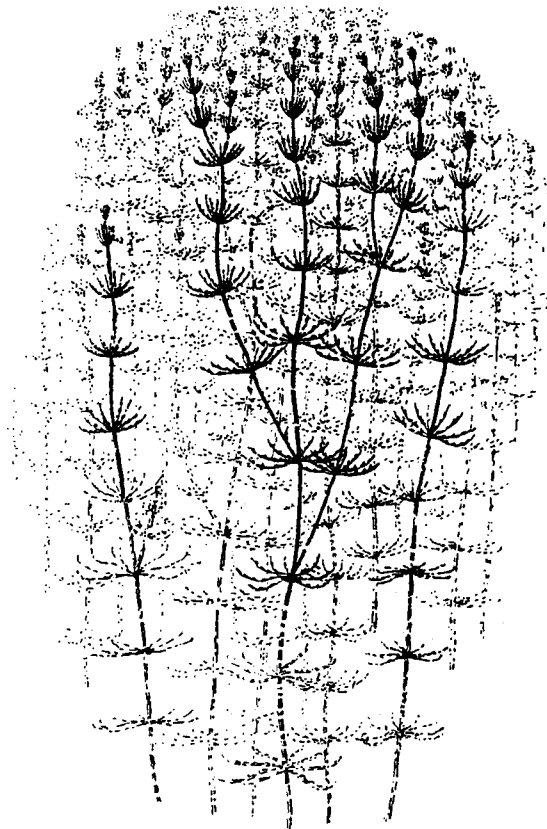
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“The search for truth is in one way hard and in another easy for it is evident that no one can master it fully nor miss it wholly but each adds a little to our knowledge of nature and from all the facts assembled there arises a certain grandeur.”

Aristotle 350 B.C.



A Preliminary Check-list of the Plants of Sandbanks Provincial Park.

Compiled by Howard Clase

On July 15th 2002 members of the Wildflower Society spent the first full day of their annual summer field trip in Sandbanks Provincial Park, near Burgeo. We had been asked to put together a plant checklist for the Park. The weather was not the best, foggy and drizzly at times, but we were able to explore most of the many different habitats found within the park. There were coastal salt marshes, bogs and fens, a river estuary, sand dunes, boreal forest, abandoned grazing land and even a rocky outcrop. As always, we had a good time despite the weather and the following list was drawn up by combining the notes made by Henry Mann, John Maunder and Leila & Howard Clase. Other members present were:- Marion Bailey, Lois Bateman, Patricia Chalmers, Carmel Conway, Nathalie Djan-Chékar, Elke & John Molgaard and Ron Payne. We are sure that a more extensive study in better weather and covering more of the season will turn up many more species, and hope that this clearly incomplete list will inspire some of our members to take up the challenge. It is certainly a place well worth visiting.

We didn't find any really rare plants, but the following are worth special mention. Beachgrass (*Ammophila breviligulata*) and Seabeach Sandwort (*Moehringia lateriflora*) are only found on sandy beaches and not all that common in the province. Henry was also pleased to find the uncommon little fern,

Rock Polypody (*Polypodium virginianum*) growing in cracks on the rock faces and one of my favourites, the Seaside Bindweed, was growing on the riverbank. (This is the pink flowered native subspecies of the plant we all hate when it appears in our gardens as the white introduced form.) You don't usually think of rushes having any flowers let alone pretty ones, but John Maunder had us training our magnifying glasses onto the flowers of the Baltic Rush (*Juncus arcticus* var. *balticus*), which were fully open at the time, to admire the large pink stigmas— you can see some of the pictures he took of these on his website at the Museum: (http://nfmuseum.com/flora_juncaceae_index.htm#juncusarcticusbalticus). But perhaps the most outstanding memory for most of the party was the drift of tiny orchid flowers of the Heart-leaved Twayblade (*Listera cordata*) growing under the trees which we discovered as we walked back at the end of the day.

The names in this list follow those in the recent Annotated Checklist of the Vascular Plants of Newfoundland and Labrador by Susan J. Meades, Stuart G. Hay, and Luc Brouillet. This is also downloadable free: (www.nfmuseum.com/meades.htm). Some of the Linnæan names may be unfamiliar, but they are the ones we are going to have to get used to since they are taken from the new, definitive Flora North America.

Where recorded, the blooming states of the plants are indicated by the following symbols:-

pre = pre-bloom

bb = just beginning to bloom

fb = full bloom

eb = near end of blooming

pb = post-bloom (fruiting)

Sandbanks 2002

Ferns

	Linnaean name (Meades 2000)	Vernacular
Lycopodiaceae	<i>Huperzia selago</i>	Mountain Clubmoss
Dryopteridaceae	<i>Dryopteris campyloptera</i>	Mountain Woodfern
	<i>Dryopteris carthusiana</i>	Spinulose Woodfern
	<i>Dryopteris intermedia</i>	Evergreen Woodfern
Osmundaceae	<i>Osmunda cinnamomea</i>	Cinnamon Fern
Polypodaceae	<i>Polypodium virginianum</i>	Rock Polypody
Thelypteridaceae	<i>Phegopteris connectilis</i>	Long Beech Fern

Gymnosperms

Cupressaceae	<i>Juniperus communis</i>	Common Juniper
Pinaceae	<i>Abies balsamea</i>	Balsam Fir
	<i>Larix laricina</i>	Larch ('Juniper')
	<i>Picea glauca</i>	White Spruce
	<i>Picea mariana</i>	Black Spruce
Taxaceae	<i>Taxus canadensis</i>	Canada Yew

Dicots

Adoxaceae	<i>Viburnum nudum</i>	Wild Raisin	eb	
Amaraceae	<i>Chenopodium album</i>	Lamb's Quarters	pre	
Apiaceae	<i>Angelica atropurpurea (inc. laurentiana)</i>	Purple-stemmed Angelica	pre	
	<i>Angelica lucida</i>	Seaside Angelica	bb	
	<i>Conioselinum chinense</i>	Hemlock Parsley	pre	
	<i>Heracleum maximum</i>	Cow Parsnip		
	<i>Ligusticum scoticum</i>	Scotch Lovage		
Aquifoliaceae	<i>Ilex mucronatus</i>	Mountain Holly	pb	
Araliaceae	<i>Aralia nudicaulis</i>	Wild Sarsaparilla	eb	
Asteraceae	<i>Achillea millefolium ssp. millefolium</i>	Common Yarrow	bb	
	<i>Anaphalis margaritacea</i>	Pearly Everlasting	pre	
	<i>Leontodon autumnalis</i>	Fall Dandelion	bb	
	<i>Leucanthemum vulgare</i>	Oxeye Daisy	fb	
	<i>Oclemena nemoralis</i>	Bog Aster	pre	
	<i>Prenanthes trifoliolata</i>	Gall-of-the-earth	pre	
	<i>Senecio pseudo-arnica</i>	False Arnica	pre	
	<i>Solidago macrophylla</i>	Large-leaved Goldenrod	pre	
	<i>Solidago rugosa</i>	Rough-stemmed Goldenrod	pre	
	<i>Solidago uliginosa</i>	Bog Goldenrod	pre	
	<i>Symphotrichum novi-belgii</i>	New York Aster	pre	
	<i>Symphotrichum puniceum</i>	Purple-stemmed Aster	pre	
	<i>Taraxacum officinale</i>	Common Dandelion	pb	
	Balsamaceae	<i>Impatiens capensis</i>	Spotted Touch-me-not	pre
	Betulaceae	<i>Alnus rugosa</i>	Speckled Alder	pb
		<i>Alnus viridis</i>	Mountain Alder	pb
	<i>Betula cordifolia</i>	Mountain White Birch	pb	
	<i>Betula papyrifera</i>	White Birch	pb	
Brassicaceae	<i>Cakile edentula</i>	Sea Rocket	pre	
Caprifoliaceae	<i>Linnaea borealis</i>	Twinflower	fb	
	<i>Lonicera villosa</i>	Mountain Fly Honeysuckle	eb	
Caryophyllaceae	<i>Cerastium fontanum</i>	Mouse-eared Chickweed		

	<i>Honckenya peploides</i>	Seabeach Sandwort	eb
	<i>Moehringia lateriflora</i>	Grove Sandwort	fb
	<i>Stellaria graminea</i>	Lesser Stitchwort	bb
Clusiaceae	<i>Triadenum fraseri</i>	Fraser's Marsh St. Johnswort	pre
Convolvulaceae	<i>Calystegia sepium ssp. americana</i>	Seaside Bindweed	pre
Cornaceae	<i>Cornus canadensis</i>	Bunchberry	fb
	<i>Cornus suecica</i>	Swedish Bunchberry	fb
Droseraceae	<i>Drosera intermedia</i>	Spatulate-leaved Sundew	pre
	<i>Drosera rotundifolia</i>	Round-leaved Sundew	pre
Ericaceae	<i>Andromeda glaucophylla</i>	Bog Rosemary	pb
	<i>Chamaedaphne calyculata</i>	Leatherleaf	pb
	<i>Empetrum nigrum</i>	Black Crowberry	pb
	<i>Gaultheria hispidula</i>	Creeping Snowberry	pb
	<i>Kalmia angustifolia</i>	Sheep Laurel	bb
	<i>Kalmia polifolia</i>	Bog Laurel	
	<i>Moneses uniflora</i>	One-flowered Wintergreen	bb
	<i>Rhododendron canadense</i>	Rhodora	Pb
	<i>Rhododendron groenlandicum</i>	Labrador Tea	fb
	<i>Vaccinium angustifolium</i>	Lowbush Blueberry	Pb
	<i>Vaccinium oxycoccus</i>	Small Cranberry, Marshberry	
	<i>Vaccinium macrocarpon</i>	Large Cranberry	bb
	<i>Vaccinium uliginosum</i>	Alpine Bilberry	fb
	<i>Vaccinium vitis-idaea</i>	Partridgeberry	fb
Fabiaceae	<i>Lathyrus japonica</i>	Beach Pea	fb
	<i>Lathyrus palustris</i>	Marsh Vetchling	fb
	<i>Trifolium pratense</i>	Red Clover	fb
	<i>Trifolium repens</i>	White Clover	fb
Grossulariaceae	<i>Ribes glandulosum</i>	Skunk Currant	pb
	<i>Ribes hirtellum</i>	Smooth Gooseberry	pb
	<i>Ribes uva-crispa</i>	European Gooseberry	
Menyanthaceae	<i>Menyanthes trifoliata</i>	Bogbean	fb
Myricaceae	<i>Myrica gale</i>	Sweet Gale	pb
Nymphaceae	<i>Nuphar variegata</i>	Yellow Pondlily	fb
Onograceae	<i>Chamerion angustifolium</i>	Fireweed	pre
	<i>Circaea alpina</i>	Dwarf Enchanter's Nightshade	pre
Orobanchaceae	<i>Euphrasia nemorosa</i>	Common Eyebright	pre
	<i>Rhinanthus minor</i>	Yellow Rattle	pre
Plantaginaceae	<i>Callitriche sp.</i>	Water-starwort	
	<i>Plantago maritima</i>	Seaside Plantain	
Polygonaceae	<i>Rumex acetosella</i>	Sheep's Sorrel	
	<i>Rumex crispus</i>	Curled Dock	pre
Primulaceae	<i>Lysimachia terrestris</i>	Swamp Candle	pre
	<i>Trientalis borealis</i>	Starflower	fb
Ranunculaceae	<i>Coptis trifolia</i>	Gold-thread	pb
	<i>Ranunculus acris</i>	Common Buttercup	fb
	<i>Ranunculus cymbalaria</i>	Seaside Crowfoot	pre
	<i>Ranunculus flammula var. reptans</i>	Creeping Spearwort	
	<i>Thalictrum pubescens</i>	Tall Meadow Rue	fb
Rosaceae	<i>Amelanchier sp.</i>	Chuckly Pear	pb
	<i>Argentina anserina</i>	Silverweed	fb
	<i>Comarum palustre</i>	Marsh Cinquefoil	pre

	<i>Fragaria virginiana</i>	Northern Wild Strawberry	eb
	<i>Photinia melanocarpa</i>	Black Chokeberry	fb
	<i>Rubus chamaemorus</i>	Bakeapple, Cloudberry	
	<i>Rubus pubescens</i>	Dewberry	
	<i>Sanguisorba canadensis</i>	Canada Burnet	pre
	<i>Sibbaldiopsis tridentata</i>	Three-toothed Cinquefoil	fb
	<i>Sorbus decora</i>	Showy Mountain Ash	fb
	<i>Sorbus americana</i>	American Mountain Ash	fb
Rubiaceae	<i>Gallium sp.</i>	Bedstraw	
Sarracenaceae	<i>Sarracenia purpurea</i>	Pitcher Plant	?
Violaceae	<i>Viola macloskeyi</i>	Northern White Violet	eb

Moncots

Colchicaceae	<i>Streptopus amplexifolius</i>	Clasping-leaved Twistedstalk	pb
Convalleriaceae	<i>Maianthemum canadense</i>	Canada Mayflower	fb
	<i>Maianthemum stellatum</i>	Starry False Solomon's Seal	eb
	<i>Maianthemum trifolium</i>	3-leaved False Solomon's Seal	pb
Cyperaceae	<i>Carex disperma</i>	Softleaf Sedge	
	<i>Carex canescens ssp. disjuncta</i>	Hoary Sedge	
	<i>Carex limosa</i>	Mud Sedge	
	<i>Carex nigra</i>	Smooth Black Sedge	
	<i>Carex paleacea</i>	Chaffy Sedge	
	<i>Carex rariflora</i>	Looseflowered Alpine Sedge	
	<i>Eleocharis palustris</i>	Creeping Spike-rush	fb
	<i>Eriophorum vaginatum</i>	Tussock Cottongrass	fb
	<i>Eriophorum viridicarinatum</i>	Thin-leaved Cottongrass	fb
	<i>Scirpus sp.</i>	Bulrush	
	<i>Trichophorum cespitosum</i>	Deergrass	fb
Iridaceae	<i>Iris setosa</i>	Beach-head Iris	fb
	<i>Iris versicolor</i>	Blueflag	fb
	<i>Sisyrinchium montanum</i>	Mountain Blue-eyed Grass	bb
Juncaceae	<i>Juncus arcticus var. balticus</i>	Baltic Rush	
	<i>Juncus effusus</i>	Soft Rush	
	<i>Juncus filiformis</i>	Thread Rush	fb
	<i>Luzula multiflora</i>	Common Woodrush	
Juncaginaceae	<i>Triglochin gaspensis</i>	Gaspé Arrowgrass	
Liliaceae	<i>Clintonia borealis</i>	Cornlily	eb
Orchidaceae	<i>Arethusa bulbosa</i>	Dragon's Mouth	fb
	<i>Listera cordata</i>	Heart-leaved Twayblade	fb
	<i>Platanthera dilatata</i>	White Bog Orchid	pre
	<i>Platanthera obtusata</i>	Blunt-leaved Bog Orchid	fb
	<i>Platanthera psycodes</i>	Small Purple Fringed Orchid	pre
Poaceae	<i>Ammophila breviligulata</i>	Beachgrass	pre
	<i>Deschampsia flexuosa</i>	Wavy Hairgrass	
	<i>Leymus mollis</i>	Strand Wheat	fb
	<i>Phalaris arundinacea</i>	Reed Canary Grass	bb
	<i>Poa sp.</i>	Bluegrass	pb
	<i>Phleum pratense</i>	Timothy Grass	pb
	<i>Anthoxanthum odoratum</i>	Sweet Vernalgrass	pb
Sparganiaceae	<i>Sparganium sp.</i>	Bur-reed	bb
Typhaceae	<i>Typha latifolia</i>	Cattail	pre

Lydia Snellen



birdberry



borage