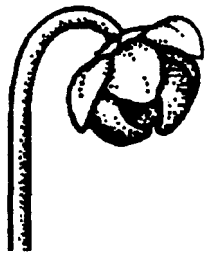
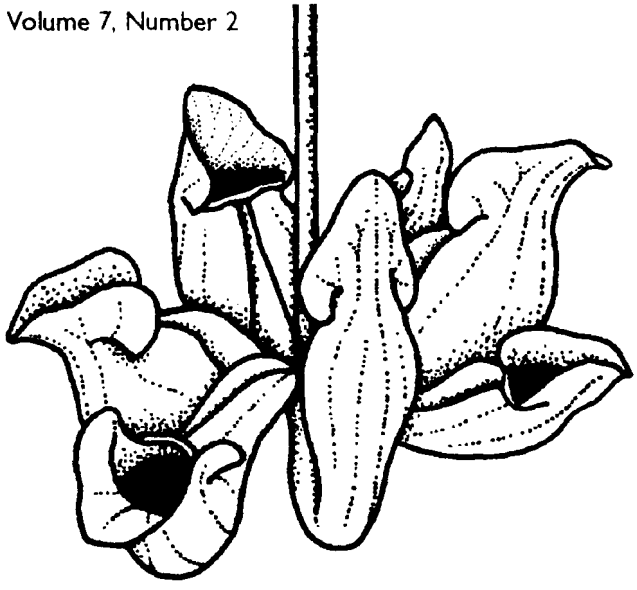


SARRACENIA

Newsletter of the Canadian Wildflower Society - Newfoundland Chapter
Volume 7, Number 2 Spring-Summer 1997



Contents

Spring-Summer Schedule

Details on page 2...

June 15: Arctic and alpine plants of Cape St. Mary's Ecological Reserve. Meet at the Arts and Culture Centre parking lot at 9:30 a.m. *Leader:* Luise Hermanutz. Bring wind/rain proof clothing, and your lunch.

July 6: Seal Cove Walk. Meet at the Arts and Culture Centre parking lot at NOON, Sunday July 6. *Leader:* Tom Smith.

July 18-24: CWS Annual Field Trip to the Port-au-Port Peninsula and Codroy Valley. See the itinerary on page 3. *Leaders:* Henry Mann and Lois Bateman.

August 17: A walk along the Manuels River. Meet at the Manuels River Chalet at 10 a.m., Sunday August 17. *Leader:* Glenda Quinn (834-8588).

September 1: Annual BBQ Potluck. Meet at the Hermanutz/Innes house; walk to the Scout Camp starts at 2 p.m.; Potluck beginning at 4 p.m.

September 14: A tour of tidal pools, Colinet. Meet at the Arts and Culture Centre parking lot at 9:30 a.m., Sunday September 14. Bring rain/wind proof clothing and your lunch. *Leader:* John Maunder.

Spring/Summer Schedule

June 15: Arctic and alpine plants of Cape St. Mary's Ecological Reserve. Many of our members may not have had the opportunity to visit the Cape since the new Interpretation Centre opened last year. Join Luise Hermanutz (737-7919) for a guided walk examining the various arctic/alpine species, which should be in full bloom. We will be there just as the gannets chicks are hatching! Meet at the Arts and Culture Centre parking lot at 9:30 a.m., Sunday. Bring wind/rain proof clothing, and your lunch.

July 6: Seal Cove Walk. Time to revisit one of our favourite plant spots. Tom Smith will lead us through one of the "hot spots" of the Avalon Peninsula. Meet at the Arts and Culture Centre parking lot at NOON, Sunday.

July 18-24: CWS Annual Field Trip to the Port-au-Port Peninsula and Codroy Valley. Please see the itinerary Henry Mann and Lois Bateman have mapped out for participating members. Looks like there are many new plants waiting to be discovered.

August 17: A walk along the Manuels River. Glenda Quinn (834-8588) will walk us through this ancient river valley to find some of the unusual wildflowers and fossils. Meet at the Manuels River Chalet at 10 a.m., Sunday.

September 1: Annual BBQ Potluck. Will be held at Luise Hermanutz and David Innes' place (711 Bauline Line, Portugal Cove-St. Phillips; 895-6851). Bring your favourite dish, and come along to meet your fellow wildflower enthusiasts. We'll have a walk to the Scout Camp starting at 2 p.m., and the Potluck beginning at 4 p.m. Meet at the Hermanutz/Innes house.

September 14: A tour of tidal pools, Colinet. John Maunder will tell us all we ever wanted to know about the plants that inhabit tidal pools. Meet at the Arts and Culture Centre parking lot at 9:30 a.m., Sunday. Bring rain/wind proof clothing and your lunch. (And a canoe if you're interested in stopping at a few interesting ponds on the way home!).

Braya News!

Hot off the e-mail grapevine from Ottawa!

Newfoundland has its first endemic species added to the official Canadian list of Endandgered Plant Species!

Last summer, Sue Meades completed her field work for the report on **Long's braya** (*Braya longii*) and **Fernald's braya** (*Braya fernaldii*), funded by the Canadian Wildlife Federation. With the submission of her status report to **COSEWIC** (Committee On the Status of Endangered Wildlife in Canada), Sue recommended that *B. longii* be declared an endangered species and *B. fernaldii* a threatened species.

Wildflower Society members on the field trip last year will remember seeing *Braya longii* at Yankee Point and Sandy Cove and *Braya fernaldii* at Burnt Cape and near Watts Point. Erich Haber, COSEWIC chairman of the Subcommittee for Vascular Plants, Mosses, and Lichens, has just informed us that these designations have now been accepted by the National committee.

Now comes the work of trying to rehabilitate some of natural habitat of these two species...

Erratum

The Labrador Straits - 1996 by John Maunder

Please note that an incorrect place name was included in John's article "The Labrador Straits" in the Fall 1996/ Winter 1997 (Vol. 7, No. 1) Sarracenia! On page 10 John describes the vegetation of the limestone bluff, near ***"L'Anse-au-Clair"***, which should read ***"L'Anse-Amour"!*** Hopefully anyone who looks for this intriguing botanizing site will find it.

Newsletter Submissions

Any member wishing to submit an article or b&w graphic for the newsletter, please contact:

Luise (**lhermanu@morgan.ucs.mun.ca**) or
Sue (**sjmeades@sympatico.ca**).

CWS FIELD TRIP '97 -- PRELIMINARY ITINERARY

Leaders: Henry Mann and Lois Bateman, Sir Wilfred Grenfell College

July 18 PM - Arrive at base camp for the Port au Port area (Dhoon Lodge). Some participants may be overnighting at other locations, but our base of operations and communications will be the Dhoon Lodge.

- **9:00 p.m.** - Brief get-together of all participants. Greetings, introductions, overview of planned activities, routes, itinerary modifications, etc.

July 19 - 8:30 a.m. - Assemble at vehicles for departure on day's outing. (All participants should pack lunches for each day on the trip.)

- Route to Kippens, Port au Port, Felix Cove, Abraham's Cove, Ship Cove, Cape St. George, Mainland, Winterhouse, Long Point, Lourdes, Picadilly, and return to Dhoon Lodge. Main stops will occur on the new road over the alpine limestone barrens between Cape St. George and Mainland, and an interesting hike from Blue Beach to the tip of Long Point. Some fossil sites also occur along this route.

July 20 - 8:30 a.m. - Assemble at vehicles for day's departure.
- Locate **bog twayblade** (*Liparis loeselii*) at Kippens.
- Continue to Aguathuna Quarry and Boswarlos.
- Tour to Fox Island River, stops along the way.
- Stephenville - *Phragmites* site, and locate **kidney vetch** (*Anthyllis vulneraria*).

July 21 - 8:30 a.m. - Assemble at vehicles for departure to Codroy Valley.
- Stop at St. Georges River Mouth - salt marshes, sand dunes, brackish lagoons, coastal bogs/heaths.
- Drive to Codroy Valley.
- Stop at *Mitchella* site.
- Stop at Mollichignick Brook.
- Check in to Gillis' Cabins.

July 22 - 8:30 a.m. - Assemble at vehicles.
- Millville, Woodville, Cape Anguille.
- Return to Millville and Codroy Valley Provincial Park at estuary mouth.
- Searston, Upper Ferry to O'Regans.

July 23 - 8:30 a.m. - Assemble at vehicles.
- Upper Ferry to upper estuary site.
- To Doyles, Tompkins, St. Andrews.
- Shoal Pond, Loch Lomond, Searston, The Block.
- Return to cabins to freshen up.
- Grand Finale Evening Supper (location to be determined).

July 24 - If we have not yet located *Platanthera grandiflora*, some individuals may wish to stop at the South Branch/Muises Brook site on the way home.

The above itinerary leaves lots of opportunity for modifications and changes. Sometimes the weather may dictate such changes, and sometimes individual vehicles may wish to detach from the main convoy for whatever reasons. What we must ensure is that everyone and every vehicle is always fully informed so that no one gets unnecessarily "lost" on any of the outings. If there are better routes than those suggested above or particular locations of special interest, please let us know.

Some Rare Wildflowers of the Codroy Valley

by Henry Mann

The Codroy Valley, approximately 37 kilometers long and 14 kilometers at its widest, lies in the southwestern corner of the Island, bounded by the granite Long Range Mountains to the southeast and the limestone/sandstone/shale Anguille Mountains to the northwest. Valley soils are composed of deep glacial and alluvial deposits, somewhat nutrient poor and acidic, but supporting lush fir, spruce and birch forests. With liming and fertilization the soils have produced one of the Island's major agricultural areas.

Two interesting features occur on opposite sides of the valley mouth. To the north, in the Codroy-Woodville area, a gypsum karst plain occurs with numerous sinkholes and dry valleys due to the dissolution of the relatively soluble gypsum deposits by groundwater and the subsequent collapse of the overlying rock and till. To the south, in the Wreckhouse area, high winds often funnel through the mountains - in the past, lifting freight cars off the narrow gauge rails. Even today tractor trailers and campers still succumb to these winds and such traffic all but ceases during major "blows". Within the valley itself, spectacular lighting storms can sometimes be seen and heard during the summer months.

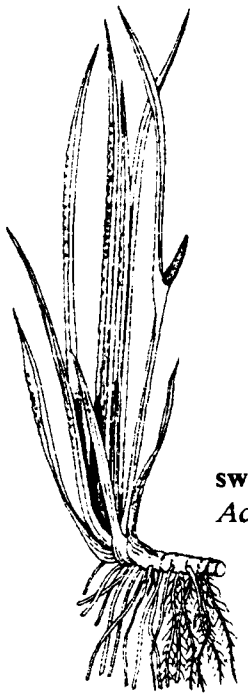
Valley drainage occurs via two river systems, the Grand Codroy River with its north and south branches, and by the Little Codroy River to the south. Both empty into broad estuaries partially blocked by sand spits at their mouths. In 1987, the Grand Codroy Estuary was designated a Ramsar Site, "A Wetland of International Importance". It is maintained especially as a feeding and resting sanctuary for ducks and geese during their fall migrations.

Because of a moderately warm and relatively long growing season, and because of its close proximity to the mainland, the Codroy Valley can be expected to harbour plant species uncommon in much of the island. It is probably acting as a "port-of-entry" for new species from the mainland, especially those of a weedy nature and those associated with agriculture. There may be species with a southern affinity yet to be discovered here.

This article selects ten rare Newfoundland wildflower species that have been recorded from the Codroy Valley area. With good fortune and keen eyes, we may be able to relocate most of these on our field trip in July. Brief comments are provided for each, and each is illustrated. Habitats in which the plants have been located are directly quoted from Bouchard et al. (1991).

Sweetflag (*Acorus americanus*)

This wetland plant has only been collected once from the Island by E. Roulcau in 1961 from the O'Reagans area. Its habitat is listed as "marshy shores of rivers". Apparently it has not been relocated since. There seems to be no reason why this species would not flourish along the many wetlands of the Valley. It is easy to miss at a distance because its leaves somewhat resemble those of **cattail**, the **large burrreed** (*Sparganium eurycarpum*), or even tall **irises**, and it tends to blend into stands of these plants. Seeds of this species may be transported by waterfowl, but because of its value as a medicinal herb, it may have also been introduced by humans, either the original Micmac inhabitants of the valley who came from Nova Scotia or by later settlers in more modern times.



sweetflag
Acorus americanus

I suspect that a careful survey of the wetlands will again turn up this species, as well as the rare *S. eurycarpum* which has not apparently been collected in the Valley, but which occurs farther north on the west coast and also on the Burin peninsula. Although we will not have time to thoroughly survey all the wetlands of the Valley, we could get lucky with these two. Boots or waders would be good items to bring along this year as there are lots of interesting wetlands to investigate.

False Solomon's-seal (*Maianthemum racemosum*, also known in many manuals as *Smilacina racemosa*).

This species is recorded from "alder thickets along shores", in this case along Mollichignick Brook, which we will investigate where it crosses the TCH. The brook's name is apparently of Micmac origin. Word-of-mouth indicates that it refers to a woman's name, Molly Chignick (various spellings), but I have been unable to confirm this to date. There are only a very few collections of this species, all from the west coast of Newfoundland, Bonne Bay and south.

False Solomon's-seal should be easy to spot if we locate a stand because of its relatively large size (half a meter or more), its arching stems, and its characteristic monocot leaves.

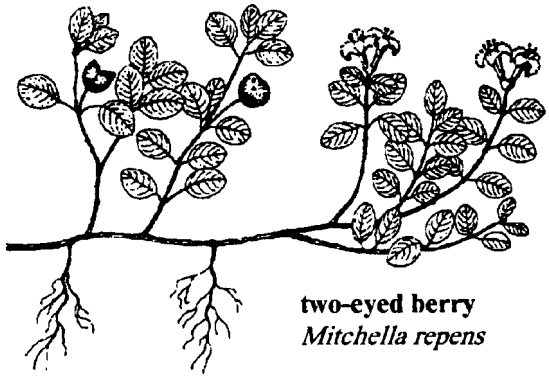
Two-eyed Berry (*Mitchella repens*)

This tiny trailing shrub has paired leaves and paired white fragrant flowers. The two red fruits produced by the twin flowers often grow partially together, hence the common name. On the mainland it is known as **partridge berry**, a common name we use for a different favorite plant in Newfoundland (*Vaccinium vitis-idaea*). Its habitat is listed as "dry heath scrub; dwarf spruce thickets". I have collected it from such a site several kilometers north of Mollichignick Brook so it is pretty certain that it will be relocated on the field trip.

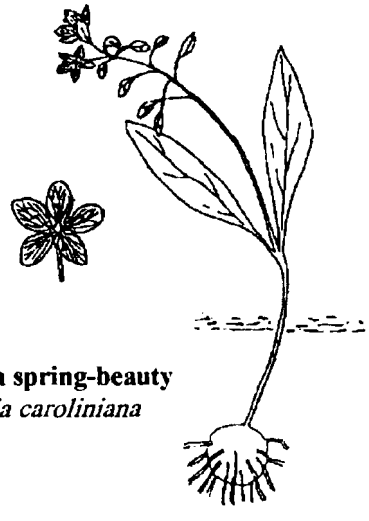
Carolina Spring-Beauty (*Claytonia caroliniana*)

This is an early spring bloomer so it is unlikely that we will find flowering specimens, but we should look for its two leaves on small plants up to 30 centimeters tall in "alluvial alder thickets". I have never collected it in the Codroy Valley and do not have a precise location, but we might also check the banks of

false Solomon's-seal
Maianthemum racemosum



two-eyed berry
Mitchella repens



Carolina spring-beauty
Claytonia caroliniana

Mollichignick Brook while searching for false Solomon's-seal. Each flower has two brown sepals, which persist beneath the seed capsule as it develops. Plants also arise from small edible tubers deep in the soil.

Pale St. John's-wort (*Hypericum ellipticum*)

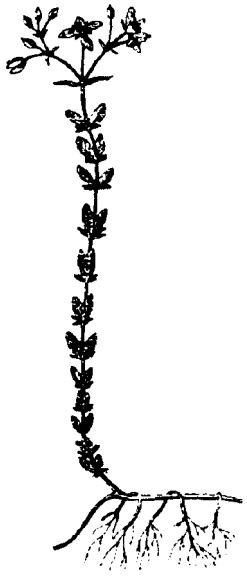
This is a small (less than 30 cm) usually unbranched plant with yellow flowers and leaves held upright with a few leaflets in their axils. Petals and sepals are usually five in number, but occasionally with four or six petals. Petals may be tipped with red on the outside. The species is distinctive by its long styles, which hardly separate in fruit, by its deep maroon seed capsules, and by its elliptic-shaped leaves. This plant of "marshy alluvial shores" occupies wet habitats such as swamps, stream and lake margins and wet meadows. Several other species of St. John's-wort may be encountered in the Valley, but we should have no trouble separating them.

Pale Touch-me-not (*Impatiens pallida*)

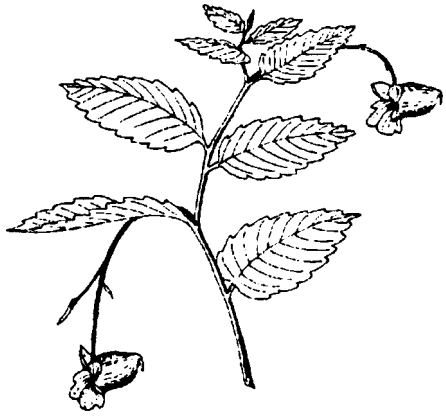
There appear to only be two locations for this species in Newfoundland, one on Crabbes Brook and the other in the Codroy Valley at Tompkins. Touch-me-not's have unusual sac-like flowers each with a short "tail" or spur. We have two species, the common **spotted touch-me-not** has orange flowers blotched with red and has a tail that curves forward. The rare pale touch-me-not has yellow flowers sometimes with a few reddish-brown dots in the "throat" and the tail is short and bent downward. In both species, the mature seed capsules explode when touched, scattering the seeds a considerable distance. Both tend to grow in damp or wet places along streams and river banks, often in shady locations. Pale touch-me-not's habitat is listed as "moist alluvial soils". It is a tall, branching, pale-green herb from 0.5 to 2.0 meters high with somewhat watery and easily bruised leaves. In a few locations in St. John's and Corner Brook the introduced Indian balsam (*I. glandulifera*), with magenta flowers, has become naturalized in wet areas.

Golden Heather (*Hudsonia ericoides*)

This is a small mat-forming evergreen shrub only about six or seven centimeters in height which can easily be overlooked, especially when not exhibiting its bright yellow flowers. We will probably be too late to catch it in bloom so will have to look carefully for it on "exposed heath barrens near the coast", perhaps in the Millville to Cape Anguille area or further south on the coastal barrens of the Wreckhouse area. It has mostly been recorded along the south coast of the Island and there appear to be no west coast records farther north than the Codroy Valley.

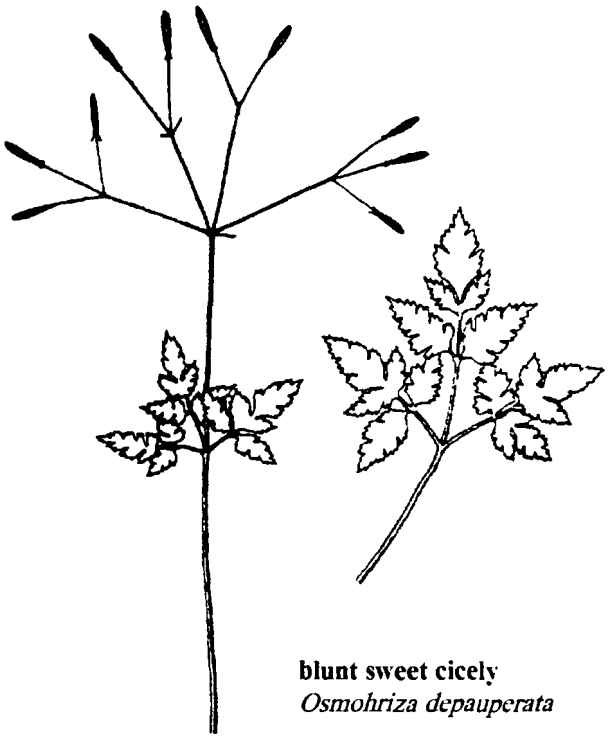


pale St. John's-wort
Hypericum ellipticum

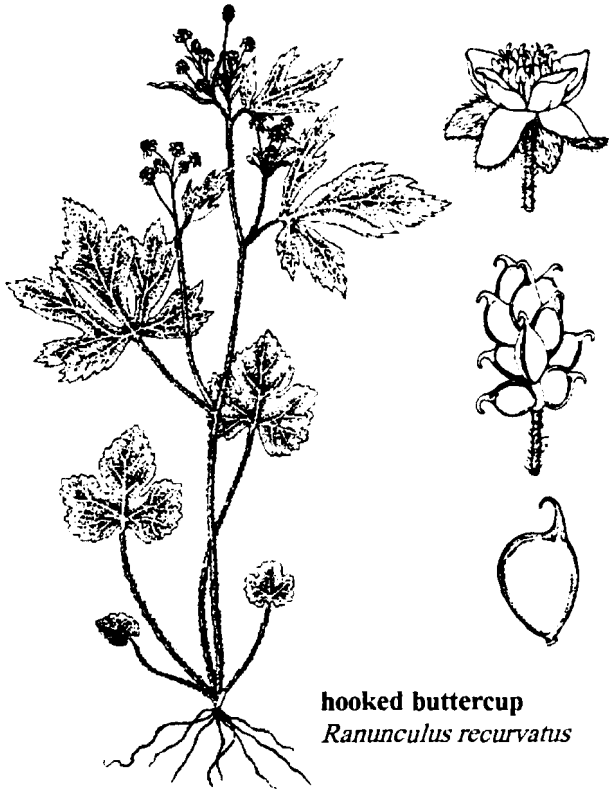


pale touch-me-not
Impatiens pallida

golden heather
Hudsonia ericoides



blunt sweet cicely
Osmohriza depauperata



hooked buttercup
Ranunculus recurvatus

Blunt Sweet Cicely
(*Osmohriza depauperata = O. obtusa*)

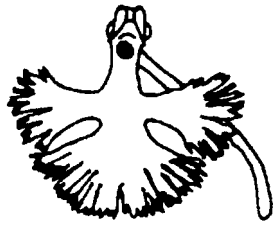
This is a species of mostly west coast distribution, but not often encountered. It is a member of the Carrot or Parsley Family and, like other members of this family, it produces highly aromatic compounds. Sweet cicely has a distinct aroma of licorice. The plant is up to half a meter or more tall, with divided leaves and producing a loose cluster of inconspicuous greenish-white flowers. Fruits are elongate and look like little baseball bats. Look for it at the "edge of coniferous woods and thickets".

Hooked Buttercup (*Ranunculus recurvatus*)

This is a woodland buttercup half a meter or so high, with pale yellow flower petals that are less showy than our common buttercups. The hairy sepals are folded backwards. It can readily be recognized if fruit clusters are present because each fruit (achene) has a curved hooked beak at its summit. It may be found in "shady woods along river banks" and other open moist woodlands.

Large Purple Fringed-orchid
(*Platanthera grandiflora*)

Although apparently not officially recorded for the Codroy Valley, I have collected it from the banks of the Grand Codroy River. It is a robust plant up to a meter or more in height with a large showy cluster of magenta flowers. Each flower has a lower lip petal of three major divisions each deeply fringed into thin segments. It may be easily confused with its smaller "look-alike" cousin, the **small purple fringed-orchid** (*Platanthera psycodes*), but *P. grandiflora* is usually a much larger plant with a more deeply fringed lip (divisions of the fringe exceed one third or more into the lip). The entrance to the spur is also much larger and of a more circular shape than in *P. psycodes* (see diagram).



large purple fringed-orchid
Platanthera grandiflora

small purple fringed-orchid
Platanthera psycodes

We should catch the early part of the blooming season of this species on our field trip. Its habitat is stated as "fens, shorelines of rivers, lakes, and damp coniferous woods".

Many other wildflowers will be seen on our July 21-23 visit to the Codroy Valley, some common throughout the Island and others perhaps unfamiliar to participants not from the west coast. As one pages through the Atlas (Rouleau and Lamoureaux, 1992), the impression develops that the Codroy Valley, and indeed the whole southwest corner of the Island, has not been thoroughly investigated botanically, but this could probably be said for a great many areas of Newfoundland. With its excellent climate, its close proximity to the mainland, and its agricultural history, the area offers considerable potential for new finds. On the field trip, I would encourage the keeping of good notes, lots of photography and the collection and pressing of specimens that cannot be precisely identified in the field. I expect our few days in the area will produce many new dots on the Newfoundland distribution maps. And let us not overlook the roadside wildflowers and "weeds". They too are a part of the ever changing pageant of plant life on this Island.

If anyone reading this article knows of more precise locations where we might see the above or other species, please let us know before our field trip. Illustrations were prepared by graphic artist Warwick Hewitt except for the *Platanthera* drawings.

Literature Cited:

Bouchard, A., S. Hay, L. Brouillet, M. Jean, and I. Saucier. 1991. *The Rare Vascular Plants of the Island of Newfoundland.* Syllogeus No. 65, Canadian Museum of Nature, Ottawa.

Rouleau, E. and G. Lamoureux. 1992. *Atlas of the Vascular Plants of the Island of Newfoundland and the Islands of Saint-Pierre-et-Miquelon.* Fleurbec, Quebec.

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Fax: (709) 639-8125
email: **hmann@beothuk.swgc.mun.ca**

Arthur C. Waghorne, Man with a Mission (pun intended)

by Glenda Quinn

He sailed from England to Newfoundland in 1874, the same year that Sanford Fleming undertook the first government railway survey. His name was Arthur C. Waghorne and he was a young missionary, 24 years old, sent out to the British colony under the auspices of the Society for the Propagation of the Gospel. His ambition was to preach the word of God and to instill strong Christian values among the peoples of fishing villages scattered along the rocky coasts. For the next 25 years, he would devote himself to the Church of England and his religious duties. Our history books, however, would remember him for his endeavours of another nature. Rev. Waghorne developed a keen interest in the flora of his new country and undertook an ambitious project. He compiled lists of hundreds of plants collected throughout the many harbours (settlements) where his mission work brought him. He relied on scholars throughout North America and Europe for plant identification and corresponded with them regularly. Waghorne possessed an intelligent, curious mind and educated himself in the science of botany.

If I had the time, the resources, and the talent I could turn the events of Waghorne's life into a bestselling novel of historical fiction. Set against the backdrop of 19th century Newfoundland, it would make a terrific read. The mode of transportation (dog-sled, steamer, horse & gig, a fledgling railway), the great fire of 1892, animosity between Catholic/Protestant, the infancy of the Grenfell Mission, unspoiled scenes of nature, the social conditions with its unfair distribution of wealth, the devastation caused by diphtheria, rough seas claiming ships and human lives, the political corruption of Whiteway, and the hard, tough

life of the Labrador migratory fishery could shape a mosaic background for a story of romance, tragedy, and inspiration. As I have little of the aforementioned qualities, I will instead give you a capsule account of the material that I uncovered. (It is with restraint that I not refer to you as Dear Reader, as many of the articles I read were written in a manner reflecting the style of the Victorian era).

Dogged throughout his life with poor health (lung trouble) and insufficient means, Waghorne undertook an ambitious project demonstrating his fortitude and his determination to contribute to the botany of Newfoundland. Using lists published by William Epps Cormack, John Bell, Henry Reeks, Rev. S.R. Butler, and others and relying on the scientific community, especially John Macoun, the government botanist of Canada, for plant determination, Waghorne collected thousands and thousands of plant specimens and compiled lists, which he had published. One must recognize that he was self-taught and at his disposal was very little in the way of reference tools or scientific equipment. What he did was phenomenal. Impoverished as he was, he had to dig into his own pockets to cover the expense of this undertaking. To finance the publishing of his lists, he sold plants to botanists and also solicited them for subscriptions. (In most every correspondence to botanists and others, ACW never failed to ask for donations of clothing, books, pictures, money, etc. for the people in his parish. In one article that I read, he even asked for a harmonium.)

Rev. Arthur C. Waghorne published *The Wild Berries of Newfoundland and Labrador*. This was a pamphlet printed in 1888 by the *Evening Mercury*, a St. John's newspaper. It was the first attempt taken by an individual to give a systematic account of our berries and edible fruits. A review of this pamphlet appears in a daily newspaper, the *Harbour Grace Standard*, Jan.16, 1889. It mentions that there were 2 editions; one sold for ten cents and an interleaved one sold for fifteen cents. The brochure was dedicated to Her Excellency Lady Blake "on her departure from Newfoundland, where her uniform kindness and intelligent interest in all that belongs to the social and natural interests of the Colony, no less than her talented zeal as a patron of all branches of science, have endeared her to all classes of the community. By her humble servant, the Writer." Professor Macoun wrote "I think your article on Fruits as it now stands is very satisfactory. I think you have already done good service to Botany in Newfoundland."

His lists on the flora of Newfoundland appear in *The Proceedings and Transactions of the Nova Scotian Institute of Science* 8: 359-373; 9-83-100, 361-401. (1893, 1895, 1898). Apparently, Waghorne had them published in the form of a book which sold for ten cents. The book, entitled *The Flora of Newfoundland, Labrador, and St. Pierre et Miquelon*, can be found at your public library, the A.C. Hunter Library. It also contains an enumeration of lichens by Eckfeldt. ACW received help with his collection of plants and here is a list of those collectors, an interesting and illustrious group of individuals, mentioned in his catalogue:

Miss Southcott. Yes , the same Miss Southcott who made a tremendous contribution to the nursing profession in our province during the early part of this century. Waghorne was also engaged to Mary Southcott but broke it off because he was too poor to support her. They shared a common interest, botany, as Miss Southcott published in 1915 a book called *Some Newfoundland Wild Flowers* (*Newfoundland Quarterly*, Autumn 1915).

Miss Trapnell. "Miss Trapnell of Harbour Grace who died in 1925, had made exquisite paintings of the commoner Newfoundland flowers for fifty years." (Ayre 1935).

Professor Holloway. Principal of Methodist College and photographer. His book *Through Newfoundland with a Camera* was published posthumously in 1910.

Lady Blake. Wife of Governor Henry A. Blake (1887-1889).

Mr. Fitz-Gerald. An English doctor living on the south coast. An account of Conrad Fitz-Gerald's life and work appears in his biography, *The Albatross* written by his grandson, Conrad Trelawney Fitz-Gerald in 1935 (Encyclopedia of Newfoundland).

Mr. A.B. Bullman. Mr. A.B. Bullman, B.A.Sc. of H.M. Newfoundland Survey, collected on the west coast in 1896 and in White Bay in 1897.

B.L. Robinson & H. von Schrenk. American botanists who visited the island in the summer of 1894. A summary of their collection was printed in the *Canadian Record of Science*, vol. VII: 3-31 (1896-1897), published by the Natural History Society, Montreal.

Numerous clergymen. Temple, Bishop, How, Quinton, Petley, Pittman, Shears (Shearstown is named after him). and Tocque were clergymen who were probably responding to an ad that Waghorne placed in the *Diocesan Magazine*, a church newsletter. Tocque published letters in the *Evening Telegram*, 1890 & 1891, extolling the natural resources of Newfoundland. He has been called Newfoundland's first man of letters (*Encyclopedia of Newfoundland*). The ad reads- "The Rev. A.C. Waghorne, of New Harbour, writes to us to the following effect:- "I shall be very glad to receive specimens this summer from all parts of Newfoundland and *Labrador*, of our flowers, trees, mosses, seaweeds. I will gladly give directions for the best way of drying and forwarding. The postoffice authorities kindly permit parcels and letters on this matter to post free. They should be marked 'botanical,' and have the sender's name in the lower left hand corner. If specimens are to be returned *named* to the sender, two should be sent.

Rev. J. H. Bull & Rev. S. J. Andrewes. Waghorne's brothers-in-law. His sister, who married Andrewes in 1890 in a ceremony performed by him and Rev. Bull at New Harbour, died a year later at White Bay. Rev. Bull retired to Whitbourne and died there in 1956. It would be interesting to find out if Waghorne has any surviving nephews or nieces. Another sister painted about fifty illustrations for her brother's collection (Ayre 1935). A. M. Ayre, author of *Wild Flowers of Newfoundland,* made an unsuccessful attempt to find Waghorne's collections of plants, correspondence, etc. sometime in the early part of this century. Apparently his collections were destroyed, although in 1910 they were still deposited with the Geological Survey of Newfoundland. I wonder if Ayre travelled to Whitbourne to talk to Rev. Bull?

Plant specimens were collected from many localities in Newfoundland and Labrador. The areas that Waghorne collected were in and around the harbours were he travelled or served as mission priest- Ferryland, St. Pierre, Miquelon, Harbour Breton, New Harbour (17 years), White Bay, Exploits, the Bay of Islands, and the southwest coast of Labrador, as well as St. John's. He seemed to have an affinity for Labrador and its people.

Waghorne made no claim to be a botanist and relied on competent authorities to name his botanical specimens. This he states in the first sentence of his publication. Professor Macoun (Ottawa), Dr. B.L. Robinson (Harvard University), Dr. Britton, Dr. William Trelease (St. Louis), Mr. T.V. Colville (Washington), Dr. D.C. Eaton (Yale), Professor J. Fowler (Queen's University), and Dr. Robert Bell (Rockford, Illinois) were a few "gentlemen who kindly assisted me in the determination of my plants." There were many typographical errors in his book and when he refers to Mr. Fernald on page 40 did he mean Fernald? Probably. (Fernald botanized extensively in Newfoundland in the 1920's and maybe Waghorne's records enticed him to the island?). Because of ACW's correspondence, sale of plants, etc. many botanical specimens from this era rest on shelves in herbaria throughout North America and Europe. In 1891, he was appointed secretary for Newfoundland of the Botanical Club of Canada, an organization started at Montreal in connection with the Royal Society of Canada. A fellow member was John Macoun. The club's mandate was " to stimulate in any manner they may devise, the botanical exploration of every section of their territory, by stirring up local botanists; by setting collectors at work in every possible locality and thus develop new botanists; by having published in the local papers the lists of all plants in each section of the country as the work of exploration goes on; by collecting and critically examining such lists; and by forming field clubs (*Harbour Grace , 1891*).

Letter writing must have been a part of Waghorne's daily routine. Besides his correspondence related to his botanical work, he wrote many articles and letters for the daily journals. Waghorne was quite interested in collecting information on the customs and traditions of the people of Newfoundland and Labrador. *The Evening Telegram* (1894-1895) ran a thirteen part series written by Lydia Campbell, called *Sketches of Labrador Life*. It was Waghorne who encouraged her to write this account. He sent her an exercise book

and "begged her to write me some account of Labrador life and ways." There appeared in the *Evening Herald* (1892-1893) several columns entitled the *Folklore of Newfoundland and Labrador* in which Waghorne related Christmas customs. In the *Daily News*, July 16, 1894, Waghorne wrote an article called *Labrador Folk Lore - The Mountaineer Indians*. One interesting excerpt reads "The tail of the first martin caught by a young mountaineer is worn round his cap for a year to assure his success as a hunter, otherwise he will not be fortunate." We have him to thank for preserving some part of our cultural heritage.

It appears in all certainty that in his professional life as a clergyman, his relationship with his superiors was anything but harmonious. One misunderstanding led Bishop Jones to issue a formal and public apology in the church magazine, *Diocesan* (May 1892). He had wrongfully accused Waghorne of writing letters to a committee of the S.P.G., which prejudiced an application for a grant. And in Ron Rompkey's book *Labrador Odyssey*, Curwen writes "The Bp. of N. F. strongly recommends us to have nothing to do with him on the coast."

Waghorne was in Labrador the summer of 1892 when Sir Wilfred Grenfell made his very first trip to this coast. Events of the summer of 1893 were recorded in the journal of Eliot Curwen, a medical missionary who accompanied Grenfell (Rompkey 1996). Some very unkind words were written about Waghorne and one can't help wondering why. He was called an "archfalsifier" and an "egregious ass". It is my opinion that there was some amount of resentment between the Anglican missionaries and these young men from the Deep Sea Mission arising from the fact that one group was receiving lots of public attention and praise (Grenfell) while the efforts of the others (Anglican) had gone unnoticed. And in my opinion, each group had a different perception of Labrador and its people. Fresh out from England, Grenfell and his crew saw only the stark living conditions and painted a picture of abject poverty. Whereas, Waghorne and his fellow priests had a greater understanding of the people and understood that beneath the hard laborious conditions and lack of wealth, these hunters, trappers, and fisherman had satisfying lives and were quite content. Waghorne wrote " the wonder is ne but that they have so much." In her book, *Daughter of Labrador*, (1915) Millicent Blake Loder wrote:

> " *In those days people were poor by monetary standards, but they lived in a caring and sharing community, and were rich in family unity. No one went hungry if one person killed a seal. Everyone took turns sitting with the sick, or turned out to haul up or launch a boat, or help put up a house. No payment was offered and none was expected. Ma always told us how good we had it compared to when she was a little girl- the same thing your parents tell you today.*"

Whatever the circumstances, Waghorne worked tirelessly for his church and its people. In a letter to Robert Bell dated Jan. 2, 1899, he wrote of one Labrador trip where he was on the coast for 90 days, visited 30 places, traveling about 250 miles, held 130 services of which 87 were weekday, preached 117 times, and paid 102 pastoral visits! He endured many hardships and difficulties, but throughout his life he maintained his spirituality, his sense of duty, and his compassion for people. In the fall of 1899, his doctors advised him to spend the winter in Jamaica (part of the church's see) in the hope that his health would improve. He died there on April 11, 1900. He was 49 years old.

I would like to end this article on a botanical note. I live near Manuels River and the past two summers I have noticed that the Joe Pye weed that grows there looks different from plants I have seen elsewhere. In 1894, Robinson and Schrenk recorded *Eupatorium purpureum* (L.) var. *amoenum* (Pursh) Gray from Manuels, which is listed in Waghorne's list. Have taxonomists changed its name? It is not on Rouleau's list. Was it correctly identified? It's listed in *Gray's Manual* but no locality for Newfoundland Perhaps our group could investigate it this summer?

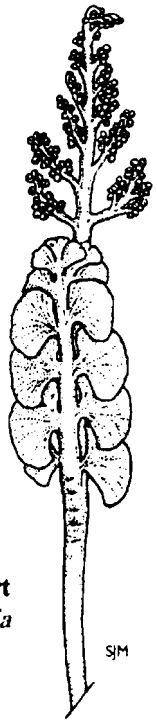
The Ferns of Newfoundland

by Todd Boland

There are 31 species of true ferns on the island of Newfoundland. However, closely related to the true ferns are the **moonworts** (*Botrychium* spp.) and the **flowering ferns** (*Osmunda* spp.). If these are included in our number of ferns, it bumps the list up to 40 species. These numbers are based upon *Gray's Manual of Botany*. Recently, some species have been reclassified and there is also one natural hybrid on the island. If you accept these changes, our list further jumps to 43 taxa.

Ferns are distributed in a wide variety of habitats. Typically, most people associate ferns with shaded woodlands and indeed many do grow in such an environment, but ferns are also at home in bogs, marshes, streamsides, barrens, coastal headlands, and even tightly wedged in stone cracks and crevices.

The following is a break-down of the island's fern flora. Each species is briefly described with those features that best set them apart from any other ferns. Even so, some ferns are quite similar, especially those in the same genus. I tried to avoid too much botanical jargon, although it is hard to get away from it completely. Please refer to the accompanying diagrams and/or glossary to help explain some of the fern terminology.



moonwort
Botrychium lunaria

When describing ferns, you will come across the term sterile versus fertile fronds. Most ferns will produce both types of fronds. Sterile fronds do not produce any reproductive structures, known as sporangia. Sporangia produce the spores needed for reproduction; on true ferns they are rounded to crescent shaped structures called sori. The shape of the sorus (plural: sori) is often defined by the shape of the indusium (it is not always present). The indusium is a membrane that covers and protects the young sorus. Fertile fronds may look the same as sterile except for the fact that they produce sporangia. In some ferns, the fertile fronds appear quite different from the sterile; in this situation, the ferns are said to have dimorphic fronds.

Botrychium spp.

Newfoundland has 6 species of moonwort or grapefern. Most are relatively rare or easily overlooked. They have partially dimorphic fronds with the fertile portion arising from the base of the frond. This fertile portion usually stands erect above the sterile portion. The fertile portion is branched with sporangia clustered like tiny grapes (hence 'grape' fern). The sterile portion is quite variable in size and shape.

The most common and widespread species is **moonwort** (*B. lunaria*). This small 'fern' is generally under 10 cm in height. The sterile portion of the frond is pinnate, with fan-shaped pinnae, the upper ones often overlapping. The **daisy-leaved moonwort** (*B. matricariaefolium*) is very similar to moonwort, but the sterile portion of the frond is bipinnatifid rather than simply pinnate. The **least moonwort** (*B. simplex*) is very small and slender, often under 5 cm, with the sterile frond less than 2 cm long. The frond is like a minute version of the moonwort, but the pinnae are not as fan-shaped. The **lance-leaved moonwort** (*B. lanceolatum*) produces a stout stipe with densely crowded sporangia. The sterile portion of the frond is somewhat triangular in outline, with the pinnately lobed pinnae attached directly to the stipe (i.e. they are stalkless [sessile]; somewhat reminiscent of a leaf from *Ranunculus acris*). All of these previous species prefer open, turfy meadows and slopes. Our other two species include the **leathery grapefern** (*B.*

multifidum) and **rattlesnake fern** (*B. virginianum*). Both of these 'ferns' are relatively large for the genus (15-30 cm). The sterile portion of the frond is tripartite, tripinnatifid, and triangular in outline. The leathery grapefern has densely crowded sporangia with thick, leathery, evergreen fronds. Look for them in open, peaty meadows. The rattlesnake fern has more evenly spaced sporangia with deciduous, thinner fronds. Look for them in rich deciduous forest and thickets.

All of the *Botrychium* ssp. are far more common along the west coast and the Great Northern Peninsula, than in eastern parts of the island.

Osmunda spp.

Newfoundland has three species of *Osmunda*; all are island-wide in distribution. The genus is characterized by producing completely or partially dimorphic fronds. The sporangia are densely clustered, first appearing deep green but later turning a distinct rusty-red colour. The most abundant species is the **cinnamon fern** (*O. cinnamonea*). This fern is found across the island, usually on wet slopes, along streamsides, open wet forest, fens and marshes. They will even grow in wet seepage slopes near the ocean, in full sun. This fern has dimorphic fronds. The sterile fronds are elliptic in outline and form a vase-like clump, 50-120 cm tall. The bipinnatifid fronds are relatively narrow, tapering more at the tip than at the base. The fertile fronds are bladeless and arise in the middle of the clump. When releasing spores, the fertile fronds turn the distinct cinnamon-red colour, which gives this fern its common name.

The **interrupted fern** (*O. claytoniana*), is among our largest ferns, reaching to 150 cm. Sterile fronds look nearly identical to those of the cinnamon fern, but are not as shiny. The fronds are partially dimorphic; the fertile portion is located in the middle of the otherwise sterile-looking fronds. When they have released their spores, they drop off, resulting in a sterile-looking frond with a central gap (hence 'interrupted'). They prefer more shade and slightly drier sites than cinnamon ferns.

Royal fern (*O. regalis*), looks quite different from the other two species. They have bipinnate, ovate fronds, which may reach 20-100 cm. The new fronds are often a bronzy colour, then turn dark green. The partially dimorphic fronds produce the fertile portion at the tips of the fronds. They are mostly restricted to rocky streamsides and open seepage slopes of mountainsides.

Cryptogramma spp.

We only have one species in Newfoundland: the **slender rockbrake** (*C. stellen*). This small, tufted fern (10-20 cm) is quite rare, being restricted to crevices on cool, wet limestone cliffs of the Great Northern Peninsula. Curiously, there are two documented sites on the Avalon side of Placentia Bay. The lanceolate fronds are bipinnate, looking superficially like parsley. The fronds are dimorphic: the fertile fronds grow taller and appear much more narrow than the sterile fronds. The round sori are partly hidden by the inrolled margin of the fronds.

Adiantum spp.

We have a single representative of this genus; the **aleutian maidenhair** (*A. pedatum* var. *aleuticum*). This unique fern is restricted to wet, serpentine slopes of western and northern Newfoundland. Plants are 15-40 cm and appear somewhat loosely tufted. The pale green fronds contrast against the smooth, black stipes. The oblong sori are partly hidden by the inrolled margin of the pinnae. The unique frond shape is referred to as being pedate.

Pteridium spp.

The ubiquitous **bracken fern** (*P. aquilinum*), is very widespread across Newfoundland, usually growing in open habitats, especially old burn-overs. This large fern may have smooth stipes up to 120 cm and fronds that are 70 cm broad. The fronds are tripartite, deltate, and tripinnatifid. The pinnae are opposite. Individual fronds are widely spaced along an elongate underground rhizome, resulting in a very loose colony of fronds. The sori are marginal, partly hidden by the inrolled frond margins.

Matteuccia spp.

This is another fern represented in Newfoundland by only one species; the **ostrich fern** (*M. struthiopteris*). This large fern may reach 150 cm and produces graceful, vase-like clumps of upright, bright green

fronds. The fronds are dimorphic. Sterile fronds, which arise from short stipes, are rhombic and bipinnatifid. The bladeless, fertile fronds are quite short (20-40 cm) and arise in the middle of the clump. These fronds start off dark green but eventually become a blackish colour. Ostrich fern is restricted to western Newfoundland, where they grow in rich bottom-land areas. They are the primary source of the edible fiddlehead.

Onoclea sp.

This monotypic genus (containing only one species) is represented by the **sensitive fern** (*O. sensibilis*). The common name arises from the fact that the fronds quickly shrivel after the first autumn frost. This fern is widespread and may be found along woodland streams, swamps and alluvial thickets. Like the ostrich fern, they too produce dimorphic fronds. The 30-80 cm sterile fronds are widely scattered along the rhizome. They are smooth, pale green, bipinnatifid, and somewhat triangular in outline. The stipes are relatively long and smooth. The pinnae are wider than in most ferns. The bladeless, fertile fronds are slender and thickly clustered with globular sori. They are dark green to brownish in colour.

Dennstaedtia sp.

The **hay-scented fern** (*D. punctilobula*), is only known from three sites on the island; two sites on the south coast and one site near Stephenville Crossing. They generally grow in rocky, open woods. This fern produces scattered, light green fronds which are bipinnate to bipinnatifid. The fronds are lanceolate and may reach 30-90 cm in height. The stipe is long and smooth and the pinnae are mostly alternate. The small circular sori are marginal on the fronds.

Asplenium spp.

Two species of spleenwort occur in Newfoundland; the **green spleenwort** (*A. viride*) and the very rare **maidenhair spleenwort** (*A. trichomanes*). Both species are epipetric, which means they grow on rocks. Actually, they grow in moss or detritus that gathers on or between rocks. These small, tufted ferns (5-15 cm) are restricted to limestone cracks and crevices. Both species are very similar, with shiny, linear, pinnate, evergreen fronds that are short stalked, with rounded opposite pinnae. The sori are elongate and follow the veins of the pinnae. The green spleenwort occurs from the Port-au-Port Peninsula to Cape Norman, while the maidenhair spleenwort is known from only one site, at North Arm, Bay of Islands.

Polypodium sp.

This is yet another genus with only one representative in Newfoundland; the **rock polypody** (*P. virginianum*). This species is not common, but is widespread on the island, growing on moss-covered rocks and shady cliffs (another epipetric species). The small (2-20 cm), tufted, pinnatifid fronds are lanceolate, short stemmed ,and evergreen. The fertile fronds produce large, round, naked sori on either side of the midrib.

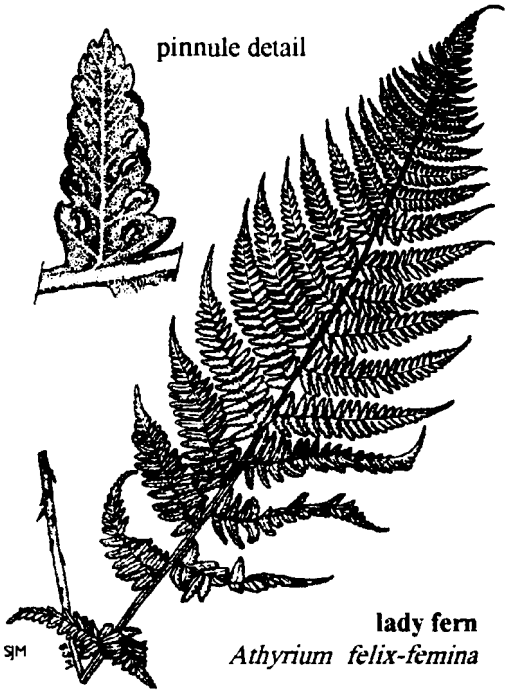
Athyrium spp.

There are two species of *Athyrium* in Newfoundland; **lady fern** (*A. felix-femina*) and the rare **alpine lady fern** (*A. alpestre*). The latter species is restricted to quartzite cliffs of the Highland's of St. John (located half-way up the Great Northern Peninsula). This species has narrow rhombic to linear fronds with widely spaced pinnae, giving the fronds a sparse appearance. The fronds are 20-40 cm long and produce rounded, naked sori (or with minute scale-like indusium).

The fronds of lady fern are about twice as large, rhombic, with more closely spaced pinnae. This makes the fronds appear much fuller than those of the alpine lady fern. The bipinnatifid fronds are light green. Both species have short stipes and alternate pinnae. The common lady fern is widespread across the island and prefer wet, shady hollows and woodland streams. The lady fern is often confused with spinulose wood-fern, *Dryopteris spinulosa*, but look at the sori. On lady fern, they are distinctly crescent-shaped, while on wood fern they are circular. The pinnae of wood fern are also opposite, not alternate.

Cystopteris spp.

The Newfoundland fern flora is represented by three species from this genus; the **fragile fern** (*C. fragilis*), the **bulblet fern** (*C. bulbifera*) and the **mountain bladder fern** (*C. montana*). The first two species are small, tufted ferns (10-30 cm) that grow epipetric in



lady fern
Athyrium felix-femina

stony cracks and crevices. Both species have bipinnatifid, narrowly lanceolate fronds with short stipes. The roundish sori are scattered near the midrib of the fronds.

The mountain bladder fern may reach to 40 cm. They are long stiped with deltate fronds. The fragile fern is definitely the most common of the three, being scattered island-wide. The bulblet fern is restricted to limestone areas from the Port-au-Port Peninsula, northwards up the Great Northern Peninsula. The mountain bladder fern is currently only known from one site near Eddies Cove East, on the Great Northern Peninsula. They grow in rocky, wet woods.

Woodsia spp.

We have three species of *Woodsia* but all are quite rare. They generally grow epipetric along the crests of cliffs. All are small, tufted ferns (5-20 cm) with bipinnatifid, narrow fronds, somewhat reminiscent of green spleenwort. However, unlike green spleenwort, the *Woodsia* are not evergreen. The roundish sori are located towards the margins of the pinnae. The **rusty cliff fern** (*W. ilvensis*) has a uniquely hairy undersurface and rusty-coloured sori. Their fronds are lanceolate. They are scattered island-wide on granitic to quartzite rock.

The **alpine cliff fern** (*W. alpina*) and **smooth cliff fern** (*W. glabella*) appear very similar to each other, but the fronds of the smooth cliff fern are linear-oblanceolate (widest just above the middle) while those of the alpine cliff fern are elliptic-lanceolate (widest at or below the middle). Both of these species prefer limestone substrates. The alpine cliff fern is distributed from the Port-au-Port Peninsula, northwards, while the smooth cliff fern is found along the Great Northern Peninsula and the northeast coast of the island.

Polystichum spp.

There are three species of holly fern in Newfoundland. The **northern holly fern** (*P. lonchitis*) is confined to limestone cracks and crevices of western Newfoundland and the Great Northern Peninsula. They are most common around the Bay of Islands and Bonne Bay areas. This species produces clumps of stiff, leathery, oblanceolate evergreen fronds that are 10-50 cm in length. They are very dark green, fairly narrow and pinnate, with large round sori on either side of the pinnae midribs.

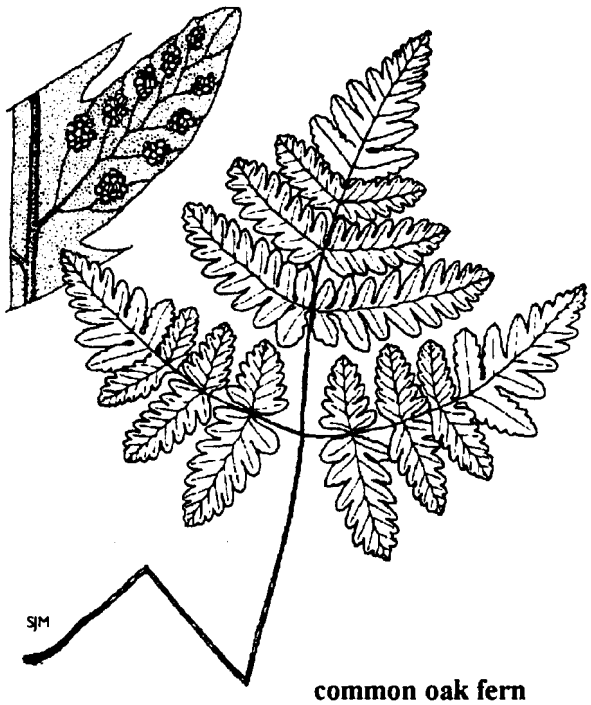
Braun's holly fern (*P. braunii*) is distributed along the west coast of Newfoundland and prefers rich forest slopes and ravines. They also have evergreen fronds, but they are not particularly leathery. The bipinnate fronds range from 20-80 cm in length. Their outline is rhombic, with a gradually tapering base. Fronds arise as a vase-like clump. They too have large round sori on either side of the pinnae midribs.

The third species is the **crag holly fern** (*P. scopulinum*, also known as *P. mohrioides*). They have long, narrow fronds, which are similar to northern holly fern, although not particularly leathery. The basal portion of each pinae is divided while the outer portion is merely lobed. The fronds are more narrowly lanceolate than oblanceolate. This species is distributed throughout the mountains of western North America, but has two disjunct sites in the east; the Gaspé Peninsula and at North Arm, Bay of Islands. These populations are believed to be remnant of a once continent-wide distribution. However, after the last glaciation, they survived at only two areas in the east.

All three species have short stipes that are covered in reddish-brown scales. The pinnae of northern holly fern and crag holly fern are mostly alternate while those of Braun's holly fern are opposite.

Gymnocarpium spp.

In *Gray's Manual of Botany*, the oak ferns were classified as a species of *Dryopteris*, but today they are given their own genus rank. There are two species on the island: the **common oak fern** (*G. dryopteris*) and the **limestone oak fern** (*G. robertianum*). As the name suggests, the limestone oak fern is restricted to limestone areas, in particular, rocky limestone slopes and cliffs of western Newfoundland. The common oak fern is widespread across the island, preferring rich forests. Both species produce tripartite, deltate, bipinnatifid fronds atop smooth, wiry stems. The pinnae are opposite. They are quite small, usually under 20 cm and the fronds are widely scattered along a slender, black rhizome. The oak fern has light green fronds while those of the limestone oak fern are darker green and shiny. Both produce small, naked, round sori.



common oak fern
Gymnocarpium dryopteris

Thelypteris spp.

This genus was also originally described as *Dryopteris*, but due to distinct botanical differences (which only a botanist would appreciate), they were given their own genus status. We have 4 species on the island, all with bipinnatidid fronds. The most distinct species is the **narrow beech fern** (*T. phegopteris*). This species is island-wide, but more common as you head west. They grow on rocky slopes or rich forests, usually in well-drained sites. The fronds are somewhat deltate in outline, but the unique feature is the reflexed (backward-pointing) lowest pair of pinnae. The fronds are scattered along the rhizome and range in length from 10-35 cm. Their pinnae are opposite, the stipe relatively long and the sori are naked and round.

Also island-wide is the **New York fern** (*T. noveboracensis*). This delicate-looking fern also prefers well-drained, rich forests. The light green fronds, which are 15-30 cm long, are rhombic to elliptic, taper abruptly at the tip and gradually at the base. The pinnae are closely set (sometimes overlapping) except at the base, where they gradually become widely spaced. Like the narrow beech fern, they too produce fronds scattered along the rhizome. Unlike the narrow beech fern, their pinnae are alternate, the stipe short, and the sori kidney-shaped.

The **mountain fern** (*T. limbosperma*) is currently known from only one site on the island; on the inland side of St. Paul's Inlet on the Great Northern Peninsula. This species is normally distributed from Alaska to Washington State (hence 'mountain' fern). The single population in Newfoundland is a disjunct, left over from the last ice-age. The mountain fern has long (45-65 cm), narrowly rhombic fronds with widely spaced pinnae, resulting is a very lacy appearance. The opposite pinnae gradually taper toward the base. The fronds arise in a vase-like fashion. When brushed, the fronds emit a lemon-like scent.

The **marsh fern** (*T. palustris*) has dimorphic fronds. The sterile fronds are quite thin and the pinnae are even more widely spaced than those of the mountain fern. The sterile fronds reach 10-50 cm in length. The fertile fronds are taller (20-70 cm), thicker, and firmer. Both fronds are lanceolate in outline. Unlike the mountain fern's clump-like growth, the fronds of the marsh fern are scattered along the rhizome. Their

pinnae are alternate. As the name suggests, marsh ferns prefer nutrient-rich fens, swamps, marshes, and alluvial thickets. They are very scattered across the island.

Dryopteris spp.

There may be anywhere from five to seven species of *Dryopteris* in Newfoundland, as well as one natural hybrid. Perhaps the most numerous species of fern on the island is the **spinulose wood fern**, *D. spinulosa*. This fern grows in a wide variety of habitats, from dense forest to open barrens. The generally evergreen fronds are somewhat triangular in outline (generally widest at the base) and may be bi- to tripinnatifid. The round sori may be quite dense on either side of the veins. The fronds arise as a vase-like clump, but they are usually arching, rather than upright. The pinnae are opposite.

Recently, the variable spinulose wood fern has been split into three species. Those that grow on rocky forest slopes or even exposed barren areas generally have larger, more triangular fronds which are not evergreen. Their fronds are tripinnatifid. These are now called *D. campyloptera*, the **mountain wood fern** (originally called *D. spinulosa* var. *americana*). In richer forested areas there are two species; the **fancy fern** (now *D. intermedia*, formally *D. spinulosa* var. *intermedia*) and the **toothed wood fern** (now *D. carthusiana*, formally *D. spinulosa* var. *typicum*). These two extremely similar species are both evergreen. The fancy fern has pinnae with long, tapering tips and the entire frond is very slightly sticky (glandular) and tripinnatifid. The toothed wood fern has more gradual pinnae tips, is toothed, not at all sticky and generally bipinnatifid.

There is one other way to help differentiate between these three species (or varieties). The difference is in the size of the lowest pinnules. First look at the lowest pair of pinnae. Next, look at the lower pinnules of these pinnae. If the lower pinnules are just lobed (i.e. they are bipinnatifid), and the first lower pinnule is longer than the others and less than 4 mm from the first upper pinnule, then you have *D. carthusiana*. Also, the first lower pinnule is usually twice as large as the first upper pinnule.

The other two species (varieties) have divided pinnules (i.e. they are tripinnatifid). If the second lower pinnule is longer than the first, then you have *D. intermedia*. Meanwhile, *D. campyloptera* has the first lower pinnule 3-4 times longer than the first upper pinnule and is usually 5-20 mm from it. (Refer to the accompanying figure)

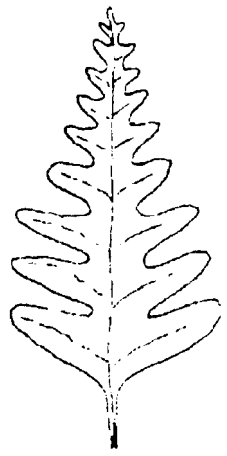
Newfoundland's other four species of *Dryopteris* are all relatively rare on the island. The **male fern** (*D. filix-mas*) prefers rocky, talus slopes, especially in limestone areas. They are found from the Port-au-Port Peninsula northwards, as well as at Tilt Cove (the famous *Dactylorhiza* orchid site). The narrow, 20-80 cm oblanceolate to rhombic fronds are dark green, shiny and semi-evergreen. They are generally held upright. Often, the remains of old fronds are clustered at the base of the vase-like clumps. The fronds of this species are bipinnatifid.

The **fragrant cliff fern** (*D. fragrans*) looks somewhat like a *Woodsia*. The small (5-20 cm) tufted fronds are narrowly elliptic and pinnatifid. The old fronds are usually persistent at the base of the clumps. This rare species grows epipetric in dry, stony cracks and crevices island-wide.

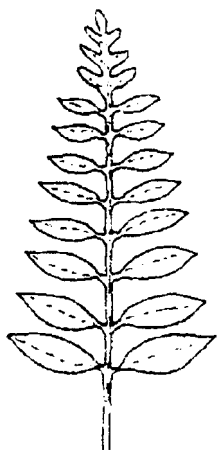
The uncommon **crested wood fern** (*D. cristata*) grows in wet woods and swamps across the island. This species has dimorphic fronds. The fertile fronds are stiffly erect, narrowly oblong, and may reach from 50-150 cm. They are deciduous. The sterile fronds are shorter (20-80 cm), broader, more arching and are evergreen. Overall, the plants do produce a vase-like clump.

Marginal shield fern (*D. marginalis*), is another rare fern documented at only one site on the island at the Stephenville Crossing area. Overall, they look very similar to the fancy fern except the frond outline is oblong-lanceolate (widest just above the middle, rather than just above the base). Also, there are no differences between the size of the lower pinnules and the upper pinnules of the lowest pair of pinnae.

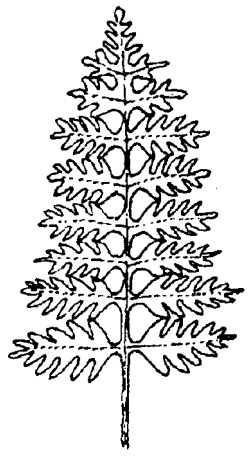
In a few rare sites near Gander, the fancy fern and crested wood fern hybridize to form **Boott's wood fern**, (*D. X boottii*). Not surprisingly, the hybrid appears partways between both parents.



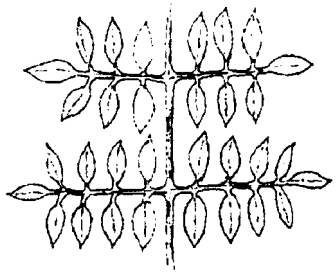
pinnatifid



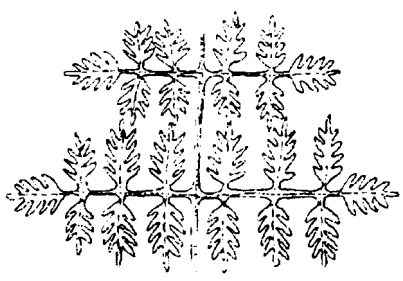
pinnate



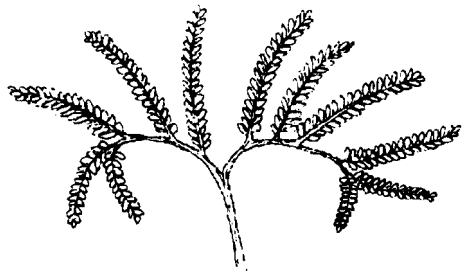
bipinnatifid



bipinnate



tripinnatifid



pedate

Glossary:

deltate: frond broadly triangular in outline.

elliptic: outline of an elongate circle; broadest in the middle.

lanceolate: spear-shaped; broadest just above the base with long-tapering tip and short-tapering base.

linear: long and narrow, of uniform or near-uniform width.

oblanceolate: inverse of lanceolate; broadest just above the middle, gradually narrowed toward base, more abruptly at tip.

oblong: longer than wide, with long sides mostly parallel.

ovate: outline like that of an egg; similar to elliptic except broadest towards base rather than in the middle.

rhizome: rootstock of fern, bearing fronds on upper side and roots on the lower.

rhombic: elongate diamond-shaped; often much longer than wide.

stipe: the stalk or petiole of a fern frond.

tripartite: frond which is divided into three equal or near-equal parts.

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Credits: Glossary illustrations by Todd Boland: Fern illustrations on page 12, 15, and 16, by Sue Meades.