

Article The Botanical Expeditions of George Upham Hay

George Upham Hay collected over 980 vascular plant specimens in New Brunswick during a 40 year career from 1870 to 1911. Half of the collected specimens were from eight botanical outings he enjoyed during his summer hiatus as an educator (Richards, 2022; Young, 2015). Hay felt that the south of New Brunswick had been botanized for more than 40 years, but that the North and Interior of the province held many botanical unknowns; that is why the map shows most of his outings in these regions of the province.

George Upham Hay Botanical Expeditions in New Brunswick (see map below)

#	DATE	Location	Note
1	1879 – July 12-18	Edmundston and Madawaska River	
2	1882 – July 7-13	Upper St John River and St Francis River	
3	1884 – July 18 – August 1	Tobique River to headwater Nictau Lakes and Nepisiguit Lakes	with Robert Chalmers
4	1896 – July 25 – August 5	Restigouche River	with William Francis Ganong
5	1898 – August 8 - 30	Nepisiguit River to Tobique River	with Robert Chalmers
6	1900 – July 3 - 26	Tobique River to South Tobique Lakes	with William Francis Ganong
7	1903 - July	Oromocto River	with William Francis Ganong
8	1904 – July 7 - 9	Upper St John River	with the Josselyn Botanical Society (JBS)

Expedition 1: 1879

The Edmundston region had not been botanized and was chosen by Hay as an easily accessible first study. He rode the Canadian Pacific Railway train between Halifax and Rivière du Loup to Edmundston; he hired guides with boats and set about exploring the mouth and the lower stretches of the Madawaska River (the discharge of Témiscouata Lake in Québec). At the time of his visit, there was a small waterfall with exposed calcareous rocks at the mouth of the river (this was covered by a dam in 1917); the location had been called Petit-Sault (Little Falls) before its change of name to Edmundston. He collected rare plants from the falls, Slender Cliff-Brake (*Cryptogramma stelleri* (Gmel.) Prantl), Northern Painted-Cup (*Castilleja septentrionalis* Lindl.) and Hair-Like Sedge (*Carex capillaris* L.). In all, he collected 33 vascular plant specimens during his trip (about half of them rare).

While in Edmundston he planned his next expedition to the upper reaches of the Saint John River and its St Francis River tributary.



George Upham Hay Botanical Excursions (see table)

Expedition 2: 1882 (Hay, 1883)

George Hay arrived in Edmundston by train with a heavy sailboat and oars that he had transported from Fredericton. He and 3 companions had the boat hauled forty miles by horse-drawn wagon to Saint-François-de-Madawaska. (Squires, 1972). From there, on July 7, he set out on the Saint John River to Glazier Lake and the St Francis River to the outlet of Beau Lake in Québec, arriving on July 10. There he collected *Rhamnus alnifolia* L, Hér., then rare in the province (Young, 2015). From Beau Lake, Hay descended the St. Francis River to its mouth on the Saint John River. Below Beau Lake there are the Cross Lake Rapids for about a kilometer. "The rapids are short between Beau Lake and Glazier's Lake, with one exception, where the waters roar and tumble through a rocky gorge, for the distance of a quarter of a mile. To enjoy the excitement of rushing through this torrent we had hauled our boat, a few hours before, up the almost perpendicular side of a hill." (Hay, 1883). He collected 32 vascular plant specimens, some of them rare, during this expedition. He followed the Saint John downriver, stopping at various locations to collect specimens, and arrived in Saint John on July 31.

Cyrus Guernsey Pringle (1838-1911) collected bryophytes on the St Francis River in the 1870s (Davis, 1936). Willard Webster Eggleston (1863-1935) of Vermont University with Merrit L Fernald (1873-1950) botanized the St Francis River in August 1902 (Eggleston, 1904).

No other specimens on the St Francis River above the base of Glasier Lake were collected for over a century. This author with Keith Williams, a Maine aquatic botanist, collected two dozen aquatic specimens in July 2008. Sean Blaney, David Mazerolle and Alain Belliveau surveyed the St Francis River in July 2013. (Blaney et, al., 2014)

Expedition 3: 1884

George Upham Hay and Robert Chalmers (of Campbellton) left Tobique Village on July 18 and began the canoe ascent of the Tobique River to its headwaters in Nictau Lakes. They reached the Nictau Lakes on July 28. They spent the day climbing Sagamook Mountain (Hay called it 'Bald Mountain'); Hay stated that the summit did not appear to contain Alpine plants, and that the term 'bald' was a misnomer since the surface was covered in a mossy swamp with decaying fir trees. (Chamberlain, et.al., 1885). The following day they portaged to the Nepisiguit Lakes, the headwaters of the Nepisiguit River. They returned to Nictau Lakes and descended the Tobique River, arriving at Tobique Village on August 1.

Hay collected 69 vascular plant specimens during the expedition. A dozen specimens are rare, with *Cryptotaenia canadensis* (L.) DC, *Amelanchier fernaldii* Wieg. and *Trimorpha acris* var. *asteroides* (L.) Nesom, very rare. This last specimen, Bitter Boreal-Daisy, is not mentioned in Hinds (2000) (page 484).

Note: In 1886, Hays collected under paid contract for the Geological Survey of Canada on Miscou Island with William Francis Ganong. Four seashore plants were collected.(Ganong, 1906).

(Place *Trimorpha* specimen here?)

Expedition 4 : 1896 (Hay, 1896)

George Hay and William Francis Ganong left St Leonard for the headwaters of the Restigouche River on the morning of July 25, with one wagon pulled by two draft horses to transport their canoe, baggage and 3 stout porters; they followed in another wagon. Unlike James Robb who had to make a water portage to the Restigouche River in 1838 (58 years prior), there was now a wagon road for 12 miles through the new settlement of Notre-Dame-de-Lourde. The last 13 miles to a campsite at the mouth of the Waganensis Brook (Wagan River) on the Restigouche river was via a very rough woods road (see image below). The botanists walked behind the wagon. They arrived at the Restigouche River in the late afternoon.

The next morning they followed the current of the Restigouche River arriving in Campbellton on August 5, after 12 days. On August 2, they climbed Meto'mqwiujig Mountain (S**** Cap Mountain) and returned with specimens of *Goodyera oblongifolia* Raf. George Hay collected 75 vascular plant specimens during this expedition; 18 plants are rare and *Pinguicula vulgaris* L., *Cynoglossum virginianum* L. var. *boreale* (Fern.) Coop. and *Symphotrichum anticostense* (Fernald) Nesom are very rare. The Buffalo-Berry (*Shepherdia canadensis* (L.) Nutt.) was found on a perpendicular calcareous slate wall of the Devil's Half-Acre.



NB Museum 1987.17.834. Getting Dinner on Portage Road from St. Leonard to Mouth of the Wagan River, New Brunswick. 1896. Collection William Francis Ganong

Expedition 5: 1898 (Hay, 1899)

On August 8, George Hay and Robert Chalmers left Bathurst to ascend the Nepisiguit River, portage to Nictau Lakes and descend the Tobique River to the Saint John River. They were attempting a trip similar to Loring Woart Bailey's 1863 expedition, but in reverse. A team carried their canoe and baggage 21 miles on a rough wagon road to above the Grand Falls of the Nepisiguit River. On August 11, while passing through "The Narrows" on the river, a guide poling a dugout with part of their provisions and cooking utensils overturned and lost most of his load. The guides were paid off and left; the two botanists continued to ascend the river. They reached Indian Falls Depot on August 15 and pitched their tents at a point closest to Mount Denys (Hay called it Bald Mountain) (see map below). They climbed the mountain the following morning of August 16th. "The air on the top was bleak and cold, and even with our coats on we were glad at times to seek the shelter of an overhanging rock, although the day in the valley below was warm, even sultry. I found the vegetation rather interesting, with several boreal plants and the trees and shrubs all of stunted growth. The following is a list of the plants observed: *Vaccinium uliginosum* (its first recorded appearance in this province), *V. Pensylvanicum*, *V. vitis-idaea*, *Nemopanthus canadensis*, *Pinus Strobus*, *P. resinosa*, *P. banksiana*, *Larix Americana* (first place that I had seen it in this river), *Picea rubra*, *P. alba*, *Abies balsamea*, *Kalmia angustifolia*, *Rhodora Canadensis*, *Empetrum nigrum*, *Betula papyracea*, *Populus tremuloides*, *Melampyrum Americanum*, *Aralia nudicaulis*, *Pyrus Americanus*, *Pteris aquilina*, *Aspidium filix-foemina* (the only ferns observed), *Diervilla trifida*, *Viburnum cassinoides*, *Solidago latifolia*, one willow, two or three lycopodiums, a growth of lichens that covered the rocks in every direction, chiefly the Iceland Moss (*Cetraria islandica*). These plants were collected within a radius of 25 yards of the summit." (Hay, 1899)

Hal Hinds re-located the station for *Vaccinium uliginosum* L. in 1987. The story is recounted by Mary Young (2015, page 160).



Mount Denys along the Nepisiguit River, NB. From Toporama <https://atlas.gc.ca/toporama/en/index.html>

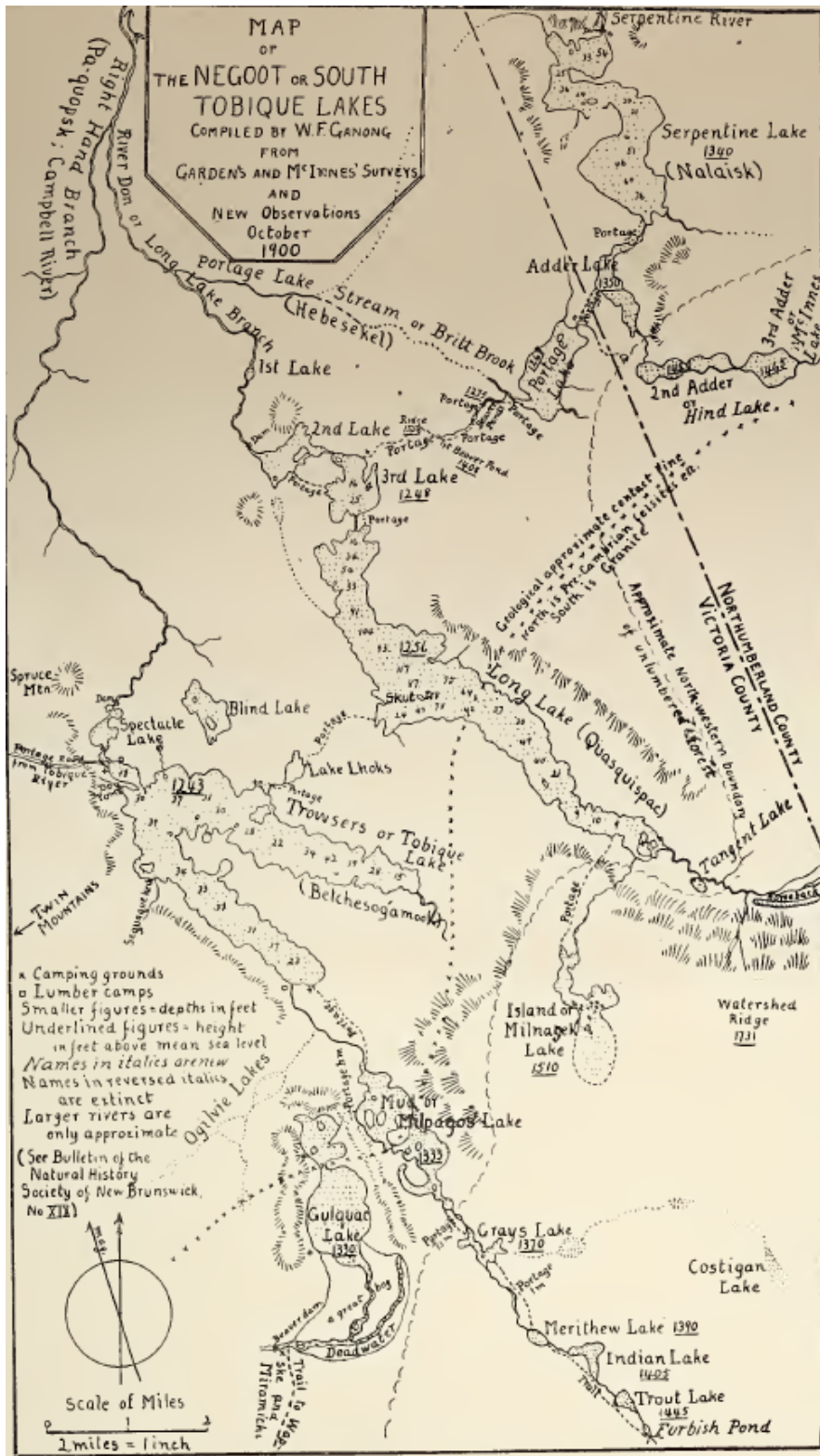
They reached Nepisiguit Lakes (headwaters of the Nepisiguit River) on August 19 (the 12th day of the expedition). They portaged to Nictau Lakes (headwaters of the Tobique River) on the 22nd and climbed Mount Sagamook on the 23rd of August. They arrived at the mouth of the Tobique River on August 30.

George Hay collected 81 vascular plant specimens during the expedition, 7 of them rare.

Expedition 6: 1900 (Hay, 1902)

George Upham Hay and William Francis Ganong spent most of July exploring the Negoot or South Tobique Lakes. On July 3 they left Wapske on the Tobique River and travelled 20 miles on a forest road to Trousers Lake, arriving on the 5th. (see map below). They first investigated the lakes accessible from the lower leg of Trousers Lake. From Trousers Lake they portaged to Long Lake and northeast to Serpentine Lake, down the Serpentine River to the Tobique River, arriving at the Saint John River on the 26th of July. (see image of George Upham Hay during the expedition)

George Hay collected 70 vascular plant specimens during this expedition. Of particular interest is the collection of 7 specimens of *Carex rostrata* Stokes. This is a very rare S1S2 plant in New Brunswick. His report on the plant: '*C. rostrata*, Stokes, var. *ambigens*, Fernald. South Tobique Lakes, "Very slender, 3 to 5 dm. high, culms barely 1 mm. in diameter below the spikes : leaves 2 to 5 mm. wide : staminate spikes 1 or 2; pistillate 1 to 3, globose or short-oblong, 1 to 2.5 cm. long : perigynium as in the species. — New Brunswick, South Tobique Lakes, July 18, 1900 (G. U. Hay, no. 41) : Maine, sandy shore of St. John River, St. Francis, June 18, 1898 [M. L. Fernald, nos. 2076, 2077]. Habitally resembling *C. vesicaria*, but with the stiffer habit, the spongy culms smooth and bluntly angled above, the nodulose leaves, and the perigynia of *C. rostrata*." — M. L. Fernald in letter.' (Hay, 1901) shows that this appeared to be an unknown in the province. Note: *C. rostrata* var. *ambigens* Fernald is now considered to be a synonym of the species.



William F Ganong (1901 page 329) Map of South Tobique Lakes

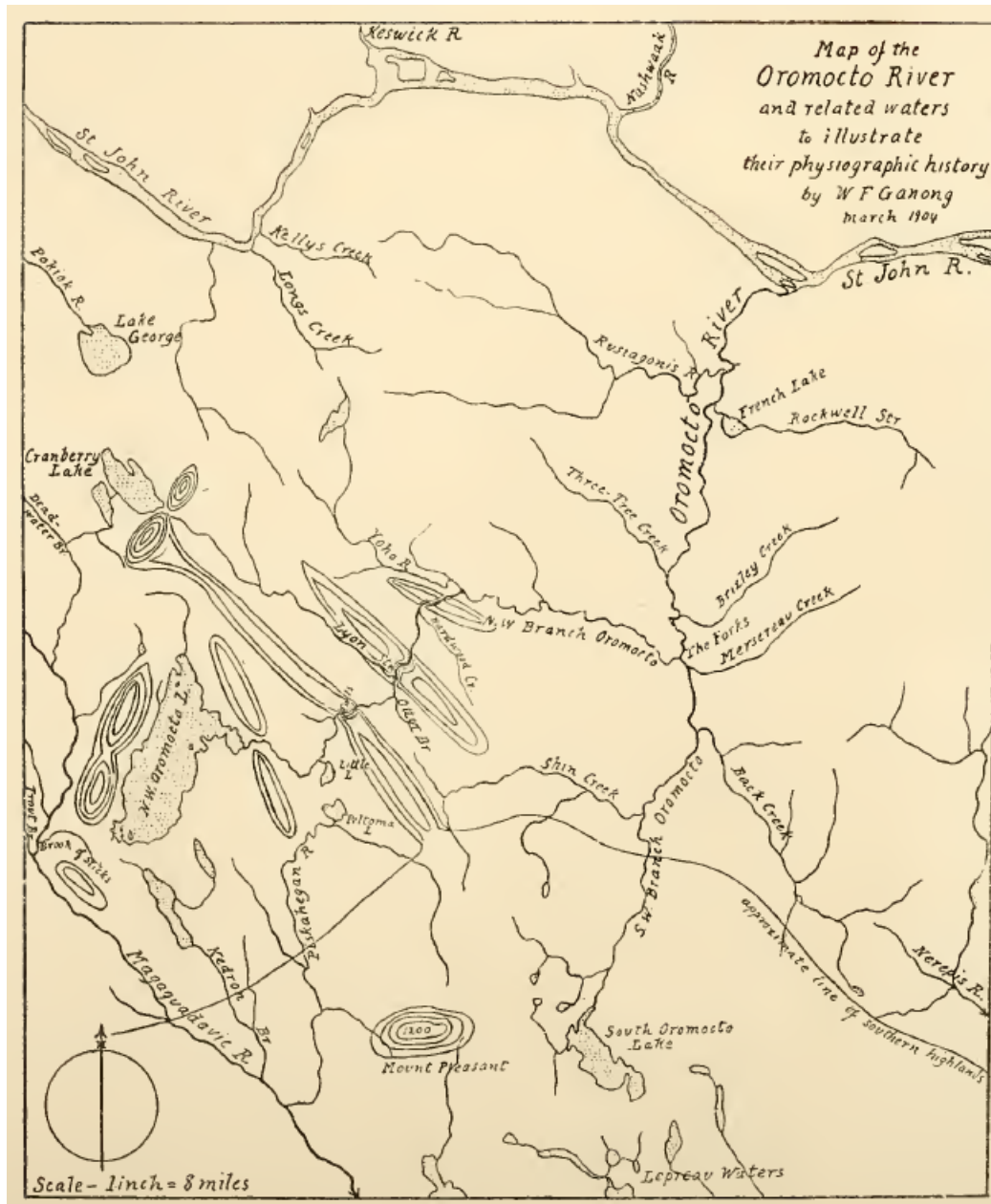


NBM 1987.17.1218.115 – 1900 - George Upham Hay Writing in Journal, Long Lake Region, Victoria County, New Brunswick- William Francis Ganong Collection..

Expedition 7: 1903 (Ganong, 1904)

In July, George Hay accompanied William Ganong on an exploratory expedition of the Oromocto River watershed. Their canoe and baggage were delivered to Northwest Oromocto Lake, from which they descended the Northwest Branch of the Oromocto River and the main river to its mouth on the Saint John River (see map below).

George Hay collected only 1 specimen during this expedition. "I understand from Dr. Hay that his observations of the plants along the river showed only the common plants of New Brunswick, with none especially noteworthy." (Ganong, 1903). The one collected specimen, *Platanthera flava* (L.) Lindl. var. *herbiola* (R. Br.) Luer, is a very rare plant in New Brunswick. It was collected on the Northwest Branch of the Oromocto River. George Hay returned to the station in 1904 to collect another specimen.



Map by William Ganong (1904).

Expedition 8: 1904 (Hay, 1905)

During the summer, George Hay was invited to attend the Annual Summer Meeting of the Josselyn Botanical Society of Maine. July 7th to the 9th 1904, "I had the great pleasure of meeting with the

Josselyn Botanical Society of Maine at Fort Kent. Nearly a week was spent in examining the flora of the meadows and forests on both sides of the St. John river in that vicinity. Several plants new to New Brunswick were found, which are recorded in the list following, and a few are recorded separately, which were found on the Maine side of the boundary. These are to be looked for in New Brunswick, where their occurrence is probable.

Mr. Fernald's exact knowledge of the plants of that region proved of the greatest service to the other botanists of the party, and especially to the New Brunswick representative. Indeed, the members of the Josselyn Club were all very generous in extending their investigations into this province, and both sides of the river came in for a fair share of attention, a kind of pleasant and unselfish reciprocity which might be more widely imitated in the relations between the two countries." (Hay, 1905).

The group spent two days in the company of Merrit Fernald botanizing in Clair and St. François-de-Madawaska (St Francis) along the Saint John River. "On Friday evening (July 9th) Mr. M. L. Fernald delivered an address on " The Flora of the St. John Valley " ; and Dr. George Upham Hay, of St. John, New Brunswick, spoke of the fungi collected, and extended greetings from the Botanical Club of Canada, of which society he is the president."(Moulton, 1904).

George Hay collected 13 mostly common vascular plant specimens from Clair and St Francis.

George Upham Hay concentrated his collections near Saint John and Kings counties, but he covered the province in search of new species during his career. His influence on younger Normal School of Fredericton teachers like John Brittain and George Inch marked their own careers.

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