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## Teaching Field Botany from Canoes In Southern Canada

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## Teaching Field Botany from Canoes In Southern Canada

By NORMAN H. RUSSELL

*Abstract.* During late August and early September, 1958, the author and Mr. Irwin L. Simone, instructor in physical education at Grinnell College, took ten undergraduate students on a 23-day canoeing trip through the Lac La Croix area in southern Ontario. The purpose of the trip was to survey the plant life of the area from both taxonomic and ecologic viewpoints, and three semester credits in biology were given by Grinnell College for the course. The preparations necessary and the journey itself are described. In addition, the teaching techniques are dealt with.

Several years ago a three-week canoe journey in southern Ontario for the purpose of studying the northern coniferous forest was conceived by Irwin L. Simone, Grinnell College physical education professor and athletic coach, and the author. In late August and early September, 1958, after extensive planning and preparation, we took ten college undergraduates on a 125-mile canoe trip along the route indicated in Figure 1, making frequent stops for studies of the taxonomic and ecologic aspects of both the forests and the lakes and rivers.

During the spring semester preceding the summer trip the students who were to go were selected and met together a number of times. Included in these early meetings were trips to the college swimming pool and to nearby lakes for instruction in canoeing by Mr. Simone plus preliminary discussions of the northern conifer forest by the author. Both the students and their parents were fully informed on the various aspects of the trip. During the summer further information was sent to the students, designating exactly what clothing and personal belongings they might bring. These had to be kept to a minimum because of the difficulty of carrying much material in the canoes.

The students gathered at Grinnell on August 17 and left the next morning in station wagons rented from the college. The afternoon of the eighteenth was spent in a tour of the botanical facilities of the University of Minnesota. On August 19 we traveled to Crane Lake, Minnesota (Fig. 1, station 1), a small resort town on the Canadian border directly north of Duluth. Here we met Mr. Simone, who had arrived earlier. We completed packing and embarked in five aluminum canoes at 3:30 p.m. After clearing Canadian Customs (Fig. 1, station 2), we paddled southeast along the Vermilion River to a small island in little Vermilion Lake (Fig. 1, station 3) where we camped for the night.

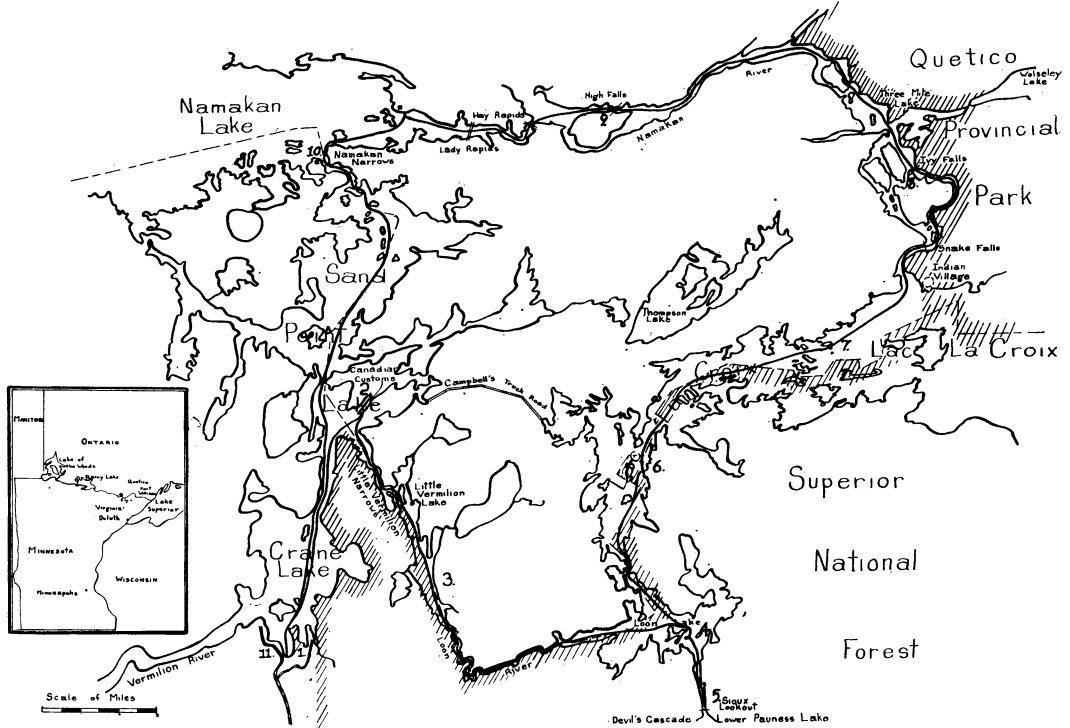


Figure 1. Map of the Lac La Croix and Namakan River area.

The morning of August 20 we set out on a second 12-mile trip, continuing down the Loon River to Loon Lake where we made camp on an island with a fine, level campsite (Fig. 1, station 4). Enroute we made several stops for preliminary inspections of the forests. Our second campsite served us for two days and three nights. While there it was our aim to identify and learn the characteristics of as many of the vascular plants as possible, and we collected and keyed plants from dawn until dark. The last night the group was given a "practical" examination. A tour was taken on the island, and each of the various species of plants was pointed out. The students were expected to know both common and scientific names.

The next four days were spent at a campsite adjacent to a beautiful white sand beach opposite the large "American Island" in southwestern Lac La Croix (Fig. 1, station 6). The first three days were spent in learning the herbaceous plants of the forests, as well as a variety of aquatic plants. The work culminated in a practical examination on the beach. One hundred numbered stakes were set out, and a different plant was imbedded in the sand beside each stake. In the first week of the course the students learned to recognize well over 200 species of plants, including virtually all of the woody plants of the region.

Our last day at American Island began with a lecture on ecological techniques and finished with an ecological survey of the forests of the island. Ten meter square plots were used for the tree stratum, 4 meter square plots for the shrubs, and 1 square meter plots (2 meters by  $\frac{1}{2}$  meter) for the herbaceous vegetation.

Leaving American Island, we paddled to Campbell's Trading Post on the northern shore of Lac La Croix, where we camped for two and a half days on a small island (Fig. 1, station 7). Here we continued our ecological studies. The students were divided into three groups, and each group was given the task of making a fairly complete survey of the vegetation of one of the many small islands nearby. This involved first a walking survey of the island and the preparation of a simple outline map of its borders. Next the vascular plants were collected and identified and a complete list made. Finally, the group had to plan and execute a brief vegetation survey. The data they obtained were worked up at night, and short papers were written speculating upon both the past history and the probable future of the island vegetation. During this period of study the instructor visited each group several times a day to assist in the identification of difficult plants or in planning the ecological survey.

Embarking from our small island, we continued across Lac La Croix and entered the Namakan River, along which we traveled for most of the remainder of the trip. The "back country" along the river provided, at times, complete isolation from civilization, superb

scenery, and a great variety of vegetation types. Our first camp was on a tiny island below Ivy Falls (Fig. 1, station 8), where we spent 4½ days. At this camp the three student groups were each given a different forest type to study. One group worked on fir (*Abies balsamea*) forests, one on pine (*Pinus strobus*, *P. banksiana*, and *P. resinosa*) forests, and the third on aspen (*Populus tremuloides*) and paper birch (*Betula papyrifera*) forests. Each group had a canoe and traveled about finding suitable stands and studying them. Papers were written at the conclusion of these surveys, listing and interpreting the data. Occasional lectures were given by the instructor throughout the ecological work, and reports were given by different groups around the campfire at evening.

We left Ivy Falls reluctantly, for we enjoyed the complete solitude, and next paddled to High Falls (Fig. 1, station 9), where we pitched our tents beside a huge, roaring waterfall. Our two days there were occupied with individual projects by the ten students on a variety of botanical subjects. These included mapping of lichen growth on the granitic boulders, a detailed study of plant succession from the lake shore through shore vegetation and aspen woods to the coniferous forest, a study of the depths at which various aquatic plants grew in several habitats, a study of the kinds of local bryophytes, a population study of certain white violets, and others. Our last night at the campsite we had reports by each of the students on the outcome of their individual projects.

From High Falls we journeyed to Namakan Narrows (Fig. 1, station 10), our last campsite. During our two days here we were given the free use of the facilities of a tourist lodge, and these were put to good use. A requirement of the course was the preparation of a final paper, summarizing all the work each student had done, and the last two days were reserved for this. Several dozen reprints of articles on the boreal forest had been brought along, as well as a number of reference books. Reading assignments in these were given during the trip and at this last wilderness stop. Final type-written copies of these papers were handed in about two weeks after the group returned to Grinnell.

Tuesday morning, September 7, we set out for Crane Lake with a strong north wind at our backs and made the 15 miles in only three hours. The trip was considered a complete success both by the instructors and the students. Not only had they taken—and enjoyed—a difficult, intensive course in field taxonomy and ecology, but, in addition, they had had an enviable social experience.

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