

Notes

Marine Algae New or Rare to Northern British Columbia

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During July 1979 marine intertidal algae were collected on Langara Island, the northernmost of the Queen Charlotte Islands. Of the approximately 150 species collected, 28 were formerly unknown from northern British Columbia. Of these, *Ulvella setchellii*, *Audouinella concrescens*, *A. daviesii*, *A. membranacea*, *A. variabile* (Drew) Garbary *comb. nov.*, and *Bonnemaisonia geniculata* are new to British Columbia. Many species known from both Alaska and southern British Columbia are reported for the first time from the intervening region, and 21 species were found to have new northern distribution limits. Six species recorded previously for the mainland (and adjacent islands) are new records for the Queen Charlotte Islands.

Key Words: Acrochaetiaceae, *Audouinella*, *Bonnemaisonia geniculata*, marine algae, northern British Columbia, Queen Charlotte Islands.

In comparison with the areas to the immediate north and south, the marine algae of northern British Columbia (region between northern tip of Vancouver Island and Alaska) remain poorly known. Hawkes et al. (1978) summarized early literature, and reported many new records based on their own and others' collections. Despite this work, at least 70 species known from the contiguous coastal areas are yet to be reported from northern British Columbia. In addition, the reported flora for the region contains over 100 species fewer than that of Alaska (Lindstrom 1977), and less than half that recorded for the area of southern British Columbia and northern Washington (Scagel 1966; Widdowson 1973, 1974). Although there may be biogeographic and hydrographic factors that account for this apparent discrepancy, much of it can be attributed to paucity of collecting in the area. In this paper we report the results of a collecting expedition to Langara Island, the northernmost of the Queen Charlotte Islands.

Study Area and Materials and Methods

Langara Island (Figure 1) was visited by two of us (D. G. and L. G.) July 16–30, 1979. The coastline of this island is highly dissected with numerous reefs and headlands. The west, north, and east coasts are very exposed, and moderate protection is found only on the south coast in the waters between Langara and Graham Islands. We made collections in four areas of the island (see arrows in Figure 1): (1) Langara Point, (2) Lord Bight, (3) west of McPherson Point, and (4) Fury Bay. Only Fury Bay was previously collected (Hawkes et al. 1978). In addition, in the area of Lan-

gara Point, several shores were visited: (a) Langara Point, below lighthouse, (b) cove to west of Langara Point, (c) beach along disused trail to lighthouse, and (d) cove at boat dock to east of Langara Point.

Voucher specimens for all collections are deposited in the phycological collection of the University of British Columbia Herbarium (UBC).

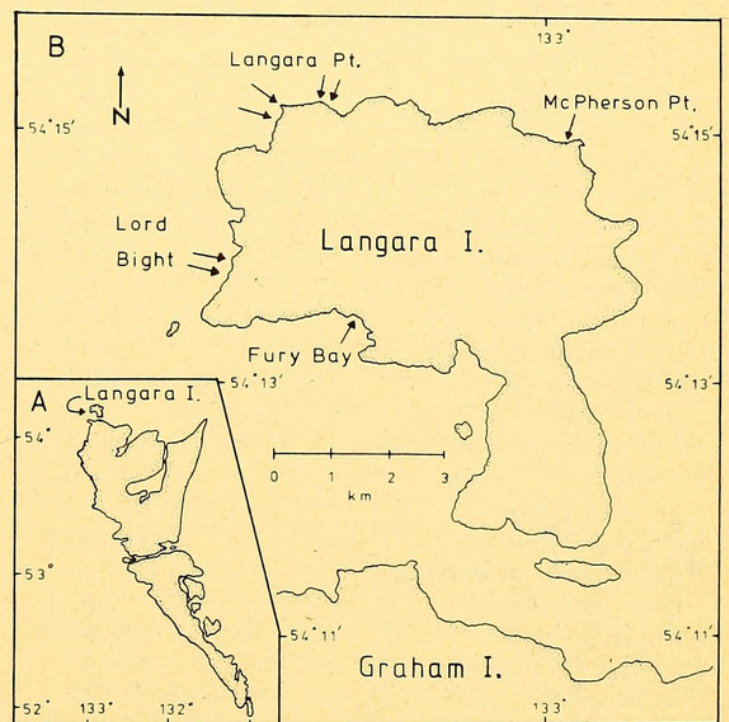


FIGURE 1. A, Generalized map of Queen Charlotte Islands. B, detailed map of Langara Island showing collecting sites (arrows).

Results and Discussion

During the 2-wk collecting period approximately 150 species of marine intertidal algae were collected on Langara Island. Because most of these taxa were reported previously for the island, or represent minor range extensions from adjacent Graham Island

(Hawkes et al. 1978), these are not listed here. Many of the collections, however, are of biogeographic and floristic interest in that they represent extensions of previously recorded distributions. Extensions are categorized into four types that are not mutually exclusive and are summarized in Table 1.

TABLE 1—New distribution records for marine algae in northern British Columbia: 1—algae new to British Columbia; 2—algae new to northern British Columbia; 3—algae with new northern distribution limits; 4—algae new to the Queen Charlotte Islands. Data on previous distributions compiled from Abbott and Hollenberg (1976), Drew (1928), Garbary (unpublished data), Hawkes et al. (1978), Lindstrom (1977), Phinney (1977) and Scagel (1957)

Taxon	New distributions				Previous distributions
	1	2	3	4	
Chlorophyta					
<i>Bryopsis plumosa</i>			*		Moresby Island to California
<i>Cladophora microcladioides</i>				*	northern B.C. to Mexico
<i>C. stimpsonii</i>		*	*	*	southern B.C. to California
<i>Rhizoclonium riparium</i>		*		*	Alaska, southern B.C. to Chile
<i>Ulothrix laetevirens</i>		*		*	Alaska to California
<i>Ulvella setchellii</i>	*	*	*	*	Washington to California
<i>Urospora mirabilis</i>				*	Alaska to California
Phaeophyta					
<i>Colpomenia bullosa</i>		*		*	Alaska to California
<i>Laminaria ephemera</i>		*		*	Alaska to California
<i>Punctaria expansa</i>		*	*	*	southern B.C., Washington
<i>Ralfsia pacifica</i>		*		*	Alaska to Mexico
Rhodophyta					
<i>Ahnfeltia plicata</i>		*		*	Alaska, southern B.C. to Mexico
<i>Antithamnionella pacifica</i> var. <i>uncinata</i>				*	Alaska to Mexico
<i>Audouinella amphiroae</i>		*	*	*	southern B.C. to Mexico
<i>A. conrescens</i>	*	*	*	*	California, southern B.C.
<i>A. daviesii</i>	*	*	*	*	Washington to California
<i>A. densa</i>		*	*	*	southern B.C. to California
<i>A. membranacea</i>	*	*	*	*	Washington, southern B.C.
<i>A. plumosa</i>		*	*	*	southern B.C. to California
<i>A. porphyrae</i>		*	*	*	southern B.C. to California
<i>A. variabile</i>	*	*	*	*	Washington to California
<i>Bonnemaisonia geniculata</i>	*	*	*	*	California
<i>Botryoglossum farlowianum</i>		*		*	Alaska, southern B.C. to Mexico
<i>Ceramium rubrum</i>		*		*	Alaska, southern B.C., Washington
<i>C. washingtoniense</i>			*	*	northern B.C. to Oregon
<i>Cryptonemia obovata</i>		*		*	Alaska, southern B.C. to Mexico
<i>Erythrotrichia carnea</i>		*		*	Alaska to Mexico
<i>E. pulvinata</i>		*	*	*	southern B.C. to Mexico
<i>Farlowia compressa</i>		*		*	Alaska, southern B.C. to Mexico
<i>F. mollis</i>				*	Alaska to California
<i>Fryeella gardneri</i>			*		Moresby I. to Mexico
<i>Grateloupia pinnata</i>		*		*	Alaska, southern B.C., Washington
<i>Hildenbrandia prototypus</i>				*	Alaska to Panama
<i>Hymenena kylinii</i>		*	*	*	southern B.C. to California
<i>Pikea californica</i>		*	*	*	southern B.C. to California
<i>Porphyra kanakaensis</i>		*	*	*	southern B.C. to California
<i>P. schizophylla</i>				*	Alaska to California
<i>Prionitis filiformis</i>			*		Moresby I., southern B.C. to Mexico
<i>P. linearis</i>				*	northern B.C. to Mexico
<i>Ptilothamnionopsis lejolisea</i>			*		northern B.C. to Mexico

Six species were found that were previously unreported for British Columbia including one green and five red algae: *Ulvella setchellii*, *Audouinella concretsens*, *A. daviesii*, *A. membranacea*, *Audouinella variabile* (Drew) Garbary *comb. nov.* (see Appendix I), and *Bonnemaisonia geniculata*. Five of these (i.e., the *Audouinella* species and *U. setchellii*) are minor range extensions from northern Washington (Drew 1928; Abbott and Hollenberg 1976). In addition, three of the *Audouinella* species (except *A. daviesii*) have subsequently been found in Barkley Sound (Garbary, unpublished data).

Bonnemaisonia geniculata is the most important new record in that this species was considered endemic to California (Abbott and Hollenberg 1976; Shevlin and Polanshek 1978). In 1976 tetrasporic plants that corresponded to the tetrasporophytic stage of *B. geniculata* were collected in the Queen Charlotte Islands. In the present study a single fertile female gametophyte was collected on Langara Island where it was growing epiphytically in the lower intertidal region. The presence of both gametophytic and tetrasporophytic phases of *B. geniculata* in northern British Columbia indicates that this species has a normal life history in this area, and that *B. geniculata* has a much wider distribution than is presently known.

Twenty-eight new records for marine algae were found for northern British Columbia (Table 1). Of these, 12 species have been reported from adjacent coastal areas (Alaska and southern British Columbia) and form part of a continuous distribution from Alaska south; however, over 50 additional taxa known from both Alaska and southern British Columbia have not yet been found in the intervening region.

The remaining 16 new records for northern British Columbia are extensions of the northern distribution limits of taxa found only to the south. Thus based on these and earlier collections, Langara Island and vicinity (stations 24–26 in Hawkes et al. 1978) is the known northern distribution limit for over 60 species. Because Alaska is only 50 km from Langara Island it is unlikely that this apparent discontinuity is real, and that many of these taxa will be found in Alaska. The work of Lindstrom and Scagel (1979) is a case in point.

A comparison of the algae known for the mainland (and adjacent islands) in northern British Columbia, and the Queen Charlotte Islands shows that there are about 90 species found only in the latter whereas there are only 20 taxa that have not been reported from the Queen Charlottes. The present study located six such taxa (Table 1) that were previously known only for the mainland (and nearshore islands). More extensive col-

lecting is required, however, to verify whether this apparent local endemism is a real or artificial phenomenon.

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APPENDIX I. A new combination in *Audouinella* *Audouinella variabile* (Drew) Garbary *comb. nov.*

Basionym: *Rhodochorton variabile* Drew (1928), University of California Publications in Botany 14: 174.

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