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A Small Collection of Lichens from Sakhalin Island, Russian Far East

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Abstract Among a small collection of lichens from the central part of Sakhalin Island, Russian Far East, 34 species were identified, of which 32 were known from Hokkaido, and 27 from Honshu, Japan. *Cladonia hokkaidensis* is first found outside Hokkaido.

Key words: lichens, lichenized Ascomycota, flora, Russian Far East, Sakhalin, *Cladonia hokkaidensis*.

Sakhalin Island, ca. 46-54°N and 142-144° E, lies between Hokkaido Island, the northernmost main island of Japan, and the Eurasian Continent, with Sea of Okhotsk to the east and Japan Sea to the west. Lichen flora of this island was first reported by Sato (1936) who explored in the southern part in 1932 and 1933 and enumerated 105 species. Since then, specimens from this island have been cited in monographs or various taxonomic papers (Ahti, 1961, for example). However, the lichen flora seems to be still insufficiently known. In the summer of 2000, T. Ohba, one of the authors made collection of lichens on Gora Lopatina (Mt. Lopatina), the highest mountain in Sakhalin Island during his stay for investigating vegetation. This paper will provide a list of the lichen species based on this collection, and will make a phytogeographycal note.

Materials and Methods

1. Study sites

About 50 specimens were collected by T. Ohba on 31st July 2000 at the following site: Russia, Sakhalin, Gora Lopatina (Mt. Lopatina), N50°51′00.6″E143°08′11.5″; 1530 m elev.

Gora Lopatina (Mt. Lopatina; 1609 m) is the highest mountain of Sakhalin Island, located in the northern part of the Northeastern Mountain Range lying in the east side of central Sakhalin. Field survey was made on a flat bottom of glacial ca. 1530 m elev. to the west of the summit. This area belongs to the upper *Pinus pumila* zone, with *Pinus pumila*-shrub and dwarf shrub heath (*Phyllodoce caerulea-Rhododendron redowskianum*-community) as the prevailing vegetation, and with lichen-dominated patches (mostly fruticose lichens such as *Cladonia*) on the ground. The surface of rocks were generally covered by luxuriant growth of various saxicolous crustose lichens and macrolichens. For vascular flora and vegetation in the summit area of Gora Lopatina, see Tolmachev (1950). In this time, alpine and subalpine vegetation of Mt. Lopatina was investigated by T. Ohba, R. N. Sabirov (Institute of Marine Geology and Geophysics, Russian Academy of Sciences Far East Branch), N. D. Sbirova (Institute of Marine Geology and Geophysics, Russian Academy of Sciences Far East Branch) and Hisao Sugawara (Kato-Gakuen Univ.), which will be published elsewhere. Lichen collection, made during this vegetation survey, was focused on macrolichens, and saxicolous crustose lichens were not collected due to the lack of collecting equipment.

At another site were collected a few specimens, of which only a single specimen was identified, thus the locality will be cited under this species in the list below.

2. Identification

Air-dried specimens were examined for external morphology under a stereomicroscope. The spot tests (or the color tests; K, C, KC, and P tests), and the microcrystal tests were conducted (Yoshimura, 1974) when neces-

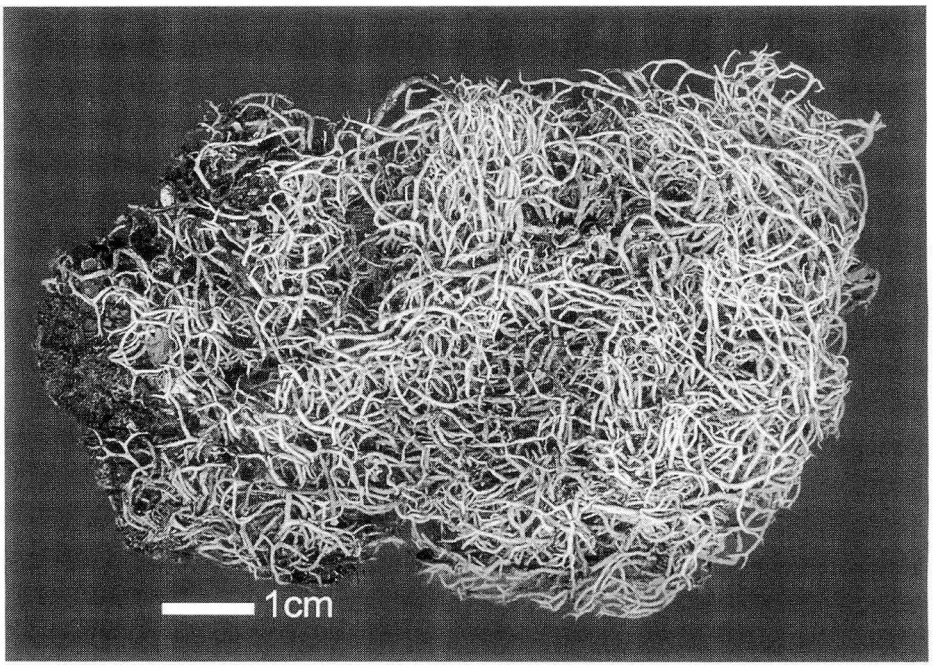

Fig. 1. *Cladonia hokkaidensis* from Sakhalin (Ohba 73109, air-dried material).

sary.

Results and Discussion

1. List of species

34 species were identified. In this list, species are arranged in alphabetical order. Under each species, examined specimens are cited, but the locality was omitted when they were collected on Gora Lopatina described above in the study site.

1) *Alectoria ochroleuca* (Hoffm.) A. Massal.—Specimen examined: T. Ohba 73106.
2) *Asahinea chrysantha* (Tuck.) W. L. Culb. & C. F. Culb.—Specimen examined: T. Ohba 73114.
3) *Bryocaulon divergens* (Ach.) Kaernef.—Specimen examined: T. Ohba 73143.
4) *Bryoria nitidula* (Th. Fr.) Brodo & D. Hawksw.—Specimen examined: T. Ohba 73143 (among *Bryocaulon divergens*).
5) *Cetraria delisei* (Bory ex Schaer.) Nyl.—Specimen examined: T. Ohba 73126.
6) *Cetraria islandica* (L.) Ach. subsp. *orientalis* (Asah.) Kaernef.—Specimen examined: T. Ohba 73125.
7) *Cetraria nigricans* Nyl.—Specimen examined: T. Ohba 73121.—It is "a mainly Arctic but also alpine tundra species with circumpolar distribution" (Känefelt, 1979). In northeastern Asia and its adjacent region, it was recorded from Aleutian Islands, around Bering Straight, and Arctic Ocean side (Kärnefelt, 1979).
8) *Cladina rangiferina* (L.) Nyl.—Specimens examined: T. Ohba 73113 & 73122.
9) *Cladina stellaris* (Opiz) Brodo—Specimens examined: T. Ohba 73103 & 73110.
10) *Cladina submitis* (Evans) Hale & W. L. Culb.—Specimen examined: T. Ohba 73133.
11) *Cladonia amaurocraea* (Floerke) Schaer.—Specimen examined: T. Ohba 73134.
12) *Cladonia cervicornis* (Ach.) Flotow subsp. *verticillata* (Hoffm.) Ahti—Specimen examined: T. Ohba 73105.
13) *Cladonia cornuta* (L.) Hoffm. subsp. *groenlandica* (E. Dahl) Ahti—Specimen examined: T. Ohba 73132.
14) *Cladonia crispata* (Ach.) Flot.—Specimens examined: T. Ohba 73101, 73111, 73112, 73119, 73123, & 73134 (among *C. amaurocraea*).

15) *Cladonia furcata* (Huds.) Schrad.—Specimen examined: T. Ohba 73129.
16) *Cladonia gracilis* (L.) Willd. subsp. *gracilis* (Asah.) Ahti—Specimens examined: T. Ohba 73107&73131.
17) *Cladonia hokkaidensis* Asah.—Specimen examined: T. Ohba 73109.—Previously known only from Hokkaido (Ahti, 1973).
18) *Cladonia kanewskii* Oxn. —Specimens examined: T. Ohba 73140 & 73141.
19) *Cladonia nipponica* Asah.—Specimens examined: T. Ohba 73138 & 73139.
20) *Cladonia pleurota* (Floerke) Schaer.—Specimens examined: T. Ohba 73135 & 73136.
21) *Cladonia pseudorangiformis* Asah.—Specimen examined: T. Ohba 73128.
22) *Cladonia pyxidata* (L.) Hoffm.—Specimen examined: T. Ohba 73130.
23) *Cladonia squamosa* (Scop.) Hoffm.—Specimens examined: T. Ohba 73104, 73108, & 73118.
24) *Cladonia sulphurina* (Michx.) Fr.—Specimen examined: T. Ohba 73120.
25) *Cladonia uncialis* (L.) Weber ex Wigg. —Specimen examined: T. Ohba 73137.
26) *Flavocetraria cucullata* (Bellardi) kaerfef. &Thell —Specimen examined: T. Ohba 73116.
27) *Flavocetraria nivalis* (L.) Kaernef. & Thell—Specimen examined: T. Ohba 73102.
28) *Hypogymnia pseudophysodes* (Asah.) Kurok.—Specimen examined: T. Ohba 73127.
29) *Melanelia stygia* (L.) Essl.—Specimen examined: Russian Far East, Sakhalin, Gora Balagan, 1250 m elev., 8 Aut. 2000, T. Ohba 80801.
30) *Sphaerophorus turfaceus* Asah.—Specimen examined: T. Ohba 73115.
31) *Stereocaulon paschale* (L.) Hoffm.—Specimen examined: T. Ohba 73142.
32) *Thamnolia subuliformis* (Ehrh.) W. L. Culb.—Specimen examined: T. Ohba 73117 (among *T. vermicularis*).
33) *Thamnolia vermicularis* Schaer.—Specimen examined: T. Ohba 73117.
34) *Vulpicida juniperinus* (L.) Mattson & Lai—Specimen examined: T. Ohba 73124.

2. Phytogeographycal notes

The flora reported here from Sakhalin shows a close resemblance to that on Daisetsu Mountains in Hokkaido, northern Japan. Among the 34 species reported in this study from Sakhalin, all but 2 (*Cetraria nigricans* and *Cladonia cerviconrnis* subsp. *verticillata*) are known also from Hokkaido. Also, the high mountains of Honshu have 27 of the species reported here (missing only these same two species and *Bryoria nitidula, Cetraria delisei, Cladonia hokkaidensis, Flavocetraria nivalis* and *Sphaerophorus turfaceus*). The floristic data for Hokkaido and Honshu are primarily based on Yoshimura (1974). The occurrence of *Cladonia hokkaidensis* in Sakhalin is noteworthy, since it has been recorded only in Hokkaido (Ahti, 1973).

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サハリン産の地衣類について

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ロシア極東，サハリン島中央部に位置する Gora Lopatina（標高 1609 m，サハリン最高峰）等でおよそ 50 点の地衣類を収集し，34 種を同定した．このうち 32 種は北海道と共通し，27 種は本州と共通し，北海道の山地との地衣類相が酷似することを示す．エゾイバラゴケは，北海道以外では初めての記録となる．