

Preliminary botanical studies at Bunger Oasis, East Antarctica

Materials were collected at Bunger Oasis area in 1989 by Krzysztof Zieliński and Krzysztof Filcek — biologists from the Department of Polar Research of the Institute of Ecology of the Polish Academy of Sciences, members of the 34th Soviet Antarctic Expedition. Their work was performed 30 years after the first Polish investigation at Bunger Oasis. In January 1959 the first Polish Antarctic Station (66° 17' S — 100° 45' E) was opened at Bunger Oasis. It was named after a Polish scientist Antoni B. Dobrowolski. The station, called previously *Oasis* was handed over to Poland on an agreement between the Polish and the Soviet Academies of Sciences.

Bunger Oasis (Bunger Hills) lies in the eastern part of Queen Mary Land and is separated from the Southern Ocean by Shackleton Ice Shelf. It is 50 km in length and 20 km in width and is the largest oasis on the Antarctic continent. It is a rocky hill area chiefly built of Precambrians metamorphic rocks, among which garnet-biotite gneiss dominate (Battke 1985). The highest elevation is 168 m above sea level, the relative height of hills does not exceed 100 m. The slopes of hills and their feet are covered by large amounts of rock waste (Battke 1985).

The climate of Bunger Oasis was described by Gregorczuk (1980).

The mean annual air temperature is -9.0°C (mean for the warmest and coldest months 1.8°C and -20.0°C respectively). Total precipitation is variable, averaging about 204.1 mm/yr. Despite numerous lakes, in summer the air humidity is very low in that area. It is characterized by a considerable number of days with strong winds, predominantly from the eastern sector. There are about 120 days of strong winds $> 15 \text{ m sec}^{-1}$.

The present paper includes the preliminary results of botanical research. The floristical list containing 33 lichen species and 4 moss species, has not been completed yet.

The collection was deposited in the herbarium of the Institute of Botany of the Jagiellonian University, Cracow (abbreviated as *KRA*).

List of localities (see Fig. 1)

1 — a valley on the west of ozero Dolgoe (Long Lake) between 102.0 and 91.0 points; 2 — to the south of Hordern Point, a valley of the creek

which is discharged to Zaliv Transkriptsii (Transcription Bay); 3 — a hill on the southern coast of Transcription Bay, SW, 60 m; 4 — southern coast of Zaliv Izvilista (Izvilista Bay); 5 — plateau between Long Lake and Figurnoe Lake; 6 — a hill above the creek between Izvilista Bay and Figurnoe Lake, W, 60 m; 7 — Krzemiński Hills; 8—9 — eastern coast of Zaliv Rybi Chvost (Rybi Chvost Bay); 10 — hill 78.0 on the western coast of Rybi Chvost Bay, NW, 70 m; 11 — Czarna Skała (Black Rock), NW, 60 m; 12 — Mount Różycki, S, 70 m; 13 — a valley southeast of Bay of Polish Geodesists, near a petrel colony, N, 50 m; 14 — hill 133.0 on the western coast of Figurnoe

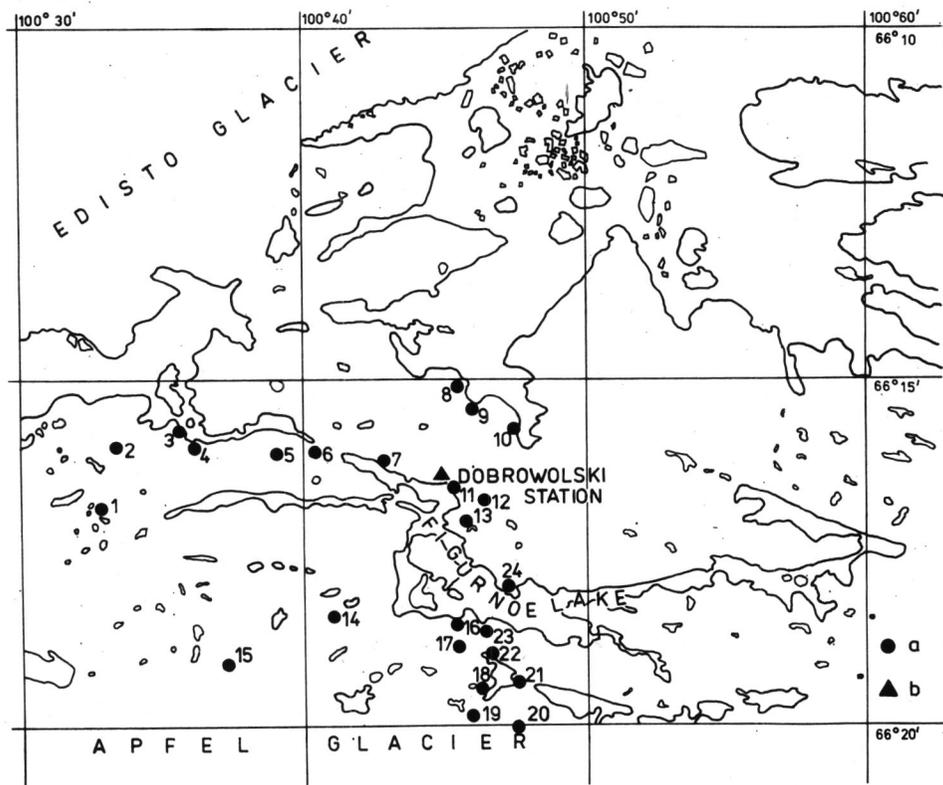


Fig. 1. Map of the Bunger Oasis: a — Localities of botanical studies, b — Dobrowolski Station

Lake, near a petrel nest, SE, c. 130 m; 15 — a hill on the northern coast of Apfel Glacier, S, 110 m; 16 — southern coast of the Figurnoe Lake; 17 — a valley on the west of Mys Ostry (Sharp Point), 30—80 m; 18 — western coast of the ozero Burevestnik (Burevestnik Lake), 70 m; 19 — rocks near Apfel Glacier, south of Burevestnik Lake, 110 m; 20 — hill 102.0 southwest of ozero Ptichge (Bird Lake), S, 110 m; 21 — between Burevestnik Lake

and Bird Lake, 60 m; 22 — northern coast of the Burevestnik Lake, 70 m; 23 — a valley east of Sharp Point, 30 m; 24 — a hill on the northern coast of Figurnoe Lake, SE, 70 m.

List of species

Lichenes

Acarospora gwynnii Dodge et Rudolph — common on rock and rock blocks.

Loc.: 11, 13, 14, 17, 24.

Acarospora williamsii Filson — on weathering rock.

Loc.: 24.

Arthonia subantarctica Øvst. This species has been recently described from Bouvertoya (Øvstedal 1986). New to the flora of continental Antarctic. Growing on stones.

Loc.: 7, 11, 13.

Biatorella antarctica Murray — on rocks.

Loc.: 3, 5, 12, 15.

Buellia cladocarpiza Lamb — on rocks. Apparently a rare species.

Loc.: 13.

Buellia frigida (Darb.) Dodge — on rocks, very common.

Loc.: 3, 11, 12, 13, 14, 16, 17, 21, 22, 24.

Buellia grimmiae Filson — growing over mosses.

Loc.: 17.

Buellia cf. *illaetabilis* Lamb — on rocks.

Loc.: 15.

Buellia lignoides Filson — on rocks.

Loc. 21.

Buellia pycnogonoides Darb. — on rocks and stones, rare.

Loc.: 13, 14, 15, 24.

Caloplaca athallina Darb. — growing over mosses.

Loc.: 11, 13, 17.

Caloplaca citrina (Hoffm.) Th. Fr. — growing on dead mosses, mainly with *Lecanora expectans*.

Loc.: 3, 11, 13, 14, 16, 17.

Candelariella hallettensis (Murray) Øvst. — on rock and mosses.

Loc.: 3, 5, 11, 12, 13, 17, 19, 22, 24.

Carbonea vorticosa (Flörke) Hertel — on rock. New to the flora of continental Antarctica

Loc.: 13.

Lecanora expectans Darb. — growing on mosses.

Loc.: 3, 13, 14, 17, 19.

Lecanora polytropa (Ehrh.) Rabenh. — on rock.

Loc.: 13.

Lecidea canciformis Dodge et Baker — on rocks.

Loc.: 6, 21.

Lecidea phillipsiana Filson — on rocks.

Loc.: 13.

Physcia caesia (Hoffm.) Hampe — on rocks, rarely on mosses.

Loc.: 2, 3, 23.

Physcia dubia (Hoffm.) Lettau — on rocks and mosses.

Loc.: 3, 13, 18, 23, 24.

- Pseudopheba minuscula* (Nyl. ex Arnold) Brodo et Hawksw. — on rocks, very common species.
Loc.: 6, 13, 15, 16, 21, 22.
- Rhizocarpon flavum* Dodge et Baker — on rocks, common.
Loc.: 1, 2, 4, 7, 11, 20.
- Rhizocarpon geographicum* (L.) DC. — on rocks, apparently a rare species.
Loc.: 2, 11.
- Rhizoplaca melanophthalma* (Ram.) Leuck. et Poelt — on rocks, very common.
Loc.: 7, 10, 11, 12, 14, 15, 17, 18, 21, 24.
- Rinodina olivaceobrunnea* Dodge et Baker — on mosses.
Loc.: 10, 17, 21.
- Rinodina petermannii* (Hue) Darb. — on rocks.
Loc.: 12, 17, 21, 24.
- Rinodina turfacea* (Wahlenb.) Koerb. — on dead mosses.
Loc.: 10.
- Umbilicaria aprina* Nyl. — on rocks, common.
Loc.: 1, 7, 16, 17, 18.
- Umbilicaria decussata* (Vill.) Zahlbr. — on rocks, very common.
Loc.: 7, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 24.
- Usnea antarctica* Du Rietz — on rocks.
Loc.: 13, 15.
- Usnea sphacelata* R. Br. — on rocks.
Loc.: 13.
- Xanthoria candelaria* (L.) Th. Fr. — growing on rocks and mosses, common.
Loc.: 3, 13, 16, 17, 18, 22, 23, 24.
- Xanthoria elegans* (Link) Th. Fr. — on rocks, rarely on mosses.
Loc.: 11, 13, 16, 17, 18, 19, 21, 23, 24.

Mosses

- Bryum algens* Card. — on soil.
Loc.: 18.
- Bryum argenteum* Hedw. — on soil.
Loc.: 18.
- Ceratodon purpureus* (Hedw.) Brid. — on soil.
Loc.: 17.
- Schistidium antarcticum* (Card.) Sav.-Lyub. et Z. Smirn. — on soil.
Loc.: 17, 19.

Acknowledgements. — The author wishes to express cordial thanks to Mr. K. Zieliński and Mr. K. Filcek for the materials collected by them. The study was supported by the Institute of Ecology of the Polish Academy of Sciences within the Project CPBP 03.03.

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Received July 31, 1989

Revised and accepted August 7, 1989

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