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Bryophytes collected by F. R. Fosberg
in the Marshall Islands

by

Harvey Alfred Miller

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F. R. Fosberg collected bryophytes in the Marshall Islands from November, 1951 to April, 1952 on Utirik, Ailuk, Likiep, Wotho, Ujae, Lae and Ujelang atolls (see fig. 1.) as a part of "Project Atoll" of the U.S. Geological Survey. The collections cited herein and those previously reported survey the bryophyte flora of the Marshalls but further collections are desirable for specimens, especially Hepaticae, of plants now incompletely identified or as yet undiscovered. Mosses and liverworts should preferably be collected during the rainy season when many species (e.g., Riccardia spp.), dormant or present only as spores during the dry season, are actively growing and reproducing.

I thank F. R. Fosberg for allowing me to study his collections. A. L. Andrews has been of considerable aid in identifications and has given much time and encouragement. E. B. Bartram has also been of kind assistance. The Farlow Herbarium of Harvard University and the New York Botanical Garden provided research facilities during visits sponsored in part by a Sigma Xi-RESA Grant in Aid of Research. The Department of Biological Sciences of Stanford University generously provided equipment and laboratory space. To these and others who have aided me I express my deepest gratitude.

MOSSSES (MUSCI)^{1/}

Calymperes hyophyllaceum C. Müll. var. robustum Fleisch. Musci Fl. Buitenz. I:265. 1904.

Lae Atoll: Bwi Islet, Jan. 9, 1952, Fosberg 34078a.

Distribution: Sumatra, Java, Philippines, Marshalls (Arno (2)).

The distribution given is that of the typical form of the species of which var. robustum may be only a luxuriant form due to optimal growth conditions.

Calymperes tenerum C. Müll. Linnaea 37:174. 1871-73.

Utirik Atoll: Utirik Islet, Nov. 29, Fosberg 33660, 33652. Ailuk Atoll: Ailuk Islet, Dec. 27, Fosberg 33929; Akulwe Islet, Dec. 26, Fosberg 33915, 33916. Likiep Atoll: Likiep Islet, Dec. 12, Fosberg 33780; Lado

^{1/} Specimens cited will be deposited in the U.S. National Herbarium and the herbaria of the B. P. Bishop Museum and of the author.

Islet, Dec. 14, Fosberg 33824. Wotho Atoll: Wotho Islet, Feb. 13, Fosberg 34253a, 34254. Ujae Atoll: Ujae Islet, Feb. 16, Fosberg 34373b, Feb. 20, Fosberg 34374b, Mar. 9, Fosberg 34402c; Ebeju Islet, Mar. 9, Fosberg 34403b, 34407b; Bock Islet, Feb. 17-20, Fosberg 34326. Lae Atoll: Lae Islet, Jan. 6-7, Fosberg 34001, 34002b, 34017b. Ujelang Atoll: Raej Islet, Feb. 5, Fosberg 34155b, 34156b, 34157, 34160b; Kiloken Islet, Feb. 5, Fosberg 34162.

Distribution: India, Malaysia, Philippines, Pacific Islands to Hawaii - Marshalls (Rongerik, Rongelap, Bikini, Eniwetok (5), Arno (2)).

This moss is very common and widespread in tropical Pacific Oceania. The known distribution in the Marshall Islands is shown on figure 1. Calymperes tenerum has been collected on every atoll in the Marshalls which has recently been explored bryologically although Stone (4) did not find it on Arno and the Horwitz collection from there was small (2).

Splachnobryum indicum C. Mull. Linnaea 37:174. 1871-73.

Wotho Atoll: Wotho Islet, Feb. 14, Fosberg 34257b.

Distribution: India, Java, Philippines (?), Marshalls (Arno (2)).

This collection, as the previous one from Arno (2), consists of scattered plants growing among other mosses--in this case Bryum nitens.

Bryum nitens Hook, in Wall. Cat. n. 7592 et Icon. pl. rar. t. 20, fig. 6. 1837.

Ailuk Atoll: Ailuk Islet, Dec. 28, Fosberg 33981. Likiep Atoll: Likiep Islet, Dec. 12, Fosberg 33779, 33781; Lado Islet, Dec. 14, Fosberg 33817, 33827. Wotho Atoll: Wotho Islet, Feb. 14, Fosberg 34257a. Ujae Atoll: Ujae Islet, Feb. 21, Fosberg 34376. Lae Atoll: Lae Islet, Jan. 10, Fosberg 34103.

Distribution: Nepal, Ceylon, Java, Bali, Fiji, Marshalls (Arno (2)).

Pelekium velatum Mitt. Journ. Linn. Soc. Bot. (1869) 176.

Ujelang Atoll: Ujelang Islet, Feb. 7, Fosberg 34209.

Distribution: Malay Peninsula, Siam, Malaysia, Pacific Islands to Samoa (1).

New to the Marshall Islands. Pelekium velatum is common in the Philippines and provides further evidence that the bryophyte flora of the Marshalls must have originated there. It has not, to my knowledge, been reported from the Carolines but I should not be surprised to learn that it does exist there.

Ectropothecium sandwichense (Hook. & Arn.) Mitt. in Seeman, Fl. Vit., p. 400. fig. 185. 1873.

Ujae Atoll: Bock Islet, Feb. 17-20, Fosberg 34340, 34364, 34365;
Enelamoj Islet, Mar. 9, Fosberg 34413. Lae Atoll: Lae Islet, Jan. 7,
Fosberg 34015, 34023; Loj Islet, Jan. 8, Fosberg 34049.

Distribution: Australia, New Zealand, Pacific Islands to Hawaii.

This moss has been previously reported from Arno by Stone (4) and
by Miller and Doty (2). The latter reported it as E. monumentorum, a
closely related species with similar distribution.

LIVERWORTS (HEPATICAEE)

Lopholejeunea subfusca (Nees) Steph. Spec. Hep. V:86. 1912.

Ujae Atoll: Ujae Islet, Feb. 16, Fosberg 34375a.

Distribution: Indomalaya and Oceania.

Lopholejeunea subfusca was first reported from the Marshall Islands
by Stephani (3) who described it as a new species, L. finschiana, apparently
based on a collection from Jaluit Atoll. Stone (4) reported this hepatic
from Arno.

Archilejeunea mariana (Gott.) Steph. Spec. Hep. IV:729. 1911.

Ujae Atoll: Ujae Islet, Feb. 16, Fosberg 34375c, 34373a--Feb. 20,
Fosberg 34374a--Mar. 9, Fosberg 34402a; Bock Islet, Feb. 17-20, Fosberg
34324, 34367; Ebeju Islet, Mar. 9, Fosberg 34403a, 34404. Lae Atoll:
Lae Islet, Jan. 7, Fosberg 34017a; Bwi Islet, Jan. 9, Fosberg 34078b.
Ujelang Atoll: Raej Islet, Feb. 5, Fosberg 34155a, 34160a, 34156a.

Distribution: Indomalaya and Oceania.

New to the Marshall Islands. Archilejeunea mariana is a very wide-
spread species in Oceania and fits well into the distribution patterns
of bryophytes known from the Marshalls.

Hygrolejeunea vesicata (Mitt.) Steph. Sp. Hep. V:572. 1914.

Wotho Atoll: Wotho Islet, Feb. 13, Fosberg 34247, 34253b. Ujae Atoll:
Bock Islet, Feb. 17-20, Fosberg 34325b. Lae Atoll: Lae Islet, Jan. 6
Fosberg 34002a.

Distribution: Samoa.

Stone (4) reported this plant from Arno as "Lejeunea sp., (Subgenus
Cheilolejeunea)." I have compared Stone's material with the type of
Lejeunea vesicata Mitten and find the material inseparable except for a
minor size variation. The plant probably does belong in Cheilolejeunea
but further study seems desirable at this point.

Lejeunea spp.

Ujae Atoll: Ujae Islet, Feb. 16, Fosberg 34375b--Mar. 9, Fosberg

34402b; Bock Islet, Feb. 17-20, Fosberg 34325a; Ebeju Islet, Mar. 9, Fosberg 34407a, 34408.

Distribution: Worldwide.

All of the collections cited above belong in the Schizostipae, an extremely large and poorly understood group of hepatics. Three species are represented in the above collections but they are almost uniformly sterile and it seems impossible, for the present at least, to even place them in the correct segregate genera of Lejeunea.

LITERATURE CITED

1. Bartram, E. B. 1939. Mosses of the Philippines. Philipp. Journ. Sci. 68:1-423, 29 plates.
2. Miller, H. A. and M. S. Doty 1953. Bryophytes from Arno Atoll, Marshall Islands. Atoll Res. Bull. 25:1-10, 7 figs.
3. Stephani, F. 1900-24. Species Hepaticarum. 6 Vols. Geneva.
4. Stone, E. L., Jr. 1951. Soils of Arno Atoll, Marshall Islands (Appendix D). Atoll Res. Bull. 5:56.
5. Taylor, W. R. 1950. Plants of Bikini. 218 pp., 78 plates. Univ. of Mich. Press, Ann Arbor, Michigan.

Known distribution of CALYMPERES TENERUM

in the MARSHALL ISLANDS.

