New Hawaiian bryophyte records from Herbarium Pacificum for 2022

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The continued processing of plant material at Bishop Museum’s Herbarium Pacificum, as well as new collections from the field, have manifested in five new records for bryophytes on the islands of O‘ahu and Maui—Chiloscyphus greenwelliae, C. laceratus, Physcomitrium eurystomum, Plagiochila hawaica, and Trachypodopsis serrulata var. crispatula. Hawai‘i is currently undergoing a renaissance in the study of bryology, and as the collections at Bishop Museum continue apace, more new records will be published.

Funariaceae
Physcomitrium cf. eurystomum Sendnt.

This is the first record of this genus for the island of O‘ahu. Plants were first seen at Lyon Arboretum in 2021 and are frequent along trails throughout the gardens, especially on shaded dirt banks under shrubs. This genus was reported for the first time in the Hawaiian Islands on Kaua‘i by Shevock et al. (2019). The location was described as “a cultivated setting on nylon shade cloth of a greenhouse,” and it is no surprise that this species would be found on O‘ahu under similar circumstances. It is very similar in general appearance to the endemic Entosthodon subintegrus, but can be differentiated using the following key adapted from Crum & Anderson (1955) for the identification of genera in the Funariaceae. The full key can be found at: [efloras.org]


Key to the genera of Funariaceae in Hawai‘i [adapted from Crum & Anderson (1955)]

1a. Capsules inclined and asymmetrical, with 2 rows of teeth…...Funaria
1b. Capsules erect and symmetrical, teeth very rudimentary or absent

2a. Capsules subcylindric to narrowly pyriform; most exothecial cells oblong to oblong-linear, rarely isodiametric; calyptra cucullate, costa not reaching apex of leaf.........Entosthodon
2b. Capsules urn-shaped, broadly pyriform, to cupulate; most exothecial cells irregularly hexagonal, ± isodiametric; calyptra mitrate to irregularly mitrate, sometimes appearing cucullate, costa reaching apex of leaf...Physcomitrium

Lophocoleaceae

*Chiloscyphus greenwelliae* (H.A. Mill.)

New island record

According to Staples & Imada (2006), this species was only known from the islands of Kaua‘i, Maui, and Hawai‘i. Upon inspection of the liverwort collection at *Herbarium Pacificum*, one specimen was located from the Wai‘anae Mountains collected by E. Funk and annotated as “*Chiloscyphus greenwelliae*, determination in absence of comparative materials.” I cross-referenced this specimen with unpublished figures done by H.A. Miller (Miller n.d.), as well as with other verified specimens, and found that this plant is indeed *C. greenwelliae*. Photos from the field were also sent to hepatic experts Emmet Judziewicz and Virginia Friere, who both agreed on the ID (pers. comm.). Field work in the Ko‘olau Mountains at Pu‘u Eleao and near Pu‘u Keahiakao revealed that this species is locally abundant, often growing on trees and under shrubs along the Ko‘olau summit. It will most likely be found wherever similar habitat exists on all the Hawaiian Islands.

**Material examined.** O‘AHU: Mokule‘ia Distr., northern Wai‘anae Mts., at head of Makaleha Valley in wet *Metrosideros* forest, 1,250 m, 10 Jun 1978, E. Funk, s.n. (BISH 478393); Ko‘olau Mts., Pu‘u Eleao, in mixed native cloud forest along summit ridge growing on shrubs and ground with *Plagiochila deflexa*, *Chiastocaulon combinatum*, and others, 829 m, 20 Jan 2022, M.K. Thomas, S. Ching-Harbin, K. Togikawa, J. Serrano, D. Sischo, C. Hee, S. Steifel & M. Tunseshige MKT 228; Ko‘olau Mts., summit of Kauakaulani near Pu‘u Keahiakao, growing on ground under *Dicranopteris linearis* and *Diplopterygium pinnatum*, 812 m, 28 Ja 2022, M.K. Thomas, M. LeGrande, C.T. Imada & K. Magnacca MKT 243.

*Chiloscyphus laceratus* Steph.

New island record

Staples & Imada (2006) list this taxon as occurring on the islands of Moloka‘i, Maui, and Hawai‘i. It has recently been collected at Kōnāhuanui and near the head of Helemano in the Ko‘olau Mountains. Numerous observations have also been made in the vicinity of Pu‘u Kaiwipo‘o and Wailupe in the same mountain range. This species has probably been overlooked on many occasions because it often grows appressed against tree bark among similar-looking species such as *Cuspidatula* and *Odontoschisma*, and may also be buried or intertwined with species of *Plagiochila*, *Herbertus*, *Bazzania*, etc. It is easily identified by the imbricated, rounded, lateral leaves and the smaller, ciliated underleaves with 4–6 long teeth. No observations of this species have been made in the Wai‘anae Mountains, but it will most likely occur there in wet forests.


Plagiochilaceae

*Plagiochila hawaica* Steph.

New island record

Previously undocumented from the island of O‘ahu, three recent collections document its presence in both mountain ranges: Palikea in the southern Wai‘anae Mountains, Mount Ka‘ala in the northern Wai‘anae, and Kōnāhuanui in the Ko‘olau Mountains, where it will most likely be found in other localities along the summit ridge. The material was identified using the key provided in Inoue (1976).

Trachypodaceae

Trachypodopsis serrulata (P. Beauv.) M. Fleisch.

var. crispatula (Hook.) Zanten New island record

According to Staples et al. (2004), this taxon was only known from the island of Hawai‘i. A specimen was sent to Herbarium Pacificum by Plant Extinction Prevention Program Botanist Hank Oppenheimer and was examined by Bishop staff using a key in a publication by van Zanten (1959). The specimen was also similar in appearance and in habitat with collections made on the island of Hawai‘i.

Material examined. MAUI: East Maui, Makawao Distr., Honomanu drainage basin, TNC Waikamoi Preserve & Haleakalā Ranch, along trail & unpaved road in forestry plantings of Pinus, Cryptomeria, Cupressus, 1,970–2,031 m, 07 May 2021, H. Oppenheimer H52112; Kipahulu Valley, Haleakalā National Park, National Park Service Expedition III, West Camp, transect 5, in Metrosideros-Cheirodendron-Dryopteris forest, on Metrosideros branch in partial shade, 2,000 m, 28 Feb 1984, C.A. Russell 522.

LITERATURE CITED


