Mosses Collected by Hawaiian Bog Survey of 1938

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INTRODUCTION

This paper is a complete record of the mosses collected by Miss Lucy M. Cranwell, Mr. O. H. Selling, and Dr. Carl Skottsberg during the Hawaiian Bog Survey in 1938 which was under the auspices of Bishop Museum. The list was compiled and annotated by Dr. Skottsberg excepting the description of the new species, *Campylopus tubulosus*, and the notes relating to *Campylopus fumarioli*, *Campylopus purpurco-flavescens*, *Grimmia torquata*, *Orthodontium pellucens*, and *Brachythecium hawaiicum*. The responsibility for the determinations is mine. A set of specimens will be sent to Bishop Museum, Honolulu and a set retained by the herbarium of the Göteborg Botanical Garden.

Although some of the localities duplicate those in the Hawaiian moss flora, the record as a whole gives a complete outline of the Hawaiian bog species. One new species, *Campylopus tubulosus*, and two noteworthy additions to the Hawaiian moss flora, *Grimmia torquata* and *Orthodontium pellucens*, are mentioned particularly in the text.

SIFHAGNALES

FAMILY SIFHAGNACEAE

*Sphagnum palustre* Linnaeus.

Hawaii: Kohala, Upper Hamakua Ditch Trail, in great profusion along road bank in many places and forming almost pure swamps

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BRYALES

FAMILY DITRICHACEAE

Ceratodon purpureus Bridel.
Maui: in crater of Haleakala below Observation House (4459) and along Halemau [Halemaun] Trail (4467, 4468). Hawai: Kau near end of Maunaiki 1920 flow (4605) and on prehistoric flow along Maunaiki Trail (4607, very depauperate).

FAMILY DICRANACEAE

Dicranella hawaiica (C. Müller) Brotherus.

Dicranella Hochreutineri Cardot.
Maui: Honokowai Valley along road below Haelaa (4104, 4106, 4107, 4109, 4110, 4113, 4068, 4069, 4077, 4433), also in caves of road bank (4102, 4116); Puu Kukui, ravine below summit in streambed (4264).

Campylopodium euphorocladum (C. Müller) Bescherelle.

Campylopus skottsbergii Brotherus.
Maui: Puu Kukui, summit bog, local (4536, 4537); ravine below summit, abundant in streambed (4095, 4177-4179, 4181, 4184, 4185, 4199 p.p., 4263).

Campylopus fumarioli C. Müller.
Molokai: Pepeopae, in bog, not common (4337, 4719). Maui: Honokowai Ridge, above Haelaa (4127); Puu Kukui, summit forest, epiphytic (4152) and in the swamp, scarce (4147).
No. 4152 is an unusual form with numerous microphyllous branchlets toward the ends of the sterile stems but differs in no structural particulars. Similar forms are not uncommon in other species of this large genus. The branchlets apparently serve the purpose of vegetative reproduction.

**Campylopus introflexus** (Hedwig) Bridel.

**Campylopus densifolius** Ångström.
Kauai: Kokee region, Kaluapuhi Trail (4697, 4699) and Alakai, Lehua maka noe [Lehumakano] (4298).
Maui: Puu Kukui, summit forest, epiphytic (4324) and Honokowai Ridge above Haelaau (4081).

**Campylopus hawaiioco-flexuosus** (C. Müllcr) Paris.
Kauai: Kokee region, Kaluapuhi Trail (4708); Kohua ridge, Kawaia Trail, 3,500 ft. (4004); Alakai, bog near Kilohana (4283, 4318, 4541 p.p.) and in forest beyond Kawaikoi (4555). Molokai: forest at head of Waikolu Valley, on trunks (4410); bog forest, edge of Pepeopae bog, on trunks (4374, 4381, 4396) and in bog, scarce (4453). Maui: Puu Kukui, summit forest on trunks (4085, 4489, 4514). Hawaii: Kohala, Upper Hamakua Ditch Trail near second ditchman's house (4670 p.p.).

**Campylopus purpureo-flavescens** Hampe.

This extensive series shows rather conclusively that *C. purpureo-flavescens* and *C. hawaiioco-flexuosus* are only variants of the same species. The structural differences are negligible, and the various habit forms intergrade too closely to admit of any satisfactory specific distinction.
Campylopus wheeleri Hampe.
(Kauai: vicinity of Kokee (4574).

Campylopus umbellatus (Arnott) Bartram.

Campylopus exasperatus Bridel.
(Oahu: Koolau, Keanamanu Valley (4437). Hawaii: Kau, Maunialiki [Maunaikai] 1920 flow (4612); Kau-Kona belt road, Hoopuola 1926 flow (4597-4599); west slope of Mauna Loa, Koa Mill, 520 m., Alika 1919 flow (4429 p.p., 4596, 4612).

Campylopus (Eucampylopus) tubulosus, new species.
Gracilesceens, densissime caespitosus, caespites nigricantes, hand nitidi. Caulis erectus, ad 7 cm. albus, parce tomentosus, simplex vel dichotome ramosus. Folia sicca et humida erecto-patentia, setosa, e basi contracta angustae oblongae, concava, sensim subulato-acuminata, acrta tubulosa, in pilum hyalini denticulatum producta, ad 5-6 mm. longa; cellulae basales breviter rectangularae, marginales angustissimae lineares, alares numerosae, ovale-hexagonae, teneae, hyalinae, superiores angustae rhomboideae. Caetera ignota.
Slender, very compactly tufted plants without luster, green only at the extreme tips, brown or black below. Stems erect, closely matted together, simple or dichotomously branched, to 7 cm. high, slightly tomentose. Leaves erect-spread, bristly, gradually subulate-acuminate from a contracted narrowly oblong concave base, strongly tubulose above, to 5 or 6 mm. long, ending in a short hyaline denticulate hair point; costa smooth on the back, excurrent; basal and supra alar cells short rectangular, narrowly linear toward the margins; alar cells oval-hexagonal, delicate, hyaline, in a well defined group extending nearly to the costa; upper lamina cells obliquely and narrowly rhomboidal.
A smaller plant than C. Skottbergii Brotherus with shorter leaves which are spreading or slightly falcate when dry giving the stems a peculiar bristly appearance. The strongly tubulose lamina and the shorter supra alar cells are also diagnostic characters.

The summit bogs of Waiakeale and Puu Kukui are probably the wettest spots in the world. The black coloring in all but the youngest leaves is evidently one result of the continuous excess moisture.

**Dicranodontium falcatum** Brotherus.

Kauai: Alakai, bogs near Kilohana (4286, 4288, 4289). Maui: Puu Kukui, summit forest, local (4058, 4490) and in bog outside (4525). Hawaii: Kohala, along Upper Hamakua Ditch Trail, in a cave at head of Waima Valley (4277, 4631, 4664, 4647, 4649) and on road bank near first house (4619, 4624, 4628).

**Amphidium cyathicarpum** (Montagne) Brotherus.

Maui: Haleakala, in the crater below Observation House (5592).

**Holomitrium seticalycinum** C. Müller.

Kauai: Kokee region, Kauaupuhi Trail (4688, 4701, 4702). Maui: Nakalalua, in forest (4083); Puu Kukui, summit forest, frequent (4039, 4114, 4151, 4201 p.p., 4325, 4497). Hawaii: Kohala, Upper Hamakua Ditch Trail, swamp forest between first and second house (4661).
Dicranum speiothyllum Montagne.

Kauai: Kokee region, Kaluapuhi Trail (4710, 4712, 4713); Alakai, bogs of Kilohana (4589). Molokai: forest at head of Waikolu Valley (4226, 4227), swampy forest along bog of Pepeopae (4378-4380, 4720) and in bog, under shrubs and Oreobolus cushions (4331, 4349-4355, 4369, 4435, 4717). Maui: Puu Kukui in summit bog (4098-4100, 4210, 4328) and in bog lower down toward Nakalalua (4167). Hawaii: Kilauea fern forest (4534) and along road to Hilo (4240).

**Dicranum speiophyllum** var. **breviflagellare** (C. Müller) Bartram.

Maui: Honokowai ridge above Haelau, in very wet forest (4126); Puu Kukui, summit bog (4523). Hawaii: Kohala, Upper Hamakua Ditch Trail between first and second house on trunk of Pritchardia (4650, 4665).

**Family Leucobryaceae**

Leucobryum gracile Sullivant.

Kauai: Kokee, Kaluapuhi Trail (4685, 4698); Alakai, forest between Kawaihau and Kilohana (4585). Oahu: Waiau, Kaala (4226); Koolau, Pupukea-Kahuku Trail (4687). Molokai: forest at head of Waikolu Valley, on trunks (4411); swampy forest at edge of Pepeopae bog, on trees and ground (4398, 4404). Maui: Honokowai Ridge above Haelau in wet forest (4121).

Leucobryum hawaiense (Reichardt) Bartram.

Kauai: Kohua Ridge, Kawaia Trail, 3,500 ft. (4052); Alakai, Lehuamakanoi (4028); forest between Kawaihau and Kilohana (4384); bogs of Kilohana, in scrub on bases of trees (4546), and in swamp (4569 p.p.); Waialae stream, in forest (4005). Oahu: Koolau, head of Kipauau [Kaipauau] Gulch, in small swamp (4715). Maui: Honokowai Valley, on road bank below Haelau (4026). Hawaii: fern forest below Kilauea along road to Hilo (4237).

Leucobryum hawaiense var. **solfatare** (C. Müller) Bartram.

Leucobryum pachyphyllum C. Müller.
An important bog moss.

FAMILY CALYMPERACEAE

Syrhopodon hawaiicus C. Müller.
Kauai: Alakai, wet forest between Kawaikoi and Kilohana (4580). Maui: Puu Kukui, summit forest (4412). Hawaii: Kohala, Upper Hamakua Ditch Trail, road bank between first and second house (4660); fern forest below Kilauea on road to Hilo (4235).

FAMILY ENCAULPTACEAE

Encalypta scabrata Bartram.
Maui: Haleakala, along upper part of Halemauu Trail (4457); in crater below Observation House (5594).

FAMILY POTTIACEAE

Didymodon recurvirostris (Dickson) Jennings.
Maui: Haleakala, in crater below Observation House (4495).

Barbula vinealis Bridel, variety cylindrica (Taylor) Boulay.
Maui: Haleakala, in crater below Observation House (5591).

FAMILY GRIMMIIACEAE

Grimmia haleakalae Reichardt.
Maui: Haleakala, on summit (4383) and along Halemauu Trail (4456).

Grimmia trichophylla Greville.

Grimmia torquata Hornschuch.
New to the Hawaiian islands. I have no adequate explanation to offer for the occurrence of this well-known boreal species in Hawaii. It is a most unusual record and seems to suggest in an obscure way some link with terrestrial areas to the north. The collections are highly significant and with further collateral information should form a basis for some interesting surmises.

**Rhacomitrium crispulum** Hooker, J. D., and Wilson.

Kauai: summit of Waialeale (4035).

![Figure 2.—Grimmia torquata: a, plant X 1; b, tip of stem X 3; c, leaves X 15; d, apex of leaf X 80; e, upper leaf cells X 225; f, basal leaf cells X 225.](image)

**Rhacomitrium lanuginosum** (Hedwig) Bridel var. pruinosum

Hooker, J. D., and Wilson.

Kauai: summit of Waialeale, 5,080 ft. (4031, 4038); bog below the summit (4044); Alakai, bogs of Kilohana, common (4229, 4308, 4314, 4315, 4317, 4323, 4541 p.p., 4570). Molokai: Pepeopae bog, common (4345, 4348, 4364-4367, 4438, 4445, 4448, 4451, 4475, 4476, 4718). Maui: Puu Kukui, summit bog (4516, 4519, 4522, 4535, 4551); bog below summit, above Nakalalahua (4220); Haleakala, in crater below Observation House (4462, 4471) and along Halemauu Trail (4469).

Hawaii: truck road on Mauna Loa above Kilauea, 7,000 ft. (4609); Kau, Maunaik, 1920 flow (4427, 4428); Hoopuloa 1926 flow (4567); Koa Mill, Alika 1919 flow (4533, 4567, 4601, 4602, 4608).
Important and conspicuous in the bogs of high altitudes and on recent lava flows.

**FAMILY FUNARIACEAE**

**Funaria subintegra** Brotherus.
Maui: Puu Kukui, ravine below summit (4187, 4188).

**FAMILY BRYACEAE**

**Orthodontium pellucens** (Hooker) Bryol. Eur.

![Figure 3](image)

**Figure 3.**—*Orthodontium pellucens*: a, plant × 1; b, leaf × 17; c, apex of leaf × 80; d, one side of leaf base × 80; e, moist capsule × 9.

New to the Hawaiian islands. A very interesting addition to the Hawaiian moss flora. The species has a well-known range from Ecuador and Colombia northward through Central America to California, but a critical study of the allied species will probably result in an extended synonymy and a broader distribution as the distinctions are slight and of doubtful value.

**Bryum megalostegium** Sullivant.
Maui: ravine below summit, in stream bed (4196, 4198). Sterile, but probably referable to this species.
Bryum crassicostatum Brotherus.
Maui: Haleakala, in crater below Observation House (5593).

Maui: Haleakala, Kaupo Gap near Waineke Spring (4470).

Rhodobryum giganteum (Hooker) Schimper.
Maui: Puu Kukui on summit, in scrub, very scarce (4144).

FAMILY RHIZOGONIACEAE

Rhizogonium pungens Sullivant.
Kauai: Kokee (4575); Alakai, forest between Kawaihao and Kildhana (4587). Oahu: Waianae, near Kolekole Pass (4681); Ko'olau, Punalu'u (4064).

Rhizogonium spiniforme (Hedwig) Bruch.
Kauai: Alakai, forest between Kawaihao and Kildhana (4577); Waialae Valley on trees (4002). Molokai: head of Waikolu Valley in forest (4228, 4384, 4423 p.p.); Pepeopae bog forest (4418). Maui: Honokowai Ridge, in wet forest near and above Haelaua, about 3,000 ft. (4065, 4093, 4094, 4138, 4175, 4176, 4192). Hawaii: Kohala, Upper Hamakua Ditch Trail, swampy forest between first and second house (4658); Kilauea, fern forest (4610) and in forest along road to Hilo (4232).

FAMILY HYPNODENDRACEAE

Limbella tricostata (Sullivant) C. Müller.
Kauai: stream bed near summit of Waialeale (4017, 4030); Waialae Valley on trees (4043); Kokee (4290, 4302).

FAMILY BARTRAMIACEAE

Philonotis falcata (Hooker) Mitten.
Maui: Honokowai Valley, wet clayey road bank below Haelaua, 2,600 ft. (4057); Haleakala, Kaupo Gap near Waineke Spring (4460, 4466).

Philonotis turneriana (Schwaegeichen) Mitten.
Haelau, 2,600 ft. (4055, 4056, 4070-4072, 4082 p.p., 4101, 4108). Hawaiʻi: Kohala, Upper Hamakua Ditch Trail, cave at head of Waima Valley (4260); head of Koiawe Valley (4244, 4247, 4248, 4538, 4560, 4562).

Breutelia arundinifolia (Duby) Fleischer.


**FAMILY ORTHOTRICHACEAE**

Macromitrium piliferum Schwægerich.  

Macromitrium owahiense C. Müller.  
Kauaʻi: Kokee (4573). Molokai: forest at head of Waikolu Valley (4221); rim of ravine near upper Maunahui camp (4385); edge of Peepoapoe bog (4430). Maui: Puu Kukui, first bog above Nakalalua, on Metrosideros (4141, 4150). Hawaiʻi: Kohala, Upper Hamakua Ditch Trail, head of Koiawe and Alakahi Valleys (4259, 4643, 4651, 4652).

**FAMILY RHACOPILACEAE**

Rhacopilum cuspidigerum (Schwaegerich) Mitten.  
Hawaiʻi: Kohala, Upper Hamakua Ditch Trail, head of Koiawe Valley (4246); Mauna Loa, Koa Mill, Alikia 1919 flow in crevices (4603, 4611 p.p.).

**FAMILY TRACHYPODOACEAE**

Trachypus mouriensis Brotherus.  
Kauaʻi: Kokee (4582).
Trachypodopsis ornans (Reichardt) Fleischer.

Kauai: summit of Waialeale on Cheirodendron (4018, 4032); Alakai, forest between Kawaiokai and Kilohana (4576) and bogs of Kilohana, in scrub (4554). Maui: Puu Kukui, summit forest, very abundant, hanging down (4157 p.p., 4158, 4159, 4505, 4506, 4512); summit bog with dwarf Metrosideros (4172, 4209, 4480, 4518; bog lower down, above Nakalaula (4045, 4167, 4219, 4714 p.p.). Hawaii: Kohala, Upper Hamakua Ditch Trail, scrub forest between first and second house (4627, 4629, 4630, 4657 p.p.).

A very conspicuous tree moss, even forming festoons.

Family Meteoriaceae

Aérobryopsis longissima (Dozy and Molkenboer) Fleischer.


Barbella trichophora (Montagne) Fleischer.


Floribundaria floribunda (Dozy and Molkenboer) Fleischer.

Oahu: Waianae, Kaala (4134, 4269-4273).

Family Neckeraeaceae

Baldwinella kealeensis (Reichardt) Bartram.

Oahu: Waianae, Kaala (4267). Maui: Honokowai Valley, along road below Haelau, 2,600 ft. (4061, 4111) and above Haelau (4115); Puu Kukui, summit forest (4504). Hawaii: Kohala, Upper Hamakua Ditch Trail, cave at head of Waima Valley (1254, 4279, 4645); head of Koiawc Valley (4680, 4716).

Homaliodendron flabellatum (Dickson) Fleischer.

Kauai: Kokee region, Kaluapahi Trail (4703); Alakai, forest between Kawaiokai and Kilohana (4591); Waialae Valley, on trees (4023, 4024). Maui: Honokowai Valley, Haelau, 3,000 ft. (4137) and farther up the ridge, frequent (4073, 4091, 4092, 4119, 4124, 4125,
4130) Puu Kukui, summit forest (4502 p.p., 4503). Molokai: forest at head of Waikolu Valley (4224, 4233); bog forest of Pepeopae, on the ground (4406) and on trunks (4389-4391, 4393). Hawaii: Kohala, Upper Hamakua Ditch Trail, swamp forest between first and second house (4644 p.p.); Kilauea, along road to Hilo, dense forest (4234, 4236).

FAMILY HOOKERIACEAE

Distichophyllum paradoxum (Montagne) Mitten.
Kauai: Kohua Ridge, Kawaia Trail, 3,500 ft. (4014, 4015). Oahu: Waianae, Kaala (4133). Molokai: Pepeopae bog forest, on the ground (4400, 4403). Maui: Puu Kukui, summit forest (4485, 4486). Hawaii: Kohala, Upper Hamakua Ditch Trail, cave at head of Waima Valley (4252, 4255, 4262, 4280, 4663, 4668); head of Koiawe Valley (4563, 4679); Kilauea, in dense forest along road to Hilo (4242 p.p.).

Distichophyllum freycinetii (Schwaegrichen) Mitten.
Kauai: Kohua Ridge, Kawaia Trail (4005, 4007) Waialae Valley on trunks (4022 p.p.). Molokai: Pepeopae bog forest, on the ground (4405, 4407, 4415). Maui: Honokowai, ridge above Haelaau (4129); summit of Puu Kukui in forest (4487).
Hawaii: Kohala, Upper Hamakua Ditch Trail, cave at head of Waima Valley (4276, 4614, 4615, 4646, 4648), and roadside (4419); head of Koiawe Valley (4691); Kilauea, in dense forest along road to Hilo (4242 p.p.).

Hookeriopsis purpurea (C. Müller) Brotherus var. ligulacea (C. Müller) Bartram.

FAMILY THUIDIACEAE

Thuidium plicatum Mitten.
Kauai: Kokee, Kaluapuhi trail (4683, 4711); Kokee stream (4287); Alakai, scrub in bog not far from Kilohana, 4,000 ft. (4544). Molokai: Upper Maunahui camp, edge of ravine (4572); head of Waikolu Valley, in forest (4225, 4382, 4421); swamp forest of Pepeopae (4387 p.p., 4388, 4416). Maui: Puu Kukui, summit forest on
trees (4508, 4531, 4162, 4163). Hawaii: Kohala, Upper Hamakua Ditch Trail, cave at head of Waima Valley (4634 p.p.); swamp forest between first and second houses (4656); Mauna Loa, Koa Mill, Ailika 1919 flow, in depression with Sadleria (5530, 4566 p.p., 4600).

**Thuclidium hawaiense** Reichardt.

Kauai: Waimea, Puu Ka Pele (4595); Alakai, forest between Kawaikoi and Kilohana (4579); Waialae Valley, on trees (4010). Oahu: Koolau, Punalu'u (4063). Molokai: Pepeopae bog forest, on the ground (4420). Maui: Honokowai, ridge above Haleakau (4089, 4090, 4097); Puu Kukui, summit forest, on stem bases and ground (4185, 4156, 4465, 4483, 4492); Kaana Valley (4148). Hawaii: Kohala, Upper Hamakua Ditch Trail, cave at head of Waima Valley (4256, 4259, 4616, 4632), and road bank below first house (4250, 4561); Kilauea, dense forest along road to Hilo (4238).

**Family Brachytheciaceae**

**Pleuropus wilkesianus** (Sullivant) Brothers.

Maui: Honokowai, along trail above Haleakau (4076, 4084, 4087, 4096, 4128 p.p., 4131). Hawaii: Kohala, Upper Hamakua Ditch Trail, below first house (4558); Kilauea, dense forest along road to Hilo (4243 p.p.).

**Brachythecium hawaiicum** Bartram.

Maui: Haleakala, along upper Halemanu Trail, Aug. 5, 1938 (4455), robust form.

Previously known only from island of Hawaii.

**Euthynchium selaginellifolium** (C. Müller) Bartram.

Hawaii: Kohala Mountains, near head of Keawew Valley (5590).

**Family Plagiotheciaceae**

**Plagiothecium draytonii** (Sullivant) Bartram.

Kauai: Alakai, forest between Kawaikoi and Kilohana (4590); Kilohana (4281). Molokai: Pepeopae bog forest, on trunks (4375, 4387 p.p., 4392). Maui: Honokowai, ridge above Haleakau (4123); Puu Kukui summit forest, on stems (4157 p.p., 4160, 4161, 4493, 4496). Hawaii: Kohala, Upper Hamakua Ditch Trail, cave at head
of Waima Valley (4618, 4633, 4634 p.p.); head of Koiawe Valley, along road, with Sphagnum, etc. (4617, 4621, 4622, 4639, 4667, 4671, 4677); head of Alakahi Valley (4638 p.p., 4670 p.p.); Mauna Loa, Koa Mill, Aika 1919 flow, in depressions, with Sadleria (4432, 4565, 4566 p.p.).

**FAMILY SEMATOPHYLLACEAE**

*Brotherella opaeodon* (Sullivant) Brotherus.

Maui: Puu Kukui, summit forest (4140, 4154, 4484, 4491, 4494, 4513), and in bog, frequent (4149, 4424, 4552); swamp above Nakalalua (4326).

*Acroporium fuscofascium* (C. Müller) Brotherus.

Kauai: Alakai forest near Kilohana, 4,000 ft. (4040), and between Kawaikoi and Kilohana (4586); bogs of Kilohana, frequent (4320, 4540) and in scrub (4545); Lehuanakano, on twig (4297). Oahu: Waianae, Kaala (4268). Molokai: forest at head of Waiakolu Valley (4409) and near bog of Pepeopae (4376, 4377); Pepeopae bog, common (4333 p.p., 4334 p.p., 4336, 4339, 4341, 4361 p.p., 4362, 4363, 4449 p.p.). Maui: Honokowai, ridge above Haelau in wet forest (4078, 4139, 4173, 4174); Puu Kukui, summit bog (4145, 4206, 4548, 4553 p.p.). Hawaii: Kohala, Upper Hamakua Ditch Trail, swamp forest between first and second houses (4644 p.p., 4662, 4690); Kilauea, along road to Hilo in dense forest (4243 p.p.).

*Trichosteleum hamatum* (Dozy and Molkenboer) Jaeger.

Kauai: Kohua ridge, Kawaia Trail, 3,500 ft. (4008 p.p., 4011-4013, 4049, 4050); Alakai, forest between Kawaikoi and Kilohana (4578); Waialae Valley, on trees (4042). Molokai: forest at head of Waiakolu Valley (4223); Pepeopae bog (4340) and forest (4394, 4395, 4397, 4399, 4417). Maui: Honokowai, ridge above Haelau (4074, 4075, 4079, 4086, 4118, 4135); Puu Kukui, summit forest (4482). Hawaii: Kohala, Upper Hamakua Ditch Trail, head of Koiawe Valley (4676); Kilauea, Fern Forest (4559) and similar forest along road to Hilo (4239, 4243 p.p.).

*Taxithelium undulatum* (Sullivant) Bartram.

Kauai: Kokee, Kaluapuhi Trail (4700). Molokai: Pepeopae bog forest, on trunks (4387 p.p.).
FAMILY HYPNACEAE

Ectropothecium arcuratum (Sullivant) Mitten.
Kauai: Kokee, Nualoha Trail (4343). Hawaii: Kohala, Upper Hamakua Ditch Trail, cave at head of Waima Valley (4253, 4275) and near first house (4556); Mauna Loa, Koa Mill, Alika 1919 flow, bottom of tree mould (4611 p.p.).

Isoperogyium albescens (Schwaegrichen) Jaeger.
Hawaii: Kohala, Upper Hamakua Ditch Trail, below first house (4572) and in forest at head of Koiawe Valley (4659).

Vesicularia graminicolor (Ångström) Brotherus.
Maui: Honokowai Valley, road bank below Haelaa, 2,600 ft. (4102).

Ctenidium decurrens (Sullivant) Brotherus.
Molokai: Pepeopae bog, frequent (4438, 4440, 4447, 4452, 4454). Maui: Puu Kukui, common in summit bog (4204, 4208, 4231, 4329, 4330, 4461, 4500, 4517, 4550); swamp above Nakalalu (4215). Hawaii: Kohala, Upper Hamakua Ditch Trail, cave at head of Waima Valley (4635); head of Koiawe Valley (4581, 4636, 4678); Mauna Loa, Koa Mill, Alika 1919 flow (4429 p.p.).

Ctenidium elegantulum Brotherus.
Maui: Honokowai, ridge above Haelaa (4080, 4122).

FAMILY POLYTRICHACEAE

Kauai: Waimea, Alakai, forest between Kawaiko and Kilohana (4583); Waiulaio, on trees (4041). Oahu: Koolau, head of Kaipapa Gulch (4695). Maui: Honokowai Valley, road bank below Haelaa, 2,600 ft. (4105, 4112); Puu Kukui, summit forest (4478 p.p.) and ravine below summit in stream bed (4186 p.p.). Hawaii: Kohala, Upper Hamakua Ditch Trail, cave at head of Waima Valley (4258, 4261, 4278) and head of Koiawe Valley (4666).

The author is responsible for all statements in this paper.