A PRELIMINARY LIST OF MOSSES COLLECTED ON TREE BRANCHES IN MEXICO¹

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This preliminary investigation was begun in an attempt to learn more about mosses growing on tree branches. Even a partial list of the mosses comprising tree branch communities can provide a basis for further extensive studies which urgently need to be done. Once the distribution of these mosses is known, it will be possible to use them as indicators of air pollution, since most of them grow in foggy areas or under moist conditions where pollutants are most damaging.

The mosses in this list were collected in the summer of 1973 from habitats ranging from dry to cloud-forest conditions and from tropical lowlands to elevations of 3 900 m from the states of Hidalgo, Jalisco, Mexico, Michoacan, Oaxaca, Puebla, and Veracruz in Mexico. The collections were made from both evergreen and deciduous trees on branches usually 0-3 m above the ground. Although some branches with good specimens were ignored because their height made them inaccessible, many of the collections were made on branches fallen from a greater height. To determine whether the moss flora varies much with branch-height, further studies must be made.

The family best represented in the collection was Meteoriaceae, at least six species being present in each of the floras of Hidalgo, Michoacan, Oaxaca and Puebla. *Meteorium illecebrum* and *Pilotrichella flexilis* comprised almost three-fourths of the collections. The family with second largest number of collections was Potiaceae which was represented by seven species; over half of the specimens were species of *Leptodontium*, which were found in every state except Veracruz. The families of Orthotrichaceae and Cryphaeaceae had the next highest frequencies. Seven species of Orthotrichaceae were found, but the genera *Macromitrium* and *Macrocoma* were of the most significant occurrence. Seventy-five per cent of the Cryphaeaceae belonged to the genus *Cryphaea*, but two other genera were present. The family Hypnaceae was also significant. Three species were collected in this family and all were members of the genus *Hypnum*.

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The 54 species in the following list comprise the collection made from tree branches for this study. Keys used for identification were those of Bartram (1949) and Grount (1929-1940). Nomenclature followed that in *Index Muscorum* (Wijk, et. al. 1959-1969). The number of collections from limbs of each taxon is given before the name which is followed by the substrates other than branches, habitat data, altitudinal range, and additional states³ from which the species has been collected, information which has been compiled from the University of Tennessee Herbarium at Knoxville. The terms meso and moist refer to relative amount of moisture in the substrate.

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Dicranaceae

- 1 *Leucoloma serrulatum* Brid.
On shaded, moist bark or rocks, 700-2 300 m.
D. F., Oax., Pue., Ver., Chis.
- 3 *Symblepharis vaginata* (Hook.) Wijk & Marg.
Open-partil shade, meso-moist, on rocks or decaying or burned logs.
often in pine-oak forest, 2 500-3 900 m.
D. F., Oax., Mich., Dgo., Pue., Jal.

Leucobryaceae

- 1 *Leucobryum antillarum* Schimp. ex Besch.
Usually on soil or rocks, sometimes on bark, 1 200-2 500 m.
Chis., Hgo., Oax., Pue., Ver.

³ Abbreviations used for the states are as follows: Baja Calif. Norte, Baja California Norte; Chi., Chihuahua; Chis., Chiapas; D. F., Federal District of Mexico; Dgo., Durango; Gro., Guerrero; Hgo., Hidalgo; Jal., Jalisco; Mich., Michoacan; N. L., Nuevo León; Oax., Oaxaca; Pue., Puebla; Qto., Querétaro; Sin., Sinaloa; S.L.P., San Luis Potosi; Son., Sonora; Tamps., Tamaulipas; Terr. Baja Calif. Sur, Territory Baja California Sur; Tlax., Tlaxcala; Ver., Veracruz.

LIST OF MOSSES COLLECTED ON TREE BRANCHES

Pottiaceae

- 1 *Tortella mollissima* Broth. ex. Bartr.
On moist rocks or soil, 100-2 700 m.
Chis., D. F., Oax., Pue., S. L. P., Ver.
- 7 *Leptodontium viticulosoides* (P. Beauv.) Wijk & Marg.
Partial-full shade, meso-moist, on bark, soil or rocks, often in oak-pine forests, 1 200-4 100 m.
Chis., Hgo., Mich., Oax., Pue., Tamps., Ver., D. F.
- 5 *Leptodontium viticulosoides* var. *panamense* (Lor.) Zander.
Open-partil shade, dry-moist, on bark, 2 200-4 100 m.
D. F., Hgo., Oax.
- 3 *Leptodontium viticulosoides* var. *exasperatum* (Card.) Zander
Open-partil shade, meso-moist, on soil or bark, often in oak-pine forests, 2 000-3 300 m.
Dgo., Mich., Oax.
- 2 *Tortula fragilis* Tayl.
Open-partil shade, dry-meso, on rocks or soil, 300-3 900 m.
Chis., D. F., Dgo., Gro., Hgo., Mor., N. L., Oax., Pue., Qto., S. L. P., Tamps., Tlax., Ver.
- 4 *Tortula caroliniana* Andrews
Partial shade, meso-moist, on rocks or bark, often in oak-pine forests, cloud forests and grassland, 500-3 400 m.
Chis., D. F., Hgo., Mich., Oax., Pue., S.L.P., Terr. Baja California Sur, Ver.
- 1 *Streptopogon calymperes* C. M.
Partial-full shade, moist-wet, rarely on soil but usually on bark, 1 100-2 300 m.
Chis., Oax., Pue., Ver.

Grimmiaceae

- 1 *Grimmia* sp.
Of interest because *Grimmia* is almost invariably found on rocks.
Hgo.

Bryaceae

- 2 *Bryum argenteum* Hedw.
Open-partial shade, moist-wet, on charred soil, fallen logs, or rocks, 1 200-4 350 m.
Baja Calif. Norte, Chi., Chis., D. F., Dgo., Gro., Hgo., Jal., Mich., N. L., Oax., Pue., Tamps., Terr. Baja Calif. Sur.

Orthotricaceae

- 1 *Zygodon reinwardtii* (Hornscs.) Braun
On bark, 2 600-3 300 m.
Chis., D. F., Pue.
- 4 *Orthotrichum pycnophyllum* Schimp. in C. M.
Open-partial shade, sometimes on rocks but usually on bark, 1 600-3 400 m.
Chis., D. F., Dgo., Hgo., Mich., N. L., Oax., Pue., Tlax., Ver.
- 1 *Macromitrium cirrosu*m (Hedw.) Brid.
On bark, 800-3 000 m.
Chis., Hgo., Oax., Pue.
- 1 *Groutiella undosa* (Card.) Crum & Steere
On rocks and bark, 400-2 300 m.
Chis., Gro., Jal., Oax., Pue.
- 1 *Groutiella wagneriana* (C. M.) Crum & Steere
Sometimes on rocks but usually on bark, 1 600-2 000 m.
Chis., Jal., Pue., Ver.
- 6 *Macrocoma hymenostomum* (Mont.) Grout
On bark, often oak, 1 300-3 000 m.
Chis., Dgo. Hgo., N. L., Oax., Pue., S. L. P., Tamps., Ver.

Hedwigiaceae

- 2 *Braunia squarrulosa* (Hamp.) C. M.
Partial-full shade, dry-meso, on soil or oak bark, 2 000-3 000 m.
Dgo., Hgo., Mich., Oax.

Cryphaeaceae

- 2 *Cryphaea intermedia* C. M.
On bark, 1 900-2 600 m.
Chis., Oax., Pue., Ver.
- 13 *Chyphaea patens* Hornsch ex C. M.
Partial shade, moist, on bark, often oak, 1 600-3 600 m.
Chis., D. F., Hgo., Mich., Oax., Pue., Ver.
- 1 *Acrocryphaea mexicana* Schimp. in Besch.
Partial shade, moist, on soil or bark, 200-1 700 m.
Hgo., Pue., Ver.
- 1 *Acrocryphaea gardneri* (Mitt.) Jaeg.
On bark, 2 000 m.
Chis., Pue.

LIST OF MOSSES COLLECTED ON TREE BRANCHES

3 *Dendropogonella rufescens* (Schimp.) Britt.

Partial-full shade, dry-moist, on rocks and bark, cloud and sub-alpine forests, 2 000-4 000 m.

Chis., Oax., Ver.

Leucodontaceae

4 *Leucodon curvirostris* Hamp.

Partial shade, meso-moist, sometimes on rocks but usually on bark, often oak, 2 000-3 300 m.

Chis., D. F., Hgo., Jal., Mich., Oax., Pue., Ver.

5 *Leucodon cryptotheca* Hamp.

Partial-full shade, meso-moist, on bluffs and bark, 1 800-3 600 m.

D. F., Hgo., Mich., Oax., Pue.

Prionodontaceae

1 *Prionodon densus* (Hedw.) C. M.

Partial-full shade, meso-moist, on rocks and bark, 1 200-3 100 m.

Chis., Dgo., Gro., Hgo., Mich., Oax., Pue., Sin., Tamps., Ver.

Trachypodaceae

2 *Trachypus bicolor* var. *viridulus* (Mitt.) Zant.

Partial shade, moist, ca. 1 500 m.

Pue.

Meteoriaceae

2 *Lindigia aciculata* (Tayl.) Hamp.

Partial-full shade, moist-wet, on bark, 1 100-2 300 m.

Chis., Oax., Pue., S. L. P., Ver.

4 *Barbella cubensis* (Mitt.) Broth.

Partial-full shade, meso, ca. 2 100 m.

Chis., Hgo., Pue.

8 *Pilotrichella flexilis* (Hedw.) Aongstr.

Partial-full shade, meso-wet, sometimes on soil and rocks but usually on bark, 1 000-3 200 m.

Chis., Hgo., Jal., Oax., Pue., Tamps., Ver.

3 *Papillaria deppei* (C. M.) Jaeg.

Partial-full shade, moist, on rocks and soil but usually on bark, often oak, 200-3 000 m.

Chis., Hgo., Mich., Oax., Pue., Tamps., Ver.

2 *Papillaria nigrescens* (Hedw.) Jaeg.

Partial-full shade, moist, on rocks and bark, 230-1 900 m.

Hgo., Oax., Pue., Qto., S. L. P., Tamps., Ver.

14 *Meteorium illecebrum* Sull.

Partial-full shade, meso-moist, on rocks and bark, 1 000-3 400 m.

Chis., D. F., Gro., Hgo., Mich., Jal., Oax., Sin., Tamps., Ver.

Neckeraceae

1 *Homaliodendron decompositum* (Brid.) Wagn.

Partial-full shade, moist-wet, on bark, 700-2 500 m.

Chis., Oax., Pue., S. L. P., Tamps.

1 *Neckera chlorocaulis* C. M.

On clay or bark, 2 100-3 200 m.

D. F., Gro., Mich., Oax., Ver.

3 *Neckera ehrenbergii* C. M.

On bark, 220-3 400 m.

Chis., D. F., Hgo., Jal., Mich., Oax., Pue., Sin.

Pilotrichaceae

1 *Pilotrichum evanescens* (C. M.) Crosby

On bark, ca. 1 000 m.

Oax.

Hookeriaceae

1 *Daltonia longifolia* Tayl.

Partial shade, meso-moist, on bark, 1 900-3 200 m.

Chis., Pue., Oax., Ver.

Leskeaceae

1 *Leskea angustata* Tayl.

On bark, 2 300-3 900 m.

D. F., Pue.

LIST OF MOSSES COLLECTED ON TREE BRANCHES

Amblystegiaceae

- 1 *Amblystegium serpens* (Hedw.) B. S. G.
Partial shade, moist-wet, on soil, ca. 2 700 m.
Baja Calif. Norte, Pue.

Brachytheciaceae

- 1 *Eurhynchium pulchellum* (Hedw.) Jaeg.
Partial shade, moist, on soil and rocks, 2 000-2 900 m.
Chis., Dgo., Pue., Son., Ver.
- 2 *Rhynchostegium serrulatum* (Hedw.) Jaeg. & Sauerb.
Partial shade, moist, on rocks and bark, 1 000-2 300 m.
Hgo., Pue., Ver.
- 1 *Palamocladium leskeoides* (Hook.) Britt.
Partial shade, meso-wet, on rocks and bark, 650-2 600 m.
Hgo., Jal., N. L., Oax., Pue., Tamps.

Entodontaceae

- 2 *Rozea viridis* Besch.
Partial shade, moist, on bark in pine-fir forest, 200-3 900 m.
D. F., Hgo., Jal., Oax.
- 1 *Rozea bourgaeana* Besch.
Partial-full shade, meso-moist, on rocks or bark in coniferous or oak forests,
2 200-3 900 m.
D. F., Hgo., Jal., Mich., Oax., Pue.
- 1 *Bryosedgwickia densa* (Hook.) Biz. & P. Vard.
Partial shade, moist, on soil, rocks and logs, 2 500-3 000 m.
D. F., Dgo., Oax., Sin.

Plagiotheciaceae

- 1 *Plagiothecium denticulatum* (Hedw.) B. S. G.
On rocks and moist soil, 2 000-3 400 m.
Chis., D. F., Mich., Pue.
- 1 *Taxiphyllum taxirameum* (Mitt.) Fleish.
Usually on moist, shaded rocks and soil, 180-1 800 m.
Chis., Dgo., Hgo., Jal., Mich., Oax., Pue., S. L. P., Tlax.

Sematophyllaceae

- 1 *Acroporium pungens* (Hedw.) Broth.
Partial shade, moist, from 800-1900 m.
Pue.
- 1 *Sematophyllum cuspidiferum* Mitt.
Shade, moist, on rocks, soil and bark, 50-2 100 m.
Chis., Hgo., Oax., Pue., Ver.

Hypnaceae

- 9 *Hypnum cupressiforme* L. ex Hedw.
Partial shade, moist, only on branches, 2 800-3 900 m.
D. F., Mich., Dgo.
- 2 *Hypnum cupressiforme* var. *lacunosum* Brid.
Open-partial shade, moist-wet, on soil and rocks. 2 800-3 300 m.
D. F., Hgo., Mich., Pue., Tlax.
- 6 *Hypnum polypterum* (Mitt.) Broth.
On bark, often oak, 1 500-3 000 m.
Chis., Hgo., Jal., Oax., Pue., S. L. P.

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