

## Data to the bryoflora of Mount Kenya, Kenya

Min S. Chuah-Petiot

Botany Department, University of Nairobi, Box 14576, Nairobi, KENYA

**Abstract.** 194 species of bryophytes, belonging to 61 families are reported from Mount Kenya, of which 38 species are new for Mount Kenya and 30 records are new for the whole country, marked by \* and \*\* respectively. The montane forests between 1600 and 3300m. asl., contain the greatest diversity of life forms and species. This is due to the abundant rainfall providing adequate humidity at relatively low temperature and altitude, coupled with frequent cloud cover. All vegetation belts above the montane forests experience large diurnal fluctuations in temperatures, intense solar radiation, added by the fact that the rainfall is relatively low and erratic or at times fall in the form of hail or snow resulting in a low diversity of species and life forms except in very sheltered habitats such as rock crevices in rocky outcrops. Solifluctions soil conditions occurring between 3850 and 4450m. asl. exhibit moss balls growth forms. The summits of Batian (5199m.), Nelion (5188m.) and Lenana (4985m.) harbour small cushions of *Grimmia affinis* and *Andreaea cucullata*.

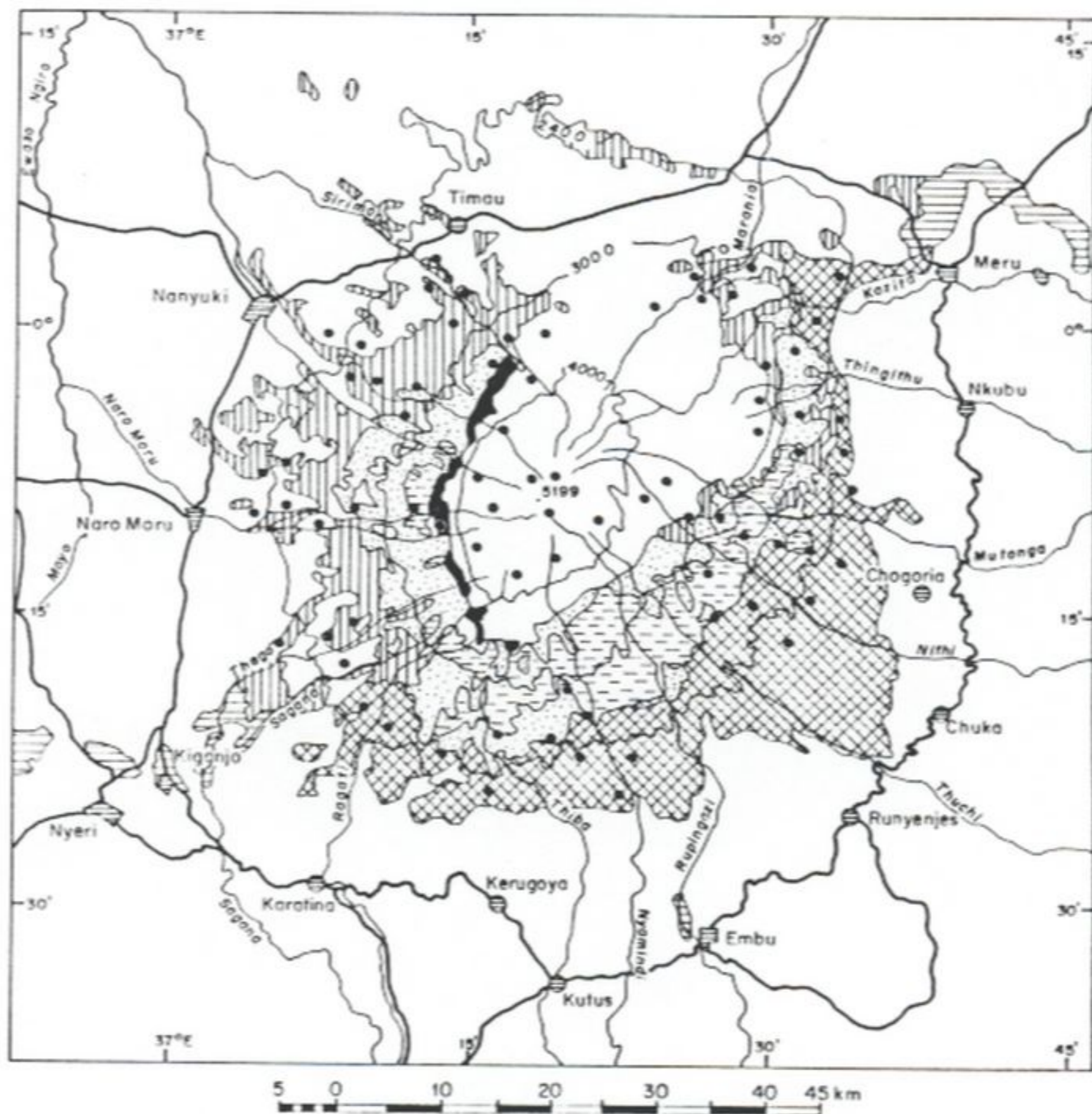
The greatest number of species are found in the wetter southern, south-western and south-eastern slopes unlike the drier northern, north-western and north-eastern slopes of the mountain. Species commonly found in the wetter areas are *Bryum preussii*, *Bryum keniae*, *Prionodon ciliatus*, *Hypopterygium viridissimum*, *Plagiochila barteri*, *Plagiochila squamulosa*, *Radula recurvifolia*, *Porella hoehnelii*, *Dumortiera hirsuta* while *Pterogonium gracile*, *Leptodon smithii* and *Hedwigia ciliata* are characteristic of the drier areas.

Mt. Kenya, an old volcanic cone, summit Batian of 5199m., with a base diameter of about 120 km., is situated on the equator.

The Mt. Kenya region is one of the most important water catchment areas in Kenya. Its summit is constantly within the cloud formation levels giving rise to numerous river systems that serve the countless farms found at lower altitudes.

The permanently humid habitats on the mountain area especially on wet soil and rocks, on forest floor, and along streams lead to the presence of an important bryophyte flora. But this important vegetation cover is slowly removed through destruction by large mammals, and coupled with commercial exploitation of the montane forests, soil erosion is significant. Human encroachment into the montane forests has been observed to be

## Mount Kenya Area



## Legend:

- ⊙ Settlement
- Main road
- 5000 — Contours (m)
- Thungu River
- Collecting sites

## Forests:

- Hagenia-Hypericum Woodland and scrub
- Mountain bamboo thicket
- Mixed bamboo stands
- Montane sclerophyll forest (with *Podocarpus* and *Juniperus*)
- Moist montane (with *Podocarpus* and *Ocotea*)
- Intermediate forest

extensive. Population living on the foothills of the mountain daily look for fuelwood, wood for transforming into charcoal, polewood and fodder. Legal and illegal logging remove large forest trees which provide a myriad of habitats for bryophytes, pteridophytes and other living organisms. The rate at which these indigenous forests are diminishing is alarming which explains the objective of this study and that is to inventorize the bryophytes found on the mountain, and to present more recent collections.

The climate of the mountain is dominated by the Tropical Easterly Wind Belt. Rainfall occur from March to May and from mid-October to December, dry conditions prevail from December to March while cold and relatively dry climatic conditions is experienced from June to early October.

The distribution of vegetation is influenced by climatic factors of rainfall and temperature and altitude. The vegetation shows an altitudinal zonation from montane forests through mossy forests to ericaceous woodland which eventually give way to *Senecio keniodendron* scrubland until 4500m. where phanerogams are absent except in very sheltered places. Details of the vegetation has been fully covered by Hedberg (1951).

This study is based on collecting specimens in the field and their identifications carried out in the laboratory. The collections were done along the classic routes up the mountain, along river courses, along paths through forest stations, or by just cutting into the forests (where no paths exist) to reach specific sites. The bryophytes collected are found on a great variety of habitats. Many are terrestrial, growing on the ground, by stream banks, on boggy areas; some grow on rocks or boulders, in rocky outcrops or in rock crevices, clefts while others are found growing as epiphytes on trunks, branches, twigs and leaves of forest trees, shrubs, bamboo, tree fern and giant groundsels. The following list of specimens are collected by the author (1989-1994) with some additional specimens collected by A.D.Q. & S. Agnew (1960s), J. Braggins (1991) and Pocs et al (1992). All specimens are deposited in the University of Nairobi Herbarium. Records new to Mt. Kenya are indicated by an asterisk after the record, while two asterisks indicate species new for the country of

Kenya

## BRYOPSIDA

### SPHAGNACEAE

*Sphagnum davidii* Warnst. terricolous. Naro Moru : 27a, 30, 34, 144a. 3500-3700m.

### ANDREAEEACEAE

*Andreaea cucullata* Dix. rupicolous. Naro Moru : 116b, 121b, 133b, 145b, 174b, 242, 300a, 301. 3700-5199m. Sirimon : 57, 159, 187, 327b, 331a, 339. 3350-4550m. Chogoria : 84a, 108. 3250-4650m.

### POLYTRICHACEAE

*Polytrichum commune* Hedw. terricolous. Naro Moru : 16a. 3000m. Chogoria : 87. 3250m.

*Polytrichum piliferum* Hedw. terricolous. Naro Moru : 4, 31, 33, 36, 51a, 94a, 235a, 547. 3000-4300m. Sirimon : 143, 49, 157, 158, 166. 3150-4000m. Chogoria : 76, 78. 3300-3450m.

*Pogonatum gracilifolium* Besch. terricolous. Chogoria : 50. 1700m..

*Pogonatum perichaetiale* (Mont.) Jaeg. ssp. *oligodus* (C. Muell.) Hyvonen. terricolous. Naro Moru : 326. 3100m. Meru : 27. 2625m. Hatchery : 30. 2250m.

*Pogonatum urnigerum* (Hedw.) P. Beauv. terricolous. Naro Moru : 82. 3550m. \*

### DITRICHACEAE

*Distichium capillaceum* (Hedw.) B.S.G. Naro Moru (terricolous) : 39. 4200m. Sirimon (rupicolous) : 77a, 82, 195, 227. 4200m.

*Ceratodon purpureus* (Hedw.) Brid. Naro Moru (terricolous) : 50b, 236a, 274c. 3000-3950m. Sirimon (rupicolous) : 84. 4200m. Hatchery (terricolous) : 8. 2250m.

### DICRANACEAE

*Atractylocarpus alticaulis* (Broth.) Williams. Naro Moru : P9236/AH. 3100m.

*Aongstroemia julacea* (Hook.) Mitt. terricolous. Naro Moru P9240/P. 4200m.\*\*

*Dicranum johnstonii* Mitt. Naro Moru (terricolous and epiphytic) : 322. 3350m. Chogoria (epiphytic): 18c, 114. 2500m.

*Dicranum sp.* rupicolous. Sirimon : 23c, 30b. 1550-3100m.

*Campylopodium euphorocladum* (C. Müll.) Besch. Naro Moru (terricolous) : 307a. 2400m. Kamweti (lignicolous) : 4. 1950m.

*Campylopus hildebrandtii* (C. Müll.) Jaeg. Naro Moru (terricolous) : 189a. 3600m. Chogoria (lignicolous) : 37. 1890m.

*Campylopus jamesonii* (Hook.) Jaeg. terricolous. Naro Moru : 1, 13a. 3000m. Chogoria : 1b, 2, 9d, 13b. 2360m.

*Campylopus nivalis* (Brid.) Brid. terricolous. Naro Moru : 94c, 139b, 142, 171, 188b, 196, 207, 326b, 709. 2900-4490m. Sirimon : 90, 136, 179, 323c, 343c. 4200-4450m. Chogoria : 80. 3300m.

*Campylopus pilifer* Brid. Naro Moru (rupicolous) : 247b, 229. 3000-4100. Meru (terricolous) : 24. 2625m. Chogoria (terricolous, rupicolous) : 12b, 65, 69. 2360-3250m.

*Campylopus sp.* rupicolous. Sirimon : 70b. 4200m.

*Pilopogon africanus* Broth. terricolous and rupicolous. Naro Moru : 195, 229. 2950-3000m.

#### FISSIDENTACEAE

*Fissidens sp.* Naro Moru (terricolous) : 306, 318c. 2450-3000m. Sirimon (terricolous, rupicolous) : 32b, 249, 250. 2350-2500m. Timau (terricolous) : 4d. 2750m. Meru (terricolous) : 26. 2625m. Chogoria (terricolous, lignicolous) : 31b, 51, 120, 122. 1675-2600m. Hatchery (rupicolous) : 27, 28c. 2250m.

#### LEUCOBRYACEAE

*Leucobryum isleanum* Besch var. *molle* (C. Müll.) Card. lignicolous. Chogoria : 32a, 33a, 35b, 38a, 119. 1750-2475m. Kamweti : 3a. 1950m.\*\*

#### ENCALYPTACEAE

*Encalypta ciliata* Hedw. Naro Moru (terricolous) : 535, 536. 4250m. Sirimon (rupicolous, terricolous) : 67, 107, 121, 130, 203. 3725-4400m.

#### POTTIACEAE

*Syntrichia cavallii* (Negri.) Ochyra. Naro Moru (rupicolous) : 117a, 131a, 149b, 183, 221b, 269b, 537, 708, 710. 3000-4700m. Sirimon (epiphytic, rupicolous) : 46. 68b, 124, 128, 182, 323a, 341a, 342. 3125-4550m. Chogoria (rupicolous) : 106. 4575m.

*Syntrichia fragilis* (Tayl.) Ochyra. rupicolous and epiphytic. Naro Moru : 4, 44c, 96, 177b, 256, 274a. 3550-4490m. Sirimon : 3a, 9, 21, 35f. 2550-3125m.

*Barbula eubryum* C. Müll. terricolous. Sirimon : 178. 4200m.

*Leptodontium luteum* (Tayl.) Mitt. rupicolous. Naro Moru : 218. 3000m.

*Leptodontium pungens* (Mitt.) Kindb. Sirimon (terricolous, lignicolous) : 141a, 228. 2750-4200m. Chogoria (terricolous) : 9e, 72, 81, 84c. 2360-3300m.

*Leptodontium viticulosoides* (P. Beauv.) Wijk & Marg. Naro Moru (epiphytic) : P9236/U. 3200m. Chogoria (terricolous) : 6, 8d. 2360m.

*Trichostomum brachydontium* Bruch. terricolous. Sirimon : 207. 3625m.\*

#### GRIMMIACEAE

*Grimmia affinis* Hornsch. rupicolous. Naro Moru : 83a, 126a, 169b, 174c, 221c, 265b, 300b. 3350-5199m. Sirimon : 48, 126, 162b, 165, 328. 3550-4450m. Chogoria : 79, 82, 95, 108. 3250-4650m.

*Grimmia affinis* Hornsch. moss balls Naro Moru : 541, 542, 551. 4150-4450m. Sirimon : 95, 132, 163, 194. 3850-4240m.

*Grimmia apiculata* Hornsch. rupicolous. Naro Moru : 760. 4350m. Sirimon : 94, 108c, 168, 190, 192. 3825-4650m.

*Racomitrium lamprocarpum* (C. Muell.) Jaeg. Naro Moru (terricolous) : 213a, 91/126b. 3000-4490m. Sirimon (rupicolous) : 25c, 60, 79. 3025-4200m.

*Racomitrium subsecundum* (Hook. & Grev.) Mitt. & Wils. rupicolous and terricolous. Naro Moru : 32, 87, 146c, 168b, 209c, 214b, 258. 3400-4490m. Sirimon : 131, 148, 199, 343b, 329b. 4000-4450m.

#### FUNARIACEAE

*Funaria hygrometrica* Hedw. terricolous. Naro Mo

ru : 91/130a. 3000m.

#### BRYACEAE

*Anomobryum julaceum* (Brid.) Schimp. Naro Moru (terricolous) : 165b, 177a, 178, 4175-4425m. Sirimon (terricolous) : 75, 77, 125, 137, 323b. 4050-4450m. Hatchery (rupicolous) : 35. 2250.

*Bryum alpinum* Huds. ex With. terricolous. Sirimon : 47a, 77b. 3610-4200m.

*Bryum argenteum* Hedw. Naro Moru (terricolous) : 169c, 517, 604b. 3740-4200m. Sirimon (rupicolous, lignicolous) : 21b, 31a, 64b, 74, 141b, 183a, 204. 2350-4300m. Chogoria (terricolous, lignicolous) : 5, 31c. 2360-2600m.

*Bryum bicolor* Dicks. terricolous. Naro Moru : 115, 131b, 533. 4200-4375m. Sirimon : 177a. 4200m.\*\*

*Bryum hedbergii* P. Varde terricolous. Sirimon : 56. 3610m.

*Bryum keniae* C. Müll. Naro Moru (terricolous) : 224, 302a, 723. 2300-2650m. Chogoria (terricolous, epiphytic) : 3, 7, 15, 19c, 34, 47, 52. 1690-2500m. Hatchery (rupicolous) : 2. 2250m.

*Bryum pseudotriquetrum* (Hedw.) Gaertn., Meyer & Scherb. Sirimon (terricolous, lignicolous) : 40a, 47b. 2500-3610m. Chogoria (terricolous) : 77. 3450m.

*Bryum preussii* Broth. Naro Moru (rupicolous, terricolous) : 20c, 219, 220a. 2400-3100m. Sirimon (lignicolous) : 312. 2450m.\*\*

*Rhodobryum perspinidens* (Broth.) Pocs. terricolous. Naro Moru : 307c. 2400m. Chogoria : 126. 2475m.

*Orthodontium gracile* Schw. epiphytic. Naro Moru : P9236/G. 3200m.\*\*

*Pohlia afrocruda* (C. Müll.) Broth. terricolous. Sirimon : 76a, 82b, 87b, 227b, 261, 268. 4200m.

*Pohlia* sp. terricolous. Sirimon : 214. 3600m.

#### MNIACEAE

*Plagiomnium rhynchophorum* (Hook.) T. Kop. Naro Moru (epiphytic) : 305b, 307b, 316d, 319c. 2400m. Timau (terricolous) : 1a, 4c. 2750m. Hatchery (epiphytic) : 15, 26a. 2250m.

#### RHIZOGONIACEAE

*Pyrrhobryum spiniforme* (Hedw.) Mitt. lignicolous. Chogoria : 33b, 35a, 36b. 1750-1890m.

#### AULACOMNIACEAE

*Aulacomnium turgidum* (Wahl.) Schw. terricolous. Naro Moru : 64, 188c, 189b, 209d, 214c. 3500-4490m. Sirimon : 343a. 4350m.

#### BARTRAMIACEAE

*Anacolia laevisphaera* (Tayl.) Flowers. rupicolous. Sirimon : 23c, 30b. 1550-3100m.

*Bartramia ithyphylla* Brid. Naro Moru (terricolous, rupicolous) : 2, 79, 94b, 216, 230a. 3000-3550m. Sirimon (rupicolous) : 64, 73, 149, 212. 3625-4200m. Chogoria (terricolous) : 85, 99, 101. 3250m. Hatchery (terricolous) : 4. 2250m.\*\*

*Bartramia* sp. terricolous. Meru : 38a. 2750m.

*Breutelia gnaphalea* (P. Beauv.) terricolous. Naro Moru: 13b, 16b, 45a. 2700-3750m. Sirimon: 46, 49, 53, 134. 3550-4050m. Chogoria: 3, 71, 129. 2360-2475m.\*\*

*Breutelia diffracta* Mitt. terricolous. Naro Moru: 245. 4100m. Sirimon: 46, 51, 152, 164. 3550-4000m. Chogoria: 66, 68. 3250m.

*Breutelia stuhlmanii* Broth. terricolous. Naro Moru: 7, 26, 66a, 81, 92, 146b, 527a. 3000-3550m.

*Philonotis fontana* (Hedw.) Brid. terricolous. Sirimon: 58, 181, 215. 3610-4200m.

*Philonotis sp.* terricolous. Sirimon: 560, 562. 4300m.

*Conostomum crassinervium* P. Varde. rupicolous/terricolous. Naro Moru: 544. 4790m.

#### ORTHOTRICHACEAE

*Orthotrichum arborescens* Ther. & Nav. epiphytic. Sirimon: 50a, 54a, 55b, 326. 3550-4450m.

*Orthotrichum affine* Brid. rupicolous. Sirimon: 129. 4425m.

*Orthotrichum firmum* Vent. epiphytic. Naro Moru: P9235/AL. 3200m.

*Orthotrichum rupestre* Schleich. ex. Schw. Naro Moru (rupicolous): 121a, 174d, 169a, 548, 580. 4200-4985m. Sirimon (terricolous, rupicolous): 64a, 138, 339b, 341b. 4050-4550m.

*Macrocoma abyssinica* (C. Müll.) Vitt. epiphytic. Naro Moru: 323, 326, 528c. 3300-3500m. Sirimon: 314, 320. 2450-2950m.

*Macrocoma tenue* (Hook. & Grev.) Vitt. epiphytic. Sirimon: 239. 2950m.\*

*Zygodon intermedius* B. S. G. Naro Moru (epiphytic): P9236/V. 3200m. Sirimon (rupicolous, epiphytic): 72. 4200m. Meru (epiphytic): 11. 2625m.

#### RHABDOWEISIACEAE

*Amphidium tortuosum* (Hornsch.) Robins. rupicolous. Naro Moru: 223. 4700m. Sirimon: 83a, 255a. 4000-4200m.

*Rhabdoweisia africana* Dix. & Nav. rupicolous, lignicolous. Sirimon: 40b, 71, 83b, 85, 201, 338. 2500-4200m.\*\*

*Rhabdoweisia lineata* Rich. & Arg. Naro Moru (rupicolous): P 9236 / L. 3200m. Sirimon (terricolous): 62, 264c. 3610-4000m.\*\*

#### RACOPILACEAE

*Racopilum tomentosum* (Hedw.) Brid. Naro Moru (epiphytic): 319a. 2400m. Sirimon (terricolous, rupicolous, lignicolous): 305, 307, 310. 2450m. Chogoria (epiphytic): 47a, 48. 2000-2400m.

#### HEDWIGIACEAE

*Hedwigia ciliata* (Hedw.) Ehrh. ex. P. Beauv. rupicolous. Sirimon: 20, 23b, 294. 2550-3100m.

*Braunia camptoclada* P. Varde & Ther. Naro Moru (rupicolous): 145a, 324. 3150-3900m. Sirimon: (rupicolous, epiphytic) 3b, 5a, 7b, 9a, 10b, 23a, 149, 153, 283. 2525-4000m. Meru (lignicolous): 10. 2625m. Chogoria (epiphytic): 46b. 2350m.

*Braunia secunda* (Hook.) B.S.G. Naro Moru (rupicolous): 529, 548. 3500-3750m. Sirimon (epiphytic, lignicolous, rupicolous): 142, 145, 155b, 162a, 235c, 283, 314b. 2450-3550m. Chogoria (epiphytic): 74, 94. 3250-3300m.\*

*Rhacocarpus purpurascens* (Brid.) Par. terricolous. Naro Moru: 146a, 524a, 528. 3400-3500m.

#### LEUCODONTACEAE

*Antitrichia kilimandscharica* Broth. Naro Moru (epiphytic, rupicolous): 190, 239a, 325, 539, 545. 3100-4250m. Sirimon: (epiphytic, terricolous, rupicolous): 1, 171, 205, 209. 3125-4200m.

*Forsstroemia producta* (Hornsch.) Par. rupicolous, epiphytic. Sirimon: 13b, 27c, 36b, 39f. 2350-2550m.



*Pterogonium gracile* (Hedw.) Sm. epiphytic. Naro Moru : 202, 304b, 714c. 2375-3000m. Sirimon : 3c, 7a, 38f, 39d, 156. 2525-3125m. Meru : 8. 2625m. Chogoria : 30a, 43a. 2400-2600m. Hatchery : 31e. 2250m.

#### PRIONODONTACEAE

*Prionodon ciliatus* Besch. Naro Moru (epiphytic) : 320b. 2375m. Meru (epiphytic, lignicolous) : 7, 14, 33. 2625-2750m. Chogoria (epiphytic) : 46b, 116, 124. 2350-2500m. Hatchery (epiphytic) : 21a, 25. 2250m.

#### TRACHYPODACEAE

*Trachypodopsis serrulata* (Palis.) Fleish. terricolous. Chogoria : 9a. 2360m.

#### PTEROBRYACEAE

*Renauldia hoehnelii* (C.M.) Broth. Naro Moru (rupicolous, epiphytic) : 320a, 711, 714a. 2375m. Chogoria (epiphytic) : 26b, 41, 124b. 2350-2375m. Kamweti (epiphytic) : 1e. 2250m. Hatchery (epiphytic) : 21c, 22, 32. 2250m.

#### METEORIACEAE

*Aerobryidium subpiligerum* (Hpe.) Card. Naro Moru (terricolous, epiphytic) : 320a, 725b. 2375-2650m. Sirimon (epiphytic, lignicolous) : 303, 311. 2450m. Meru (epiphytic) : 8c. 2625m. Chogoria (terricolous, epiphytic) : 9a, 125b. 2350-2360m. Kamweti (epiphytic) : 5a. 1950m. Hatchery (terricolous, epiphytic) : 16e, 21d. 2250m.

*Papillaria africana* (C. Müll.) Jaeg. epiphytic. Naro Moru : 304d. 2450m. Sirimon : 281b, 286, 288, 243. 2500-2550m. Meru : 32. 2625m.

*Pilotrichella ampullacea* (C. Müll.) Jaeg. epiphytic. Naro Moru : 303a, 304a, 317a, 320c. 2375-2450m. Sirimon : 27a, 39a. 2350-2525m. Meru : 30a. 2625m.

*Pilotrichella cuspidata* Broth. Naro Moru (epiphytic) : 303a, 304a, 317a, 320c, 722. 2375-2650m. Sirimon (epiphytic, rupicolous) : 16, 37b, 38d. 2360-2450m. Chogoria (epiphytic) : 42a, 43c, 45e.

2000-2400m. Kamweti (epiphytic) : 2, 8. 1950m. Hatchery (epiphytic) : 14c, 16b, 29. 2250m.

*Squamidium brasiliense* (Hornsch.) Broth. epiphytic. Chogoria : 42b. 2000m.

#### NECKERACEAE

*Leptodon smithii* (Hedw.) Web. & Mohr. Naro Moru (epiphytic) : 714b. 2375m. Sirimon (rupicolous, epiphytic) : 237, 271, 279, 286, 290, 296, 301. 2550-4000m. Meru (epiphytic) : 8d. 2625m.

*Neckera platyantha* (C. Müll.) Par. Naro Moru (rupicolous, epiphytic) : 215, 318a, 702. 2250-3000m. Sirimon (rupicolous, epiphytic) : 5c, 14a, 35a, 39c, 43c. 2360-2950m. Meru (lignicolous, epiphytic) : 9, 21. 2625m. Chogoria (epiphytic) : 30c, 40c, 43c, 45a. 2400-2600m. Kamweti (epiphytic) : 1a. 2250m. Hatchery (epiphytic) : 14. 2250m.

*Neckera submacrocarpa* Dix. epiphytic. Sirimon : 10a. 2950m.

*Porotrichum elongatum* (Welw. et Duby) Gepp. rupicolous. Hatchery : 3. 2250m.

*Porotrichum madagassum* Kiaer ex Besch. epiphytic. Naro Moru : 705b. 2250m. Chogoria : 17a. 2410m.

#### Po

*Porotrichum molliculum* Broth. Naro Moru (terricolous, epiphytic) : 315c, 703, 705a, 725c. 2250-2650m. Sirimon (epiphytic) : 26. 2350m. Chogoria (epiphytic) : 56a. 2200m. Kamweti (epiphytic) : 6. 1950m. Hatchery (terricolous, rupicolous, epiphytic) : 4, 12, 16d, 17, 18b. 2250m.

*Porothamnium stipitatum* (Mitt.) Touw. ex De Sloover. Naro Moru (rupicolous, epiphytic) : 318b, 701, 706, 707. 2250-2600m. Sirimon (epiphytic) : 241. 2950m. Meru (lignicolous) : 31a. 2625m. Chogoria (rupicolous) : 53. 1675m. Hatchery (epiphytic) : 13c. 2250m.

#### DALTONIACEAE

*Daltonia mildbraedii* Broth. epiphytic. Naro Moru : 515, P9235/K. 3000m.

## LEMBOPHYLLACEAE

*Rigodium toxarion* (Schw.) Jaeg. rupicolous. Naro Moru : 724b. 2650m. Hatchery : 12d, 33. 2250m.\*\*

## HOOKERIAACEAE

*Cyclodictyon borbonicum* (Besch.) Broth. terricolous, rupicolous. Naro Moru : P 9235/A . 2700m.\*\*

*Cyclodictyon laetevirens* (Hook. & Tayl.) Mitt. Naro Moru (terricolous): Br91/130f. 3050m. Meru (lignicolous): 13a. 2625m. Hatchery (lignicolous) : 36. 2250m.\*\*

*Hypopterygium viridissimum* C. Müll. Naro Moru (epiphytic): 319e. 2400m. Meru (lignicolous): 15. 2625m. Chogoria (epiphytic) : 23, 57c, 58a, 127. 1700-2350m. Hatchery (rupicolous) : 3. 2250m.

## FABRONIACEAE

*Rhizofabronia persoonii* (Schw.) Fleisch. var. *sphaerocarpa* (Dus.) Bizot. Sirimon (rupicolous) : 253. 2500m. Chogoria (epiphytic) : 136b. 1950m.

## THUIDIACEAE

*Haplocladium angustifolium* (Hampe & C. Müll.) Broth. rupicolous. Sirimon : 18b, 30b. 2360-2400m.\*\*

*Thuidium matarumense* Besch. rupicolous. Naro Moru : 217, 513. 3000m.

*Thuidium ramusculosum* (Mitt.) Jaeg. epiphytic. Naro Moru : 319e. 2400m.

## AMBLYSTEGIACEAE

*Calliergon sarmentosum* (Wahl.) Kindb. terricolous. Naro Moru : 140, 180. 3650-4490m. Sirimon : 322, 324a. 4425-4450m.

*Cratoneuron filicinum* (Hedw.) Spruce. terricolous. Naro Moru : 95. 4350m.

*Amblystegium sp.* terricolous. Sirimon: 78a. 4200m.

## BRACHYTHECIACEAE

*Brachythecium plumosum* (Hedw.) B.S.G. Naro Moru (terricolous, rupicolous, epiphytic) : 174a, 187b, 230c, 714a. 2375-4200m. Sirimon (rupicolous) : 68a, 153, 156, 251. 2500-4200m. Meru (lignicolous) : 34. 2700m.

*Brachythecium sp.* Naro Moru (terricolous, rupicolous) : 104b, 117b, 179a, 179b. 3950-4300m. Sirimon (rupicolous, epiphytic) : 36c, 42d, 73a, 76d, 171, 186, 282, 325. 2550-4425m.

*Eurhynchium hians* (Hedw.) Sande Lac. epiphytic. Chogoria : 17a, 40b. 2400-2500m.

? *Rhyncostegium sp.* Sirimon (terricolous) : 78. 4200m. Chogoria (epiphytic) : 135c. 1900m.

? *Schimperella atrotheca* (P. Varde) P. Varde. rupicolous. Sirimon : 302. 2450m.

## PLAGIOTHECIACEAE

*Plagiothecium nitens* Dix. lignicolous. Meru : 13b. 2625m.

*Stereophyllum sp.* rupicolous. Sirimon : 244. 2500m.

## SEMATOPHYLLACEAE

*Sematophyllum dregei* (C. Müll.) Bartr. Naro Moru (epiphytic) : 317. 2950m. Chogoria (lignicolous) : 31. 2600m. Hatchery (lignicolous) : 19. 2250m.\*\*

*Sematophyllum brachycarpum* (Hampe.) Broth. rupicolous. Hatchery : 9. 2250m.

*Sematophyllum sp.* epiphytic, lignicolous. Sirimon : 31c, 42e, 43e, 287. 1450-2550m.

*Wijkia trichocoleoides* (C. Müll.) Crum. terricolous. Naro Moru : 307d. 2400m.

## HYPNACEAE

*Hypnum cupressiforme* Hedw. Naro Moru (terricolous, epiphytic) : 20a, 236b, 303c. 2450-3600m. Sirimon (epiphytic, rupicolous) : 2a, 3d, 35e, 161a,



, 175, 185. 2550-4200m. Meru (terricolous): 4, 36, 40, 2625-2750m. Chogoria (terricolous, epiphytic): 10a, 31a, 93. 2360-3250m. Hatchery (terricolous): 9. 2250m.

*Hypnum cupressiforme* var. *ericetorum* terricolous. Naro Moru: 592. 4300m. Sirimon: 161a, 174, 218. 3625-4100m.

#### HYLOCOMIACEAE

*Hylocomium splendens* (Hedw.) B.S.G. terricolous. Naro Moru: 104a, 187a, 241b, 266. 3150-4000m. Sirimon: 223b. 3625m. Meru: 2. 2625m.\*

#### HEPATICOPSIDA

#### HERBERTACEAE

*Herbertus dicranus* (Tayl.) Steph. Naro Moru (rupicolous): 155a, 233, 226, 227, 233, 516. 3000-3600m. Chogoria (epiphytic): 19f, 115a. 2410-2500m.\*\*

#### BLEPHAROSTOMACEAE

*Blepharostoma trichophyllum* (L.) Dumort. terricolous. Naro Moru: 603. 4200m. Sirimon: 61, 210, 222. 3600-3625m.

#### ISOTACHIDACEAE

*Isotachis aubertii* (Schw.) Mitt. terricolous. Naro Moru: 509, 603. 3000-4200m.

#### LEPIDOZIACEAE

*Lepidozia cupressina* (Sw.) Lindenb. terricolous, epiphytic. Chogoria: 14a, 16a, 18b. 2500m.

*Lepidozia stuhlmannii* Steph. terricolous. Naro Moru: 91/101a, P9237/L. 3300-3530m.

*Bazzania decrescens* (Lehm. & Lindb.) Trev. lignicolous. Chogoria: 33c, 36a. 1750-1800m. Kamweti: 7, 9a. 1950m.\*\*

#### CALYPOGEIACEAE

*Calypogeia afrocaerula* E. W. Jones. terricolous. Naro Moru: 91/100b. 3530m. Chogoria: 20c, 24. 2350-2500m.\*\*

#### LOPHOZIACEAE

*Tetralophozia cavallii* (Gola.) Vana. rupicolous, epiphytic. Naro Moru: 516a, 91/112b. 3430-3500m. Chogoria: 12a. 2360m.\*\*

*Chandonanthus hirtellus* (Weber.) Mitt. Naro Moru (epiphytic): 3, 228, 327a, 528. 3100-3500m. Chogoria (terricolous): 1a, 9b, 115b. 2360-2500m.\*\*

*Anastrophyllum auritum* (Spruce) Steph. rupicolous. Naro Moru: 530, Sa 1362. 3500-3600m. Sirimon: 88a, 151, 216. 3600-4200m.

#### JUNGERMANNIACEAE

*Jungermannia abyssinica* Nees. terricolous. Sirimon: 213. 3625m.

*Jungermannia* sp. terricolous. Sirimon: 61b, 208. 3610-3625m.

#### SCAPANIACEAE

*Diplophyllum africanum* S. Arn. terricolous. Naro Moru: 525. 3500m.\*\*

*Scapania hedbergii* S. Arn. terricolous. Naro Moru: 153c, 532, 588, 599, 604. 3550-4200m. Sirimon: 47c. 3610m.

#### LOPHOCOLEACEAE

*Lophocolea caespitosa* Ldbg. epiphytic. Chogoria: 135a. 1900m.

*Lophocolea cuspidata* (Nees.) Limpr. epiphytic. Hatchery: 15. 2250m.

*Lophocolea setacea* Steph. Sirimon (rupicolous): 19a. 2360m. Chogoria (epiphytic): 134b. 1900m. Kamweti (lignicolous): 9. 1950m.

*Chiloscyphus difformis* (Nees.) Eng. & Schust. Naro Moru (terricolous): P 9237 / D. 3400m.

Hatchery (rupicolous): 10. 2250m.

*Leptoscyphus hedbergii* terricolous, rupicolous.  
Naro Moru: P 9236/Y, P9237/R. 3200-3400m.

#### PLAGIOCHILACEAE

*Plagiochila barteri* Mitt. Naro Moru (epiphytic, rupicolous): 225, 303d. 2450-3000m. Sirimon (epiphytic): 45. 3610m. Meru (lignicolous): 37a. 2750m. Chogoria (epiphytic): 18a, 19d, 44b. 2400-2500m.

*Plagiochila crispulo-caudata* Gott. epiphytic.  
Sirimon: 8, 308. 2450-2850m.

*Plagiochila divergens* Steph. lignicolous. Chogoria: 21a. 2500m.

*Plagiochila ericicola* Steph. terricolous. Naro Moru: SA 1021. 3000m.\*\*

*Plagiochila heterostipa* Steph. Naro Moru (epiphytic): 303e, 315e. 2400-2450m. Chogoria (epiphytic): 58b, 60a, 61c, 63. 1700-2400m. Kamweti (epiphytic): 6. 1950m. Hatchery (epiphytic, rupicolous): 3, 13, 14b. 2250m.

*Plagiochila repanda* (Schw.) Lindenb. rupicolous. Sirimon: 25a. 3025m.

*Plagiochila squamulosa* Mitt. var. *sinuosa* (Mitt.) Vanden Berghen. Sirimon (rupicolous, epiphytic): 11a, 27a, 24a, 35c, 41e, 42b, 43c. 2350-3025m.. Chogoria (epiphytic): 28a, 30b, 40d, 43d, 56b., 2200-2600m. Hatchery (rupicolous, epiphytic): 12, 13. 2250m.

*Plagiochila squamulosa* Mitt. var. *squamulosa* Naro Moru (epiphyte): 304c. 2450m. Sirimon (epiphytic): 38e, 140, 154a, 234a, 316a. 2525-2950m. Meru (lignicolous): 22, 37b. 2625-2750m. Chogoria (terricolous, epiphytic): 1c, 8a, 46a. 2350-2360m. Hatchery (rupicolous, lignicolous): 31c, 38e. 2525m.

*Plagiochila subalpina* Steph. Sirimon (terricolous): 209b. 3600m. Chogoria (epiphytic): 11b. 2360m.

#### ACROBOLBACEAE

*Tylimanthus ruwenzorensis* S. Arn.. Naro Moru (rupicolous): P 9235 / R. 3020m. Sirimon (terricolous): 58. 3610m.

#### CEPHALOZIELLACEAE

*Cephaloziella* sp. Naro Moru: Br 91/19. 3500m. Sirimon (rupicolous): 151b. 4000m.

#### RADULACEAE

*Radula boryana* (Web.) Nees. epiphytic. Kamweti: 6, 7. 1950m.

*Radula evelynae* Yamada. epiphytic. Chogoria: 134c, 135b. 1900m.\*\*

*Radula recurvifolia* Steph. Naro Moru (epiphytic): 318d. 2400m. Sirimon (rupicolous, epiphytic):

5e, 11c, 24c, 38g, 41a, 42f. 2525-3025m. Meru (epiphytic): 6. 2625m. Chogoria (terricolous, epiphytic): 2a, 4, 6b, 13a, 17b, 61a. 1700-2500m. Kamweti (epiphytic): 1. 2250m. Hatchery (rupicolous): 11, 12. 2250m.

*Radula stipatiflora* Steph. Sirimon (epiphytic): 33a, 304b. 2350-2450m. Chogoria (terricolous, rupicolous, lignicolous): 8c, 27b, 29c. 2275-2375m.

*Radula voluta* Tayl. ex Gott., Lindenb. & Nees. Naro Moru (terricolous): 305c. 2400m. Sirimon (rupicolous): 24d. 3025m.

#### PORELLACEAE

*Porella hoehnelii* Steph. Naro Moru (terricolous, rupicolous, epiphytic): 20b, 230b, 237, 303b, 319b. 2750-3000m. Sirimon (rupicolous, epiphytic): 13a, 21b, 24b, 28b, 35b, 37a. 2350-3025m. Meru (terricolous): 18, 38. 2625-2750m. Chogoria (terricolous, lignicolous): 1e, 7a, 21, 44a. 2360-2500m. Hatchery (epiphytic): 16, 32c. 2250m.

#### FRULLANIACEAE

*Frullania angulata* Mitt. terricolous. Chogoria: 29b. 2300m.

- Frullania apicalis* Mitt. Chogoria (terricolous): 1d, 9c, 26. 2300-2360m. Hatchery (lignicolous): 31a. 2250m.
- Frullania arecae* (Spreng.) Gott. epiphytic. Naro Moru: 503. 3000m.
- Frullania caffraria* Steph. rupicolous. Sirimon: 21a. 3100m.
- Frullania depressa* Mitt. rupicolous and epiphytic. Sirimon: 12, 14d, 18, 31b, 35d. 2350-2550m.
- Frullania obscurifolia* Mitt. epiphytic. Chogoria: 11a. 2360m.
- Frullania shimperi* Nees. epiphytic. Naro Moru: 303f, 512, 587. 2450-3300m.
- LEJEUNEACEAE
- Lejeunea confusa* E. W. Jones. epiphytic. Sirimon: 41b, 43g. 2550m.\*\*
- Lejeunea camerunensis* Steph. epiphytic. Sirimon: 33a, 300a. 2350-2550m.\*\*
- Lejeunea caespitosa* Lindenb. epiphytic. Sirimon: 301e, 304a. 2450-2550m. Chogoria: 134a. 1900m.
- Lejeunea eckloniana* Ldbg. epiphytic. Sirimon: 232, 286b, 304c. 2450-2950m.
- Lejeunea flava* (Sw.) Nees. rupicolous. Hatchery: 11, 12. 2250m.
- Lejeunea isophylla* E. W. Jones. epiphytic. Sirimon: 295. 2550m. Chogoria: 17e. 2500m.
- Cheilolejeunea cordistipula* (Steph.) Groll. ex Jones. epiphytic. Naro Moru: 91/91e. 3350m.\*\*
- Cheilolejeunea pluriplicata* (Pears.) Schust. epiphytic. Naro Moru: 91/91a, 91c, 123b, P9237/C, P9237/N. 3000-3350m.
- Cololejeunea bolombensis* (Steph.) Vanden Berghen. epiphyllous. Kamweti: 5c. 1950m.
- Cololejeunea runssorensis* (Steph.) Pocs. epiphyllous. Kamweti: 5e. 1950m.\*\*
- Leucolejeunea xanthocarpa* (Lehm. & Lindenb.) Evans. epiphytic. Chogoria: 10c. 2360m.\*
- Odontolejeunea lunulata* (Web.) Schiffn. epiphyllous. Kamweti: 5b. 1950m.
- Taxilejeunea conformis* (Mont.) Steph. epiphytic. Chogoria: 134d. 1900m.
- DILAENACEAE
- Pallavicinia serrata* (Mitt.) Grolle. terricolous. Naro Moru: 5. 3000m. Timau: 3d. 2750m. Meru: 35. 2700m.\*
- Symphogyna podophylla* (Thunb.) Nees & Mont. terricolous. Naro Moru: 717. 2650m. Meru: 1. 2625m.
- Calycularia crispula* Mitt. rupicolous. Naro Moru: 511. 3000m.\*
- FOSSOMBRONACEAE
- Fossombronia grandis* Steph. terricolous. Naro Moru: P9236/AA. 3200m. Timau: 3b. 2750m. Kamweti: 30. 1900m.
- ANEURACEAE
- Riccardia amazonica* terricolous. Meru: 16. 2625m.
- Riccardia caespitans* (Steph.) Grolle. terricolous. Naro Moru: 560 bis. 4300m.
- Riccardia limbata* (Steph.) E. W. Jones. Sirimon (rupicolous): 6. 3025m. Chogoria (terricolous): 29a. 2300m.
- METZGERIACEAE
- Metzgeria agnewii* Kuw. epiphytic. Sirimon: 50, 54b, 55a, 122. 3550-3750m.
- Metzgeria convexa* Vand. Bergh. Naro Moru (rupicolous): 524b, 3500m. Sirimon (terricolous, rupicolous): 220, 224, 247. 2500-3620m. Meru (terricolous): 25. 2625m.

*Metzgeria elliotii* Steph. Naro Moru (rupicolous, terricolous): 538, 598, 600. 4200-4300m. Sirimon (terricolous): 89a, 217. 3625-4200m.  
*Metzgeria hedbergii* Vand. Bergh. Sirimon (terricolous, rupicolous): 263a, 264, 267. 4000m.

*Metzgeria quadrifaria* Steph. terricolous. Kamweti: 6. 1950m.\*\*

#### LUNULARIACEAE

*Lunularia cruciata* (L.) Dum. Naro Moru (terricolous, rupicolous): 220b, 305a, 329, 719. 2400-3100m. Sirimon (terricolous, rupicolous): 25d, 28c, 32a, 254, 260, 268. 2350-4000m. Timau (terricolous): 4a. 2750m. Hatchery (rupicolous): 3. 2250m.\*\*

#### MARCHANTIACEAE

*Marchantia polymorpha* L. Naro Moru (terricolous, rupicolous): 118a. 4200m. Sirimon (terricolous): 135, 176. 3990-4050m. Timau (terricolous): 4b. 2750m. Hatchery (rupicolous): 1. 2250m.

*Asterella linearis* (Steph.) Howe. terricolous. Sirimon: 273a, 297a. 2550-4000m. Timau: 1c, 3e. 2750m. Meru: 3. 2625m.\*\*

*Asterella* sp. terricolous. Sirimon: 280. 2550m.

*Dumortiera hirsuta* (Sw.) Nees. terricolous. Naro Moru: 315a, 716. 2400-2650m. Sirimon: 248. 2500m. Timau: 3a. 2750m. Meru: 19. 2625m. Hatchery: 6, 28a. 2250m.

#### RICCIACEAE

*Riccia membranacea* Gotts. & Lindenb. terricolous. Naro Moru: 718, 725a. 2650m. Sirimon: 280. 2550m.\*\*

*Riccia trichocarpa* Howe. terricolous. Hatchery: 20, 28b. 2150m.

#### ANTHOCEROPSIDA

#### ANTHOCEROTAE

*Anthoceros myriandroecius* Steph. terricolous. Naro Moru: 321. 2375m. Timau: 2, 3c. 2750m. Meru: 20. 2625m.

#### Acknowledgements

Financial support was received from the Deans Committee Grants of the University of Nairobi. The author is also grateful to Dr. J. Else, Deputy Director, Scientific Services, Kenya Wildlife Services; to Mr. B. Woodley, Warden, Mt. Kenya National Park and to Mr. R. Bussmann for their valuable cooperation during the project. Thanks also go to Prof. Tamas Pocs for the identification of *Cololejeunea bolombensis*, *C. runssorensis* and for confirming numerous specimens, Dr. Jan-Peter Frahm for the identification of the *Campylopus* specimens, to Dr. Diana Horton for the *Encalypta ciliata* specimen, and to Dr. Philip Sollman for the *Amphidium tortuosum* specimen.

#### References

- Arnell, S. 1956.** Hepaticae collected by O. Hedberg et al. on the East African Mountains. Ark. f. Bot. 3 : 517-562.
- Arnell, S. 1963.** Hepaticae of South Africa. Stockholm. 411 pp.
- Brotherus, V. F. 1925.** in Engler and Prantls Die Naturlichen Pflanzenfamilien. Vol. 11. Musci. Part 2. Wilhelm Engelmann, Leipzig. 1925.
- De Sloover, J. L. 1973.** Note de bryologie africaine. I. *Brachydontium*, *Atractilocarpus*, *Amphidium*, *Rhabdoweisia*, *Tayloria*, *Rhacocarpus*, *Trachypodopsis*. Bull. Jard. Bot. Nat. Belg. 43 : 333-348.
- De Sloover, J. L. 1975b.** Note de bryologie africaine. IV. *Breutelia*. Bull. Jard. Bot. Nat. Belg. 45 : 237-271.
- De Sloover, J. L. 1976b.** Note de bryologie africaine. VII. *Pseudephemerum*, *Bryohumbertia*, *Eucladium*, *Streptopogon*, *Ptychomitium*, *Rhachithecium*, *Antitrichia*, *Pterogonium*, *Lindigia*, *Distichophyllum*. Bull. Jard. Bot. Nat. Belg. 46 : 427-447.
- De Sloover, J. L. 1977a.** Note de bryologie africaine.

- VIII. *Neckera*, *Neckeropsis*. Bull. Jard. Bot. Nat. Belg. 47 : 31-48.
- De Sloover, J. L. 1977b.** Note de bryologie africaine. IX. *Andreaea*, *Racomitrium*, *Gymnostomiella*, *Thuidium*. Bull. Jard. Bot. Nat. Belg. 47 : 155-181.
- De Sloover, J. L. 1983.** Note de bryologie africaine. XII. *Poro-trichum* et *Poro-thamnium*. Bull. Jard. Bot. Nat. Belg. 53 : 97-152.
- Demaret, F. & Potier de la Varde, R. 1951.** Les especes africaines du genre *Cyclodictyon* Mitt. Bull. Jard. Bot. Etat. 21 : 11-59.
- Hedberg, O. 1951.** Vegetation belts of the East African Mountains. Svensk Bot. Tid. 45 : 140-20.
- Jones, E. W. 1957.** African Hepatics. XIII. The Ricciaceae in Tropical Africa. Trans. Br. Bryol. Soc. 3: 208-227.
- Jones, E. W. 1962.** African Hepatics. XV. *Plagiochila* in Tropical Africa. Trans. Br. Bryol. Soc. 4 : 254-325.
- Jones, E. W. 1963.** African Hepatics. XVI. *Porella* in Tropical Africa. Trans. Br. Bryol. Soc. 4 : 446-461.
- Jones, E. W. 1975.** African Hepatics. XXVII. *Bazzania*. J. Bryol. 8 : 299-316.
- Jones, E. W. 1977.** XXX. The genus *Radula* Dumortier. J. Bryol. 9 : 461-504.
- Kis, G. 1985.** Mosses of South-East Tropical Africa. An annotated list with distributional data. Inst. Ecol. Bot. Hung. Acad. Sci. Vacratot. 170pp.
- Lewinsky, J. 1978.** The Genus *Orthotrichum* Hedw. (Musci) in Africa South of the Tropic of Cancer. Saertryk Af. Bot. Tids. 72 : 61-85.
- Petit, E. 1978.** Clefs pour la determination des familles et des genres des mousses pleurocarpes (Musci) d'Afrique. Bull. Jard. Bot. Nat. Belg. 48 : 135-181.
- Sim, T. R. 1923.** The Bryophyta of South Africa. Trans. Roy. Soc. S. Afr. 15. 475pp.
- Touw, A. 1976.** A taxonomic revision of *Thuidium*, *Pelekium*, and *Rauarella* (Musci : Thuidiaceae) in Africa South of the Sahara. Lindbergia. 3 : 135-195.
- Vanden Berghen, C. 1976.** Frullaniaceae (Hepaticae) africanae. Bull. Jard. Bot. Nat. Belg. 46 : 1-220.

