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Contributions toward a Bryoflora of the Aberdare Range, Kenya

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Abstract : 124 species of bryophytes, belonging to 46 families are reported for the Aberdare Mountains, of which 58 species are new for the Aberdares and 6 records are new for Kenya, indicated by * and ** respectively. The wetter, more humid southern and south-eastern parts of the range contain the greatest diversity of species, particularly in the montane forests while the drier northern part is poor in species.

The Aberdare (or Nyandarua) Range of mountains of Kenya lies to the east of the Gregory Rift Valley and is about 80km north of Nairobi and 17km from Nyeri town. It is an elongated massif, running approximately north-south, parallel to the direction to the Rift Valley, about 50 km to the west of Mt. Kenya. The steep western side of the range forms the eastern wall of the Rift, and the massifs of Mt. Kenya and the Aberdares together form the Central Highlands. The upper slopes of the range form an important water catchment area, the slopes are steep and densely forested while the foothills has been cleared of forest and used for cultivation. Two dams, the Sasumua and Ruiru, provide Nairobi with water. The massif extends over a wide area .

Since Kenyan independence in 1963, a section of the Aberdare Range has been a national park. All land above 3000m and a narrow salient to 1900m come under the auspices of Aberdare National Park. The area around the park is densely popula-

ted, the eastern and northeastern sides of the park are in contact with farmland. The remainder of the park is surrounded by forest reserve. The park consists mainly of bamboo, high heath and moorland; large areas of forest occur particularly in The Salient which extends eastwards from the main peaks and drops to a level of 1500m. The highest peaks are Oldonyo Lesatima (4001m) in the north and Il Kinangop (3906m) in the south. Between the two peaks is an extensive moorland region between 3000m and 3300m.

Like many East African mountains, the Aberdares were formed by volcanic activity and the elongate form of the range is a result of lava spilling from large cracks or fissures. Therefore, the main peaks of the range run in an almost straight line linked by a series of ridges.

The climate of the mountain is dominated by the southeast monsoon from April to October and by the northeast wind from October to March. The

southeastern slopes receive the highest rainfall (about 2500mm per annum) as they face the rain bearing winds while the north and northwestern are the driest (about 700mm per annum.), being in the rain shadow. Generally, the Aberdares are very wet. Even in the dry seasons, while the rest of Kenya enjoys fine weather or only occasional downpours, the Aberdare range is frequently enveloped in heavy clouds.

The collections were made between 1993 and 1994 at altitudes of between 1900m and 4001m. All specimens are deposited in the herbarium of the University of Nairobi (NAI), Nairobi, Kenya.

This project has been carried out with the objective of inventoring the bryoflora of the Aberdare range and to present recent collections.

Following is the presentation of species of bryophytes found on the Aberdare Mountains. Records new to Aberdare range are indicated by an * while those new to Kenya are indicated by **. The locality name precedes the authors collection number, e.g. Chania, Wandara, Sattima, Kinangop... followed by the collection number/s of the author 57. 91... The altitude or altitude range where the plant/s was/were collected is also reported.

BRYOPSIDA

SPHAGNACEAE

**Sphagnum davidii* Warnst. terricolous. Chania : 57. 3000m. Wandara: 91. 3000m. Kinangop: 313a, 334, 352. 3150-3400m.

ANDREAEACEAE

**Andreaea cucullata* Dix. rupicolous. Sattima : 192. 3775m.

**Andreaea mildbraedii* Broth. rupicolous. Sattima : 191 Kinangop : 321, 330. 3200m.

POLYTRICHACEAE

Polytrichum commune Hedw. terricolous. Chania : 18, 400. 2950-3000m. Sattima : 193a. 3700m.

Kinangop : 275, 310, 353a. 2850-3400m.

Polytrichum piliferum Hedw. terricolous. Sattima : 193b, 203. 3600-3700m. Kinangop : 368. 3200m.

DITRICHACEAE

**Distichium capillaceum* (Hedw.) B.S.G. terricolous, rupicolous. Sattima : 172b, 174a, 176a. 3900m.

DICRANACEAE

Atractylocarpus alticaulis (Broth.) Williams epiphyte. Kinangop : bis 278a. 2900m.

**Campylopus dicranoides* Thér. & Nav. Kinangop (epiphytic) : 259a, 349c. 2550-3400m.

**Campylopus jamesonii* (Hook.) Jaeg. Chania (epiphytic) : 1. 3000m. Kinangop (terricolous) : 377. 3200m.

Campylopus johannis-meyeri (C. Müll.) Par. terricolous. Kinangop : 271c. 2850m.

**Campylopus nivalis* (Brid.) Brid. terricolous. Sattima : 177, 204. 3650-4001m. Kinangop : 348. 3200m.

**Campylopus pilifer* Brid. Kinangop (terricolous, rupicolous) : 307, 314c, 347a. 3000-3400. Mutubio (terricolous) : 439. 2600m.

Campylopodium euphorocladum (C. Müll.) Besch. lignicolous. Chania : 35b. 3000m.

**Pilopogon africanus* Broth. terricolous. Sattima : 201a. 3800m. Kiandongoro : 407. 2950m.

FISSIDENTACEAE

Fissidens sp. Chania (terricolous, rupicolous) : 23c, 28b. 3000m. Wandara (terricolous) : 80. 3000m.

ENCALYPTACEAE

**Encalypta ciliata* Hedw. rupicolous. Sattima : 189a. 3700m.

POTTIACEAE

**Bryoerythrophyllum recurvirostrum* (Hedw.)
Chen rupicolous. Sattima : 169b. 3900m.

**Leptodontium luteum* (Tayl.) Mitt. Chania (terricolous) : 401b, 412a. 2950m. Kinangop (terricolous, epiphyte) : 318, 327, 359d. 3200m.

**Leptodontium pungens* (Mitt.) Kindb. Sattima (terricolous) : 207. 3600m. Chania (terricolous) : 33c, 45c. 3000m. Wandara (epiphytic) : 78b. 3000m.

Leptodontium viticulosoides (P.Beauv.) Wijk & Marg. epiphytic. Chania : 46, 64. 3000m. Kinangop (epiphytic) : 349d. 3400m.

**Syntrichia cavallii* (Negri) Ochya Sattima (terricolous, rupicolous, epiphytic) : 180, 187. 3750-4001m. Mutubio (terricolous) : 426a. 2800m. Treetops (epiphyte) : 143a. 1900m.

GRIMMIACEAE

Grimmia affinis Hornsch. rupicolous. Sattima : 186b, 206. 3600-3750m.

Racomitrium subsecundum (Hook. & Grev.) Mitt. & Wils. rupicolous. Sattima : 169f, 197, 200, 208. 3500-3900m. Kinangop : 344a, 365, 383a. 3200-3300m.

BRYACEAE

**Brachymenium angolense* (Welw. & Duby) Jaeg. lignicolous. Treetops : 126, 145b. 1925m.

***Brachymenium revolutum* Broth. epiphytic. Kinangop : 270. 2800m.

**Bryum alpinum* Huds. ex With. Twins (terricolous) : 396, 397a. 3300m. Sattima (rupicolous, terricolous) : 190c, 202b. 3650m.

Bryum argenteum Hedw. Chania (terricolous) : 52, 412b. 2950-3000m. Ark (rupicolous) : 161. 2220m. Sattima (terricolous, rupicolous) : 195, 205. 3650-3800m. Chebuswa (epiphyte) : 392a. 3100m.

**Bryum bicolor* Dicks. terricolous. Kinangop :

382. 3200m.

Bryum filiforme Dicks. terricolous. Mutubio : 445a. 2600m.

***Bryum haematoneuron* C.Müll. terricolous. Sattima : 182. 3700m.

Bryum keniae C. Müll. terricolous. Chania : 15, 43, 401a. 2950-3000m. Wandara : 85. 3000m. Kinangop : 252. 2500m.

**Bryum preussii* Broth. terricolous. Chania : 33d, 401c. 2950-3000m. Wandara : 90. 3000m.

**Bryum pseudotriquetrum* (Hedw.) Gaertn. rupicolous. Sattima : 189b. 3700m.

Orthodontium loreifolium Besch. rupicolous. Sattima : 209a. 3675m.

**Pohlia afrocruda* (C. Müll.) Broth. terricolous. Chania : 38. 3000m. Mutubio : 422. 2800m.

Rhodobryum perspinidens (Broth.) Pócs epiphytic. Mutubio : 415b. 2850m.

MNIACEAE

**Plagiomnium rhynchophorum* (Hook.) T.Kop. terricolous. Mutubio : 424b. 2800m.

RHIZOGONIACEAE

**Pyrrhobryum spiniforme* (Hedw.) Mitt. terricolous. Kinangop : 309. 3000m.

BARTRAMIACEAE

**Bartramia ithyphylla* Brid. terricolous. Chania : 48. 3000m.

**Breutelia diffracta* Mitt. terricolous. Sattima : 178, 179. 4001m.

**Breutelia gnaphalea* (P.Beauv.) Mitt. terricolous. Chania : 20. 3000m. Kinangop : 359b. 3200m.

Breutelia stuhlmannii Broth. terricolous. Kinangop : 306b, 312a, 328b, 341, 356, 361b. 3200-3300m.

ORTHOTRICHACEAE

**Amphidium tortuosum* terricolous. Sattima : 175c, 186a, 212a. 3750-3900m. Kinangop : 271b. 2850m.

Macrocoma abyssinica (C. Müll.) Vitt epiphytic. Chania : 5c, 49, 58. 3000m. Wandara : 94. 3000m.

**Macrocoma tenue* (Hook. & Grev.) Vitt epiphytic. Sattima : 216. 2550m. Kinangop : 336a, 350a, 370. 3150-3400m. Mutubio : 419c. 2850m. Ark : 163d. 2220m. Wandare : 117. 2600m.

**Orthotrichum affine* Brid. epiphytic. Sattima : 185. 3750m. Ark : 163b. 2220m.

Orthotrichum arborescens Thér. & Nav. epiphytic. Sattima : 215a. 3500m. Kinangop : 332b. 3300m.

**Orthotrichum firmum* Vent. epiphytic. Mutubio : 429a. 2800m.

Zygodon intermedius B.S.G. epiphytic. Chania : 14, 29, 51. 3000m.

HEDWIGIACEAE

**Braunia camptoclada* P. Varde & Thér. epiphytic. Chania : 4, 5a, 8a, 34a. 3000m. Rhino : 229. 2650m. Twins (epiphytic) : 399. 3300m.

Braunia secunda (Hook.) B.S.G. Sattima (rupicolous) : 188, 198. 3600-3700m. Kinangop (epiphytic, rupicolous) : 332a, 351. 3300-3400m.

**Hedwigia ciliata* (Hedw.) Ehrh. ex. P.Beauv. rupicolous. Sattima : 210b. 3750m.

Racocarpus purpurascens (Brid.) Par. Sattima (rupicolous) : 199. 3800m. Kinangop (rupicolous, terricolous) : 314a, 331, 360, 344b, 347c. 3200-3400m.

CRYPHAEACEAE

Cryphaea robusta Broth. & Thér. epiphytic. Ark : 165d. 2220m.

Forsstroemia flagellacea (C. Müll.) Par. epiphy-

tic. Ark : 165f. 2220m. Rhino : 237a. 2650m.

Forsstroemia producta (Hornsch.) Par. Treetops (epiphytic, lignicolous) : 125c, 129b, 137a, 138b, 140. 1925m. Ark (epiphyte) : 165d. 2220m.

Schoenobryum robustum (Broth.) Manuel epiphytic. Wandare : 110a. 2600m. Ark : 163a. 2220m.

LEUCODONTACEAE

Antitrichia kilimandscharica (Hedw.) Brid. Chania (terricolous) : 33c. 3000m. Kinangop (epiphytic) : 302b. 3000m. Chebuswa (epiphytic) : 387. 3100m.

***Leucodon maritimus* (Hook.) Wijk & Marg.. Treetops (lignicolous) : 145. 2100m. Chebuswa (epiphytic) : 393. 3100m. Ark (epiphytic) : 157. 2200m. Rhino (epiphytic) : 228d. 2800m.

**Pterogonium gracile* (Hedw.) Sm. Rhino (epiphytic, lignicolous) : 223, 226, 239d, 242. 2700-2800m. Wandare (epiphytic) : 103, 113b. 2600m. Elephant (epiphytic) : 391a. 3100m.

TRACHYPODACEAE

**Trachypodopsis serrulata* (P.Beauv.) Fleisch. epiphytic. Wandara : 84. 3000m.

METEORACEAE

**Papillaria africana* (C. Müll.) Jaeg. epiphytic. Rhino : 231. 2650m. Treetops : 138a. 1925m. Wandare : 106a, 120b. 2600m.

Pilotrichella ampullacea (C. Müll.) Jaeg. epiphytic. Chania : 61b. 3000m. Treetops : 133. 1925m.

**Pilotrichella cuspidata* Broth. epiphytic. Chania : 36c. 3000m. Treetops : 139. 1925m.

NECKERACEAE

**Leptodon smithii* (Hedw.) Web. & Mohr Ark (epiphytic) : 155a, 162. 2220m. Rhino (epiphytic, lignicolous) : 218a, 228a. 2800m.

Neckera platyantha (C. Müll.) Par. Chania (epiphytic, rupicolous) : 7, 21b, 32, 47. 3000m. Wandara (epiphytic) : 75, 78, 92a. 3000m. Kinangop (epiphytic) : 291b. 3000m. Mutubio (epiphytic) : 416. 2850m. Rhino (epiphytic) : 225a. 2800m. Wandare (epiphytic) : 120a. 2600m.

**Porothamnium stipitatum* (Mitt.) Touw ex De Sloover epiphytic, rupicolous. Chania : 23b, 41, 61a. 3000m. Kinangop : 263b, 272. 2700-2900m.

FABRONIACEAE

Fabronia leikipiae C.Müll. epiphytic. Treetops : 138c. 1925m. Ark : 160c. 2220m.

***Schwetschkea usambarica* Broth. epiphytic. Wandare : 107c. 2600m.

LESKEACEAE

Lindbergia patentifolia Dix. epiphytic. Rhino : 239c. 2700m. Ark : 155b, 165c. 2220m.

REGMATODONTACEAE

Regmatodon secundus Kiaer terricolous. Mutubio : 437b. 2650m.

THUIDIACEAE

**Haplocladium augustifolium* (Hampe & C.Müll.) Broth. epiphytic. Ark : 159. 2220m.

**Thuidium matarumense* Besch. terricolous. Kinangop : 359c, 362b. 3200m.

BRACHYTHECIACEAE

**Brachythecium implicatum* (Hornsch.) Jaeg. Sattima (terricolous) : 172c, 173a. 3900m. Rhino (epiphytic) : 236. 2700m.

***Brachythecium rigens* Buck epiphytic. Wandara : 96a. 3000m. Kinangop : 293b. 3000m.

Brachythecium vellereum (Mitt.) Jaeg. epiphytic. Wandare : 122a. 2600m.

Brachythecium sp. rupicolous. Sattima : 168.

3900m.

Schimperella atrotheca (P.Varde) P.Varde epiphytic. Mutubio : 417. 2850m.

PLAGIOTHECIACEAE

**Plagiothecium nitens* Dix. rupicolous. Sattima : 169d. 3900m.

ENTODONTACEAE

**Entodon dregeanus* (Hornsch.) C.Müll. epiphytic. Ark : 160a. 2220m.

Entodon sp. lignicolous. Chania : 25. 3000m.

SEMATOPHYLLACEAE

**Sematophyllum dregei* (C. Müll.) Bartr. epiphytic. Chania : 42. 3000m. Wandara : 97. 3000m.

HYPNACEAE

Hypnum cupressiforme Hedw. Chania (epiphytic) : 5b, 8b, 21a. 3000m. Wandara (epiphytic) : 88a. 3000m. Sattima (terricolous) : 175b, 212b, 213. 3750-3900m. Rhino (lignicolous, epiphytic) : 233, 242a. 2650-2700m. Mutubio (terricolous) : 433. 2600m. Kinangop (epiphytic) : 303c, 372, 381a. 3000-3200m.

Hypnum cupressiforme Hedw. var. *filiforme* Brid. epiphytic. Wandara : 88b. 3000m. Sattima (rupicolous) : 210c. 3750m. Chania : 410b. 2950m.

HEPATICOPSIDA

HERBERTACEAE

**Herbertus dicranus* (Tayl.) Steph. terricolous, rupicolous, epiphytic. Kinangop : 300a, 306c, 328d, 350b, 367. 3000-3400m.

LEPIDOZIACEAE

***Arachniopsis diacantha* (Mont.) Howe lignicolous. Chania : 36b. 3000m.

CALYPOGELIACEAE

Calypogeia fissa (L.) Raddi terricolous. Chania : 12a, 17b, 31a. 3000m.

LOPHOZIACEAE

Anastrophyllum auritum (Spruce) Steph. terricolous, rupicolous, epiphytic. Kinangop : 315, 328a, 337a, 353e, 361a, 376. 3200-3300m.

**Chandonanthus hirtellus* (Weber) Mitt. Chania (epiphytic) : 2. 3000m. Kinangop (terricolous, epiphytic) : 306a, 311a, 328c, 354. 3150-3350m.

SCAPANIACEAE

**Diplophyllum africanum* S. Arn. rupicolous. Sattima : 169g. 3900m.

PLAGIOCHILACEAE

Plagiochila barteri Mitt. epiphytic. Kinangop : 293a, 295. 3000m.

Plagiochila barteri Mitt. ssp. *colorans* (Steph.) Pócs terricolous. Kinangop : 353b. 3400m.

Plagiochila lastii Mitt. Kinangop (epiphytic) : 266. 2700m. Chania (terricolous) : 33a. 3000m.

Plagiochila squamulosa Mitt. var. *crispulocaudata* Gott. Kinangop (epiphytic) : 263a. 2700m. Ark (epiphytic) : 163e, 165b. 2220m. Rhino (lignicolous) : 221b. 2800m. Wandara (lignicolous) : 113a. 2600m. Treetops (epiphytic) : 125a. 1925m.

Plagiochila squamulosa Mitt. var. *squamulosa* epiphytic. Chania : 92b. 3000m. Kinangop (lignicolous) : 289a. 2550m.

Plagiochila squamulosa Mitt. var. *sinuosa* (Mitt.) Vanden Berghen Treetops (epiphytic) : 118, 130a. 1925m.

CEPHALOZIELLACEAE

Cephalozia sp. epiphytic. Chania : 19b. 3000m.

RADULACEAE

Radula voluta Tayl. ex Gott. rupicolous. Chania : 24a. 3000m.

**Radula appressa* Mitt. terricolous. Chania : 12b. 3000m.

**Radula recurvifolia* Steph. epiphytic, rupicolous. Chania : 6b, 13a, 45a, 62c. 3000m. Kinangop : 273. 2800m.

Radula stipatiflora Steph. epiphytic. Chania : 61c. 3000m.

PORELLACEAE

Porella abyssinica (Nees) Trev. var. *hoehnelii* (Steph.) Pócs rupicolous, lignicolous. Chania : 3, 27, 59a. 3000m.

FRULLANIACEAE

Frullania apicalis Mitt. epiphytic. Kinangop : 322, 333a, 371. 3150-3200m.

Frullania arecae (Spreng.) Gott. epiphytic. Chania : 6a, 19, 60b, 62b, 402a, 406, 409b. 2950-3000m. Wandara : 98a. 3000m.

Frullania caffraria Steph. epiphytic. Wandara : 76a, 93, 95b. 3000m. Rhino : 239b, 243b. 2700m. Ark : 158, 160b. 2220m. Treetops : 142. 1900m.

Frullania obscurifolia Mitt. epiphytic. Rhino : 234. 2650m. Treetops : 136b. 1925m.

Frullania schimperii Nees epiphytic. Chania : 60a, 62a, 409a. 2950-3000m. Wandara : 86, 94b, 96b. 3000m. Kinangop : 336a, 373b, 384. 3150-3300m. Ark : 153. 2220m.

LEJEUNEACEAE

**Lejeunea eckloniana* Lindenb. rupicolous. Chania : 24b. 3000m.

Lejeunea caespitosa Lindenb. epiphytic. Wandara : 107b. 2600m.

Lejeunea flava (Sw.) Nees rupicolous. Chania : 13b. 3000m.

Cheilolejeunea pluriplicata (Pears.) Schust. epiphytic. Chania : 37a, 63. 3000m.

Drepanolejeunea vesiculosa (Mitt.) Steph. epiphytic. Chania : 37b. 3000m.

Taxilejeunea conformis (Mont.) Steph. epiphytic. Wandare : 107a. 2600m.

Taxilejeunea heterofolia Steph. lignicolous. Chania : 36b. 3000m.

DILAENACEAE

Jensenia spinosa (Lindenb. & Gott.) Grolle terricolous. Chania : 67a. 3000m.

Symphogyna podophylla (Thunb.) Nees & Mont. terricolous. Chania : 65. 3000m. Sattima : 166a. 3900m. Kinangop : 271a. 2850m.

ALLISONIACEAE

**Calycularia crispula* Mitt. terricolous. Wandara : 74. 3000m.

METZGERIACEAE

Metzgeria agnewii Kuw. epiphytic. Wandare : 106b. 2600m. Ark : 163f. 2220m. Treetops : 136a. 1925m.

Metzgeria consanguinea Schiffn. Mutubio (epiphytic) : 414a, 415a, 419a, 428a. 2800-2850m. Wandare (lignicolous) : 111, 121c. 2600m.

Metzgeria muscicola Steph. Chania (terricolous) : 55, 67b. 3000m. Sattima (terricolous, rupicolous) : 169a, 170a. 3900m.

LUNULARIACEAE

**Lunularia cruciata* (L.) Dum. Chania (terricolous, rupicolous) : 11, 16, 53. 3000m. Mutubio (terricolous) : 424a. 2800m.

MARCHANTIACEAE

**Asterella linearis* (Steph.) Howe terricolous. Chania : 17a, 28a, 30, 31d. 3000m. Kinangop (rupicolous) : 277a. 2850m.

Dumortierahirsuta (Sw.) Nees rupicolous. Chania : 23a, 66a. 3000m.

ANTHOCEROPSIDA

ANTHOCEROTAE

Phaeroceros sp. terricolous. Chania : 10. 3000m.

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