

LEPTODONTACEAE

(Brian J. O'Shea)

Plants medium sized, forming mats, dull, green to yellowish-green. **Primary stems** creeping, radiculose beneath; leaves scale-like; rhizoids reddish-brown. **Secondary stems** creeping, pendulous or ascending, stipitate or not, pinnately branched, when dry becoming circinate or curving inwards, distal branches bearing slender microphyllous branches from leaf axils or not; in cross-section outer 3-8 rows of cells small, thick-walled, deeply rusty-red, inner cells larger, thin-walled, pale yellow, central strand absent. **Secondary stem leaves** erect, ovate, apex rounded to apiculate; margins plane to partially recurved, entire to distally weakly denticulate; costa single, 1/2--3/4 lamina length, occasionally forked; median cells oval or elliptic, smooth to indistinctly papillose by projecting cell angles; alar cells usually well developed, quadrate to subquadrate or rounded, oblate; branch leaves similar, smaller, microphyllous branches present or absent. **Dioicous**. **Perichaetia** lateral, leaves lanceolate. **Seta** short to elongate. **Capsule** immersed to exserted, ovoid. **Peristome** double or single, exostome teeth 16, smooth to granulose; endostome present or reduced. **Calyptra** cucullate. **Spores** smooth to finely papillose.

DISCUSSION. The Leptodontaceae contain 4 genera and 8 species rather widely distributed in temperate and tropical forested regions; in Africa there are 3 genera and 5 species. The family is placed in the order Leucodontales. From the resurrection of this family by Buck (1980), its circumscription has been under debate, but a conservative approach is taken here, with the family restricted to three closely related genera. *Forsstroemia*, often treated in this family, is here included within a heterogeneous Leucodontaceae. Enroth (1992) discusses several genera in relation to the scope of the family. Magill & van Rooy (1998) suggest that the family should be viewed as an intermediate between Leucodontaceae/Cryphaeaceae and Neckeraceae.

LITERATURE. **Buck, W. R. 1980.** Animadversions on *Pterigynandrum* with special commentary on *Forsstroemia* and *Leptopterigynandrum*. *Bryologist* 83: 451-565. **Enroth, J. 1992.** Corrections to *Cryptolepton*, *Forsstroemia* and *Lepton* (Leptodontaceae, Musci). *Journal of the Hattori Botanical Laboratory* 71: 75-82. **Magill, R.E. & van Rooy, J. 1998.** - see general; refs.

1. Stem with numerous paraphyllia, no pseudoparaphyllia, whole plant usually inrolled when dry *Lepton*
1. Stems with few or no paraphyllia, pseudoparaphyllia present, branches unaffected or circinate only when dry 2
2. End of stems and branches naked due to caducous leaves *Caduciella*
2. Leaves not caducous *Cryptolepton*

Caduciella Enroth (Fig. XX)

A genus of two species, of which *Caduciella mariei* (Besch.) Enroth occurs in Africa, in the Comores and Tanzania. The genus is known also from India, Indochina, Malaysia, Indonesia, Papua New Guinea, Australia and China.

Plants small to medium-sized, erect, complanately branched, yellow to dirty green, dull. **Primary stems** creeping, bearing small leaves and tufts of smooth, reddish rhizoids. **Secondary stems** to about 2.5 cm long, erect, distal parts often naked due to caducous leaves, fairly regularly pinnately branched; cross-section oval, with small, very thick-walled epidermal cells, and several rows of thick-walled cortical cells, the cells gradually getting larger and thinner-walled towards the centre, with no central strand. **Branches** usually patent, sometimes branched again, distal parts mostly naked due to caducous leaves; axillary hairs 4- or 5-celled, one or two basal cells short and pigmented; branch primordia covered with embryonic leaves; pseudoparaphyllia numerous, foliose (occasionally filiform), deltoid-

lanceolate or lanceolate, to ca. 130 μm long. **Primary stem leaves** usually poorly differentiated. **Secondary stem leaves** 1.0--1.2(--1.3) mm long, imbricate, patent-spreading and fairly complanate, occasionally concave, when dry often with one or two gentle lunate undulations, somewhat asymmetric; broadly oblong or broadly lingulate from a narrowly decurrent, ovate base with the basiscopic side inflexed, apex rounded or broadly obtuse, sometimes truncate. **Branch leaves** similar to stem leaves but smaller; leaf margins plane, mostly entire throughout but sometimes weakly crenate at apex; costa simple, fairly strong, often somewhat sinuous and forked above and/or with a few short lateral spurs; leaf cells incrassate, in interrupted rows running parallel to the leaf margins, upon wetting becoming slightly bulging throughout, at apex and mid-leaf rounded or sub-angular and ca. 6--10 μm in diameter or oval and to 12 μm long, median and basal marginal cells in a few rows mostly ca. 6 μm in diameter, basal laminal and juxtacostal cells rectangular to irregularly angular or oblong to nearly linear, to ca. 35 μm long and with porose walls especially near insertion, alar cells indistinct. **Gametoecia and sporophytes** unknown.

HABITAT. An epiphyte of tropical lowland to sub-montane forests, 400--950 m.

DISCUSSION. Although the original collection was by Marie from M'Sapéré and Magi M'Bini, Mayotte (Maore) in the Comoros, it has not been reported from there since the original collections, and otherwise is known in Africa only from the Amani Forest Reserve, East Usambara Mountains, Tanzania. The most distinctive feature of the plant is the naked branches that project from the leafy parts of the plant (in older plants very few leaves may be left), but also its comparatively small size, complanate, pinnate branching and rounded to truncate leaves.

LITERATURE. **Enroth, J. 1991.** Notes on the Neckeraceae (Musci). 10. The taxonomic relationships of *Pinnatella mariei*, with the description of *Caduciella* (Leptodontaceae). *Journal of Bryology* 16: 611-618. [description, illustration]

Cryptoleptodon Renauld & Cardot (Fig. XX)

A genus of three species, two of which occur in Africa: *Cryptoleptodon pluvinii* (Brid.) Broth.) occurs in Ethiopia (also, more frequently, in Nepal, Bhutan and NE India), and *C. longisetus* (Mont.) Enroth is a narrow endemic occurring only in the Canary and Cape Verde islands. The third species occurs only in Pakistan and Kashmir.

Plants in loose, dull, dark-green mats, or as creeping stems, shoots circinate when dry.

Primary stems creeping. **Secondary stems** procumbent to pendulous, flexuose, irregularly pinnately to bipinnately branched; paraphyllia sparse, solitary or in small groups on stems and branches, uniseriate; pseudoparaphyllia sparse, uni- or biseriate. **Stem leaves** regular, ovate, bluntly apiculate or rounded; nerve strong. **Branch leaves** ovate, strongly asymmetric, often recurved on narrower side, narrowed and hollow at base, bluntly apiculate to rounded, when dry transversely undulate; nerve off-centre, about 4 cells wide at base, narrower above, 1/3 to 2/3 or more of leaf length; cells thick-walled, irregular, longer than wide at base and upwards a little way near the nerve, shorter, quadrate-rounded towards margin and apex, smooth or slightly papillose (especially on dorsal surface), alar cells not usually distinct, small; upper leaf margin smooth to slightly denticulate or papillose. **Dioicous.** **Seta** very short to long, **Capsule** immersed to exserted. **Peristome** double, exostome teeth 16, trabeculate on inner surface; endostome and membrane above the middle teeth long, composed of 16 irregular, fugacious processes split into two. **Calyptra** cucullate, hairy.

HABITAT. Relatively dry habitats, epiphytic, 400--1200 m.

DISCUSSION. This genus was created by Renauld & Cardot (1900) to accommodate *Leptodon flexuosus* (Harv.) A.Jaeger, which they believed was impossible to maintain in *Leptodon* because of its immersed capsule and the presence of an inner peristome; this taxon is now a synonym of *Cryptoleptodon pluvinii* (Enroth 1992). Similar in overall appearance to *Caduciella*, but larger, without the caducous shoots, and possessing paraphyllia; rather like a small, non-complanate *Neckera*. Capsules are often present, so the two species in Africa can

distinguished by the immersed capsules of *C. pluvinii* and the exserted capsules of *C. longisetus*.

LITERATURE. **Enroth, J. 1992.** - see family ref. [synonymy, discussion]. **Renauld, F. & Cardot, J. 1900.** Musci exotici novi vel minus cogniti, IX. Bulletin de la Société Royale de Botanique de Belgique 38: 7-48. **Tongiorgi, E. 1939.** Neckeraceae dell'Africa orientale Italiana dalle collezioni del R. Erbario Coloniale di Firenze. Nuovo Giornale Botanico Italiano n.s. 46: 177-196. [description (in Latin and Italian), illustration (as *C. flexuosus*)].

Leptodon Mohr.(Fig. XX)

A genus of two species, both of which occur in Africa. *Leptodon fuciformis* (Brid.) Enroth is a narrow endemic (Madagascar, Mauritius and Réunion), whilst *L. smithii* (Hedw.) F.Weber & D.Mohr is widespread in Eastern and Southern Africa, as well as in Europe, the Mediterranean area, southern South America, Australia and New Zealand. Pócs (1960) discusses the factors influencing the distribution of *L. smithii*.

Plants medium sized, in loose tufts, dark green to yellow green, often forming large mats. **Primary stems** rhizome-like, creeping. **Secondary stems** creeping to ascending, to ca. 2.5 cm long, regularly pinnate or bipinnate, branched in one plane, strongly curved and folded in when dry; small-leaved innovations often present; in section with 3-5 rows of thick-walled outer cells; axillary hairs numerous; paraphyllia numerous, branched, not foliose; pseudoparaphyllia foliose. **Leaves** regularly spaced, spreading when wet, crisped when dry; ovate to elliptical or shortly lingulate, obtuse to acute, rounded and narrowed at insertion; margins plane, entire; stem leaves longer than the branch leaves, to 2 mm long; costa single, slender, extending to mid-leaf or as far as the apex; cells ovoid to rounded hexagonal, smooth, slightly thickened, alar cells quadrate, laminal cells quadrate to rectangular, upper more heterogeneous in shape, to 40 µm long. **Dioicous.** **Perichaetial leaves** longer, acuminate, outer squarrose, inner erect. **Seta** straight or curved, very short. **Capsule** immersed to exserted, ellipsoid. **Peristome** double, inner peristome rudimentary. **Calyptra** cucullate, hairy. **Spores** ca. 16 µm.

HABITAT. Saxicolous or more commonly corticolous, in woodlands and forests, to 3000 m.

DISCUSSION. There is no other moss genus with same characteristic inrolling of the stems and branches when dry, and the extremely rapid response to wetting, revealing the regularly pinnate structure (particularly in *L. smithii*) and the ovate, blunt leaves; it should be noted that there are lax forms of *L. smithii* which are much less inrolled. The numerous paraphyllia on the stem also separate *Leptodon* from other mosses of similar habitats, such as *Forsstroemia* and *Pterogonium*. *Leptodon fuciformis* can be distinguished from *L. smithii* by the leaf apices being narrower, the upper leaf cells rhomboid or oval and mostly longer than wide, the lower cells longer than in *L. smithii*, the mode of branching of the upper part irregular and remote, and the whole plant less strongly inrolled when dry (Enroth 1992). It is also the only *Leptodon* known from the East African islands, where it is endemic.

LITERATURE. **Enroth, J. 1992.** - see family ref. [synonymy, discussion, illustration]. **Magill, R.E. 1998.** - see general ref. [description, illustration]. **Pócs, T. 1960.** Die verbreitung von *Leptodon smithii* (Dicks.) Mohr und die Verhältnisse seines Vorkommens. Annales historico-naturales musei nationalis Hungarici 52: 169-176.