

oblong thin-walled cell, apex entire, terminating in an oblong thin-walled cell, to 3 mm long, to 0.4 mm wide. *Venation* obscure, flabellate, cordate to cordate-imbricate, margins regularly set with short and long filiform outgrowths terminating in an enlarged obovate thin-walled cell, usually with a few glandular cells near the point of attachment, apex terminates in an enlarged obovate thin-walled cell, to 13 mm long, to 1.5 mm wide. *Fronde*s crowded, caespitose, suberect to arching, to 740 mm long; *stipe* firm, castaneous, adaxially sulcate, to 200 mm long, to 4 mm in diameter, initially closely scaled, scales chartaceous, dark brown, clathrate, sessile, linear to filiform, cordate to cordate-imbricate, margins regularly set with short and long filiform outgrowths terminating in an enlarged obovate thin-walled cell, to 5 mm long, to 0.2 mm wide; *lamina* anadromous, 1-pinnate, elliptic, to 530 mm long, to 280 mm wide, with up to 14 petiolated pinna pairs; *rachis* firm, adaxially sulcate, green, brown abaxially, sparsely set with scales similar to those on the stipe; *pinnae* petiolate, petiole to 2 mm long, opposite to alternate, basally more widely spaced than apically, the 2–3 basal pairs generally gradually reduced, firmly herbaceous, inequilaterally oblong-cuneate to narrowly lanceolate, acroscopically truncate to broadly cuneate, basiscopically narrowly cuneate, dentate, to 150 mm long, to 25 mm wide, adaxially glabrous, abaxially with scattered scales along the costa and veins, scales chartaceous, castaneous, sessile, filiform, with short filiform outgrowths and enlarged thin-walled cells at the point of attachment, apex terminates in an enlarged oblong thin-walled cell, to 1.5 mm long, to 0.4 mm wide; *costa* adaxially raised, convex. *Venation* evident, pinnately branched, branches forked, ending in the teeth near the margin. *Sori* linear, extending along the vein, to 5.5 mm long; *indusium* firmly herbaceous, stramineous, linear, entire, attached along the entire length, to 5.5 mm long, to 0.3 mm wide; *sporangium* long-stalked, simple, uniseriate, 3-seriate below the capsule, capsule globose in lateral view, with (20–)21(–24) indurated annulus cells, epistomium 2(–3)-celled, hypostomium (4–)6(–7)-celled. *Spores* 32 per sporangium, brown, broadly elliptic to subcircular, monolete, with low reticulate ridges and wings, (48–)53.7(–60) x (42–)47.6(–56) μm . *Chromosome number*: $2n = 288$, octoploid. Figure 47 D.

Vernacular names: Giant spleenwort; Groot tralievaring (Afr.).

Ecology: Terrestrial or epilithic, at boulder bases in submontane grassveld and in rock crevices in boulder forests. Not edaphically bound, but in Swaziland the species is confined to granite. Hemicryptophyte, mesoxerophyte; fronds mesoxeromorphic, somewhat poikilohydrous. Vegetative reproduction by rhizome branching resulting in the formation of small clonal stands. Seasonal pattern apparently pronounced with new growth restricted to the wetter summer months. Fronds often wilted and the plants may become dormant during prolonged periods of drought, pyrophytic.

Distribution: Rare in Swaziland and currently known from the Sibebe and Mdzimba mountains only, occurring at altitudes ranging between 1 270 and 1 520 m. The species is restricted to Lesotho, the eastern parts of South Africa and Swaziland.

Asplenium anisophyllum Kunze in *Linnaea* 10: 511 (1836), Sim, *Ferns S. Afr.*: 142, pl. LXX (1892); Sim, *Ferns S. Afr.*, 2nd edn: 162, pl. 53 (1915); Jacobsen, *Ferns Sthn. Afr.* 337, fig. 247, map 113 (1983); Schelpe & Anthony, *Fl. S. Afr., Pterid.*: 175, fig. 56, t. 2, map 150 (1986); Burrows, *Sthn. Afr. Ferns*: 214, ill. 49, t. 215, pl. 35.2 (1990); Roux, *SABONET Rep.* 13: 162 (2001). Type: *Inter catarractum magnum et Omsamcaba, in valle rupestri umbrosa ad rivulum, 200 m, Drège s.n.* [B!, lecto., designated by Roux (1986); K!, isolecto.].

aniso (Greek) = unequal or uneven; *phyllum* = leaf

Plants terrestrial or epilithic. *Rhizome* short, erect, to 30 mm long, to 10 mm in diameter, set with roots, crowded persistent stipe bases and scales, scales chartaceous, dull brown, clathrate, sessile,

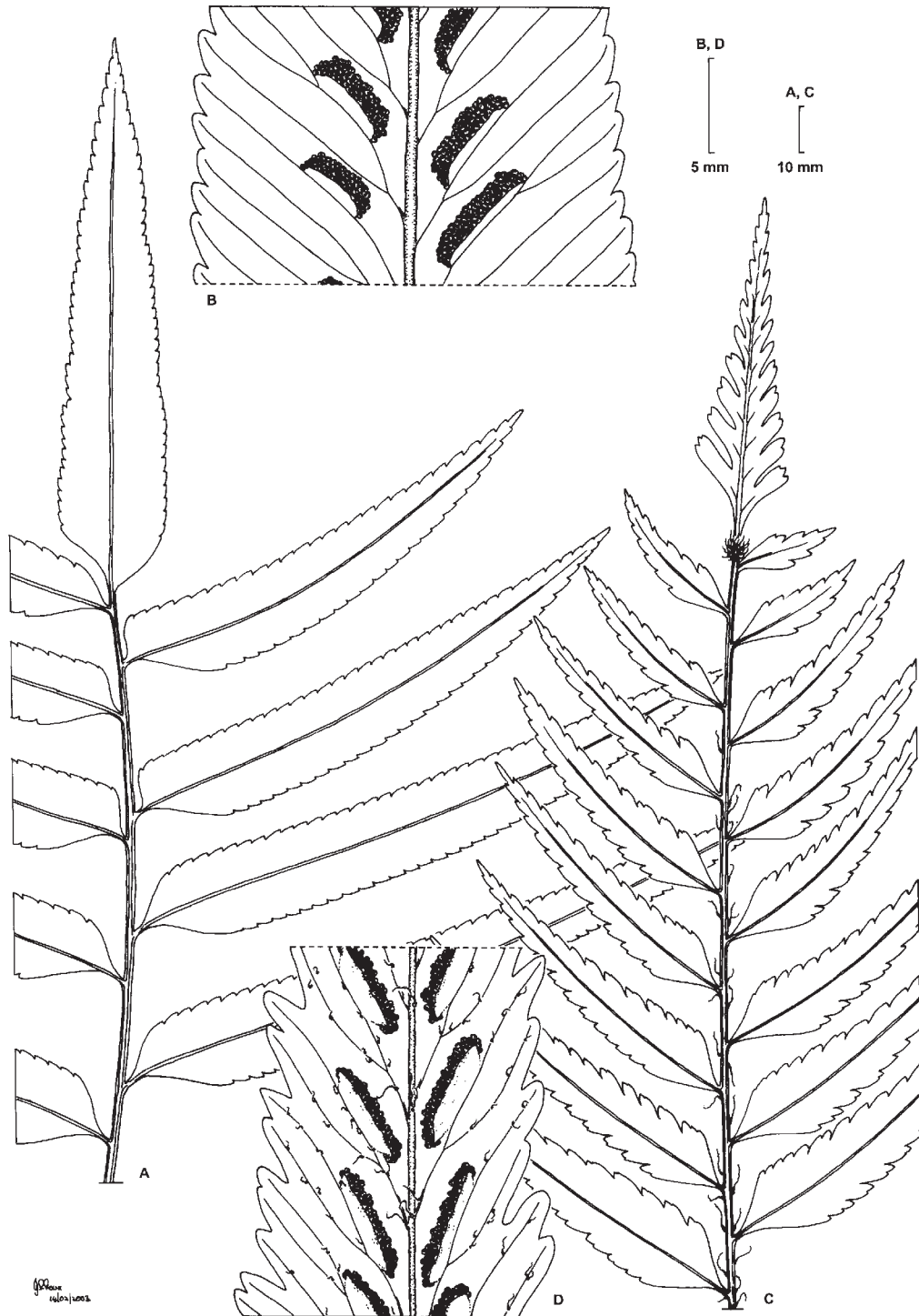


Figure 48 A & B, *Asplenium anisophyllum*, A, lamina apex, B, fertile pinna section; C & D, *A. boltonii*, C, lamina apex, D, fertile pinna section.

oblong-cuneate, cordate to cordate-imbricate, margins regularly set with short and long filiform outgrowths terminating in an enlarged obovate thin-walled cell, usually with a few glandular cells near the point of attachment, apex terminates in an enlarged obovate thin-walled cell, to 13 mm long, to 1.5 mm wide. *Fronde*s crowded, caespitose, suberect to arching, to 740 mm long; *stipe* firm, castaneous, adaxially sulcate, to 200 mm long, to 4 mm in diameter, initially closely scaled, scales chartaceous, dark brown, clathrate, sessile, linear to filiform, cordate to cordate-imbricate, margins regularly set with short and long filiform outgrowths terminating in an enlarged obovate thin-walled cell, to 5 mm long, to 0.2 mm wide; *lamina* anadromous, 1-pinnate, elliptic, to 530 mm long, to 280 mm wide, with up to 14 petiolated pinna pairs; *rachis* firm, adaxially sulcate, green, brown abaxially, sparsely set with scales similar to those on the stipe; *pinnae* petiolate, petiole to 2 mm long, opposite to alternate, basally more widely spaced than apically, the 2 or 3 basal pairs generally gradually reduced, firmly herbaceous, inequilaterally oblong-cuneate to narrowly lanceolate, acroscopically truncate to broadly cuneate, basiscopically narrowly cuneate, dentate, to 150 mm long, to 25 mm wide, adaxially glabrous, abaxially with scattered scales along the costa and veins, scales chartaceous, castaneous, sessile, filiform, with short filiform outgrowths and enlarged thin-walled cells at the point of attachment, apex terminates in an enlarged oblong thin-walled cell, to 1.5 mm long, to 0.4 mm wide; *costa* adaxially raised, convex. *Venation* evident, pinnately branched, branches forked, ending in the teeth near the margin. *Sori* linear, inframedial, extending along a vein, to 4 mm long; *indusium* firmly herbaceous, stramineous, linear, entire, attached along the entire length, to 4 mm long, to 0.3 m wide; *sporangium* long-stalked, uniseriate, 3-seriate below the capsule, capsule globose to broadly elliptic in lateral view, annulus with (16–)18(–19) indurated annulus cells, epistomium (2–)3-celled, hypostomium (3–)4-celled. *Spores* 64 per sporangium, brown, broadly elliptic, monolete, perispore forms broad reticulate wings, exospore (34–)35.5(–38) x (24–)26.8(–30) μm . Figure 48 A & B.



Vernacular names: Giant spleenwort; Groot tralievaring (Afr.).

Ecology: Terrestrial or epilithic, in moist evergreen forests, usually on rocks in or near perennial streams. Not edaphically bound, but in Swaziland the species is confined to the greenstone belt. Nanophanerophyte, mesophyte; fronds mesomorphic. Vegetative reproduction sporadic and then through the closely branched rhizome. Seasonal pattern apparently non-existent, no dormant period.

Distribution: Rare in Swaziland and currently known from the north-western corner of Swaziland only, occurring at an altitude ranging between 1 260 and 1 520 m. Widespread in east and south tropical Africa, the eastern parts of southern Africa, and the western Indian Ocean region.

Asplenium boltonii Hook. ex Brause & Hieron., In J. Mildbraed, Wiss. Erg. deut. Zentr.-Afr. Exped., Bot. 2: 8 (1910); Jacobsen, Ferns Sthn. Afr.: 334, fig. 243, map. 110 (1983); Schelpe & Anthony, Fl. S. Afr., Pterid.: 177, fig. 56, t. 1, map 152 (1986); Burrows, Sthn. Afr. Ferns: 216, ill. 53, t. 216, pl. 35.3, map (1990); Roux, SABONET Rep. 13: 163, figs. 16M, N & 17B (2001). Type: Natal, *Bolton s.n.* (K, holo.; BM, iso.).

boltonii = in honour of Daniel Bolton (?–1860), British soldier and naturalist.

Plants terrestrial, epilithic or epiphytic. *Rhizome* short, erect to suberect, to 20 mm long, to 5 mm in diameter, set with roots, crowded persistent stipe bases and scales, scales chartaceous to thinly chartaceous, ferruginous to castaneous, clathrate, adnate, lanceolate, cordate, margins regularly set with short and long filiform outgrowths terminating in an enlarged obovate thin-walled cell, apex terminates in an enlarged thin-walled cell, to 16 mm long, to 3 mm wide. *Fronde*s crowded, caespitose, arching, to 820 mm long; *stipe* atrocastaneous, matt, adaxially sulcate, to 170 mm long, to 3 mm in diameter, initially densely scaled, scales chartaceous, castaneous, sessile, linear to filiform, cordate to cordate-imbricate, larger scale margins regularly set with short and long filiform outgrowths terminating in an enlarged thin-walled cell, filiform scales with gland-like cells and short outgrowths terminating in an enlarged thin-walled cell at the base, apex terminates in an enlarged thin-walled cell, to 10 mm long, to 1 mm wide; *lamina* anadromous, 1-pinnate, lanceolate, to 650 mm long, to 190 mm wide, with up to 21 petiolated pinna pairs, with a proliferous bud adaxially on the rachis near the apex; *rachis* firm, atrocastaneous, adaxially sulcate, moderately set with filiform scales similar to those on the stipe; *pinnae* petiolate, petiole to 2 mm long, opposite to alternate, basally more widely spaced than apically, the 2–3 basal pairs generally gradually reduced, firmly herbaceous, inequilaterally lanceolate, often somewhat falcate, acroscopically truncate to broadly cuneate, basiscopically narrowly to broadly cuneate, dentate, usually with alternating shallower and deeper incisions, to 120 mm long, to 20 mm wide, adaxially sparsely set with filiform scales along the costa similar to those on the stipe, abaxially sparsely set with filiform scales along the costa and veins similar to those on the stipe, to 2.5 mm long; *costa* adaxially raised, convex. *Venation* anadromous, evident, pinnately branched, branches forked, ending in the teeth near the margin. *Sori* linear, inframedial, at or above a vein fork, to 8 mm long; *indusium* chartaceous, stramineous, linear, entire, to 8 mm long, 1.4 mm wide; *sporangium* long-stalked, uniseriate, 3-seriate below the capsule, capsule globose in lateral view, annulus (17–)19(–20)-celled, epistomium 2-celled, hypostomium 4-celled. *Spores* 64 per sporangium, brown, elliptic, monolete, perispore forms broad reticulate wings, exospore (40–)46.3(–50) x (30–)31.8(–34) μm . Figure 48 C & D.



Vernacular names: Bolton's mother fern; Bolton-se-tralievaring (Afr.).

Ecology: Epilithic, on rocks in or near perennial streams in moist evergreen forests, deeply shaded. Not edaphically bound, but in Swaziland the species is restricted to the greenstone belt. Nanophanerophyte, mesophyte; fronds mesomorphic. Vegetative reproduction primarily by the formation of plantlets on the rachis near the lamina apex. Seasonal pattern apparently non-existent, no dormant period.

Distribution: Rare in Swaziland and currently known from the north-western corner of the country only, occurring at an altitude of \pm 1 670 m. Widespread in east tropical Africa and the eastern parts of south tropical and southern Africa, as well as the western Indian Ocean region.

Asplenium erectum Bory ex Willd., Sp. pl., 4th edn, 5: 328 (1810); Sim, Ferns S. Afr.: 136, pl. LXV (1892); Jacobsen, Ferns Sthn. Afr.: 345, figs. 255a–c, map 119 (1986); Schelpe & Anthony, Fl. S. Afr., Pterid.: 190, fig. 60. t. 1, map 163, 164 (1986); Burrows, Sthn. Afr. Ferns: 223, ill. 51, t. 225, map (1990); Roux, SABONET Rep. 13: 164, fig. 17G (2001). *Asplenium lunulatum* Sw. var. *erectum* (Bory ex Willd.) Sim, Ferns S. Afr., 2nd edn: 145, pl. 48 (1915). Type: Habitat in truncis arborum

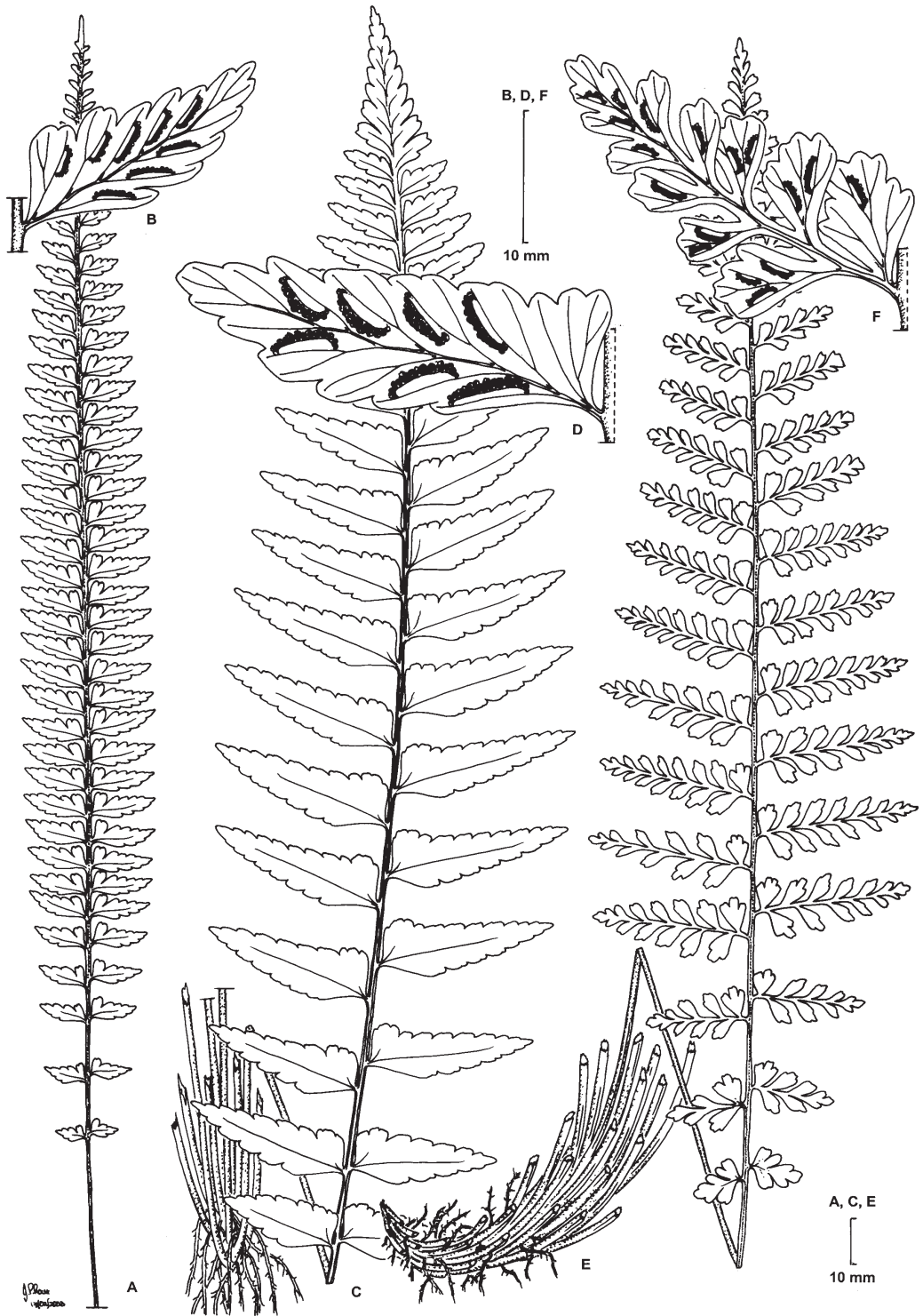


Figure 49 A & B, *Asplenium erectum*, A, lamina, B, fertile pinna; C & D, *A. inaequilaterale*, C, habit, D, fertile pinna; E & F, *A. lobatum*, E, habit, F, fertile pinna.

vetustarum insulae Borboniae, *Bory de St. Vincent s.n.* [B-W 19906, lecto., designated by Schelpe & Anthony (1986)].

Asplenium sphenolobium (Kunze) Hieron. var. *usambarense* Hieron., In J. Mildbraed, Wiss. Erg. deut. Zentr.-Afr. Exped., Bot. 2: 14 (1910). *Asplenium usambarense* (Hieron.) Hieron. in Hedwigia 60: 227 (1918), *nom. illeg.* *Asplenium erectum* Bory ex Willd. var. *usambarense* (Hieron.) Schelpe in Bol. Soc. Brot., sér. 2: 41: 207 (1967); Jacobsen, Ferns Sthn. Afr.: 347 (1983); Schelpe & Anthony, Fl. S. Afr., Pterid.: 190 (1986); Burrows, Sthn. Afr. Ferns: 224, ill. 51, t. 225b, c, pl. 36.6, map (1990). Type: Uganda, Butagu Valley, *Mildbraed 2713* (B, holo.).

Asplenium mutilatum Kaulf., Enum. filic.: 171, 172 (1824). Type: Habitat in Promontorio bonae spei, *sine coll. s.n.* (not located).

Asplenium zeyheri Pappe & Rawson, Syn. fil. Afr. austr.: 18 (1858); Jacobsen, Ferns Sthn. Afr.: 348, fig. 257, map 121 (1983). *Asplenium erectum* Bory ex Willd. var. *zeyheri* (Pappe & Rawson) T. Moore, Index fil.: 127 (1859); Sim, Ferns S. Afr.: 139, pl. LXVII (1892); Sim, Ferns S. Afr., 2nd edn: 145, pl. 49c (1915). Type: Cape Province, Uitenhage, *Rubidge s.n.* (?BM, syn.); Near Philipstown, Kat River, *Ecklon & Zeyher s.n.* (?BM, syn.).

erectum = erect or upright

Plants terrestrial or epilithic. *Rhizome* erect to suberect, to 35 mm long, to 3 mm in diameter, set with roots, crowded persistent stipe bases and scales, scales chartaceous to crustaceous, castaneous, clathrate, sessile, lanceolate, cordate to cordate-imbricate, with scattered filiform outgrowths along the margin of which the apex terminates in an elliptic thin-walled cell, apex terminates in an oblong thin-walled cell, to 8 mm long, to 1 mm wide. *Fronde*s crowded, caespitose, erect to arching, to 510 mm long; *stipe* firm, castaneous, matt, terete, to 120 mm long, to 1.8 mm in diameter, narrowly green-winged in the upper half, initially moderately set with ferruginous glandular cells and filiform clathrate scales of which the apex terminates in an enlarged gland-like cell, to 3 mm long, glabrous later; *lamina* 1-pinnate, narrowly elliptic to oblong-cuneate, to 390 mm long, to 60 mm wide, with up to 36 stalked pinna pairs; *rachis*



firm, castaneous, terete, narrowly green-winged, initially moderately set with scales similar to those on the stipe, glabrous later; *pinnae* sessile, herbaceous, opposite to alternate, basally more widely spaced than apically, pinnae in the lower half to one third of the lamina gradually reduced, inequilaterally lanceolate to ovate, often slightly auricled acroscopically, acroscopically truncate to broadly cuneate, basiscopically narrowly to broadly cuneate, dentate, to 30 mm long, to 14 mm wide, glabrous adaxially and abaxially; *costa* adaxially raised, convex. *Venation* anadromous, evident, pinnately branched, branches forked, ending in the teeth near the margin. *Sori* linear, inframedial, usually below or at a vein fork, to 3.5 mm long; *indusium* chartaceous, stramineous, linear, entire, to 3.5 mm long, to 0.3 mm wide; *sporangium* long-stalked, uniseriate, 3-seriate below the capsule, capsule globose in lateral view, annulus with (17–)19(–21) indurated annulus cells, epistomium 2-celled, hypostomium (3–)4-celled. *Spores* 64 per sporangium, brown, elliptic, monolete, perispore forms broad reticulate wings, exospore (26–)28.8(–38) x (16–)18.5(–24) μm . Figure 49 A & B.

Vernacular names: Erect spleenwort; Regop tralievaring (Afr.).

Ecology: Terrestrial or epilithic, usually in leaf-litter on seasonally moist forest floor and on stream banks, deeply shaded. Not edaphically bound, but in Swaziland the species is restricted to

granitic and weathered gneiss soils. Nanophanerophyte, mesophyte; fronds mesomorphic. Vegetative reproduction by the rarely branched rhizome. Seasonal pattern apparently pronounced with new growth restricted to the wetter summer months, no dormant period.

Distribution: Rare in Swaziland and currently only known from the Mdzimba and Malandzela hills, occurring at an altitude ranging between 1 150 and 1 220 m. The species is widespread in sub-Saharan Africa and the western Indian Ocean region.

Asplenium inequilaterale Willd., Sp. pl., 4th edn, 5: 322 (1810); Jacobsen, Ferns Sthn. Afr.: 347, t. 256, map 120 (1983); Schelpe & Anthony, Fl. S. Afr., Pterid.: 191, fig. 63, t. 1, map 165 (1986); Burrows, Sthn. Afr. Ferns: 222, ill. 50, t. 224, pl. 36.4, map (1990). Type: Habitat in insula Borboniae, *Bory de St. Vincent s.n.* (B, W 19896, holo.).

Asplenium brachyotus Kunze in Linnaea 10: 512 (1836). *Asplenium erectum* Bory ex Willd. var. *brachyotus* (Kunze) Sim, Ferns S. Afr.: 138, LXVI, t. 1 (1892). *Asplenium laetum* Sw. var. *brachyotus* (Kunze) Bonap., Notes ptérid. 16: 60 (1925). Type: Ad catarractum magnam in praeruptis umbrosis inter Omsamcaba, 200 m, *Drège s.n.* [LZ†, B!, lecto., designated by Roux (1986); BM!, K!, isolecto.].

Asplenium laetum sensu Sim, Ferns S. Afr., 2nd edn: 150, pl. 50. t. 1 (1915), non Sw. (1806).

inequilateralis = with unequal sides

Plants epilithic. *Rhizome* short, erect to suberect, to 20 mm long, to 4 mm in diameter, set with roots, crowded persistent stipe bases and scales, scales crustaceous, atrocastaneous to black, clathrate, sessile, subulate to lanceolate, cordate to cordate-imbricate, entire or with scattered, pluricellular recurved outgrowths along the margin, apex terminates in a thin-walled cell, to 5 mm long, to 0.7 mm wide. *Fronde*s crowded, caespitose, erect, to 430 mm long; *stipe* firm, castaneous, matt, terete, to 210 mm long, to 1.6 mm in diameter, narrowly green-winged to the base, base sparsely set with scales similar to those on the rhizome, higher up with filiform clathrate scales terminating in an elliptic thin-walled cell, to 1 mm long, and 3 or 4-celled hairs terminating in an enlarged obovate thin-walled cell, to 0.3 mm long; *lamina* 1-pinnate, narrowly elliptic, to 230 mm long, to 68 mm wide, with up to 17 petiolated pinna pairs; *rachis* firm, castaneous to greenish higher up, shallowly sulcate adaxially, narrowly green-winged, set with filiform scales and hairs similar to those on the stipe, glabrous later; *pinnae* basal pinnae petiolate, petiole to 1.5 mm long, sessile towards the apex, herbaceous, dark to mid-green, opposite to alternate, basally more widely spaced than apically, often slightly overlapping, basal 2–4 pairs often gradually reduced, inequilaterally lanceolate to trapezoid, acroscopically truncate, basiscopically excavate, usually alternately shallowly and deeply dentate, to 38 mm long, to 10 mm wide, glabrous adaxially and abaxially; *costa* adaxially raised, convex. *Venation* anadromous, evident, pinnately branched, branches forked, ending in the teeth near the margin. *Sori* linear, usually at or above a vein fork, to 4 mm long; *indusium* chartaceous, stramineous, transversely narrowly elliptic, entire, to 4 mm long, to 1.2 mm wide; *sporangium* long-stalked, uniseriate, 3-seriate below the capsule, capsule globose in lateral view, annulus with 19(–22) indurated annulus cells, epistomium 2(–3)-celled, hypostomium 4(–5)-celled. *Spores* 64 per sporangium, brown, elliptic, monolete, perispore forms broad reticulate wings, erose, the areas between the wings irregularly echinulate, exospore (30–)32.2(–36) × (20–)22.3(–24) μm. Figure 49 C & D.



Vernacular names: Lolly spleenwort; Wortelknop tralievaring (Afr.).

Ecology: Epilithic and restricted to moist, deeply shaded forests where the plants generally grow on wet or seasonally wet moss-covered rocks in or near perennial steams. Not edaphically bound, but in Swaziland the species is only known from the greenstone belt. Nanophanerophyte, mesophyte; fronds mesomorphic. Vegetative reproduction by the closely branched rhizome and rootbud formation. Seasonal pattern apparently non-existent, no dormant period.

Distribution: Frequent in the north-western corner of Swaziland, occurring at altitudes ranging between 500 and 1 250 m. The species is widespread in sub-Saharan Africa and the western Indian Ocean region.

Asplenium lobatum Pappe & Rawson, Syn. fil. Afr. austr.: 22 (1858); Jacobsen, Ferns Sthn. Afr.: 349, fig. 258, map. 122 (1983); Schelpe & Anthony, Fl. S. Afr., Pterid.: 198, fig. 61, t. 2 (1986); Burrows, Sthn. Afr. Ferns: 240, ill. 56, t. 243c, map (1990); Roux, SABONET Rep. 13: 167 (2001). *Asplenium erectum* Bory ex Willd. var. *lobatum* (Pappe & Rawson) Sim, Ferns S. Afr.: 139, pl. LXVII (1892). Type: In woods in British Kaffraria, *Espinasse s.n.* (BM, syn.); Albany, *Atherstone s.n.* (BM, syn.); In the Tzitzikamma, *Rubidge s.n.* (BM, syn.).

Asplenium gracile Pappe & Rawson, Syn. fil. Afr. austr.: 22 (1858), non D. Don (1825). *Asplenium lunulatum* Sw. var. *gracile* (Pappe & Rawson) Sim, Ferns S. Afr., 2nd edn: 146, pl. 49, t. a, b (1915). *Asplenium erectum* Bory ex Willd. var. *gracile* (Pappe & Rawson) Tardieu, Fl. Madag. 5, 1: 222, t. 30, fig. 4, 5 (1958). Type: In the primaeval forests of Natal, *Gueinzius s.n.* (S, holo.).

Asplenium lobatum Pappe & Rawson var. *pseudoabyssinicum* N.C. Anthony & Schelpe in Contr. Bolus Herb. 10: 149 (1982); Burrows, Sthn. Afr. Ferns: 240, pl. 39.6, map (1990). Type: Mozambique, Manica & Sofala, Gorongosa Mountain, south-west sector, 4 000 ft, 7/07/1955, *Schelpe* 5597 (BOL!, holo.; B, BM, M, MO, P, PR, PRE, iso.).

lobatum = lobed

Plants terrestrial or epilithic. *Rhizome* erect to suberect, to 20 mm long, to 4 mm in diameter, set with roots, crowded stipe bases and scales, scales chartaceous, atrocastaneous, clathrate, sessile, subulate to narrowly lanceolate, cordate, margins irregularly set with short filiform outgrowths, apex terminates in an oblong thin-walled cell, to 5 mm long, to 0.7 mm wide. *Fronds* crowded, caespitose, erect to arching, to 475 mm long; *stipe* firm, castaneous, terete, to 120 mm long, to 1.2 mm in diameter, narrowly green-winged for most of the length, initially moderately set with hairs and scales, subglabrous later, hairs 3–5-celled, clavate, to 0.25 mm long, scales chartaceous, atrocastaneous, clathrate, stalked, subulate to filiform, the larger often with short filiform outgrowths along the margin, apex terminates in an oblong thin-walled cell, to 5 mm long, to 0.7 mm wide; *lamina* anadromous, 2-pinnate, narrowly elliptic, to 360 mm long, to 85 mm wide, with up to 23 petiolated pinna pairs; *rachis* firm, castaneous, green towards the apex, terete, narrowly green-winged, sparsely set with hairs and scales similar to those on the stipe, glabrous later; *pinnae* petiolate, petiole to 1 mm long, opposite to alternate, basally more widely spaced than apically, pinnae in the lower half gradually reduced, ovate to narrowly ovate, to 45 mm long, to 16 mm wide, with up to 5 pinnule pairs; *pinna-rachis* terete, narrowly winged, glabrous; *pinnules* herbaceous, sessile, rhombic to flabellate, coarsely serrate or



divided into 2-fid or 3-fid lobes, lobe apices entire or shallowly repand to erose, to 12 mm long, to 10 mm wide, glabrous adaxially and abaxially. *Venation* anadromous, evident, flabellately forked, ending in the teeth near the margin. *Sori* linear, usually on the terminal vein branches, but often also at a fork, to 3.5 mm long; *indusium* chartaceous, stramineous, linear, entire, to 3.5 mm long, to 0.3 mm wide; *sporangium* long-stalked, uniseriate, 3-seriate below the capsule, capsule globose to broadly elliptic in lateral view, annulus with (17–)19 indurated annulus cells, epistomium 2-celled, hypostomium 4-celled. *Spores* 64 per sporangium, brown, elliptic, monolete, perispore forms broad reticulate wings, exospore (28–)31.3(–34) x (18–)20.1(–22) μm . Figure 49 E & F.

Vernacular names: Lobed spleenwort; Kant tralievaring (Afr.).

Ecology: Terrestrial or epilithic, in leaf-litter on seasonally moist forest floor, deeply shaded. Not edaphically bound, but in Swaziland the species appears to be restricted to granite and granitic soils. Nanophanerophyte, mesophyte; fronds mesomorphic. Vegetative reproduction by the closely branched rhizome. Seasonal pattern apparently pronounced with new growth restricted to the rainy season.

Distribution: Rare in Swaziland and currently known from the Malandzela hills only, occurring at an altitude of $\pm 1\ 220$ m. The species appears to be restricted to the eastern parts of south tropical and southern Africa and the western Indian Ocean region.

Asplenium multiforme Krasser in Ann. K. K. Naturhist. Hofmus. 15: 1 (1900); A.F.Braithw. in J. S. African Bot. 38: 2, fig. 1c–e (1972). Jacobsen, Ferns Sthn. Afr.: 368, fig. 274 (1983); Roux, SABONET Rep. 13: 168 (2001). Type: Griqualand East, Newmarket, 1/02/1895, *Krook s.n. in Penther* 31 (W!, holo.).

multi = many; *forma* = form or shape

Plants terrestrial or epilithic. *Rhizome* short-creeping, sparsely branched, to 35 mm long, to 4 mm in diameter, set with roots, closely spaced persistent stipe bases and scales, scales chartaceous, atrocastaneous, clathrate, sessile, subulate, cordate-imbricate, entire, apex terminates in an oblong thin-walled cell, to 7 mm long, to 1 mm wide. *Fronds* crowded, caespitose, erect to suberect, to 340 mm long; *stipe* firm, atrocastaneous, adaxially sulcate, to 146 mm long, to 1.5 mm in diameter, initially moderately scaled, scales chartaceous, atrocastaneous to ferruginous, clathrate, sessile, subulate to filiform, cordate to cordate-imbricate, with short and long filiform outgrowths at the base, apex entire, terminating in an oblong thin-walled cell, to 9 mm long, to 0.6 mm wide; *lamina* anadromous, to 2-pinnate, oblong-acute, to 195 mm long, to 50 mm wide, with up to 15 pinna pairs; *rachis* firm, proximally castaneous, greenish towards the apex, adaxially sulcate, moderately scaled, scales similar to those on the stipe; *pinnae* petiolate, petiole to 2.5 mm long, opposite to alternate, basally widely spaced, more closely spaced towards the apex and slightly overlapping, firmly herbaceous, rhomboid to trullate, to 30 mm long, to 21 mm wide, usually with a single pinnule pair; *pinna-rachis* sulcate adaxially, sulcus confluent with that of the rachis, moderately set with scales similar to, but smaller than, those on the rachis; *pinnules* narrowly flabellate, rhomboid, or oblong, the larger divided into oblong lobes,



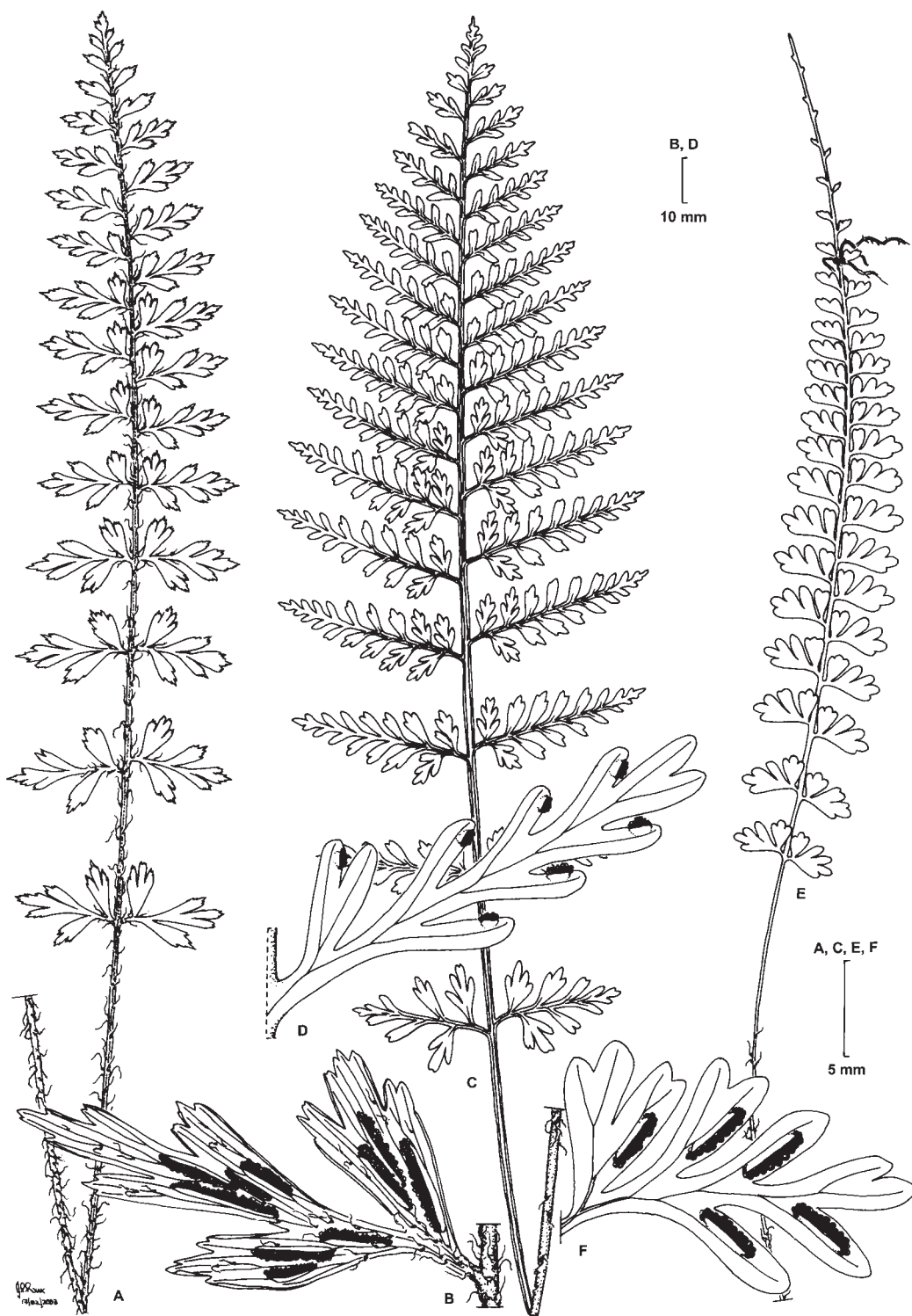


Figure 50 A & B, *Asplenium multifforme*, A, lamina, B, fertile pinna; C & D, *A. rutifolium*, C, lamina, D, fertile pinna; E & F, *A. sandersonii*, E, lamina, F, fertile pinna.

irregularly dentate, to 13 mm long, to 6 mm wide, adaxially sparsely set with filiform clathrate scales, sessile, filiform, with short and long filiform outgrowths at the base, apex entire, to 2.5 mm long. *Venation* obscure, flabellate, terminating in the teeth near the margin. *Sori* linear, to 6 mm long; *indusium* firmly herbaceous, stramineous, linear, entire, to 6 mm long, to 0.3 mm wide; *sporangium* long-stalked, uniseriate, 3-seriate below capsule, capsule broadly elliptic in lateral view, with (17–)19(–20) indurated annulus cells, epistomium 2(–3)-celled, hypostomium 4-celled. *Spores* 64 per sporangium, brown, elliptic, monolete, perispore with low, closely spaced, reticulate ridges, (38–)41.5(–44) x (24–)25.1(–28) μm . *Chromosome number* $2n = 288$, octoploid. Figure 50 A & B.

Vernacular names: Drakensberg spleenwort; Drakensberg tralievaring (Afr.).

Ecology: Terrestrial or epilithic, at boulder bases and in rock crevices in seasonally moist submontane grassveld, exposed or partially shaded, often with *Cheilanthes* and *Pellaea* species. Not edaphically bound, but in Swaziland the species is only known from granitic soils. Hemicryptophyte, mesoxerophyte; fronds mesoxeromorphic, poikilohydrous. Vegetative reproduction by rhizome branching resulting in the formation of small clonal stands. Seasonal pattern pronounced with new growth restricted to the rainy season. Pyrophytic.

Distribution: Rare in Swaziland and currently only known from the Nhlanguano region, occurring at an altitude of $\pm 1\ 300$ m. The species is restricted to the eastern parts of South Africa, Lesotho and Swaziland.

Asplenium rutifolium (P.J.Bergius) Kunze in *Linnaea* 10: 521 (1836); Sim, *Ferns S. Afr.*: 158, pl. LXX, fig. 2 & LXXXIV (1892); Jacobsen, *Ferns Sthn. Afr.*: 374, fig. 281a, b, map 133 (1983); Schelpe & Anthony, *Fl. S. Afr., Pterid.*: 195, fig. 65, t. 1, map 169 (1986); Burrows, *Sthn. Afr. Ferns*: 236, ill. 55, t. 239–239c, pl. 39.2, map (1990); Roux, *SABONET Rep.* 13: 170 (2001). *Caenopteris rutifolium* P.J.Bergius in *Acta Acad. Sci. Imp. Petrop.* 1782, 2: 249, t. 7, fig. 2 (1786). Type: e Cap b. Spei, *Thunberg s.n.* (SBT!, holo.), as '*rutaefolium*'.

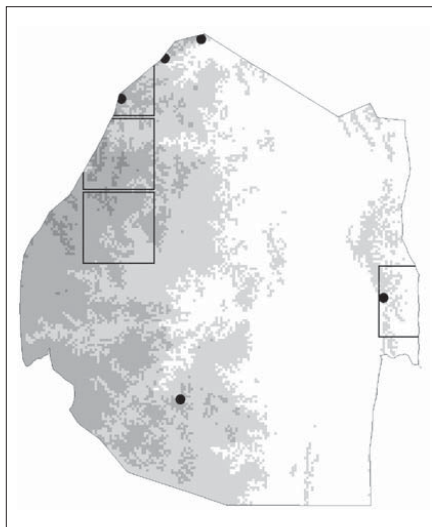
Asplenium bipinnatum (Forssk.) C.Chr., In *J. Mildbraed, Wiss. Erg. deut. Zentr.-Afr. Exped.*, *Bot.* 2:11 (1910); Sim, *Ferns S. Afr.*, 2nd edn: 169, pl. 71, fig. 1 (1915); Burt Davy, *Man pl. Transvaal* 1: 84 (1926). *Lonchitis bipinnata* Forssk., *Fl. aegypt.-arab.*: cxxiv, 184 (1775). *Asplenium rutifolium* (P.J.Bergius) Kunze var. *bipinnatum* (Forssk.) Schelpe in *J. S. African Bot.* 30: 194 (1964). Type: Yemen, inter Bolghose et Mokhaja, 3/1763, *Forsskål* 810 (C!, holo.).

Adiantum achilleifolium Lam., *Encycl.* 1: 43 (1783), as '*achillaeafolium*'. *Asplenium achilleifolium* (Lam.) C.Chr., *Index filic.*: 99 (1905), non Liebm. (1849). Type: Cap de Bonne-Espérance, *sine coll. s.n.* (not located).

ruta = *Ruta* (Rutaceae), a genus of Mediterranean plants; *folium* = leaved

Plants terrestrial, epilithic or epiphytic. *Rhizome* erect to suberect, to 40 mm long, to 5 mm in diameter, set with roots, crowded persistent stipe bases and scales, scales thinly crustaceous, atrocastaneous, matt, clathrate, sessile, lanceolate to subulate, cordate to cordate-imbricate, margins regularly set with short filiform outgrowths, pluricellular, uniseriate, apex terminates in an oblong thin-walled cell, to 19 mm long, to 4.5 mm wide. *Fronde*s crowded, caespitose, suberect to arching, to 570 mm long; *stipe* firm, proximally castaneous to black, green higher up, firm, sulcate, centrally raised, to 200 mm long, to 2.5 mm in diameter, initially sparsely scaled, glabrous later, scales thinly crustaceous, atrocastaneous to black, clathrate, sessile, subulate, cordate to cordate-imbricate, basally with several filiform outgrowths terminating in an enlarged broadly elliptic thin-walled cell, entire towards the apex, apex terminates in an enlarged broadly elliptic thin-walled cell, to 7 mm long, to 1 mm wide; *lamina* anadromous, to 3-pinnate, narrow elliptic, to 400 mm long, to 120 mm wide, with up to 23 pinna pairs; *rachis* firm, green, sulcate, centrally ridged, sparsely scaled, scales similar to, but smaller than, those on the stipe; *pinnae* petiolate,

petiole to 3 mm long, opposite to alternate, basally widely spaced, more closely spaced towards the apex and often slightly overlapping, firmly herbaceous to coriaceous, lanceolate to ovate, to 80 mm long, to 40 mm wide, with up to 10 pinnule pairs; *pinna-rachis* sulcate, centrally ridged, ridge not confluent with that of the rachis, sparsely scaled, scales similar to, but smaller than, those on the rachis, to 1.5 mm long; *pinnules* opposite to alternate, flabellate, rhomboid, elliptic or linear, the larger divided into oblong lobes, lobes entire, to 7 mm long, to 2 mm wide, glabrous adaxially, abaxially sparsely set with scales similar to those on the pinna-rachis. *Venation* anadromous, evident, raised adaxially, pinnately branched, ending in the lobes near the margin. *Sori* linear, 1 per lobe, medial to supramedial, to 2 mm long; *indusium* membranous, linear, entire, extending from the vein almost to the margin, to 2 mm long, to 0.6 mm wide; *sporangium* long-stalked, uniseriate, 3-seriate below capsule, capsule broadly elliptic in lateral view, with (17–)19 indurated annulus cells, epistomium 2(–3)-celled, hypostomium 4-celled. *Spores* 64 per sporangium, brown, elliptic, monolete, perispore folded to form narrow reticulate ridges, erose, areolae between the ridges with a fine reticulate meshwork, (38–)42.6(–48) x (24–)26.9(–30) μm . Figure 50 C & D.



Vernacular names: Carrot fern; Wortelblaar varing (Afr.).

Ecology: Epilithic or epiphytic, rarely terrestrial, in deep shade in moist or seasonally moist evergreen forests. Not edaphically bound, occurring on various rock types within Swaziland. Nanophanerophyte, mesoxerophyte; fronds mesoxeromorphic, poikilohydrous. Vegetative reproduction by the closely branched rhizome. Seasonal pattern pronounced with new growth restricted to the rainy season.

Distribution: Frequent in the western half of Swaziland, occurring at an altitude ranging between 500 and 1 520 m. Widespread in east tropical Africa, the eastern parts of south tropical and southern Africa, and the western Indian Ocean region.

Use: The Zulu use the whole plant as a love charm (Hutchings *et al.* 1996).

Asplenium sandersonii Hook., Sp. fil. 3: 147, t. 179 (1860); Sim, Ferns S. Afr.: 132, pl. LX, fig. 1 (1892); Sim, Ferns S. Afr., 2nd edn: 139, pl. 43, fig. 1 (1915); Jacobsen, Ferns Sthn. Afr.: 371, fig. 278, map 131 (1983); Schelpe & Anthony, Fl. S. Afr., Pterid.: 185, fig. 60, t. 2, map 157 (1986); Burrows, Sthn. Afr. Ferns: 229, ill. 55, t. 231, pl. 38.1, map (1990); Roux, SABONET Rep. 13: 170 (2001). Type: Natal, ravine in Fields Hill, *Sanderson s.n.* (K, holo.).

sandersonii = in honour of John Sanderson (1820–1881), Scottish journalist, tradesman and draughtsman who worked in KwaZulu-Natal.

Plants epilithic or epiphytic. *Rhizome* erect to suberect, to 15 mm long, to 2 mm in diameter, set with roots, crowded persistent stipe bases and scales, scales chartaceous, castaneous to ferruginous, clathrate, sessile, lanceolate, cordate-imbricate, margins basally with a few scattered filiform outgrowths terminating in an enlarged obovate gland-like cell, entire towards the apex, apex terminates in an oblong thin-walled cell, to 5 mm long, to 1.2 mm wide. *Fronde*s crowded, to 9 per plant, caespitose, arching, to 300 mm long; *stipe* firm, green, basally sulcate, centrally raised

apically, to 80 mm long, to 1 mm in diameter, sparsely scaled, scales chartaceous, castaneous to ferrugineous, clathrate, sessile, lanceolate to subulate, cordate to cordate-imbricate, with scattered filiform outgrowths terminating in an enlarged obovate gland-like cell along the margin, apex terminates in an oblong thin-walled cell, to 3 mm long, to 0.3 mm wide; *lamina* anadromous, 1-pinnate, linear-cuneate, to 230 mm long, to 27 mm wide, with up to 24 pinna pairs, proliferous, bud borne at the apex of a rachis extension; *rachis* green, firm, sulcate, centrally ridged, sparsely scaled, scales similar to, but smaller than, those on the stipe; *pinnae* petiolate, petiole to 1.5 mm long, opposite to alternate, basally widely spaced, pinnae in the lower third of the lamina gradually reduced, coriaceous, rhombic-dimidiolate to cuneate, lobed, in the larger pinnae the proximal acroscopic lobe shallowly 2- to 3-lobed, to 13 mm long, to 9 mm wide, glabrous adaxially and abaxially; *costa* adaxially slightly raised. *Venation* anadromous, adaxially obscure, evident abaxially, ending in the teeth near the margin. *Sori* linear, lunate, medial on the simple vein branches, to 3 mm long; *indusium* membranous, semicircular, lacerate, to 3 mm long, to 1.5 mm wide; *sporangium* long-stalked, uniseriate, 3-seriate below capsule, capsule broadly elliptic in lateral view, with (18–)19(–19) indurated annulus cells, epistomium 2-celled, hypostomium 4-celled. *Spores* 64 per sporangium, brown, elliptic, monolete, echinate, fenestrate, (38–)41.27(–44) x (26–)28.17(–30) μm . Figure 50 E & F.



Vernacular names: Sanderson's spleenwort; Sanderson-se-tralievaring (Afr.).

Ecology: Epilithic or epiphytic, on moist rocks in streambeds or as low-level epiphytes, in deep shade in moist evergreen forests. Not edaphically bound. Nanophanerophyte, mesophyte, fronds mesomorphic. Vegetative reproduction by the closely branched rhizome and plantlets forming at the apex of the rachis extension. Seasonal pattern apparently non-existent.

Distribution: Rare in the north-western corner of Swaziland, occurring at an altitude of \pm 1 300 m. The species is widespread in sub-Saharan Africa and the western Indian Ocean region.

Asplenium splendens Kunze in *Linnaea* 10: 516 (1836); Schelpe & Anthony, *Fl. S. Afr., Pterid.*: 201, fig. 67, t. 1, map 176 (1986); Burrows, *Sthn. Afr. Ferns*: 252, ill. 60, t. 255–255b, pl. 42.4, map (1990), p.p. *Tarachia splendens* (Kunze) C.Presl, *Epimel. bot.*: 83 (1851). *Asplenium cuneatum* Lam. var. *splendens* (Kunze) Sim, *Ferns S. Afr.*, 2nd edn: 161, pl. 64, fig. 2 (1915). Type: Karakakama and Katrivier, *Ecklon & Zeyher s.n.* [LZ†, holo.; S, lecto., designated by Schelpe & Anthony (1986)].

subsp. **splendens**; Jacobsen, *Ferns Sthn. Afr.*: 365, fig. 272 (1983); Roux, *SABONET Rep.* 13: 171 (2001).

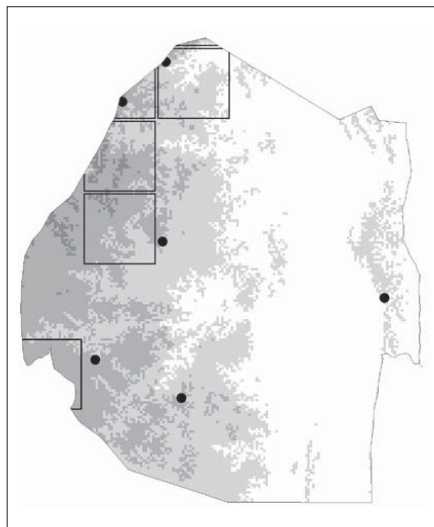
splendens = shining or gleaming

Plants terrestrial, epilithic or epiphytic. *Rhizome* creeping, regularly branched, to 100 mm long, to 5 mm in diameter, set with roots, spaced stipe bases and scales, scales chartaceous, centrally castaneous, margins slightly paler, sessile, subulate, cordate-imbricate, denticulate, apex terminates in an oblong thin-walled cell, to 6 mm long, to 1 mm wide. *Fronde*s spaced, to 12 mm apart, erect to arching, to 740 mm long; *stipe* firm, atrocastaneous, adaxially sulcate, to 320 mm long, to 1.6 mm in diameter, moderately to densely scaled, scales chartaceous, castaneous to ferrugineous,



Figure 51 A & B, *Asplenium splendens* subsp. *splendens*, A, habit, B, fertile segment; C & D, *A. theciferum* var. *concinnum*, C, lamina, D, fertile pinna; E & F, *A. unilaterale*, E, habit, F, fertile pinna.

clathrate, sessile, lanceolate-caudate to ovate-caudate, cordate-imbricate, usually with short outgrowths at the base, denticulate towards the apex, apex terminates in an oblong thin-walled cell, to 5 mm long, to 1 mm wide; *lamina* anadromous, to 3-pinnate, elliptic to ovate, to 425 mm long, to 30 mm wide, with up to 16 pinna pairs; *rachis* firm, castaneous, green towards the apex, adaxially sulcate, moderately to sparsely scaled, scales similar to, but smaller than, those on the stipe; *pinnae* petiolate, petiole to 4 mm long, opposite to alternate, basally widely spaced, more closely spaced towards the apex and overlapping, lanceolate, ovate, to inequilaterally narrowly trullate to rhomboid, to 186 mm long, to 85 mm wide, with up to 12 pinnule pairs; *pinna-rachis* sulcate, sparsely scaled, but the scales smaller than those on the rachis, to 1.5 mm long; *pinnules* alternate, lanceolate to inequilaterally narrowly trullate, to 60 mm long, to 23 mm wide, with up to 3 segment pairs; *costa* adaxially sulcate, sulcus confluent with that of the pinna-rachis, sparsely scaled, scales similar to, but smaller than, those on the rachis; *segments* firmly herbaceous, sessile, flabellate, trullate to rhomboid, variously lobed, lobes linear, irregularly dentate, to 15 mm long, to 7 mm wide, glabrous adaxially, sparsely scaled abaxially, scales castaneous, thinly crustaceous, clathrate, sessile, filiform, with short filiform outgrowths at the base, terminating in an enlarged thin-walled cell, to 2.5 mm long. *Venation* evident, flabellate, terminating in the teeth near the margin. *Sori* linear, to 9 mm long; *indusium* herbaceous, stramineous, linear, entire, to 9 mm long, to 0.2 mm wide; *sporangium* long-stalked, uniseriate, 3-seriate below the capsule, capsule broadly elliptic in lateral view, with (18–)19 indurated annulus cells, epistomium 2-celled, hypostomium 4(–5)-celled. *Spores* 64 per sporangium, brown, elliptic, monolete, perispore folded to form short and long reticulate ridges, erose, (32–)34.3(–38) x (20–)22.1(–24) μm . Figure 51 A & B.



Vernacular names: Splendid spleenwort; Blinkblaar tralievaring (Afr.).

Ecology: Terrestrial, epilithic or low-level epiphytes in light or deep shade in moist or seasonally moist evergreen forests. Often forms small clonal stands in leaf-litter on the forest floor. Not edaphically bound. Hemicryptophyte, mesoxerophyte; fronds mesoxeromorphic, poikilohydrous. Vegetative reproduction by the branched rhizome. Seasonal pattern appears to be pronounced with new growth restricted to the rainy season. Plants may go dormant during the dry winter months or during prolonged periods of drought.

Distribution: Frequent on the western highveld and middleveld of Swaziland, occurring at altitudes ranging between 500 and 1 520 m. The species is restricted to Swaziland and the eastern parts of South Africa.

Asplenium theciferum (Humb., Bonpl. et Kunth) Mett. in Ann. Sci. Nat., Bot., sér. 5, 2: 227 (1864). *Davallia thecifera* Kunth, In Humb., Bonpl. & Kunth, Nov. gen. sp. 1: 23 (1816). *Loxoscaphe thecifera* (Humb., Bonpl. et Kunth) T.Moore, Index fil.: 302 (1861). Type: Venezuela, in monte Saraguen, *Humboldt & Bonpland s.n.* (P, holo.).

var. **concinnum** (Schrad.) Schelpe in Bol. Soc. Brot., sér. 2, 41: 210 (1967); Jacobsen, Ferns Sthn. Afr.: 378, fig. 284, map 134 (1983); Schelpe & Anthony, Fl. S. Afr., Pterid.: 195, fig. 64, t. 2, map 168 (1986); Burrows, Sthn. Afr. Ferns: 238, ill. 55, t. 240, 240a, pl. 39.3, map (1990); Roux, SABONET Rep. 13: 171 (2001). *Davallia concinna* Schrad. in Gött. Gel. Anz. 1818: 918 (1818); Sim, Ferns S.

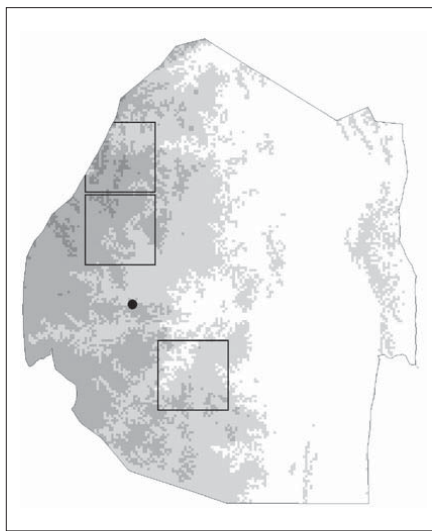
Afr.: 64, pl. XII (1892). *Loxoscaphe concinnum* (Schrad.) T.Moore in J. Bot. 5: 227 (1853). *Asplenium concinnum* (Schrad.) Kuhn, Filic. afr.: 99 (1868). *Loxoscaphe theciferum* (Humb., Bonpl. et Kunth) T.Moore var. *concinnum* (Schrad.) C.Chr. in Dansk Bot. Ark. 7: 104 (1932). Type: Capplant, *M. Hesse s.n.* (GOET!, holo.).

Davallia campyloptera Kunze in Linnaea 10: 544 (1836). Type: In sylva ad Plettenbergsbaai sec. fl. Klein Boschrivier, *Drège s.n.* (LZ†, holo.).

Asplenium theciferum sensu Sim, Ferns S. Afr., 2nd edn: 171, pl. 72 (1915).

concinnum = neat or elegant

Plants epilithic to epiphytic. *Rhizome* erect, to 25 mm long, to 5 mm wide, set with roots, crowded persistent stipe bases and scales, scales chartaceous, concolorous or bicolorous, if bicolorous then centrally atrocastaneous, margins ferruginous, clathrate, sessile, lanceolate to ovate, cordate-imbricate, margins set with uniseriate, pluricellular outgrowths, apex terminates in an oblong thin-walled cell, to 4 mm long, to 1.4 mm wide. *Fronde*s crowded, caespitose, suberect to arching, to 280 mm long; *stipe* firm, green, basally sulcate, sulcus centrally ridged higher up, to 125 mm long, to 1.3 mm in diameter, initially moderately scaled, scales chartaceous, sessile, ferruginous, clathrate, ovate to lanceolate, margins regularly set with long pluricellular outgrowths terminating in an enlarged, obovate gland-like cell, apex terminates in an enlarged gland-like cell, to 4 mm long, to 1.2 mm wide; *lamina* anadromous, to 2-pinnate, lanceolate to narrowly ovate, to 170 mm long, to 55 mm wide, with up to 13 pinna pairs; *rachis* firm, green, sulcate, centrally ridged, initially moderately scaled, scales similar to those on the stipe; *pinnae* petiolate, petiole to 4 mm long, opposite to alternate, basally often more widely spaced, the basal 2 or 3 pairs gradually reduced or not, coriaceous, lanceolate, ovate, narrowly elliptic to linear, to 38 mm long, to 15 mm wide, with up to 4 pinnule pairs; *pinna-rachis* sulcate, centrally ridged, the ridge not confluent with that of the rachis, sparsely set with scales similar to, but smaller than those on the rachis; *pinnules* alternate, spaced, obliquely spatulate or forked into lobes, to 10 mm long, to 1.2 mm wide, glabrous adaxially, abaxially sparsely set with scales similar to, but smaller than, those on the rachis, to 1.3 mm long. *Venation* anadromous, obscure, ending near the margin. *Sori* cupuliform, borne terminally on each lobe, acentric, to 1.5 mm long; *receptacle* with simple, pluricellular, hair-like paraphyses, apical cell acicular, to 1.4 mm long; *indusium* membranous, entire, to 1 mm wide; *sporangium* long-stalked, uniseriate, 3-seriate below the capsule, capsule broadly elliptic in lateral view, with (17–)19(–22) indurated annulus cells, epistomium 2-celled, hypostomium (3–)4-celled. *Spores* 64 per sporangium, brown, elliptic, monolete, perispore folded into narrow reticulate ridges, erose, the areolae fenestrate, exospore (44–)49.52(–54) x (28–)31.7(–36) μm . Figure 51 C & D.



Vernacular names: Frog's foot fern; Geitjietoon varing (Afr.).

Ecology: Epilithic or epiphytic, in light or deep shade in moist or seasonally moist evergreen forests and boulder forests. Not edaphically bound, in Swaziland occurring on soils weathered from the greenstone belt. Nanophanerophyte, meso-xerophyte; fronds mesoxeromorphic, poikilohydrous. Vegetative reproduction by the closely branched rhizome. Seasonal pattern appears to be pronounced with new growth restricted to the rainy season. Plants may go dormant during prolonged periods of drought.

Distribution: Sporadic on the western highveld of Swaziland, occurring at altitudes ranging between 1 200 and 1 300 m. The species is widespread in sub-Saharan Africa and the western Indian Ocean region.

Asplenium unilaterale Lam., *Encycl.* 2: 305 (1786); Sim, *Ferns S. Afr.*, 2nd edn: 152, pl. 54 (1915); Jacobsen, *Ferns Sthn. Afr.*: 340, fig. 250, map 115 (1983); Burrows, *Sthn. Afr. Ferns*: 222, ill. 50, t. 223, pl. 36.3 (1990); Roux, *SABONET Rep.* 13: 172, fig. 17D (2001). Type: Mauritius, *Commerson s.n.* (P?, holo.).

unilaterale = one-sided

Plants epilithic. *Rhizome* wide-creeping, irregularly branched, to 2 mm in diameter, set with roots and scales, scales chartaceous, ferruginous, clathrate, adnate, narrowly to broadly triangular, repand, apex terminates in an oblong thin-walled cell, to 2 mm long, to 1 mm wide. *Fronde*s widely spaced, to 50 mm apart, erect, to 280 mm long; *stipe* firm, atrocastaneous, shallowly sulcate adaxially, to 140 mm long, to 1.2 mm in diameter, proximally sparsely set with 2- or 3-celled hairs and scales, scales chartaceous, ferruginous, sessile, subulate, apex terminates in an oblong thin-walled cell, to 1.8 mm long, glabrous towards the apex; *lamina* anadromous, 1-pinnate, oblong-cuneate to oblong-ovate, to 180 mm long, to 70 mm wide, with up to 16 pinna pairs; *rachis* firm, atrocastaneous, adaxially sulcate, narrowly green-winged, glabrous, nitid; *pinnae* sessile, opposite to alternate, basally more widely spaced than apically and often slightly overlapping, basal one or two pairs often slightly reduced, herbaceous, inequilaterally rhombic to oblong-parallellogram-shaped, obtriangular towards the apex, dimidiate for half or more the length, acute-serrate, often doubly serrate towards the base, glabrous adaxially and abaxially, to 35 mm long, to 11 mm wide. *Venation* anadromous, evident, forked, ending in the teeth near the margin. *Sori* linear, at a vein fork or along the ultimate vein branches, to 3.5 mm long; *indusium* membranous, linear, entire, to 3.5 mm long, to 0.3 mm wide; *sporangium* long-stalked, uniseriate, 3-seriate below the capsule, capsule globose to obovate in lateral view, with (20–)23(–27) indurated annulus cells, epistomium (1–)2-celled, hypostomium 4-celled. *Spores* 64 per sporangium, brown, broadly elliptic, monolete, perispore folded to form broad reticulate wings, wings narrow, laciniate, areolae echinulate, exospore (32–)34.8(–38) x (22–)25.15(–28) μm . Figure 51 E & F.



Vernacular names: Halved-spleenwort; Eenkant tralievaring (Afr.).

Ecology: Epilithic, in shallow soil in seepage areas along perennial streams in forests, partially shaded. Not edaphically bound, but in Swaziland the species is confined to fine-grained quartzite. Hemicryptophyte, mesophyte; fronds mesomorphic. Vegetative reproduction by the wide-creeping, branched rhizome resulting in the plants forming small clonal stands. Seasonal pattern apparently non-existent.

Distribution: Rare in the north-eastern corner of Swaziland, occurring at an altitude of \pm 600 m. Widespread in sub-Saharan Africa and the western Indian Ocean region.

MARSILEACEAE Mirb.

Modern *Marsilea* L. dates from the mid-Cretaceous (Skog & Dilcher 1992). The Marsileaceae have traditionally been placed near the schizaeoid ferns, because of several similar anatomical and morphological features. The affinity with this group of ferns is remote, but they may well have descended from a common ancestor. Phylogenetic analyses based on *rbcL* (Hasebe *et al.* 1995), and morphological information (Rothwell & Stokey 1994; Pryer 1999), suggest the heterosporous leptosporangiate ferns to be monophyletic yielding the same intergeneric relationship, (*Marsilea* (*Regnellidium* Lindm., *Pilularia* L.)).

Marsilea L., Sp. pl. 2: 1099 (1753). Lectotype: *Marsilea quadrifolia* L., type cons., designated by Christensen (1905).

Plants seasonally aquatic or subterrestrial. *Rhizome* wide-creeping, firmly herbaceous, terete or obtusely angular, branched, rooting at the nodes, initially sparsely appressed pilose, hairs ventrally attached, fusiform, or filiform, subulate, or acicular. *Stipe* slender to stout, terete, glabrous or sparsely set with hairs similar to those on the rhizome; *lamina* paripinnate, 1-pinnate, with two pinna pairs; *pinnae* pulvinate, opposite, variable in size and shape, narrowly cuneate-obtriangular, obdeltate, or broadly obdeltate, flanks straight, or concave, outer margins rounded, entire to deeply crenate, often with long pellucid streaks between the veins, adaxially sparsely appressed pilose, hairs ventrally attached, acicular, abaxially moderately appressed pilose, hairs ventrally attached, acicular or fusiform. *Venation* obscure, free or anastomosing, terminal vein branches anastomose to form a near-marginal commissure. *Sporocarps* in dense clusters at the nodes, or solitary, or 2 or 3, ascending in a single row at the stipe base, or peduncle simple or branched, appressed pilose or strigose when young, glabrous later, saddle-shaped, subrectangular, or broadly oblong in lateral view, dorsally almost always deeply concave, ventrally rounded or curved, oblong, elliptic or narrowly-elliptic in dorsiventral cross-section, without a dorsal or frontal furrow, with 4–10 lateral ribs visible or invisible in mature sporocarps, not anastomosing, raphe distinct, attached along the entire base of the sporocarp, or one third to two thirds the length of the sporocarp base, inferior tooth absent, or obtuse and not very prominent, superior tooth conspicuous, slender from a broadly conical base, narrowly conical, acute or rarely subobtuse, straight or slightly curved, initially densely appressed pilose, hairs ventrally attached, subulate. *Sori* borne in parallel rows inserted on a long hygroscopic ‘rachis’, heterosporangiate, without a dehiscing mechanism, *microsporangia* with numerous microspores; *megasporangium* with a single megaspore. *Chromosome number* based on $2n = 40$.

A near-cosmopolitan genus of approximately 65 species.

Key to the species:

- 1a Pinnae with pellucid streaks **M. fenestrata**
- 1b Pinnae without pellucid streaks:
 - 2a Sporocarps usually in a single row along the stipe base, pedicels unbranched **M. minuta** var. **minuta**
 - 2b Sporocarps in a branched clustered at the stipe base **M. ephippiocarpa**

Marsilea ephippiocarpa Alston in J. Bot. 68: 118 (1930); Launert in Senckenberg. Biol. 49: 289, fig. 22–28 & 67, map 2 (1968); Jacobsen, Ferns Sthn. Afr.: 478, fig. 356, map 181 (1983); Schelpe & Anthony, Fl. S. Afr., Pterid.: 60, map. 43 (1986); Burrows, Sthn. Afr. Ferns: 70, ill. 16, t. 65–65b, pl. 9.7, map (1990); Roux, SABONET Rep. 13: 175 (2001). Type: Southern Rhodesia, near Fort Victoria, *Rendle* 307 (BM!, holo.).

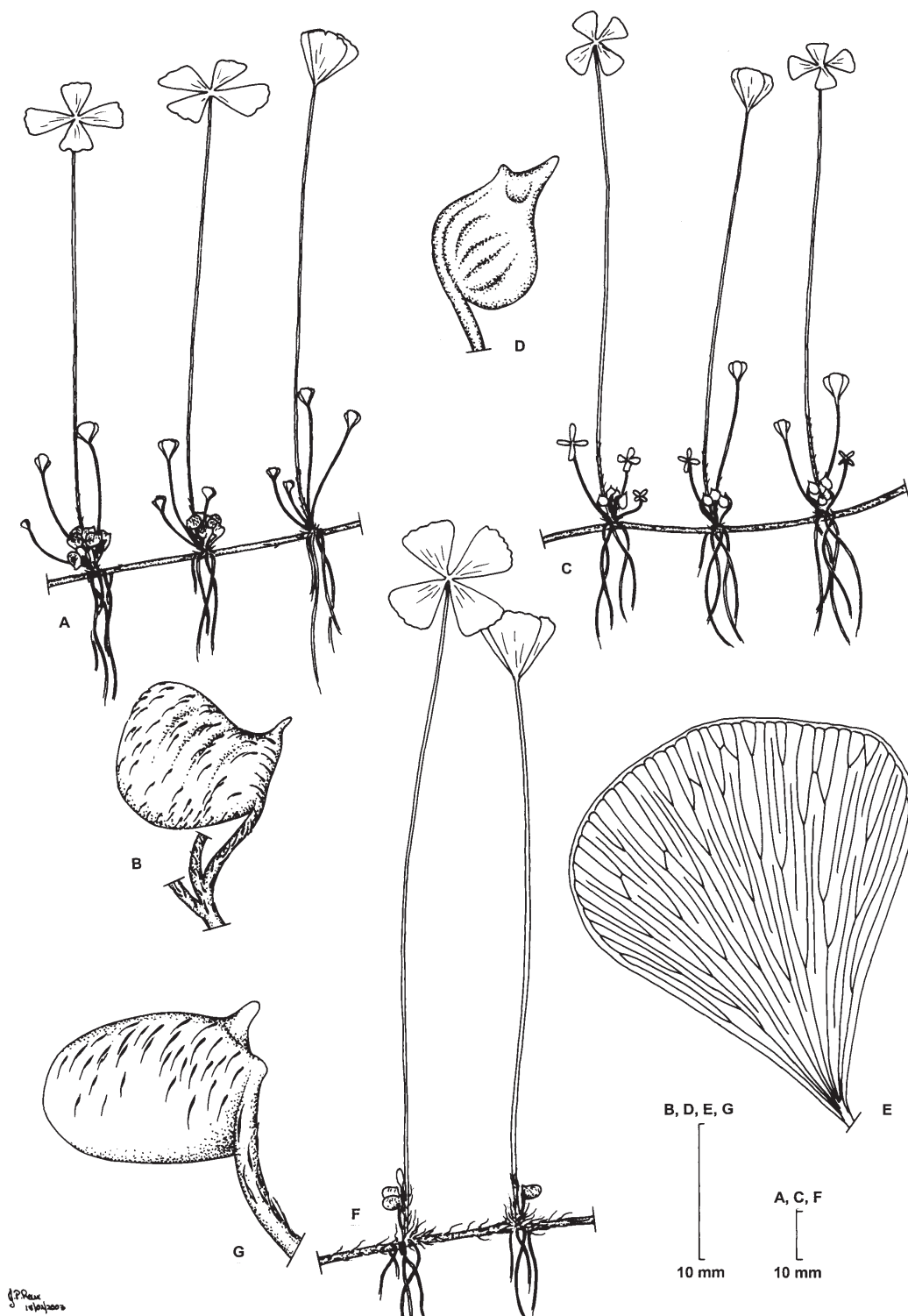


Figure 52 A & B, *Marsilea ephippiocarpa*, A, habit, B, sporocarp; C–E, *M. fenestrata*, C, habit, D, sporocarp, E, pinna showing venation and pellucid streaks; F & G, *M. minuta* var. *minuta*, F, habit, G, sporocarp.

ephippios (Greek) = saddle; *carpus* (Greek) = fruit

Plants seasonally aquatic. *Rhizome* wide-creeping, initially green, brownish later, firmly herbaceous, terete or obtusely angular, to 1.5 mm in diameter, branched, rooting at the nodes, internodes to 38 mm long, initially sparsely appressed pilose, glabrous later, hairs ventrally attached, fusiform, subulate, or acicular, to 2 mm long. *Stipe* slender to stout, green initially, brown and glossy later, terete, to 90 mm long, to 1 mm in diameter, glabrous or sparsely set with hairs similar to those on the rhizome; *pinnae* herbaceous, pulvinate, variable in size and shape, narrowly cuneate-obtriangular, to broadly obdeltate, flanks straight or concave, outer margins rounded, entire to deeply crenate, to 16 mm long, to 12 mm wide, adaxially sparsely appressed pilose, hairs hyaline, ventrally attached, acicular, to 0.5 mm long, abaxially moderately appressed pilose, hairs hyaline to stramineous, ventrally attached, acicular, to 1 mm long.



Sporocarps in dense clusters at the nodes, peduncle branched, pedicels to 2.5 mm long, appressed pilose when young, glabrous later, dark brown to blackish when fully mature, to 3 mm long, to 2.8 mm high, to 1.4 mm thick, typically saddle-shaped, dorsally almost always deeply concave, ventrally rounded, oblong to elliptic in dorsiventral cross-section, lateral ribs visible in mature specimens, 7-10, not anastomosing, raphe distinct, attached a half to a third the length of the sporocarp base, inferior tooth absent, superior tooth conspicuous, slender from a broadly conical base, acute or rarely subobtuse, initially densely appressed pilose, hairs hyaline to pale stramineous, ventrally attached, 5-7-celled, subulate, to 1.2 mm long. Figure 52 A & B.

Vernacular names: Water clover; Saalvrug waterklawer (Afr.).

Ecology: Tenagophytic, in shallow seasonal pools and in the backwaters of slow-flowing streams, exposed or partially shaded. Not edaphically bound, but in Swaziland the species is restricted to basaltic derived soils. Hemicryptophyte, mesophyte; fronds mesomorphic. Vegetative reproduction by the wide-creeping, many-branched rhizome resulting in the plants forming large stands. Seasonal pattern apparently pronounced, immature sporocarps found during May.

Distribution: Sporadic in the north-western corner of Swaziland where the species appears to be restricted to the Mbuluzi River drainage system, occurring at an altitude ranging between 160 and 300 m. Widespread in southern tropical Africa and eastern parts of southern Africa.

Marsilea fenestrata Launert in Mitt. Bot. Staatssamml. München 3: 507 (1960); Launert in Senckenberg. Biol. 49: 294, fig. 35-37, map 2 (1968). Type: South Africa, Zululand, *Ward* 2458 (BOL, holo.; BM, iso.).

fenestra = window

Plants seasonally aquatic. *Rhizome* wide-creeping, initially green, brown later, firm, herbaceous, terete, to 1 mm in diameter, branched, rooting at the nodes, internodes to 35 mm long, initially sparsely pilose, glabrous later, hairs ventrally attached, filiform, to 1 mm long. *Stipe* slender to stout, green initially, brown later, terete, to 120 mm long, initially moderately appressed pilose, glabrous later, hairs hyaline to pale brown, laterally attached, filiform, to 1.5 mm long; *pinnae* herbaceous, pulvinate, obdeltate to broadly obdeltate, flanks straight or slightly convex, outer

margin convex, entire, with long pellucid streaks between the veins, glabrous adaxially, abaxially with scattered hairs, hairs hyaline, ventrally attached, fusiform, to 0.3 mm long. *Venation* obscure, free or anastomosing, terminal vein branches anastomose to form a near-marginal commissure. *Sporocarps* in dense groups of 7 to 8, at the very base of the stipes, pedicels simple, to 3 mm long, subrectangular in lateral view, narrowly-elliptic in dorsiventral cross-section, dorsally slightly inwardly curved, ventrally curved, to 3.5 mm long, to 2.6 mm high, strigose initially, glabrous later, 4–7 lateral ribs almost invisible in mature sporocarps, not anastomosing, raphe distinct, attached along the entire base of the sporocarp, inferior tooth obtuse, not very prominent, superior tooth conspicuous, slender, tapering from a cone-shaped base, acute, straight or slightly curved. Figure 52 C–E.



Vernacular names: Windowed water clover; Gestreepte waterklawer (Afr.).

Ecology: Teganophytic, in seasonal swamps among grasses and sedges, exposed or partially shaded. Not edaphically bound. Hemicryptophyte, mesophyte; fronds mesomorphic. Vegetative reproduction by the wide-creeping, many-branched rhizome. Seasonal pattern apparently pronounced, sporocarps collected during January.

Distribution: Rare in Swaziland and known from a single collection made at Hlane, an area now under intense sugarcane farming. The species appears to be localised, occurring in Mozambique, Swaziland and the northern parts of KwaZulu-Natal in South Africa.

Marsilea minuta L., Mant. pl., alt.: 308 (1771); Launert in Senckenberg. Biol. 49: 291, fig. 32–34, map 1 (1968); Jacobsen, Ferns Sthn. Afr.: 479, fig. 357, map 180 (1983); Schelpe & Anthony, Fl. S. Afr., Pterid.: 60, map 43 (1986). Type: India, *sine coll. s.n.* (LINN 1254.6, holo.).

Marsilea diffusa Lepr. var. *cornuta* A.Braun, In Kuhn, Filic. afr.: 199 (1868). *Marsilea cornuta* A.Braun in Monatsber. Königl. Preuss. Akad. Wiss. Berlin 1870: 728 (1871). Type: Angola, Mossamedes, Bero prope Caponda and Cavalheiros, *Welwitsch* 173 (B, holo.; BM, BO, iso.).

var. **minuta**; Launert, Garcia de Orta, Sér. Bot. 6: 125 (1984); Burrows, Sthn. Afr. Ferns: 72, ill. 16, t. 65–65, pl. 10.1, map (1990); Roux, SABONET Rep. 13: 176 (2001).

minuta = fine or minute

Plants aquatic or subterrestrial. *Rhizome* wide-creeping, green to pale brown, firmly herbaceous, terete, to 1.5 mm in diameter, repeatedly branched, appressed pilose, hairs ferruginous, ventrally attached, to 4 mm long, rooting at the nodes, internodes to 160 mm long, villose at the nodes, hairs stramineous to ferruginous, ventrally attached, to 6 mm long. *Stipe* slender to stout, green initially, later proximally brown, green distally, terete, to 200 mm long, sparsely haired, hairs similar to those at the rhizome internodes; *pinnae* herbaceous, pulvinate, variable in size and shape, obdeltate to broadly obdeltate, to 20 mm long, to 19 mm wide, flanks straight, outer margin of floating fronds entire or repand, irregularly lobed in aerial ones, adaxially sparsely haired, hairs stramineous, appressed, ventrally attached, to 0.3 mm long, abaxially sparsely, but more closely set with hairs similar to those on the adaxial surface. *Sporocarps* dark brown at maturity, solitary or 2 to 3 in a single row at the stipe base, pedicel stout, terete, erect, to 3.5 mm long, dark brown, to 4 mm long, to 2.6 mm high, to 1.5 mm thick, broadly oblong in lateral view, distally rounded, elliptic in

dorsiventral cross-section, without a dorsal or frontal furrow, densely appressed pilose when young, subglabrous later, hairs, ferruginous, ventrally attached, filiform, to 1.3 mm long, lateral ribs invisible, raphe distinct, attached two thirds of the full length of the sporocarp base, teeth prominent, the inferior shorter than the superior, obtuse to subacute, erect, superior narrowly conical, acute, erect or recurved. Figure 52 F & G.

Vernacular names: Waterclover; Gelede waterklawer (Afr.).

Ecology: Teganophytic, in seasonal pools in riverbeds and in shallow backwaters of slow-flowing rivers, exposed or partially shaded. Not edaphically bound, but in Swaziland the species appears to be restricted to basaltic soil. Hemicryptophyte, mesophyte; fronds mesomorphic. Vegetative reproduction by the wide-creeping, many-branched rhizome. Seasonal pattern apparently pronounced with sporocarps forming during the drier winter months.

Distribution: Rare in Swaziland and only known from a single collection made in the north-eastern corner of the country at an altitude of ± 120 m. The species is widespread in sub-Saharan Africa and the western Indian Ocean region.



Abbreviations and Glossary

Abbreviations

Afr. – Afrikaans	nom. superfl. – <i>nomen superfluum</i> : name superfluous or unnecessary
auct. – <i>auctorum</i> : of authors	pl. – plate
c. – <i>circa</i> : about	p.p. – <i>pro parte</i> : partly, in part
coll. – <i>collegit</i> : he gathered	quoad spec. – <i>quoad specimen</i> : with respect to the specimen
et al. – <i>et alii</i> : and others	Ses. – Sesotho
fig. – <i>figura</i> : figure	Sis. – siSwati
ill. – illustration	s.n. – <i>sine numero</i> : without a number
m.y. – million years	sp. – <i>species</i> : as a species (singular)
nom. cons. – <i>nomen conservandum</i> : conserved name	spp. – <i>species</i> : as in several species (plural)
nom. illeg. – <i>nomen illegitimum</i> : illegitimate name	t. – <i>tabula</i> : plate
nom. nov. – <i>nomen novum</i> : new name	

Glossary

abaxial : the side facing away from the axes, the underside of the lamina.	anadromous : the basal segment or vein originating from the anterior side, the one on the posterior side originating from a distinctly more distal part.
acicular : slender or needle-shaped.	anastomosing : joining together, veins forming a network.
acinaciform : like a curved sword or scimitar.	anisophyllous : distinct leaf types are borne at the same point on the stem.
acroscopic : facing or directed towards the apex.	anisotomous : dichotomies result in branches that have different orientations and functions.
acrostichoid : having sporangia scattered over the entire abaxial surface of the fertile lamina.	anisovalvate : the two halves of the sporangia are not of equal size.
adaxial : the side facing towards the axes; the upper side of the lamina.	annulus : the sporangium cells that cause the discharge of the spores.
adhesive hairs : hairs of the rhizome and stipe (occasionally also the rachis) that develop by cell division of epidermal cells and consist of one or more stiff hair cells. They occur in the Hymenophyllaceae and anchor the plant to the substrate.	anomocytic : stomata in which the guard cells are surrounded only by neighbouring cells (without subsidiary cells).
aerophore : aerating structures, usually found along the axes.	antrorse : directed upwards, opposite to retrorse.
alete : spores without a conspicuous laesura.	

aphlebia: modified basal pinnae as in *Cyathea capensis*.

apiculus: a small sharp point.

apogamous: having the condition of apogamy.

apogamy: the formation of a sporophyte from a gametophyte by asexual means rather than fertilisation.

appressed: lying flat against.

articulate: jointed, separating freely with a clean scar.

atrocastaneous: dark chestnut-coloured.

basisropic: facing or directed towards the base.

bicolorous: 2-coloured.

bipinnate, 2-pinnate: divided into pinnae bearing pinnules.

carinate: keeled.

carnose: fleshy, or soft but firm.

catadromous: the basal segment or vein originating from the posterior side; the one on the anterior side originating from a distinctly more distal point.

chamaephyte: usually low-growing plants having renewal buds at or just above ground level.

clathrate: with thick lateral cell walls and thin superficial walls.

colliculate: covered with little rounded altitudes.

concolorous: uniform in colour.

confluent: blending into one.

coriaceous: leathery.

corneous: horny, hard but never brittle.

costa: major axis of a pinna or pinnule.

costule: an axis that is a branch of a costa.

cultrate: shaped like a knife-blade, the sides parallel to each other.

cupulate: cup-shaped.

diacytic: stomata in which the guard cells are surrounded by 2 subsidiary cells. The common wall of the 2 subsidiaries is at a right angle to the long axis of the guard cells.

dichotomous: equally forked.

dimidiate: halved diagonally, with usually one half rudimentary or absent.

dimorphic: having two shapes, the fertile fronds differing from the sterile.

dorsal: upper side.

echinate: bearing spines or prickles.

eglandular: without glands.

elaters: strap-shaped appendages of *Equisetum* spores.

eligulate: without a ligule.

ephemeral: short-lived.

epilithic: growing on rocks.

epiphytic: growing on the trunk or branches of shrubs or trees.

estipitate: without a stipe.

estomate: without stomata

euphyllophytes: all vascular plants excluding the Lycophytes (clubmosses and relatives).

eusporangia: thick-walled sporangia originating from several epidermal cells.

eusporangiate: plants bearing eusporangia.

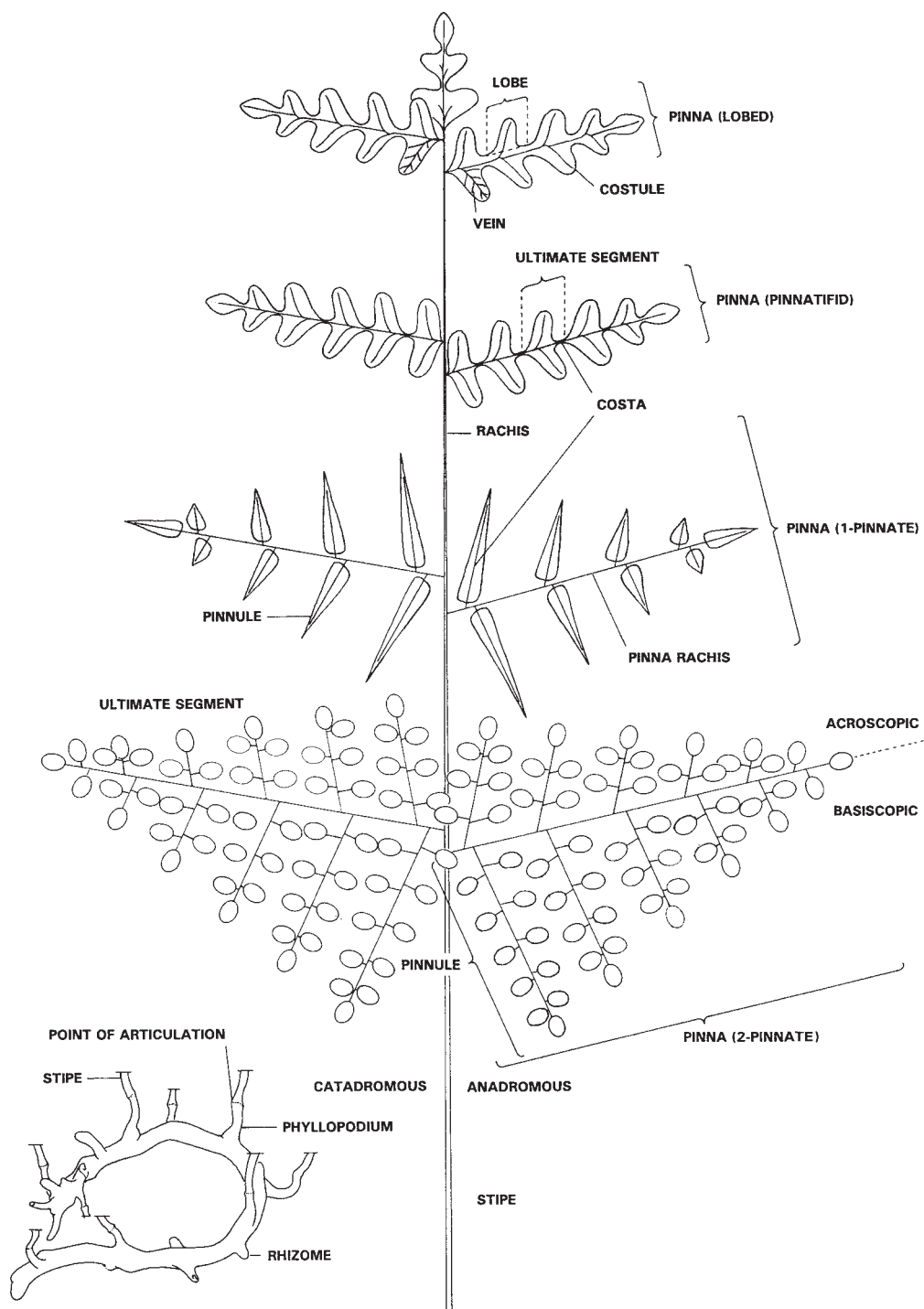


Figure 53. A diagrammatic fern frond and rhizome illustrating some terms in the Glossary.

exindusiate: sori lacking an indusium.

farina: a white or yellow exudate of glands.

foveo-reticulate: the pits form a reticulum or meshwork.

frond: the leaf of a fern.

geophytes: plants whose perennating buds are buried below the substrate surface, and situated on a rhizome.

helophytes: marsh plants.

hemicyptophytes: plants whose buds are formed at the substrate surface.

heterophyllous: having leaves of different forms; the difference may be gradual or abrupt.

heterosporangiate: male and female gametes are produced by different sporangia.

heterosporous: bearing spores of two sizes and sexes.

homophyllous: all leaves are uniform.

homosporous: the spores are all of the same size.

hygromorphic: plants which are structurally adapted for life in moist habitats.

imbricate: overlapping.

indusiate: sori bearing an indusium.

indusium: usually a thin membrane or structure covering the developing sporangia in a sorus.

inframedial: below the middle; sori a little closer to the costa or costule than the margin.

innervated: extending into.

isodromous: where the basal bivisions or veins spring essentially from the same point.

isophyllous: leaves similar in size and shape are borne at the same point on the stem.

isotomous: all dichotomies result in equally thick branches, as in *Huperzia*.

isovalvate: the two halves of the sporangia are of equal size, as in *Huperzia*.

lacinate: slashed into narrow divisions with taper-pointed incisions.

laesura: the exospore structure on the proximal face through which the gametophyte passes.

lamina: the expanded portion of the leaf blade of a fern frond.

ligule: a small flap of leaf tissue adaxially near the leaf base in *Selaginella*.

lumina: cavities or spaces.

megaphanerophytes: tree-like plants more than 7.5 m tall.

megasporangium: a female sporangium producing megaspores.

megaspore: a female spore.

mesic: pertaining to conditions of moderate moisture or water supply.

mesomorphic: plants requiring moderate moisture conditions, or only partly protected against desiccation.

mesophanerophytes: tree-like plants between 1.8 and 7.5 m tall.

mesoxeromorphic: plants that prefer conditions intermediate between mesic and xeric.

microphanerophytes: plants 0.3 to 1.8 m tall.

microsporangium: a male sporangium producing microspores.

microspore: a male spore.

monolete: a spore having a single unbranched scar or laesura.

monomorphic: having a single shape.

monophyletic: derived from the same ancestral taxon.

muri: walls.

muricate: rough, with short hard points.

nanophanerophytes: plants with their perennating buds <0.3 m above the substrate surface.

obtriangular: inversely triangular, with the sharp point facing downwards.

octoploid: plants with eight chromosome sets in the nuclei.

ossiform-celled: cells shaped like a bone.

pantropical: occurring throughout the tropical parts of the world.

paracytic: stomata with guard cells accompanied on either side by one or more subsidiaries parallel to the long axis of the pore.

paraphyses: unicellular or multicellular structures borne on the soral receptacle.

paripinnate: even pinnately compound, without a terminal leaflet.

patent: diverging from the axis at almost 90°.

pectinate: with narrow linear segments, comb-like.

pedate: palmate, but with the lateral lobes divided.

phyllopodium: in species with articulate stipes: the portion of the stipe that remains attached to the rhizome.

pinna: a sessile or stalked primary division of a compound lamina.

pinnate, 1-pinnate: divided into pinnae.

pinnatifid: pinnately cleft but not to the axes.

pinnule: a sessile or stalked division of a pinna that is narrowed at the base.

pleustophytes: plants free-floating on the water surface, not attached to or penetrating a substrate.

poikilohydrous: photosynthetic organs that have the ability to become dormant but remain alive during the dry season, and regain their turgidity and become green after being wetted.

polocytic: stomata where 1 or more subsidiaries curve horseshoe-like around one of the long-axis guard cell poles.

porate: pierced with small holes.

proliferous: bearing bulblets or plantlets on the stipe or lamina axes.

pseudodichotomous: dichotomously branched, but with an arrested bud in the fork.

pulvinus: the swollen base of a petiole.

punctulate: minutely dotted.

pyrophytic: plants that can withstand periodic burns.

rachis: the main axis of a compound lamina.

raphe: the suture at the rear of the sporocarp to which the pedicel is attached.

receptacle: the lamina tissue to which the sporangia are attached.

reflexed: bent abruptly downwards.

reticulate: joined together to form a network.

retorse: curved backwards.

rugulose: somewhat wrinkled.

secondary rachis: the main axis of a pinna.

sinus: the space between two lobes.

spatulate: spatula-shaped, i.e. from a broad rounded upper part tapering gradually downwards into a stalk.

sporangiophore: a sporophyll bearing a ring of sporangia facing the axis of the strobilus, as in *Equisetum*.

sporocarp: a structure containing the sporangia, as in *Marsilea*.

sporophyll: a fertile leaf, bearing sporangia or subtending the sporangium.

stipe: the stalk of a frond.

strobilus: the imbricate sporophylls arranged around a central axis to form a cone, as in *Equisetum*, *Selaginella* and *Lycopodium*.

subhorizontal: at an acute angle to the horizontal.

subpeltate: almost peltate or shield-shaped.

subtriangular: nearly triangular or equal-sided.

subulate: awl-shaped.

superficial: on the surface of the lamina.

synangium: a number of fused sporangia, as in *Psilotum* and *Marattia*.

taeniform: strap-shaped.

teganophytes: amphibious plants, the juvenile submerged or floating on water and the adult (reproductive) phase terrestrial.

therophytes: annuals.

trilete: a spore having a triradiate scar or laesura.

trullate: angular ovate or shaped like a brick-layer's trowel.

uncinate: hooked.

verruculose: with small warts.

xeromorphic: plants with structural and functional adaptations to prevent water loss by evaporation, but not necessarily confined to dry habitats.

References

- ACOCKS, J.P.H. 1975. Veld types of South Africa. *Mem. Bot. Surv. S. Africa* 40: 1-128.
- BARTHEL, M. 1976. Farne und Cycadeen. *Abh. Zentr. Geol. Inst., Paläontol. Abh.* 26: 1-507.
- ANTHONY, N.C. 1984. A revision of the southern African species of *Cheilanthes* Swartz and *Pellaea* Link. *Contr. Bolus Herb.* 11: 1-293.
- BIERHORST, D.W. 1971. *Morphology of vascular plants*. Macmillan, New York.
- BIZZARRI, M.P. 1975. Adumbratio florum aethiopicarum. 27. *Webbia* 29: 545-593.
- BRAITHWAITE, A.F. 1986. The *Asplenium aethiopicum* complex in South Africa. *Bot. J. Linn. Soc.* 93: 343-378.
- BREMER, K., HUMPHRIES, C.J., MISHLER, B.D. & CHURCHILL, S.P. 1987. On cladistic relationships in green plants. *Taxon* 36: 339-349.
- BRIDSON, G.D.R. 1991. *Botanico-Periodicum-Huntiarum/Supplementum*. Hunt Institute for Botanical Documentation, Pittsburgh.
- BRITTON, N.L. & BROWN, A. 1913. *An illustrated flora of the Northern United States*, 2nd edn. Charles Scribner, New York.
- BRONGNIART, A.T. DE. 1822. Description d'un nouveau genre de Fougères, nommé *Ceratopteris*. *Bull. Soc. Philom., Paris*, ser. 3, 8: 184-186.
- BRUMMIT, R.K. 2001. *World geographic scheme for recording plant distributions*, 2nd edn. Hunt Institute for Botanical Documentation, Pittsburgh.
- BRUMMIT, R.K. & POWELL, C.E. 1992. *Authors of plant names*. Royal Botanic Gardens, Kew.
- BURROWS, J.E. 1990. *Southern African ferns and fern allies*. Frandsen Publishers, Sandton.
- BURROWS, J.E. & EDWARDS, T. 1993. Nomenclatural changes and additions to the genus *Ophioglossum* in Africa (Ophioglossaceae: Pteridophyta). *Bothalia* 23: 185-190.
- BURTT DAVY, J. 1926. *A manual of the flowering plants and ferns of the Transvaal with Swaziland, South Africa*, part 1. Longmans, Green & Co., London.
- BURTT DAVY, J. & POTT-LEENDERTZ, R. 1912. A first check-list of the flowering plants and ferns of the Transvaal and Swaziland. *Ann. Transvaal Mus.* 3: 119-172.
- CHRISTENSEN, C. 1905-1906. *Index filicum*. H. Hagerup, Hafniae.
- CLEAL, C.J. 1993. Pteridophyta. In M.J. Benton, *The fossil record*, Vol. 2: 779-794. Chapman and Hall, London.
- COLLINSON, M.E. 1996. "What use are fossil ferns?" - 20 years on: with a review of the fossil history of extant pteridophyte families and genera. In J.M. Camus, M. Gibby, & R.J. Johns, *Pteridology in perspective*. 349-394. Royal Botanic Gardens, Kew.
- COMPTON, R.H. 1966. An annotated check-list of the flora of Swaziland. *J. S. African Bot.*, Suppl. 6.
- COMPTON, R.H. 1968. Swaziland. In I. Hedberg & O. Hedberg (Eds), Conservation of vegetation in Africa south of the Sahara. *Acta Phytogeogr. Suec.* 54: 256, 257.
- COMPTON, R.H. 1976. The flora of Swaziland. *J. S. African Bot.*, Suppl. 11.
- DETTMANN, M.E. & CLIFFORD, H.T. 1992. Phylogeny and biogeography of *Ruffordia*, *Mohria* and *Anemia* (Schizaeaceae) and *Ceratopteris* (Parkeriaceae): evidence from *in situ* and dispersed spores. *Alcheringa* 16: 269-314.
- DONOGHUE, M.J. 1994. Progress and prospects in reconstructing plant phylogeny. *Ann. Missouri Bot. Gard.* 81: 405-418.
- EVANS, J.A., JONES, R.S., & MAINWARING-BURTON, R. 1972. Passage of bracken fern toxicity into milk. *Nature* 237: 107-108.
- FARR, E.R., LEUSSINK, J.A. & STAFLEU, F.A. (eds). 1979. *Index nominum genericorum (Plantarum)*, vol. 3: 1277-1896.
- FORBES, V.S. (ed.) 1986. *Carl Peter Thunberg travels at the Cape of Good Hope 1772-1775*. Van Riebeeck Society, Cape Town.
- GIFFORD, E.M. & FOSTER, A.S. 1989. *Morphology and evolution of vascular plants*, 3rd edn. W.H. Freeman, New York.
- GERSTNER, J. 1939. A preliminary checklist of Zulu names of plants with short notes. *Bantu stud.* 13(1): 49-64; (2): 131-149; (4): 307-326.

- GERSTNER, J. 1941. A preliminary checklist of Zulu names of plants with short notes. *Bantu stud.* 15(3): 277–301; (4): 369–383.
- GREYLING, T. & HUNTLEY, B.J. (eds). 1984. Directory of southern African conservation areas. *S. African Nat. Sci. Programmes Rep.* 98: 294–311.
- GUNN, M. & CODD, L.E. 1981. *Botanical exploration of southern Africa*. A.A. Balkema, Cape Town.
- HASEBE, M., WOLF, P.G., PRYER, K.M., UEDA, K., ITO, M., SANO, R., GASTONY, G.J., YOKOYAMA, J., MANHART, J.R., MURAKAMI, N., CRANE, E.H., HAUF-
LER, C.H. & HAUKE, W.D. 1995. Fern phylogeny based on *rbcL* nucleotide sequences. *Amer. Fern J.* 85: 134–181.
- HAUKE, R.L. 1978. A taxonomic monograph of *Equisetum* subgen. *Equisetum*. *Nova Hedwigia* 30: 385–456.
- HOLMGREN, P.K., HOLMGREN, N.H. & BARNETT, L.C. (eds). 1990. Index Herbariorum. Part 1. The herbaria of the world, 8th edn. *Regnum Vég.* 120: 1–693.
- HOLTUM, R.E. 1947. A revised classification of the leptosporangiate ferns. *Bot. J. Linn. Soc.* 53: 123–158.
- HOLTUM, R.E. 1971. Studies in the family Thelypteridaceae. III. A new system of genera in the Old World. *Blumea* 19: 17–52.
- HOLTUM, R.E. 1982. The tree-ferns of Africa. *Kew Bull.* 36: 463–482.
- HUTCHINGS, A., SCHOTT, A.H., LEWIS, G. & CUNNINGHAM, A.B. 1996. *Zulu medicinal plants. An inventory*. University of Natal Press, Pietermaritzburg.
- JACKSON, B.D. 1912. Index to the Linnean herbarium. *Proc. Linn. Soc. Lond.*, 124th session, 1911–1912, Suppl.: 1–152.
- JACOBSEN, W.B.G. 1983. *The ferns and fern allies of southern Africa*. Butterworth, Durban.
- JACOT-GUILLARMOD, A. 1971. *Flora of Lesotho*. Cramer, Lehre.
- JOHNSON, C.T. & HUTCHINGS, A. 1986. *Pteridophytes of Transkei, Wild flowers of Transkei*, Final Report: Phase 2. Appendices. University of Transkei, Umtata.
- JOHNSON, M.R., BOTHA, B.J.V., ENGELBRECHT, L.N.J., HUGO, P.J., KEYSER, A.W., TURNER, B.R. & WINTER, H. DE LA R. 1980. Karoo Sequence, pp. 535–564. In, *Stratigraphy of South Africa*, Handbook 8. Department of Mineral and Energy Affairs, Pretoria.
- JONSELL, B.E. & JARVIS, C.E. 1993. In C.E. Jarvis, F.R. Barrie, D.M. Allan, & J.L. Reveal. A list of Linnean generic names and their types. *Regnum Vég.* 127: 1–100.
- JONSELL, B.E. & JARVIS, C.E. 1994. Lectotypification of Linnean names for Flora Nordica, Vol. 1 (Lycopodiaceae–Papaveraceae). *Nordic J. Bot.* 14: 145–150.
- KEMP, E.S. 1981. Additions and name changes to the flora of Swaziland. *Swaziland National Trust Commission Occasional Publication* no. 1.
- KEMP, E.S. 1983. A flora checklist for Swaziland. *Occasional Papers* 2. Swaziland National Trust Commission.
- KENRICK, P., CRANE, P.R. 1997. The origin and early evolution on land. *Nature* 389: 33–39.
- KENT, L.E. 1980. Barberton Sequence, pp. 29–44. In *Stratigraphy of South Africa*, Handbook 8. Department of Mineral and Energy Affairs, Pretoria.
- KENT, L.E. 1980. Usushwana Complex and associated Amsterdam Formation, pp. 81–86. In *Stratigraphy of South Africa*, Handbook 8. Department of Mineral and Energy Affairs, Pretoria.
- KENT, L.E. & MATTHEWS, P.E. 1980. Pongola Sequence, pp. 71–80. In *Stratigraphy of South Africa*, Handbook 8. Department of Mineral and Energy Affairs, Pretoria.
- KEYSER, N. 1997. *Geological map of the Republic of South Africa and the Kingdoms of Lesotho and Swaziland*. Council of Geoscience, Pretoria.
- KRAMER, K.U. 1990. Notes on the higher level of classification of the recent ferns. pp. 49–52. In K. Kubitzki, ed. *The families and genera of vascular plants*. Vol. 1. Pteridophytes and gymnosperms. Vol. eds. K.U. Kramer and P.S. Green. Springer-Verlag, Berlin.
- LÉMAN, D.S. 1825. In F. Cuvier, *Dictionnaire des sciences naturelles dans lequel on traite méthodiquement des différents êtres*, 2nd edn, Vol. 37. Paris.
- LOVIS, J.D. 1977. Evolutionary patterns and processes in ferns. *Advances Bot. Res.* 4: 230–415.
- MAXON, W.R. 1913. Studies of tropical Ameri-

- can ferns. *Contr. U. S. Natl. Herb.* 17: 125–179.
- MICKEL, J.T. 1973. Position and classification within the Dennstaedtiaceae. In A.C. Jermy, J.A. Crabbe & B.A. Thomas, *The phylogeny and classification of the ferns*, pp. 135–144. Academic Press, London.
- MILLER, C.N. 1971. Evolution of the fern family Osmundaceae based on anatomical studies. *Contr. Mus. Paleontol. Univ. Michigan* 23: 105–169.
- MITUI, K., MURAKAMI, N. & IWATSUKI, K. 1989. Chromosomes and systematics of *Asplenium* sect. *Hymenasplenium* (Aspleniaceae). *Amer. J. Bot.* 76: 1689–1697.
- MORTON, C.V. & LELLINGER, D.B. 1966. The Polypodiaceae subfamily Asplenioidae in Venezuela *Mem. New York Bot. Gard.* 15: 1–49.
- MURAKAMI, N. & MORAN, R.C. 1993. Monograph of the neotropical species of *Asplenium* sect. *Hymenasplenium* (Aspleniaceae). *Ann. Missouri Bot. Gard.* 80: 1–38.
- NAYAR, B.K., BAJPAI, N. & CHANDRA, S. 1968. Contributions to the morphology of the fern genus *Oleandra*. *Bot. J. Linn. Soc.* 60: 265–282.
- NESSEL, H. 1939. *Die Bärlappgewächse*. G. Fisher, Jena.
- PAMUKCU, A.M., CHING, Y.W., HATCHER, J. & BRYAN, G.T. 1980. Carcinogenicity of tannin and tannin-free extracts of bracken fern (*Pteridium aquilinum*) in rats. *J. Nat. Cancer Inst.* 65: 131–136.
- PHILLIPS, E.P. 1917. A contribution to the Flora of the Leribe Plateau and environs: with a discussion on the relationships of the floras of Basutoland, the Kalahari, and the south-eastern regions. *Ann. S. African Mus.* XVI: 1–377.
- PICHI SERMOLLI, R.E.G. 1957. Adumbratio florum aethiopicarum. 5. Parkeriaceae, Adiantaceae, Vittariaceae. *Webbia* 12: 645–704.
- PICHI SERMOLLI, R.E.G. 1962. On the genus *Actiniopteris* Link. *Webbia* 17: 1–32.
- PICHI SERMOLLI, R.E.G. 1977. Tentamen pteridophytorum genera in taxonomicum ordinem redigendi. *Webbia* 31: 313–512.
- PICHI SERMOLLI, R.E.G. 1978. Adumbratio florum aethiopicarum. 32. Nephrolepidaceae. *Webbia* 33: 115–135.
- PICHI SERMOLLI, R.E.G. 1984. A new species of *Dryopteris* from tropical east Africa. *Webbia* 37: 329–339.
- PICHI SERMOLLI, R.E.G. 1985. A contribution to the knowledge of the Pteridophyta of Rwanda, Burundi, and Kivu (Zaire)—II. *Bull. Jard. Bot. Belg.* 55: 123–206.
- PROCTOR, G.R. 1977. Pteridophyta. In R.A. Howard, *Flora of the Lesser Antilles, Leeward and Windward Islands*, Vol. 2: 1–414.
- PRYER, K.M. 1999. Phylogeny of marsileaceous ferns and relationships of the fossil *Hydropteris pinnta* reconsidered. *Int. J. Plant Sci.* 160: 931–954.
- PRYER, K.M., SCHNEIDER, H., SMITH, A.R., CRANFILL, R., WOLF, P.G., HUNT, J.S. & SIPES, S.D. 2001. Horsetails and ferns are a monophyletic group and the closest relatives to seed plants. *Nature* 409: 618–622.
- PRYER, K.M., SMITH, A.R. & SKOG, J.E. 1995. Phylogenetic relationships of extant ferns based on evidence from morphological and *rbcL* sequences. *Amer. Fern J.* 85: 205–282.
- ROBERTS, M. 1990. *Indigenous healing plants*. Southern Book Publishers, Halfway House.
- ROTHMALER, W. 1944. Pteridophyten-Studien I. *Feddes Repert. Spec. Nov. Regni Veg.* 54: 55–82.
- ROTHWELL, G.W. 1996. Phylogenetic relationships of ferns: a palaeobotanical perspective. In J.M. Camus, M. Gibby & R.J. Johns, *Pteridology in perspective*: 395–404. Royal Botanic Gardens, Kew.
- ROTHWELL, G.W. 1999. Fossils and ferns in the resolution of land plant phylogeny. *Bot. Rev. (Lancaster)* 65: 188–218.
- ROTHWELL, G.W. & STOCKEY, R.A. 1989. Fossil Ophioglossaceae in the Palaeocene of western North America. *Amer. J. Bot.* 76: 637–644.
- ROTHWELL, G.W. & STOCKEY, R.A. 1991. *Onoclea sensibilis* in the Palaeocene of North America, a dramatic example of structural and ecological stasis. *Rev. Palaeobot. Palynol.* 70: 113–124.
- ROTHWELL, G.W. & STOCKEY, R.A. 1994. The role of *Hydropteris pinnata* gen. et sp. nov. in reconstructing the cladistics of heterosporous ferns. *Amer. J. Bot.* 81: 479–492.
- ROUX, J.P. 1982. The application of the name *Blechnum capense* Burm.f. *J. S. African Bot.* 8: 451–453.
- ROUX, J.P. 1986. A review and typification of some of Kunze's newly described South

- African Pteridophyta published in his *Acotyledonearum Africae Australis Recensio Nova*. *Bot. J. Linn. Soc.* 92: 343–381.
- ROUX, J.P. 2001. Conspectus of southern African Pteridophyta. *Southern African Botanical Diversity Network Report* No. 13. SABONET, Pretoria.
- RUNEMARK, H. 1962. A revision of *Pteris dentata* and related species. *Bot. Not.* 115: 177–195.
- SCHARFETTER, H. 1987. Timber resources and needs in southern Africa. *S. African J. Sci.* 83: 256–259.
- SCHELPE, E.A.C.L.E. 1969. Reviews of tropical African Pteridophyta. I. *Contr. Bolus Herb.* 1: 1–132.
- SCHELPE, E.A.C.L.E. & ANTHONY, N.C. 1986. *Pteridophyta*. In O.A. Leistner, *Flora of Southern Africa*. Department of Agriculture and Water Supply, Pretoria.
- SKOG, J.E. & DILCHER, D.L. 1992. A new species of *Marsilea* from the Dakota Formation in central Kansas *Amer. J. Bot.* 79: 982–988.
- SMITH, J. 1875. *Historia filicum*. Macmillan & Co., London.
- STAFLEU, F.A. & COWAN, R.S. 1976–1988. *Taxonomic literature*, 2nd edn. Bohn, Scheltema & Holkema, Utrecht.
- STEVENSON, D.W. & LOCONTE, H. 1996. Ordinal and familial relationships of pteridophyte genera. In J.M. Camus, M. Gibby and R.J. Johns (eds), *Pteridology in perspective*, pp. 435–467. Royal Botanic Gardens, Kew.
- STEWART, W.N. & ROTHWELL, G.W. 1993. *Paleobotany and the evolution of plants*, 2nd edn. Cambridge University Press, New York.
- STOKEY, A.G. 1930. Prothallia of the Cyatheaceae. *Bot. Gaz.* 90: 1–45.
- SWARTZ, O. 1806. *Synopsis filicum*. Kiel.
- TRYON, R.M. 1941. A revision of the genus *Pteridium*. *Rhodora* 43: 1–67.
- TRYON, R.M. 1955. *Selaginella rupestris* and its allies. *Ann. Missouri Bot. Gard.* 42: 1–99.
- TRYON, R.M. 1962. Taxonomic fern notes. II. *Pityrogramma* (including *Trismeria*) and *Anogramma*. *Contr. Gray Herb.* CLXXXIX: 52–76.
- TRYON, R.M. 1964. The ferns of Peru – Polypodiaceae (Dennstaedtiaceae to Oleanaceae). *Contr. Gray Herb.* CXCIV: 1–253.
- TRYON, R.M. & TRYON, A.F. 1982. *Ferns and allied plants, with special reference to tropical America*. Springer-Verlag, New York.
- VERDCOURT, B. 2000. Schizaeaceae. In H.J. Beentje & S.A.L. Smith, *Flora of tropical East Africa*. A.A. Balkema, Rotterdam.
- WAGNER, W.H. 1964. Evolutionary patterns of living ferns. *Mem. Torrey Bot. Club* 21: 86–95.
- WAGNER, W.H. 1969. The construction of a classification, p. 67–90. In U.S. National Academy of Science. Systematic Biology. *U.S. Natl. Acad. Sci. Publ.* No. 1692. National Academy Press, Washington DC.
- WATT, J.M. & BREYER-BRANDWIJK, M.G. 1962. *The medicinal and poisonous plants of southern and eastern Africa*, 2nd edn. Livingstone, London.
- WIDÉN, C.-J., FADEN, R.B., LOUNASMAA, M., VIDA, G., VON EUW, J. & REICHSTEIN, T. 1973. Die phloroglucide von neun *Dryopteris*-Arten aus Kenya sowie der *D. oligodonta* (Desv.) Pic.Serm. und *D. dilatata* von den Canarischen Inseln. *Helv. Chim. Acta* 56: 2125–2151.
- WOLF, P.G. 1995. Phylogenetic analyses of *rbcL* and nuclear ribosomal RNA gene sequences in Dennstaedtiaceae. *Amer. Fern J.* 85: 306–327.
- WOLF, P.G., SOLTIS, P.S. & SOLTIS, D.S. 1994. Phylogenetic relationships of dennstaedtioid ferns: evidence from *rbcL* sequences. *Molec. Phylogenet. Evol.* 3: 383–392.
- ZEPP, R.A. 1982. *Lesotho ferns*. Morija Printing Works, Morija, Lesotho.

Index to scientific names

Accepted names are in Roman type, synonyms are in *italics*.

- Abacopteris Barthel, 127
Acropteris radiata (J.König ex Sw.) Link, 62
Acrostichum conforme Sw. var. *angustatum* Kunze, 181
filare Forssk., 200
pectinatum L., 52
radiatum (J.König ex Sw.) Poir., 62
thalictroides L., 58
Actiniopteris Link, 62
australis (L.f.) Link var. *radiata* (J.König ex Sw.) C.Chr., 62
australis sensu Sim, 62
radiata (J.König ex Sw.) Link, 62
Adiantum L., 87
achilleifolium Lam., 211
aethiopicum sensu Sim, 89
caffrorum Sw., 68
capillus-veneris L., 87, 88
globatum Poir., 70
hirtum (Sw.) Poir., 68
marginatum Schrad., 88
paradiseae Baker, 88
poiretii J.E.Wikstr., 89
var. *sulphureum* (Kaulf.) R.M.Tryon, 89
pseudo-capillus Fée, 88
raddianum C.Presl, 90
sulphureum Kaulf., 89
viride (Forssk.) Vahl, 74
Allantodia aspidioides (Schltdl.) Kunze, 173
scandicina (Willd.) Kaulf., 173
Allosorus aquilinus (L.) C.Presl, 111
calomelanos (Sw.) C.Presl, 80
capensis (Thunb.) Pappe & Rawson, 111
concolor (Langsd. & Fisch.) Kuntze, 85
consobrinus (Kunze) Pappe & Rawson, 73
coriifolia (Kunze) Pappe & Rawson, 112
durus (Willd.) C.Presl, 82
hastatus (L.f.) Prantl var. *macrophylla* (Kunze) Pappe & Rawson, 78
pectiniformis (Baker) Kuntze, 84
quadripinnatus (Forssk.) C.Presl, 72
Alsophila capensis (L.f.) J.Sm., 105
dregei (Kunze) R.M.Tryon, 107
Amauropelta Kunze, 132
bergiana (Schltdl.) Holttum, 132
var. *bergiana*, 132
breutelii Kunze, 132
Ampelopteris Kunze, 128
elegans Kunze, 128
prolifera (Retz.) Copel., 128
Amphicosmia capensis (L.f.) Klotzsch, 105
riparia (Willd.) Gardner, 105
Anemia Sw., 54
dregeana Kunze, 54
dregeana Kunze forma β Kunze, 54
phyllitidis (L.) Sw., 54
ANEMIACEAE Link, 54
Aphyllocalpa regalis (L.) Lag., 35
Arthropteris J.Sm. ex Hook.f., 178
monocarpa (Cordem.) C.Chr., 178
tenella (G.Forst.) J.Sm. ex Hook.f., 178
Aspidium athamanticum Kunze, 149
bergianum (Schltdl.) Mett., 132
catopteron Kunze, 170
cicutarium sensu Sim, 169
coadunatum Kaulf. var. *gemmaferum* (Fée) Mett. ex Kuhn, 169
ecklonii Kunze, 130
gemmaferum (Fée) Ching, 169
gueinzianum Mett., 142
hispidulum Decne., 144
inaequale Schltdl., 150
lanuginosum Willd. ex Kaulf., 170
luctuosum Kunze, 158
macleae Baker, 161
pentagonum (T.Moore) Kuhn, 153
pungens Kaulf., 162
scandicinum Willd., 173
speluncae (L.) Willd., 109
squamigerum (Schltdl.) Fée, 133
squamisetum (Hook.) Kuhn, 145
thelypteris (L.) Sw. var. *squamigerum* Schltdl., 133
tottum (Schltdl.) Engl., 136
truncatulum Sw., 167
ASPENIACEAE Mett. ex A.B.Frank, 195
Asplenium L., 195
sect. *Hymenasplenium* (Hayata) K.Iwats., 195
sect. *Sphenopteris* Mett., 195
achilleifolium (Lam.) C.Chr., 211
adiantoides Lam., 196
aethiopicum (Burm.f.) Bech., 196
subsp. *aethiopicum*, 196

- subsp. *filare* (Forssk.) A.F.Braithw., 200
apomict pseudofilare, 200
 subsp. *tripinnatum* (Baker)
 A.F.Braithw., 199
anisophyllum Kunze, 201
aquilinum (L.) Bernh., 111
aspidioides Schltdl., 173
bipinnatum (Forssk.) C.Chr., 211
boltonii Hook. ex Brause & Hieron., 203
brachyotus Kunze, 207
concinnum (Schrad.) Kuhn, 216
cuneatum Lam. var. *splendens* (Kunze)
 Sim, 213
erectum Bory ex Willd., 204
 var. *brachyotus* (Kunze) Sim, 207
 var. *gracile* (Pappe & Rawson) Tardieu,
 208
 var. *lobatum* (Pappe & Rawson) Sim, 208
 var. *usambarense* (Hieron.) Schelpe, 206
 var. *zeyheri* (Pappe & Rawson) T.Moore,
 206
falsum Retz., 196
furcatum Thunb., 197
 var. *tripinnatum* Baker, 199
gracile Pappe & Rawson, 208
inequilaterale Willd., 207
japonicum Thunb., 174
laetum sensu Sim, 207
laetum Sw. var. *brachyotus* (Kunze)
 Bonap., 207
laxum (Pappe & Rawson) Kuhn, 173
lobatum Pappe & Rawson, 208
 var. *pseudoabyssinicum* N.C.Anthony &
 Schelpe, 208
lunulatum Sw.
 var. *erectum* (Bory ex Willd.) Sim, 204
 var. *gracile* (Pappe & Rawson) Sim, 208
marinum L., 195
multiforme Krasser, 209
mutilatum Kaulf., 206
praemorsum sensu Sim, 197
praemorsum Sw. var. *tripinnatum* sensu
 Sim, 199
radiatum J.König ex Sw., 62
rutifolium (P.J.Bergius) Kunze, 211
rutifolium (P.J.Bergius) Kunze var.
 bipinnatum (Forssk.) Schelpe, 211
sandersonii Hook., 212
scandicinum (Willd.) A.Heller, 173
sphenolobium (Kunze) Hieron. var.
 usambarense Hieron., 206
splendens Kunze, 213
 subsp. *splendens*, 213
theciferum (Humb., Bonpl. et Kunth)
 Mett., 215
 var. *concinnum* (Schrad.) Schelpe, 215
theciferum sensu Sim, 216
unilaterale Lam., 195, 217
usambarense (Hieron.) Hieron., 206
zeyheri Pappe & Rawson, 206
Athyriopsis japonica (Thunb.) Ching, 174
Athyrium Roth, 173
 aspidioides (Schltdl.) Christ, 173
 felix-femina (L.) Roth, 173
 japonicum (Thunb.) Copel., 174
 laxum Pappe & Rawson, 173
 scandicinum (Willd.) C.Presl, 173
Bernhardia capensis Müll.Berol., 13
BLECHNACEAE (C.Presl) Copel., 182
Blechnopsis australis (L.) Trevis., 185
 punctulata (Sw.) Trevis., 190
Blechnum L., 182
 atherstonei Pappe & Rawson, 193
 attenuatum (Sw.) Mett., 183
 var. *giganteum* (Kaulf.) Bonap., 183
 australe L., 185
 var. *aberrans* N.C.Anthony & Schelpe, 185
 capense Burm.f., 188
 capense (L.) Schltdl., 188
 cycadioides (Pappe & Rawson) Kuhn, 193
 dalgairnsiae (Pappe & Rawson) Kuhn, 193
 giganteum (Kaulf.) Schltdl., 183
 heterophylla (Desv.) Schltdl., 183
 inflexum (Kunze) Kuhn, 189
 occidentale L., 182
 punctulatum Sw., 190
 var. *atherstonei* (Pappe & Rawson) Sim,
 193
 var. *punctulatum*, 190
 radiatum (J.König ex Sw.) C.Presl, 62
 rigidum Sw., 190
 sylvaticum Schelpe, 188
 tabulare (Thunb.) Kuhn, 193
Blotiella R.M.Tryon, 115
 glabra (Bory) R.M.Tryon, 115
Botrychium Sw., 31
Bryodesma dregei (C.Presl) Soják, 25
Caenopteris rutifolium P.J.Bergius, 211
Calymella polypodioides (L.) Ching, 39
Cephalomanes C.Presl, 50
 atrovirens C.Presl, 50
 rigidum (Sw.) K.Iwats., 51
Ceratopteris Brongn., 58
 cornuta (P.Beauv.) Lepr., 58

- thalictroides (L.) Brongn., 58
 var. *cornuta* (P.Beauv.) Schelpe, 58
Ceropteris calomelanos sensu Sim, 60
Ceterach Willd., 195
 pozoi (Lag.) A.Braun ex Milde, 136
Cheilanthes Sw., 63
 anthriscifolia Schltld., 113
 aspera Kaulf., 113
 atherstonei Hook., 73
 bergiana Schltld., 65
 bolusii Baker, 70
 commutata Kunze, 113
 concolor (Langsd. & Fisch.) R.M.Tryon & A.F.Tryon, 85
 eckloniana (Kunze) Mett., 66
 elata Kunze, 65
 firma T.Moore, 73
 glandulosa Pappe & Rawson, 69
 hastata (L.f.) Kunze
 var. *canonica* Kunze, 77
 var. *macrophylla* Kunze, 78
 var. *stenophylla* Kunze, 74
 hirta Sw., 68
 forma *laxa* (Kunze) Alston, 69
 var. *brevipilosa* W.Jacobsen & N.Jacobsen, 69
 forma *laxa* (Kunze) W.Jacobsen & N.Jacobsen, 69
 forma *waterbergensis* W.Jacobsen & N.Jacobsen, 69
 var. *infracampensis* W.Jacobsen & N.Jacobsen, 69
 var. *intermedia* Kunze, 68
 var. *laxa* Kunze, 69
 var. *numerosa* W.Jacobsen & N.Jacobsen, 69
 hyaloglandulosa W.Jacobsen & N.Jacobsen, 69
 kirkii Hook., 85
 linearis T.Moore, 73
 macrophylla (Kunze) Kunze, 78
 micropteris Sw., 63
 multifida (Sw.) Sw., 70
 var. *flexa* Kunze, 70
 var. *lacerata* N.C.Anthony & Schelpe, 70
 quadripinnata (Forssk.) Kuhn, 72
 refracta Pappe & Rawson, 70
 sparsisora Schrad., 113
 triangula Kunze, 73
 viridis (Forssk.) Sw., 74
 var. *glauca* (Sim) Schelpe & N.C.Anthony, 77
 var. *macrophylla* (Kunze) Schelpe & N.C.Anthony, 78
 var. *viridis*, 74
Christella H.Lév., 138
 dentata (Forssk.) Brownsey & Jermy, 140
 gueinziana (Mett.) Holttum, 141
 hilsenbergii (C.Presl) Holttum, 144
 hispidula (Decne.) Holttum, 144
 parasitica (L.) H.Lév., 138
Cincinnatiella aquilina (L.) Gled. ex Trevis., 111
Cormophyllum capense (L.f.) Newm., 105
Crepidomanes (C.Presl) C.Presl, 46
 borbonicum (Bosch) J.P.Roux, 48
 inopinatum (Pic.Serm.) J.P.Roux, 49
 var. *inopinatum*, 49
 intramarginale (Hook. & Grev.) C.Presl, 46
 melanotrichum (Schltld.) J.P.Roux, 50
Ctenitis lanuginosa (Willd. ex Kaulf.) Copel., 170
Cyathea Sm., 104
 CYATHEACEAE Kaulf., 104
Cyathea arborea (L.) Sm., 104
 burkei Hook., 107
 capensis (L.f.) Sm., 105
 var. *capensis*, 105
 dregei Kunze, 107
 riparia Willd., 105
Cyathocaulis Ogura, 104
Cyclosorus Link, 129
 dentatus Ching, 140
 gogylodes (Schkuhr) Link, 129
 interruptus (Willd.) H.Itô, 130
 proliferus (Retz.) Tardieu & C.Chr., 128
 quadrangularis (Fée) Tardieu, 144
 silvaticus (Pappe & Rawson) Ching, 137
 tottus (Thunb.) Pic.Serm., 130
Cystopteris scandicina (Willd.) Desv., 173
Davallia campyloptera Kunze, 216
 concinna Schrad., 215
 speluncae (L.) Baker, 109
 thecifera Kunth, 215
 DENNSTAEDTIACEAE Pic.Serm., 108
Deparia Hook. & Grev., 174
 japonica (Thunb.) M.Kato, 174
 macraei Hook. & Grev., 174
 prolifera (Kaulf.) Hook., 174
Dicksonia polypodioides Sw., 109
 prolifera Kaulf., 109
Dicranopteris Bernh., 43
 linearis (Burm.f.) Underw., 43
 var. *linearis*, 43
Didymochlaena Desv., 167

- dimidiata* Kunze, 167
lunulata Desv. sensu Sim, 167
sinuosa Desv., 167
truncatula (Sw.) J.Sm., 167
Diplazium japonicum (Thunb.) Bedd., 174
Doryopteris J.Sm., 85
 concolor (Langsd. & Fisch.) Kuhn, 85
 var. *kirkii* (Hook.) R.E.Fr., 85
 var. *nickelsii* (Tardieu) Schelpe, 85
kirkii (Hook.) Alston, 85
nickelsii Tardieu, 85
palmata (Willd.) J.Sm., 85
pedata (L.) Fée var. *palmata* (Willd.)
 Hicken, 85
Drymoglossum acrostichoides (Hook. & Grev.)
 T.Moore, 181
Drynaria lepidota (Willd. ex Schltdl.) Fée, 123
 macrocarpa (Bory ex Willd.) Fée, 123
DRYOPTERIDACEAE Ching, 145
Dryopteris Adans., 148
 africana (Desv.) C.Chr., 136
 athamantica (Kunze) Kuntze, 149
 bergiana (Schltdl.) Kuntze, 132
 buchananii (Baker) Kuntze, 145
 catoptera (Kunze) Kuntze, 170
 dentata (Forssk.) C.Chr., 140
 filix-mas (L.) Schott., 85
 gongylodes sensu Sim, 130
 inaequalis (Schltdl.) Kuntze, 150
 inaequalis (Schltdl.) Kuntze var.
 atropaleacea Schelpe, 153
 lanuginosa (Willd. ex Kaulf.) C.Chr., 170
 lewalleana Pic.Serm., 153
 orientalis sensu Sim, 178
 pentheri (Krasser) C.Chr., 156
 prolifera (Retz.) C.Chr., 128
 prolixa (Willd.) Kuntze var. *bergiana*
 (Schltdl.) Alston, 132
 pungens (Kaulf.) Kuntze, 162
 quadrangularis (Fée) Alston, 144
 silvatica (Pappe & Rawson) C.Chr., 137
 squamiseta (Hook.) Kuntze, 145
 thelypteris (L.) A.Gray var. *squamigera*
 (Schltdl.) C.Chr., 133
 thelypteris sensu Sim, 133
 totta (Schltdl.) Masam., 136
Elaphoglossum Schott ex J.Sm., 180
 acrostichoides (Hook. & Grev.) Schelpe, 180
 conforme (Sw.) J.Sm., 180
Ellobocarpus cornutus (P.Beauv.) Kaulf., 58
EQUISETACEAE Rich. ex DC., 15
Equisetum L., 15
 burchellii Vaucher, 15
 fluviatile L., 15
 ramosissimum Desf., 15
 subsp. *debile* (Roxb. ex Vaucher) Hauke,
 16
 subsp. *ramosissimum*, 16
 var. *arcuatum* Milde, 16
 var. *burchellii* (Vaucher) Milde, 15
 var. *capense* Milde, 15
 var. *distortum* Milde, 16
 var. *dregeanum* Milde, 15
 var. *flagelliferum* Milde, 16
 var. *natalense* Milde, 16
 thunbergii Wikstr., 15
Eupteris aquilina (L.) Newman, 111
Furcaria cornuta (P.Beauv.) Desv., 58
Gleichenia Sm., 39
 argentea Kaulf., 39
 glauca Sw., 40
 var. *nudiuscula* Kunze, 40
 linearis (Burm.f.) C.B.Clarke, 43
 polypodioides (L.) Sm., 39
 umbraculifera (Kunze) T.Moore, 42
GLEICHENIACEAE (R.Br.) C.Presl, 39
Goniopteris madagascariensis Fée, 137
 prolifera (Retz.) C.Presl, 128
 silvatica Pappe & Rawson, 137
 unita J.Sm., 137
Grammitis totta (Schltdl.) C.Presl, 136
Gymnogramma abyssinica Baker, 124
 calomelanos Sw. var. *aureoflava* Hook., 60
 pozoii (Lag.) Desv., 136
 totta Schltdl., 136
 unita Kunze, 137
Hemionitis pozoii Lag., 136
 prolifera Retz., 128
Hemitelia capensis (L.f.) Kaulf., 105
 riparia (Willd.) Desv., 105
Hippochaete ramosissimum (Desf.) Börner, 15
Huperzia Bernh., 17
 gnidioides (L.f.) Trevis., 17
 selago (L.) Bernh. ex Schrank & Mart., 17
 verticillata (L.f.) Trevis., 18
HYMENOPHYLLACEAE Link, 45
Hymenophyllum Sm., 45
 dregeanum C.Presl, 46
 tunbridgense (L.) Sm., 45
Hypolepis Bernh., 113
 anthriscifolia (Schltdl.) C.Presl, 113
 aspera (Kaulf.) C.Presl, 113
 bergiana (Schltdl.) Hook., 65
 sparsisora (Schrud.) Kuhn, 113
 tenuifolia (G.Forst.) Bernh. ex C.Presl, 113

- Lastrea africana* (Desv.) Ching, 136
athamantica (Kunze) T.Moore, 149
bergiana (Schltdl.) T.Moore, 132
buchananii (Baker) Bedd., 145
catoptera (Kunze) Pappe & Rawson, 170
gueinziana (Mett.) T.Moore, 142
inaequalis (Schltdl.) C.Presl, 150
lanuginosa (Willd. ex Kaulf.) T.Moore, 170
pentagona T.Moore, 153
plantii T.Moore, 149
thelypteris (L.) Bory var. *squamigerum* (Schltdl.) Bedd., 133
totta (Schltdl.) Ohiwi, 136
- Lepidotis cernua* (L.) P.Beauv., 23
clavata (L.) P.Beauv., 20
funiculosa (Lam.) P.Beauv., 18
inflexa P.Beauv., 20
- Lepisorus* (J.Sm.) Ching, 117
gueinzii (Mett.) Ching, 117
schraderi (Mett.) Ching, 117
thunbergianus (Kaulf.) Ching, 117
- Leptogramma africana* (Desv.) Nakai ex Mori, 136
pozoi (lag.) Heywood, 136
totta (Schltdl.) J.Sm., 136
- Litobrochia dura* (Willd.) T.Moore, 82
- Lomaria attenuata* (Sw.) Willd., 183
auriculata Desv., 190
australis (L.) Link, 185
boryana sensu Sim, 193
capensis (L.) Willd., 188
coriacea Schrad., 193
cycadioides Pappe & Rawson, 193
dalgairnsiae Pappe & Rawson, 193
decipiens Pappe & Rawson, 183
densa Kaulf., 190
discolor Willd. var. *natalensis* Baker, 189
dregeana Fée, 190
gigantea Kaulf., 183
gueinzii Moug. ex Fée, 193
hamata Kaulf., 183
heterophylla Desv., 183
inflexa Kunze, 189
procera sensu Sim, 188
pumila Kaulf., 185
punctata Blume, 183
punctulata (Sw.) Kunze, 190
var. *atherstonei* (Pappe & Rawson) Sim, 193
rigida (Sw.) Fée, 190
tabularis (Thunb.) Mett. ex Baker, 193
- LOMARIOPSIDACEAE Alston, 180
- Lonchitis bipinnata* Forssk., 211
glabra Bory, 116
pubescens sensu Sim, 116
steno-chlamys Fée, 116
- Loxogramme* (Blume) C.Presl, 124
abyssinica (Baker) M.G.Price, 124
lanceolata auct., 124
- Loxoscaphe* T.Moore, 195
concinnum (Schrad.) T.Moore, 216
thecifera (Humb., Bonpl. et Kunth) T.Moore, 215
var. *concinnum* (Schrad.) C.Chr., 216
- Lunathyrium japonicum* (Thunb.) Sa.Kurata, 174
- LYCOPODIACEAE P.Beauv. ex Mirb., 17
- Lycopodiella* Holub, 21
cernua (L.) Pic.Serm., 23
inundata (L.) Holub, 21
sarcocaulon (A.Braun & Welw. ex Kuhn) Pic.Serm., 24
- Lycopodium* L., 20
ambiguum Schrad., 18
carolinianum L. var. *grandifolium* Spring, 24
cernuum L., 23
clavatum L., 20
var. *inflexum* (P.Beauv.) Spring, 20
var. *natalense* Nessel, 20
dregei C.Presl, 25
flagelliforme Schrad., 18
funiculosum Lam., 18
gnidioides L.f., 17
var. *pinifolium* (Kaulf.) Pappe & Rawson, 18
heeschii Müll.Berol., 23
imbricatum Forssk., 26
inflexum (P.Beauv.) Sw., 20
kraussianum Kunze, 27
nudum L., 13
pinifolium Kaulf., 18
sarcocaulon A.Braun & Welw. ex Kuhn, 24
secundum Müll.Berol., 23
verticillatum L.f., 18
- Magnastriatites* Germeraad, Hopping & Muller, 58
- Marattia* Sw., 34
alata Sw., 34
dregeana C.Presl, 34
fraxinea Sm., 34
var. *salicifolia* (Schrad.) C.Chr., 34
natalensis (Kunze) C.Presl, 34
salicifolia Schrad., 34

- salicifolia* Schrad., 34
 var. *natalensis* Kunze, 34
 MARATTIACEAE Bercht. & J.Presl, 33
Marginaria ecklonii (Kunze) Pic.Serm., 119
 Marsilea L., 218
 cornuta A.Braun, 221
 diffusa Lepr. var. *cornuta* A.Braun, 221
 ephippiocarpa Alston, 218
 fenestrata Launert, 220
 minuta L., 221
 var. *minuta*, 221
 quadrifolia L., 218
 MARSILEACEAE Mirb., 218
 Megalastrum Holttum, 170
 lanuginosum (Willd. ex Kaulf.) Holttum,
 170
 villosum (L.) Holttum, 170
Meniscium proliferum (Retz.) Sw., 128
Mertensia Willd., 43
 linearis (Burm.f.) Fritsch, 43
 umbraculifera Kunze, 42
Mesothema australis (L.) C.Presl, 185
 punctulata (Sw.) C.Presl, 190
 rigidum (Sw.) C.Presl, 190
 Microgramma C.Presl, 120
 lycopodioides auct. 122
 mauritiana (Willd.) Tardieu, 122
 persicariifolia (Schrad.) C.Presl, 120
 Microlepia C.Presl, 109
 polypodioides (Sw.) C.Presl, 109
 speluncae (L.) T.Moore, 109
 Mohria Sw., 55
 caffrorum (L.) Desv., 55
 var. *vestita* (Baker) F.Ballard, 55
 thurifraga Sw., 55
 vestita Baker, 55
Myriopteris hirta (Sw.) J.Sm., 68
 intermedia (Kunze) Fée, 68
Myriotheca fraxinea (Sm.) Poir., 34
Nephrodium albo-punctatum sensu Sim, 178
 athamanticum (Kunze) Hook., 149
 bergianum (Schltdl.) Baker, 132
 buchananii Baker, 145
 catopteron (Kunze) Hook., 170
 cicutarium sensu Sim, 169
 eurylepium A.Peter, 149
 gueinzianum (Mett.) Hieron., 142
 hilsenbergii C.Presl, 144
 hispidulum A.Peter, 140
 inaequale (Schltdl.) Hook., 150
 lanuginosum (Willd. ex Kaulf.) Desv., 170
 monocarpum Cordem., 178
 pentheri Krasser, 156
 proliferum (Retz.) Keyserl., 128
 quadrangulare Fée, 144
 scandicinum (Willd.) Bory, 173
 squamisetum Hook., 145
 thelypteris sensu Sim, 133
 tottum (Schltdl.) Diels, 136
 unitum sensu Sim, 130
 NEPHROLEPIDACEAE Pic.Serm., 125
 Nephrolepis Schott, 125
 exaltata (L.) Schott, 125
Niphobolus schraderi (Mett.) Keyserl., 117
Notholaena calomelanos (Sw.) Keyserl., 80
 capensis Spreng., 68
 eckloniana Kunze, 66
 hirta (Sw.) J.Sm., 68
 krebsiana C.Presl, 66
 Nothoperanema (Tagawa) Ching, 145
 squamiseta (Hook.) Ching, 145
Oetosis isoetifolia (Bory) Greene, 102
 Oleandra Cav., 177
 articulata sensu Sim, 177
 densifrons Kunze, 177
 distenta Kunze, 177
 neriiformis Cav., 177
 OLEANDRACEAE (J.Sm.) Ching ex
 Pic.Serm., 176
 Onoclea L., 145
 attenuata Sw., 183
 capensis (L.) Sw., 188
 polypodioides L., 39
Onychium cornutum (P.Beauv.) Hassk., 58
 OPHIOGLOSSACEAE (R.Br.) C.Agardh, 31
 Ophioglossum L., 31
 lanceifolium sensu Schelpe & Anthony, 31
 lusoaffricanum Welw. ex Prantl, 31
 reticulatum L., 33
 vulgatum L., 31
Ornithopteris aquilina (L.) J.Sm., 111
 Osmunda L., 35
 capensis C.Presl, 35
 capensis L., 188
 regalis L., 35
 var. *capensis* (C.Presl) Milde, 35
 schelpei A.E.Bobrov, 35
 transvaalensis A.E.Bobrov, 36
 OSMUNDACEAE Bercht. & J.Presl, 35
Paesia aquilina (L.) Keyserl., 111
Palhinhaea cernua (L.) Vasc. & Franco, 23
 PARKERIACEAE Hook., 58
 Pellaea Link, 79
 atropurpurea (L.) Link, 79

- burkeana* (Hook.) Baker, 82
calomelanos (Sw.) Link, 80
 var. *calomelanos*, 80
concolor (Langsd. & Fisch.) Baker, 85
consobrina (Kunze) Hook., 73
dura (Willd.) Hook., 82
geraniifolia sensu Sim, 85
goudotii Kunze ex C.Chr., 84
hastata (L.f.) Link
 var. *glauca* Sim, 77
 var. *macrophylla* (Kunze) Hook., 78
hastata sensu Sim, 74, 80
pectiniformis Baker, 83
quadripinnata (Forssk.) Prantl, 73
viridis (Forssk.) Prantl, 74
 var. *glauca* (Sim) Sim, 77
 var. *macrophylla* (Kunze) Sim, 78
Pellaeopsis burkeana (Hook.) J.Sm., 83
Phegopteris sparsisora (Schrad.) Keyserl., 113
 totta (Schltdl.) Mett., 136
 unita (Kunze) Mett., 137
Phymatodes elongata (Schrad.) Pappe &
 Rawson, 117
Pilularia L., 218
Pityrogramma Link, 60
 calomelanos (L.) Link, 60
 var. *aureoflava* (Hook.) Weath. ex
 L.H.Bailey, 60
 chrysophylla (Sw.) Link, 60
Plananthus gnidioides (L.f.) P.Beauv., 18
 verticillatus (L.f.) P.Beauv., 18
Platyloma calomelanos (Sw.) J.Sm., 80
Pleopeltis Humb. et Bonpl. ex Willd., 123
 angustata Humb. et Bonpl. ex Willd., 123
 ensifolia Carm. ex Hook., 123
 lepidota (Willd. ex Schltdl.) C.Presl, 123
 macrocarpa (Bory ex Willd.) Kaulf., 123
 var. *interjecta* (Weath.) A.R.Sm., 124
 var. *laciniata* Stolze, 124
 var. *macrocarpa*, 123
 schraderi (Mett.) Tardieu, 117
Pleurosorus pozoi (Lag.) Trevis., 136
Pneumatopteris Nakai, 137
 callosa (Blume) Nakai, 137
 unita (Kunze) Holttum, 137
POLYPODIACEAE Bercht. & J.Presl, 117
Polypodium L., 119
 adpersum Schrad., 123
 africanum Desv., 136
 bergianum Schltdl., 132
 capense L.f., 105
 dentatum Forssk., 140
 ecklonii Kunze, 119
 elongatum Schrad., 117
 exaltatum L., 125
 gueinzii Mett., 117
 filix-mas L., 117
 incanum sensu Sim, 120
 lanceolatum sensu Burt Davy, 123
 lepidotum Willd. ex Schltdl., 123
 lineare Burm.f., 43
 var. *schraderi* (Mett.) Sim, 117
 lonchitis L., 157
 lycopodioides L. var. *mackenii* (Baker)
 Sim, 122
 mackenii Baker, 122
 macrocarpum Bory ex Willd., 123
 mauritanum Willd., 122
 polypodioides (L.) Watt, 119
 subsp. *ecklonii* (Kunze) Schelpe, 119
 polypodioides sensu Sim, 120
 schraderi Mett., 117
 speluncae L., 109
 tenella G.Forst., 178
 tottum Thunb., 130
 tottum Willd., 136
 trifoliatum L., 168
 unitum (Kunze) Hook., 137
 villosum L., 170
 vulgare L., 119
Polystichum Roth, 157
 capense (L.f.) J.Sm., 105
 inaequale (Schltdl.) Keyserl., 150
 lanuginosum (Willd. ex Kaulf.) Keyserl.,
 170
 lobatum (Huds.) Batard var. *luctuosum*
 (Kunze) Christ, 158
 lonchitis (L.) Roth, 157
 luctuosum (Kunze) T.Moore, 158
 macleae (Baker) Diels, 161
 pungens (Kaulf.) C.Presl, 162
 transkeiense W.Jacobsen, 164
Pseudolycopodiella sarcocaulon (A.Braun &
 Welw. ex Kuhn) Holub, 24
PSILOTACEAE Kanitz, 13
Psilotum Sw., 13
 nudum (L.) P.Beauv., 13
 triquetrum Sw., 13
PTERIDACEAE Rchb., 59
Pteridella dura (Willd.) Mett. ex Kuhn, 82
 pectiniformis (Baker) Mett. ex Kuhn, 84
 quadripinnata (Forssk.) Mett. ex Kuhn, 73
 viridis (Forssk.) Mett. ex Kuhn, 74
Pteridium Gled. ex Scop., 111

- aquilinum (L.) Kuhn, 111
 subsp. aquilinum, 111
 subsp. *capense* (Thunb.) C.Chr., 111
capense (Thunb.) Krasser, 111
 Pteris L., 91
 abrahamii Hieron., 98
 aquilina L., 111
 biaurita sensu Sim, 92
 burkeana Hook., 82
 calomelanos Sw., 80
 capensis Thunb., 111
 catoptera Kunze, 92
 var. *catoptera*, 92
 var. *friesii* (Hieron.) Verdc., 98
 var. *horridula* Schelpe, 94
 concolor Langsd. & Fisch., 85
 confluens Thunb., 133
 consobrina Kunze, 73
 coriifolia Kunze, 112
 cornuta P.Beauv., 58
 cretica L., 95
 dentata Forssk., 96
 var. *flabellata* (Thunb.) Runemark, 96
 dura Willd., 82
 flabellata Thunb., 96
 friesii Hieron., 98
 glabra (Bory) Mett., 116
 hastaefolia Schrad., 74
 interrupta Willd., 130
 lineata L., 101
 longifolia L., 91
 longifolia sensu Sim, 99
 pectiniformis Godet ex Mett., 83
 quadriaurita Retz.
 subsp. *catoptera* (Kunze) Schelpe, 92
 subsp. *friesii* (Hieron.) Schelpe, 98
 quadripinnata Forssk., 72
 radiata (J.König ex Sw.) Bojer, 62
 serraria Sw., 95
 tabularis Thunb., 193
 thalictroides (L.) Sw., 58
 viridis Forssk., 74
 vittata L., 99
Pteropsis angustifolia Pappe & Rawson, 102
Pynodoria cretica (L.) Small, 95
 vittata (L.) Small, 99
 Regnellidium Lindm., 218
Sagenia gemmifera Fée, 169
 Schizaea Sm., 52
 dichotoma (L.) Sm., 52
 pectinata (L.) Sw., 52
 SCHIZAEACEAE Kaulf., 52
 Scyphofilix speluncae (L.) Farw., 109
 Selaginella P.Beauv., 25
 caffrorum (Milde) Hieron., 21
 cooperii Baker, 30
 depressa sensu Sim, 30
 dregei (C.Presl) Hieron., 25
 var. *buchmanniana* Hieron., 26
 var. *pretoriensis* Hieron., 26
 var. *rehmanniana* Hieron., 26
 hortensis Mett., 27
 imbricata (Forssk.) Spring ex Decne., 26
 kraussiana (Kunze) A.Braun, 27
 mackenii Baker, 29
 mittenii Baker, 29
 rupestris sensu Burt Davy, 26
 rupestris (L.) Spring var. *recurva* A.Braun
 forma *dregei* (C.Presl) A.Braun ex
 Kuhn, 25
 selaginoides (L.) Link, 25
 tectissima Baker, 30
 welwitschii Baker, 29
 SELAGINELLACEAE Willk., 25
Selenodesmium rigidum (Sw.) Copel., 51
Spicanta attenuata (Sw.) Kuntze, 183
 australis (L.) Kuntze, 185
 capensis (L.) Kuntze, 188
 punctulata (Sw.) Kuntze, 190
Stachygynandrum verticillatum (L.f.)
 P.Beauv., 18
 Stachypteris Pomel, 52
 Stegogramma Blume, 136
 aspidioides Blume, 136
 pozoi (Lag.) K.Iwats., 136
Sticherus umbraculiferus (Kunze) Ching, 42
Struthiopteris australis (L.) Trevis., 185
 dregeana (Fée) Trevis., 190
 inflexa (Kunze) Ching, 189
 punctulata (Sw.) Trevis., 190
 regalis (L.) Bernh., 35
 rigida (Sw.) Trevis., 190
Tarachia splendens (Kunze) C.Presl, 213
 Tectaria Cav., 168
 gemmifera (Fée) Alston, 169
 trifoliata (L.) Cav., 168
 TECTARIACEAE Panigrahi, 168
 THELYPTERIDACEAE Pic.Serm., 127
 Thelypteris Schmidel, 133
 bergiana (Schltdl.) Ching, 132
 confluens (Thunb.) C.V.Morton, 133
 dentata (Forssk.) E.P.St.John, 140
 gueinziana (Mett.) Schelpe, 142
 hispidula (Decne.) Reed, 144

- interrupta* (Willd.) K.Iwats., 130
madagascariensis (Fée) Schelpe, 137
palustris Schott, 133
 var. *squamigera* (Schltdl.) Weath., 133
pozoi (Lag.) Morton, 136
prolifera (Retz.) Vorster, 128
quadrangularis (Fée) Schelpe, 144
silvatica (Pappe & Rawson) Reed, 137
squamigera (Schltdl.) Ching, 133
totta (Thunb.) Schelpe, 130
Tmesipteris Bernh., 13
Todea Willd. ex Bernh., 36
 africana Willd. ex Bernh., 36
 barbara (L.) T.Moore, 38
 papuana Hennipm., 36
Trichomanes aethiopicum Burm.f., 196
 borbonicum Bosch, 48
 cormophyllum Kaulf., 105
 cupressoides Desv., 51
 dregei Bosch, 51
 incisum Thunb., 105
 inopinatum (Pic.Serm.) J.E.Burrows, 49
 melanotrichum Schltdl., 50
 pyxidiferum L. var. *melanotrichum*
 (Schltdl.) Schelpe, 50
 pyxidiferum sensu Sim, 50
 rigidum Sw., 51
Urostachys gnidioides (L.f.) Herter ex Nessel, 18
 verticillatus (L.f.) Herter, 18
Vandenboschia inopinata Pic.Serm., 49
 melanotricha (Schltdl.) Pic.Serm., 50
Vittaria Sm., 101
 acrostichooides Hook. & Grev., 181
 gueinzii Trevis., 102
 isoetifolia Bory, 102
 lineata (L.) Sm., 101
 lineata sensu Sim, 102
 longidentata Müll.Berol., 102
 sarmentosa Ruiz. ex Fée, 102
 tenera Fée, 102
VITTARIACEAE Sm., 101
WOODSIACEAE (Diels) Herter, 173

