

New species in the section *Multinerviae* of *Cliffortia* (Rosaceae)

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Keywords: *Cliffortia* L., new combinations, new species, new statuses, Rosaceae, section *Multinerviae* DC., species complexes

ABSTRACT

Three species complexes in section *Multinerviae* DC. of *Cliffortia* L. are discussed. Two of the varieties of *C. ilicifolia* L. are raised to specific rank: *C. reniformis* and *C. schlechteri*, as are both varieties of *C. grandifolia* Eckl. & Zeyh.: *C. denticulata* and *C. recurvata*. Two new species are described that were previously included within the variable species *C. dregeana* C. Presl: *C. acanthophylla* and *C. ceresana*. Three further new species belonging to section *Multinerviae* are also described: *C. oligodonta*, *C. prionota* and *C. scandens*.

INTRODUCTION

The sectional classification of the genus *Cliffortia* L. is in need of revision (Whitehouse 2003). However, the current circumscription (Weimarck 1934, 1948) of section *Multinerviae* DC. can be retained for the most part. Species of section *Multinerviae* are generally medium to tall shrubs with tough, rigid, unifoliate leaves that are often sharply pointed and toothed and have several veins from the base. They also have male flowers with numerous stamens (20+), which are almost always white to yellow in colour, and female flowers tucked down at the base of the leaves and consequently often hidden from sight.

Within section *Multinerviae* there are three species complexes, which have previously been regarded as three variable species each with a number of varieties. The *C. ilicifolia* L. complex has a southern Cape distribution, between Cape Town and Port Elizabeth, whereas *C. dregeana* C. Presl has a distribution along the western Cape mountains, from the Riviersonderend Mountains northwards to the Cederberg. The other complex, *C. grandifolia* Eckl. & Zeyh., is restricted to the southwestern Cape mountains and Langeberg. In this paper, four of the species complex varieties are raised to specific status and two new species belonging to the *C. dregeana* complex described. Three other new species belonging to section *Multinerviae* are also described.

C. ILICIFOLIA COMPLEX

C. ilicifolia L. has been subdivided into five varieties based upon the shape of their leaves. Var. *cordifolia* (Lam.) Harv. and var. *incisa* Harv. are doubtfully distinct from the typical variety. In particular, var. *incisa* is probably a shoot from a resprouting plant, the leaves of which are often more markedly toothed in this species than mature leaves. Var. *cordifolia* is possibly worthy of recognition, as it is generally restricted to the southeastern mountains of the Cape Floristic Region, although there is intergradation with the typical variety and some indication that the form may be associated with aridity or altitude.

In contrast, the two varieties described by Weimarck (1934) are very distinctive, no intermediates have been found between them and the typical variety, from which they are allopatric. They are, therefore, here elevated to the rank of species.

1. *C. reniformis* (Weim.) C.M.Whitehouse, comb. et stat. nov. Type: Western Cape, 3321 (Ladismith): Riversdale Dist., Garcia's Pass, (–CC), *Bolus 11274* (BOL!, lecto., here designated; B, PRE).

C. ilicifolia L. var. *reniformis* Weim., Monograph of the genus *Cliffortia*: 102, fig. 29D (1934).

Erect, tall shrub, up to 3 m high, resprouting after fire and spreading clonally; dominant main stem with determinate length side branches held horizontally; only forming long branches; young stems 1.3–2.6 mm wide, completely sheathed by leaf bases. *Leaves* unifoliate, subcircular, 12–20 × 16–26 mm, clasping stem at base, apex sharply long-acuminate to pungent, 0.2–0.9 mm long, margins flat, with 6–11 broad teeth, 2.8–5.0 mm long; lamina 11–17-veined from base, tough and rigid, 0.2–0.5 mm thick, held at right angles to stem, glaucous, glabrous; sheath 1.4–6.2 mm long, abaxially glabrous, adaxially glabrous except for fringe of hairs at apex; stipules similar in texture to lamina, 2.6–5.9 mm long, fused into a single stipule on reverse side of stem, margin smooth; petiole absent. *Flowers* solitary in axil of undifferentiated leaves; bracteoles hairy on keel, margins smooth; sepals 3, glabrous. *Male flowers*: bracteoles 3.6–4.9 mm long; pedicel 0.9–1.4 mm long; sepals broadly ovate, 6.4–9.2 × 4.5–6.6 mm, acute to acuminate at apex; stamens 51–68; filaments 3.8–6.8 mm long, greenish white; anthers yellow. *Female flowers*: bracteoles 3.9–5.0 mm long, longer than immature receptacle; sepals broadly ovate to triangular, 2.1–2.8 × 1.0–1.8 mm, erect; carpel 1; stigma 1.4–2.4 mm long, greenish white, feathery, hidden at base of leaves; immature receptacle 1.7–2.5 × 1.5–2.3 mm, glabrous, smooth. *Achene* 8.0–8.7 × 4.8–5.5 mm, medium to dark brown, glabrous; ribs rounded. *Flowering time*: ± all year, but mature fruits only found between August and November. Figure 1.

Habitat: tall, streamside vegetation and wet fynbos of lower valley slopes, on soils derived from Table Mountain Series in full sun; altitude 300–750 m.

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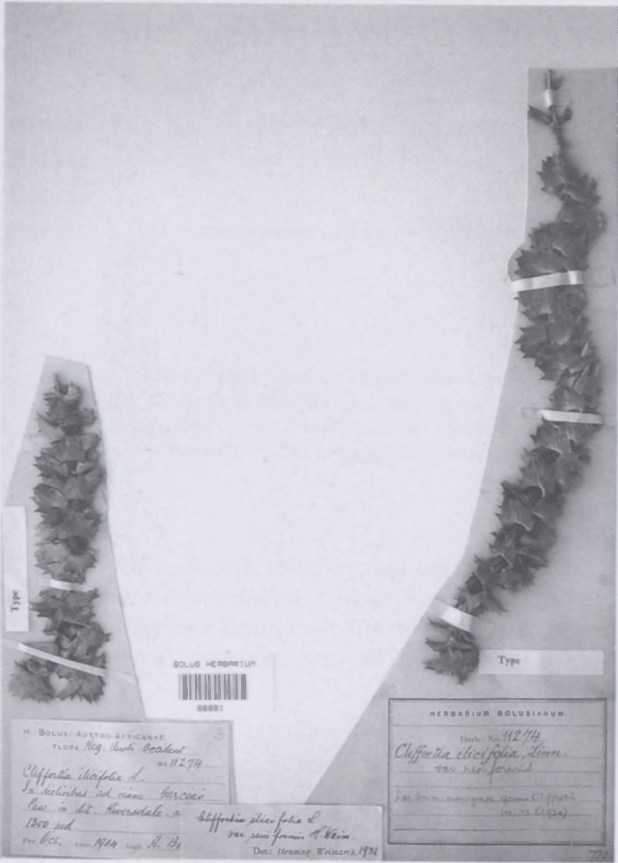


FIGURE 1.—Lectotype of *Cliffortia reniformis*.

Distribution: restricted to the Langeberg at Garcia's Pass and the immediately surrounding valleys (Figure 2).

Conservation status: highly restricted but very common and frequently dominant in the area.

Etymology: *reniformis* means kidney-shaped, referring to the leaves which are almost circular in outline and clasp the stem at their base.

This species is very distinctive on account of its unique growth habit: a single stem often up to 3 m tall with short branches all the way up, spreading at right angles to the main stem. The leaves are also diagnostic, being held at right angles and almost circular in outline with a leaf-like stipule formed by fusion of the two separate ones on the reverse side of the stem.

2. *C. schlechteri* (Weim.) C.M.Whitehouse, comb. et stat. nov. Type: Western Cape, 3419 (Caledon);

Bredasdorp Dist., near Elim, Koude River, (–DA), *Schlechter* 9584 (BOL!, lecto., here designated; B, BM, COI, G-DEL, GRA, HBG, K!, L, P, PRE, S, W, Z).

C. ilicifolia L. var. *schlechteri* Weim., Monograph of the genus *Cliffortia*: 104 (1934).

Erect, medium, densely branched shrub, up to 1.8 m high, killed by fire; only forming long branches spreading at right angles; young stems 0.9–2.0 mm wide, completely sheathed by leaf bases. *Leaves* unifoliate, subcircular to broadly ovate or oblong, 5.5–10.9 × 5.7–12.0 mm, clasping stem at base, apex sharply long-acuminate to pungent, 0.3–1 mm long, margins flat or rounded, with 2–4 broad teeth, 0.6–2.6 mm long; lamina 7–10-veined from base, tough and rigid, 0.2–0.4 mm thick, held at right angles to stem, glaucous, glabrous above and beneath; sheath 1.4–2.1 mm long, abaxially glabrous, adaxially glabrous except for fringe of hairs at apex; stipules 1.6–5.8 mm long, free, margin smooth; petiole absent. *Flowers* solitary in axil of undifferentiated leaves; bracteoles hairy on keel, margins smooth; sepals 3, glabrous. *Male flowers*: bracteoles 2.7–4.0 mm long; pedicel 0.9–1.5 mm long; sepals broadly ovate, 5–8 × 3.2–5.7 mm, acute to acuminate at apex; stamens 28–41; filaments 2.8–5.0 mm long, greenish white; anthers yellow. *Female flowers*: bracteoles 2.3–3.2 mm long, longer than immature receptacle; sepals ovate to triangular, 1.2–1.7 × 0.9–1.2 mm, erect; carpel 1; stigma 1.1–1.4 mm long, greenish white, feathery, hidden at base of leaves; immature receptacle 1.5–1.8 × 1.0–1.3 mm, glabrous. *Achene* 6.7–8.7 × 3.4–5.4 mm, medium to dark brown, glabrous; ribs rounded. *Flowering time*: ± all year, but mature fruits only found between May and November. Figure 3.

Habitat: fynbos on very well-drained, wind-blown sands and limestone-derived soils in full sun; altitude 0–300 m.

Distribution: widespread on the Agulhas Plain from Gansbaai to Gouritz River mouth (Figure 2).

Conservation status: widespread and often common, occurring in several reserves, as well as along road verges. However, it may be susceptible to local extinctions caused by unnatural fire regimes as it does not resprout after fire.

Etymology: named after Rudolph Schlechter, who was the first person to collect this species.

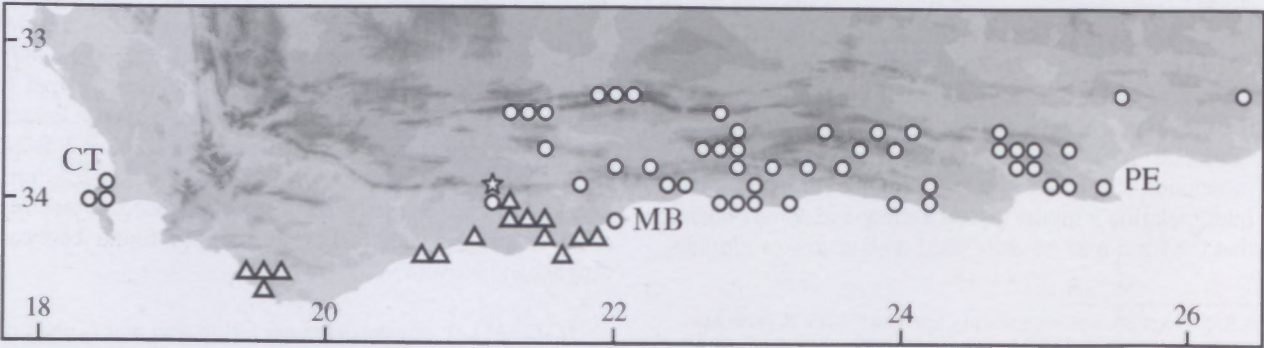
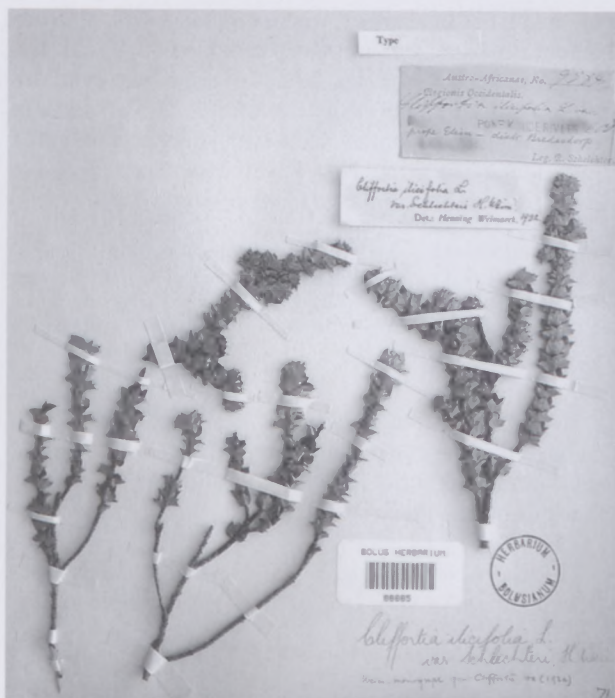


FIGURE 2.—Known distribution of *Cliffortia ilicifolia*, ○; *C. reniformis*, ☆; and *C. schlechteri*, Δ, in South Africa.

FIGURE 3.—Lectotype of *Cliffortia schlechteri*.

Cliffortia schlechteri is unique within the *C. ilicifolia* complex as the plants are killed by fire. Whereas it has the characteristic perpendicular branching and leaf orientation that is similar to *C. reniformis*, the branching is much more dense and the plants form rounded bushes. The leaves are generally the smallest within the complex. Some forms of *C. ilicifolia* var. *cordifolia* do have leaves as short, but they are much more ovate and usually lack teeth, whereas *C. schlechteri* always has leaves that are generally as broad as long, with at least two teeth.

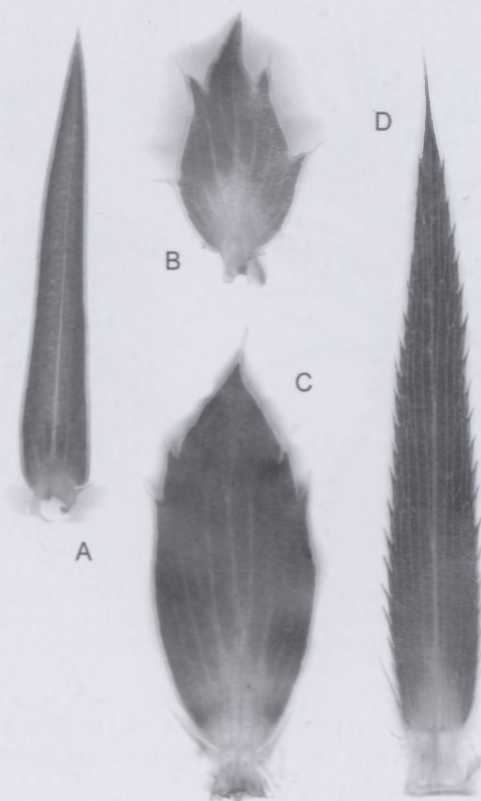
C. DREGEANA COMPLEX

The *C. dregeana* C.Presl complex still needs much revision. The species are characterized by their rigid, tough, pungently tipped leaves and large achenes. Weimarck (1934) divided the species into two varieties, var. *dregeana* and var. *meyeriana* (C.Presl) Weim., the former having entire leaves, whereas the latter has 2–4 stout teeth. However, he admitted that the boundary between the two varieties was vague. Furthermore, as populations are found with both entire and toothed leaves, the varieties cannot be maintained.

However, geographical forms of *C. dregeana* do exist and here two such forms are given specific status. *C. cerasana* is the most distinct, having much broader leaves than all other forms within the *C. dregeana* complex. Recognition of *C. cerasana* consequently makes *C. acanthophylla*, with its thickened margins, geographically isolated from other populations of *C. dregeana* and therefore it too is worthy of specific status.

3. *C. acanthophylla* C.M.Whitehouse, sp. nov., *C. dregeana* C.Presl affinis, sed marginibus foliorum crassioribus pallidioribus, fructibus majoribus differt.

TYPE.—Western Cape, 3218 (Clanwilliam): Clanwilliam Dist., Vogelfontein, (–BA), Levyns 1139 (BOL!, holo.).

FIGURE 4.—Individual leaves of *Cliffortia* species, $\times 2$. A, *C. acanthophylla*; B, *C. cerasana*; C, *C. oligodonta*; D, *C. prionota*.

C. dregeana auct. non C.Presl: Weim.: 109 (1934) pro parte.

C. dregeana C.Presl var. *meyeriana* auct. non (C.Presl) Weim.: Weim.: 109 (1934) pro parte.

Erect, medium shrub, up to 1.8 m high, killed by fire; only forming long branches; young stems 2.4–3.0 mm wide, sometimes tinged reddish, completely sheathed by leaf bases, glabrous. Leaves unifoliate, narrowly triangular to lanceolate (Figure 4A), 15–39 \times 3.8–9.0 mm, apex sharply pungent, 1.3–1.8 mm long, margins markedly turned upwards, entire and smooth or with up to 4 long, straight teeth, 1.8–4.3 mm long; lamina 6–11-veined from base, tough and rigid, 0.4–0.6 mm thick, curved downwards and away from stem, glabrous above and beneath; sheath 2.7–4.9 mm long, abaxially glabrous, adaxially glabrous except sometimes for fringe of hairs at apex; stipules 3.8–5.5 mm long, free, margin smooth; petiole absent. Flowers solitary in axil of undifferentiated leaves; bracteoles hairy on keel, margins smooth; sepals 3, glabrous. Male flowers: bracteoles 5.6–6.5 mm long; pedicel 1.0–1.1 mm long, glabrous; sepals broadly ovate, 5.7–7.2 \times 3.0–3.9 mm, acute to acuminate at apex; stamens 29 or 30; filaments 4.5–6.5 mm long, greenish white; anthers yellow. Female flowers: bracteoles 5.8–7.0 mm long, longer than immature receptacle; sepals broadly ovate to triangular, 1.9–4.2 \times 0.8–1.8 mm, erect; carpel 1; stigma 2.5–4.2 mm long, greenish white, feathery, hidden at base of leaves; immature receptacle 2.4–3.0 \times 1.8–2.4 mm, glabrous, smooth. Achene ovoid to globose, 7.2–9.4 \times 5.9–7.4 mm, medium to dark brown, glabrous; ribs rounded. Figure 5A–C.

Habitat: fynbos on deep, well-drained sands from Table Mountain Series in full sun; altitude 300–1 600 m.

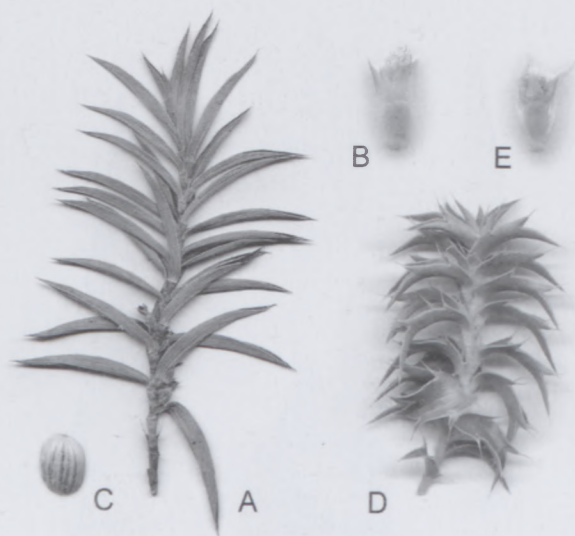


FIGURE 5.—*Cliffortia acanthophylla*. A, branch with female flowers, $\times \frac{1}{2}$; B, female flower, $\times 2$; C, achene, $\times 1$. *C. ceresana*. D, branch with female flowers, $\times \frac{1}{2}$; E, female flower, $\times 2$.

Distribution: northern Olifants River Mountains around Graafwater and Cederberg between Sneeuberg and Middelberg (Figure 6).

Conservation status: limited in its distribution, but well protected within the Cederberg Wilderness Area, however, the Graafwater populations are all on private land.

Etymology: *acanthophylla* means spine-leaf, referring to the long, hard, straight leaves with a pungent apex.

This species is difficult to separate from *C. dregeana*. It is generally more robust with larger leaves and fruits, but there is overlap between the two. The species appear most distinct when dried, for *C. acanthophylla* then shows well-developed thickened margins that contrast

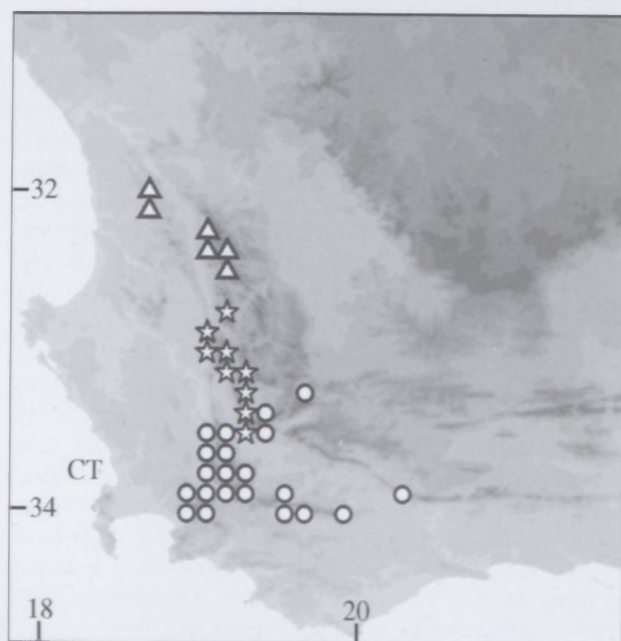


FIGURE 6.—Known distribution of *Cliffortia acanthophylla*, Δ ; *C. ceresana*, \star ; and *C. dregeana*, \circ , in South Africa.

with the rest of the lamina, whereas *C. dregeana* also has thickened margins but are not so pronounced. The distributions of the two species do not overlap, and both are replaced by the more easily discernible *C. ceresana* in the intervening mountains. However, some specimens of *C. dregeana* from the Hex River Mountains do have thickened margins similar to *C. acanthophylla*:

WESTERN CAPE.—3319 (Worcester): Hex River Mtns, Sentinel Peak, (–AD), 1 675 m, 15-12-1957, *Esterhuysen 27415* (BOL); Hex River Mtns, Sentinel Camp, (–AD), 1 525 m, 16-2-1958, *Esterhuysen 27567* (BOL); Brandwacht Mtn, (–CB), 4-1929, *Stokoe 19852* (BOL).

4. *C. ceresana* C.M.Whitehouse, sp. nov., habitu floribus fructibusque *C. dregeana* C.Presl similis, sed foliis latioribus plus ovatis vel oblongis, dentibus foliaribus paucis facile distinguitur.

TYPE.—Western Cape, 3319 (Worcester): Ceres Dist., Michell's Pass, (–AD), *Levy's 5827* (BOL!, holo.).

C. ilicifolia auct. non L.: Weim.: 99 (1934) pro parte.

Erect, medium shrub, up to 1.8 m high, resprouting after fire and spreading clonally; only forming long branches; young stems 1.5–2.1 mm wide, completely sheathed by leaf bases. *Leaves* unifoliate, ovate-elliptic to oblong (Figure 4B), 10–27 \times 5–16 mm, apex sharply long-acuminate to pungent, 1.2–3.1 mm long, margins flat with 5–8 broad teeth, 0.8–5.8 mm long; lamina 5–9-veined from base, tough and rigid, midrib prominent beneath, 0.3–0.8 mm thick, curved downwards and away from stem, glabrous; sheath 1.9–3.5 mm long, abaxially glabrous, adaxially glabrous except sometimes for fringe of hairs at apex; stipules 1.0–5.5 mm long, free, margin smooth; petiole absent. *Flowers* solitary in axil of undifferentiated leaves; bracteoles hairy on keel, margins smooth; sepals 3, glabrous. *Male flowers*: bracteoles 3.8–7.0 mm long; pedicel 0.8–1.3 mm long, glabrous; sepals broadly ovate, 6.7–10.4 \times 3.0–5.9 mm, acute to acuminate at apex; stamens 21–34; filaments 2.8–5.5 mm long, greenish white; anthers yellow. *Female flowers*: bracteoles 5.5–6.5 mm long, longer than immature receptacle; sepals broadly ovate to triangular, 2.8–3.9 \times 0.9–1.6 mm, erect; carpel 1; stigma 1.8–2.5 mm long, red or sometimes greenish white, feathery, hidden at base of leaves; immature receptacle 2.3–3.7 \times 1.8–2.7 mm, glabrous, smooth. *Achene* ovoid, 6.4–7.4 \times 4.4–4.6 mm, medium to dark brown, glabrous; ribs rounded to sharply acute. *Flowering time*: September to January. Figure 5D, E.

Habitat: fynbos on rocky shale slopes and amongst sandstone rocks at high altitudes, on well-drained soils derived from Table Mountain Series in full sun; altitude 350–1 850 m.

Distribution: found from the western parts of the Hex River Mountains, north through the Witzenberg Range to the Groot Winterhoek Mountains (Figure 6).

Conservation status: common throughout the area in which it grows, especially at higher altitudes; it is conserved within the Groot Winterhoek Wilderness Area and its resprouting habit means that it is not particularly susceptible to unnatural fire regimes.

Etymology: named after the town of Ceres, where it is common on the surrounding mountains, and has frequently been collected in Michell's Pass, which leads to the town.

Burchell's specimen of this species was included within *C. ilicifolia* by Weimarck (1934) on account of its broad, toothed leaves. However, in other characteristics it is closer to *C. dregeana*, with which it has generally been placed in herbaria. The broadly oblong, few-toothed leaves, combined with the limited distribution range, make this species easily distinguishable. However, in the south of its range, specimens that are more intermediate in character with *C. dregeana* do occur:

WESTERN CAPE.—3319 (Worcester): Hex River Mtns, Buf-felshoek Peak, (–AD), 1 830 m, 26-12-1942, *Esterhuysen* 8405 (BOL); Waaihoek Mtn, SE, (–AD), 15-9-1943, *Esterhuysen* 8970 (BOL); Hex River Mtns, Sentinel Peak, (–AD), 1 525–1 675 m, 16-2-1958, *Esterhuysen* 27571 (BOL).

C. GRANDIFOLIA COMPLEX

The members of the *C. grandifolia* Eckl. & Zeyh. complex are all tall, sparsely branched shrubs with large leaves. Weimarck (1934) divided *C. grandifolia* into three varieties based upon the shape of the leaves. The varieties are easily identifiable, as well as allopatric in their distributions, especially var. *grandifolia*, which is endemic to the Langeberg. Intermediates have not been



FIGURE 7.—Lectotype of *Cliffortia denticulata*.

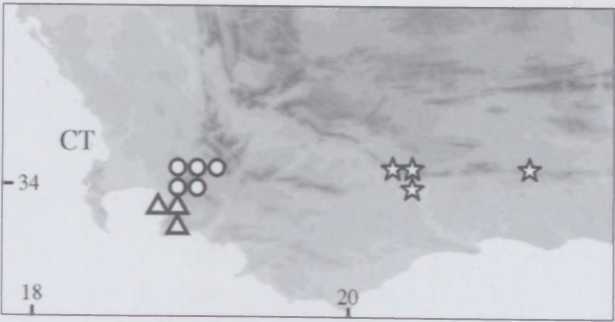


FIGURE 8.—Known distribution of *Cliffortia denticulata*, O; *C. grandifolia*, ☆, and *C. recurvata*, Δ, in South Africa.

found between the varieties, although putative hybrids have been found with other species (e.g. *C. grandifolia* × *C. lanceolata*, *C. & A. Whitehouse* 339 and *C. denticulata* × *C. ovalis*, *C. & A. Whitehouse* 340). Therefore the varieties are here raised to specific rank.

5. *C. denticulata* (Weim.) C.M.Whitehouse, comb. et stat. nov. Lectotype: Western Cape, 3319 (Worcester): Franschhoek, (–CC), in mountains, *Schlechter* 9240 (BOL!, lecto.; B, BM, COI, G-DEL, GRA, HBG, K!, L, P, PRE, S, W, Z).

C. grandifolia Eckl. & Zeyh. var. *denticulata* Weim., Monograph of the genus *Cliffortia*: 115, fig. 33C (1934).

C. intermedia auct. non Eckl. & Zeyh.: Harv.: 295 (1862) pro parte.

Erect, tall, spindly shrub, up to 3.6 m high; only forming long branches and very sparsely branched, branches clustered 2–4 together at a node, killed by fire; young stems 1.7–5.25 mm wide, completely sheathed by leaf bases. *Leaves* unifoliate, very broadly ovate to almost subcircular, 30–68 × 21–41 mm, clasping stem at base, apex sharply long-acuminate, 1.9–4.0 mm long, margins flat with 52–83, small, straight teeth, 0.3–1.3 mm long; lamina 11–17-veined from base, relatively soft and chartaceous, 0.2–0.6 mm thick, curved downwards and away from stem, glabrous above and beneath; sheath 6.0–10.8 mm long, abaxially and adaxially glabrous; stipules absent or present and 1.6–3.9 mm long, free, margin smooth; petiole absent. *Flowers* solitary in axil of undifferentiated leaves; bracteoles hairy on keel, margins smooth; sepals 3; glabrous. *Male flowers*: bracteoles 14–17 mm long; pedicel 1.1–1.4 mm long, glabrous; sepals broadly ovate, 23–26 × 6.4–14.5 mm, acute to acuminate at apex; stamens 60–133; filaments 3.5–8.0 mm long, greenish white; anthers yellow. *Female flowers*: bracteoles 6.0–9.2 mm long, longer than immature receptacle; sepals broadly ovate to triangular, 3.2–3.8 × ± 1.7 mm, erect; carpel 1; stigma ± 2.5 mm long, greenish white, feathery, hidden at base of leaves; immature receptacle ± 3.2 × 2 mm, glabrous, smooth. *Achene* medium to dark brown, glabrous; ribs rounded. Figure 7.

Habitat: in damp depressions and beside watercourses on well-drained soils from Table Mountain Series in full sun; altitude 350–1 350 m.

Distribution: Franschhoek to the southern Hottentots Holland Mountains around Nuweberg (Figure 8).

Conservation status: limited distribution, extent of occurrence, < 150 km², but the entire range is conserved

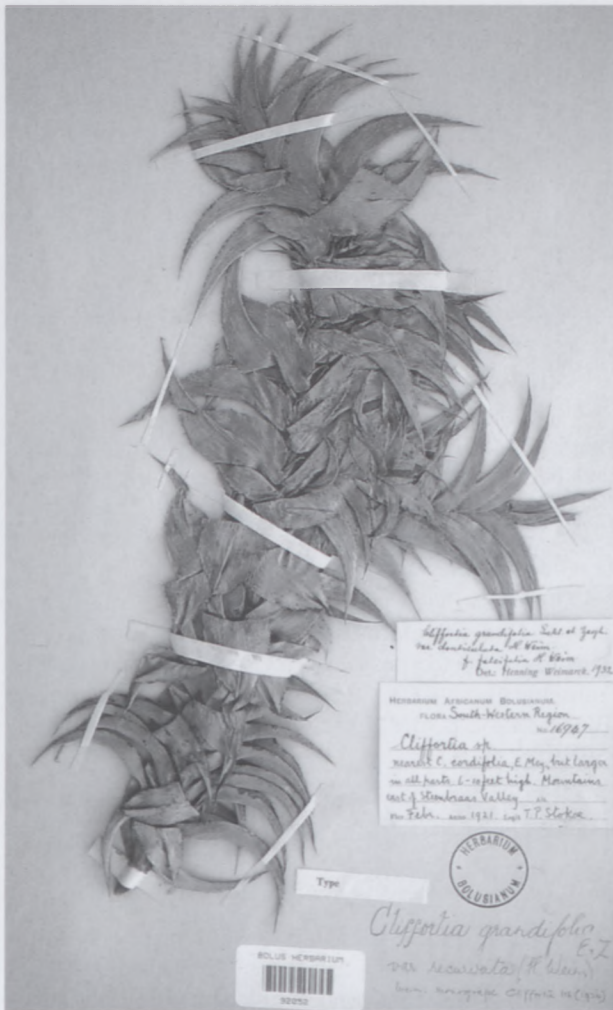


FIGURE 9.—Lectotype of *Cliffortia recurvata*.

within the Hottentots Holland Nature Reserve; however, being a reseeded it may be susceptible to local extinction caused by too frequent fires.

Etymology: *denticulata* means very small teeth, which surround the margins of the leaves.

6. *C. recurvata* (Weim.) C.M.Whitehouse, comb. et stat. nov. Type: Western Cape, 3418 (Simonstown): mountains E of Steenbras Valley, (–BB), Feb. 1921, *Stokoe s.n.* (BOL!, lecto., here designated).

C. grandifolia Eckl. & Zeyh. var. *recurvata* Weim., Monograph of the genus *Cliffortia*: 115, fig. 33F (1934).

Erect, tall, spindly shrub, up to 3.6 m high, only forming long branches and very sparsely branched, branches clustered 2–4 together at a node, killed by fire; young stems 3.4–4.3 mm wide, completely sheathed by leaf bases but with upwardly adpressed hairs visible on young growth. *Leaves* unifoliate, lanceolate to narrowly ovate, 64–74 × 20–27 mm, clasping stem at base, apex pungent, 2.6–4.0 mm long, margins flat, with 90–109 small straight teeth, 1.4–2.3 mm long, whole leaf often strongly keeled; lamina 13–18-veined from base, chartaceous to tough, 0.25–0.5 mm thick, strongly curved downwards and away from stem forming almost a semicircle, glabrous above and beneath; sheath 5.2–6.7 mm

long, abaxially glabrous, adaxially with scattered, adpressed hairs but without a fringe of hairs at apex; stipule 0.9–1.4 mm long, sometimes absent, free, margin smooth; petiole absent. *Flowers* solitary in axil of undifferentiated leaves; bracteoles hairy on keel, margins smooth; sepals 3, glabrous. *Male flowers*: bracteoles 15–16 mm long; pedicel 2.1–2.4 mm long, hairy; sepals broadly ovate, 19–21 × 7.2–11.0 mm, acute to acuminate at apex; stamens 75–120; filaments 6.8–9.8 mm long, greenish white; anthers yellow. *Female flowers*: bracteoles 10.5–11.3 mm long, longer than immature receptacle; sepals ± triangular, 3.2–4.6 × 0.9–1.8 mm, erect; carpel 1; stigma 2–3 mm long, greenish white, feathery, hidden at base of leaves; immature receptacle 3.4–3.9 × 2.7–3.0 mm, hairy towards base, smooth. *Achene* ellipsoid, ± 8.1 × 4.8 mm, medium to dark brown, glabrous; ribs rounded. Figure 9.

Habitat: in damp depressions and beside watercourses on well-drained soils from Table Mountain Series in full sun; altitude 300–800 m.

Distribution: confined to the Kogelberg between the Steenbras and Palmiet River Valleys (Figure 8).

Conservation status: only known from the middle slopes of the Kogelberg, extent of occurrence, < 75 km², and restricted to a very particular habitat where it is uncommon; being a reseeded it is vulnerable to too frequent fire regimes; however, it is conserved entirely within the Kogelberg Biosphere Reserve.

Etymology: *recurvata* means curved backwards, referring to the leaves that are strikingly curved almost into a semicircle.

7. *C. oligodonta* C.M.Whitehouse, sp. nov., similis *C. integerrima* Weim. sed foliis longioribus plus oblongis glaucis facile distinguitur.

TYPE.—Western Cape, 3319 (Worcester): Paarl Dist., SE slopes of Wemmershoek Peak, (–CC), *C. & A. Whitehouse 343* (BOL!, holo.).

Erect, medium shrub, up to 1.2 m high, resprouting after fire and spreading clonally; only forming long branches; young stems 2.7–3.0 mm wide, completely sheathed by leaf bases. *Leaves* unifoliate, elliptic-oblong to ovate (Figure 4C), 22–36 × 9.5–13.5 mm, apex pungent, 1.4–2.5 mm long, margins flat, entire or with up to 5 straight teeth, 1.0–2.7 mm long; lamina 5–7-veined from base, tough and rigid, 0.5–0.7 mm thick with midrib occasionally slightly prominent beneath, curved downwards and away from stem, glaucous, glabrous or sometimes with a few 0.4–1.0 mm long hairs along midrib; sheath 3.0–4.6 mm long, abaxially glabrous, adaxially glabrous or with a few adpressed hairs and fringed at apex; stipules 3.5–5.5 mm long, free, margin smooth; petiole absent. *Flowers* solitary in axil of undifferentiated leaves; bracteoles hairy on keel, margins smooth; sepals 3, glabrous. *Male flowers*: bracteoles 9.4–11.3 mm long; pedicel 1.5–2.1 mm long, glabrous; sepals broadly ovate, 11.4–15.0 × 6.0–7.8 mm, acute to acuminate at apex; stamens 30–35; filaments 7.2–11.8 mm long, greenish white; anthers yellow. *Female flow-*

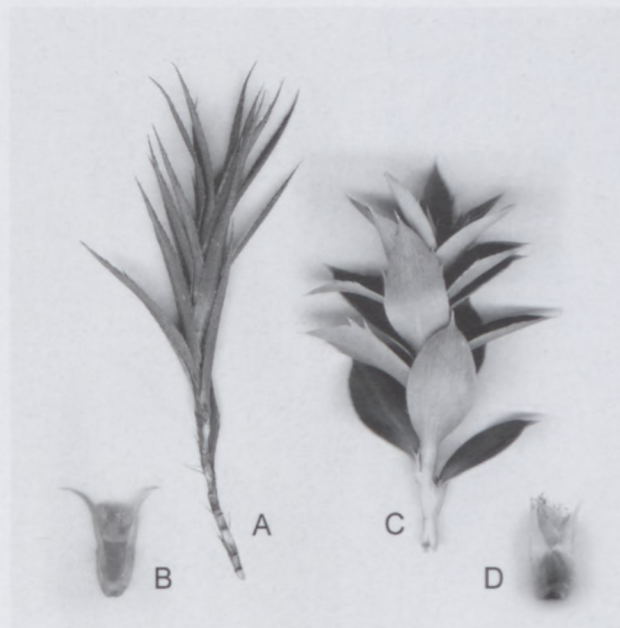


FIGURE 10.—A, B, *Cliffortia prionota*: A, branch, $\times \frac{1}{2}$; B, female flower, $\times 2$. C, D, *Cliffortia oligodonta*: C, branch with female flowers, $\times \frac{1}{2}$; D, female flower, $\times 2$.

ers: bracteoles 5.6–7.5 mm long, longer than immature receptacle; sepals broadly ovate to triangular, $2.4\text{--}3.2 \times 0.8\text{--}1.6$ mm, erect; carpel 1; stigma 2.3–3.5 mm long, greenish white, feathery, hidden at base of leaves; immature receptacle $2.5\text{--}3.1 \times 2.0\text{--}2.5$ mm, glabrous, smooth. Achene ovoid, $7.3\text{--}7.8 \times 4.1\text{--}5.3$ mm, medium to dark brown; glabrous; ribs 16–22, rounded, 0.2–0.4 mm wide. Flowering time: September to May. Figure 10C, D.

Habitat: south-facing slopes and in the shelter of rocks at high altitudes, in well-drained rocky soil from Table Mountain Series; altitude 1 450–1 800 m.

Distribution: very narrow endemic, found only on the upper slopes of the Wemmershoek Mountains between Winterberg and Wemmershoek Peak (Figure 11).

Conservation status: endemic to a very small area, extent of occurrence, < 20 km², but common there at high altitudes.

Etymology: *oligodonta* means few teeth, referring to the leaves which vary from being entire to having up to five small teeth.

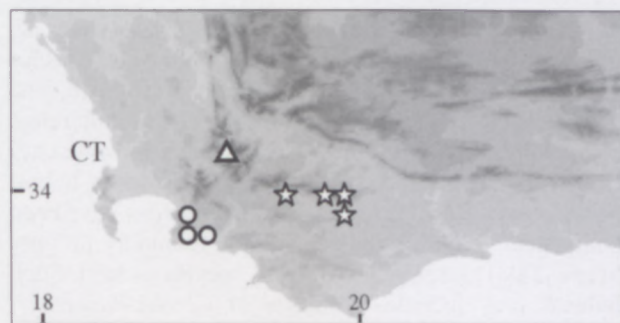


FIGURE 11.—Known distribution of *Cliffortia oligodonta*, Δ ; *C. prionota*, O; and *C. scandens*, ☆, in South Africa.

This species was previously determined as *C. integririma* Weim. However, that species was poorly delimited by Weimarck (1934) and encompassed several different entities from the Cape Peninsula, Riviersonderend Mountains and the Groot Swartberg. The species is distinctive on account of its relatively broad elliptic-oblong leaves that are glaucous in colour. Furthermore, the species has so far not been found beyond the Wemmershoek Mountains, meaning that confusion with other species is unlikely. Within sect. *Multinerviae*, only *C. dregeana*, with narrowly lanceolate green leaves, grows in the same vicinity, but is replaced by *C. oligodonta* above about 1 600 m. However, where the two species grow in close proximity, a putative hybrid has been found [Paarl Dist., S slopes of peak between Perdekop and Wemmershoek Peak, C. & A. Whitehouse 344 (BOL)] that is intermediate between the two species. The hybrid has oblong-lanceolate leaves, which are never toothed, however they are generally broader than *C. dregeana* and retain the glaucous coloration of *C. oligodonta*.

8. *C. prionota* C.M.Whitehouse, sp. nov., a *C. lanceolata* Weim. stipulis brevioribus glabris, floribus masculinis majoribus, staminibus pluribus glabris differt.

TYPE.—Western Cape, 3418 (Simonstown): Caledon Dist., Kogelberg Nature Reserve, Kogelberg Trail near where it joins jeep track in upper reaches of Louws River Valley, (–BD), C. & A. Whitehouse 274 (BOL!, holo.).

Erect, medium to tall shrub, up to 2.5 m high, resprouting after fire and spreading clonally; only forming long branches; young stems 1.8–2.8 mm wide, completely sheathed by leaf bases. Leaves unifoliate, narrowly oblong to lanceolate (Figure 4D), $26\text{--}49 \times 4.6\text{--}8.5$ mm, apex sharply long-acuminate to pungent, 1.8–3.6 mm long, margins flat or rounded, entire or with 9–42 straight teeth, 0.8–1.8 mm long; lamina 5–10-veined from base, chartaceous to rigid, 0.3–0.5 mm thick, held straight or curved upwards and towards stem, glabrous; sheath 3.9–5.5 mm long, abaxially and adaxially glabrous; stipules 3.8–6.2 mm long, free, margin smooth; petiole absent. Flowers solitary in axil of undifferentiated leaves; bracteoles hairy or not on keel, margins smooth; sepals 3; glabrous. Male flowers: bracteoles 6.8–8.7 mm long; pedicel 1.3–1.6 mm long; sepals broadly ovate, $11.5\text{--}13.5 \times 4.6\text{--}7.2$ mm, acute to acuminate at apex; stamens 40–50; filaments 6.2–9.7 mm long, greenish white; anthers yellow. Female flowers: bracteoles 6.4–8.4 mm long, longer than immature receptacle; sepals broadly ovate to triangular, $2.5\text{--}3.5 \times 0.7\text{--}1.5$ mm, erect; carpel 1; stigma 2.4–3.3 mm long, greenish white, feathery, hidden at base of leaves; immature receptacle $2.4\text{--}3.2 \times 1.7\text{--}2.3$ mm, glabrous, smooth. Achene medium to dark brown, glabrous; ribs rounded. Flowering time: September to April. Figure 10A, B.

Habitat: in clayish soil on shale bands of Table Mountain Series rocks in full sun, in well-drained soils or along the edge of damp gullies; altitude 50–350 m.

Distribution: restricted to the lower mountain slopes of the Palmiet River Valley and behind Kleinmond (Figure 11).

Conservation status: endemic to a small area and uncommon there forming scattered clonal patches. Populations behind Kleinmond may be threatened by urban expansion but the majority of the populations are protected within the core region of the Kogelberg Biosphere Reserve and being a resprouter it is not particularly threatened by unnatural fire regimes.

Etymology: *prionota* means like a saw, referring to the leaves, which normally have fine teeth along their edge; it also alludes to the fact that the species is confined to the Palmiet River area and palmiet is the common name for the plant *Pronium serratum*.

Previously classified with *C. intermedia*, this species actually bears closer resemblance to the Langeberg endemic, *C. lanceolata* but lacks the hairs on the anthers that are diagnostic for that species. *C. prionota* has a very narrow range, being endemic to the Kogelberg, and for that area the long, narrowly lanceolate leaves on a clonally, spreading erect shrub, prevent confusion with any other species. However, the species is comparatively variable within its range, from having leaves that are tough, rigid and entire to ones that are relatively soft and flexible and bearing numerous small teeth. This degree of variation may be the result of introgression with other species, such as the sympatric *C. heterophylla* (e.g. Levyns 7042).

9. *C. scandens* C.M.Whitehouse, sp. nov., a *C. acutifolia* Weim. stipulis longioribus glabris, dentibus foliaribus pluribus, sepalis masculinis angustioribus, staminibus paucioribus glabris differt.

TYPE.—Western Cape, 3419 (Caledon): Caledon Dist., Riviersonderend Mtns, kloof near Riviersonderend, (–BB), Esterhuysen 25075 (BOL!, holo.; K!, NBG!, PRE).

C. dregeana auct. non C.Presl: Weim.: 109 (1934) pro parte.

Scrambling, medium shrub, up to 0.6 m high, densely branched, forming brachyblasts; young stems 0.6–1.3 mm wide, glabrous. *Leaves* unifoliate, oblong to linear or very narrowly lanceolate, 22–38 × 2.0–3.2 mm, apex sharply long-acuminate to pungent, 1.0–1.8 mm long, margins turned upwards, with 4–10 straight teeth, 0.5–1.1 mm long; lamina 1–3-nerved into base, chartaceous, 0.2–0.3 mm thick, curved downwards and away from stem, with a few 0.7–1.7 mm long hairs above, glabrous beneath; sheath 2.5–4.0 mm long, abaxially glabrous, adaxially glabrous except for fringe of hairs at apex; stipule 4.2–11.8 mm long, free, margin smooth; petiole absent. *Flowers* solitary in axil of undifferentiated leaves; bracteoles glabrous on keel, margins smooth to very shortly ciliate; sepals 3, glabrous. *Male flowers*: bracteoles 6.4–7.3 mm long; pedicel 1.0–1.3 mm long; sepals broadly ovate, 7.0–9.1 × 1.7–2.7 mm, acute to acuminate at apex; stamens ± 20; filaments 6.5–8.3 mm long, red; anthers brownish red. *Female flowers*: bracteoles longer than immature receptacle; sepals oblong to triangular, 3.1–3.4 × 0.4–0.7 mm, erect; carpel 1; stigma 2.8–4.7 mm long, red, feathery, receptacle glabrous, smooth. *Achene* ovoid to ellipsoid, 4.1–4.6 × 1.7–1.8 mm, medium to dark brown, glabrous; ribs faint, rounded. *Flowering time*: November to February. Figure 12.



FIGURE 12.—*Cliffortia scandens*. A, branch, × 1; B, leaf, × 2; C, achene, × 4.

Habitat: fynbos on rocky south-facing slopes; altitude 650–1 250 m.

Distribution: higher south slopes of Riviersonderend Mountains around Genadendal and Riviersonderend (Figure 11).

Conservation status: a poorly known species, recorded from just two areas of the Riviersonderend Mountains and apparently very localized there, but the mountain range as a whole is relatively unexplored; invasive alien plants and unnatural fire regimes are threats, but the majority of the mountain range is conserved within a nature reserve.

Etymology: *scandens* means scrambling, referring to the way the plants form a tangled growth.

This species has previously been placed under *C. uncinata* or *C. acutifolia*. However, both those species are only known from mountains north of Tulbagh. The species is easily recognized within its distribution range by its long, narrow, toothed leaves, which form brachyblasts, and the plant's scrambling habit. However, hybrid swarms between *C. dregeana* and *C. pungens* have been confirmed in the Riviersonderend Mountains (Whitehouse 2003) and may involve this species as well. Such hybrids may include the types of *C. theodori-friesii* Weim. var. *puberula* Weim. or *C. meyeriana* C.Presl. Much work in this geographical area is needed to identify the parent and hybrid populations, especially to deter-

mine the limits of the species involved and the parents of the various hybrid populations. Despite this apparent confusion of species limits, preliminary molecular evidence supports the identification of *C. scandens* as a distinct species, as it has both nuclear and chloroplast markers not found in any other species (Whitehouse 2003).

SPECIMENS EXAMINED

- Acocks* 15410 (2) K, PRE; 19656 (3) K, PRE; 19765 (3) K, NBG, PRE.
- Barker* 3325 (6) NBG; 5530 (1) BOL, NBG. *Bayliss* 964 (2) PRE.
- Bohnen* 7985 (2) K, NBG, PRE; 8160 (1) NBG, PRE. *Bolus* 6993 (5) BOL, NBG, PRE; 11274 (1) BOL, PRE. *Bond* 1085, 1344 (3) NBG.
- Boucher* 1258 (8) K, PRE, (6) NBG, PRE; 5936 (2) NBG. *Burchell* 8688 (4) K. *Burgers* 1906 (2) NBG, PRE.
- Compton* 4165 (5) BOL; 6222 (3) NBG; 6695, 8143, 11989, 12465, 16702, 18802 (4) NBG; 8320, 12984, 18326 (5) NBG; 14119, 19402 (8) NBG; 14491, 16868 (6) NBG; 19051, 23325 (2) NBG; 20643 (4) BOL, K; 22577 (2) BOL, NBG. *Cowling* 3174 (2) NBG.
- De Vos* 1383 (8) NBG. *Drège* 2927 (3) K.
- Esterhuysen s.n.* (5) BOL, NBG; 1995, 8244, 9148, 9717, 11594, 27791 (5) BOL; 4169, 5502, 8141, 13142, 27415, 27567 (3) BOL; 7243 (3) BOL, K; 8176, 9868, 14702, 16143 (4) BOL; 9670 (7) BOL, PRE; 11278 (7) BOL, K, PRE; 11576 (7) BOL, K, NBG, PRE; 12561 (8) BOL; 15252 (5) BOL, NBG, PRE; 17001 (1) BOL, PRE; 25075 (9) BOL, K, NBG, PRE; 25337 (9) BOL, PRE; 27620, 27621 (7) BOL; 31466 (9) BOL, K.
- Fellingham* 81 (2) K, NBG, PRE; 442 (1) NBG.
- Galpin* 3999 (1) PRE. *Gentry & Barclay* 19121 (1) PRE. *Gillett* 4117 (3) K, PRE. *Goldblatt* 3751 (1) K.
- Hanekom* 729, 730 (4) K, PRE. *Haynes* 51 (5) NBG, PRE. *Herb. Forsyth. s.n.* (5) K. *Hugo* 1105 (2) K, NBG, PRE. *Hutchinson* 1022 (4) BOL, K.
- Johnson* 127 (2) BOL, NBG.
- Kerfoot* 5306 (5) PRE; 6157 (3) NBG. *Kruger* 1093 (4) NBG; 801 (8) NBG.
- Leighton* 11, 462 (5) BOL; 759 (6) BOL; 2301 (4) BOL; 2556 (2) BOL, NBG, PRE; 3301 (2) BOL. *Levy's* 1139, 2919 (3) BOL; 2293 (1) BOL; 4946, 5827 (4) BOL; 7042 (8) BOL; 8858 (6) BOL; 9516 (2) BOL. *Linder* 4093 (2) K, PRE. *Linder in Whitehouse* 68 (9) BOL; 216 (6) BOL.
- Maguire* 71 (2) NBG. *Marloth* 3551 (1) PRE; 6158 (4) NBG, PRE. *Morley* 27 (2) NBG, PRE. *Muir STE10555* (1) NBG; 429 (2) PRE; 4661 (1) NU.
- O'Callaghan, Fellingham & Van Wyk* 340 (2) NBG, PRE. *Oliver* 5701 (2) NBG, PRE.
- Pillans s.n.*, 7619 (5) BOL.
- Richardson* 99 (1) NBG, PRE.
- Salter* 7561 (3) BOL, K. *Schlechter* 8514 (3) BOL, K, PRE; 9240 (5) BOL, K, PRE; 9584 (2) BOL, K, PRE; 9851 (9) PRE. *Smith* 2750 (1) K. *Stokoe s.n.* (6) BOL, K; 7261, 8618 (6) BOL; 407, 413 (8) NBG; 7404 (7) BOL; 16947 (5) K; 19852 (3) BOL.
- Taylor* 4536a (4) NBG; 6173, 10685 (3) NBG, PRE. *H. Thode* 2237 (4) K, PRE. *J. Thode* 4817 (4) NBG. *Thompson* 687 (1) NBG, PRE; 849 (1) K, NBG, PRE; 1462 (4) K, NBG, PRE; 1730 (2) K, NBG, PRE.
- Van der Merwe* 1202 (5) NBG, PRE. *Van Wyk* 684 (1) NBG, PRE.
- C. Whitehouse* 12 (7) BOL; 19 (5) BOL; 46 (8) BOL; 92, 225 (2) BOL; 99, 183 (1) BOL; 248 (3) BOL; 269 (4) BOL; 352 (6) BOL. *C. & A. Whitehouse* 274 (8) BOL; 308, 313 (4) BOL; 341 (5) BOL; 342, 343 (7) BOL. *Willemse* 252 (2) NBG, PRE.

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