

ROSACEAE

A NEW SPECIES OF *CLIFFORTIA* FROM THE SOUTH-WESTERN CAPE

***Cliffortia burgersii* Oliver & Fellingham**, sp. nov., sectione *Alatae*, *C. alatae* N.E. Br. affinis, sed differt fructu grandiori roseo cum alis 3–4, staminibus 10–11(–13), foliis parvis flavovirentibus muticis glabris, habitu frutescenti ramoso compacto. Crescit in planitie arenosa calcarea dehoopensi pone mare.

Frutex ramosissimus ad 1.5 m altus. Rami indumento crispo albo, glabrescentes brunnescentes cortice irregulariter fidenti; internodia \pm 10 mm longa. Folia trifoliolata; vagina 0.8 mm longa, cristis longitudinalibus tribus; stipulae deltoideae, 0.3 mm longae; petiolus 0.3–0.5 mm longus; folioli recti ad falcati, 3.0–7.0 \times 0.4–0.5 mm, ericoidei sulcati glabri, obtusi ad acuti. Flores masculi: bracteolae ovatae, 1.3 mm longae, scariosae ciliatae puberulae; pedicellus receptaculumque 1.5 mm longus glaber; sepala 3–4, elliptica acuta, 3.0–3.5 \times 2.1–2.2 mm, viridescens, caespate subapicali pilorum crispum adaxiali; stamina 10–11(–13); filamenta 2.0–3.0 mm longa glabra; antherae 0.6–0.8 mm longae. Flores feminei: bracteolae rhomboideo-ovatae, 1.2 mm longae, ciliatae, interne villosae, externe puberulae; pedicellus 1.5 mm longus in fructu ad 3.7 mm, puberulus pilis retrorsis; sepala 3–4, late elliptica acuta mucronata, 2.0 \times 1.3 mm, glabra sed pilosa basi abaxiali caespate subapicali papillarum; ovarium apice basique emarginatum, 1.7 \times 1.8 mm, villosum pilis retrorsis; stylus solitarius, 0.2–0.5 mm longus, viridescens glaber; stigma expansum fimbriatum atrorubens 1.7 mm latum. Fructus a latere visus orbicularis, (8)9 \times 10(11) mm, alis prominentibus, apice basique emarginatus, parte centrali ellipsoidea viridescens lanuginosa, spinis parvis vel cristis pectinatis; alae (2)3–4, 3(4) mm latae, rosae glabrae vel sparse pilosae pilis crispis.

TYPE. —Cape, 3420 (Bredasdorp): De Hoop Reserve, flats NE of the Reserve Centre, 30 m, 7 June 1989, Oliver & Fellingham 9148a (female) (STE, holo.; BOL, K, MO, PRE).

A much-branched erect shrub to 1.5 m tall, mostly shorter and compact through grazing, dioecious but with an occasional fertile female flower on a male plant. Branches greenish yellow with a white crisped indumentum when young, becoming glabrous and brown with age, the bark then dull grey and splitting irregularly; internodes about 10 mm long. Leaves trifoliolate; vagina 0.8 mm long with 3 longitudinal ridges; stipules deltoid, 0.3 mm long; petiole 0.3–0.5 mm long; leaflets 3–7 \times 0.4–0.5 mm, straight to falcate, ericoid, glabrous, obtuse to acute sometimes with a pale sharp apex, sulcate below with the groove hairy. Male flowers: bracteoles ovate, 1.3 mm long, scarious, ciliate, puberulous; pedicel and receptacle 1.5 mm long, glabrous but for a ring of hairs below the sepals; sepals 3–4, 3.0–3.5 \times 2.0–2.2 mm, greenish, some with an occasional maroon-red longitudinal line, elliptic, acute, with a subapical tuft of crisped hairs adaxially; stamens 10–11(–13), filaments 2.0–3.0 mm long, maroon-red, glabrous; anthers 0.6–0.8 mm long, maroon-red with a white connective; an occasional male flower with a rudimentary ovary and well developed style and stigma. Female flowers: bracteoles rhomboid-ovate, 1.2 mm long,

ciliate, villous inside, puberulous outside, the lower half scarious soon turning brown; pedicel 1.5 mm long lengthening rapidly to 3.7 mm in the fruit, puberulous with retrorse hairs; sepals 3–4, broadly elliptic, 2.0 \times 1.3 mm, acute, mucronate, glabrous but pilose near the base abaxially and with a subapical tuft of long papillae soon shrivelling, sepals persisting in the fruit; ovary emarginate at both ends, 1.7 \times 1.8 mm, villous with retrorse hairs longer near the base, 3–4-winged; style solitary, 0.2–0.5 mm long, green, glabrous, sunken into a tube formed by a ring of short red-brown staminodes; stigma formed by the style expanding into a broad, deep red fimbriate pompom-like structure 1.7 mm across. Fruit: (8)9 \times 10(11) mm, circular in outline, emarginate at the apex and base, prominently winged; the central portion ellipsoid, green, white woolly, equipped with irregular, hard, horny, deep red short spines and/or a narrow sturdy to more wing-like comb in place of the fourth wing (see Figure 6J); wings (2)3–4, somewhat crescent-shaped, 3(4) mm broad, reddish pink, undulate or flat, entire, glabrous or with a few short crisped hairs, and with numerous fine radiating ridges. Figure 6.

Diagnostic features

C. burgersii (Figure 6A–J) is similar to *C. alata* (Figure 7A–E), but differs in the more branched compact growth form, the smaller yellow-green blunt glabrous leaves (bluish grey-green, distinctly red mucronate and crisped puberulous all over in *C. alata*); the larger number of stamens, 10–11(–13) (6–8 in *C. alata*); the size of the fruit, (8)9 \times 10(11) mm [(5)6 \times (6)7 mm in *C. alata*]; the colour of the fruit, green and reddish pink (red all over in *C. alata*) and the number of wings in the fruit, 3–4 (2–3 in *C. alata*).

Distribution and habitat

C. burgersii is known only from the De Hoop Nature Reserve on open flats at almost sea level where it grows in Limestone Fynbos on sand over limestone sheets (Figure 8). This is in striking contrast to the distribution and habitat of *C. alata*. Originally *C. alata* was recorded only from Muiskraal on the northern slopes of the Langeberg at 420 m. Two more recent collections, Kruger 1345 and Van der Merwe 293, have extended the distribution further west along the Langeberg to the northern slopes in the Grootvadersbosch State Forest area, but at 620 m. The habitat at Muiskraal is mainly Dry Mountain Fynbos on sand derived from sandstone of the Nardouw Subgroup, but also Central Mountain Renosterveld on clays. At Grootvadersbosch it is probably a drier form of Mesic Mountain Fynbos, or perhaps also Dry Mountain Fynbos, again on the Nardouw Formation.

In situ, *C. burgersii* is fairly conspicuous due to the very noticeable reddish pink fruits which cover the ultimate branches of the plants. These fruits remain on the plant for several months during the winter period gradually drying and turning brown by summer.

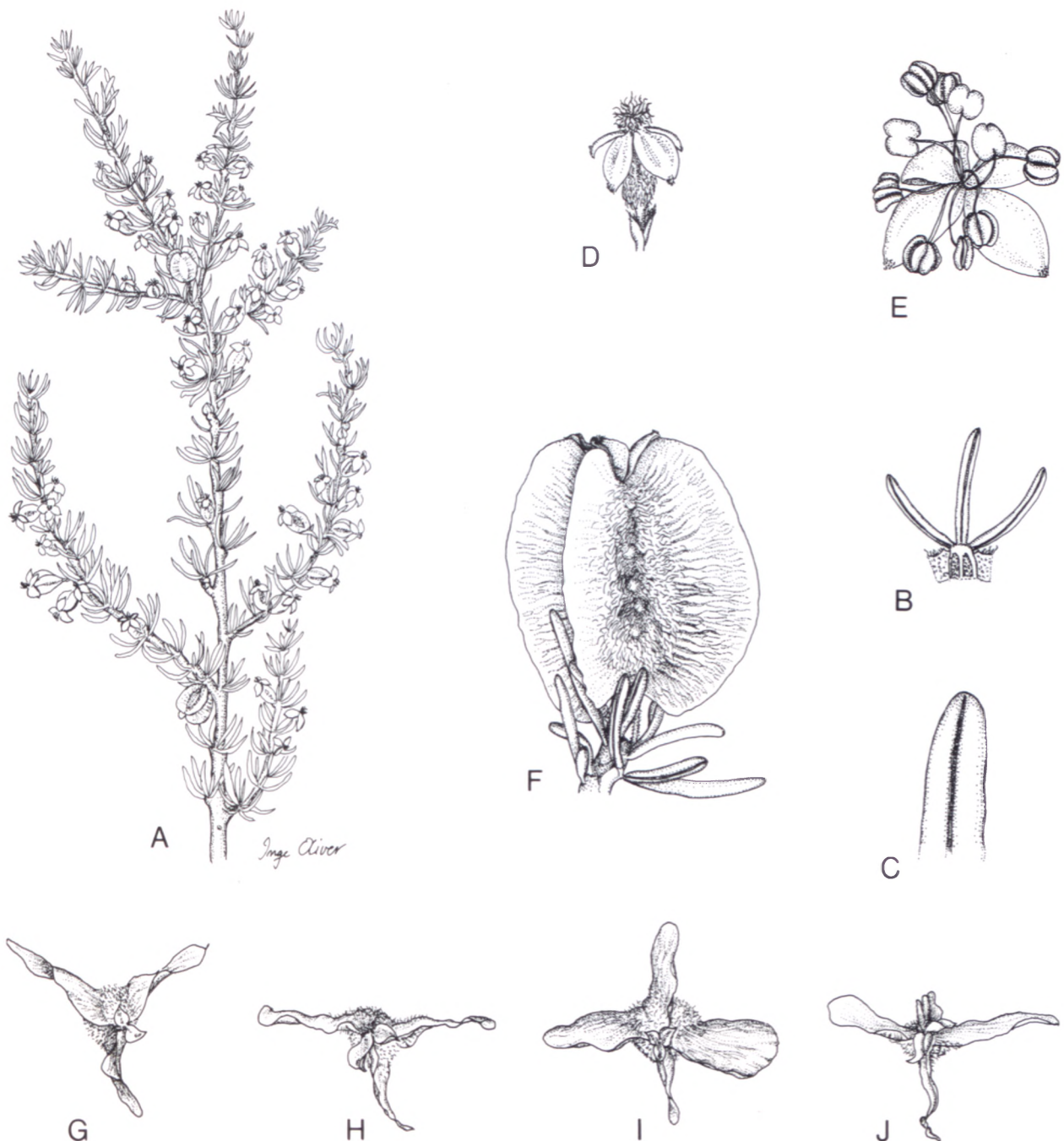


FIGURE 6.—*Cliffortia burgersii*: A, branch, natural size; B, leaf, $\times 5$; C, apex of leaflet, $\times 20$; D, female flower in side view, $\times 5$; E, male flower from above, $\times 5$; F, fruit in side view, note persistent sepals, $\times 5$; G–J, fruits as seen from above, variations in fruit wings, $\times 5$. All drawn from Oliver & Fellingham 9148a & b (STE).

Discussion

In *C. burgersii* five different patterns can be seen in the arrangement of the fruit wings. Two opposite wings interspersed by two opposite combs occur very rarely. A Y-shaped arrangement of three wings is more frequent (Figure 6G). Equally frequent is the arrangement of three wings, where two are opposite and the third at right angles to these (Figure 6H). Four equally spaced wings occur more commonly (Figure 6I). Most commonly the fourth wing is replaced by a comb (Figure 6J). In *C. alata* the two-winged form is the most prevalent, the three-winged form occurring only occasionally (Figure 7D & E). Other winged species in the Section *Alatae* are *C. teretifolia* L.f.

and *C. semiteres* Weim. These species have small, inconspicuous, narrowly winged, dull coloured fruits quite unlike those of *C. alata* and *C. burgersii*. The only other species with narrow straight wings is *C. phyllanthoides* Schltr. in the Section *Bifoliolae*. Other winged species occur in Section *Inflexae*, but there the wings are all curved and the fruits small and hidden in contrast to the showy exposed fruits of *C. alata* and *C. burgersii*.

This distinct new species is named after Chris Burgers of the Cape Department of Nature and Environmental Conservation who is making a special study of the flora of the De Hoop area and of rare and endangered species in general.

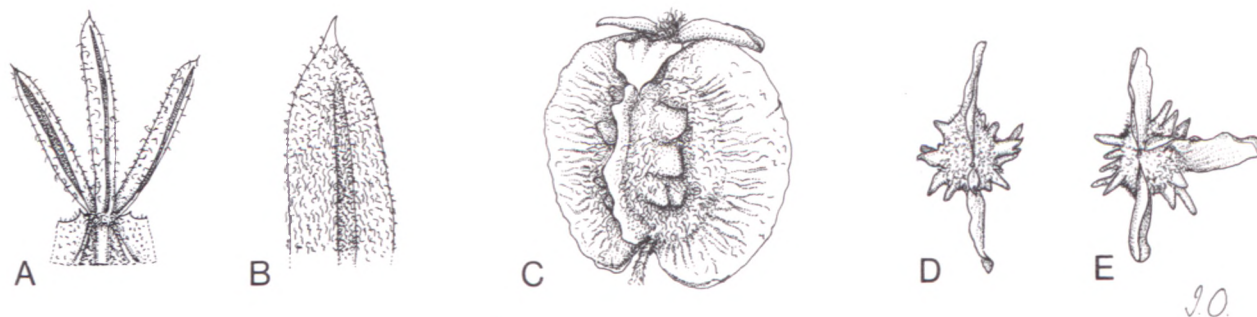


FIGURE 7.—*Cliffortia alata*: A, leaf, $\times 5$; B, apex of leaflet, $\times 20$; C, fruit, $\times 5$; D & E, fruits as seen from above, variations in fruit wings, $\times 5$. All drawn from Oliver & Fellingham 9143 (STE).

Specimens examined

C. burgersii sp. nov.

CAPE.—3420 (Bredasdorp): De Hoop Nature Reserve; De Hoop flats, along public road, 28-7-1979, (—AD), *Burgers 2061* (PRE, STE); along public road to Potberg, on De Hoop, 30-1-1985, (—AD), *Fellingham 926* (NBG, PRE, STE); 1 km from gate of Nature Reserve on public road towards Potberg, 20-3-1985, (—AD), *Fellingham 984* (BOL, K, PRE, STE); flats next to old public road about 1 km before turn-off to the Opstal, 11-3-1989, (—AD), *Fellingham 1444* (BOL, K, MO, PRE, STE); flats NE of the Reserve Centre, female plants, 7-6-1989, (—AD), *Oliver & Fellingham 9184a* (BOL, K, MO, PRE, STE); *ibid.*, male plants, *Oliver & Fellingham 9184b* (BOL, K, MO, PRE, STE).

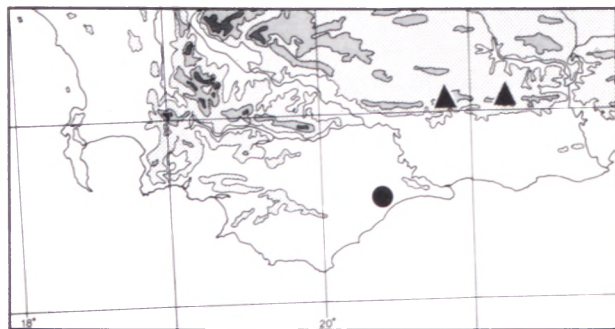


FIGURE 8.—Known distribution of *Cliffortia burgersii*, ●; and *C. alata*, ▲.

C. alata N.E. Br. in Kew Bulletin 15: 121 (1901); Weim.: 80 (1934). Type: Cape Colony, Riversdale Division; on the Karoo plains at Muis Kraal, near Garcia's Pass, alt. 1000 ft, *Galpin 3925* (BOL!, K!, male & female marked as type by N.E. Brown).

CAPE.—3320 (Montagu): Langeberg at Moeras rest huts, Grootvadersbosch State Forest, 19-6-1971, (—DD), *Kruger 1345* (STE); Grootvadersbosch State Forest, near Doorn River huts, 630 m, 29-1-1989, (—DD), *Van der Merwe 293* (STE). 3321 (Ladismith): Muiskraal, near foothills in dip next to dam, NW aspect, 370 m, 10-8-1983, (—CC), *Bohnen 8238* (PRE, STE); Muiskraal, 10-1904, (—CC), *Bolus 11269* (BOL, K, STE); 3-10-1897, *Galpin 3925* (BOL, K); 7-1927, *Levyns 2118* (BOL); 11-8-1948, *Levyns 9008* (BOL); 15-9-1981, *Fellingham 110* (K, PRE, STE); Muiskraal, S of the farmstead, 420 m, 7-6-1989, (—CC), *Oliver & Fellingham 9143* (K, MO, PRE, STE); Garcia's Pass, near the top, 13-10-1981, (—CC), *Mauve & Hugo 221* (K, PRE, STE); 20-7-1937, *Salter 6772* (BOL, K); 14-9-1937, *Salter 6904* (BOL, K).

REFERENCES

- BROWN, N.E. 1901. *Cliffortia alata*. Kew Bulletin 15: 121.
WEIMARCK, H. 1934. *Monograph of the genus Cliffortia*. Gleerupska Univ. Bokhandel, Lund.

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