PROTEACEAE

A NEW SPECIES OF *SERRURIA* FROM THE NORTHERN PART OF THE WESTERN CAPE

This unusual new species was discovered by Mrs Bets Schlebusch in 1993 on the family property Sewefontein in the Matsikamma Mountains above VanRhynsdorp in the northern part of the Western Cape. She showed one of the populations to Dr Ivor Jardine who submitted a specimen to the Protea Atlas Project. Further field investigations were not possible until November 1995 when I accompanied Tony Rebelo of the Protea Atlas Project to Sewefontein to examine flowering specimens in their natural habitat and collect the material on which this account is based.

Serruria lacunosa *Rourke* sp. nov., species distinctissima, distinguitur capitulis axillaribus ovoideis, pedunculis glabris perlongis (85–140 mm); perianthiis rectis ante anthesin; stigmatibus clavatis; stylis reflexis post anthesin, et dense puberulis basaliter.

Frutex erectus, 0.5–1.0 m altus, unicaulis. *Rami* molliter sericei, mox glabrescentes. *Folia* bipinnata, molliter sericea, mox glabrescentia, 60–80 × 40–60 mm. *Inflorescentiae* pedunculatae, rami floriferi 3–12 inflorescentias gerentes; pedunculi glabri, graciles, 85–140 mm longi.

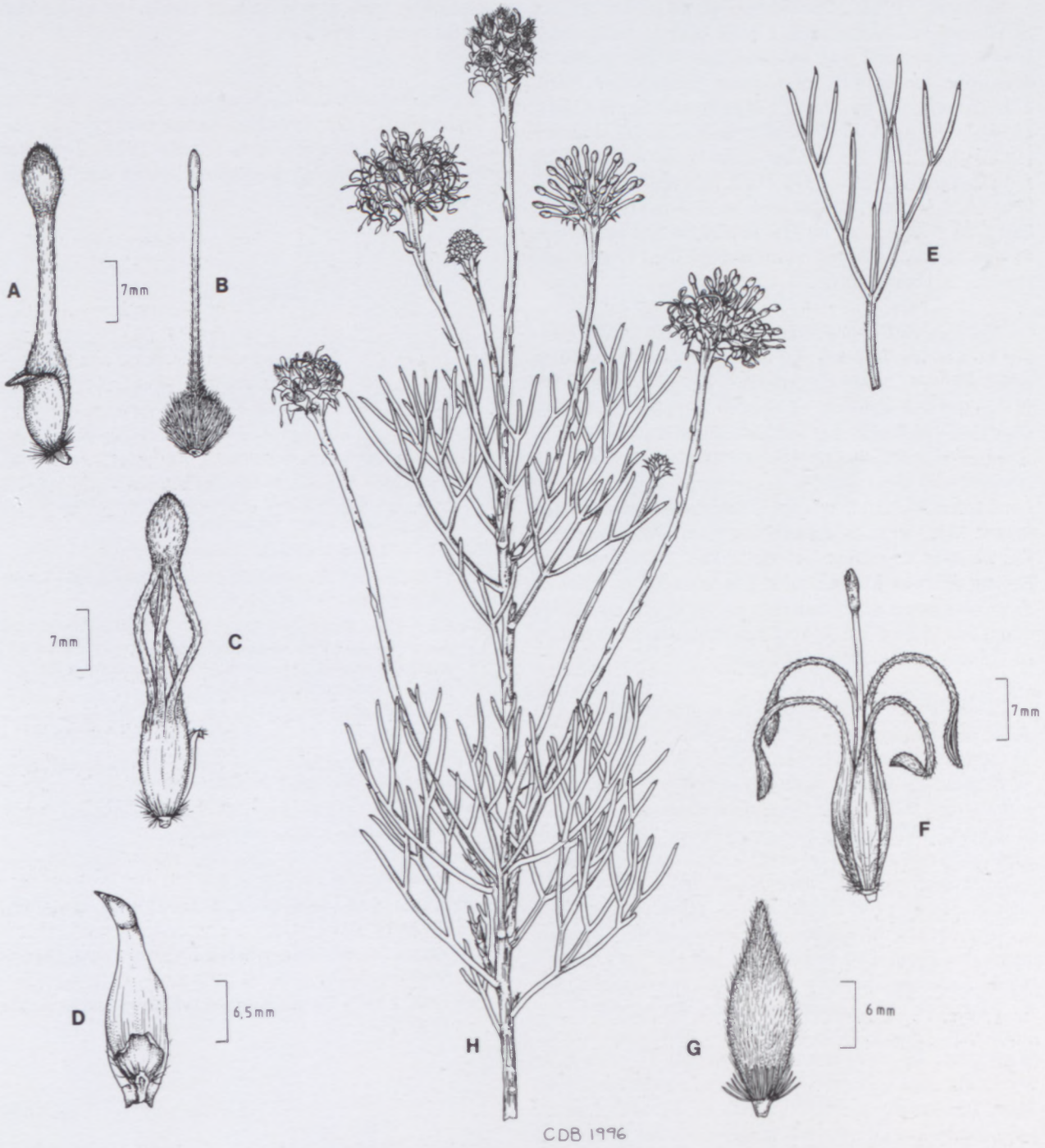

FIGURE 1.—*Serruria lacunosa*: A, perianth in bud plus subtending floral bract; B, gynoecium; C, perianth at anthesis; D, floral bract with thickened apex; E, mature leaf, × 0.6; F, perianth after anthesis; G, achene; H, flowering shoot, × 0.6. All from *Rourke 2108*. Artist: Charmaine Bartman.

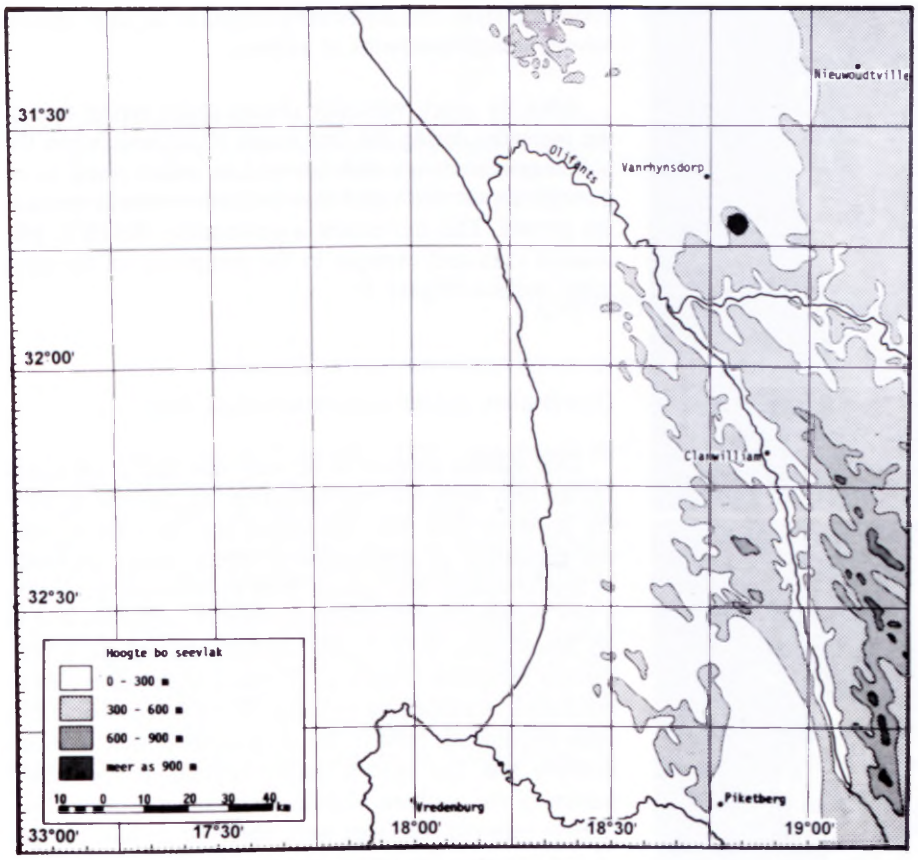

FIGURE 2.—Known distribution of *Serruria lacunosa*.

Capitula axillaria, solitaria, ovoidea, 20–35 mm in diam., floribus 28–35. *Bracteae* anguste ovatae, 5–6 mm longae, 2 mm latae, glabrae, apicibus recurvatis crassis et cartilagineis. *Perianthium* rectum ante anthesin, 12–14 mm longum, sparsim sericeum vel glabrum. *Stylus* rectus, 10–12 mm longus, proximaliter dense puberulus, distaliter glaber. *Stigma* atrum, clavatum, 1.5 mm longum.

TYPE.—Western Cape, 3118 (Vanrhynsdorp): Matsikamma Mtn, on Sewefontein Farm in a kloof southwest of homestead, (–DB), 23-11-1995, *Rourke 2108* (NBG, holo.; BOL, K, MO, NSW, PRE, S, iso.).

Erect, loosely branched shrub 0.5–1.0 m tall, up to 0.7 m in diam., with a single main stem often branched near base, up to 20 mm in diam. *Bark* smooth, greyish brown. *Branches* softly sericeous initially, soon glabrous and reddish flushed, 3–5 mm in diam. *Leaves* bipinnate, softly sericeous initially, soon glabrous, 60–80 mm × 40–60 mm, ascending, petiolate; petiole 20–25 mm long. Leaflets terete, upper surface minutely canaliculate, apices acute. *Flowering shoots* bearing 3–12 pedunculate, solitary, axillary inflorescences, opening in centrifugal succession. *Peduncle* glabrous, slender, 85–140 mm long with a few widely spaced lanceolate-acute, glabrous peduncular bracts. *Inflorescence* a solitary globose axillary capitulum, 28–35-flowered, 20–35 mm in diam. *Receptacle* ellipsoid, 20–25 × 3 mm, with the floral bracts forming a pseudo-involucre at the base. *Floral bracts* narrowly ovate, 5–6 × 2 mm, glabrous, apices cartilaginous, thickened, tooth-like, recurved. *Perianth* straight in bud, 12–14 mm long; tube region 3 mm long, inflated, sparsely sericeous to glabrous; claws equally recurved at anthesis, sericeous; limbs elliptic, 2 mm long, sericeous. *Anthers* 4. *Style* straight at anthesis, 10–12 mm long, reflexing abaxially and pointing towards peduncle in post pollination phase; very densely pubescent, proximally becoming sparsely pubescent and glabrous distally; pubescence covering $^2/_3$ of length. *Pollen presenter* black, clavate-obtuse, 1.5 mm long with a slight annular ring at junction with style; stigmatic groove terminal. *Ovary* globose, sharply differentiated from style, densely lanate. *Hypogynous scales* minute, 1 mm long, deltoid. *Fruit* an ellipsoid, villous achene 6–7 × 2.5–3.0 mm, beaked terminally, truncate and pedicellate basally with a basal fringe of stout trichomes (Figure 1).

Diagnostic characters

Distinguished by its solitary, ovoid, axillary capitula with unusually long (85–140 mm) glabrous peduncles produced in groups of 3–12 towards the upper half of each flowering shoot; by the straight perianth and densely villous styles, pubescent for two thirds of their length which reflex towards the peduncles through almost 180° from anthesis to the post pollination phase and by the clavate pollen presenters.

The specific epithet *lacunosa* (= full of pools) alludes directly to the Matsikamma Mountains where *S. lacunosa* occurs. This Koi-Koi name is generally understood to mean 'pools of water' (Nienaber & Raper 1977); it could also apply to a specific site on Matsikamma, namely the Farm Sewefontein (Seven Springs), which is the type locality of the species.

Relationships

Serruria lacunosa is not obviously related to any other species in the genus although the inflorescence architecture is similar to that in *S. reflexa* Rourke, namely, a

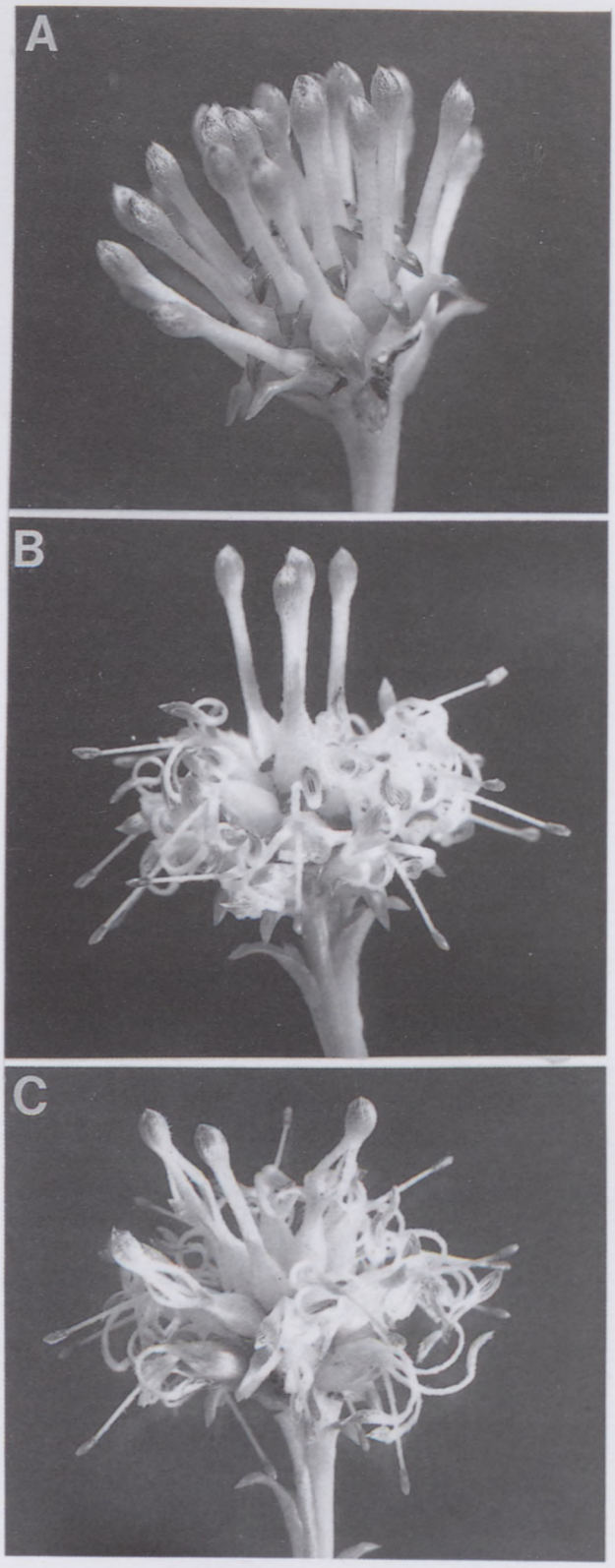

FIGURE 3.—Stages in opening of inflorescence in *Serruria lacunosa* showing movement of styles until they point downwards towards ground: A, bud stage; B, most perianths open, styles spreading but beginning to turn down; C, remaining perianths opening with styles from two earlier opened perianths pointing downwards, parallel to peduncle.

number of solitary axillary capitula with attenuated peduncles grouped towards the apex of a flowering shoot. The mobile style strongly reflexed above the ovary, is also comparable to the style in *S. reflexa* but *S. lacunosa* differs sharply from the former species due to its heavily pubescent style. The styles are glabrous in all other species having straight perianths at anthesis.

After the erect, vertically placed styles spring free of the perianths during the first stages of anthesis when the pollen presenters are still covered in pollen, they move through almost 180° until they point downwards towards the ground. This movement is presumably linked to pollination cues and changes in the receptivity of the stigmatic surface (Figure 3).

Distribution, habitat and conservation status

This species appears to be very rare and is presently known only from the type collection. At the time of writing no more than two populations had been discovered, one consisting of approximately fifteen plants, the other of approximately nine plants. Both populations are within a few hundred metres of each other in undisturbed veld on Sewefontein Farm at the northern end of the Matsikamma Mountain (Figure 2). *Serruria lacunosa* is almost certainly a Matsikamma endemic. While it is probable that other populations exist in the same general area, it seems unlikely that this species ranges beyond its specialised habitat in the northern Matsikamma massif. Several one- to two- year-old seedlings were observed on bare patches of soil between the parent plants indicating its ability to regenerate without the intervention of fire.

The two populations examined are situated at an elevation of about 750 m in a gently sloping gully flanked by high Nardouw Sandstone Cliffs of the Table Mountain Group (Kent 1980). Unlike the typically coarse-grained soils usually derived from sandstone, the soil at this site is white, very fine-grained and clay-like in consistency. The associated vegetation consists mainly of dense clumps of *Hypodiscus laevigatus* (Kunth) Linder (Restionaceae). Mean annual rainfall at this site is of the order of 500 mm (D. Schlebusch pers. comm.).

Flowering apparently extends over a period of at least four months or longer, peaking between September and December but continuing until February. Odd open inflorescences have been reported as late as April. This is due to the slow development of the inflorescence buds which open successively towards the end of each flowering shoot in centrifugal order. The inflorescences have no perceptible scent. When the type material was collected in early summer (November) numerous hairy scarab beetles were observed clambering over open inflorescences apparently feeding on pollen (very little nectar is produced in this species). This particular scarab (*Peritrichia antennata* Schein, Scarabaeidae) is likely to be a seasonally important pollinator but other pollinators may be active at other times during the extended flowering period.

ACKNOWLEDGEMENTS

Mr and Mrs D. Schlebusch kindly granted permission to collect specimens of *S. lacunosa* on their farm. Mrs Schlebusch also collected fruiting material from which mature achenes were later obtained.

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