

**TWO NEW SPECIES OF *OSTEOSPERMUM*
(*COMPOSITAE*–*CALENDULEAE*) FROM
SOUTHWESTERN CAPE PROVINCE,
SOUTH AFRICA**

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The tribe *Calenduleae* of the *Compositae* (*Asteraceae*) has a pronounced centre of diversity in South Africa, particularly in Cape Province. The largest genus, *Osteospermum* L., contains c.50 species in Africa and southwestern Arabia, including about 40 in Cape Province. Two new species are described here, both narrowly endemic in southwestern Cape Province. *Osteospermum australe* is confined to lowland coastal limestone areas in Bredasdorp district, whereas *Osteospermum burttianum* has a restricted distribution in the Langebergen mountains in Heidelberg district.

Keywords. *Asteraceae*, *Calenduleae*, new species, *Osteospermum*, South Africa, systematics.

INTRODUCTION

Ongoing studies in the small tribe *Calenduleae* (*Compositae*) suggest a number of taxonomic changes. The tribe was thoroughly studied by Tycho Norlindh (1906–1995); in a series of papers he presented a useful account particularly of the South African members (Norlindh, 1943, 1960, 1977). However, recent research findings, including molecular data, suggest a revised generic taxonomy (cf. Nordenstam, 1994a,b, 1996; Wood & Nordenstam, 2003). New herbarium accessions and better field observations are also destined to modify and refine Norlindh's taxonomy at species level (Nordenstam & Wood, in prep.). Two distinct new species of *Osteospermum* L. are described here.

TAXONOMY AND DISCUSSION

***Osteospermum australe* B. Nord., sp. nov.** (sect. *Polygalina* DC.). **Fig. 1.**

Frutex erectus 0.5–1m altus parce ramosus, caulis et rami dense foliati primo lanae laxa albida vestiti mox glabrescentes vel ad axillas tantum lanati. Folia alterna sessilia subimbricata vel erecto-patentia integra semiamplexicaulia coriacea elliptico-ovata usque oblongo-lanceolata vel rarius oblanceolata 2–5 × 0.5–2cm margine incrassato albescenti scabro; nervus medius prominens albescens scabridus. Capitula

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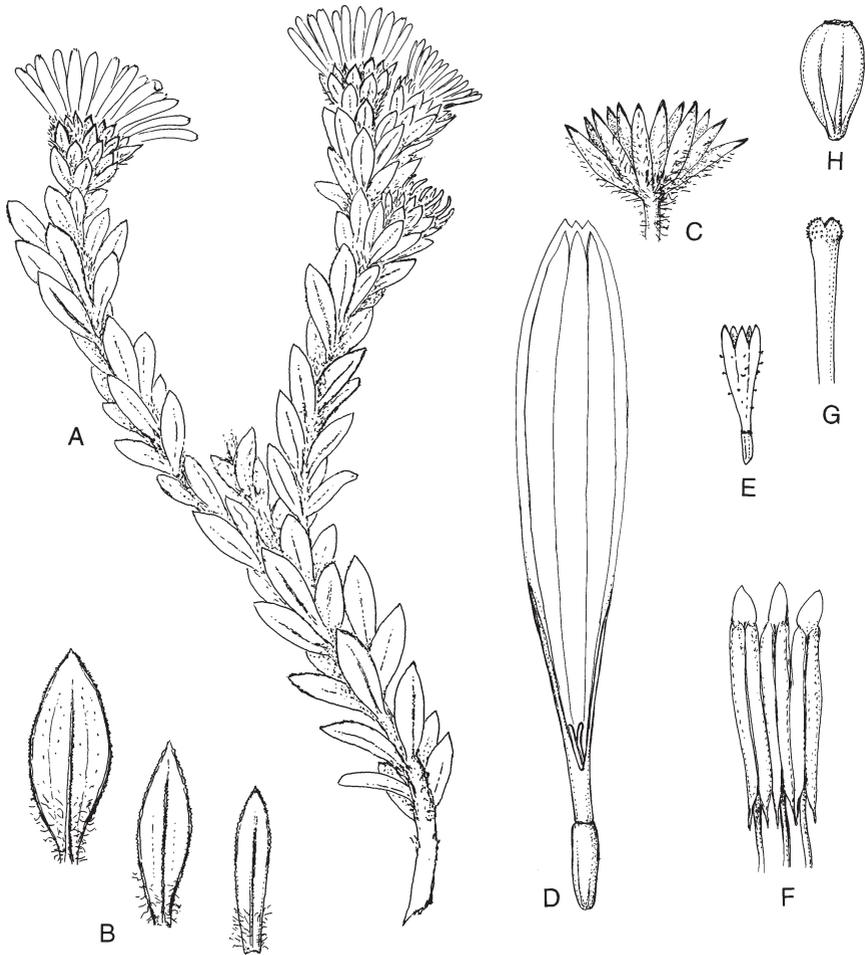


FIG. 1. *Osteospermum australe*. A, habit ($\times \frac{1}{2}$); B, leaves ($\times \frac{1}{2}$); C, involucre ($\times 1$); D, ray-flower ($\times 3$); E, disc-flower ($\times 3$); F, anthers ($\times 12$); G, style of disc-flower ($\times 12$); H, cypsel ($\times 3$). (A, C–H: *Nordenstam* 1461 in S, holotype; B: *Hugo* 2666 in PRE). Drawn by the author.

terminalia solitaria sessilia vel subsessilia magna radiata. Involucris squamae 14–17 circiter biseriatae anguste oblongo-lanceolatae 10–20 \times 2–5mm latae apice violascentes acutae vel acuminatae dorso albolanatae. Flores radii feminei 11–20; ligulae luteae vel aurantiacae subtus rubescentes vel marroninae. Cypselae ellipsoideo-obovoideae 5–5.5 \times 3mm glabrae fuscae vel stramineae obscure costatae. Flores disci numerosi pseudohermaphroditi ♀-steriles: corolla flava quinquelobata sparse glandulosa. Antherae breviter caudatae. Stylus simplex minute bilobus. Ovarium abortivum anguste oblongum glabrum bivenosum.

Type: South Africa, Cape Prov., Bredasdorp Div., 0.5mi. E of Cape Agulhas, limestone hill ridges, 18 ix 1962, *B. Nordenstam* 1461 (holo. S!; iso. NBG!, PRE!).

Shrub 0.5–1m high, little to moderately branched. *Stems and branches* loosely white-woolly, glabrescent. *Leaves* alternate, closely set, erecto-patent to sub-appressed, sessile, entire, elliptic-ovate to oblong-lanceolate (or even oblanceolate), 2–5 × 0.5–2cm, coriaceous, with distinct midrib and 2–4 faint parallel veins, somewhat woolly especially when young and towards base, glabrescent; margins distinct, cartilaginous-scabrid, initially somewhat dark, turning whitish; midrib cartilaginous-scabrid; apex acute to shortly mucronate; base semi-amplexicaul. *Capitula* terminal, solitary, sessile or subsessile, heterogamous, conspicuously radiate. Involucre hemispherical, c.2–3cm in diam., white-woolly especially at base; involucre bracts 14–17, ± biseriate, narrowly oblong-lanceolate, 10–20 × 2–5mm, herbaceous, flat, faintly reticulate-veined, laxly white-woolly, acute to acuminate with somewhat purplish tips and scabrid margins. *Receptacle* somewhat convex, naked, glabrous. *Ray-flowers* 11–20, female; limb narrowly oblong to oblanceolate, 20–35 × 2.5–6mm, distinctly 4(–7)-veined, deep yellow to orange, reddish or maroon on reverse, minutely 3-fid at apex, glabrous; tube short, 1–3mm long, somewhat compressed. *Style branches* linear, 1–1.5mm long, obtuse, with marginal stigmatic lines. *Cypselas* ellipsoid-obovoid, 5–5.5 × 3mm, glabrous, light brown or straw-coloured, somewhat constricted towards base, with 5 or 6 low ridges widest at base; pappus absent. *Disc-flowers* numerous (c.100), functionally male. *Corolla* tubular, 5–6mm long, gradually widening upwards, 5-lobed, with sparse, short-stalked patent glands; lobes narrowly ovate, 1.5–1.8mm long, acute, without midvein but with lateral marginal veins joining at sinuses and continuing down corolla. *Anthers* c.2mm long, shortly caudate, apical appendage triangular-ovate. *Style* sterile, simple, obtuse, minutely papillate, shortly bilobed. *Ovary* narrowly oblong to linear, glabrous, 2-veined.

Additional specimens examined. SOUTH AFRICA, CAPE PROV. (Bredasdorp District), Farm Awila, limestone, 9 ix 1976, *H. Wild* 8022 (E photocopy, SRGH); 3419 DA, Klein Hagelkraal E of Pearly Beach, S slope, 100ft., 10 iv 1979, *L. Hugo* 1740 (NBG); 3419 DA, Hagelkraal, Pearly Beach, limestone ridge, steep slopes, SE aspect, 12 ix 1981, *L. Hugo* 2666 (NBG, PRE); 3419 DA, limestone hills above Korsika, 170m, 29 iv 1981, *C.J. Burgers* 2694 (NBG); 3419 AD, limestone scree slopes and ridges, N slope, 600–700ft., 31 x 1986, *C.H. Stirton* 11359 (NBG).

Flowering period. September–April.

Derivation. Named for its location at the southernmost point of Africa.

Distribution and ecology. Restricted to coastal and lowland limestone in the vicinity of Cape Agulhas, the southernmost tip of Africa. The population found by me in 1962 was quite small and limited to a low limestone ridge in a low-growing fynbos community with *Aspalathus incurvifolia* Vogel ex Walp., *Erica longifolia* Donn, *Felicia nordenstamii* Grau (type locality), *Pelargonium betulinum* Aiton, *Adenandra obtusata* Sond. and species of *Protea*, *Mimetes* and *Gladiolus*.

Conservation status. A local and apparently rare species endemic to lowland limestone. It is nowhere abundant and possibly threatened or endangered. An

attempt in 2002 to find it again in the type locality was unsuccessful (Alan Wood, pers. comm.).

Osteospermum australe is a small shrub with closely set leaves, which are entire with distinct cartilaginous and scabrid margins. The upper leaves, particularly on flowering branches, are imbricate and distinctly margined. The large and more or less sessile capitula have numerous conspicuous rays and the involucre is at least partly covered by the dark-margined upper leaves. There is some variation in size of leaves and capitula; the specimens from Pearly Beach are larger than the type collection from Cape Agulhas, but there is no doubt that they are conspecific (Fig. 1A,B).

Osteospermum australe is a very distinct species apparently without close relatives. *Osteospermum imbricatum* L., as the name implies, also has imbricate leaves which are, however, much smaller, and its capitula are small and distinctly pedunculate. *Osteospermum rotundifolium* (DC.) T. Norl. is very different in leaf shape and synflorescence, with several small pedunculate capitula.

***Osteospermum burttianum* B. Nord., sp. nov. (sect. *Polygalina*). Fig. 2.**

Frutex ramosus compactus rotundatus 0.3–1m altus et latus; rami glabri dense foliati. Folia alterna subcoriacea glabra sessilia semiamplexicaulia integerrima anguste oblonga usque oblanceolata vel spathulata 2–8 × 0.5–2cm obtuse apiculata margine scabrida nervo medio instructa. Capitula in caule et ramis terminalia solitaria pedunculata, pedunculi breviter fusco-hirtelli 3–6cm longi bracteis paucis instructi. Involucra bractearum 8–13 subuniseriatae vel biseriatae anguste elliptico-oblongae 8–10 × 3–4mm herbaceae breviter glandulosae acutae–acuminatae. Flores radii feminei 8–11, ligulae flavae anguste elliptico-oblongae. Cypselae oblongo-obovoideae 5.5–6.5 × 2–2.5mm glabrae in sicco fuscoatrae obscure costatae. Flores disci numerosi pseudohermaphroditi ♀-steriles; corolla flava quinquelobata sparse glandulosa vel glabra. Antherae caudatae. Stylus simplex apice minute bilobus. Ovarium abortivum anguste oblongum glabrum bivenosum.

Type: South Africa, Cape Prov., Heidelberg Distr., 3320 DD, Goedehoop Peak (Horingberg), Langeberg E of Lemonshoek, S slopes, 3500–4000ft., 31 xii 1978, E. Esterhuysen 35154 (holo. S!; iso. BOL!, E, K!, PRE!, S!).

Much-branched compact rounded or low-growing spreading shrub or shrublet 0.3–1m high and wide. *Stems and branches* erect to erecto-patent, glabrous, densely foliate. *Leaves* alternate, closely set, sessile, entire, narrowly oblong–oblanceolate or spathulate, 2–8 × 0.5–2cm, glabrous, somewhat coriaceous, with distinct midrib, flat; base semiamplexicaul, margins minutely hirsute-serrulate or scabrid with brownish small hairs, apex rounded-obtuse and apiculate-mucronate. *Capitula* solitary, pedunculate, heterogamous; peduncles 3–10cm long, with 1–3 bract-like reduced leaves, fusco-hirsute with stiff short hairs. *Involucre* 1–1.5cm in diameter. Involucral bracts ± uniseriate to biseriatae, 8–13, narrowly elliptic-oblong, 8–10 × 3–4mm, herbaceous, reticulate-veined, with short dark-tipped glandular hairs, acute to acuminate. *Receptacle* convex, naked, glabrous. *Ray-flowers* female, 8–11; tube

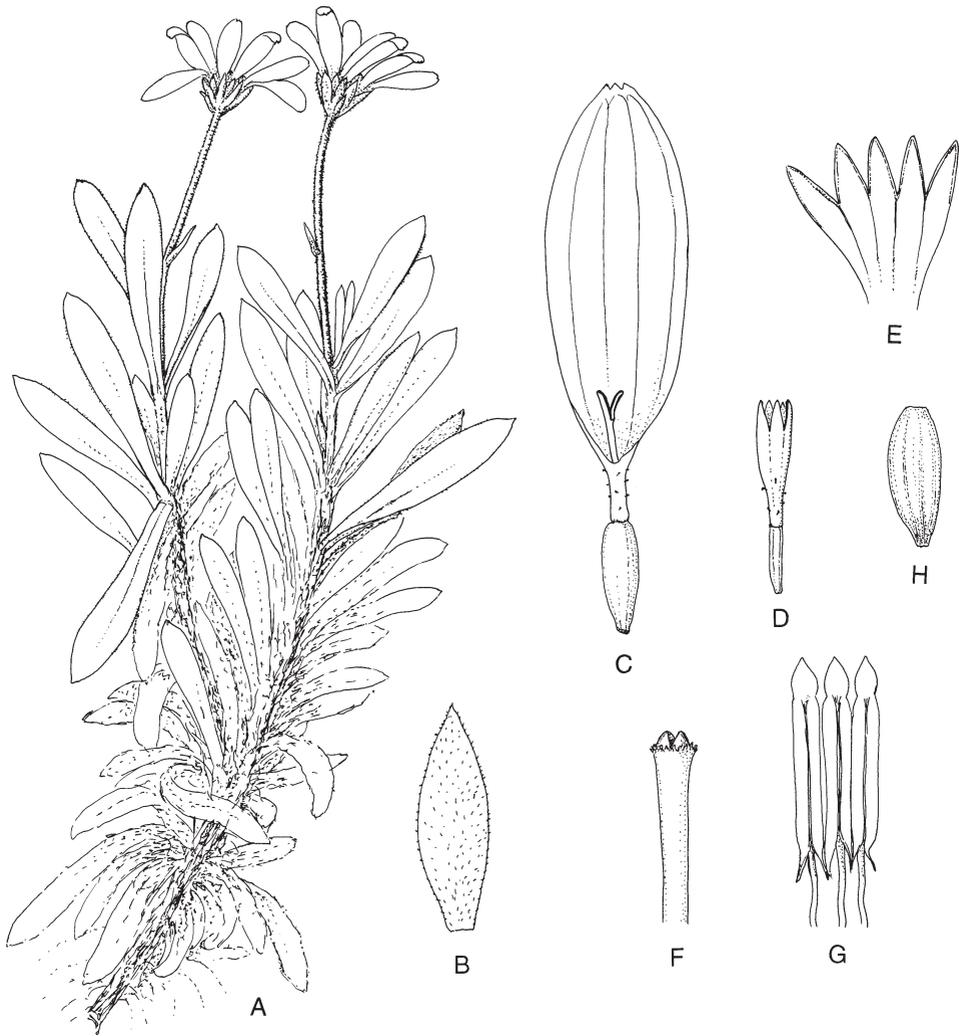


FIG. 2. *Osteospermum burttianum*. A, habit ($\times \frac{1}{2}$); B, involucre bract ($\times 3$); C, ray-flower ($\times 3$); D, disc-flower ($\times 3$); E, corolla of disc-flower opened ($\times 6$); F, style of disc-flower ($\times 12$); G, anthers ($\times 12$); H, cypsela ($\times 3$). (*Esterhuysen* 35154 in S, holotype). Drawn by the author.

1–3mm long, sparsely glandular with multicellular stalked glands; lamina narrowly elliptic-oblong, yellow, $12\text{--}18 \times 4\text{--}6$ mm wide, 4-veined, apically 3-fid. *Style branches* narrowly oblong to linear, 0.8–1.5mm long, obtuse-subacute, with distinct marginal stigmatic lines. *Cypselas* oblong-obovoid, $5.5\text{--}6.5 \times 2\text{--}2.5$ mm, narrowed to base, smooth, glabrous, (probably with thin fleshy exocarp when fresh), drying purplish-black, obscurely ridged with longitudinal low blunt ridges, pappus absent. *Disc-flowers* functionally male, numerous. *Corolla* yellow, 4.5–5.5mm long, tubular below and with a narrowly campanulate 5-lobed limb, sparsely glandular or glabrous;

lobes ovate-oblong, 1.5–1.8mm long, apically crested and acute, without midvein, with lateral marginal veins connecting at the sinuses and continuing down the corolla. *Anthems* 2mm long, base caudate, apical appendage triangular-ovate. *Style* simple, sterile, apically tipped with a shortly bilobed obtuse cone surrounded by a fringe of short pili. *Ovary* narrowly oblong, 1.5–2.5mm long, glabrous, 2-veined.

Additional specimens examined. SOUTH AFRICA, CAPE PROV. Swellendam Div., S slopes of Naauwkransberg in the Langebergen near Heidelberg, 3000–4000ft., 28 iii 1948, *E. Esterhuysen* 14426 (BOL, K); Warmwaterberg 3320 DD, Langeberg East MCA, Horingberg, vertical slope, S aspect, 1000–1300m, 8 i 1987, *T.J. van der Merwe* 175 (NBG, PRE); 3320 CD, Langeberg, trail 15F in Protea Valley between Warmwaternek and Protea Valley hut, S slope of second mountain range in deep kloof, 1000m, 3 v 1987, *J.L. du Plessis* 22 (NBG).

Flowering period. December–May (August).

Derivation. Named for Mr B.L. (Bill) Burt in recognition of his outstanding contribution to the knowledge of the *Compositae* and to South African phytogeography.

Distribution and ecology. Apparently endemic to the Langebergen near Heidelberg, an area recognized as a local centre (or subcentre) of endemism within the Cape Floristic Region (Weimarck, 1941; Goldblatt & Manning, 2000; van Wyk & Smith, 2001). *Osteospermum burttianum* grows as a compact or somewhat diffuse rounded shrub on steep slopes and south-facing cliffs at altitudes above 1000m. It occurs in mountain fynbos with *Restio* Rottb., etc. on sandstone derived soil (TMS).

Conservation status. A species with restricted distribution in a mountainous habitat. It may be safe in some steep cliff habitats, but might be regarded as vulnerable because of its limited distribution and proximity to some popular walking trails and hiking areas.

Osteospermum burttianum is related to *O. polygaloides* L., which though variable, is never as large-leaved as the new species and has a different habit, not being cushion-shaped. The capitula of *O. polygaloides* are distinctly smaller with less conspicuous rays.

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