

ASTERACEAE

A DISTINCTIVE NEW SPECIES OF *FELICIA* (ASTEREAEE) FROM WESTERN CAPE, SOUTH AFRICA

INTRODUCTION

Felicia Cass. is a genus of 83 species of annuals, perennials and shrubs of tribe Astereae of the Asteraceae (Grau 1973). The genus is centred in southern Africa but a few species extend into tropical Africa as far north as Nigeria, Ethiopia and the Arabian Peninsula (Bremer 1994; Herman *et al.* 2000). *Felicia* is distinguished from related genera of the Astereae by an epaleate receptacle, uniseriate pappus of numerous barbellate bristles, ecaudate anthers and strongly compressed cypselas with swollen margins. Most species have blue or mauve to pink rays (rarely white or yellow) and yellow disc florets (Grau 1973). The species described here, *F. josephinae*, is remarkable in the genus for its broad white or cream-coloured ray florets and deep purple disc florets. Similarly coloured disc florets are otherwise known in the genus only in *F. heterophylla* (Cass.) Grau. *Felicia* is well represented by 54 species in the Cape Floral Region and *F. josephinae* was listed as *Felicia* sp. 1 in the account prepared for the recent conspectus of the Cape flora (Goldblatt & Manning 2000). Additional collections made in the spring of 2001 have enabled us to describe it formally.

***Felicia josephinae* J.C.Manning & Goldblatt, sp. nov.**

Herba annua usque ad 200 mm alta hispida, foliis inferioribus oppositis oblanceolatis, capitulis heterogamis radiatis solitariis pedunculis usque ad 50 mm longis trichomatibus glanduliferis vestitis insidentibus, involucre anguste ovoideo \pm 5 mm alto et 4 mm in diametro, bracteis involucrealibus biseriatis supra mediumtrichomatibus glanduliferis et setis sparsis ornatis marginibus membranaceis apicibus ciliatis, flosculis radii 8 vel 9 ligula elliptico-oblanceolata, alba ad crema epapposa, flosculis disci 14 vel 15 atropurpureis cylindricis supra dilatatis setis pappi \pm 25 barbellatis et prope medio subplumosis, cypselis obovatis compressis marginibus incrassatis trichomatibus adpressis vestitis pallide brunneis.

TYPE.—Western Cape: 3218 (Clanwilliam), hills between Elands Bay and Leipoldtville, deep sands, (–BC), 15 Sept. 2001, Goldblatt & Porter 11887 (NBG, holo.; K, MO, PRE, S, iso.).

Annual herb 150–200 mm high, branching near base; stems sparsely leafy, hispid with short and long multicellular hairs and with numerous shortly stipitate glands in upper parts. *Leaves* decreasing in size up stem; lower leaves opposite, soon withering, oblanceolate, 30–70 \times 6–13 mm, narrowed to petiole-like base, thinly hispid with long multicellular hairs; upper leaves mostly alternate, becoming progressively lanceolate to linear, hispid with long and short multicellular hairs. *Capitula* heterogamous, radiate, solitary on terminal and axillary peduncles up to 50 mm long, with few, scattered, subulate bracts. *Involucre* narrowly ovoid, \pm 5 mm high and 4 mm diam.;

involucreal bracts biseriate, 11–13, glandular-hairy and thinly setose in upper half, 4–5 mm long, with scarious margins and ciliate tips, outer bracts linear with narrow margins, \pm 1 mm wide, inner bracts oblanceolate with broad margins, \pm 1.5 mm wide. *Receptacle* flat, epaleate, alveolate. *Ray florets* female, 8 or 9; tube cylindrical, glandular-hairy, 2.5–3.0 mm long; lamina spreading, elliptic-oblanceolate, 10–12 \times 4–6 mm, 4-veined, white to cream-coloured. *Ovary* narrowly elliptic, adpressed-hairy; style terete with linear branches, not or shortly exerted, branches \pm 1 mm long, acute, margins stigmatic. *Pappus* absent. *Cypselas* obovate, 2.5–3.0 \times \pm 1.5 mm, flattened with thickened margins, faces and margins covered with adpressed hairs, pale brown. *Disc florets* bisexual, 14 or 15, deep purple, inner florets functionally male; tube cylindrical but widening slightly in upper part, glandular-hairy, 2.5–3.0 mm long, limb obliquely obconical, 5-lobed; lobes triangular, recurved, \pm 1 \times 0.8 mm, with thickened margins. *Anthers* \pm 2 mm long including ovate, somewhat keeled apical appendage, deep blue with white pollen; anther base obtuse, ecaudate. *Ovary* narrowly elliptic, adpressed-hairy; style terete, branches \pm 1 mm long, purple, incurved, linear, flattened with stigmatic margins and sterile, triangular, papillate apical appendages. *Pappus bristles* uniseriate, \pm 25, spreading in fruit, caducous, 3–4 mm long, barbellate but subplumose near middle, connate at base into short collar, white. *Cypselas* as in ray florets. *Flowering time*: September and October. Figure 7.

Distribution and biology: *Felicia josephinae* has only been collected from a small area along the Western Cape coast between Elands Bay and Lambert's Bay, extending inland to Sandberg, east of Leipoldtville (Figure 8). It occurs on hills and dunes, where it is restricted to Strandveld Succulent Karoo (Low & Rebelo 1996). This strand vegetation occurs on deep, calcareous sands in a belt along the coastal plain and is dominated by scattered shrubs, especially *Salvia lanceolata* (Lamiaceae), *Nylandtia spinosa* (Polygalaceae) and succulent species of *Euphorbia* (Euphorbiaceae). Numerous annual species flourish seasonally in the open spaces between the shrubs, including *Alonosea unilabiata*, *Hemimeris racemosa*, *Lyperia tristis*, *Nemesia affinis* and *N. bicornis* (Scrophulariaceae), and *Arctotis hirsuta*, *Dimorphotheca pluvialis* and *Trichogyne verticillata* (Asteraceae). Although Strandveld Succulent Karoo extends along the coast for some 500 km, *F. josephinae* appears to be restricted to the extreme southern part where the sands are relatively shallower and overlies more solid sandstone-derived substrates.

History: *F. josephinae* appears to have been first collected in September 1933 by C. Louis Leipoldt, poet, author, medical practitioner and plant collector, from between Elands Bay (incorrectly transcribed on the herbarium labels as Elandskloof) and Clanwilliam, on the Western Cape coast. During the ensuing two decades a handful of further collections were made by various Cape botanists, all from the same small stretch of coun-

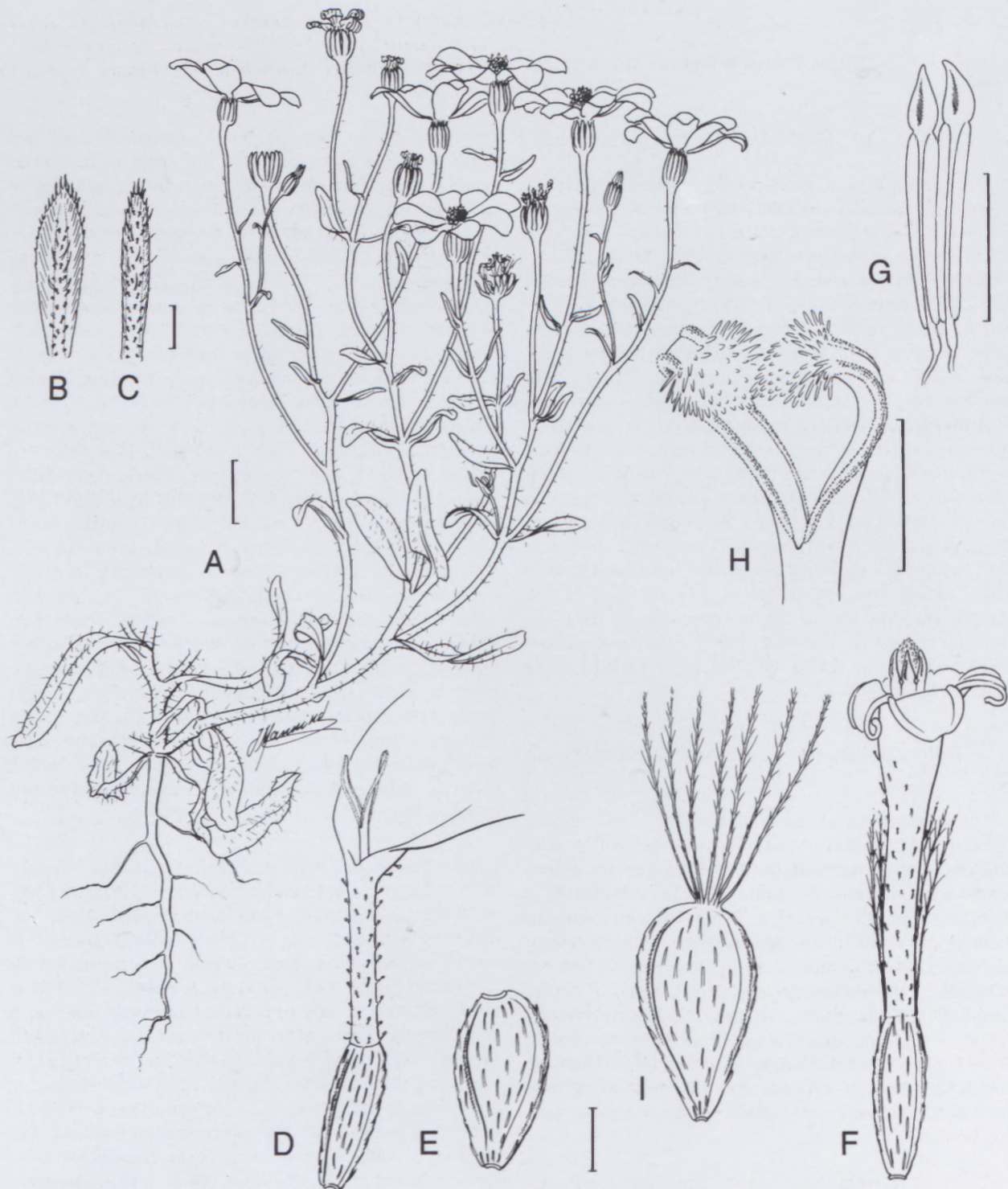


FIGURE 7.—*Felicia josephinae*. A, whole plant. B, C, involucral bracts: B, inner; C, outer. D, E, ray floret: D, floret; E, cypselal. F–I, disc floret: F, floret with pappus bristles removed from front; G, two stamens; H, stigmatic branches; I, cypselal (rear pappus bristles not shown). Scale bars: A–C, 10 mm; D–I, 1 mm. Artist: John Manning.

try between Elands Bay and Lambert's Bay. These early collections were all identified either as a new species or, rather tentatively, as a variant of *Chareis heterophylla* Cass. [now *Felicia heterophylla* (Cass.) Grau]. None of these collections was apparently seen by Grau (1973) for his revision of the genus. *F. josephinae* first came to our attention in 1995 when we found it on the Farm Sandberg, east of Elands Bay, possibly at or very near the spot at which Leipoldt had originally located it. It was clear to us then that it was not a form of *F. heterophylla*.

We encountered it again in the spring of 2001, at which time we took the opportunity of collecting material for description and illustration. It gives us great pleasure to name it for our colleague, Josephine Beyers, in recognition of her long interest in the Asteraceae.

Diagnosis and relationships: this distinctive, highly floriferous species is readily distinguished from all other species of *Felicia* by its broad, white or cream-coloured rays and deep purple disc. The rounded plants become

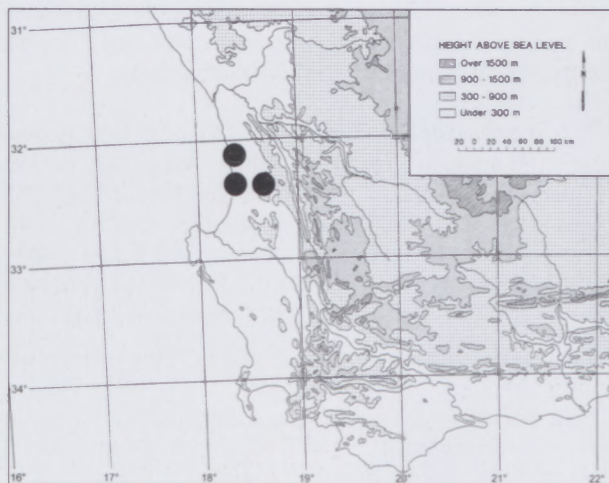


FIGURE 8.—Distribution of *Felicia josephinae* in Western Cape.

covered with dainty white flower heads that in their broad rays and small, convex, purple discs are quite unlike any other species of *Felicia*. The central disc florets, which are functionally male, have somewhat longer ovaries than the surrounding florets, with the result that the disc is conspicuously convex and projects prominently above the rays. *F. josephinae* is one of a handful of annual species in section *Neodetris* Grau that have a strictly biseriate involucre and that lack pappus bristles on the ray florets. Among these species it appears to be most closely allied to *F. heterophylla*, the only other species in the genus known to have blue or purple disc florets. The two species also resemble one another in their involucre bracts, which bear both glandular and setose hairs, in their cypselas, which are rather scantily clad with long hairs, and in their subplumose pappus bristles. *F. josephinae* is distinguished from *F. heterophylla* by its relatively broader (10–12 × 4–6 mm vs 15 × 4 mm) rays that are white to cream-coloured rather than deep blue, by the shorter peduncles (30–50 mm long vs 50–150 mm long), resulting in a more compact appearance to the plants, and by the narrower involucre (4 mm vs 6–8 mm diam.) that contain relatively few disc florets in which the petal lobes are conspicuously recurved rather than suberect or slightly recurving. Herbarium material of the two species in which the

colour of the rays has faded or is not noted, can always be separated by the characteristically short peduncles and compact habit of *F. josephinae*. The species appears to have significant horticultural potential.

Additional material examined

WESTERN CAPE.—3218 (Clanwilliam): Lambert's Bay, Otterdam, 6-09-1953, (–AB), *Compton 24170* (NBG); Elands Bay, base of Rooikransberg, 18-10-1935, (–AD), *Pillans 8035* (BOL); between Elands Kloof [sic] and Clanwilliam, (–BC), 09-1933, *Leipoldt 21268* (BOL); between Elands Bay and Leipoldtville, (–BC), 09-1947, *Zinn s.n.* (SAM); Farm Sandberg, east of Leipoldtville, sandy slopes of Sandberg, (–BC), 27-09-1995, *Goldblatt & Manning 10325* (MO, NBG).

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