**FSA contributions 19: Asteraceae: Anthemideae: Eumorphia**

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**INTRODUCTION**

The genus *Eumorphia* DC, belongs to the tribe Anthemideae in the subfamily Asteroideae of the family Asteraceae. It consists of six species and two subspecies (Hilliard & Burtt 1982), which are endemic to southern Africa. It occurs widely in southern Africa in Limpopo, Mpumalanga, Swaziland, Free State, KwaZulu-Natal, Lesotho, Western and Eastern Cape (Herman et al. 2003).

**MATERIAL AND METHODS**

A total of seven *Eumorphia* taxa were studied from herbarium specimens housed in PRE. In each species, morphological characters were investigated. The length of the corolla, length and width of the involucre, length of the style and ovary, number of ray florets, where possible, and length of cypselae were measured with the aid of a Bausch & Lomb StereoZoom® Series microscope. Two cypselae in each taxon, except in the case of *E. swaziensis* and *E. corymbosa*, were examined by means of a scanning electron microscope (JSM-840, JEOL, Tokyo, Japan). Anthers were studied under a dissecting and light microscope and photographs were taken with a digital camera (Canon Powershot S80 Digital Camera) and light microscope. 

Etymology: the generic name *Eumorphia* is derived from the Greek words, eu- meaning well and morphe meaning form; referring to the neatness of the foliage (Jackson 1990: 91).

Conservation status: according to the latest Red List of South African plants (Raimondo et al. 2009), all species are listed as LC (Least Concern).

Key to species


   Woody subshrub, 0.1–1.0 m high, single-stemmed at base becoming branched, glabrous; stem very rough. *Leaves* opposite, narrowly linear, entire 4–5 × 1.2 mm, lower 10–18 × 1.2 mm, some clustered at nodes, acuminate. *Capitula* heterogamous, radiate, terminal, solitary or corymbose in *E. corymbosa* and *E. swaziensis*, shortly pedunculate or subsessile. *Involucre* campanulate to subglobose or cylindrical in *E. corymbosa*. *Involucral bracts* in 3–5 rows, outer sometimes with 2–5 glands on back near apex, inner ciliate near apex, sometimes all with broad, membranous apices. *Receptacle* flat or convex, rarely conical, paleate or sometimes epaleate in *E. davyi*; paleae longer than disc florets, linear, sometimes with bent, apical appendage. *Ray florets* female, fertile; corolla white sometimes flushed rose-pink, lamina oblong to linear, 3-toothed, 2–4 times as long as tube, glandular. *Style* slightly branched to branched with stigmatic areas along edges. *Disc florets* bisexual, fertile, yellow; corolla tube sometimes campanulate above, with 5 ovate lobes. *Anthers* minutely ciliate with linear, apical appendages; endothecial tissue polarized. *Style* linear, branched, truncate, branches with stigmatic areas along edges. *Cypsela* ribbed, non-myxogenic, cylindrical, minutely papillose especially on ribs, with dentate or entire apical rim. *Pappus* absent. Figure 1A–C.
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Anthers linear, minutely caudate, with lanceolate apical appendage. Style terete, branches linear, truncate, 2 mm long. Ovary 1.2 mm long, ± ellipsoid, slightly striate, glabrous. Cypsela 2 mm long, glabrous, cylindrical, minutely papillose especially on ribs, crowned with thickened apical rim. Pappus absent. Flowering time: Feb.–Mar.

Distribution and habitat: Eumorphia corymbosa is endemic to the Western Cape in the Beaufort West Division, from the National Park, Mountain View, down to the foot of the Nuweveld Mtns as far as Molteno Pass (Figure 2), at 1 000–1 828 m. It grows in seasonal wet soils along rivers and in marshy habitats.

Notes: Eumorphia corymbosa can be distinguished from other species in the genus by the small corymbosely arranged capitula at the branch endings; cylindrical involucre and opposite leaves.

Other specimens examined
WESTERN CAPE.—3222 (Beaufort West): Karoo National Park, Mountain View, (–BA), 2 Jan. 1985, Shearing 828 (PRE); near Abrahamspoort Farm, on top of Nuweveldberg Plateau, (–BA), 9 Mar. 1990, Viok 2276 (PRE); foot of Nuweveld Mtns, on bank of small river flowing at foot of mountain, (–BA), 15 Feb. 1978, Gibbs Russell, Robinson, Herman & Downing 235 (PRE); Mountain View Farm, among dolerite boulders at top of hill, (–BA), 14 Feb. 1978, Gibbs Russell, Robinson, Herman & Downing 124 (PRE); Matjeskloof, 24 miles [38.4 km] north of Beaufort West, (–BA), 16 May 1950, Acocls 15893 (PRE).


Small, mainly glabrous shrub, 0.3–0.6 m high, with erect woody stems, densely branched in upper floriferous parts. Leaves alternate, very numerous, erectopatent, mostly trifid just above the middle; rachis and lobes filiform, flexuous, apiculate, lobes subopposite, up to 20 mm long; many leaves in upper parts of stems undivided, filiform. Inflorescence irregularly corymbose, capitula numerous, erect, each borne on short peduncle, subtended by short linear bract; peduncle and bract finely and sparsely hairy. Involucre ± 5 × 2 mm, compact, campanulate, glabrous. Involucral bracts: 3 rows, imbricate; outer ovate, 1.2 × 0.5 mm; middle 2.2 × 1 mm; inner 3.5 × 1.1 mm, with narrowly membranous-fimbriate margins. Receptacle paleate; paleae membranous, linear, slightly shorter than disc florets. Ray florets 5, female, white; corolla limb broadly oblong to ovate, ± 3 × 2 mm, shortly 3-lobed, glabrous; corolla tube sparsely glandular, 1 mm long. Style linear, slightly curved, 0.1 mm long with stigmatic areas along edges.

FIGURE 1.—A–C, scanning electron micrographs of cypsela of E. davyi. Brusse 5010: A, surface with papillae especially on ribs; B, surface at higher magnification; C, showing apical rim.

FIGURE 2.—Known distribution of Eumorphia corymbosa, ■; E. davyi, ○; E. dregeana, ★; E. prostrata, ▲; and E. swaziensis, ●.
Ovary 1.8 mm long, slightly striate. Disc florets bisexual, 5-lobed, yellow; lobes ovate, 0.1 mm long; corolla glandular; corolla limb 1 mm long; corolla tube 1 mm long. Anthers minutely caudate, with short apical appendages; filaments thickened. Style 2 mm long, branched, style branches linear, truncate, 0.15 mm long, with stigmatic areas along edges. Ovary linear, 1.1 mm long, slightly striate. Cypsela: mature ones not seen. Pappus absent. Flowering time: Mar.–Apr.

Distribution and habitat: Eumorphia swaziensis, as the name suggests, is endemic to Swaziland, where it occurs in grassland on the hilltops, at 1 219–1 372 m around Mbabane (Figure 2).

Notes: Eumorphia swaziensis can be distinguished from other species in the genus by having alternate leaves; irregularly corymbose inflorescences and campanulate involucres.

Specimen examined


Eridic shrub, 0.18–2.0 m high, single-stemmed at base becoming branched only in upper third, forming a compact, rounded bush, glabrous. Style very rough. Leaves alternate, imbricate, up to 11 × 0.5 mm, glabrous, acute, mucronulate. Capitula shortly pedunculate or sub sessile, radiate. Involucere campanulate, 5–6 × 6 mm, finely hairy. Involucral bracts in 3 rows, imbricate; outer narrow, 3–4 × 0.5 mm, slightly hairy; middle lanceolate, 4–6 × 1 mm, acuminate, lacerate membranous; inner with ovate apex, 6–7 × 1 mm, membranous, discolorous. Receptacle conical, epaleate. Ray florets female, fertile, white; corolla limb oblong, 3-toothed, 7 mm long; corolla tube 2 mm long. Style up to 1.8 mm long, linear, branched, style branches 0.2 mm long, round with stigmatic areas along edges. Ovary 3 mm long, slightly striate. Disc florets many, bisexual, fertile, yellow; corolla limb 1 mm long; corolla tube 0.8 mm long, 5-lobed; lobes ovate, 0.15 mm long. Anthers minutely caudate, apex round; filaments thickened. Style linear, 1.8 mm long, branched, style branches 0.2 mm long, truncate with stigmatic areas along edges. Ovary 1.8 mm long. Cypsela closely ribbed, slightly curved, 2.2 mm long, glabrous but minutely papillose especially on ribs, crowned with thickened apical rim. Pappus absent. Flowering time: Sept.–April.

Distribution and habitat: Eumorphia davyi is found in Mpumalanga at Graskop, Pilgrim’s Rest and as far north as Marieskop, and in Limpopo Province in Polokwane [Pietersburg] and The Downs (Figure 2) at 1 200–2 286 m. E. davyi grows in grassveld.

Notes: Eumorphia davyi is named in honour of Joseph Burtt Davy (1870–1940), a British botanist, founder of the Pretoria National Herbarium, a student of the flora of California, agriculturist, sylviculturist and ecologist (Stafleu & Richard 1976). E. davyi can be distinguished from other species in the genus by alternate leaves and a conical, epaleate receptacle.

Other specimens examined

LIMPOPO.—2430 (Pilgrim’s Rest): The Downs, (–AA), Nov. 1918, Rogers 21557, 22003 (PRE).

MPUMALANGA.—2430 (Pilgrim’s Rest): at top of Marieskop, (–DB), 15 Jan. 1960, Van der Schijff 4835 (PRE); Mount Sheba, road up mountain from Mount Sheba Hotel to main Lydenburg-Pilgrims’s Rest tar road, (–DC), 17 Apr. 1987, Brusse 3010 (PRE); Graskop, (–DD), 28 Mar. 1979, Kliege 1845 (PRE).

Low, erect, spreading subshrub, up to 0.6 m high, often prostrate over rock sheets or hanging down cliff faces; branches sericeous, soon glabrous, old ones rough with leaf scars, often rooting, twigs closely leafy. Leaves opposite, sericeous, silvery, hairs appressed, primary leaves linear or 2- or 3-forked at tips, up to 10 × 1.5 mm, appearing fascicled from closely leafy axillary shoots. Capitula solitary, terminal, slightly pedunculate, radiate. Involucre campanulate, up to 7 × 9 mm when pressed, villous. Involucral bracts in 3 rows, imbricate; outer narrowly ovate, 2.5–5.5 × 0.5 mm; middle obtuse, 5.5–6.0 × 1.1 mm, tips membranous; inner oblong, 6.5–7.0 × 1.1 mm, discolorous, membranous. Receptacle epaleate or with a few marginal paleae. Ray florets female, 3-toothed, white tinged pink at base or sometimes at back; corolla limb 5–7 mm long; corolla tube 1.8 long. Style up to 2.2 mm long, branched, style branches 0.8 mm long, with stigmatic areas along edges. Ovary 1.2 mm long, slightly striate. Disc florets bisexual, 5-lobed, yellow; lobes ovate, 0.1 mm long; corolla limb 2 mm long; corolla tube 1 mm long. Anthers minutely caudate, apical appendage elongated, obtuse, filaments thickened. Style up to 2.8 mm long, slightly branched, style branches 0.2 mm long with stigmatic areas along edges and papillate appendages. Ovary 1.1 mm long. Cypsela narrowly cylindric, 2 mm long, closely ribbed, minutely papillose especially on ribs, crowned with thickened apical rim. Pappus absent. Flowering time: Dec.–Apr. Figure 3.

Distribution and habitat: Eumorphia prostrata is only known from a small area of the high Drakensberg, from Tina Head (Doodman’s Krans and Naudesnek) where the boundaries of Lesotho, the Barkly East and Maclear Districts meet, to Thamathu Pass (Bushman’s Nek area) and the Drakensberg Garden area in Underberg District, KwaZulu-Natal (Hilliard 1977), at 1 830–2 970 m (Figure 2). In its natural environment, it appears to tolerate extreme cold (–10ºC) in winter, strong buffeting winds and fairly high daytime temperatures in summer (Oliver 1989). E. prostrata grows in mountain grassveld in seasonally wet areas.

Notes: although it seems close to Eumorphia seriacea, this species has a prostrate habit and a receptacle epaleate or with a few marginal paleae.
Specimens examined


EASTERN CAPE.—3028 (Matatiele): Rhodes gravel road/jeep track between Naudesnek and Ben Macdhui, (–CA), 12 Dec. 1999, Koekemoer 1632 (PRE).

5. Eumorphia dregeana DC., Prodromus 6: 3 (1838); Harv.: 153 (1865). Type: Eastern Cape, 3124 (Hanover): Middelburg, Sneeuweberg between Kompassberg and Rhenosterberg, 5000–6000’ [1 640–1 964 m], (–DC), Sept., Drège s.n., (G-DC, holo. e!; MO e!, M e!, PRE e!, SAM e!, E e!, P e!, K e!, NBG e!, iso.).

Multi-stemmed, erect subshrub, 0.3–1.0 m high. Leaves linear-terete, closely imbricate, opposite, slightly pubescent, up to 3.5 mm long, ± 1 mm broad, entire. Capitula shortly pedunculate, radiate, solitary. Involucral bracts in 3 rows, imbricate; outer ovate, glabrous or slightly pubescent, 2 × 1 mm; middle 2.2 × 1.2 mm; inner 2.5 × 1.25 mm, obtuse with membranous tips. Receptacle paleate; palea membranous, linear, 4 mm long. Ray florets female, 3-toothed, white; corolla limb 5 mm long; corolla tube 1 mm long. Style up to 1.2 mm long, slightly branched, style branches 0.8 mm long, with stigmatic areas along edges. Ovary 2 mm long, slightly striate. Disc florets bisexual, fertile, 5-lobed, yellow; lobes ovate, 0.2 mm long; corolla limb glandular, 1.2 mm long; corolla tube glandular, 1 mm long. Anthers minutely caudate, apical appendage elongated, obtuse. Style up to 1.2 mm long, branched, style branches 0.25 mm long with stigmatic areas along edges and pappillate appendages. Ovary 1.5 mm long, slightly striate. Cypsela closely ribbed, 1.5–1.8 mm long, slightly curved, glabrous but minutely papillose especially on ribs, crowned with thickened apical rim. Pappus absent. Flowering time: Feb.–Apr.

Distribution and habitat: Eumorphia dregeana occurs in the southeastern Free State and the northwestern Eastern Cape, at 1 311–1 980 m (Figure 2). According to specimens in the National Herbarium, E. dregeana grows in False Mountain Renosterveld (Karoo Escarpment Grassland), on sandy slopes and in vleis.

Notes: Eumorphia dregeana is named in honour of Jean François (Johann Franz) Drège (1794–1881), a Ger-
man plant collector in South Africa (1826–1834) (Stafleu & Richard 1976). *E. dregeana* can be distinguished from other species in the genus by having closely imbricate, opposite leaves and paleate receptacles.

**Specimens examined**

**FREE STATE.**—2927 (Masera): Thaba Phatshwa Mtn, south of Tweespruit, high up on eastern slope of mountain, (–AC), 3 Apr. 1973, Muller 1163 (PRE).


**NORTHERN CAPE.**—3124 (Hanover): Noupoot, 11 km from Noupoot on road to Colesberg via Oorlogspoort, (–BB), 3 Apr. 1981, Herman 533 (PRE).


**Key to subspecies of Eumorphia sericea**

6a Plant with thick, silky, woolly indumentum, cypsela crowned by a thickened slightly lobulate rim. . . . . 6a. *E. sericea* subsp. *sericea*

6b Plant more robust with thinner indumentum, pappus scales forming a corona on cypsela. . . . . 6b. *E. sericea* subsp. *robustior*

6a. subsp. *sericea*

Much-branched, dwarf shrub, 0.2–1.3 m high; outer branches sometimes decumbent, nude below, rough with leaf scars, grey (because of its thick indumentum) silky-wolly, glabrescent, twigs closely leafy. Leaves opposite, grey silky-wolly, hairs fluffed up from leaf surface, primary leaves linear or digitately 3-lobed, ± 8 × 1.5 mm, appearing fascicled from closely leafy, dwarf axillary shoots. *Capitula* solitary, shortly pedunculate, radiate. *Involucre* campanulate, ± 7 × 10 mm when pressed, villous. *Involucral bracts* 3 rows, imbricate; outer 3 × 1.5 mm, ovate; middle 4 × 1.5 mm; inner 6.5 × 1.5 mm, obtuse with scarious and lacerate tips. *Receptacle* paleate; paleae membranous, narrowly lanceolate, ± 5 × 0.5 mm. *Ray florets* female, 3-toothed usually white, but sometimes rose-pink, or white flushed with pink; corolla glandular; corolla limb 10.5 mm long; corolla tube up to 1.8 mm long. *Style* 3 mm long, branched, style branches 0.3 mm long with stigmatic areas along edges. *Ovary* 2.2 mm long, slightly striae. *Disc florets* bisexual, glandular, 5-lobed, yellow; lobes ovate, 0.1 mm long; corolla limb 2 mm long; corolla tube 1 mm long. *Anthers* minutely caudate, apical appendages elongated, obtuse; filaments thickened. *Style* up to 2.5 mm long, branched, style branches 0.18 mm long with stigmatic areas along edges. *Ovary* 2.2 mm long, slightly striae. *Cypsela* narrowly cylindric, ± 2.5 mm long, closely ribbed, glabrous but minutely papillose especially on ribs, crowned with thickened apical rim. *Pappus* absent. *Flowering time*: Nov.–Apr.

**Distribution and habitat**: *Eumorphia sericea* subsp. *sericea* occurs in Free State, KwaZulu-Natal, Lesotho and Eastern Cape Province, at 2 296–3 414 m (Figure 4). *E. sericea* subsp. *sericea* grows in seasonally wet areas.

**Note**: although close to *E. prostrata*, it has paleate receptacles.

**Specimens examined**


**LESOTHO.**—2928 (Marakabeis): Tsienyane Valley, over Meniameng Pass, (–AA), 8 Jan. 1955, Coetzee 484 (PRE). 2929 (Underberg); Castle Buttress, on summit of Drakensberg, (–AA), 18 Dec. 1952, Killick 1873 (PRE).

**EASTERN CAPE.**—3028 (Matatiele): Barkly East, Drakensberg, Doodman’s Krans Mtn, (–CA), 7 Mar. 1904, Galpin 6699 (PRE).


Green bush because of its thinner indumentum on leaves, more robust, hence its name, pappus scales forming a corona on cypsela. *Flowering time*: Dec.–May.

**Distribution and habitat**: *Eumorphia sericea* subsp. *robustior* is found in Naudeensnek down to Spitskop Farm, at 2 073–2 755 m (Figure 4). This subspecies grows in damp areas.

**Specimens examined**


**FIGURE 4.**—Known distribution of *Eumorphia sericea* subsp. *sericea*, ◇; and subsp. *robustior*, ◆. 
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REFERENCES


