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A NEW *PHEBALIUM* (RUTACEAE) ENDEMIC TO KANGAROO ISLAND

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Abstract

Phebalium equestre is described and illustrated; it is endemic to eastern Kangaroo Island and is regarded as endangered.

Populations of the only *Phebalium* on Kangaroo Island were referred tentatively to *P. hillebrandii* J.H. Willis by Wilson (1970) and by Armstrong & Telford (1986); their status as a distinct endemic species close to *P. brachyphyllum* Benth. was first suggested by Davies (1986). The rarity of this species is demonstrated by the absence of any herbarium collections prior to 1952. No *Phebalium* other than *P. pungens* (=*Eriostemon pungens*) was listed for Kangaroo Island by Cleland and Black (1927; 1941; 1952), and Wilson (1970) had seen only one collection.

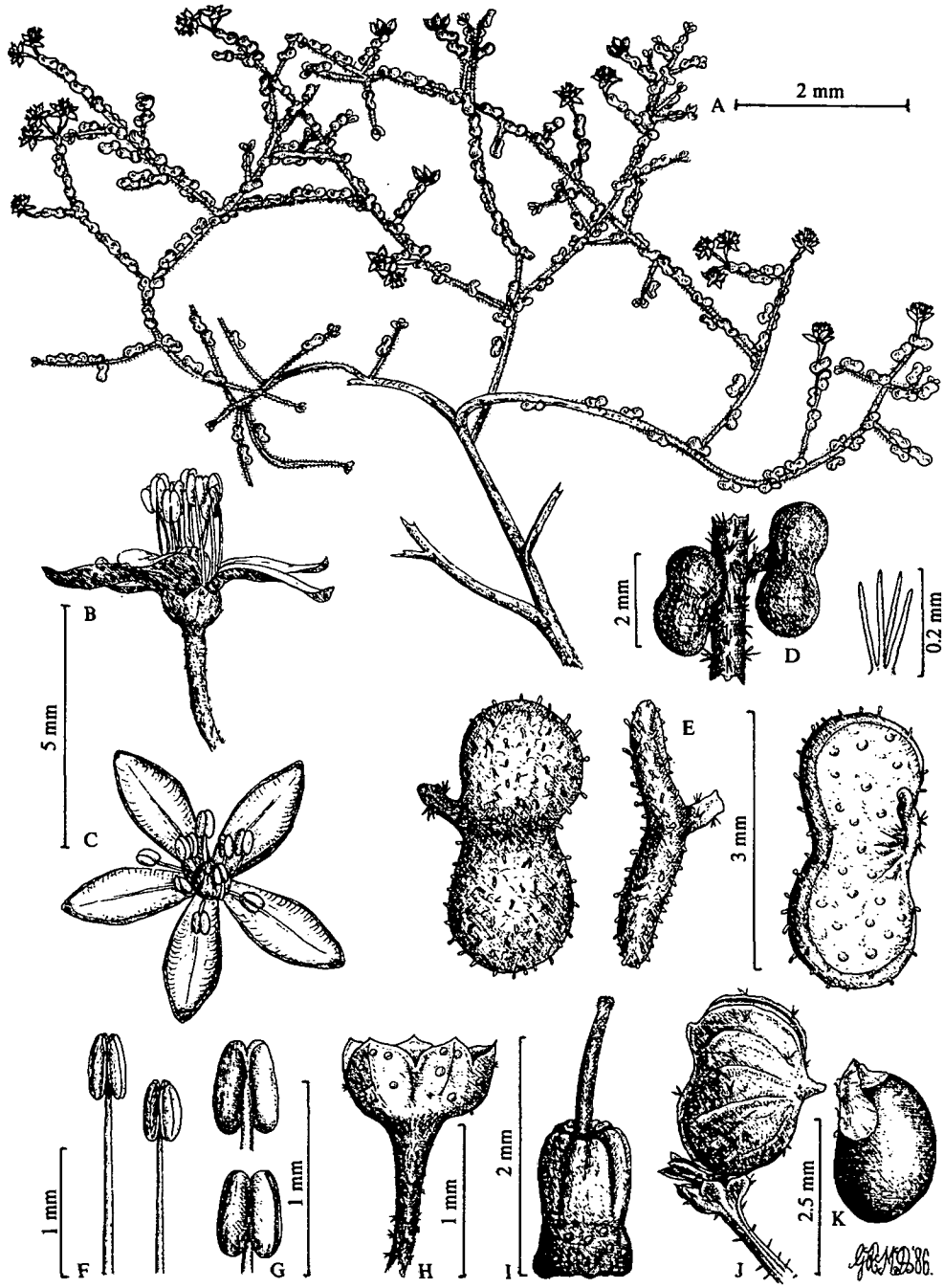
Phebalium equestre D.A. Cooke, sp. nov.

Frutex nanus diffusus virgatus ad 30 cm altus. *Caules* repetite divaricati; ramuli graciles laeves, virides vel rubescentes, pilis stellatis c. 0.2 mm longis pubescentes. *Folia* brevissime petiolata, patentia, ephippioidea, transverse oblonga cordata 1-3.5 mm longa 1.8-4 mm lata, subcoriacea glandulis depressis punctata, supra scabra, subtus glabra, marginibus integris recurvis, apicibus obtusis decurvis ut videtur retusis. *Flores* terminales solitarii vel 2-3 cymam umbelliformem sessilem formantes, in pedicellis 2-4 mm longis rubentibus infime bibracteolatis; alabastra obovoidea obtusa 2.3-3 mm longa rosea. *Calyx* turbinatus sparsim glandulosus lobis transverse triangularibus c. 0.3 mm longis. *Petala* anguste elliptica 2.5-3.5 mm longa glabra, extra rosea valdiore apicem versus, intra alba, apicibus acutis inflexis, in aestivatione valvata. *Stamina* 10 erecta biseriata, ea petalis alternantia eis subaequantia, ea petalis opposita eis breviora; filamenta teretia glabra; antherae versatiles oblongae cordatae retusae c. 0.5 mm longae, sine glandula apicale, luteolae raro roseotinctae. *Gynobasis* cylindrica c. 0.5 mm alta glandulosa vinacea. *Ovarium* 0.8-1 mm altum vinaceum carpellis 4-5 obtusis; stylus 1-1.3 mm longus. *Coccus* patens c. 3 mm longus minute apiculatus sparsim stellato-pilosus. *Semen* ovoideo-reniforme c. 2.5 mm longum laeve fuscum exarillatum, placenta persistenti postremo membranacea. (Fig. 1).

Type: Three Chain Road, Kangaroo Island, 3.x.1986, *B.M. Overton 435* (Holotype: AD).

Etymology: Latin *equester*, belonging to cavalry or to horsemen; in reference to the saddle-shaped leaves.

Virgate dwarf spreading shrub to 30 cm high. *Stems* repeatedly divaricate-branched; branchlets slender, smooth, green or becoming reddish, pubescent with stellate hairs c. 0.2 mm long. *Leaves* very shortly petiolate, patent, saddle-shaped, tranversely oblong, cordate, 1-3.5 mm long, 1.8-4 mm wide, subcoriaceous, dotted with depressed glands, scabrous above, glabrous below; margins entire, recurved; apices obtuse, decurved, appearing retuse. *Flowers* terminal, solitary or 2-3 forming an umbel-like sessile cyme; pedicels 2-4 mm long, reddish,



Phebalium equestre A, flowering branch; B, flower in lateral view; C, flower from above; D, branchlet and detail of stellate hairs of branchlet; E, leaf in adaxial, apical and abaxial views; F, stamens of outer and inner series; G, anther in dorsal and ventral views; H, calyx; I, ovary with gynobase and style; J, ripe coccus; K, seed. Drawn from holotype and from cultivated material.

with 2 bracteoles at the base; upopened flowers obovoid, obtuse, 2.3-3 mm long, pink. *Calyx* turbinate, sparsely glandular, with transversely triangular lobes c. 0.3 mm long. *Petals* valvate, narrowly elliptic, 2.5-3.5 mm long, glabrous, externally pink deeper towards the apex, internally white; apices acute, inflexed. *Stamens* 10, erect, biseriate, those alternating with the petals subequal to them, those opposite the petals shorter; filaments terete, glabrous; anthers versatile, oblong, cordate, retuse, c. 0.5. mm long, lacking an apical gland, pale yellow rarely tinted pink. *Gynobase* cylindrical, c. 0.5 mm high, glandular, wine-red. *Ovary* 0.8-1 mm high, with 4-5 obtuse carpels, wine-red; style 1-1.3 mm long. *Coccus* patent, c. 3 mm long, minutely apiculate, sparsely stellate-pubescent. *Seed* ovoid-reniform, c. 2.5 mm long, smooth, fuscous; aril absent; placenta persistent, ultimately membranous.

P. equestre is restricted to the Hundred of Haines, Kangaroo Island. It occurs mainly on sandy soils in *Eucalyptus diversifolia* mallee, often associated with *E. cosmophylla* and *Melaleuca uncinata*. It also extends to lateritic soil and *E. cneorifolia* mallee (Davies, pers. comm.). These habitats have largely been cleared and the remaining *Phebalium* populations are restricted to road verges and small patches of native vegetation subject to stock grazing. Flowering occurs in August to October.

Specimens examined

SOUTH AUSTRALIA: c. 200 m down road to Salt Lakes from intersection of Penneshaw-Kingscote road and American River road, 4.vi.1984, *R. Davies 562* (AD); American River, 22.x.1974, *N. Gemmell 328* (AD 97617349); Three Chain Road, 3.ix.1984, *K.C. Holliday s.n.* (AD 98433148); road joining Kingscote-Penneshaw road to South Coast road, *G.Jackson 328* (AD 96347015); Salt Lakes road, 7.ix.1965, *G. Jackson 444* (AD 96548007; MEL); Kangaroo Island, 14.vii.1952, *T.R.N. Lothian s.n.* (AD 96429021); Seal Bay road turnoff, 6.vii.1977, *M.D. Moore s.n.* (AD 97838007); Three Chain Road, 21.ix.1985. *B.M. Overton 382* (AD 98624078).

Phebalium equestre is placed in the section *Leionema* (F. Muell.) Benth. on the basis of its stellate vestiture, valvate petals, anthers without apical glands and the persistence of the placental endocarp on the seed. It differs from the closely related *P. brachyphyllum* in being smaller in all measurements with a diffuse divaricate habit, a characteristic leaf shape and fewer flowers in the inflorescence; these characters are maintained in cultivated specimens. It differs further from *P. bilobum* Lindley and *P. hillebrandii* in having leaves which are broader than they are long with entire apices and upper surfaces scabrous with rigid simple papillae.

Anther colour, used in the key of Armstrong & Telford (1986), does not appear to be a useful character in this species, varying from yellow to pale pink on the same plant. The carpel number may be 5 as in *P. brachyphyllum* or reduced to 4 as in *P. bilobum* and *P. hillebrandii*. At anthesis the carpels are obtuse as in *P. brachyphyllum*; the apiculum which develops on the fruiting carpel may be homologous to that observed in flowers of *P. hillebrandii* (Wilson, 1971) but appearing later in development.

Acknowledements

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