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THREE NEW SPECIES OF FABACEAE FOR THE FLORA OF CENTRAL AUSTRALIA

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Abstract

Three new species of Fabaceae, namely, *Isotropis centralis* J.R. Maconochie, *Indigofera ammobia* J.R. Maconochie and *Tephrosia arenicola* J.R. Maconochie are described for the 'Flora of Central Australia'.

Descriptions

1. *Isotropis centralis* J.R. Maconochie sp. nov.

Frutex parvus erectus sericeus pluri-caulis usque 50 cm altum. Caules teretes, leviter striati. Folia unifoliolata sericea obovata usque suborbiculata petiolo articulata, margine recto usque leviter undulato, apice obtuso vel retuso, basi truncata usque attenuata, nervo medio subtus prominenti, nervis lateralibus in utroque latere 2-3. Lamina 5-13 mm longa, 4-9 mm lata; petiolus 1-2 mm. Inflorescentia racemosa, floribus laxè dispositis, flores 6-8 mm longi, pedicellis 4-7 mm longis. Calyx 5-6 mm longus, lobis lanceolatis 4 x 1 mm, extra sericeis intus glabris striis 3 notatis. Ovarium sessile sericeum, stylus filiformis glaber, stigma glabrum erectum vel leviter capitatum. Vexillum orbiculatum, emarginatum, supra unguem verticaliter incrassatum, 9 mm longum, 10 mm latum; alae obtuse obovatae, 8 mm longae, 3 mm latae; carina incurvata obtuse obovata, 8 mm x 3 mm. Legumen oblongum, sericeum, turgidum, 10-16 mm x 6 mm diam., seminibus ca 12. Semen reniforme, valde reticulatum, 2.5-3 mm x 2 mm.

Holotype: J.R. Maconochie 1851, 16 km E. of Docker River Settlement, N.T. 26.viii.1973 (NT). (Fig. 1.)

Isotypes: AD, CANB, DNA, K, NSW, PERTH.

Description

A small, erect, many stemmed *shrub* to 50 cm high. *Stems* terete, weakly striate, with densely sericeous-tomentose indumentum. *Leaves* unifoliolate, articulate on petiole, obovate to suborbicular, margin straight to slightly undulate, apex obtuse to retuse, base truncate to attenuate, with densely appressed sericeous indumentum, with prominent midvein below and 2-3 lateral veins on each side, 5-13 x 4-9 mm; petiole 1-2 mm. *Inflorescence* a raceme of widely spaced (15-20 mm) single flowers; flowers 6-9 mm long; pedicels 4-7 mm long. *Calyx* 5-6 mm long, lobes lanceolate 4 x 1 mm, densely appressed pubescence, glabrous but tri-striate on inner surface. *Standard* orbicular, incised at apex with vertical thickening above the claw, 9 mm long, 10 mm wide; wings obtuse-obovate 8 x 3 mm; keel incurved, obtuse-obovate 8 x 3 mm. *Ovary* sessile, densely pubescent, style filiform, glabrous; stigma weakly capitate, glabrous. *Pod* oblong, 10-16 mm long and 6 mm diam., appressed pubescence, ca 12 seeds. *Seed* reniform, strongly reticulate 2.5-3 mm x 2 mm.

This species is allied to *Isotropis atropurpurea* F. Muell. but differs in having a smaller calyx, corolla, petiole and lamina. The lamina has a undulate margin.

Specimens examined

WESTERN AUSTRALIA: A.S. George 8183, Mt Talbot, Warburton Range, 30.ix.1966 (PERTH).

NORTHERN TERRITORY: W.H. Butler 60, Shaw River, E. Petermann Range, iv.1967 (PERTH); *ibid* 160, E. of Bonython Range; G. Chippendale NT 2753 near Ulambara Spring, Haasts Bluff, 23.viii.1956 (MEL, NT); *ibid* (NT 2882) Mt Olga, 13.ix.1956 (NT); N.N. Donner 4414, Felix Spring, Mt Olga, 24.vii.1973 (AD, NT); E. Giles (MEL 78154), Glen of Palms, ([MEL]); R. Hill, & T.R.N. Lothian 772, Chasm & flood plain on western side of Mt Olga, 3.vii.1958 (AD, NT); Kempe 298a, Finke River, 1880 (MEL); P.K. Latz 865, 45 km N.E. Docker River Settlement, 28.x.1970 (NT); J.R. Maconochie 789, Learmonth Park, Petermann Ranges,

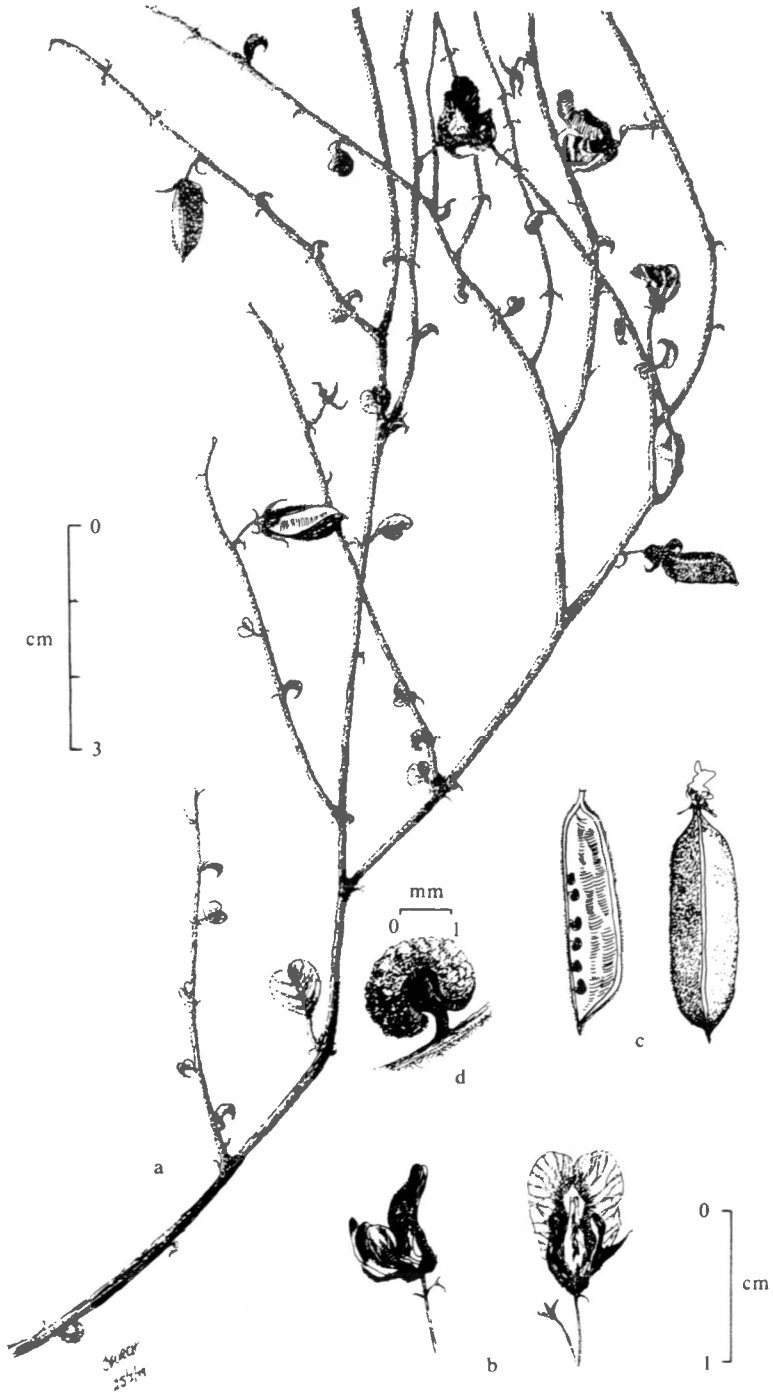


Fig. 1. *Isotropis centralis* J.R. Maconochie, from holotype, *Maconochie 1851* (NT). a, twig; b, flower; c, pod; d, seed. (Del. J. Church.)

20.ix.1969 (AD, NT); *ibid* 1643, Olga Gorge, Ayers Rock-Mt Olga National Park, 31.viii.1972 (NT); *ibid* 1851 (type); *ibid* 1871, 72 km N.E. Docker River Settlement, 27.viii.1973 (CANB, DNA, NT); *W. Tietkins s.n.*, Mt Olga, 1889 (MEL).

2. *Indigofera ammobia* J.R. Maconochie sp. nov.

Fruticulus ad 50 cm altus ramis pilis medifixis appressis c. 0.2 mm longis. Folia unifoliolata, articulata ad caulem, linearia, supra canaliculata, 20-40 mm longa, 0.3-0.5 mm lata, pilis medifixis appressis. Inflorescentia racemosa axillaris 10-20 mm longa, floribus 5-7 viridibus. Vexillum viride orbiculatum 3 x 3 mm; ala purpurea obovata 3 x 1 mm; carina viridis obovata 2.5 x 1 mm; legumen rectum lineare, glabrum 20-30 x 1.5-2 mm.

Holotype: A.S. George 15644, just south of Tobin Lake, Great Sandy Desert, W.A. 6.v.1979 (PERTH). (Fig. 2.)

Isotypes: CANB, NT.

Description

A many stemmed *subshrub* with sparse pubescence of appressed, biramous papillate hairs, to 50 cm high. *Leaves* unifoliolate, articulate on stem, linear, channelled above, 20-40 x 0.3-0.5 mm, apex subulate, with sparse, appressed, biramous pubescence. *Stipules* small, scarious. *Inflorescence* an axillary raceme of 5-7 flowers, 10-20 mm long; flowers green not conspicuous. *Calyx* 2 mm long, appressed pubescent, lobes acuminate, 1 mm long, pedicel 1 mm; *standard* green, purple line centred, hairy on back, orbicular, truncated at base 3 x 3 mm; wing purple obovate 3 x 1 mm; keel green, obovate 2.5 x 1 mm; anthers 9 + 1, gland tipped; *ovary* glabrous, stigma capitate. *Pod* linear, glabrous with raised suture 20-30 x 1.5-2 mm, apex truncated, acuminate. *Seeds* cuboid, rugulose 1-1.5 mm, about 8-10 per pod.

I. ammobia appears to be anomalous in having no clear affinity with the majority of other Australian species. It is allied to *I. linifolia* (L.f.) Retz. in foliage but differs in having linear pods and to *I. haplophylla* F. Muell. which has linear oblong leaves.

Specimens examined

WESTERN AUSTRALIA: A.S. George 14769, North of Dragon Tree Soak, Great Sandy Desert, 19° 40' S, 123° 21' E, 10.viii.1977; *ibid* 15292, just N.W. of Wolf Creek Crater, 19° 10' S, 127° 48' E, 21.vi.1979 (NT, PERTH).

NORTHERN TERRITORY: T.S. Henshall 1253, Tanami Sanctuary, 20° 52' S, 130° 22' E, 28.v.1976 (AD, BRI, CANB, K, MEL, NSW, NT, PERTH).

3. *Tephrosia arenicola* J.R. Maconochie sp. nov.

Fruticulus ad 50 cm altus ramis pilis tomentosis. Folia unifoliolata articulata, elliptica vel ovata, integra, tomentosa 12-22 mm longa 10-12 mm lata. Flos solitarius sessilis axillaris. Vexillum aurantiacum orbiculatum 5 x 6 mm; ala et carina aurantiaca obovata 4 x 1.5 mm; legumen subglobulare villosum c. 4 mm diametro.

Holotype: A.S. George 15705, Great Sandy Desert, ± 20° 56' S, 123° 15' E, W.A. 11.v.1979 (PERTH). (Fig. 3).

Isotypes: BRI, CANB, K, L, NSW.

Description

A tomentose *subshrub* with several stems arising from base to 50 cm high. *Leaves* unifoliolate, articulate, elliptical to ovate, entire with dense tomentum of curved unicellular hairs about 0.3-0.5 mm long, with 6 to 8 lateral but reticulate veins below, 12-22 x 10-12 mm, shortly petiolate. *Stipules* inconspicuous or absent. *Flowers* axillary, sessile, solitary, c. 5-6 mm long. *Calyx* densely tomentose, lobes subulate c. 4 mm long. *Standard* orbicular 5 x 6 mm, densely pubescent on back, orange with yellow "eye" at base; wings orange, obovate 4 x 1.5 mm; keel dark orange, obovate 4 x 1.5 mm; stamens 9 + 1; *ovary* pubescent, uniovulate; style flattened with brush-like beard along the adaxial side; stigma with a bearded tip. *Pod* subglobular, villous c. 4 mm across, *seed* sub-spherical, smooth, attached at base.

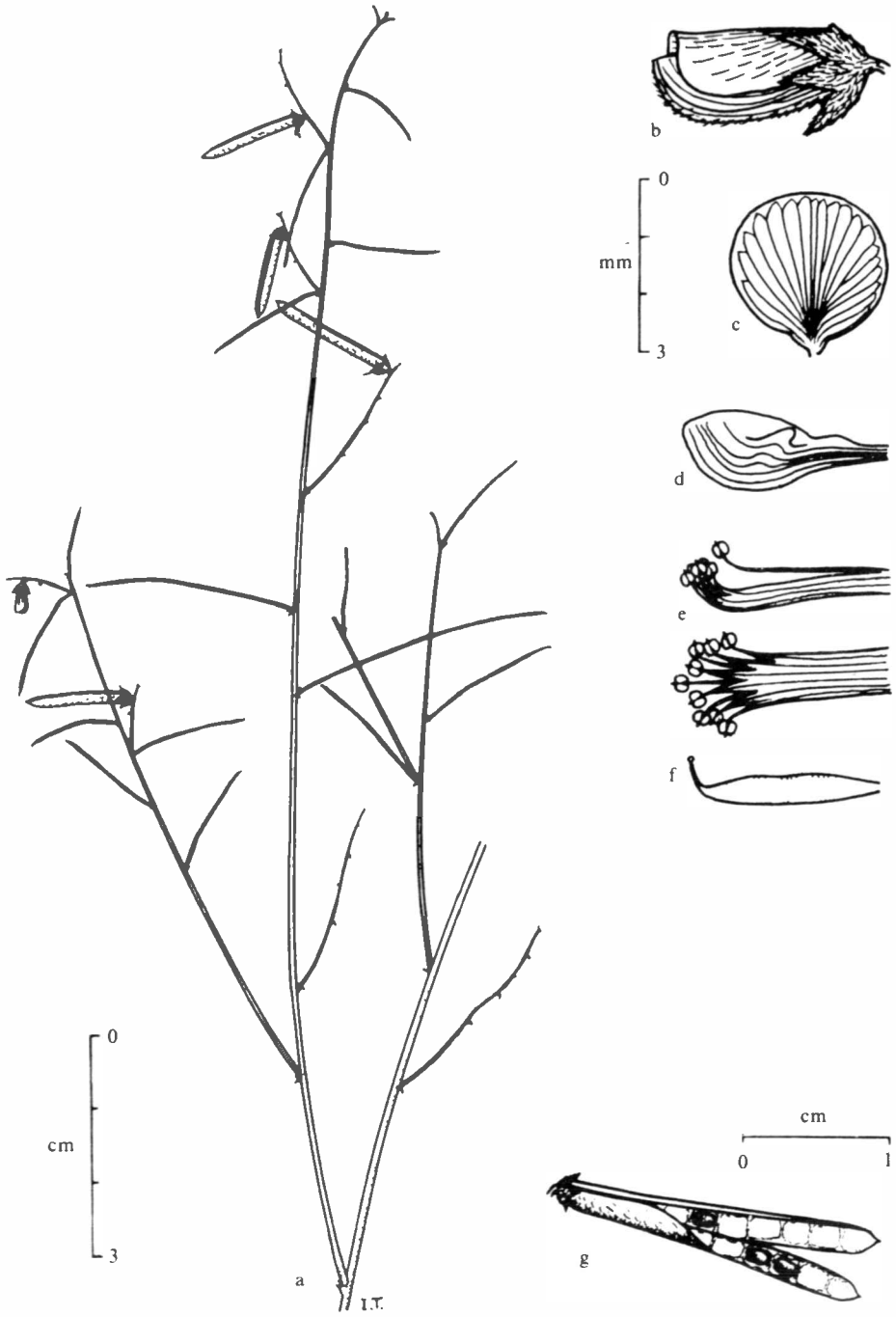


Fig. 2. *Indigofera ammobia* J.R. Maconochie, from holotype, *George 15644* (PERTH). a, twig; b, flower bud; c, standard; d, keel; e, anthers; f, ovary; g, legume. (Del. I. Telford.)

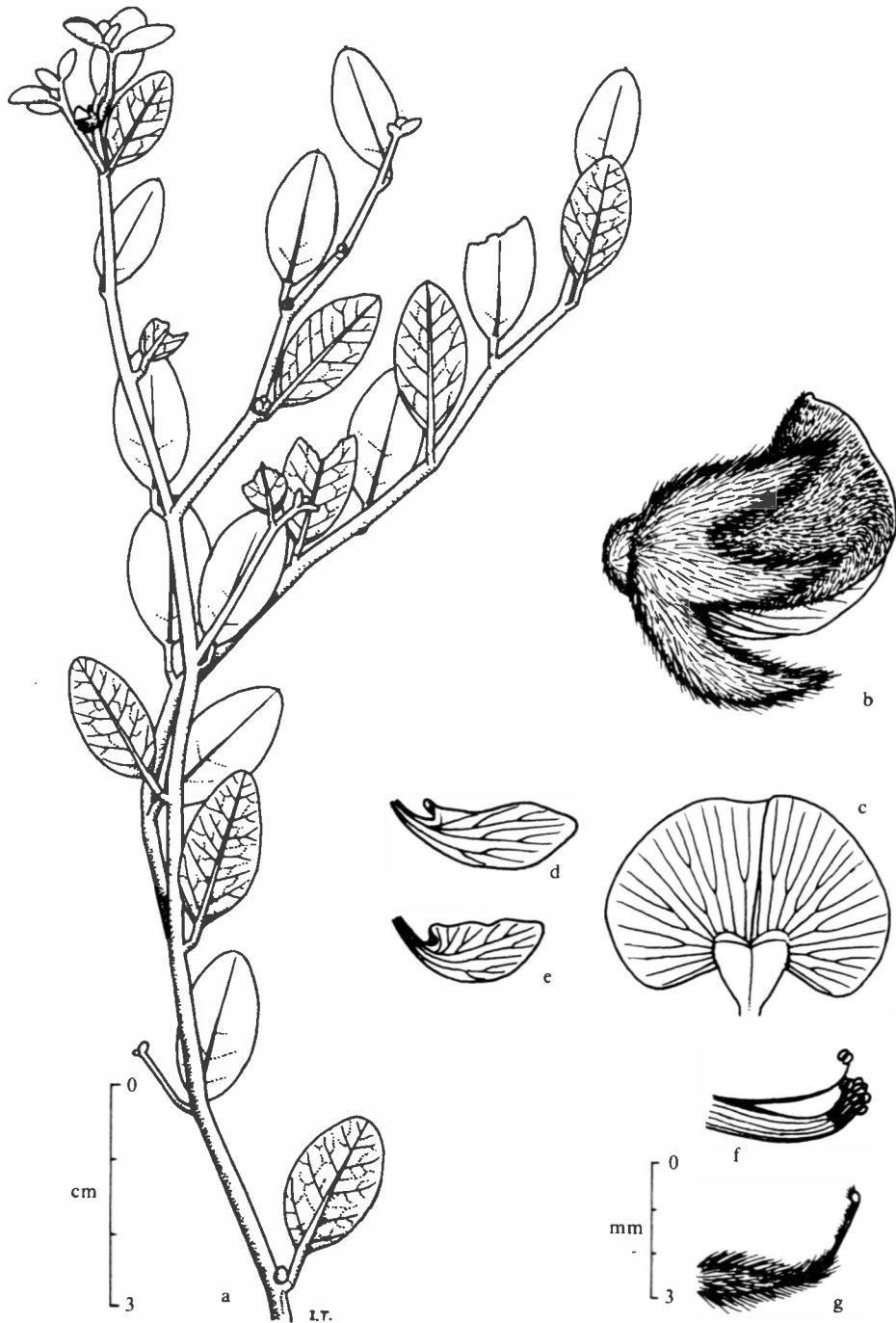


Fig. 3. *Tephrosia arenicola* J.R. Maconochie, from holotype, *George 15705* (PERTH). a, habit; b, flower; c, standard; d, wing; e, keel; f, stamens; g, ovary. (Del. I. Telford.)

T. arenicola is a member of the uniovulate species and is allied to *T. uniovulata* F. Muell. and *T. forrestiana* F. Muell. and the three species can be separated by the following key.

1. Leaves unifoliate only 2
 2. Lamina elliptical to ovate, 12-22 x 10-12 mm; petiole 2-4 x 1 mm; indumentum villous, hairs 0.3-0.5 mm long; flowers 5-6 mm long *T. arenicola*
 2. Lamina broad ovate 20-28 x 12-22 mm; petiole 4-5 x 2-2.5 mm; indumentum velutinous hairs c. 1 mm long; flowers 6-7 mm long *T. forrestiana*
1. Leaves trifoliolate, both uni- & tri- on same plant, indumentum ferruginous tomentose, lamina obovate 10-13 x 7-10 mm; flowers 4-5 mm long *T. uniovulata*

This group of species is also related to the monospecific genus *Paratephrosia lanata* (Benth.) Domin which is uniovulate, has few leaflets and a sericeous tomentum. Thus the generic limits of *Tephrosia* are in need of critical evaluation.

Specimens examined

WESTERN AUSTRALIA: *A.S. George 15705* (type); *A.S. Mitchell 577*, Little Sandy Desert 22° 53' S, 121° 56' E, 23.iv.1979 (NT); *ibid 578* loc. cit. (NT); *ibid 1112*, Anketell Ridge, Great Sandy Desert 20° 25' S, 122° 08' E, 14.v.1979 (NT); *ibid 1212* loc. cit. (NT).

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