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A NEW SPECIES OF *ELAEOCARPUS* (ELAEOCARPACEAE) FROM NORTH EAST NEW SOUTH WALES

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ABSTRACT

Guymer, Gordon Paul (Queensland Herbarium, Meiers Road, Indooroopilly, Australia 4068.) 1983. A new species of Elaeocarpus *(Elaeocarpaceae) from north east New South Wales. Telopea 2(4): 385-389, Fig. 1.—Elaeocarpus williamsianus* is described from the Murwillumbah district of north east New South Wales. A key is provided to the known species of *Elaeocarpus* in Australia.

Elaeocarpus williamsianus *Guymer*, sp. nov.

Ab aliis speciebus *Elaeocarpi* Australiensibus ovario 3-loculari filis longis (1.4-1.7-plo antheris longioribus), petalorum lobis 22-26 linearibus rotundatis et putamine fructus profunde sculpto differt.

HOLOTYPUS: Approximately 6 km by road W of Burringbar P.O., 28°27′S, 153°26′E, Burringbar Range, North Coast, New South Wales, *Guymer 1518, Williams & Harden,* 11.1980 [BRI 279356] (BRI). ISOTYPI: ad NSW, NE, CANB, K, G, distribuendi.

Tree 9-14 m tall; trunk cylindrical, d.b.h. 10-18 cm; bark finely pustulate, fawn or cream. *Branchlets* stout, ferruginous tomentose (hairs simple, (0.3-) 0.5-0.7 mm long), 3-5 mm diam. *Leaves* spirally alternate, slightly crowded towards apices, l-foliolate; blades coriaceous, shiny and glabrous above except for the lower half of the midvein which is ferruginous pubescent, dull and ferruginous pubescent below (hairs simple, mid-dense, (0.3-) 0.5-0.8 mm long), oblanceolate, 9-15 cm long, 3-5.5 cm wide, markedly concave on both sides of the midvein when fresh (Fig. 1A), apex rounded, base cuneate; venation distinct and raised below, ± flush and distinct above, main lateral veins 7-8 pairs with domatia present as small cavities at most axils along midvein below; margins obscurely serrulate with 5-8 pairs of minute callosities; petioles ferruginous tomentose, terete, 2.3-3.2 cm long, 1.5-3 mm diam. *Stipules* glabrous, persistent, triangular, obtuse, dark brown, 0.4-0.8 mm long, 0.12-0.14 mm wide. *Juvenile leaves* similar to adults in size and shape, and with similar indumentum. *Inflorescences* racemose, borne in the axils of the leaves, 2.5-5 cm long, bearing 11-16 pendulous flowers, axes densely pale brown pubescent (hairs simple, 0.3-0.6 mm long), 1.2-3 mm diam.; pedicels decurved, pubescent (as on axis), 2-4 mm long at anthesis, 1.0-1.4 mm diam.; bracts brown sericeous outside, puberulous inside, caducous, broadly ovate, 3-6 mm long, 3-4.5 mm wide, concave, margins with 12-15 pairs of glabrous setae 0.1-0.2 mm long. *Flowers* pale green, equally spaced along axes, 12-14 mm long, 5-6.5 mm diam.; buds ovoid. *Sepals* 5, green, mid-dense sericeous outside, glabrous inside except for puberulous raised midvein and apex, oblong-lanceolate, 9.5-11 mm long, 1.9-2.2 mm wide. *Petals* 5, narrowly oblong, 11-13 mm long, 3-3.5 mm wide, pale green, ± equally divided at apex into 22-26 uninerved linear lobes 2-3 mm long and c. 0.2 mm wide, apices rounded, glabrous outside except for a few adpressed hairs along the margins and midvein at the base, glabrous inside except for the central keel which is pubescent. *Disc* 10-lobed, densely silky tomentose (hairs simple, 0.4-0.8 mm long), 0.5-0.7 mm high. *Stamens* 32-38; filaments 2.5-3.5 mm long (1.4-1.7 times as long as anthers), c. 0.1 mm wide, crinkled, with sparse simple erect hairs c. 0.1 mm long; anthers not awned, 1.5-2.2 mm long, minutely hispidulous

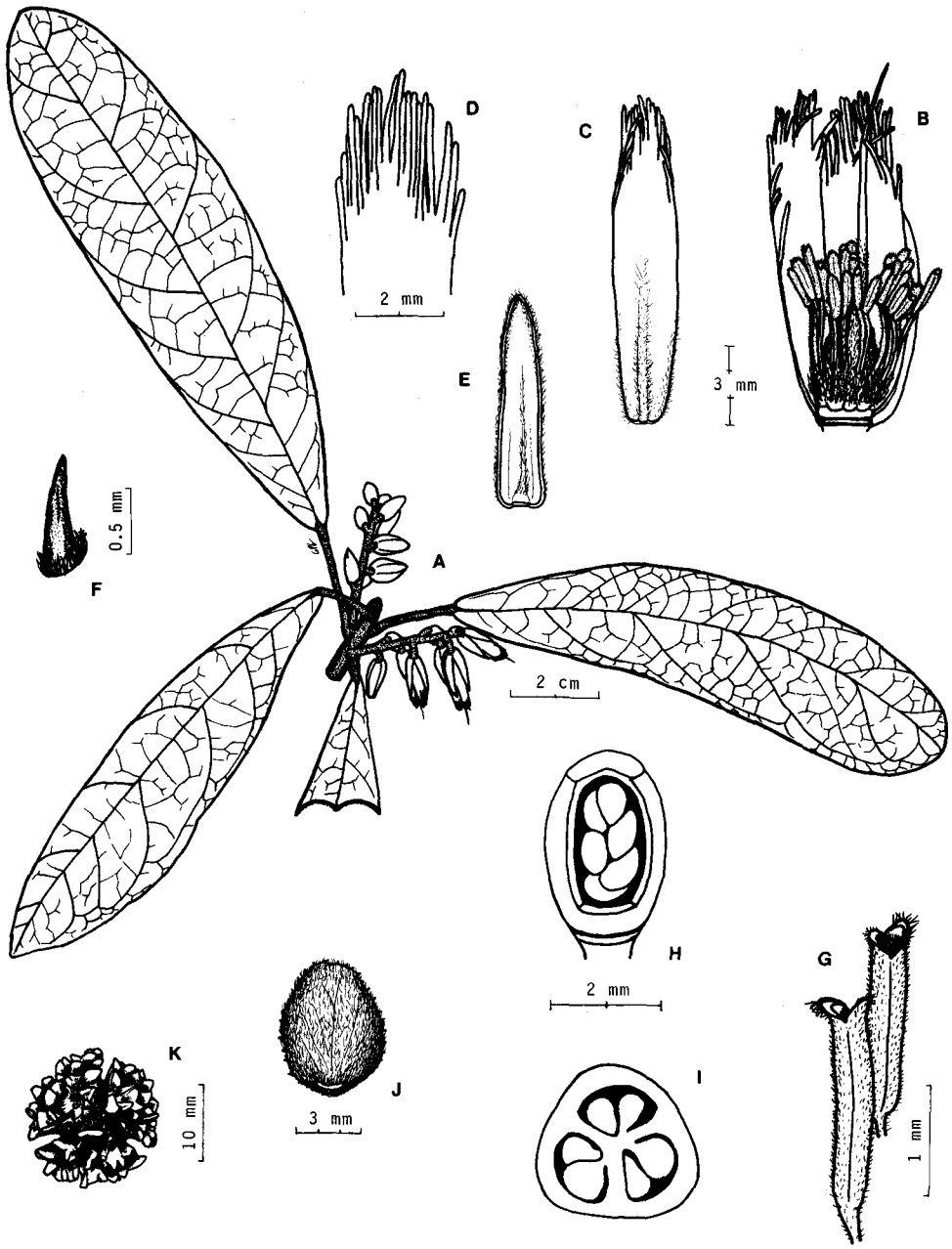

Fig. 1. *Elaeocarpus williamsianus* Guymer. A, flowering branchlet. B, flower with front sepals and petals removed. C, petal inside. D, petal apex. E, sepal inside. F, stipule. G, anthers. H, ovary dissected to show one complete loculus. I, ovary in transverse section. J, bract outside. K, stone. A-J from *Guymer 1624*, K from *Guymer 1572 & Jessup*. Guymer del.

(hairs simple, erect, 0.05-0.12 mm long) with slightly longer hairs (up to 0.2 mm long) at apex. *Ovary* tomentose (hairs erect, 0.7-1.0 mm long), 3 (-4)-locular, loculi (5-) 6-ovulate, ovules biseriate; style tomentose at base, glabrous above, subulate, twisted, 3-ridged, 7-9 mm long. *Fruit* shiny Prussian blue, spherical, 2-3 cm diam., glabrous, exocarp and mesocarp contracting and wrinkling on drying, mesocarp subfibrous, easily removed from stone once decayed; stone spherical, 1.5-1.8 cm diam., hard, woody, deeply sculptured with 3 (or 4) smooth equidistant longitudinal grooves 1.5-2 mm wide and 3-4.5 mm deep. *Seed* and *embryo* not seen. Flowering period: November to December. Fruiting period: April to July.

DISTRIBUTION: Known from a very limited area on the Burringbar Range, North Coast subdivision of New South Wales.

SPECIMENS EXAMINED: NEW SOUTH WALES: **North Coast:** Approx. 6 km by road W. Burringbar P.O., 28°27'S, 153°26'E, *Guymer 1518, Williams & Harden,* 11.1980 (BRI-holotype; isotypes-NSW, NE, CANB, K, G); *Guymer 1522,* 2.1981 (BRI, NSW); *Guymer 1672 & Jessup,* 6.1981 (BRI, NSW, NE, CANB, K, G, MEL, L); *Guymer 1623,* 11.1981 (BRI, NSW, NE, CANB); *Guymer 1624,* 11.1981 (BRI, NSW, NE, CANB, MEL, QRS, K, L, LAE, G, MO, NOU).

HABITAT: *Elaeocarpus williamsianus* has only been recorded from a disturbed complex notophyll vine forest on brown clay loams derived from greywackes. This community is dominated by an undescribed species of *Davidsonia* 8-14 m tall. Other species recorded from the canopy include *Cinnamomum oliveri* F.M. Bailey, *Neolitsea dealbata* (R. Br.) Merrill, *Doryphora sassafras* Endl., *Guioa semiglauca* (F. Muell.) Radlk., *Mischocarpus lachnocarpus* (F. Muell.) Radlk., *Cryptocarya glaucescens* R. Br. and *Cinnamomum camphora* (L.) Nees (an alien species). There is an open shrub layer of *Wilkiea huegeliana* (Tul.) A. DC., *Eupomatia laurina* R. Br., *Actephila lindleyi* (Steud.) Airy Shaw, *Rhodamnia maideniana* C.T. White, *Citriobatus pauciflorus* A. Cunn. ex Ettingsh., *Randia moorei* F. Muell. ex Benth., *Helicia ferruginea* F. Muell. and *Cyathea australis* (R. Br.) Domin. Vines recorded include *Calamus muelleri* Wendl., *Morinda jasminoides* A. Cunn. ex Hook., *Carronia multisepala* F. Muell., *Cudrania cochinchinensis* (Lour.) Kudo & Masamune, *Smilax australis* R. Br. and *Malaisia scandens* (Lour.) Planchon.

CONSERVATION STATUS: This species is one of the rarest rainforest trees in New South Wales with some half a dozen individuals known. Fortunately the property on which the species occurs is owned by a group of people strongly interested in conservation and actively involved in rainforest rehabilitation.

The species is named in honour of Mr John Beaumont Williams, Senior Lecturer in Botany at the University of New England, Armidale, for his contribution to rainforest floristics and species identification in rainforest in New South Wales.

This species differs from all other Australian members of the genus in that the filaments are longer (1.4-1.7 times) than the anthers. The Prussian blue spherical fruit and deeply sculptured stone of *E. williamsianus* is very similar to that of *E. grandis* (sect. Ganitrus). However, *E. grandis* has a 5-locular ovary, inflorescences borne behind the leaves and numerous subsessile stamens (57-70) with setose anthers.

Key to *Elaeocarpus* species in Australia

1. Ovary 3-5-locular

2. Sepals 5; petals 5; ovary 3- or 5-locular

3. Ovary 5-locular

4. Inflorescences reduced almost to umbels, 3-6-flowered; leaf-blades elliptic or obovate-elliptic (2.1-2.4:1), 10.5-18 cm long, 4.5-8.2 cm wide; drupe 4-6 cm diam. NE. Qld ..... **E. stellaris** L.S. Smith

4.* Inflorescences racemose, 15-30-flowered; leaf-blades narrowly elliptic (2.8-4:1), 7.5-15 cm long, 2.5-4 cm wide; drupe 2-3 cm diam. E. Qld, NE. N.S.W., N. N.T. ..... **E. grandis** F. Muell.

3.* Ovary 3-locular

5. Anthers not awned; ovules 4-6 (-7) per loculus

6. Petals entire or very shallowly lobed; stone muriculate or ± smooth

7. Inflorescences and young developing leaves rusty tomentose

8. Inflorescences 5-9 cm long; stamens c. 70; leaf-blades 8-16 cm long, 4-8.5 cm wide. NE. Qld ..... **E. largiflorens** C.T. White

8.* Inflorescences 3-6 cm long; stamens 35-60; leaf-blades 3.5-11 cm long, 2-5 cm wide.

9. Leaf-blades 3.5-6.5 cm long; stamens 35-40. NE. Qld ..... **E. ferruginiflorus** C.T. White

9.* Leaf-blades 7-11 cm long; stamens 52-60. NE. Qld ..... **E.** sp. A

7.* Inflorescences and young developing leaves sericeous or ± glabrous

10. Leaves sericeous below (domatia present). NE. Qld. ..... **E. foveolatus** F. Muell.

10.* Leaves glabrous or with scattered adpressed hairs below (domatia present or absent)

11. Domatia prominent; inflorescences sericeous. NE. Qld. ..... **E.** sp. B

11.* Domatia absent; inflorescences sparsely puberulent, glabrescent. NE. Qld ..... **E. sericopetalus** F. Muell.

6.* Petals with 22-26 linear lobes 2-3 mm long; filaments 1.4-1.7 times anthers; stone deeply sculptured. NE. N.S.W. ..... **E. williamsianus** Guymer

5.* Anthers awned

12. Leaves glabrous; anthers sparsely hispidulous; ovules 6-10 per loculus. Lord Howe Island ..... **E. costatus** M.R.F. Taylor

12.* Leaves tomentose below; anthers silky villous; ovules 4 per loculus. NE. Qld. ..... **E. johnsonii** F. Muell. ex C.T. White

2.* Sepals 4(-5); petals 4(-5); ovary 4-locular. NE. Qld ... **E. bancroftii** F. Muell. & F.M. Bailey

1.* Ovary 2-locular

13. Anthers not awned

14. Petals entire or very shallowly lobed; ovary pubescent. Tblds N.S.W., Vic. .....**E. holopetalus** F. Muell.

14.* Petals with 4-16 linear lobes 0.8-1.5 mm long; ovary glabrous or with scattered hairs

15. Stamens (9-) 14-25; ovules 4 (-6) per loculus; inflorescences 3.5-8 cm long

16. Inflorescences glabrous or with scattered hairs; disc shortly pubescent (hairs up to 0.2 mm long). E. Qld (S. of 20°S), NE. N.S.W. ..... **E. obovatus** G. Don

16.* Inflorescences pubescent (hairs mid-dense); disc pubescent with hairs 0.3-0.5 mm long. NE. Qld, N. N.T., Papua New Guinea ..... **E. arnhemicus** F. Muell.

15.* Stamens 26-29; ovules 6 per loculus; inflorescences glabrous, 8-13 cm long. NE. Qld ..... **E. coorangooloo** J.F. Bailey & C.T. White

13.* Anthers awned (awns 0.5-2.3 mm long)

17. Petals entire or with 2(3) small teeth; ovary pubescent. NE. Qld ..... **E. ruminatus** F. Meull.

17.* Petals with 7-36 linear lobes 0.8-2.4 mm long; ovary glabrous

18. Anther awns 0.5-1 mm long

19. Petals with 7-10 lobes; stamens 13-16

20. Sepals 10-11 mm long; petals 10-13 mm long; style 10-14 mm long. NE. Qld ..... **E.** sp. C

20.* Sepals 5-7 mm long; petals 6-8 mm long; style 3-4 mm long. SE. Qld, E. N.S.W., E. Vic. & Tas. ..... **E. reticulatus** F. Muell.

19.* Petals with 14-25 lobes; stamens 15-30

21. Stamens 15-20; petals with 14-19 lobes; branchlets and petioles densely pubescent; ovules 8 per loculus. NE. Qld ..... **E. grahamii** F. Muell.

21.* Stamens 25-30; petals with 23-25 lobes; branchlets and petioles glabrous; ovules 10-12 per loculus. SE. Qld, E. N.S.W. ..... **E. kirtonii** F. Muell. ex F.M. Bailey

18.* Anther awns 1.8-2.3 mm long

22. Petals with 12-18 (-22) lobes; stamens 24-35

23. Inflorescences up to 5 cm long; flowers 9-11 mm long; domatia absent. E. Qld, NE. N.S.W. ..... **E. eumundi** F.M. Bailey

23.* Inflorescences 5-11 cm long; flowers 25-30 mm long; domatia present. NE. Qld ..... **E.** sp. D

22.* Petals with (25-) 30-36 lobes; stamens c. 40. NE. Qld ..... **E. michaelii** C.T. White

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