

Two new species of *Phyllanthus* from northern Australia and notes on *Phyllanthus*, *Sauropus* and *Synostemon* (Phyllanthaceae) in Western Australia

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Abstract

Barrett, R.L. & Telford, I.R.H. Two new species of *Phyllanthus* from northern Australia and notes on *Phyllanthus*, *Sauropus* and *Synostemon* (Phyllanthaceae) in Western Australia. *Nuytsia* 26: 149–166 (2015). Two new species of *Phyllanthus* L. are described, both included within *P.* subgen. *Lysiandra* F.Muell.; *P. eremicus* R.L.Barrett & I.Telford occurring in the Pilbara, Great Sandy Desert and southern Dampierland bioregions of Western Australia and the Tanami region of the Northern Territory, and *P. hamelinii* I.Telford & R.L.Barrett restricted to the Carnarvon bioregion, Western Australia. Both species have reasonably restricted or poorly known distributions and *P. eremicus* is of some conservation concern. *Sauropus rigidulus* (Müll.Arg.) Airy Shaw is formally recorded for Western Australia and a full description is provided. All of these taxa have previously been listed on Western Australia's plant name census as phrase-named taxa. All three species are described and illustrated. Notes are made on the application of misapplied names and phrase-named taxa in *Phyllanthus*, *Sauropus* Blume and *Synostemon* F.Muell. in use in Western Australia.

Introduction

The identification of plants in Phyllanthaceae in Australia may prove difficult because of their usually small, unisexual flowers, frequent dioecy, lack of modern keys and overly broad species concepts sometimes incorporating polymorphic species assemblages (Telford, unpubl. data). As a result, the list of taxa on *FloraBase* (Western Australian Herbarium 1998–) contains many informal phrase names. To compound the problem, application of generic names is contentious (Kathriarachchi *et al.* 2006; Hoffmann *et al.* 2006; Pruesapan *et al.* 2008, 2012), particularly the generic and infrageneric circumscriptions of *Phyllanthus* L.

Phyllanthus has been demonstrated to be polyphyletic (Kathriarachchi *et al.* 2006), and the recognition of a giant genus of some 1,300 species subsuming *Breynia* J.R.Forst. & G.Forst., *Glochidion* J.R.Forst. & G.Forst. and *Sauropus* Blume (then including *Synostemon* F.Muell.) has been proposed by Hoffmann *et al.* (2006). An alternative view splitting *Phyllanthus* into smaller genera, with the major clades

retrieved in Kathriarachchi *et al.* (2006) treated at generic rather than subgeneric rank, has been presented (Pruesapan *et al.* 2008, 2012; van Welzen *et al.* 2014), and is a view that we favour. While a broad concept of *Phyllanthus* is adopted here for practicality, future research will undoubtedly lead to some taxonomic modification.

We here name two new species from *Phyllanthus* subgen. *Lysiandra* F.Muell. that have previously been known by informal phrase names and aim to clarify the application of names, including other informal phrase names, in *Phyllanthus* and *Sauropus* in use on *FloraBase* (Western Australian Herbarium 1998–). This will enable most currently listed phrase names to be removed from Western Australia's plant census. The genus *Synostemon* is recognised by us, but most taxa belonging in this genus still await formal combinations and are listed under their current names. Some taxa have recently been transferred by van Welzen *et al.* (2014) and papers making the remainder of Australian combinations are in preparation (Telford *et al.*, in prep.).

Phyllanthus eremicus R.L.Barrett & I.Telford has conservation priority as it is known from only a few, but widespread, collections in the Pilbara, Great Sandy Desert and southern Dampierland bioregions of Western Australia and three collections from central Northern Territory. *Phyllanthus eremicus* has been included in a broad concept of *P. aridus* Benth. in the past, but field studies by the first author have shown these taxa to be distinct. *Phyllanthus hamelinii* I.Telford & R.L.Barrett occurs almost exclusively in coastal areas of the Carnarvon bioregion, but also occurs on offshore islands in the Pilbara bioregion. It has previously been confused with *P. fuernrohrii* F.Muell. from central and eastern Australia. *Phyllanthus fuernrohrii* is noted to also occur in Western Australia, near the border with South Australia.

The name *P. reticulatus* Poir. has been misapplied in Western Australia, where all specimens are correctly placed in *P. baccatus* F.Muell. ex Benth. *Phyllanthus* sp. D Kimberley Flora (C.R. Dunlop 5302) is a current name on *FloraBase* (Western Australian Herbarium 1998–); it is here formally listed as a synonym of *P. indigoferoides* Benth., a name not applied by Wheeler (1992).

Phyllanthus minutiflorus F.Muell. ex Müll.Arg. is formally recognised in Western Australia. Specimens of this species have previously been included in a broad concept of *P. virgatus* G.Forst., a name that still encompasses several distinct taxa in Western Australia. Detailed studies of the *P. virgatus* complex across its entire range are required to determine the correct application of this name. *Phyllanthus* sp. B Kimberley Flora (T.E.H. Aplin *et al.* 809) is one of a number of taxa included under *P. virgatus* by Hunter and Bruhl (1997a), but it is here reinstated as a distinct species that will soon be named (Telford & Bruhl, in prep.).

Phyllanthus rhytidospermus Müll.Arg. has long been recognised as incorrectly placed in *Phyllanthus* and is listed on *FloraBase* (Western Australian Herbarium 1998–) as *Sa.* sp. Central Ranges (D.J. Edinger *et al.* 2420). It will soon be transferred to *Synostemon*.

Sauropus hubbardii Airy Shaw and *Sa. lissocarpus* (S.Moore) Airy Shaw are recorded for Western Australia, both having previously been confused with *Sa. trachyspermus* (F.Muell.) Airy Shaw by Wheeler (1992).

Sauropus rigidulus (Müll.Arg.) Airy Shaw is formally recorded from Western Australia where it has been listed under the phrase name *Sa.* sp. Cockburn Range (D. Dureau 81) and a full description is provided as the only recent description was based solely on the type specimen (Airy Shaw 1980).

This species is distributed from the south-east Kimberley, across the Northern Territory, to the Gulf of Carpentaria in Queensland.

Sauropus sp. A Kimberley Flora (T.E.H. Aplin et al. 1929) was incorrectly included in *Sa. trachyspermus* by Hunter and Bruhl (1997b) and will soon be described as a new species of *Synostemon* (Telford et al., in prep.).

Sauropus torridus Hunter & Bruhl was described as a new species by Hunter and Bruhl (1997b). It is here included in a somewhat morphologically variable *Sy. glaucus* F.Muell. Part of the concept of *P. sp. B* in Wheeler (1992) is also referable to *Sy. glaucus*.

Synostemon ramosissimus F.Muell. is currently listed as *Sa. ramosissimus* (F.Muell.) Airy Shaw in Western Australia and, as applied, is the same taxon as *Sa. sp. Woolgorong* (M. Officer s.n. 10/8/94). This phrase-named taxon will soon be described as a subspecies of *Sy. ramosissimus*.

Synostemon trachyspermus (F.Muell.) I.Telford & Pruesapan should be excluded from Western Australia's plant census as the name has been misapplied against *Sa. hubbardii*, *Sa. lissocarpus* and *P. rhytidospermus*.

Methods

All measurements are based on dried herbarium material. *Phyllanthus eremicus* has been examined in the field by the first author. Descriptions are largely based on the format of Hunter and Bruhl (1997), except that the term 'stem leaves', the leaves or cataphylls on the usually more or less erect primary stems, replaces their 'branch leaves', a term we consider too similar to the 'branchlet leaves' of the usually spreading branchlets. Cited type specimens of existing names have been examined by the second author with images of most types seen by the first author.

Taxonomy

Phyllanthus L.

Current systematic placement of species of *Phyllanthus* is as follows: *P. eremicus*, *P. fuernrohrii*, *P. hamelinii* and *P. indigoferoides* are all placed in *P.* subgen. *Lysiandra*, a subgenus characterised by shrub habit, narrowly triangular stipules, laminate stem leaves (lacking phyllanthoid branching) and minutely striate or smooth seeds (Telford, unpubl. data); *P. baccatus* is in *P.* subgen. *Kirganelia* (Juss.) G.L.Webster, characterised by shrub or tree habit, stem leaves as cataphylls (phyllanthoid branching present) and fruit a berry; *P. minutiflorus* and *P. sp. B* Kimberley Flora are placed in *P.* sect. *Macraea* (Wight) Baill., characterised by herbaceous or subshrub habit, cordate or auriculate bicoloured stipules, laminate stem leaves and verrucate seeds. Taxa are treated below in alphabetical order.

Phyllanthus baccatus F.Muell. ex Benth., *Fl. Austral.* 6: 102 (1873). *Syntypes*: Vansittart Bay and Greville island, Prince Regent R., N.W. coast, [Western Australia,] *s. dat.*, *A. Cunningham s.n.* (*syn*: K); Victoria R., [Northern Territory,] *s. dat.*, *F. Mueller s.n.* (*syn*: K); Port Darwin, [Northern Territory,] *s. dat.*, *Schultz 860* (*syn*: K).

[*Phyllanthus ciccooides* auct. non Müll. Arg.: K. Menkhurst & I.D. Cowie, *Survey Wildlife Veg. Purnululu (Bungle Bungle) Nat. Park*, p. 33 (1992); D.T. Liddle, J. Russell-Smith, J. Brock, G.J. Leach, & G.T. Connors, *Atlas Vasc. Rainfor. Pl. North. Terr.*, p. 47 (1994).]

[*Phyllanthus reticulatus* auct. non Poir.: J.R. Wheeler in J.R. Wheeler (ed.), *Fl. Kimberley Reg.*, p. 622, Figure 190D (1992); C.R. Dunlop, G.J. Leach & I.D. Cowie, *Fl. Darwin Reg.* 2: 231, Figure 75 (1995).]

Full descriptions and illustrations of this species are available in Wheeler (1992) and Dunlop *et al.* (1995), both as *P. reticulatus* Poir.

Conservation status. Reasonably widespread and locally common. Not considered to be at risk.

Notes. The names *P. reticulatus* and *P. ciccoides* Müll.Arg. have frequently been misapplied to this species and these taxa do not occur in Western Australia, all material being assignable to *P. baccatus*. Luo *et al.* (2011) have shown *P. reticulatus* s. str. to be an Asian species and *P. baccatus* is not placed with it in molecular analysis using nrITS sequence data (S.S. Renner pers. comm.).

Phyllanthus eremicus R.L.Barrett & I.Telford, *sp. nov.*

Type: near Shay Gap, Western Australia [precise locality withheld for conservation reasons], 27 July 2013, R.L. Barrett RLB 8250 (*holo:* PERTH 08614490; *iso:* DNA, NE).

Phyllanthus sp. C, J.R. Wheeler in J.R. Wheeler (ed.), *Fl. Kimberley Reg.*, p. 624, Figures 190J, 191J (1992); K.F. Kenneally, D. Choules Edinger & T. Willing, *Broome and Beyond*, p. 106, pl. (1996).

Phyllanthus sp. C Kimberley Flora (N.T. Burbidge 1400), Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au/> [accessed 1 March 2014].

Erect monoecious *subshrub* 30–50 cm high, to 50 cm wide, primary stem woody, to 3.5 mm diam., glabrous; branching pattern non-phyllanthoid. *Stipules* persistent, membranous, narrowly triangular to subulate, 0.7–1.1 mm long, brown, entire, glabrous; base rounded; apex acute to acuminate. *Stem leaves* laminate, similar to branchlet leaves. *Branchlets* persistent, terete, 6–20 cm long, 0.4–0.7 mm diam., glabrous. *Branchlet leaves* alternate, distichous, mid-green, remaining green when dry, symmetrical, flat when fresh and dried. *Leaves* shortly petiolate; *petiole* 0.5–1.1 mm long, 0.30–0.35 mm diam., terete, glabrous. *Lamina* 3.7–12.5(–15) mm long, 1.8–4.7(–5.9) mm wide, blade oblong to obovate, light green, slightly paler below, pinnately veined, glabrous; base symmetrical, gradually tapering; apex obtuse or apiculate; margins plane, not or scarcely thickened; midrib not or scarcely raised, lateral veins inconspicuous. *Bracts* and *bracteoles* deciduous, glabrous. *Inflorescences* at least sometimes bisexual with the sexes mixed, indeterminate, axillary, sessile. *Male flowers* usually solitary or sometimes clustered, 2 or 3 per cluster; *pedicels* 0.5–1.5 mm long, glabrous; *tepals* 6, free, imbricate, ascending to divergent, elliptic to ovate, 1.0–1.5 mm long, 0.6–0.7 mm wide, obtuse, pale green outside, yellow inside, glabrous, margins entire, white; *disk* comprising discrete lobes, lobes c. 0.2 mm wide, lenticular, yellow; *stamens* 3, erect; *filaments* free, erect, terete, 1 mm long; *anthers* extrorse, divaricate, globular to ellipsoid, 0.20–0.25 mm long, with a broad connective, opening by longitudinal slits; *pollen* globular. *Female flowers* usually solitary or sometimes 2 clustered; *pedicels* jointed, at anthesis 4.5–7.0 mm long, slightly thickened upwards, 0.3–0.5 mm diam., in fruit 5.7–7.1 mm long, 0.3–0.6 mm diam., glabrous; *tepals* 6, free, at anthesis ascending to divergent, in fruit divergent to reflexed, elliptic, 2.5–3.2 mm long, 2.1–2.4 mm wide, obtuse, white, green to yellow, with a distinct white margin, glabrous; *disk* crenate, 0.7–0.8 mm wide, glabrous, yellow; *styles* 3, free, divided for half of their length, recurved, cream, 0.5 mm long, 0.3 mm diam., narrow-terete, glabrous, branches linear; *ovary* 0.3–0.5 mm long, 0.3–0.6 mm diam., transversely ellipsoid and apically depressed, smooth, glabrous. *Fruit* a septical capsule, transversely ellipsoid and apically depressed, 3.0–3.3 mm long, 4.2–6.2 mm diam., pale green,

cartilaginous, smooth, glabrous, grooved septically; *column* persistent, angular-ovoid, 1.2–1.6 mm long. *Seeds* pale brown, prismatic, laterally compressed, 2.2–2.3 mm long, 1.4–1.7 mm diam., smooth to very minutely transversely striate, appearing scaly; *hilum* slightly depressed, ovate, unbordered, cavity more or less basal. (Figure 1)



Figure 1. *Phyllanthus eremicus*. A – habit showing single stem and many branches; B – woody stem showing slightly peeling bark; C – flowering and fruiting branchlet with both female and male flower; D – female flower; E – male flowers; F – fruit and partially enclosing sepals. Images from R.L. Barrett RLB 8250. Photographs by R.L. Barrett.

Diagnostic characters. Distinguished from *P. aridus* by the following combination of characters: *subshrub* with woody stems; *leaves* 3.7–12.5(–15) mm long, 1.8–4.7(–5.9) mm wide, lacking prominent lateral veins; *male flowers* on pedicels 0.5–1.5 mm long; *stamens* with free filaments and globular anthers; *seeds* smooth to very minutely transversely striate or appearing scaly.

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 25 July 2013, *R.L. Barrett* RLB 8212 (CANB, NE, PERTH); 9 July 1941, *N.T. Burbidge* 1400 (PERTH); 6 June 1993, *B.J. Carter* 652 (BRI, CANB, DNA, PERTH); 13 Sep. 1982, *L.A. Craven* 7566 (CANB, PERTH); 13 Aug. 1997, *A.A. Mitchell* PRP 1762 (NE, PERTH); 8 July 1992, *A.A. Mitchell* 2600 (DNA, PERTH); 10 Apr. 2008, *Woodman Environmental Consulting* Opp 115 (PERTH). NORTHERN TERRITORY: 10 Apr. 1959, *G. Chippendale* 5606 (NT, PERTH); 22 May 1936, *J.B. Cleland s.n.* (AD); 11 May 1977, *P.K. Latz* 7048 (DNA, BRI).

Phenology. Flowering and fruiting May to August.

Distribution and habitat. Occurs between Broome, Anna Plains Station and the Edgar Range south to Callawa Station and Shay Gap in Western Australia, east to the Tanami Desert in the Northern Territory. Grows on rocky outcrops or on red sandplains with low shrubs of *Acacia*, *Grevillea* and *Hakea* over *Triodia epactia*.

Conservation status. *Phyllanthus eremicus* is to be listed as Priority Three under Department of Parks and Wildlife Conservation Codes for Western Australian Flora (A. Jones pers. comm.).

Etymology. The epithet, which is Greek, pertaining to desert sand, refers to the arid environment in which this species grows.

Notes. Included under a broad concept of *P. aridus* by Hunter and Bruhl (1997a) but distinguished by larger leaves (2.5–7 mm long in *P. aridus*), pedicellate male flowers, larger fruiting sepals (1–2 mm long in *P. aridus*) and smoother seeds. The distribution of this species contrasts with *P. aridus* which occurs in the high rainfall zone of the North Kimberley where it is only seasonally dry.

The vernacular name of Desert *Phyllanthus* is recommended.

Phyllanthus fuernrohrii F.Muell., *Trans. Philos. Soc. Victoria* 1: 15 (1854); *Diasperus fuernrohrii* (F.Muell.) Kuntze, *Revis. Gen. Pl.* 2: 599 (1891). *Type:* On gravelly sandhills near the Murray, [?South Australia,] *s. dat.*, *F. Mueller s.n.* (*holo:* ?MEL, *n.v.*).

Full descriptions are available in Airy Shaw and Kalotas (1981) and Weber (1986).

Specimen examined. WESTERN AUSTRALIA: [locality withheld for conservation reasons] 2 Aug. 2001, *R. Bates* 58309 (AD, NE).

Conservation status. *Phyllanthus fuernrohrii* is to be listed as Priority Three under Department of Parks and Wildlife Conservation Codes for Western Australian Flora (A. Jones pers. comm.). While reasonably widespread in the Northern Territory, South Australia, Queensland and New South Wales, in Western Australia it is only known from a single collection in the Wingellina Hills.

Notes. This name has previously been misapplied in Western Australia to specimens here recognised as *P. hamelinii* (see notes below for differences). It is noted here that *P. fuernrohrii* s. str. has recently been recorded from Western Australia where it is currently listed as an excluded name. *Phyllanthus fuernrohrii* is widely distributed in the Northern Territory, South Australia, Queensland and New South Wales.

Phyllanthus hamelinii I.Telford & R.L.Barrett, *sp. nov.*

Type: North West Cape, c. 5 km west of Exmouth homestead, Western Australia, 3 October 1975, J.Z. Weber 4919 (*holo:* PERTH 03997669; *iso:* AD 97550309).

Phyllanthus fuernrohrii var. *latifolius* Müll.Arg. in A. DC., *Prodr.* 15: 373 (1866). *Type:* Baie des Chien-marins [Shark Bay, Western Australia], 1801, ?*Baudin s.n.* (*holo:* G-DC G00325484; *iso:* A (fragment), GH, P).

Phyllanthus sp. Coastal North West (J.Z. Weber 4919), Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au/> [accessed 1 March 2014].

Erect to spreading, monoecious *subshrub*, 10–50 cm high, 20–40 cm wide, primary stem woody, to 3.0(–9.5) mm diam., minutely papillose to glabrescent; branching pattern non-phyllanthoid. *Stipules* persistent, membranous, triangular, 1.3–1.8 mm long, brown, entire or slightly fimbriate, minutely papillose to glabrescent; base somewhat cordate; apex acute. *Stem leaves* laminate, similar to branchlet leaves, usually larger. *Branchlets* persistent, with decurrent ribs, 2–18 cm long, 0.7–1.9 mm diam., moderately to densely papillose or sometimes glabrescent. *Branchlet leaves* alternate, distichous, greyish green or sub-glaucous, remaining green when dry, symmetrical, flat, drying undulate. *Leaves* shortly petiolate; *petiole* 0.6–1.2 mm long, 0.30–0.40 mm diam., terete, glabrous. *Lamina* 4.5–21 mm long, 2.8–11 mm wide, blade obovate, light green to greyish green, slightly paler below, pinnately veined, moderately papillose to glabrescent; base symmetrical, obtuse; apex obtuse or shortly apiculate, occasionally mucronate; margins plane, not or scarcely thickened; midrib not or scarcely raised, lateral veins inconspicuous. *Bracts* and *bracteoles* often persistent, papillose. *Inflorescences* at least sometimes bisexual with the sexes mixed, indeterminate, axillary, sessile. *Male flowers* 1–3 per fascicle; *pedicels* 2.2–5.1 mm long, glabrous; *tepals* 6, free, imbricate, ascending to divergent, elliptic or obovate, 1.4–2.0 mm long, 0.9–1.2 mm wide, obtuse, pale green outside and inside, papillose on both sides, margins entire, white; *disk* comprising discrete lobes, lobes c. 0.4 mm wide, lenticular, reddish; *stamens* 3, erect; *filaments* connate, erect, terete, 0.6–0.8 mm long; *anthers* extrorse, divaricate, ellipsoid, 0.4–0.5 mm long, with a broad connective, opening by longitudinal slits; *pollen* globular. *Female flowers* solitary, coaxillary with males; *pedicels* jointed, at anthesis 3.5–10.2 mm long, slightly thickened upwards, 0.2–0.5 mm diam., slightly elongating in fruit, 5.9–7.3 mm long, 0.2–0.5 mm diam., papillose; *tepals* 6, free, at anthesis ascending to divergent, in fruit divergent to reflexed, elliptic to broadly obovate, 2.3–2.8 mm long, 1.6–2.8 mm wide, obtuse, green with white margins; *disc* lobed, 1.9–2.1 mm wide, glabrous, brown; *styles* 3, free, divided for more than half their length, spreading, cream, 0.4 mm long, 0.3 mm diam., terete, glabrous, branches linear; *ovary* 0.6–0.7 mm long, 0.6–0.7 mm diam., transversely ellipsoid and apically depressed, smooth, minutely papillose. *Fruit* a septicidal capsule, transversely ellipsoid and apically depressed, 2.5–2.8 mm long, 3.5–4.3 mm diam., pale green, cartilaginous, smooth, minutely papillose, grooved septicidally; *column* persistent, angular-ovoid, 1.1–1.4 mm long. *Seeds* dark brown, prismatic, laterally compressed, 2.0–2.4 mm long, 1.7–1.9 mm diam., smooth to very finely transversely striate or appearing scaly; *hilum* depressed, more or less circular, unbordered, cavity more or less basal. (Figure 2)

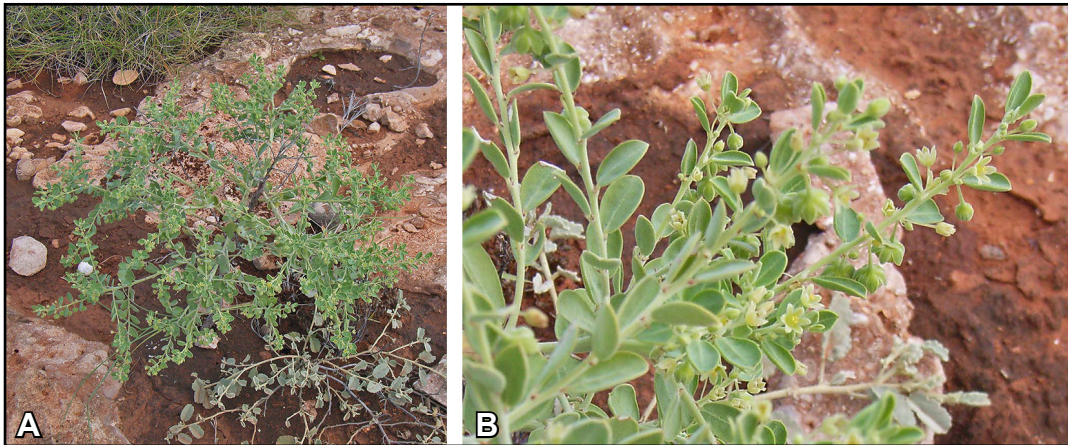


Figure 2. *Phyllanthus hamelinii*. A – habit on loam over limestone with *Triodia*; B – flowering and fruiting branchlets. Images from J. English 179. Photographs by J. English.

Diagnostic characters. Distinguished from *P. fuernrohrii* by the following combination of characters: *leaves* 4.5–21 mm long, 2.8–11 mm wide, blade obovate, light green to greyish green, moderately papillose to glabrescent, base symmetrical, obtuse; *tepals* of female flowers free, 2.3–2.8 mm long, 1.6–2.8 mm wide; *seeds* 2.0–2.4 mm long, 1.7–1.9 mm diam., smooth to very finely transversely striate or appearing scaly, with unbordered hilum.

Other specimens examined. WESTERN AUSTRALIA: Blowholes Rd, 20 km NW of North West Coastal Hwy, Beagle Hill area, 27 Oct. 2004, G. Cassis, M. Wall, C. Symonds, N. Tartanic & C. We 17-152 (AMNH, PERTH); site plot DI11, c. 6.25 km N of Observation Hillock, Dorre Island, Shark Bay, 3 Sep. 1998, S.J. Claymore & A.S. Weston 45 (PERTH); site plot BI17, c. 1.3 km WNW of Wedge Rock, Bernier Island, Shark Bay, 29 Aug. 1998, S.J. Claymore & A.S. Weston 57 (PERTH); site plot BI01, c. 700 m W of Red Cliff Point, Bernier Island, Shark Bay, 26 Aug. 1998, S.J. Claymore & A.S. Weston 58 (PERTH); c. 500 m SE of Mangrove Bay, turnoff at top of ridge, 28 July 2007, J. English 179 (PERTH); 22.5 km N of Learmonth, 29 Aug. 1960, A.S. George 1275 (PERTH); 53 km N of Carnarvon on [Point] Quobba road, 20 Feb. 1962, A.S. George 3249 (PERTH); Cape Range, 3 km N of Pitgramunne Well, 27 May 1965, D.W. Goodall 2261 (PERTH); Vlammung [Vlamingh] Head, North West Cape, 19 July 1992, G.J. Keighery 14751 (PERTH); 11 km NE of Cape Cuvier, N of Carnarvon. (Site: cu6), 20 Aug. 1994, G.J. Keighery & N. Gibson 1193 (PERTH); Hermite Island, Montebello Islands, 23 Oct. 2000, K.F. Kenneally 11582 (PERTH); Gladstone Beach, NW end Trimouille Island, Montebello Islands, 24 Oct. 2000, K.F. Kenneally 11599 (PERTH); Exmouth Gulf Station, 22 Aug. 1995, J. Stretch 4 (PERTH); near N White Beach transect, Dorre Island, 14 Aug. 1977, A.S. Weston 10504 (CANB, PERTH); Dorre Island, 16 Aug. 1977, A.S. Weston 10518 (PERTH); 25 km NNW of Carnarvon, 25 Sep. 1987, P.G. Wilson 12606 (PERTH); c. 2 km inland (E) of Cape Cuvier, c. 76 km NW of Carnarvon, 29 Sep. 1987, P.G. Wilson 12721 (PERTH).

Phenology. Flowering and fruiting mainly in May to October.

Distribution and habitat. Endemic to coastal Western Australia between North West Cape and Shark Bay. Grows in low coastal shrubland in calcareous sand on limestone or red sandy loam; recorded from behind foredunes, on dune slopes, on ridge crests, in seasonal watercourses and near salt flats. Grows in association with *Acacia coriacea*, *Alyogyne pinoniana*, *Atriplex paludosa*, *Banksia ashbyi*,

Beyeria cinerea, *Diplolaena grandiflora*, *Eremophila glabra*, *Eucalyptus oraria*, *Frankenia pauciflora*, *Olearia axillaris*, *Paractaenum novae-hollandiae*, *Rhagodia preissii*, *Sclerolaena uniflora*, *Spinifex longifolius* and *Triodia plurinervata*.

Conservation status. Reasonably widespread and locally common. Not considered to be threatened at present.

Etymology. The epithet honours Baron J.F.E. Hamelin, commander of the *Naturaliste* on the Baudin expedition in 1801, on which the first collection of this taxon was made. It is uncertain which member(s) of the expedition made the original collection.

Notes. Formerly included under *P. fuernrohrii*, but that species differs in having mostly larger, elliptic leaves (to 42 mm long), smaller sepals (c. 1.5 mm long) and seeds with a bordered hilum. Superficially vegetatively similar to the almost sympatric *Sa. crassifolius* (Müll.Arg.) Airy Shaw, which differs in having flowers that lack discs, ovoid fruit and crescentiform seeds with a large ventral hilum.

The vernacular name of Shark Bay *Phyllanthus* is recommended.

The name *P. fuernrohrii* was misapplied to this species for many years (e.g. Green 1985). Bentham (1873) questioned the application of *P. fuernrohrii* to specimens from the Western Australian coast and Müller Argoviensis (1866) named this taxon as *P. fuernrohrii* var. *latifolius* Müll.Arg. The varietal epithet is preoccupied at specific rank by *P. latifolius* Sw., so a new name is chosen here based on a new type specimen.

Phyllanthus indigoferoides Benth., *Fl. Austral.* 6: 110 (1873). *Type:* 'N. Australia, York Sound, NW coast', [Western Australia,] 1820, *A. Cunningham* 285 (*holo:* K; *iso:* MEL, NSW).

Phyllanthus sp. D, J.R. Wheeler in J.R. Wheeler (ed.), *Fl. Kimberley Reg.*, p. 624, Figures 190A, 191A (1992).

Phyllanthus sp. D Kimberley Flora (C.R. Dunlop 5302), Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au/> [accessed 1 March 2014].

Conservation status. *Phyllanthus indigoferoides* and *P. sp. D* Kimberley Flora are both listed by Jones (2014) as Priority One under Department of Parks and Wildlife Conservation Codes for Western Australian Flora. Few collections are known and this conservation status remains appropriate when the two names are combined.

Notes. This species is distinctive in Western Australia for its dense, papillate indumentum on the leaves and floral parts. The application of *P. indigoferoides* was unknown to Wheeler (1992) who provided a description as *P. sp. D*. Formal assessment of these two names has not previously been undertaken. Examination of specimens, including the type of *P. indigoferoides*, has shown that this name is correctly applied to *P. sp. D* which is formally listed here as a synonym.

Phyllanthus indigoferoides appears to be restricted to the north-east Kimberley region and adjacent parts of the Northern Territory.

Phyllanthus minutiflorus F.Muell. ex Müll.Arg., *Linnaea* 34: 75 (1865); *Phyllanthus simplex* var. *minutiflorus* (F.Muell. ex Müll.Arg.) Domin, *Beitr. Fl. Pflanz. Austral.* 877 (1927). *Type citation*: ‘In Nova Hollandia secus Victoria River, in Arnheimsland tractus M. Adam Range (Ferd. Muell. in hb. DC.).’ *Type*: Victoria R., Arnhem Land, [Northern Territory,] [received] 1863, F. Mueller (*holo*: G-DC G00318221); *iso*: K 001056770 [Upper Victoria R., *s. dat.*], K 001056768 [Victoria R., July 1855], K 001056771 [Victoria R., near Main Camp, May 1856]).

Conservation status. Reasonably widespread and locally common. Not considered to be threatened at present.

Notes. The type citation quotes a distribution range observed by Mueller and included in a handwritten description attached to the holotype sheet. However there is only a single sheet in G-DC, so the holotype is unequivocal. There are additional sheets at K that may be isotypes, but there was clearly more than one collection made by Mueller and the collection date was not included on the sheet in G-DC, so a definite match cannot be made.

Not previously recognised in Western Australia, *P. minutiflorus* was included under a broad concept of the very variable *P. virgatus* by Wheeler (1992) and Hunter and Bruhl (1997a). *Phyllanthus virgatus* is a more robust, perennial subshrub differing in larger female flowers on long pedicels, and larger capsules and seeds. *Phyllanthus minutiflorus* is a small annual, usually a wet season ephemeral. Both species are in *P.* subgen. *Macraea*, characterised by auriculate, acuminate, lacerate, bicoloured stipules, laminate stem leaves and verrucose seeds. *Phyllanthus minutiflorus* has continued to be recognised in the Northern Territory and Queensland. A full description and illustration is provided by Dunlop *et al.* (1995).

There are numerous collections from Western Australia that are still referable to *P. virgatus s. lat.*, a widespread and taxonomically challenging species complex. It is clear that multiple additional taxa should be recognised in the Kimberley region, but further studies are required to determine species limits and the correct application of additional names.

Phyllanthus rhytidospermus Müll.Arg., *Linnaea* 34: 70 (1855); *Glochidion rhytidospermum* (Müll.Arg.) H.Eichler, *Fl. S. Austral. Suppl.* (2nd edn): 210 (1965). *Type citation*: ‘In Nova Hollandia ad Victoria River (Ferd. Müller! in hb. DC.).’ *Type*: [Depot Ck, upper] Victoria R., [Northern Territory, Mar. 1856,] F. Mueller *s.n.* (*holo*: G-DC G00325158; *iso*: MEL 1594270).

Sauropus sp. Central Ranges (D.J. Eddinger *et al.* 2420), Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au/> [accessed 1 March 2014].

[*Sauropus trachyspermus auct. non* (F.Muell.) Airy Shaw: J.R. Wheeler in J.R. Wheeler (ed.), *Fl. Kimberley Reg.*, p. 628 (1992) and Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au/> [accessed 1 March 2014], both *p.p.* as to all except specimens from off-shore islands and the Kimberley Research Station.]

Conservation status. Reasonably widespread and locally common. Not considered to be threatened.

Notes. *Phyllanthus rhytidospermus* was placed in synonymy under *Sa. trachyspermus* by Airy Shaw (1980) and no combination is available under *Sauropus* or *Synostemon*. A new combination will be made available under *Synostemon* in the near future (Telford *et al.*, in prep.). It is a distinctive perennial

with a thickened rootstock (*Sa. trachyspermus* is an annual) and has smaller seeds with fine tubercules on the outer face (*vs* many prominent protuberances).

Phyllanthus sp. **B Kimberley Flora (T.E.H. Aplin et al. 809)**, Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au/> [accessed 1 March 2014].

Phyllanthus sp. B, J.R. Wheeler in J.R. Wheeler (ed.), *Fl. Kimberley Reg.*, p. 624 (1992), *p.p.*

Conservation status. Reasonably widespread and locally common. Not considered to be threatened.

Notes. Included under *P. virgatus* by Hunter and Bruhl (1997a). This distinctive multi-stemmed subshrub is a member of *P.* subgen. *Macraea*. It is distinctive in the floral segments of the male flowers being connate only at the base, having a schizocarp 3–5 mm across and seeds 2–4 mm long with deeply sculptured surfaces. Widespread and common in seasonally damp habitats across tropical Australia, it will be named as a new species (I. Telford & J. Bruhl pers. comm).

A specimen of *Sa. glaucus* was also erroneously included in this taxon by Wheeler (1992).

Sauropus Blume

Notes and further status details are presented on those taxa that require nomenclatural adjustment from their current treatment on *FloraBase* (Western Australian Herbarium 1998–). A full description of *Sa. rigidulus* is provided as the description provided by Airy Shaw (1980) was based solely on the type specimen.

Sauropus hubbardii Airy Shaw, *Kew Bull.* 355: 677 (1980). *Type:* Nonda, between Hughenden and Cloncurry in mixed grassland in heavy dark brown soil, Queensland, 160 m, 6 February 1931, *Hubbard & Winders 7295 (holo: K)*.

[*Sauropus trachyspermus auct. non* (F.Muell.) Airy Shaw: J.R. Wheeler in J.R. Wheeler (ed.), *Fl. Kimberley Reg.*, p. 628 (1992), *p.p.* as to *N.T. Burbidge 5781*.]

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 17 Apr. 1958, *N.T. Burbidge 5781* (CANB, PERTH); *s. dat.*, *E.C.B. Langfield 376* (CANB, PERTH); 20 July 1993, *A.A. Mitchell 3226* (NE, PERTH).

Conservation status. *Sauropus hubbardii* is to be listed as Priority Three under Department of Parks and Wildlife Conservation Codes for Western Australian Flora (A. Jones pers. comm). While reasonably widespread in the Northern Territory and Queensland, in Western Australia it is only known from blacksoil plains associated with the Ord River Irrigation Area and is possibly locally threatened by agricultural development. The three known collections are from quite close proximity to each other.

Notes. This species was partly included in *Sa. trachyspermus* by Wheeler (1992: 628) based on the inclusion of a specimen collected near the Kimberley Research Station with ‘leaves to 20 mm long and more deeply lobed styles’. The name *Sa. hubbardii* has not previously been in use in Western Australia. A detailed description is available in Airy Shaw (1980) and a brief description and illustration is provided by Purdie *et al.* (2008).

Sauropus lissocarpus (S.Moore) Airy Shaw, *Kew Bull.* 35: 680 (1980); *Phyllanthus lissocarpus* S.Moore, *J. Linn. Soc., Bot.* 45: 215 (1920). *Type*: Groote Eylandt, [Northern Territory,] 15 January 1803, R. Brown [Bennett No. 3606] (*holo*: BM 001014832; *iso*: BM 001014833).

Phyllanthus arnhemicus S.Moore, *J. Linn. Soc., Bot.* 45: 215 (1920). *Type*: Arnhem S. Bay, [Northern Territory,] 1803, R. Brown [Bennett No. 3597] (*holo*: BM [apparently not databased]).

[*Sauropus trachyspermus auct. non* (F.Muell.) Airy Shaw: J.R. Wheeler in J.R. Wheeler (ed.), *Fl. Kimberley Reg.*, p. 628 (1992), *p.p.* as to 'specimens from off-shore islands...']

Selected specimens examined. WESTERN AUSTRALIA: One Arm Point, N Dampier Peninsula, 25 June 1989, B.J. Carter 403 (PERTH); abandoned Camden Harbour settlement site, Camden Harbour, 30 May 1987, K.F. Kenneally 10083 (BRI, DNA, PERTH); mouth of Trent River, Yampi Peninsula, W of Kimbolton Homestead, 10 Mar. 2001, A.N. Start per R.L. Barrett 1899 (NE, PERTH); SW side of Mt Page, King Leopold Range, S of Walcott Inlet, 14 Mar. 2001, A.N. Start & R.L. Barrett 2351 (NE, PERTH); Princess May Ranges, 21.6 km due N of Kings Cascades, 25 Jan. 2007, R.L. Barrett 3921 & M.D. Barrett (NE, PERTH).

Conservation status. Reasonably widespread and locally common. Not considered to be threatened at present.

Notes. This species was included in *Sa. trachyspermus* by Wheeler (1992: 628) based on the inclusion of caducous-leaved specimens from off-shore islands with 'floral segments which are slightly broader and often obtuse and schizocarps which are depressed globular rather than ovoid'. As the concept of Wheeler (1992) was quite confused, a detailed list of specimens is provided above. A description is provided by Airy Shaw (1980).

Sauropus rigidulus (Müll.Arg.) Airy Shaw, *Kew Bull.* 35(3): 684 (1980); *Phyllanthus rigidulus* Müll.Arg., *Linnaea* 34: 72 (1865); *Diasperus rigidulus* (Müll.Arg.) Kuntze, *Rev. Gen. Pl.* 2: 600 (1891). *Type citation*: 'Novae Hollandia septentrionali ad Sinum Carpentariae (Ferd. Muell. In hb. DC.).' *Type*: Gulf of Carpentaria, [Northern Territory,] [received] 1863, F. Mueller s.n. (*holo*: G-DC G00325418; *iso*: K 001081091).

Sauropus sp. Cockburn Range (D. Dureau 81), Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au/> [accessed 1 March 2014].

Erect, monoecious *shrubs*, 60–90 cm tall, 30–50 cm wide, primary stem woody, to 7.5 mm diam., pilose to glabrescent, branching pattern non-phyllanthoid. *Stipules* persistent, free, chartaceous, triangular, 0.8–1 mm long, dark brown, entire, densely pilose; base truncate to rounded; apex acuminate. *Stem leaves* basally laminate, becoming scale-like cataphylls distally, brown, pilose. *Branchlets* persistent, terete for most of their length but angular at the apices, 11–45 cm long, 0.8–1.6 mm diam., densely pilose to hirsute. *Branchlet leaves* alternate, distichous, dull green when fresh and dried, slightly asymmetrical, flat, drying undulate, jointed. *Leaves* petiolate; *petiole* 0.5–1.1 mm long, 0.4–0.6 mm diam., terete, persistently pilose. *Lamina* 4.8–12.3 mm long, 2.6–7.7 mm wide, blade ovate to broadly ovate, usually slightly asymmetrical, although some may appear symmetrical, flat, dull green when fresh and dried, obscurely pinnately 3-veined per side, pilose with spreading, dense hairs; base rarely oblique, rounded to obtuse; apex erect, acuminate to acute or mucronate; margins plane, thickened (more so abaxially); midrib slightly raised, lateral veins usually inconspicuous. *Bracts and bracteoles*

persistent, pilose. *Inflorescence* unisexual, axillary, the female distal. *Male flowers* occasionally 1, usually 2 or 3 per bracteate cluster, the inflorescence eventually shortly pedunculate (peduncle to 1 mm); *pedicels* 0.6–1.1 mm long, with pilose indumentum; *tepals* 6, free, imbricate, erect, elliptic, 1.7–2.0 mm long, 0.7–1.0 mm wide, acute, green, abaxially densely pilose; *stamens* 3, symmetrical, erect; *filaments* completely connate, erect, terete, 0.2 mm long; *anthers* erect, linear, 0.65 mm long, their connectives and apical appendages completely connate, 0.1 mm long, yellow; *locules* longitudinal. *Female flowers* solitary; *pedicels* at anthesis 0.7–1.4 mm long, 0.7–1.1 mm diam., in fruit 1.3–1.7 mm long, 0.8–1.2 mm diam., pilose; *tepals* 6, free, at anthesis erect to ascending, in fruit appressed to divergent, elliptic, ovate to obovate, 1.9–2.3 mm long, 0.7–1.1 mm wide, obtuse, green, abaxially densely pilose; *styles* well developed, 3, connate, erect, green, 0.7–1.0 mm long, 0.7–0.8 mm diam., cylindrical, sparsely pilose; *ovary* 1–1.2 mm long, 0.7–0.9 mm diam., ovoid to ellipsoid, smooth, puberulous. *Fruit* a septicidal capsule, ovoid, 6.1–8.0 mm long, 5.6–6.9 mm diam., green, smooth, puberulous or pilose, grooved septicidally; *apex* obtuse; *column* persistent, obconical, 3.8–4.2 mm long. *Seeds* pale brown, crescentiform, laterally compressed, 5.4–5.8 mm long, 2.1–2.5 mm diam., minutely granular; *hilum* greatly depressed, elliptic, more or less central. (Figure 3)

Diagnostic characters. Distinguished from *Sa. glaucus* by the following combination of characters: *shrub* to 90 cm with woody stem; *stipules* 0.8–1 mm long, dark brown, triangular, densely pilose, margins entire; *leaf lamina* 4.8–12.3 mm long, 2.6–7.7 mm wide, dull green; *male flowers* usually 2 or 3; *female flowers* with tepals 1.9–2.3 mm long, 0.7–1.1 mm wide; *fruit* ovoid, 6.1–8.0 mm long, 5.6–6.9 mm diam.

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 7 Apr. 2013, M.D. Barrett, R.L. Barrett & B.M. Anderson MDB 4259 (PERTH); 7 Apr. 2013, M.D. Barrett, R.L. Barrett & B. Anderson MDB 4283 (NE, PERTH); 20 July 1991, I.D. Cowie 1915 (CANB, DNA, MEL, PERTH); 22 Mar. 1992, D. Dureau 81 (PERTH). NORTHERN TERRITORY: Bullo River Station, 9 May 2008, I.D. Cowie 12092 (DNA, MEL, MO, NE); upper Wearyan River, Jan. 1989, J. Russell-Smith 7000 & D. Lucas (DNA); sandstone plateau near Glyde River, McArthur River area, 29 Jan. 1976, L.A. Craven 3477 (A, BRI, CANB, DNA, PERTH); Mitchebo Waterhole, Mittiebah Station, 27 Mar. 1981, J.R. Maconochie 2588 (DNA, NT). QUEENSLAND: amphitheatre, 210 km N of Camooweal, N of Musselbrook Mining Camp, 18 July 1998, R.J. Cumming 17631 (BRI, DNA, NE).

Phenology. Flowering and fruiting recorded for March to July.

Distribution and habitat. In Western Australia, only known from three localities in the Osmond and Cockburn Ranges in the south-east Kimberley where it grows on a rough sandstone plateau with scattered shrubs. Associated species include *Acacia adoxa*, *A. lycopodiifolia*, *A. tumida*, *Boronia minutipinna*, *Cajanus acutifolius*, *Dodonaea hispidula*, *Grevillea miniata*, *G. refracta*, *Hibiscus squarulosus*, *Tephrosia valleculeata* and *Triodia* spp. Widespread in the Top End of the Northern Territory and extending into Queensland near the Gulf of Carpentaria.

Conservation status. *Sauropus rigidulus* is to be listed as Priority One under Department of Parks and Wildlife Conservation Codes for Western Australian Flora (A. Jones pers. comm.). This species is probably fire sensitive and quite rare in Western Australia. Around 12 locations in the Osmond Range have been surveyed, and only three small populations have been located there. Frequency in the Cockburn Range is unknown. This species is widespread across the Northern Territory and Queensland where it is not threatened.



Figure 3. *Sauropus rigidulus*. A – fertile branches; B – woody stem showing slightly peeling bark; C – male flowers (lower branchlet); D – female flowers; E – fruit; F – dehiscent fruit with persistent axis. Images from M.D. Barrett, R.L. Barrett & B.M. Anderson MDB 4259. Photographs by R.L. Barrett.

Etymology. The epithet refers to the rigid, erect habit of this species.

Notes. Relationships have been shown (Pruesapan *et al.* 2012) to be with a group of mainly Top End species including *Sa. glaucus* and *Sa. stenocladus* (Müll.Arg.) J.T.Hunter & J.J.Bruhl characterised by stamens completely connate into an apiculate androphore.

The vernacular name of Shrubby *Synostemon* is recommended.

Sauropus sp. **A Kimberley Flora (T.E.H. Aplin et al. 929)**, Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au/> [accessed 1 March 2014].

Sauropus sp. A, J.R. Wheeler in J.R. Wheeler (ed.), *Fl. Kimberley Reg.*, p. 628, Figure 192F (1992).

Conservation status. Listed by Jones (2014) as Priority Two under Department of Parks and Wildlife Conservation Codes for Western Australian Flora.

Notes. While recognised as a distinct taxon by Wheeler (1992), it was incorrectly included in *Sa. trachyspermus* by Hunter and Bruhl (1997b) and will soon be described as a new species of *Synostemon* (Telford *et al.*, in prep). It has been maintained as a distinct taxon on *FloraBase* (Western Australian Herbarium 1998–).

Sauropus sp. **Woolgorong (M. Officer s.n. 10/8/94)**, Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au/> [accessed 1 March 2014].

Conservation status. This taxon was listed by Jones (2014) as Priority One under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, but has recently been downgraded to Priority Three (see notes under *Sy. ramosissimus* below).

Notes. *Sauropus* sp. Woolgorong is to be described as a new subspecies of *Sy. ramosissimus*, encompassing all collections from Western Australia (Telford *et al.*, unpubl. data; see below). It will remain listed on *FloraBase* under this phrase name until it is formally described.

Synostemon F.Muell.

Synostemon glaucus F.Muell., *Fragm.* 1: 33 (1858); *Phyllanthus glaucus* (F.Muell.) Baill., *Adansonia* 6: 343 (1866), *nom. illeg. non* Wall. ex Müll.Arg. (1863); *Sauropus glaucus* (F.Muell.) Airy Shaw, *Kew Bull.* 35(3): 676 (1980). *Type citation:* ‘In planitiebus collibusque siccis terrae Arnhem’s Land, e.g. prope MacAdam Range, Point Pearce et Providence Hill’. *Type:* ‘Dry plains toward M’Adam [McAdam] Range; Between Point Pearce and M’Adam [McAdam] Range’, [Northern Territory,] Oct. 1855, *F. Mueller s.n. (lecto, here designated:* MEL 1594263, branchlet with female flowers and fruit attached; *?isolecto:* G-DC G00325159, GH 00048818, K 001081103).

Phyllanthus adamii Müll.Arg. in A.DC., *Prodr.* 15(2): 327 (1866); *Diasperus adamii* (Müll.Arg.) Kuntze, *Revis. Gen. Pl.* 2: 598 (1891). *Type:* as for *Synostemon glaucus* F.Muell. [Müller Argoviensis cites only ‘McAdam Range’ as the locality and the specimen in G-DC (G 00325159); however, as his name was replacing Baillon’s illegitimate combination the type must be the same.]

Sauropus torridus J.T.Hunter & J.J.Bruhl, *Nuytsia* 11(2): 178, Figure 1D, E (1997). *Type*: 43.8 km N of Campsite on Port Warrender track, Mitchell Plateau, N Kimberley, Western Australia, 13 October 1982, *K.F. Kenneally* 8561 (*holo*: PERTH 01640771; *iso*: K). [In the protologue, the locality and collection data are erroneously given as ‘Mitchell Plateau, N of Mining Camp, top of plateau, Western Australia, 18 June 1976, *K.F. Kenneally* 5092’.]

Phyllanthus sp. B, J.R. Wheeler in J.R. Wheeler (ed.), *Fl. Kimberley Reg.*, p. 624, Figures 190I, 191I (1992), *p.p.*

Phyllanthus sp. B Kimberley Flora (T.E.H. Aplin et al. 809), Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au/> [accessed 1 March 2014].

Sauropus sp. Tiwi, Dunlop *et al.*, *Fl. Darwin Reg.* 2: 237, Figure 78 (1995).

[*Sauropus ochrophyllus auct. non* (Benth.) Airy Shaw: J.W. Green, *Cens. Vasc. Pl. West. Austral.*, p. 108 (1985); J.R. Wheeler in J.R. Wheeler (ed.), *Fl. Kimberley Reg.*, p. 626, Figure 192D (1992).]

Conservation status. This species is listed by Jones (2014) as Priority Three under Department of Parks and Wildlife Conservation Codes for Western Australian Flora (as *Sa. torridus*). Recent fieldwork has shown that the species is reasonably widespread and locally common in the North Kimberley and therefore it has recently been delisted (A. Jones pers. comm.).

Typification. The MEL sheet has four sprigs, two envelopes of fragments and two labels attached: ‘Dry plains towards M’Adam Range. Oct. 55. Calyx luteus. Ferd. Mueller’ and ‘Between Point Pearce & M’Adam Range. Calyx flavus. Oct. 1855. Ferd. Mueller’. These labels are interpreted as potentially relating to two collections, made nearby, at similar times, but as all the material and both labels are on a single sheet and represent a single taxon, linking each of the elements is not possible. We here choose the single branchlet with female flowers and fruit attached as the lectotype. At least some of the additional material on the sheet is presumably part of the same gathering, as are the probable isolectotypes cited, but they cannot be matched with certainty to this branchlet or a particular label.

Notes. Hunter and Bruhl (1997b) described *Sa. torridus* as a new species from the Mitchell Plateau. Extensive field observations and additional collections from Western Australia have shown that the type specimen is part of a single somewhat morphologically variable taxon referable to the earliest name *Sy. glaucus*. Part of the concept of *P. sp. B* in Wheeler (1992) was also referable to *Sy. glaucus*.

Synostemon hamersleyensis I.Telford & Naaykens, *Nuytsia* 25: 32, Figure 1 (2015); *Type*: north-west of Newman, Western Australia [precise locality withheld for conservation reasons], 7 November 2012, *J. Naaykens* J969 - 11 - 12 (*holo*: PERTH 08423032; *iso*: CANB, L, NE).

Sauropus sp. Koodaideri detritals (J. Naaykens & J. Hurter JH 11213), Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au/> [accessed 15 August 2014].

Conservation status. Currently listed as Priority One under Department of Parks and Wildlife Conservation Codes for Western Australian Flora (Western Australian Herbarium 1998–).

Synostemon ramosissimus F.Muell., *Fragm.* 1: 33 (1858); *Sauropus ramosissimus* (F.Muell.) Airy Shaw, *Kew Bull.* 35: 682 (1980). *Type*: ‘In montibus saxosis ad flumina Suttor et Mackenzie River’, [Queensland,] *s. dat.*, *s. coll.* (*holo*: MEL 226731).

Notes. The typical form of *Sy. ramosissimus* does not occur in Western Australia. All Western Australian material is referable to a new taxon that is to be described as a subspecies of *Sy. ramosissimus*. The PERTH collections of this taxon are currently housed under two names, *Sa. ramosissimus* and *Sa. sp.* Woolgorong, both of which are conservation-listed (Priority Three and Priority One respectively; Jones 2014). These collections will be consolidated under *Sa. sp.* Woolgorong until such a time as the new subspecies of *Sy. ramosissimus* is named, with a revised conservation status of Priority Three (A. Jones pers. comm.).

Synostemon trachyspermus (F.Muell.) I.Telford & Pruesapan, *Blumea* 59: 89 (2014); *Phyllanthus trachyspermus* F.Muell., *Trans. Philos. Soc. Victoria* 1: 14 (1854); *Diasperus trachyspermus* (F.Muell.) Kuntze, *Revis. Gen. Pl.* 2: 601 (1891); *Glochidion trachyspermum* (F.Muell.) H.Eichler, *Suppl. Black’s Fl. S. Austral.* (2nd edn), 210 (1965); *Sauropus trachyspermus* (F.Muell.) Airy Shaw, *Kew Bull.* 35: 685 (1980). *Type*: New South Wales or Victoria: junction of the Darling and Murray Rivers, *s. dat.*, *F. Mueller s.n.* (*lecto, here designated*: MEL 1594234; *isolecto*: MEL 1595661).

Typification. There are two sheets at MEL (MEL 1594234 and MEL 1595661) that appear to represent the same collection, but as the plants are mounted on separate sheets, the sheet with the most material (and considered by John Hunter in 1997 to be a holotype) is here chosen as lectotype.

Notes. This taxon, listed as *Sa. trachyspermus* in Western Australia, should be excluded from Western Australia’s plant census. The name has been misapplied against *Sa. hubbardii*, *Sa. lissocarpus* and *P. rhytidospermus* (see these taxa above). Hunter and Bruhl (1997b) incorrectly included *Sa. sp.* A Kimberley Flora and *P. rhytidospermus* as synonyms (following Airy Shaw 1980).

Acknowledgements

Preparation of this paper was funded by the Botanic Gardens and Parks Authority as part of the 50th anniversary celebrations of Kings Park Botanic Garden. The reviewer, Juliet Wege and Ryonen Butcher are thanked for comments that improved the clarity of the manuscript. John English is thanked for permission to include his photographs of *Phyllanthus hamelinii*.

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