

## Snakewood Mistletoe (*Amyema xiphophylla*: Loranthaceae), a distinctive new species from Western Australia's arid zone

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### SHORT COMMUNICATION

*Amyema* Tiegh. (Loranthaceae) is a genus of aerial hemiparasites that grow on the branches of host plants, obtaining water and nutrients from their host via a specialised vascular connection (an haustorium) while producing some of their own carbohydrates by photosynthesis (Lamont & Southall 1982; Lamont 1983; Pate 1995). Of the 40 species currently recorded in Australia, 23 occur in Western Australia (Western Australian Herbarium 1998–; Council of Heads of Australasian Herbaria 2006–) including the new species described below, which has only been recorded growing on *Acacia xiphophylla* E.Pritz. (Snakewood). This in itself is unusual: relatively few species of *Amyema* occur on only one species of host, although some are host specific at a regional level (Start 2015) and many have a narrow range of host species or are restricted to a particular genus (Barlow 1984; Downey 1998; Start 2011, 2013, 2015). The only other species in Loranthaceae that have been recorded on Snakewood are *Lysiana casuarinae* (Miq.) Tiegh. *s. lat.* (Downey 1998: *A.A. Mitchell* 4730, PERTH 05096103; *B. Backhouse et al.* BEM 223, PERTH 05465591) and *L. murrayi* (F.Muell. & Tate) Tiegh. (*S. van Leeuwen* 5045, PERTH 07615418).

***Amyema xiphophylla* Wege & Start, *sp. nov.***

*Type*: 25 km from Paraburdoo to Nanutarra Road north along electricity line track from Paraburdoo to Tom Price, Western Australia, 26 October 1985, *M.E. Trudgen & C.D.M. Keating* 5358 (*holo*: PERTH 06022839; *iso*: AD, BRI, CANB, DNA, MEL).

*Amyema* sp. Fortescue (M.E. Trudgen 5358), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 20 December 2017].

Rounded to semi-pendulous *shrub*, mostly glabrous; epicortical runners absent. *Leaves* dull yellow-green, opposite or subopposite, narrowly lanceolate, sometimes falcate, acute to obtuse, lamina 25–75 × 3–11 mm, attenuate or contracted at base into a petiole to 5 mm long. *Inflorescence* a pedunculated umbel of triads with a ±sessile central flower and pedicellate lateral flowers, dyads sometimes formed through lateral flower loss; peduncle slender, 8–15 mm long; rays of umbel 2, 6–11 mm long, strongly divergent; pedicels 5–8 mm long; central bract at apex of each ray triangular, *c.* 1 mm long, lateral bracts 1.2–1.4 mm long, concave, obtuse, ciliolate. *Calyx* 0.7–1 mm long, slightly lobed. *Corolla* in

mature bud bright red, 27–36 mm long, clavate, acute to subacute, longitudinally ridged between the lobes; 5-merous, glabrous externally, with sparse hairs on the inside most noticeably near the lobe apex. *Filaments* red, adnate to corolla tube except for the top 3.5–5.5 mm. *Anthers* deep red, 5.5–7.5 mm long, longer than the free part of the filament; pollen yellow. *Ovary* glabrous; style 2.8–3.4 mm long. *Fruit* dull yellow, obovoid. (Figure 1)

*Diagnostic features.* *Amyema xiphophylla* can be differentiated from other species in the genus by the following combination of characters: glabrous corolla buds that are longitudinally ridged between the lobes; and large anthers (5.5–7.5 mm long) that are longer than the free portion of the filament.

*Specimens examined.* WESTERNAUSTRALIA: 26.03 km SSW of Lake Poongkaliyarra, 15 June 2011, P. Anderson BES PEA 148 (PERTH); 6.4 km SE of Mt Turner, 29 Oct. 2011, R. Butler & C. Flaherty BES 00067 (PERTH); North West Coastal Hwy crossing of Rouse Creek, 24 Nov. 2000, D. Dureau & S. Black ANS 1363 (PERTH); near Bungarra Dam, in Giralia Stn situated at S end of Exmouth Gulf, 27 June 2006, D.J. Edinger DJE 5977 (PERTH); 42.6 km WNW of Tom Price townsite, 23 May 2006, M. Maier MM 621 (PERTH); 12.2 km from Cardo Camp on a bearing of 340 degrees, Red Hill Stn, West Pilbara, 18 Mar. 2018, A.A. Mitchell & C. Newland AAM 10913 (PERTH); Muggon Stn, N of Spinifex Well, 1 Sep. 2002, S. Patrick, D. Edinger & B. Muir SP 4339 (PERTH); 23.6 km (by track) S of Sandlewood Pt, Giralia Stn, 13 Nov. 1989, A.N. Start ANS 594 (PERTH); Red Hill Stn, 14 Sep. 1996, A.N. Start ANS 1013 (PERTH); 3.8 km E of Paraburdoo Airport entrance on Tom Price road, 8 June 1998, A.N. Start ANS 1112 B (PERTH); Barnett Creek crossing on Nanutarra – Munjina Rd, Hamersley Range, 8 Dec. 1998, E. Thoma s.n. (PERTH).

*Phenology.* Flowering has been recorded from October–December; fruits have been collected in March (A.A. Mitchell & C. Newland AAM 10913) and observed in December (Figure 1D).

*Distribution and habitat.* *Amyema xiphophylla* is mostly known from the Pilbara bioregion, although there are isolated records from the Carnarvon bioregion at the base of Exmouth Gulf and the western edge of the Murchison bioregion. It has been recorded exclusively on *Acacia xiphophylla* (Western Australian Herbarium 1998–; Start 2011), a species with a more widespread distribution centred on the Pilbara, Gascoyne and Carnarvon regions that commonly grows on rocky alluvial flats (Western Australian Herbarium 1998–).

*Conservation status.* *Amyema xiphophylla* is not currently considered to be at risk, although it may become vulnerable in the future given the frequent, large-scale fires that now occur in the region and the likelihood of climate change causing further changes to fire regimes (see McKenzie *et al.* 2009). Large-scale fires can lead to localised extinction of *Amyema* populations—plants are usually killed by fire and, in the absence of *in situ* seed storage, rely on fresh seed transported by birds and deposited in suitable host canopies for recruitment (Liddy 1983; Start 2011, 2013, 2015). The fire response of *A. xiphophylla* is not known (Start 2011) but its host often grows on cracking clay soils that are usually devoid of highly flammable understoreys, thus minimising its risk of localised extinction. Nonetheless, some populations may still be at risk.

*Etymology.* The epithet is derived from the Greek *xiphos* (sword) and *-phyllus* (-leaved) in allusion to the shape of the leaves, which mirror those of its similarly-named host.

*Vernacular name.* Snakewood Mistletoe.

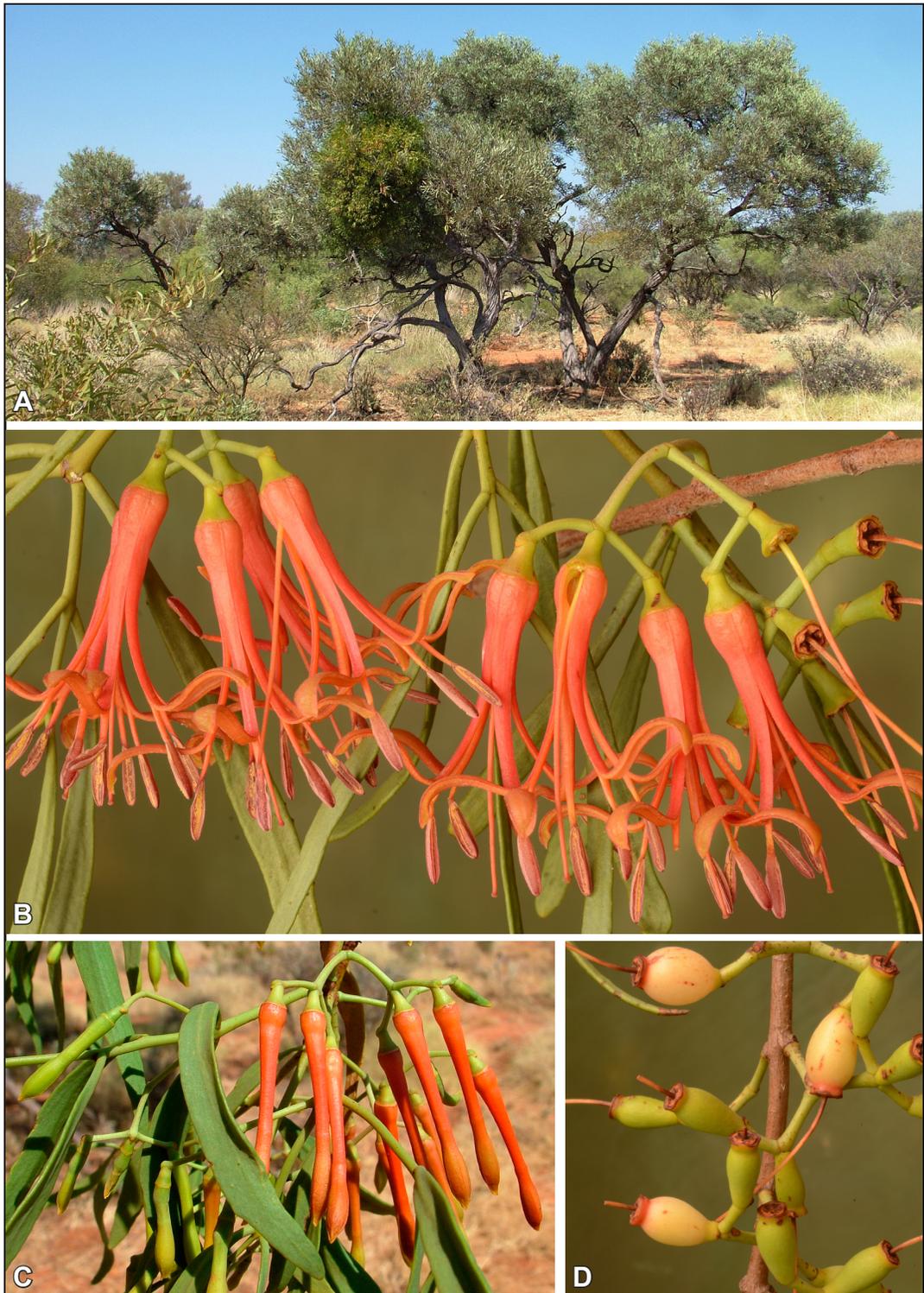


Figure 1. *Amyema xiphophylla*. A – spreading habit on *Acacia xiphophylla*; B – umbellate inflorescences showing the more or less sessile central flower and pedicellate lateral flower/s. Note the anthers are longer than the free portion of the filament; C – maturing buds and foliage; D – fruit. Photographs © B. Muir from 2 km SSE of Pilbara Biological Survey plot TCMBW02, Hamersley subregion.

*Notes.* *Amyema xiphophylla* is a highly distinctive taxon and as such its precise systematic affinities are unclear. Using the key in *Flora of Australia* (Barlow 1984) it loosely keys to *A. miraculosa* (Miq.) Tiegh., a species that also has flowers arranged in triads (with a sessile central flower and pedicellate lateral flowers) and red, longitudinally ridged buds; however, it can be readily differentiated from this species by its leaf shape (narrowly lanceolate and sometimes falcate *cf.* lanceolate to elliptic or obovate in *A. miraculosa*), longer buds (27–36 mm long *cf.* 8–25 mm), and longer anthers (5.5–7.5 mm long *cf.* 1–2 mm) that are longer (rather than shorter) than the free part of the filament. *Amyema miraculosa* is widespread across mainland Australia and has been recorded growing on species from a range of different families and genera, including other species of *Amyema* (Downey 1998); in Western Australia it has been most commonly recorded on *Santalum acuminatum* (Western Australian Herbarium 1998–; Watson 2011).

*Amyema xiphophylla* might be confused with *A. bifurcata* (Benth.) Tiegh., a species with similarly long anthers (4–9 mm; longer or shorter than the free portion of the filament) and long, red buds (22–30 mm); however, *A. bifurcata* differs in a number of respects including its pendulous habit (*cf.* rounded to semi-pendulous), longer leaves (usually *c.* 10–45 cm including a petiole 10–40 mm long *cf.* 2.5–7.5 cm including a petiole to 5 mm), flower arrangement (dyads *cf.* triads or sometimes dyads formed through the loss of a lateral flower) and tomentose buds and young shoots (*cf.* glabrous). *Amyema bifurcata* has only been recorded on species of Myrtaceae (Barlow 1984; Downey 1998; Start 2013) and in Western Australia is mostly known from the Kimberley region, although there are occasional records from the Pilbara, Gascoyne and Little Sandy Desert bioregions (Western Australian Herbarium 1998–).

*Amyema miquelii* (Lehm. ex Miq.) Tiegh. may also be confused with *A. xiphophylla* on account of its prominent, red buds with longitudinal ridges, although the buds tend to be shorter than those of *A. xiphophylla* (15–28 mm long *cf.* 27–36 mm). This species can otherwise be easily separated from *A. xiphophylla* on the basis of habit (pendulous *cf.* rounded to semi-pendulous in *A. xiphophylla*), anther morphology (1.5–5 mm long and much shorter than the free part of the filament *cf.* 5.5–7.5 mm and longer than the free part of the filament) and inflorescence morphology (peduncle 10–50 mm long, 3–7 umbel rays and flowers in triads or tetrads *cf.* peduncle 8–15 mm long, 2 umbel rays and flowers in triads or dyads through the loss of a lateral flower). *Amyema miquelii* has a widespread Australian distribution and parasitises a significant number of species from a range of different families, with *Eucalyptus* being the most common host genus (Barlow 1984; Downey 1998); it has only been recorded on Myrtaceae in Western Australia.

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