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A synopsis of *Ruellia* L. (Acanthaceae) in Australia

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Abstract

13 species of *Ruellia* L. (including some formerly included under *Dipteracanthus* Nees, *Stephanophysum* Pohl or *Blechum* P.Browne) are indigenous or naturalised in Australia. These are briefly treated with notes on distribution and habitat. Three new combinations are made, viz. *Ruellia australasica* (F.Muell.) A.R.Bean, *Ruellia chichesterensis* (Trudgen & de Kock) A.R.Bean and *Ruellia dalyensis* (R.M.Barker) A.R.Bean, and a new name *Ruellia sicca* A.R.Bean nom. nov. An identification key to all species is provided.

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Introduction

Among the Acanthaceae, Tribe *Ruellieae* Dumort. is distinguished by the presence of a filament curtain, left-contort corolla aestivation, presence of hygroscopic trichomes on the seed surfaces, and bifid, filiform stigma lobes in which the dorsal lobe is often partially or fully reduced (Manzitto-Tripp et al. 2022).

Barker (1986) accepted 4 genera in the Subtribe *Ruelliinae* for Australia, namely *Ruellia* L., *Stephanophysum* Pohl, *Dipteracanthus* Nees and *Brunoniella* Bremek. Around 2008, *Blechum pyramidatum* (Lam.) Urb. was first recorded as naturalised in Australia (Queensland Herbarium records).

Tripp & Darbyshire (2017) recognised five sections amongst palaeotropical *Ruellia*, all of which are confined to that region. Three of these, sect. *Eusiphon* (Benoist) E.Tripp & I.Darbysh., sect. *Madagasikara* E.Tripp & I.Darbysh. and sect. *Pseudoruellia* (Benoist) E.Tripp & I.Darbysh., are endemic to Madagascar, whilst sect. *Discifolia* E.Tripp & I.Darbysh. is found across Africa and Arabia, and sect. *Dipteracanthus* (Nees) Benth. is widespread across the palaeotropics. Sect. *Dipteracanthus* is distinguished by having fruits with prominent sterile stipes, inflorescences sessile or subsessile in leaf axils, and the hygroscopic hairs on the seed mostly confined to the margins.

While the sampling of Australian and Malesian taxa in Tripp & Darbyshire (2017) is rather inadequate, the clades at the sectional level are robust. In that study, *R. australasica* (as *R. primulacea*) is nested within the African species *R. patula* Jacq., but in their discussion the authors stated that *R. patula* is a very broadly circumscribed and polymorphic species. A more detailed revision of *R. patula* is likely to resolve this anomaly.

There is consensus among Acanthaceae workers throughout the world for a broad circumscription of *Ruellia*, with the genera *Blechum* P.Browne, *Dipteracanthus* and *Stephanophysum* now regarded as synonyms

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of it or reduced to sectional rank (Scotland & Volleson (2000); Tripp (2007); Tripp et al. (2009), Tripp et al. (2013); Tripp & Darbyshire (2017)).

The genus *Brunoniella* is, however, maintained. Most of its constituent species were originally described as *Ruellia*, and it has a similar floral appearance, but *Brunoniella* differs by the corolla tube with the unexpanded basal part roughly equal in length to the expanded upper part, and by the lack of a filament curtain. The latter is an important character at the genus level in Acanthaceae (Manktelow 2000). *Brunoniella* is placed in subtribe *Erantheminae* while *Ruellia* is in subtribe *Ruellinae* (Tripp et al. 2013; Manzitto-Tripp et al. 2022).

Ruellia is widespread in tropical and subtropical area throughout the world, and it has an estimated 380 species (POWO 2025). The 13 *Ruellia* spp. that are native or naturalised in Australia are briefly treated here, with three new combinations and one new name. A key to all Australian native and naturalised species is provided.

Species 1–6 are indigenous to Australia; species 7–13 are naturalised.

Methods

This paper is largely based on the study of herbarium specimens from BRI and DNA, and images of specimens held at NSW. Plant images from the iNaturalist website were also examined, and distributional data from that website were used.

Discussion

Barker (1996) highlighted a BRI specimen from Cape York Peninsula in Queensland that she thought was a new taxon, and designated it 'Dipteracanthus "Kalpowar" (Fell 2969)'. The specimen was subsequently given the phrase name "*Dipteracanthus* sp. (Kalpowar D.G.Fell+ DGF2969B)". This has recently been amended to *Ruellia* sp. (Kalpowar D.G.Fell+ DGF2969B). The specimen bears only one mature flower and one capsule. No further specimen matching this entity has been collected. The known location is on Cape York Peninsula and is remote from any cities or towns. While it is likely that this specimen does represent a new taxon, it would be unwise to proceed with a formal description based on only one specimen with limited fertile material and from a plant population that is presumably under no significant threat.

Key to *Ruellia* species in Australia

1 Bracteoles shorter than calyx or not present (early deciduous), calyx readily visible **2**
1 Bracteoles longer than calyx and often obscuring it, persistent **5**
2 Leaves linear, 12–30 times longer than wide **10. *R. simplex**
2 Leaves elliptical to broadly ovate, 1.7–4 times longer than wide **3**
3 Fully expanded leaves conspicuously hairy on both surfaces; calyx lobes with many glandular hairs **12. *R. squarrosa**
3 Fully expanded leaves glabrous or with a few scattered hairs, mainly along margin; calyx lobes glabrous or with eglandular hairs **4**
4 Calyx lobes 5–8 mm long at or after anthesis; corolla tube ± cylindrical and often broadest in the middle, corolla lobes 3–4 mm long; leaf apex mostly acute **8. *R. brevifolia**
4 Calyx lobes 14–23 mm long at or after anthesis; corolla narrow at base and becoming broader distally, corolla lobes 15–18 mm long; leaf apex mostly obtuse **13. *R. tuberosa**
5 Fully expanded leaves glabrous **6**
5 Fully expanded leaves hairy, at least along the margins **7**
6 Leaves 75–130 mm long; corolla 50–60 mm long, pink; bracteoles 19–23 mm long **11. *R. solitaria**
6 Leaves 12–23 mm long; corolla 30–36 mm long, pale blue; bracteoles 7–10 mm long **6. R. sicca**
7 Inflorescence a terminal 4-sided spike **7. *R. blechum**
7 Inflorescence a single axillary flower **8**
8 Ovary and capsules with moderately dense retrorse hairs throughout **9. *R. prostrata**
8 Ovary and capsules glabrous or with sparse spreading hairs **9**
9 Corolla white; peduncles 8–34 mm long; cylindrical (basal) part of corolla tube 20–27 mm long **2. R. bracteata**
9 Corolla pink to purple; peduncles 0–6 mm long; cylindrical (basal) part of corolla tube 0–7 mm long **10**
10 Calyx lobes 1.8–5 mm long at or after anthesis **11**
10 Calyx lobes 5.5–9 mm long at or after anthesis; capsules 12–15 mm long; corolla 22–47 mm long; style 15–18 mm long **12**
11 Corolla 33–40 mm long; style 15–18 mm long; capsules 13–15 mm long **5. R. dalyensis**
11 Corolla 12–23 mm long; style 5–9 mm long; capsules 7–13 mm long **4. R. corynotheca**
12 Stem internodes glabrous except in the grooves **3. R. chichesterensis**
12 Stem internodes hairy throughout **13**
13 Corolla c. 23 mm long; stem hairs of two types; very dense, slightly retrorse, 0.05–0.1 mm long, and scattered spreading glandular hairs 0.3–0.9 mm long **R. sp. Kalpowar**
13 Corolla 30–47 mm long; stem hairs of one type; dense, spreading or retrorse, 0.1–0.4 mm long **1. R. australasica**

Taxonomy

Ruellia australasica (F.Muell.) A.R.Bean **comb. nov.**

Dipteracanthus australasicus F.Muell., *Enum. Pl. Gregory* 8 (1859). Type: Queensland. Burdekin River, [1856], *F. Mueller s.n.* (lecto: MEL 601752, *fide* Barker (1986); isolecto: K000882497).

Ruellia primulacea F.Muell. ex Benth., *Fl. Austral.* 4: 546 (1868). Type: Queensland. Burdekin River, [1856], *F. Mueller s.n.* (lecto: MEL 601752, *fide* Barker (1986); isolecto: K000882497)).

Dipteracanthus sessiliflorus Bremek., *Acta. Bot. Neerl.* 11: 196 (1962). Type: Northern Territory. White Range, 4 miles NE of Arltunga Mission, 26 March 1958, *G.M. Chippendale s.n.* (holo: NT 4103; iso: AD, BRI, MEL).

Distribution and habitat. Ruellia australasica is endemic to Australia. It is found in Western Australia (Pilbara region), Northern Territory, South Australia (northern parts), Queensland and New South Wales (North Far Western Plains district).It grows on sandy or red clay soils near watercourses, or sometimes on rocky hills, often in association with Mulga (*Acacia aneura*) or Gidgee (*Acacia cambagei*).

Notes. Bentham (1868) did not mention the name *Dipteracanthus australasicus* F.Muell. in the Flora Australiensis. It seems likely that he merely overlooked it.

Ruellia bracteata R.Br., Prodr. 479 (1810)

Dipteracanthus bracteatus (R.Br.) Nees in A.DC., *Prodr.* 11: 143 (1847). Type: Northern Territory. Arnhem North Bay, 6 February 1803, *R. Brown s.n.* [Bennett number 2942] (lecto: BM 001041211, *fide* Barker (1986); isolecto: CANB 324644, K 000882498, K 000882500).

Distribution and habitat. *Ruellia bracteata* is native to Australia and Papua New Guinea. It is found in the "Top End" of the Northern Territory and in Queensland, north from about Cooktown. It grows in grassy eucalypt woodland in sandy-loam or red earth soils.

Note: Some specimen labels record that this species flowers at night.

Ruellia chichesterensis (Trudgen & de Kock) A.R.Bean **comb. nov.**

Dipteracanthus chichesterensis Trudgen & de Kock, *Nuytsia* 25: 165 (2015). Type: Western Australia. ENE of Kenjenjie Outstation on Coolawanyah Station, 14 March 2013, *P-L. de Kock & R. Butler PLDK 1040* (holo: PERTH 08644969; iso: AD, CANB, K, PERTH 08644977, RSA).

Distribution and habitat. *Ruellia chichesterensis* is endemic to the Pilbara bioregion in Western Australia. It occurs in *Acacia xiphophylla* tall shrubland with *Triodia* understorey on red-brown cracking clay soils.

Ruellia corynotheca F. Muell. ex Benth., *Fl. Austral.* 4: 546 (1868)

Dipteracanthus corynothecus (F.Muell. ex Benth.) Bremek., *Acta Bot. Neerl.* 11: 195 (1962); *Dipteracanthus australasicus* subsp. *corynothecus* (F.Muell. ex Benth.) R.M.Barker, *J. Adelaide Bot. Gard.* 9: 89 (1986). Type: Queensland. Suttor River, [February 1864], *E.M. Bowman 48* (lecto: MEL 601758), *fide* Barker (1986).

Distribution and habitat. *Ruellia corynotheca* is endemic to Australia. It is widespread in Queensland from Chillagoe to Inglewood, and inland as far as Winton. It is also reported to occur in Western Australia from Barrow Island south to Carnarvon (Barker 1986, Trudgen *et al.* 2015). In Queensland, it is usually recorded from communities dominated by Brigalow (*Acacia harpophylla*) on clay soils on flat to undulating terrain.

Note: Although the highly disjunct Western Australian occurrences were accepted by Barker (1986) as *corynotheca*, the W.A. specimens should be revisited to see if they are taxonomically distinct.

Ruellia dalyensis (R.M.Barker) A.R.Bean **comb. et stat. nov.**

Dipteracanthus australasicus subsp. *dalyensis* R.M.Barker, *J. Adelaide Bot. Gard.* 9: 92 (1986). Type: Northern Territory. 15 miles W of [Stuart] highway, Daly River road, 19 December 1968, *N. Byrnes 1241* (holo: DNA; iso: DNA, NSW926997).

Distribution and habitat. *Ruellia dalyensis* is endemic to Australia. It is confined to the north-western part of the Northern Territory between Daly River and Gregory. It grows in grassy open woodland on red clay loam, sometimes associated with creeks or rivers.

Ruellia sicca A.R.Bean **nom. nov.**

Dipteracanthus australasicus subsp. *glabratus* R.M.Barker, *J. Adelaide Bot. Gard.* 9: 91 (1986). Type: South Australia. c. 6.5 km by road NW of the Bulls Hole Creek crossing by the Cordillo Downs - Birdsville road, c. 22.5 km by road S of Wongyarra Waterhole, c. 25 km by road WNW of Cordillo Downs, 15 September 1984, *W.R. Barker 4627* (holo: AD; iso: BRI).

Distribution and habitat. Ruellia sicca is endemic to Australia, where it is found in the far north-eastern corner of South Australia, and adjacent areas of Queensland. It grows along stony watercourses adjacent to shrubland of *Acacia cyperophylla* or *Atalaya hemiglauca* on brown clayey soil.

Etymology. From the Latin *siccus* meaning 'of dry places' or 'dried out'. This is in reference to the habitat of the species in the driest part of Australia.

Note. The species epithet *glabrata* is preoccupied by *Ruellia glabrata* (Leonard) Tharp & F.A.Barkley, validly published in 1949.

Ruellia blechum L., *Systema Naturae* ed. 10, 2: 1120 (1759).

Type citation: Habitat in America meridionali. Type: Herb. Sloane 3: 56 (lecto: BM-SL), *fide* Wasshausen in Jansen-Jacobs (ed.), Fl. Guianas, ser. A, 23: 20 (2006)

Barleria pyramidata Lam., *Encyc.* 1(2): 380 (1785); *Blechum pyramidatum* (Lam.) Urb., *Repert. Sp. Nov. Regni Veg.* 15: 323 (1918). Type citation: "Cette plant croit à St. Domingue". Type: Santo Domingo, Illustration of Plumier, Pl. amer. 2: t. 42, fig. 3. (1756), *fide* McDade & Tripp (2007).

Distribution and habitat. *Ruellia blechum* is native to Mexico, Caribbean, Central America, and north-western South America. In Australia, it is naturalised in Queensland, on the islands of Torres Strait and around Cairns. It grows in disturbed sites such as gardens, lawns and footpaths in sandy-loam or clayey soils.

Ruellia brevifolia (Pohl) C.Ezcurra, *Darwiniana* 29: 278 (1989)

Stephanophysum brevifolium Pohl, *Plantarum Brasiliae Icones et Descriptiones* 2: 85 (1831). Type: prope Rio de Janeiro, Brasil, undated, *Schott s.n.* (syn: GZU 250695)

Stephanophysum longifolium Pohl, *Plantarum Brasiliae Icones et Descriptiones 2*: 85 (1831); *Ruellia longifolia* (Pohl) Griseb., *Abhandlungen der Koniglichen Gesellschaft der Wissenschaften zu Gottingen* 24: 260 (1879), *nom. illeg. non* Rich. (1792). Type: n.v.

Distribution and habitat. *Ruellia brevifolia* is native to Peru, Bolivia, Brasil and northern Argentina. It is naturalised in three regions of eastern Australia, i.e. around Cairns and the Atherton Tableland (Qld), between Kin Kin (Qld) and Bellingen (N.S.W.), and around Sydney. It grows in disturbed eucalypt forest or on the margins of rainforest.

Ruellia prostrata Poir. in Lam., *Encycl.* 6: 349 (1804)

Dipteracanthus prostratus (Poir.) Nees in Wall., *Pl. Asiat. Rar.* 3: 81 (1832). Type: India, undated, *Dupuis s.n.* (holo: P), *fide* Vollesen (2008).

Distribution and habitat. *Ruellia prostrata* is native to central and southern Africa, the Arabian Peninsula and the Indian subcontinent. In Australia, it is naturalised in the Darwin area of Northern Territory, in northern Queensland, including Torres Strait, and recently in Brisbane. It grows in shady disturbed sites in gardens, orchards and bushland.

Ruellia simplex C.Wright in Sauvalle, *Flora Cubana* 97 (1870) "1868"; *An. Acad. Ciencias Med. Fis. Nat. La Habana* 6: 321 (1870).

Type: Cuba, without date, *C. Wright 3642* (syn: NY 00114919; syn: US 00136629).

Distribution and habitat. *Ruellia simplex* is native to Mexico, the West Indies, western Bolivia, southwestern Brazil, Paraguay, Uruguay, and northeastern Argentina (Wikipedia). It is naturalised in Australia, from Torres Strait in Queensland to the north coast of New South Wales, and in south-western Western Australia. It grows along watercourses and in swampy areas, on a variety of soils.

Ruellia solitaria Vell., *Fl. Flumin.* 266 (1829).

Type: Rio de Janeiro, Brasil, *n.v.*

Distribution and habitat. *Ruellia solitaria* is native to south-eastern Brazil. It is naturalised in Australia only at Brisbane, where it is known from a single population of some hundreds of plants, in disturbed riparian bushland. The plants are self-reproducing and naturalised at the location.

Ruellia squarrosa (Fenzl) Cufod., *Baileya* 17: 40 (1970)

Dipteracanthus squarrosus Fenzl, *Ind. Sem. Hort. Vindob.* 10 (1868). Type citation: Habitat in Brasilia bahiensi vel Amer. centrali. Type: Cultivated at Vienna, 30 July 1868, collector unknown (lecto: W 0004526), *fide* Walker, E.G., Baileya 17: 41 (1970).

Distribution and habitat. *Ruellia squarrosa* is native to Mexico (POWO 2025). It is naturalised in eastern Australia, from Atherton (Qld) to Sydney (NSW). It grows in gullies and on creekbanks in shady eucalypt forest or rainforest.

Note. POWO (2025) lists *R. squarrosa* as a synonym of *R. longepetiolata* (Oerst.) Hemsl. However I cannot find any publication where this synonymy is formally made.

Ruellia tuberosa L., *Sp. Pl.* 2: 634 (1753).

Type citation: Habitat in Jamaica. Type: Herb. Linn. No. 804.8 (lecto: LINN), *fide* Howard (1989).

Distribution and habitat. *Ruellia tuberosa* is native to Mexico, the Caribbean, central America and northern South America. In Australia, it is naturalised in the Kimberley region of Western Australia, the "Top End" of Northern Territory and in northern Queensland. It grows in lawns, parks, roadsides and increasingly, in bushland on a range of soil types.

Disclosures

No conflict of interest

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