

AUSTRALIAN BIOLOGICAL RESOURCES STUDY



FLOODPLAIN FLORA

A flora of the coastal floodplains
of the Northern Territory, Australia

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Extract: **Acanthaceae**

ACANTHACEAE

Herbs, shrubs or sometimes trees, often twining, and including some mangrove species. *Leaves* opposite or sometimes alternate, simple, sometimes spiny, often with cystoliths; stipules absent. *Flowers* bisexual, in cymose or racemose inflorescences; bracts and often bracteoles present. *Calyx* synsepalous, usually of (4) 5, more or less deeply lobed imbricate or valvate segments but sometimes the lobes suppressed. *Corolla* sympetalous, actinomorphic to zygomorphic, commonly bilabiate and 5-lobed and with imbricate or convolute lobes but the upper lip sometimes suppressed. *Stamens* alternate with the lobes, usually 2 or 4 and paired but sometimes all 5 stamens developed or staminodes present; filaments attached to the corolla tube. *Anthers* tetrasporangiate and dithecal, opening by longitudinal slits. *Gynoecium* of 2 median carpels united to form a compound, superior ovary; ovary commonly bilocular but sometimes unilocular, usually with an annular nectary disc basally; ovules commonly 2 per locule but sometimes numerous; style terminal, slender; stigma funnel-shaped or 2-lobed or with the upper stigma-lobe reduced or suppressed. *Fruit* a loculicidal, often explosively dehiscent capsule. *Seeds* often mucilaginous on wetting, with a large straight often spatulate or more or less curved embryo; endosperm absent or sometimes well-developed.

A family of *c.* 2,500 species and *c.* 250 genera, mainly pantropical but also some in temperate regions. Includes *Thunbergia*, *Justicia*, etc., species of which are commonly cultivated. In Australia 28 native and naturalised genera and about 60 species are recognised. In NT 15 genera.

Cystoliths are often found in the leaves, bracts and stems and their presence or absence is a useful feature for identifying taxa. In fresh leaves they are best observed with a hand lens and transmitted sunlight. They appear as white streaks.

Note that the bracteoles in *Hygrophila* may be interpreted as bracts in some literature.

Taxonomic references: R. M. Barker (1986, 1996).

- 1 Shrubs, spreading to erect; leaves with the teeth and apex spine-tipped; corolla zygomorphic, with a large 3-lobed lower lip, with upper lip absent **Acanthus**
- 1: Herbs; leaves not spine-tipped; corolla actinomorphic or 2-lipped..... 2
- 2 Plants with at least upper leaves and inflorescences prominently silky hairy; stamens 2 (1:) **Nelsonia**
- 2: Plants not silky hairy; stamens 4 (2 + 2), single staminode sometimes present 3
- 3 Cystoliths prominent in stems and leaves; plants not viscid; leaves glabrous or with eglandular hairs (2:) **Hygrophila**
- 3: Cystoliths absent; plants viscid, with stalked glandular hairs on leaves..... **Staurogyne**

ACANTHACEAE

ACANTHUS L.

Shrubs or with leaves in basal rosettes, lacking cystoliths. *Leaves* opposite, petiolate or rarely sessile, with opposite pairs not connected by transverse ridges, sometimes spiny, distinct from bracts. *Inflorescence* a terminal spike; flowers each subtended by a bract and 2 bracteoles or bracteoles absent. *Calyx* 4-lobed, with 2 larger outermost lobes and 2 smaller inner lobes. *Corolla* shortly tubular and widening into a large 3-lobed lower lip; upper lip absent. *Stamens* 4, in about equal pairs, inserted at top of corolla tube; filaments thick, those of the abaxial pair twisted; anther cells 1, usually bearded along sutures. *Ovary* glabrous, with 2 superposed ovules per cell. *Stigma* 2-lobed, sometimes obscurely so. *Capsule* ovoid or obloid, glabrous, leathery, with strong seed-bearing hooks. *Seeds* 2–4, somewhat discoid, glabrous, smooth or tuberculate.

A genus of eight to ten species, with three or four mangrove species of the subgenus *Dilivaria* occurring in India, SE Asia, Pacific islands and Australia.

A. ilicifolius L.

Multistemmed *shrubs*, 1–1.5 m tall; branches with thorns at nodes; stilt roots may be present. *Leaves* sessile or more commonly with petioles 2–13 mm long; blade ovate, 7–18 cm long, 2.5–5 cm wide, leathery, glabrous, gland-dotted; margins entire or dentate; apex and teeth spine-tipped. *Spike* dense, 6–9.5 cm long. *Bracts* sessile, lanceolate, 6–7 mm long; margins ciliate, often spiny. *Bracteoles* 6–7 mm long, narrower than bracts. *Calyx* with larger segments 11–12 mm long; smaller segments c. 8 mm long. *Corolla* 2.7–3.2 cm long, blue or white; tube 5–7 mm long, with a ring of hairs more or less at point of insertion of stamens; lobes internally hairy, externally glabrous. *Stamens* with filaments 11–16 mm long, cream; anthers 5–8 mm long, purplish, with prominent lines of white hairs. *Style* c. 17 mm long. *Capsule* 1.7–2.5 cm long. *Seeds* yellow, rugose. *Flowering & fruiting*: Sept.–May. Fig. 32 (Cowie 2088; Russell-Smith 4754).

Widespread species occurring on tropical coastlines from India east to the Solomon Islands, New Guinea, New Hebrides and Australia (NT, Qld). In coastal NT ranging from the Adelaide River to the McArthur River. Primarily a mangrove species in saline tidal areas but occasionally collected in drainage channels on floodplains, e.g. Adelaide River floodplains near crossing of Arnhem Highway.

HYGROPHILA R.Br.

Herbs, with cystoliths, sometimes rooting at the lower nodes. *Leaves* opposite, petiolate or sessile; opposite pairs connected by transverse ridges. *Inflorescence* of 2–many sessile flowers in an axillary whorl or the flowers pedicellate and the inflorescence racemose. *Bracteoles* (paired structures beneath the calyx) present. *Calyx* of 5 equal segments, free or basally fused. *Corolla* tubular at base and widening into a throat, with limb 2-lipped; upper lip shortly 2-lobed; lower lip 3-lobed and often recurved and with hairy palate. *Stamens* 4, with 2 long and 2 short, exerted from throat; anther cells 2, not awned. *Ovary* ellipsoidal, with 4–20 or more seeds per ovule. *Style* slender; stigma entire or unequally 2-lobed. *Capsule* narrowly ellipsoidal; seed-bearing hooks prominent or minute and not curved. *Seeds* 8–many, covered with long, appressed mucous hairs that expand and spread on wetting.

A genus of perhaps 20–30 species with apparently three in Australia (Barker 1986, 1996), including one on NT floodplains. An introduced aquatic species, *H. cf. triflora* (Roxb.) Fosberg & Satchet, has also been recorded from Berry Springs.

H. angustifolia R.Br.

Herbs, initially erect and to c. 125 cm tall but becoming decumbent with age; branches more or less 4-angled, glabrous or with scattered eglandular hairs. *Leaves* subsessile, linear or

lanceolate, 2–16 cm long, 0.2–1.4 cm wide; margins entire or undulate, glabrous or sparsely to moderately hairy; hairs appressed and eglandular; cystoliths often prominent. *Inflorescence* an axillary cluster of 2–12 flowers. *Bracteoles* ovate, c. 2–8 mm long, shorter than the calyx; margins setaceous. *Calyx* c. 8–11 mm long; segments joined for more than $\frac{1}{2}$ their length, glabrous or variously hairy; cystoliths often conspicuous. *Corolla* white, mauve, blue or purple, but drying yellow; tube and throat 6.5–12 mm long; lobes 3–6 mm long, externally the tube glabrous and the limb and lobes with glandular and eglandular hairs, internally glabrous except for hairy palate and hairs in 2 lines near base of stamens. *Stamens*: abaxial pair 3 mm long; adaxial pair 2 mm long. *Ovary* glabrous. *Style* hairy, 5–6 mm long, adjacent to the abaxial stamens when receptive. *Capsule* 10–16 mm long, glabrous, apically with 2 round swelling on either side; seed-bearing hooks 4–12 per cell. *Seed* discoid, 10–15 mm diam., enveloped in mucilaginous hairs. *Flowering & fruiting*: mainly Feb.–Oct. Fig. 32 (*Beauglehole 54118*; *Russell-Smith 2298*).

New Guinea and tropical regions of WA, NT, Qld, and northern NSW. In NT widespread in the Top End, extending as far south as the Barkly Tableland. Common on floodplains, swamps and waterholes and in riparian woodland and forest. NT localities include Arafura Swamp and floodplains of the Adelaide and Daly rivers.

Sterile, submerged plants with large reddish leaves sometimes occur in shallow water.

NELSONIA R.Br.

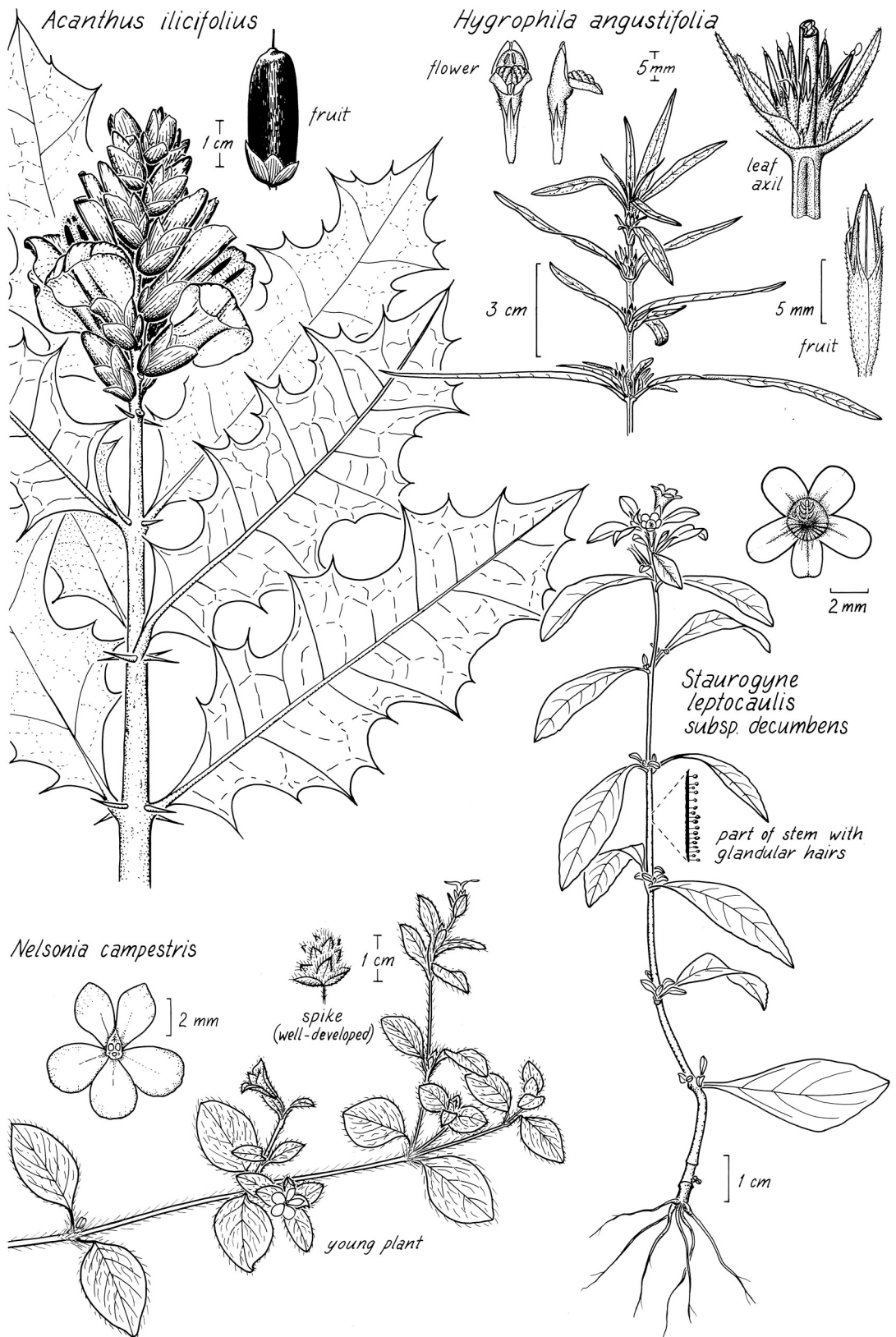
Herbs, lacking cystoliths, pubescent. *Leaves* opposite, petiolate, entire, intergrading with bracts. *Inflorescence* an axillary or terminal spike of 3–many flowers and conspicuous, spirally arranged, overlapping bracts. *Bract* 1, subtending each flower. *Bracteoles* absent. *Calyx* of 4 unequal segments, free to base; 1 segment usually apically notched. *Corolla* tubular, with a slight constriction at point of insertion of stamens; tube sometimes widening into a distinct throat; limb of 5 more or less equal lobes or 2-lipped; upper lip 2-lobed; lower lip 3-lobed. *Stamens* 2, inserted at top of tube, included or barely exerted; anther cells 2, not awned, glabrous. *Ovary* with 8–28 ovules in 2–4 rows, glabrous. *Style* with stigma usually unequally 2-lobed. *Capsule* conical; seed-bearing hooks absent. *Seeds* small, globose, glabrous and with longitudinal ridges on the surface.

A genus of perhaps five species. Found in Africa, America, Asia and Australia.

N. campestris R.Br.

Annual or possibly perennial *herbs*, prostrate or decumbent, hairy, sometimes rooting at nodes. *Leaves* with petioles 2–10 mm long; lamina ovate, 0.8–6 cm long, 0.4–3.5 cm wide; lower leaves sparsely hairy; upper leaves and bracts usually conspicuously hairy, with long white silky hairs and usually short glandular hairs present. *Spikes* dense, 1–6 cm long. *Bracts* more or less ovate, 4–6 mm long, 2–3.5 mm wide; indumentum as in leaves. *Calyx* with dense basal indumentum of long eglandular hairs, with hairs also present near apices of lobes; anterior lobe usually apically notched, but sometimes the apex entire or twice notched. *Corolla* white, more or less actinomorphic; tube 3–4 mm long, externally glabrous or minutely pubescent. *Ovary* glabrous. *Style* c. 8 mm long, glabrous. *Capsule* glabrous, 4–5 mm long, c. 1.5 mm diam., glabrous. *Seeds* c. 28 per capsule. *Flowering & fruiting*: all months in favourable conditions. Fig. 32 (*Clark 1645*).

Species delimitation in *Nelsonia* is problematic. Following R. M. Barker (1986) *N. campestris* is considered to occur in Australia (tropical areas of WA, NT & Qld) and probably New Guinea. It is widespread and common in northern NT, extending south to Camfield Station and Wollogorang. Often growing in sandy soil on the banks and in the beds of creeks and rivers and on drier parts of floodplains, e.g. of the Adelaide and East Alligator rivers.



ACANTHACEAE

STAUROGYNE Wall.

Herbs or undershrubs, lacking cystoliths. *Leaves* usually opposite but the uppermost sometimes alternate, intergrading with bracts. *Inflorescence* an axillary or terminal raceme or spike. *Bracts* leaf-like, spirally arranged. *Bracteoles* 2, about the length of the calyx. *Calyx* of 5 equal or unequal segments. *Corolla* tubular, gradually widened into throat; limb of 5 more or less equal lobes or 2-lipped, in bud with 2 lobes enclosing the other 3. *Stamens* 4, with 2 long and 2 short, usually included in corolla; staminode sometimes present; anther cells 2, sometimes mucronate at base. *Ovary* with 20 or more ovules in 2–4 rows in each cell. *Style* with stigma equally or unequally 2-lobed. *Capsule* ellipsoidal; seed-bearing hooks absent. *Seeds* small, globular, glabrous, reticulately ribbed or foveolate.

A genus of *c.* 80 species. Found in tropical regions of Africa, America, Asia and Australia. Majority in SE Asia, only *S. leptocaulis* in Australia.

S. leptocaulis Bremek. subsp. **decumbens** R.M.Barker

Herbs, erect initially but becoming decumbent, with stalked glandular hairs, viscid, often rooting at nodes. *Leaves* more or less sessile or with petiole to *c.* 9 mm long; lamina elliptic to narrowly elliptic or obovate, 1–5 cm long, 0.5–2 cm wide; young leaves glandular-hairy; upper surface often purplish. *Inflorescence* a leafy spike. *Bracteoles* leaf-like, ovate, 7–8 mm long, 2–4 mm wide. *Calyx* lobes almost free to the base, more or less linear, of unequal length, glandular-hairy. *Corolla* 6–10 mm long, pale mauve, blue or purple but often with darker lines on some lobes, drying yellow, externally glandular-hairy, internally with a ring of hairs at base of stamens; corolla lobes *c.* 2 mm long. *Stamens* with one pair barely exerted, the other pair included; staminode usually present; anther cells mucronate, hairy on back. *Ovary* glabrous. *Style* *c.* 5 mm long, glabrous; stigma unequally 2-lobed, with the larger lobe entire or forked, and with the smaller lobe forked. *Capsule* ellipsoidal, 4.5–6.5 mm long, glandular-hairy; seeds 50–80. *Flowering*: May–Oct., but possibly year round. Fig. 32 (*Dunlop 7220*).

Tropical regions of WA, NT and Qld. In NT widespread in the Top End, extending south to near Daly Waters. Common on creek and river banks and the drier parts of floodplains.

The subspecies *leptocaulis* is confined to New Guinea.