

SONNERATIACEAE

A small family of only 2 genera and c. 10 species; all native to the tropics of the Old World. Only *Sonneratia* in Australia and the NT.

SONNERATIA L.f.

Evergreen glabrous trees, with pneumatophores; branchlets quadrangular. Stipules evident on young growth as reddish swollen outgrowths, obscure on older growth. Leaves decussate, simple, entire, coriaceous, finely and obscurely pellucid dotted with larger scattered brown resinous dots, apex recurved and thickened. Inflorescence a bracteate terminal dichasium, usually 1-flowered at maturity. Flowers sessile or shortly pedicellate, large, actinomorphic, bisexual. Hypanthium cupular. Sepals 5-7, triangular, coriaceous, persistent in fruit. Petals equal in number to the sepals or wanting, linear. Stamens white, numerous in several series, inserted on rim of hypanthium; anthers versatile, reniform. Ovary superior, sessile, 10-20-locular; stigma capitate. Fruit a green depressed globular berry with leathery pericarp; hypanthium, calyx and style base persistent. Seeds numerous, embedded in firm flesh of fruit.

A genus of c. 6 species with 4 in Australia; 2 in the NT, both recorded for the DR. [Backer & van Steenis, 1951; Duke & Jackes 1987; Wightman, 1989; Hewson, 1990]

- 1. Leaves ± sessile, lanceolate or elliptic, 2.7-4.8 times as long as wide;
fruit wider than hypanthium S. lanceolata

- 1. Leaves petiolate, broadest towards apex, 1-3 times as long as wide;
fruit c. equal in width to hypanthium S. alba

S. alba Smith

Broadly crowned tree to 8 m; bark cream to

brown, smooth with fine fissures or becoming platy; pneumatophores stout, blunt, to 25 cm high. Petioles 6-15 mm long. Leaf blades ± orbicular,

Sonneratia

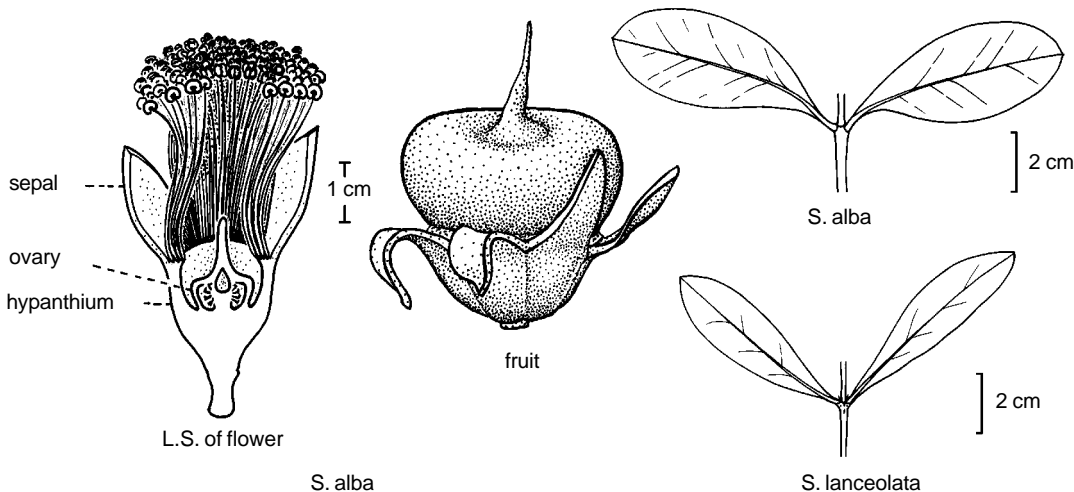


Fig. 40

obcordate, oblanceolate to broadly elliptic, 40-95 mm long, 18-80 mm wide, L/W 1-3, secondary venation not evident, base attenuate, apex acute, obtuse or emarginate. Hypanthium 13-18 mm long. Sepals 16-23 mm long. Petals caducous or absent, white throughout or red at base, similar to staminal filaments, c. 30 mm long. Stamens 35-40 mm long. Style 45-60 mm long. Fruit 26-36 mm long, 20-37 mm wide. Flowering and fruiting: most months. Fig. 40

Widespread from Africa to northern Australia; common in the DR. Typically on the seaward edges of mangroves on a variety of substrates.

S. lanceolata Blume

S. caseolaris (L.) Engl., misapplied name

Densely foliated tree to 14 m; bark smooth with

horizontal rings and orange pustules; pneumatophores thin, pointed, to 80 cm high. Leaves ± sessile; blades elliptic to lanceolate, 60-130 mm long, 17-37 mm wide, L/W 2.7-4.8, coriaceous, penniveined with intramarginal vein, base attenuate, apex acute. Hypanthium 12-16 mm long. Sepals 18-25 mm long. Petals red, linear, 25-30 mm long. Stamens c. 50 mm long. Style c. 65 mm long. Fruit 20-36 mm long, 32-45 mm wide. Flowering and fruiting: June - Oct. Fig. 40

Indonesia, New Guinea, the NT and Qld. In the DR known from Melville Is. and the Wildman R.; also recorded from the South Alligator R. and Arnhem Bay. A mangrove on fine silts or muds in estuarine situations. Very few entire specimens were available for description because the petals and stamens of this species fall quickly after flowering; the cited references provide more complete descriptions.

LYTHRACEAE

Herbs, shrubs or trees. Leaves opposite or whorled, simple, usually entire; stipules vestigial or absent. Inflorescences various. Flowers 3-8-merous, bisexual, actinomorphic or zygomorphic. Bracteoles present or absent. Hypanthium present. Sepals valvate, with or without appendages between the lobes. Petals alternate with sepals, rarely absent. Stamens usually in 2 whorls and twice the number of sepals or petals, sometimes in 1 whorl equal to, or less than, the number of sepals or petals. Ovary superior; carpels 2-6, fused; locules equal to number of carpels or rarely 1; placentation axile or free central. Fruit a capsule, dehiscent variously.

A family of 28 genera and c. 660 species, widespread in tropical regions. In Australia there are 8 genera and 24 species; 4 genera in the NT. [Hewson & Beesley, 1990]

1. Woody shrubs.....	Pemphis
1. Annual herbs.....	2
2. Flowers axillary, solitary and sessile or subsessile.....	Rotala
2. Flowers in axillary cymes or if solitary then on long pedicels.....	3
3. Flowers 4-merous, in dense compound axillary cymes.....	Ammannia
3. Flowers 5-6-merous, in simple axillary cymes or 4-merous and solitary.....	Nesaea

AMMANNIA L.

Erect often reddish annual herbs, glabrous or almost so. Stems quadrangular. Stipules absent. Leaves opposite. Flowers in most axils, cymose, usually actinomorphic, 4-merous. Hypanthium campanulate. Calyx appendages absent or obscure. Petals present or sometimes absent. Stamens 4-8. Capsule reddish, hyaline; dehiscence irregular.

A worldwide genus of c. 30 species; 4 in Australia and the NT, 2 in the DR.

- 1. Leaves attenuate at base *A. baccifera*
- 1. Leaves cordate-auriculate at base *A. multiflora*

A. baccifera L.

Herb to 1 m. Leaves discolorous; blades narrowly elliptic to elliptic, 8-110 mm long, 3-38 mm wide, L/W 2.9-7.5, attenuate at base. Hypanthium 1-2 mm long. Sepals shortly triangular, c. 1 mm long. Petals absent. Capsule globose, 1-2 mm diam., exceeding hypanthium; locule 1, placentation free central, placenta stipitate, globular. Flowering and fruiting: throughout year, depending on available moisture. Fig. 41

Widespread through Africa, Europe and Asia to northern Australia. Common on the floodplains of the DR. Favours clay soils on margins of waterholes and creekbanks; often in weed proportions in areas disturbed by stock. Also in shaded areas in rainforest.

A. multiflora Roxb.

Herb to 60 cm. Leaves slightly discolorous; blades sessile, oblong-linear to narrowly lanceolate or oblanceolate, 18-44 mm long, 1.5-9 mm wide, L/W 3.7-14, base cordate-auriculate, sometimes obscurely so. Hypanthium c. 1 mm long. Sepals broadly triangular, c. 0.2 mm long. Petals purple, obovate, 0.5-1 mm long. Capsule 1.5-2.5 mm diam.; locules 2, placentation axile, placenta elliptic. Flowering and fruiting: throughout year, depending on available moisture. Fig. 41

Widespread from Africa to Australia. Rare in the DR from East Point and on the Adelaide R. floodplain. The DR specimens show features intermediate with the introduced species *A. auriculata* Willd.

NESAEA Kunth

A genus of 50 species native to Africa, Madagascar, India, Australia and America; 5 species in Australia, all recorded in the NT but only 1 known from the DR.

N. striatiflora Hewson

Annual glabrous erect herb to 25 cm. Stipules absent. Leaves opposite, ± sessile; blades linear-terete, 15-30 mm long. Flowers usually solitary, sometimes in dichasia, (4)5(6)-merous; peduncle 10-15 mm long, ribbed in upper part. Bracteoles to 2 mm long. Hypanthium campanulate, c. 3 mm long, ribbed, ribs maroon, white-membranous between, plicate in bud. Calyx appendages blunt.

Sepals shallowly triangular, to 0.75 mm long. Petals mauve, ovate, to 4 mm long. Stamens 4, rarely 8; anthers exerted. Capsule globose, to 4 mm diam., dehiscence irregular. Flowering and fruiting: Mar - Apr. Fig. 41

Found in the Kimberley and northern NT in swampy or black soil habitats. In the DR only known from 1 record on the Adelaide R. floodplain. Description taken from Hewson & Beesley (1990).

PEMPHIS Forster & G.Forster

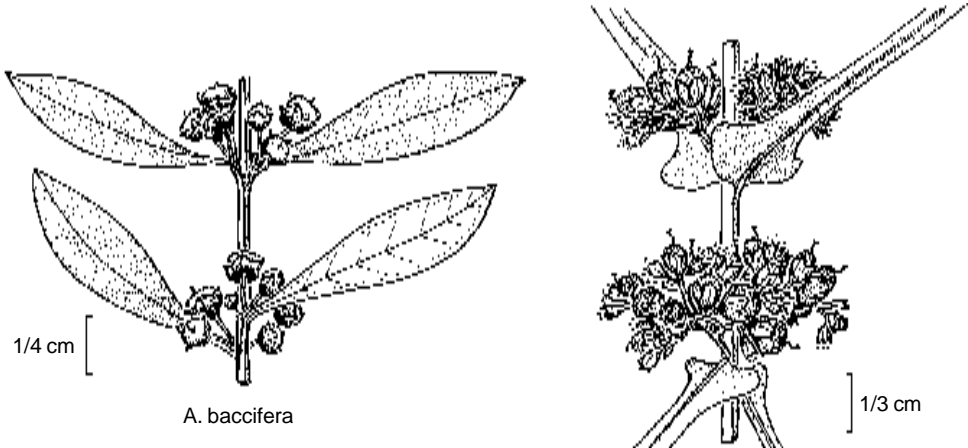
A genus of 2 species; 1 restricted to Madagascar, the other found from the tropical coasts of eastern Africa to the Pacific Islands and northern Australia.

P. acidula Forster & GForster

Evergreen shrub or small tree to 5 m. Stems and leaves thinly sericeous. Stipules minute. Leaves subsessile, decussate, sometimes ± succulent; blades elliptic or oblanceolate, 10-23 mm long, 3-8 mm wide, L/W 2.1-3.3. Flowers solitary, axillary, 6-merous.

Pedicel 5-13 mm long. Hypanthium tubular, 3-5 mm long, striate. Sepals triangular, 0.5-1 mm long; appendages triangular, c. 0.5 mm long, external to sinus of sepals. Petals white, sometimes tinged with pink, orbicular to obovate, 4-5 mm long. Stamens 12, in 2 series. Ovary 3-locular below, 1-locular above,

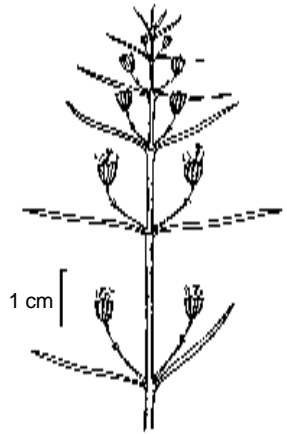
Ammannia



A. baccifera

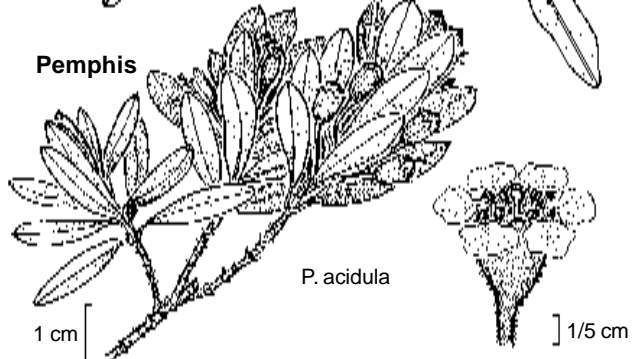
A. multiflora

Nesaea



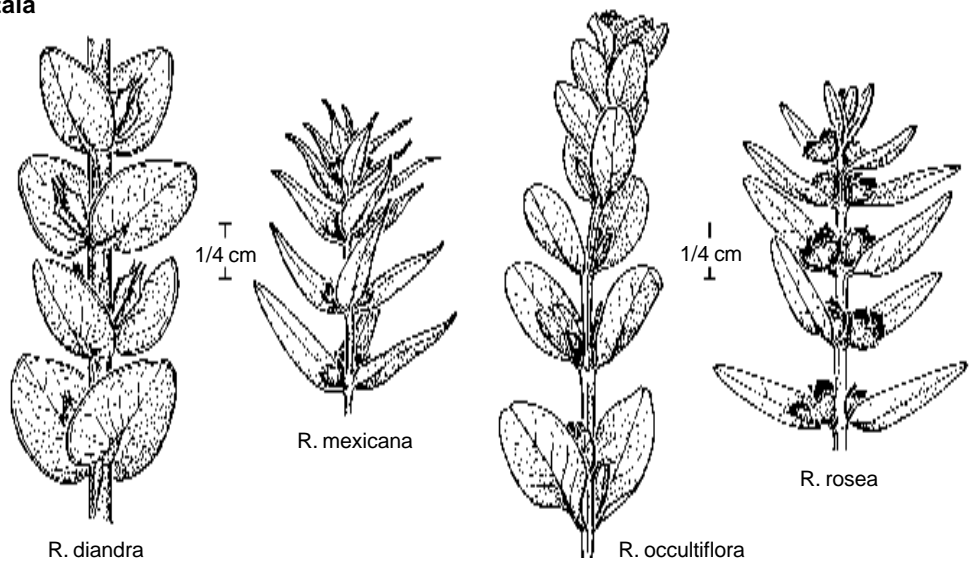
N. striatiflora

Pemphis



P. acidula

Rotala



R. diandra

R. mexicana

R. occultiflora

R. rosea

Fig. 41

heterostylous. Capsule globose, 3-5 mm diam., circumscissile. Flowering and fruiting: all year. Fig. 41

Widespread along the coast of northern Australia

and common in the coastal DR. Found on sand or rocky areas. A variety of Aboriginal uses have been recorded; highly favoured as timber for digging sticks (Wightman, 1989).

ROOTALA L.

Annual or perennial, glabrous, terrestrial or aquatic herbs. Leaves decussate or whorled, sessile or shortly petiolate; stipules absent. Flowers solitary or rarely in reduced cymes, usually regular, 3-5-merous. Hypanthium usually campanulate, hyaline. Sepals 3-5; appendages 3-5 or absent. Petals 3-5 or absent. Stamens 2-5, never more than sepals. Ovary 2-4-locular. Capsule thin walled, ellipsoid, c. equal to length of flower, dehiscing septically by valves.

A genus of c. 45 species; 6 recorded in Australia, 5 in the NT, 4 in the DR.

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|----|--|------------------------|
| 1. | Bracteoles leaf-like, usually 2-3 times length of flower | <i>R. occultiflora</i> |
| 1. | Bracteoles filiform to linear, rarely exceeding hypanthium | 2 |
| 2. | Leaves with conspicuous hyaline margin; capsule valves 2 | <i>R. diandra</i> |
| 2. | Leaves lacking hyaline margin; capsule valves >2 | 3 |
| 3. | Leaves decussate or in whorls; petals and hypanthium appendages absent | <i>R. mexicana</i> |
| 3. | Leaves decussate; petals and hypanthium appendages present | <i>R. rosea</i> |

R. diandra (F.Muell.) Koehne

Annual erect herb. Leaves decussate, sessile; blades ovate to elliptic-oblong, 4-12 mm long, 2.5-9.5 mm wide, L/W 1.6-3, base obtuse to cordate, margins hyaline. Bracteoles filamentous, 1-2.5 mm long. Hypanthium c. 1.5 mm long. Sepals 4, c. 1.5 mm long; appendages absent. Petals absent or rarely vestigial. Stamens 2. Capsule valves 2. Flowering and fruiting: Apr - Aug. Fig. 41

Widespread from the Gulf of Carpentaria to WA. Rare in the DR where known from one collection on the Mary R. On silty clay soils associated with seasonally wet areas.

R. mexicana Cham. & Schldl.

Annual, terrestrial or aquatic herbs. Leaves decussate or in whorls of 3-8, sessile; blades of aerial leaves narrowly elliptic to narrowly lanceolate, 3.5-9 mm long, 0.9-1.5 mm wide; aquatic leaves linear to filiform, to 15 mm long, c. 1 mm wide. Bracteoles filiform, about as long as flower. Hypanthium c. 0.5 mm long. Sepals 3-5, c. 0.25 mm long; appendages absent. Petals absent. Stamens 2-4. Capsule valves 3(4). Flowering and fruiting: Feb - Aug. Fig. 41

Widespread throughout the warmer parts of the world including northern Australia. Scattered in the DR; on sandy soils in seasonally moist habitats.

R. occultiflora Koehne

Annual erect herb. Leaves whorled or decussate, sessile; blades ovate to linear, elliptic, 3.5-12 mm long, 0.8-3.5 mm wide, L/W 2-4.3. Bracteoles leaf-like, narrowly elliptic, longer than flower. Hypanthium c. 0.5 mm long. Sepals 5, c. 0.5 mm long; appendages absent. Petals absent. Stamens 3(4). Capsule valves 3. Flowering and fruiting: Apr - Sept. Fig. 41

India and northern Australia. Rare in the DR where known only from the Adelaide R. On sandy soils in seasonally wet areas.

R. rosea (Poir.) Cook

Annual erect herb. Leaves decussate, sessile; blades linear-lanceolate to elliptic, to 20 mm long. Flowers solitary or in reduced cymes. Bracteoles linear-lanceolate or filamentous, usually as long as hypanthium. Hypanthium c. 1.5 mm long. Sepals (4)5, c. 0.25 mm long; appendages (4)5 or rarely absent, subulate. Petals (4)5, elliptic to oblong, usually as long as sepals. Stamens 5, rarely less. Capsule valves 3-4. Flowering and fruiting: May - June. Fig. 41

Occurs throughout India, SE Asia, New Guinea, China, Korea and Japan. In Australia from northern NT. No material seen from the DR but one collection from Howard Springs cited by Hewson & Beesley (1990).