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A SUMMARY OF THE FAMILY LYTHRACEAE IN THE NORTHERN TERRITORY (WITH ADDITIONAL COMMENTS ON AUSTRALIAN MATERIAL)

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Abstract

This paper presents a synopsis of the nomenclature of the family Lythraceae in the Northern Territory. Keys to the genera and species have been prepared.

The family Lythraceae has been neglected in Australian systematics, and as a result both the taxonomy and nomenclature are confused. Not since the early work of Koehne (1881, 1903) has there been any major revision of the family. Recent work has been restricted to regional floras (Polatschek and Rechinger 1968; Chamberlain 1972; Dar 1975), with Bentham's Flora (1886) being the most recent on the family in Australia.

From a survey of the available literature the author has attempted to extract all the relevant names applicable to Australian material and to present them solely as a survey of the nomenclature of the group. No type material has been seen, and the only material examined was that lodged in the Department of the Northern Territory Herbaria at Alice Springs (NT) and Darwin (DNA). A list of specimens examined has been lodged with the Editor. The present generic placing of any particular species is for convenience only; it does not necessarily represent the best position of that species.

The family comprises 25 genera and about 550 species widely distributed throughout the world, but particularly abundant in the American tropics, and represented in Australia by 8 genera and approximately 24 species.

Key to genera in Australia

1. Trees or shrubs 2
Herbs or scarcely undershrubs 4
2. Bracteoles present 8 *Lagerstroemia*
Bracteoles absent 3
3. Petals 4, stamens 8; inflorescence a panicle; fruit indehiscent 5 *Lawsonia*
Petals 6, stamens 12; flowers solitary; fruit an operculate capsule 6 *Pemphis*
4. Calyx tube narrow, tubular 4 *Lythrum*
Calyx tube short, campanulate-ovate to urceolate 5
5. Calyx with 6 primary and 6 accessory teeth 7 *Peplis*
Calyx with accessory teeth minute or absent 6
6. Flowers solitary in the axil; capsule opening by valves 7
Flowers several in the axil; capsule bursting irregularly 2 *Ammannia*
7. Flowers \pm sessile 1 *Rotala*
Flowers on slender pedicels 3 *Nesaea*

1. ROTALA L., Mant. 143, 175 (1771).

Fifty tropical and subtropical species; hygrophilous.

This genus has often been included in *Ammannia* (Bentham 1866; Blatter and Hallberg 1918), but I believe it is distinct and can easily be separated by its flowers, which are solitary and sessile in the leaf axils; and its fruit, which is septicidally 3-5 valved. In

contrast, *Ammannia* has flowers pedicellate in cymes, and the fruit dehiscent in an irregularly-circumscissile manner. Leeuwen (1971) has undertaken a preliminary revision of *Rotala* in Malasia.

Koehne (1903) and Burbidge (1963) state that five species occur in Australia of which two are endemic.

Key to species of *Rotala* in the Northern Territory.

1. Petals present *R. densiflora*
 Petals absent 2
2. Leaves orbicular; capsule 2-valved *R. diandra*
 Leaves narrow or oblong; capsule 3-valved 3
3. Leaves in whorls of three; bracteoles
 scarious ± equalling calyx *R. mexicana*
 Leaves opposite or in whorls of four;
 bracteoles herbaceous, to three times as long as calyx 4
4. Leaves ovate-oblong, opposite or in whorls of four;
 bracteoles three times as long as calyx, enclosing capsule *R. occultiflora* var. *occultiflora*
 Leaves linear-lanceolate, decussate; bracteoles narrow,
 twice as long as calyx, not enclosing capsule *R. occultiflora* var. *leichhardtii*

Rotala densiflora (Roth) Koehne, Bot. Jahrb. Syst. 1 : 164 (1880).

Basionym: *Ammannia densiflora* Roth in Roem. et Schult., Syst. Veg. 3 : 304 (1818).

Synonyms: *Ammannia pentandra* Roxb., Fl. Indica 1 : 448 (1820).

Rotala roxburghiana Wight, Icon. Pl. Indiae Orient. 1 : t.260B (1840).

?*Rotala leptopetala* (Bl.) Koehne, Bot. Jahrb. Syst. 4 : 338 (1883).

?*Rotala longibracteolata* Domin, Biblioth. Bot. 995 (1928).

Africa, Asia, Australia. (2 specimens seen).

In Backer and Bakhuizen van den Brink (1963) *R. densiflora* and *R. leptopetala* are listed as separate species, with the comment (p.253), '... hardly different from each other.'

The only difference between *R. longibracteolata* and *R. densiflora* is the apparent lack of petals in the former; where Domin states (p.996), 'differt petalis nullis'.

Rotala diandra (F. Muell.) Koehne, Bot. Jahrb. Syst. 1 : 169 (1880).

Basionym: *Ameletia diandra* F. Muell., Fragm. Phytogr. Aust. 3 : 108 (1862).

Synonym: *Ammannia diandra* (F. Muell.) Benth., Fl. Austral. 3 : 296 (1866).

Endemic to northern Australia. (5 specimens).

Rotala diglossandra Koehne, Bot. Jahrb. Syst. 23 : 17 (1897).

Endemic to Australia (Schomburgk no. 318). (No specimen).

Note that this species has not been included in the key.

Rotala mexicana Cham. et Schltl., Linnaea 5 : 567 (1830).

Synonyms: ?*Rotala verticillaris* L., Mant. 2 : 175 (1771).

Rotala apetala F. Muell., Fragm. Phytogr. Aust. 3 : 108 (1862).

Ammannia rotala (F. Muell.) F. Muell. ex Benth., Fl. Austral. 3 : 295 (1866).

Tropical Africa, Asia, northern Australia, Central and South America. (4 specimens).

Neither Koehne (1903) nor Blatter and Hallberg (1918) consider this species to be synonymous with *R. verticillaris* L. However, Bentham (1866) lists *R. verticillaris* under the synonymy for *Ammannia rotala* (F. Muell.) F. Muell. ex Benth. Indeed, the only difference I can find between the two descriptions is that *R. verticillaris* has petals whereas *R. mexicana* does not. Bentham further states in his description (p.295), 'Petals none or

minute and fugacious in the Australian specimens . . .'. If it is the case that these two species are synonymous, then they are referable to the name *R. verticillaris* L.

Koehne (1903) refers the Australian material to var. *spruceana* (Benth.) Koehne, Bot. Jahrb. Syst. 6: 151 (1881). This name is based on *Hypobrichia spruceana* Benth. in Griseb., Cat. Pl. cub. 106 (1866). However, if the Australian material proves to be distinct, it must be referred to the name *Rotala apetalata* F. Muell.

Rotala occultiflora Koehne, Bot. Jahrb. Syst. 1:152 (1880.).

Whilst Blatter and Hallberg (1918) do not retain the variety *leichhardtii* Koehne, it does seem to be quite valid from an inspection of our specimens.

var. ***occultiflora*** India, Australia (4 specimens).

var. ***leichhardtii*** Koehne, op. cit. 4:387 (1883).

Northern Australia (4 specimens).

2. AMMANNIA L., Sp. Pl. 119 (1753).

Thirty cosmopolitan species.

Whilst Burbidge states that seven species occur in Australia, with two endemic, some of these may be listed in synonymy with *Rotala* species.

Koehne lists only three, although he transfers some to the genus *Nesaea*.

Key to species of *Ammannia* in the Northern Territory.

- | | |
|--|----------------------|
| 1. Leaves auricled at the base | 2 |
| Leaves narrowed at the base..... | 3 |
| 2. Capsule less than 2 mm diameter | <i>A. multiflora</i> |
| Capsule about 3 mm diameter..... | <i>A. auriculata</i> |
| 3. Calyx appendages large | <i>A. triflora</i> |
| Calyx appendages absent..... | <i>A. baccifera</i> |

Ammannia baccifera L., Sp. Pl. 2:175 (1762).

Synonym: *Ammannia indica* Lam., Tab. Encyc. Meth. 1:311 (1791).

Europe, Africa, South East Asia, northern Australia. (5 specimens).

Ammannia triflora R. Br. ex Benth., Fl. Austral. 3:297 (1866).

Northern Australia — Islands of the Gulf of Carpentaria. (2 specimens).

Ammannia auriculata Willd., Hort. Berol. 1:67 (1806).

North and South America, Africa, Asia, Australia. (27 specimens).

Bentham (1866, p. 298) states that *Ammannia multiflora* Roxb. is probably a smaller flowered variety of *A. auriculata*.

Ammannia multiflora Roxb., Fl. Indica 1:447 (1820).

Synonym: *Ammannia australasica* F. Muell., Trans. Philos. Soc. Victoria 1:41 (1855).

Africa, Asia, Australia.

3. NESAEA Commers. ex Humb., Bompl. et Kunth, Nov. Gen. Sp. 6: ed. fol. 151, ed. qu. 191 (1823).

Fifty tropical species.

The status of this genus is still the cause of some contention. Many of the species under this name have been assigned to other genera in the Lythraceae. Burbidge states that four species occur in Australia (3 endemic) while Koehne lists three (1 endemic).

Nesaea crinipes (F. Muell.) Koehne, Bot. Jahrb. Syst. 3:337 (1882).

Basionym: *Ammannia crinipes* F. Muell., Trans. Philos. Soc. Victoria 3:49 (1859).

Endemic to northern Australia. (2 specimens).

Nesaea repens W. V. Fitzgerald, J. Roy. Soc. Western Australia 3:181 (1918).

Fitzroy River, Western Australia. (No specimens).

Nesaea robertsii (F. Muell.) F. Muell. ex Koehne, Bot. Jahrb. Syst. 3:336 (1882).

Basionym: *Lythrum robertsii* F. Muell., Fragm. Phytogr. Aust. 7:145 (1871).

Bowen Downs Station, Queensland. (No specimens).

Mueller distributed this species under the name *Nesaea robertsii*.

4. LYTHRUM L., Sp. Pl. 446 (1753).

Thirty-five cosmopolitan species.

Key to species of *Lythrum* in Australia.

- | | | |
|----|---|-------------------------|
| 1. | Plant hairy | <i>L. salicaria</i> |
| | Plant glabrous | 2 |
| 2. | Lower leaves opposite, upper alternate | 3 |
| | All leaves opposite | 4 |
| 3. | Procumbent annual; stamens 4-6, enclosed | <i>L. hyssopifolium</i> |
| | Ascending perennial; stamens 12, six exerted | <i>L. flexuosum</i> |
| 4. | Flowers solitary on long peduncles; stamens 6 | ? sp. nov. |
| | Flowers 2 or more; stamens 12 | <i>L. arnhemicum</i> |

Lythrum arnhemicum F. Muell., Fragm. Phytogr. Aust. 3:109 (1862).

Northern Territory. (2 specimens).

Lythrum hyssopifolium L., Sp. Pl. 447 (1753).

All Australia except N.T. (3 specimens).

Lythrum flexuosum Lag., Gen. & Sp. Pl. 16 (1816.).

Introduced S.A., Vic. (No specimens).

Lythrum salicaria L. Sp. P. 446 (1753).

All Australia except W.A. and N.T. (2 specimens).

Lythrum sp. nov.

Northern Territory. (3 specimens).

(Note: two specimens identified as *Lythrum* could not be placed in any described species, viz., *P. K. Latz 182, 464*. I am not yet certain if these are new species).

5. LAWSONIA L., Sp. Pl. 349 (1753).

A monotypic genus of tropical and subtropical Africa, Asia and northern Australia.

Lawsonia inermis L. Sp. P. 349 (1753).

Synonym: *Lawsonia alba* Lam., Encycl. Meth. 3:106 (1789).

Melville Island and Darwin area. 'Henna'.

6. PEMPHIS Forst. et Forst.f., Charact. Gen. Pl. 67 (1776).

A genus of only two species; one on paleotropical coasts from Africa to the Pacific, the other in Madagascar.

Pemphis acidula Forst. et Forst.f., Charact. Gen. Pl. 68, t.34 (1776).

Northern Australia.

7. PEPLIS L. Sp. Pl. 332 (1753).

Three species in temperate areas of the northern hemisphere.

Peplis portula L. Sp. Pl. 332 (1753).

An introduced plant naturalised in Queensland. 'Water Purselane'.

8. LAGERSTROEMIA L., Syst. Veg. ed. 10: 1068, 1076, 1372 (1759).

Fifty-three species in paleotropic areas. In Australia, restricted to Queensland.

Furtado and Srisuko (1969) have revised the genus.

From this nomenclatural survey it can be seen that taxonomic problems exist at both the generic and specific levels. It is hoped that this paper will provide a basis for further work on the group.

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