



## 49 GUNNERACEAE <sup>1</sup>

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Diminutive annuals or small to gigantic (South America) perennial herbs, monoecious or sometimes dioecious (in Tas.), rhizomatous or stoloniferous, sometimes pachycaulous, sometimes mat-forming. Leaves mostly in a basal rosette or spirally arranged, simple (in Tas.), or sometimes palmately lobed and serrate, exstipulate or ligulate (not in Tas.). Inflorescence a simple or compound axillary or pseudo-terminal erect raceme, spike or panicle; often lower flowers pistillate and upper ones staminate with those in between perfect, or males and female flowers in separate inflorescences (in Tas.); flowers bracteate or not. Flowers small, crowded, unisexual, rarely bisexual. Male flowers: sepals 0–2; petals 0–2, hooded; stamens 1–2. Female flowers: sepals usually 2, often minute; petals 2, ± hooded; carpels 2, united; ovary inferior, ovoid to globular, unilocular with 1 pendulous ovule; styles 2, slender, completely stigmatic, shortly fimbriate. Fruit a 1-seeded drupe.

A monogeneric family (see generic account for species and distributional details). The family is taxonomically isolated and has traditionally been placed with the Haloragaceae. Molecular evidence suggests that these two families are best placed in different orders (APG II 2003). APG II (2003) place Gunneraceae in Gunnerales and indicate that the other family in the order, the monogeneric Myrothamnaceae, could be placed under Gunneraceae. *Myrothamnus* Welw. contains two species that are small, dioecious, xeromorphic, aromatic, glabrous shrubs with opposite leaves found in southern Africa and Madagascar (Kubitzki 1993). Gunneraceae is treated as monogeneric here (see Orchard 1990; Wilkenson & Wanntorp 2007; Heywood 2007).

Key references: Orchard (1990); Wilkenson & Wanntorp (2007); Heywood (2007).

External resources: accepted names with synonymy & distribution in Australia (APC); author & publication abbreviations (IPNI); mapping (AVH, NVA); nomenclature (APNI, IPNI).

### 1 GUNNERA

*Gunnera* L.f., *Syst. Nat.*, ed. 12, 2: 587 (1767).

Synonymy: *Milligania* Hook.f., *Hooker's Icon. Pl.* t. 299 (1840), *nom. rej.*

Description details as per family.

A genus of about 60 species that are mainly confined to cool and wet or humid areas of temperate and subantarctic parts of the Southern Hemisphere from sea level to over 3000 m. *Gunnera* is found in South and Central America, Mexico, Juan Fernandez Islands, Hawaii, southern Africa, Madagascar, Malaysia, Indonesia (including Sulawesi, Java, Sumatra, Borneo), Papua New Guinea, the Solomon Islands, New Zealand and Tasmania. The main centres of diversity are found in the Andes of South America and New Zealand. The Australian species is confined to Tasmania. Specialized organs called 'glands', which are arrested adventitious roots, containing endosymbiotic *Nostoc* (a blue-green algae) are located in the stem between leaf bases of all species (see Wilkenson & Wanntorp 2007 & references cited therein). The genus is classified into 6 subgenera: the Tasmanian species is placed in subgenus *Milligania* (Hook.f.) Schindl. which also contains all 6 species found in New Zealand (see Wilkenson & Wanntorp 2007).

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Two spectacular South American waterside plants are cultivated in Tasmania and may persist for a short time as garden escapes: *G. tinctoria* (Molina) Mirb. (with hispid petioles) and *G. manicata* Linden (Giant Rhubarb; with red spiny hairs). Leaves of these species may be up to 3 m across and are carried on stout petioles. The South American species, *G. magnifica* H.St.John can reach 5 m in height.

**1 *Gunnera cordifolia*** (Hook.f.) Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 125 (1856)

*Milligania cordifolia* Hook.f., *Hooker's Icon. Pl.* 3: t. 299 (1840).

*Illustrations:* Curtis & Stones, *The Endemic Flora of Tasmania* 2: t. 38, No. 65 (1969); Morley & Toelken, *Flowering Plants in Australia* 188, fig. 108c (1983); Orchard, *Fl. Australia* 18: 86, fig. 29g-j (1990); Kirkpatrick, *Alpine Tasmania* 87, fig. 38c (1997); Whiting *et al.*, *Tasmania's Natural Flora* 191 (2004).

Fleshy, stoloniferous dioecious herbs, often forming large matted patches. Leaves in radical rosettes; petioles stout, pilose, 7–50 mm long; lamina often  $\pm$  as long as petiole, 7–45 mm long, broadly ovate to orbicular, sometimes cordate at base, apex rounded, margin crenate or bluntly toothed with the teeth ciliate on younger leaves, adaxial surface glabrescent, abaxial surface pilose, sometimes only on prominently raised veins. Inflorescence sometimes crowded, usually on separate scapes; male inflorescence a spike  $\pm$  as long as or longer than leaves, to 10 cm long; female inflorescence capitate, almost sessile, shorter than leaves. Flowers sessile. Male flowers subtended by 2–5 bracts; perianth 0; stamens 2, anthers almost sessile, unequal, oblong. Female flowers ebracteate; sepals 2, narrow, c. 1 mm long, unequal; petals 2, unequal, alternating with sepals; stigmas 2, longer than ovary. Fruit globular to ovoid, 2–3 mm long, bright orange-red to red. Flowering Nov.-Dec.; fruiting Dec.-Jul.

Tas. (TCH, TNS?, TSR, TWE); endemic. Found mainly in the Central Highlands with occasional collections from surrounding areas. Locally abundant near streams, rivers and lakes and in open swampy places in subalpine habitats in higher altitudes of western Tasmania. The species can form large monocultures with areas of 2 hectares covered recorded.

## REFERENCES

APNI (Australian Plant Name Index) <http://www.anbg.gov.au/cgi-bin/apni>

APG II (2003) An update of the angiosperm Phylogeny Group classification for the orders and families of flowering plants. *Botanical Journal of the Linnean Society* **141** 399–436.

AVH (Australia's Virtual Herbarium) (Council of Heads of Australasian Herbaria) <http://www.anbg.gov.au/avh.html>

Heywood VH (2007) Gunneraceae. In VH Heywood, RK Brummitt, A Culham, O Seberg (Eds), *Flowering Plant Families of the World*. p. 161. (Royal Botanic Gardens, Kew: London)

IPNI (International Plant Name Index) <http://www.ipni.org/index.html> or <http://www.us.ipni.org/index.html>

Kubitzki K (1993) Myrothamnaceae. In K Kubitzki, JG Rohwer, V Bittrich (Eds), *The Families and Genera of Vascular Plants: II Flowering Plants – Dicotyledons*. pp. 468–469. (Springer-Verlag: Berlin)

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Orchard AE (1990) Gunneraceae. *Flora of Australia* **18** 85–87.

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