

Flora of South Australia

5th Edition



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Department of
Environment,
Water and
Natural Resources

Contact:

Dr Jürgen Kellermann
Editor, *Flora of South Australia* (ed. 5)
State Herbarium of South Australia
PO Box 2732
Kent Town SA 5071
Australia
email: juergen.kellermann@sa.gov.au



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GUNNERACEAE¹

J. Kellermann²

Perennial stoloniferous herbs with ascending or creeping stems, monoecious, gynomonocious (in S.A.) or dioecious; leaves arranged in a basal rosette, orbicular to ovate to palmately lobed, petiole with basal ligulate scales, margin serrate. **Inflorescence** a simple or compound raceme or spike or panicle with numerous minute flowers; male and female flowers in separate inflorescences, or when in the same inflorescence, male flowers towards apex and female flowers below, sometimes bisexual flowers in between; sepals 0, 1 or 2; petals 0, 1 or 2, slightly hooded; stamens 1 or 2; ovary inferior, carpels 2 with 1 ovule per locule, styles 2, entirely stigmatic, fimbriate. **Fruit** a drupe or nut with 1 seed.

The family is monogeneric with 34–50 species. It is distributed in temperate regions of the southern hemisphere, extending to Madagascar, Malesia, Hawaii and S America, N of the equator. In Australia 1 species, *G. cordifolia* (Hook.f.) Hook.f., is endemic to Tas., 2 other introduced species have escaped from cultivation. It is found mostly along watercourses, in boggy or marshy places.

Species of *Gunnera* have a symbiotic relationship with nitrogen-fixing bacteria, which are attracted by a mucilaginous substance at the base of the leaves. The bacteria enter the stem and form colonies, which appear as bright blue-green structures when young stems are cut. This association helps *Gunnera* plants to grow in very nutrient poor soils. *Gunnera* has long been considered an anomalous member of Haloragaceae, but significant morphological differences justify a separate family. This is confirmed by molecular studies, which place the order Gunnerales as sister to all remaining eudicots.

References: Mora-Osejo (2011); Orchard (1990); Wilkinson & Wanntorp (2007), Williams *et al.* (2005).

1. GUNNERA L.

Syst. Nat. (ed 12) 587, 598 (1769); *Mant. Pl.* 16, 121 (1767).

(Named after J.E.Gunnerus (1718–1773), a Norwegian botanist and clergyman.)

Panke Molina, *Sag. Stor. Nat. Chile* 143 (1782), partly.

Description and distribution statement as for family (monogeneric family).

1. ****Gunnera tinctoria*** (Molina) Mirbel, *Hist. Nat. Pl.* 10: 140, 141 (1805). — *Panke tinctoria* Molina, *Sag. Stor. Nat. Chile* 143 (1782). *G. chilensis* Lam., *Encycl.* 3(1): 61 (1789), *nom. illeg.*; *G. scabra* Ruiz. & Pav., *Fl. Peruv.* 1: 49, t. 44 (1798), *nom. illeg.* — **Illustr.:** O.G.Petersen in Engler & Prantl, *Nat. Pflanzenfam.* III.7: 235, fig. 106A–F, as *G. chilensis*.

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² State Herbarium of South Australia, DENR Science Resource Centre, PO Box 2732, Kent Town, SA 5071, Australia.

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Giant gynomonocious (i.e. flowers female and bisexual) summer-green herb; stems thick, creeping to ascending with large winter resting buds; scales on buds and stem lacinate, pinkish when young; petiole 50–90 (–100) cm long, 1.5–4.5 cm wide, covered with conic prickles; lamina 40–80 cm × 60–70 (–100) cm, palmate with 5–7 lobes, peltate, leathery, rugose and scabrid above, sparsely hairy and with prominently raised veins below.

Inflorescence panicate, 38–44 (–100) cm long, axis 2–3 (–4.5) cm wide, with numerous stout branchlets, 3–4 (–7) cm long, *c.* 1 cm wide; flowers numerous, dense, sessile, petals 0; female flowers *c.* 1 mm long; sepals minute; style slightly shorter than ovary.

Drupes globular or broadly oblong, 1.5–2 mm long, orange. **Chilean rhubarb.** **Fig. 1, Pl. 1.**

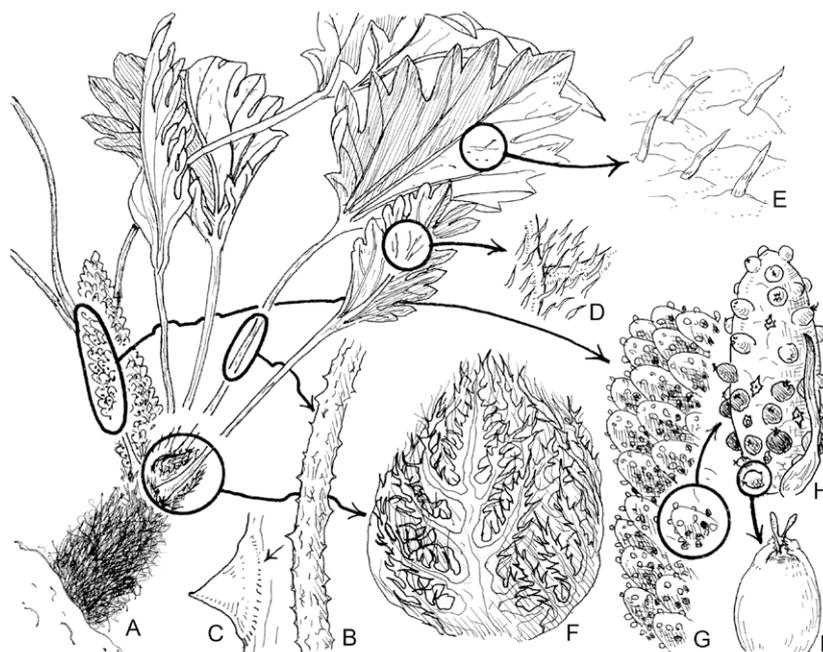


Fig. 1. *Gunnera tinctoria*: A, habit; B, petiole; C, prickle; D, lower leaf surface; E, upper leaf surface; F, large bud; G, part of inflorescence; H, stout branchlet; I, young fruit. Illustration by G.R.M. Dashorst.

S.A.: *SL; ?Tas. S America (native to Chile and Colombia). The species is an attractive garden plant and has escaped from cultivation in many countries. Only a few specimens have been collected from the Adelaide Hills, but sight records suggest that it is more widespread. It grows near watercourses, boggy and damp places. Orchard (1990) and Duretto (2009) state that plants escaped from cultivation in Tas. do not establish in the wild. Flowers: spring to early summer.

The identity of this taxon (and other naturalised and cultivated species of *Gunnera* in Australia and New Zealand) needs to be confirmed. It is possible that specimens from the Adelaide Hills represent another large-leaved species closely related to *G. tinctoria*, such as *G. tayrona* L.E.Mora. However, until more and better specimens are collected and a comparison with material from S America is possible, the name *G. tinctoria* is accepted in the *Flora of South Australia*.

Gunnera tinctoria is closely related to *G. manicata* Linden ex André (giant rhubarb), with which it is often confused. *Gunnera manicata* differs in broader leaves with spiny red hairs on petioles, longer inflorescence branchlets (9.5–11 cm long) and a well developed membranous lamina between the lobes of the bud scales (Sykes 1969, Duretto 2009).

It is a declared weed in N.Z. (Williams *et al.* 2005), where it has spread uncontrollably.

References

- Duretto, M.F. (2009). 49 Gunneraceae, version 2009:1. In: Duretto, M.F. (ed.), *Flora of Tasmania online*. 3pp. (Tasmanian Herbarium, Tasmanian Museum & Art Gallery: Hobart). <http://www.tmag.tas.gov.au/floratasmania> [accessed: 28 Jan. 2011]
- Mora-Osejo, L.E., Pabón-Mora, N. & González, F. (2011). Gunneraceae. *Fl. Neotrop. Monogr.* 109
- Orchard, A.E. (1990). Gunneraceae. In: George, A.S. (ed.), *Flora of Australia* 18: 85–97. (Australian Government Publishing Service: Canberra)
- Sykes, W.R. (1969). *Gunnera tinctoria* and *Gunnera manicata*. *Journal of the Royal New Zealand Institute of Horticulture* 1: 56–59. http://www.rnzih.org.nz/pages/Gunnera_tinctoria_and_G_manicata.htm [accessed: 30 Aug. 2011]
- Wilkinson, H.P. & Wanntorp, L. (2007). Gunneraceae. In: Kubitzki, K. (ed.), *The families and genera of vascular plants* 9: 177–183. (Springer: Berlin)
- Williams, P.A., Ogle, C.C., Timmins, S.M., La Cock, G.D., Clarkson, J. (2005). Chilean rhubarb (*Gunnera tinctoria*): biology, ecology and conservation impacts in New Zealand. *DOC Research & Development Ser.* 210



Pl. 1. *Gunnera tinctoria*. **A**, two mature plants growing along Sturt Creek, Adelaide Hills; scale bar: 10 cm intervals. **B**, Inflorescence, ripe fruits orange. Photo J. Kellermann, DENR.