

*Gunnera tinctoria* [简体中文](#) [正體中文](#)

**System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Haloragales	Gunneraceae

**Common name** giant rhubarb (English), Chilean gunnera (English), nalca (English), panque (English), Chilean rhubarb (English)

**Synonym** *Gunnera chilensis*, Lam.  
*Panke tinctoria*, Molina (basionym)  
*Gunnera scabra*, (Ruiz.&Pav.)

### Similar species

**Summary** *Gunnera tinctoria* is a large herbaceous plant that forms dense colonies that shade out and suppress native vegetation. This species is a vigorous seeder, and birds facilitate its spread. Its ability to reproduce rhizomatically is yet another reason for its invasive nature. Intense effort is required to control this species.



[view this species on IUCN Red List](#)

### Species Description

Law (2003) states that, "*G. tinctoria* is a large, clump-forming, herbaceous plant that grows up to 2m in height. It has stout horizontal rhizomes, and massive umbrella-sized leaves on sturdy petioles. The leaves and their stems are covered in rubbery prickles. Tiny green flowers occur in early summer on conical spikes." The Taranaki Regional Council (2003) state that, "*G. tinctoria* is a perennial with an exotic tropical appearance with spiny stems some 1.5 to 2m tall. The flower stems resemble elongated broccoli and number up to five per plant, standing up to 1m tall and rising from the base of the leaves (each seed head may contain in excess of 80,000 seeds). In severe winter conditions the plant dies down for the winter and grows new leaves in spring." Williams *et al.* (2005) describe *G. tinctoria* as follows, "*G. tinctoria* is a summer-green herb, with short, stout, horizontal rhizomes which give rise to stout petioles up to 1000 (1500) 1mm × 45mm that are studded with short reddish prickles. The leaf lamina measures up to about 0.8m × 1.0m with 5-7 lobes. It is very coriaceous, and hairy beneath, especially on the veins. Massive over-wintering buds-up to 250mm long-accumulate on the rhizomes and they are covered in pinkish, pinnatisect scales that extend to the broad leaf midribs. The flowers are borne on panicles that are up to 1m long; usually three or four per plant. Individual flowers are densely packed, sessile, apetalous, with minute sepals, and only c. 1mm long. Style length is slightly less than the ovary. The drupes are reddish, oblong, and 1.5mm-2mm long. Each contains a single ovoid and flanged seed of 1.2mm × 1-1.5mm diameter, weighing 4mg. The hundreds of fruit are regularly arranged and densely packed on the infructescence."

### Notes

Bergman and Osborne (2002) report that at the end of the nineteenth century it was found that *Gunnera tinctoria* forms a symbioses with nitrogen fixing Cyanobacteria inside its cells. The Cyanobacteria have been classified as belonging to the genus Nostoc. There is little evidence that the host (including *G. tinctoria*) can survive to maturity in the absence of the cyanobacterium, and all cultivated and naturally growing plants contain the cyanobiont, irrespective of nutrient availability.

## Uses

Plants for a Future (2000) reports that young leaf stalks can be peeled and cooked as a vegetable or eaten raw. They are "Acidic and refreshing". *G. tinctoria* also has medicinal uses as an astringent. This species can also be used as to make a black dye is obtained from the root, and has been used as a roof covering Plants for a Future, 2000).

Williams *et al.* (2005) reports that, "In Southern Chile (at latitudes of 36°-42°S) *G. tinctoria* is a delicacy associated with Mapuche Indian customs. The young petioles are commonly sold by street vendors and eaten raw, along with salt and chilli to enhance the flavour (E. Villouta pers. comm. 2004)."

## Habitat Description

*Gunnera tinctoria* has been found in meadows, bogs, gardens, woodlands, sunny edges, and dappled shade. While this species can invade and occupy a variety of habitat it requires moist soils in order to establish (Plants for a Future, 2000). Law (2003) reports *G. tinctoria* being found on coastal cliffs, riparian zones and wetland areas.

Williams *et al.* (2005) describes the soils which are favoured by *G. tinctoria* in New Zealand. The authors state that the most robust stands of the plant are found growing on colluvium or alluvium (colluvium or hillwash is the name for loose bodies of sediment that has been deposited or built up at the bottom of a low grade slope or against a barrier on that slope, as a result of rainwater or downhill creep by gravity. Alluvium is young sediment—freshly eroded rock particles that have come off the hillside and been carried by streams). *G. tinctoria* grows on substrates derived from a wide range of sedimentary rocks; in the western North Island where the plant is established, most soils also have a large component of volcanic material.

The authors further state that *G. tinctoria* tolerates salt spray and is found growing right up to the high tide mark in the coastal areas that it has invaded. The plant is seen to tolerate seasonally water logged wet soils and establishes less on excessively drained and drought-prone sandy or stony soil.

## Reproduction

Law (2003) states that, "A single *G. tinctoria* may produce 250,000 seeds in a year, with the seeds being spread by water and by birds. The extensive seed bank allows *G. tinctoria* to easily re-colonize after mature plants have been removed. This species can also reproduce rhizomatically from fragments." Once established, vegetative growth can be rapid with rhizomes increasing by ~15cm annually (Hickey and Osborne, 1999).

## General Impacts

Law (2003) report that, "*G. tinctoria* shades out rare and endangered indigenous flora and fauna. The huge leaves of each *G. tinctoria* mean it can impact on a disproportionately large number of the comparatively small, native herbs. Areas that have been cleared of mature *G. tinctoria* can become re-colonized with numerous seedlings from the original plants, and pieces of the rhizomes that break off will also re-grow. In areas with harsh winter frosts, *G. tinctoria* is deciduous or semi-deciduous. Once established, it is very invasive and forms dense colonies that shade-out or suppress desirable flora. These characteristics have contributed to it being a serious threat to indigenous biodiversity values in areas it has invaded". Weedbusters (2003) report that *G. tinctoria* can block drains and streams; and obstruct access to natural and recreational areas.

## Management Info

**Preventative measures:** If possible, remove and destroy all flower heads as soon as possible, as the germination rate of the seeds is very high.

**Chemical:** Best results with least bi-kill of desirable adjacent plants has been achieved by spraying with Grazon (triclopyr 600 EC) at 10 mls/litre plus a penetrant. Tordon Brushkiller (picloram & triclopyr) at 10 mls/litre plus a penetrant was also effective but was hard on nearby desirable plants (Taranaki Regional Council (TRC) and the *Gunnera tinctoria* specialist at the local Department of Conservation office at Stratford (DoC), New Zealand., pers.comm., June 2008).

**Cultural:** Law (2003) reports that in New Zealand, extensive outreach programs have been initiated to educate the public on the dangers of this invasive. Newspaper articles and public advertisements have been created. Coastal landowners have had personal visits from Rangers who inform the landowners and invite them to participate in government sponsored control trials. The author also states that, "In cases where landowners are required to destroy *G. tinctoria* in a garden situation, a similarly striking, benign plant can be recommended as a replacement. In riparian situations, possible replacement plants include *Carex secta* or *toetoe*, depending on the scale of the site."

**Principal source:** [Williams et al. 2005](#) Chilean rhubarb (*Gunnera tinctoria*): biology, ecology and conservation impacts in New Zealand

[Taranaki Regional Council, 2003. Chilean rhubarb \(\*Gunnera tinctoria\*\)](#)

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**Review:** Susan Timmins, Plant Ecologist (Weeds) Research, Development & Improvement. Department of Conservation, New Zealand

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## ALIEN RANGE

[2] AUSTRALIA

[5] IRELAND

[1] NORTH AMERICA

[2] UNITED STATES

[1] FRANCE

[9] NEW ZEALAND

[2] PORTUGAL

## BIBLIOGRAPHY

20 references found for *Gunnera tinctoria*

### Management information

[Alien Plants in Ireland, 2007. \*Gunnera tinctoria\*](#)

**Summary:** The database of alien plants in Ireland contains detailed information on 715 alien plant taxa currently occurring in (semi-) natural habitats in Ireland (both the Republic and Northern-Ireland). This database was developed in 2006 at the School of Natural Sciences, Trinity College Dublin, as part of the BioChange project, funded by the Environmental Protection Agency (EPA), Ireland.

Available from: <http://www.biochange.ie/alienplants/index.php> [Accessed April 26 2007]

This page available from: [http://www.biochange.ie/alienplants/result\\_species.php?species=484&volg=i&lang=latin&p=i](http://www.biochange.ie/alienplants/result_species.php?species=484&volg=i&lang=latin&p=i) [Accessed 26 April 2007]

Buckley, P., and A. M. O Regan. UNDATED. Thematic Report on Alien Species. Convention on Biological Diversity in Ireland.

[Department of Environment and Conservation. UNDATED. \*Gunnera tinctoria\*. Mount Tomah Botanical Gardens.](#)

**Summary:** Available from:

[http://www.rbg Syd.nsw.gov.au/mount\\_tomah\\_botanic\\_garden/garden\\_features/blooming\\_calendar/Gunnera\\_tinctoria](http://www.rbg Syd.nsw.gov.au/mount_tomah_botanic_garden/garden_features/blooming_calendar/Gunnera_tinctoria) [Accessed 06 July 2005]

Law, C. 2003. *Giant problems for Taranaki*. Taranaki Regional Council: Protect 2003.

[National Pest Plant Accord, 2001. Biosecurity New Zealand.](#)

**Summary:** The National Pest Plant Accord is a cooperative agreement between regional councils and government departments with biosecurity responsibilities. Under the accord, regional councils will undertake surveillance to prevent the commercial sale and/or distribution of an agreed list of pest plants.

Available from: <http://www.biosecurity.govt.nz/pests-diseases/plants/accord.htm> [Accessed 11 August 2005]



# GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Gunnera tinctoria*

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[Royal New Zealand Institute of Horticulture \(RNZIH\), 2005. Chilean rhubarb \*Gunnera tinctoria\*](#)

**Summary:** Available from: [http://www.rnzih.org.nz/pages/nppa\\_025.pdf](http://www.rnzih.org.nz/pages/nppa_025.pdf) [Accessed 1 October 2005]

Taranaki Regional Council. 2003. Chilean rhubarb (*Gunnera tinctoria*). The Pest Plant Management Section.

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**Summary:** Available from: [http://www.weedbusters.co.nz/news/news\\_articles/news01.asp?NewsID=8](http://www.weedbusters.co.nz/news/news_articles/news01.asp?NewsID=8) [Accessed 06 July 2005]

[Williams, P. A., C. C. Ogle, S. M. Timmins, G. D. La Cock, and J. Clarkson. 2005. Chilean rhubarb \(\*Gunnera tinctoria\*\): biology, ecology and conservation impacts in New Zealand. New Zealand Department of Conservation \(DOC\) Research & Development Series 210](#)

**Summary:** Available from: <http://www.doc.govt.nz/upload/documents/science-and-technical/drds210.pdf> [Accessed 7 March 2008]

## General information

Bergman, B., and B. Osborne. 2002. The *Gunnera*-Nostoc Symbiosis. *Biology and Environment: Proceedings of the Royal Irish Academy* 102(1):35-39.

Department of Conservation Annual Report 2002/03 C.13 For the year ended 30 June 2003. Presented to the House of Representatives pursuant to Section 39 of the Public Finance Act 1989

Hickey, B., and B. Osborne. 1999. Natural Seed-banks, seedling growth, and survival in areas invaded by *Gunnera tinctoria* (Molina) Mirbel. Proceedings 5th International Conference on the Ecology of Invasive Alien Plants 13-16 October 1999 La Maddalena Sardinia Italy.

[ITIS \(Integrated Taxonomic Information System\). 2005. Online Database \*Gunnera tinctoria\*.](#)

**Summary:** An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.

Available from: [http://www.itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=502841](http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=502841) [Accessed March 2005]

[Plants for a Future. 2000. \*Gunnera tinctoria\*. Online Database.](#)

[Roy, B; Popay, I; Champion, P; James, T & Rahman, A., 2004. An Illustrated Guide to Common Weeds of New Zealand 2nd Edition. \*Gunnera tinctoria\* and \*Gunnera manicata\*. New Zealand Plant Protection Society](#)

**Summary:** Available from: [http://www.rnzih.org.nz/pages/Gunnera\\_tinctoria\\_and\\_G\\_manicata.htm](http://www.rnzih.org.nz/pages/Gunnera_tinctoria_and_G_manicata.htm) [Accessed May 10 2005]

Silva, L. 1999. *Clethra arborea* an Invader within Macaronesia. Proceedings 5th International Conference on the Ecology of Invasive Alien Plants 13-16 October 1999 La Maddalena Sardinia Italy.

Trowbridge, L. 2001. Azores temperate mixed forests (PA0403). World Wildlife Fund.

[USDA-GRIN \(Germplasm Resources Information Network\). 2005. \*Gunnera tinctoria\*. National Genetic Resources Program \[Online Database\] National Germplasm Resources Laboratory, Beltsville, Maryland.](#)

**Summary:** Available from: [http://www.ars-grin.gov/cgi-bin/npgs/html/tax\\_search.pl?Gunnera+tinctoria](http://www.ars-grin.gov/cgi-bin/npgs/html/tax_search.pl?Gunnera+tinctoria) [Accessed 06 July 2005]

[USDA-NRCS \(Natural Resource Conservation Service\). 2005. \*Gunnera tinctoria\*. The PLANTS Database Version 3.5 \[Online Database\] National Plant Data Center, Baton Rouge, LA.](#)

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<http://plants.usda.gov/java/nameSearch?mode=Scientific+Name&keywordquery=Gunnera+tinctoria&go.x=10&go.y=9> [Accessed 06 March 2006]

Wilson, H. D. 1987. Vascular plants of Stewart Island (New Zealand). *Vegetation of Stewart Island, New Zealand*: 81-131 (Supplement to *New Zealand Journal of Botany*. 1987)