

*Xanthium spinosum* [简体中文](#) [正體中文](#)

**System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Asterales	Asteraceae

## Common name

## Synonym

*Acanthoxanthium spinosum*, (L.) Fourr.  
*Xanthium spinosum*, L. var. *inerme* Bel

## Similar species

*Xanthium occidentale*

## Summary

*Xanthium spinosum* (Bathurst burr) is classified as a noxious weed in the majority of areas where it has been introduced. It is a prolific seed producer with high germination and survival rates. *Xanthium spinosum* competes with pasture crops as well as contaminating seeds and wool. Additionally, it threatens native fauna and flora due to its adaptability to a wide range of habitats. Management has proven to be difficult, although possible biological controls are currently being investigated.



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

## Species Description

Bathurst burr (*Xanthium spinosum*) is an annual herb that is typically around 30 to 60cm in height. Its stem stands erect with a slight curve and is highly branched. The regions beneath each leaf or branch on the stem are covered with three-pronged yellow or green spines which are usually between 0.7 and 2.5cm in length (WA, undated). The leaves are characterised by three irregular lobes with distinct veins in the centre of each lobe. The upper surface of the leaves is dark green and is thinly covered by a layer of short hairs. In contrast, the lower surface of the leaves is paler in comparison and is also covered with a layer of tomentum (IEWF, 2005). *X. spinosum* is monoecious, that is, the male and female flowers are distinct from one another. The male flowers are usually green and inconspicuous and are clustered near the tips of the branches (DPIW, 2008). The female flowers are found lower down in the leaf axils and the nodes. The female flowers are enclosed in hard bracts which would later become burrs; the fruit carrying the seeds. Burrs are yellowish in colour, ovally shaped (10 to 15 mm long and 4 to 6 mm wide) and project hooked spines up to 3 mm long (DPIW, 2008).

## Lifecycle Stages

The lower of the two seeds of Bathurst burr (*Xanthium spinosum*) has a shorter dormancy period, typically germinating few months following maturity (Pitcher, 1989). Conversely, the upper seed can remain dormant up to as long as 8 years (NWCB, 2007). The difference in the observed dormancy period may be due to site and season specific reasons. Moreover, studies have found that the relative permeability of the seed coat to oxygen may, at least partly, contribute to the dormancy periods (Auld *et al*, 1998). Experiment evidence reveals that high temperatures (32-38°C) can also overcome dormancy (Pitcher, 1989). Most plants die in late fall to early winter due to frost (NWCB, 2007).

## Uses

Compounds derived from Bathurst burr (*Xanthium spinosum*) can be used as a diuretic.

## Habitat Description

Bathurst burrs' (*Xanthium spinosum*) wide distribution can be attributed partly to its ability to adapt to a wide range of climatic conditions. For example, it readily thrives in regions where the soil has been disturbed; including pasture, wasteland and coastal areas. Additionally, warm locations such as sheep camps, watercourses, dam banks and floodplains may also accommodate its growth (Parsons and Cuthbertson, 1992).

## Reproduction

The seeds of Bathurst burr (*Xanthium spinosum*) germinate in late spring to late summer. Following germination, fruits (burrs) are produced over a period of two to three months (Pitcher, 1989). On average, 150 seeds are produced per plant. It has been shown that flowering of the plant is day length dependent, with time to flowering decreasing with decreasing daylength (Auld *et al*, 1993). Each burr is characterized by two elongated cavities, each containing a single seed.

## Nutrition

Bathurst burr (*Xanthium spinosum*) prefers moist soil as it has a high water requirement. As a result, the seeds tend to germinate after the early summer rains (NWCB, 2007).

## General Impacts

Bathurst burr (*Xanthium spinosum*) is a highly invasive weed that is capable of growing under a range of environmental conditions. As a result, it easily establishes in pastures, meadows, riverbanks and potentially threatens native or endemic wildlife (Pitcher, 1989). Additionally, the weed can act as a host for a number of fungal diseases of plants (MDC, undated). It competes with agricultural crops such as soybeans and cotton, leading to a drastically reduced yield (Auld *et al*, 1999). Furthermore, bathurst burr can contaminate wool and other material due to its hooked spines, potentially affecting export (DPIW, 2008). Lastly, the seeds and seedlings of the plant contain the compound, carboxyatractyloside, which is poisonous to livestock, especially pigs and horses (Pitcher, 1989).

## Management Info

General management of Bathurst burr (*Xanthium spinosum*) is primarily targeted to prevent seed generation. **Physical:** Prior to flowering, mechanical removal such as pulling or hoeing is recommended. If removal is done after flowering, it is important to burn the plants to ensure the seeds are completely destroyed (Pitcher, 1989). Due to the long dormancy of the seeds, periodic follow-ups are necessary.

**Chemical:** The most common type of chemicals used to control bathurst burr are the broad-leaf selective herbicides. For example, 2,4-D is a phenoxy-type herbicide that does not affect grasses. Best application of 2,4-D is during the 3-5 leaf stage of growth as it is highly effective in penetrating the waxy coat on the leaves (Pitcher, 1989). Dicamba is another non-flammable, non-corrosive broad-leaf selective herbicide used to treat bathurst burr infestation.

**Biological:** Chemical control may not always be practical, as herbicides can potentially affect neighbouring crops such as cotton, thus certain infestations would have to be managed biologically (Auld *et al*, 1988). The potential of using insects as a biological control agent has been assessed in Australia, India, Pakistan and United States, but with limited success (Pitcher, 1989). Current focus has shifted towards fungal control. For example, the rust *Puccinia xanthii* has been found to attack several parts of the plant, leading to decreased burr production, germination as well as transpiration (Pitcher, 1989). More recently, the fungus *Colletotrichum orbiculare* has been found to cause lesions on stems and leaves of *X. spinosum* (Auld *et al*, 1988). Furthermore, it was found that, under optimal conditions, the fungus was able to kill the plant in just 14 days (Auld *et al*, 1988). The fungus can be applied in a similar convention as herbicide application.

## Pathway

The spiny burrs of Bathurst burr (*Xanthium spinosum*) adhere to wool, fur, clothing as well as contaminate grains (PIER, 2008)



# GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Xanthium spinosum*

## Principal source:

**Compiler:** IUCN/SSC Invasive Species Specialist Group (ISSG) with support from ASB Community Trust, New Zealand

## Review:

**Publication date:** 2008-04-17

## ALIEN RANGE

[17] AUSTRALIA

[1] NAMIBIA

[5] NEW ZEALAND

## BIBLIOGRAPHY

41 references found for *Xanthium spinosum*

### Management information

Auld, B. A. and M. M. Say., 1999. Comparison of isolates of *Colletotrichum orbiculare* from Argentina and Australia as potential bioherbicides for *Xanthium spinosum* in Australia. *Agriculture, Ecosystems and Environment* 72 (1999) 53-58

Auld, B. A., M. M. Say, H. I. Ridings, and J. Andrews. 1990. Field applications of *Colletotrichum orbiculare* to control *Xanthium spinosum*. *Agric. Ecosyst. Environ.* 32:315-323.

Auld, Bruce A., Cheryl F. McRae and Madeleine M. 1988. Say Possible control of *Xanthium spinosum* by a fungus. *Agriculture, Ecosystems and Environment*, 21 (1988) 219-223.

[Australian Natural Resources Atlas \(ANRA\), 2007a. Biodiversity Assessment - Mulga Lands. Important Wetlands](#)

**Summary:** Available from: <http://www.anra.gov.au/topics/vegetation/assessment/nsw/ibra-ml-imp-wetlands.html> [Accessed 31 March 2008]

[Australian Natural Resources Atlas \(ANRA\), 2007b. Biodiversity Assessment - Brigalow Belt South. Important Wetlands](#)

**Summary:** Available from: <http://www.anra.gov.au/topics/vegetation/assessment/nsw/ibra-bbs-imp-wetlands.html> [Accessed 31 March 2008]

[Baker, Bryan., Owen Price, John Woinarski, Stuart Gold, Greg Connors, Alaric Fisher and Craig Hempel., 2005. Northern Territory Bioregions- assessment of key biodiversity values and threats - A resource document to accompany the Northern Territory Parks and Conservation Masterplan. Department of Natural Resources, Environment and the Arts. Northern Territory Government.](#)

**Summary:** Available from: [http://nt.gov.au/nreta/parks/masterplan/publications/pdf/bioregions\\_assessment.pdf](http://nt.gov.au/nreta/parks/masterplan/publications/pdf/bioregions_assessment.pdf) [Accessed 31 March 2008]

[Clarke, R.G and I.J. Porter., 1993. Sclerotinia minor - a pathogen of bathurst burr \(Xanthium spinosum\). Australasian Plant Pathology Vol. 22 \(3\) 1993](#)

**Summary:** Available from: [http://www.publish.csiro.au/?act=view\\_file&file\\_id=APP9930098.pdf](http://www.publish.csiro.au/?act=view_file&file_id=APP9930098.pdf) [Accessed 31 March 2008]

[Department of Conservation and Land Management, Western Australia, 2000. Management Plan: Rowles Lagoon Conservation Park and Clear and Muddy Lakes Nature Reserve 2000 - 2010](#)

**Summary:** Available from: [http://www.naturebase.net/pdf/nature/management/rowles\\_mp.pdf](http://www.naturebase.net/pdf/nature/management/rowles_mp.pdf) [Accessed 31 March 2008]

[Department of Primary Industries and Water \(DPIW\) Tasmania., 2008. Weeds, Pests and Diseases. Bathurst Burr \(Xanthium spinosum L.\) Control Guide](#)

**Summary:** Available from: <http://www.dpiw.tas.gov.au/inter.nsf/WebPages/RPIO-4ZZ8FH?open> [Accessed 31 March 2008]

[Department of Primary Industries \(DPI\) Victoria., 2008. Bathurst Burr \(Xanthium spinosum\) \(Nox\)](#)

**Summary:** Available from: [http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/weeds\\_herbs\\_annual\\_bathurst\\_burr](http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/weeds_herbs_annual_bathurst_burr) [Accessed 31 March 2008]

[Department of Primary Industries \(DPI\) Victoria., 2008. Impact Assessment - Bathurst Burr](#)

**Summary:** Available from: [http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/impact\\_bathurst\\_burr](http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/impact_bathurst_burr) [Accessed 31 March 2008]

[Department of Primary Industries \(DPI\) Victoria., 2008. Invasiveness Assessment - Bathurst Burr](#)

**Summary:** Available from: [http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/invasive\\_bathurst\\_burr](http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/invasive_bathurst_burr) [Accessed 31 March 2008]

[Department of Primary Industries \(DPI\) Victoria., 2008. Potential distribution of Bathurst Burr \(Xanthium spinosum\) in Victoria.](#)

**Summary:** Available from: [http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/lwm\\_pest\\_plants\\_bathurst\\_burr](http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/lwm_pest_plants_bathurst_burr) [Accessed 31 March 2008]

[Department of Primary Industries \(DPI\) Victoria., 2008. Present Distribution of Bathurst Burr \(Xanthium spinosum\) in Victoria](#)

**Summary:** Available from: [http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/lwm\\_current\\_weeds\\_bathurst\\_burr2](http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/lwm_current_weeds_bathurst_burr2) [Accessed 31 March 2008]

[Environment Bay of Plenty \(ENVBOP\), undated. Weed Index Result Xanthium spinosum](#)

[Greater Wellington Regional Council \(GWRC\), 2008. Pest Plants: Xanthium spinosum](#)

[International Environmental Weed Foundation \(IEWF\), 2005. Xanthium spinosum](#)

**Summary:** Available from: [http://www.iewf.org/weedid/Xanthium\\_spinousum.htm](http://www.iewf.org/weedid/Xanthium_spinousum.htm) [Accessed 31 March 2008]

[Marlborough District Council \(MDC\), 2007. Total Control Pests, Total Control Plant Pests \(Marlborough District Council Initiative\)](#)

[Marlborough District Council \(MDC\), undated. Weed Alert. Bathurst Burr \(Xanthium spinosum\)](#)

[National Weeds Strategy, Australia Weeds Committee., undated. Weed Identification, Australia >> Bathurst Burr](#)

**Summary:** Available from: <http://www.weeds.org.au/cgi-bin/weedident.cgi?tpl=plant.tpl&state=&s=&ibra=all&card=H25> [Accessed 31 March 2008]

Global Invasive Species Database (GISD) 2026. Species profile *Xanthium spinosum*. Available from:

<https://iucngisd.org/gisd/species.php?sc=1347> [Accessed 21 May 2026]

[Natural Resources and Water \(NRW\) Queensland., 2005. Weeds & pest animal management. Bathurst burr: \*Xanthium spinosum\*](#)

**Summary:** Available from: [http://www.nrw.qld.gov.au/pests/weeds/non\\_declared\\_plants/bathurst\\_burr.html](http://www.nrw.qld.gov.au/pests/weeds/non_declared_plants/bathurst_burr.html) [Accessed 31 March 2008]

[New South Wales \(NSW\) National Parks and Wildlife Service., 2000. Narran Lake Nature Reserve Plan of Management](#)

**Summary:** Available from: <http://www.environment.nsw.gov.au/resources/parks/pomfinalnarran.pdf> [Accessed 31 March 2008]

[Noxious Weed Control Board., 2007. Information about Spiny Cocklebur - \*Xanthium spinosum\*](#)

**Summary:** Available from: [http://www.nwcb.wa.gov/weed\\_info/Written\\_findings/Xanthium\\_spinosum.html](http://www.nwcb.wa.gov/weed_info/Written_findings/Xanthium_spinosum.html) [Accessed 10 April 2008]

[Pacific Island Ecosystems at Risk \(PIER\), 2008. \*Xanthium spinosum\*](#)

**Summary:** Available from: [http://www.hear.org/pier/species/xanthium\\_spinosum.htm](http://www.hear.org/pier/species/xanthium_spinosum.htm) [Accessed 31 March 2008]

[Phillip Island Nature Parks., 2007. Phillip Island Nature Park !\[\]\(758ebdf4629c903da74c2e079717ae32\_img.jpg\) Weed Management Strategy 2007 - 2012](#)

**Summary:** Available from: [http://www.penguins.org.au/files/PINP-Weed-Management-Strategy-2007\\_12.pdf](http://www.penguins.org.au/files/PINP-Weed-Management-Strategy-2007_12.pdf) [Accessed 31 March 2008]

[Pitcher, Don., 1989. Element Stewardship Abstract for \*Xanthium spinosum\* Spiny Cocklebur. The Nature Conservancy \(TNC\) 1815 North Lynn Street, Arlington, Virginia 22209 \(703\) 841 5300](#)

**Summary:** Available from: <http://tncweeds.ucdavis.edu/esadocs/documnts/xantspi.pdf> [Accessed 31 March 2008]

[Port Maquarie - Hastings., 2006. Bathurst Burr: Class 4 Weed Control Management Plan](#)

**Summary:** Available from: [http://www.hastings.nsw.gov.au/resources/documents/Bathurst\\_burr\\_Class\\_4\\_management\\_plan.pdf](http://www.hastings.nsw.gov.au/resources/documents/Bathurst_burr_Class_4_management_plan.pdf) [Accessed 31 March 2008]

[Queensland Parks and Wildlife Service, Queensland., 2001. Currawinya National Park, Management Plan](#)

**Summary:** Available from: [http://www.epa.qld.gov.au/publications/p00200aa.pdf/Currawinya\\_National\\_Park\\_management\\_plan.pdf](http://www.epa.qld.gov.au/publications/p00200aa.pdf/Currawinya_National_Park_management_plan.pdf) [Accessed 31 March 2008]

[Sittert, Lance Van., 2000. The Seed Blows about in Every Breeze : Noxious Weed Eradication in the Cape Colony, 1860-1909. Journal of Southern African Studies, Vol. 26, No. 4, Special Issue: African Environments: Past and Present. \(Dec., 2000\), pp. 655-674.](#)

[State of the Environment Report., 2004. Australian Capital Territory \(ACT\) Tumbarumba Ecological Communities](#)

**Summary:** Available from: <http://www.environmentcommissioner.act.gov.au/soe/SoE2004/Tumbarumba/ecologicalcommunities.htm> [Accessed 31 March 2008]

## General information

[Auld, B. A., 1993. Emergence and flowering in \*Xanthium spinosum\*. Agriculture, Ecosystems & Environment . Volume 47, Issue 3, Pages 195-275 \(December 1993\)](#)

[Australian Natural Resources Atlas \(ANRA\), 2007c. Biodiversity Assessment - Riverina. Wetland threatening processes](#)

**Summary:** Available from: <http://www.anra.gov.au/topics/vegetation/assessment/vic/ibra-riv-wetland-threats.html> [Accessed 31 March 2008]

[Bethune, Shirley, Griffin, Mike and Dave Joubert, 2004. National Review Of Invasive Alien Species Namibia, Consultancy Report on information collected regarding invasive alien species in Namibia for the SABSP \(Southern Africa Biodiversity Support Programme\). Prepared for the Directorate of Environmental Affairs, Ministry of Environment and Tourism Windhoek September 2004](#)

**Summary:** Available from: <http://www.biodiversity.org.na/ias/National%20Review%20of%20Invasive%20Alien%20Species,%20Namibia.pdf> [Accessed 31 March 2008]

[CONABIO. 2008. Sistema de informaci3n sobre especies invasoras en M3xico. Especies invasoras - Plantas. Comisi3n Nacional para el Conocimiento y Uso de la Biodiversidad. Fecha de acceso.](#)

**Summary:** English:

The species list sheet for the Mexican information system on invasive species currently provides information related to Scientific names, family, group and common names, as well as habitat, status of invasion in Mexico, pathways of introduction and links to other specialised websites. Some of the higher risk species already have a direct link to the alert page. It is important to notice that these lists are constantly being updated, please refer to the main page (<http://www.conabio.gob.mx/invasoras/index.php/Portada>), under the section Novedades for information on updates.

Invasive species - Plants is available from: [http://www.conabio.gob.mx/invasoras/index.php/Especies\\_invasoras\\_-\\_Plantas](http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Plantas) [Accessed 30 July 2008]

Spanish:

La lista de especies del Sistema de informaci3n sobre especies invasoras de m3xico cuenta actualmente con informaci3n acerca de nombre cient3fico, familia, grupo y nombre com3n, as3 como h3bitat, estado de la invasi3n en M3xico, rutas de introducci3n y ligas a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la p3gina de alertas. Es importante resaltar que estas listas se encuentran en constante proceso de actualizaci3n, por favor consulte la portada (<http://www.conabio.gob.mx/invasoras/index.php/Portada>), en la secci3n novedades, para conocer los cambios.

Especies invasoras - Plantas is available from: [http://www.conabio.gob.mx/invasoras/index.php/Especies\\_invasoras\\_-\\_Plantas](http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Plantas) [Accessed 30 July 2008]

[ITIS \(Integrated Taxonomic Information System\), 2008. Online Database \*Xanthium spinosum\* L.](#)

**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=38691](http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=38691) [Accessed 1 April 2008]

[Parsons, W. and Cuthbertson, E., 1992, Noxious Weeds of Australia. 318-321.](#)

**Summary:** General information concerning *X. spinosum*

[Ramsar Sites Database., 1999. Information sheet on the Gwydir Wetlands: Australia](#)

**Summary:** Available from: <http://www.wetlands.org/reports/ris/5AU051en.pdf> [Accessed 31 March 2008]

[Ramsar Sites Database., 2000. Information sheet on the Macquarie Marshes: Australia](#)

**Summary:** Available from: <http://www.wetlands.org/reports/ris/5AU027en.pdf> [Accessed 31 March 2008]



# GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Xanthium spinosum*

---

USDA, ARS, 2008. *Xanthium spinosum* L. National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland.

**Summary:** Available from: <http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?42071> [Accessed 31 March 2008]

USDA, NRCS, 2008. *Xanthium spinosum* L. The PLANTS Database (<http://plants.usda.gov>, 31 March 2008). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

**Summary:** Available from: <http://plants.usda.gov/java/profile?symbol=XASP2> [Accessed 31 March 2008]

[Weeds Australia, undated - Weed Identification - Bathurst Burr](#)

**Summary:** Available from: <http://www.weeds.org.au/cgi-bin/weedident.cgi?tpl=plant.tpl&state=&s=&ibra=all&card=H25> [Accessed 10 April 2008]