Arundo donax 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Liliopsida	Cyperales	Poaceae

Common name

bamboo reed (English), donax cane (English), kaho (Tongan, Tonga Islands), carrizo (Spanish), canne de Provence (French), fiso palagi (Samoan), grand roseau (French), kaho folalahi (Tongan, Tonga Islands), Spaanse-riet (English), cana-do-brejo (Portuguese, Brazil), caña (Spanish), caña de techar (Spanish), caña de la reina (Spanish), caña de Castilla (Spanish), wild cane (English), canno-do-reino (Portuguese, Brazil), capim-plumoso (Portuguese, Brazil), cana-do-reino (Portuguese, Brazil), Spanish reed (English), ngasau ni vavalangi (Fijian, Fiji Islands), Spanish cane (English), carrizo grande (Spanish), E-grass (English), giant cane (English), la canne de Provence (English, French- New Caledonia), Spanisches Rohr (German), narkhat (Hindi), arundo grass (English), cane (English), cow cane (English), giant reed (English), Pfahlrohr (German), reed grass (English), river cane (English), caña común (Spanish)

Synonym

Arundo donax , var. *versicolor* (P. Mill.) Stokes
Arundo versicolor , P. Mill.
Arundo scriptoria , L.
Aira bengalensis , (Retz.) J.F. Gmel.
Amphidonax bengalensis , (Retz.) Nees ex Steud.
Amphidonax bengalensis , Roxb. ex Nees.
Amphidonax bifaria , (Retz.) Nees ex Steud.
Arundo aegyptiaca , hort. ex Vilm.
Arundo bambusifolia , Hook. f.
Arundo bengalensis , Retz.
Arundo bifaria , Retz.
Arundo coleotricha , (Hack.) Honda.
Arundo donax , var. *coleotricha* Hack.
Arundo donax , var. *procerior* Kunth.
Arundo glauca , Bubani.
Arundo latifolia , Salisb.
Arundo longifolia , Salisb. ex Hook. f.
Arundo sativa , Lam.
Arundo donax , var. *lanceolata* Döll.
Cynodon donax , (L.) Raspail.
Donax arundinaceus , P. Beauv.
Donax bengalensis , (Retz.) P. Beauv.
Donax bifarius , (Retz.) Trin. ex Spreng.
Donax donax , (L.) Asch. and Graebn.
Arundo donax , var. *angustifolia* Döll.

Similar species

Summary

Giant reed (Arundo donax) invades riparian areas, altering the hydrology, nutrient cycling and fire regime and displacing native species. Long ‘lag times’ between introduction and development of negative impacts are documented in some invasive species; the development of giant reed as a serious problem in California may have taken more than 400 years. The opportunity to control this weed before it becomes a problem should be taken as once established it becomes difficult to control.

view this species on IUCN Red List

Species Description
Arundo donax is a very tall and robust bamboo-like, perennial grass with large, spreading clumps of thick culms to 6.1 m tall. The numerous leaves are about 5 cm wide and 30.5-61 cm long, and arranged conspicuously in two opposing ranks on the culms. The leaves look like those of a corn plant. Their margins are sharp to the touch and can cut careless hands. The inflorescence, appearing in late summer, is a 0.3-0.6 m long purplish, aging to silver, plume that stands above the foliage. Giant reed spreads from thick, knobby rhizomes. Once established, it tends to form large, continuous, clonal root masses, sometimes covering several acres. These root masses can be more than 1 m thick. The foliage dries to light brown in the winter and rattles in the wind. Striped giant reed (*A. donax* var. *versicolor*, has leaves with bold white stripes, and is a smaller plant, to 2.4 m tall (Christman, 2003; McWilliams, 2004).

Uses
Arundo donax is grown as an ornamental for the its striking appearance, purplish stems, and for the huge feather-like panicles of purplish flowers. It is the largest and tallest ornamental grass other than bamboo, and the tallest grass that can be grown outside the tropics. The large, thick and fluffy flower plumes are used in floral arrangements. *A. donax* is also used to make reeds for woodwind instruments and were once used for organ pipes. Giant reed is commonly planted in wet soils to reduce erosion (Christman, 2003).
In folk medecine, the rhizome or rootstock of *Arundo donax* is used for dropsy. Boiled in wine with honey, the root or rhizome has been used for cancer. This or other species of *Arundo* is also reported to be used for condylomata and indurations of the breast. The root infusion is regarded as antigalactagogue, depurative, diaphoretic, diuretic, emollient, hypertensive, hypotensive, and sudorific (Duke, 1997).

Habitat Description
Arundo donax is a hydrophyte, and grows best where water tables are near or at the soil surface. It establishes in moist places such as ditches, streams, and riverbanks, growing best in well drained soils where abundant moisture and sunlight is available. *A. donax* has also been demonstrated to prefer areas with enriched nitrogen levels. It tolerates a wide variety of conditions, including high salinity, and can flourish in many soil types from heavy clays to loose sands. It is well adapted to the high disturbance dynamics of riparian systems. *A. donax* inhabits USDA zones 6-11 (Benton *et al*, 2006; Ambrose & Rundel, 2007).

Reproduction
Reproduction of *Arundo donax* is primarily vegetative by way of rhizomes which root and sprout readily and layering in which stems touching the ground sprout roots. Layering has been demonstrated to expand *A. donax* as much as 7.4 times faster than spread by rhizomes but is thought to only occur within flood zones. *A. donax* tends to form large, continuous, clonal root masses, sometimes covering several acres. It very rarely produces seeds and very little is known about its sexual reproduction (Benton *et al*, 2006; Boland, 2006; McWilliams, 2004)

Nutrition
Arundo donax photosynthesizes through C3 fixation which requires abundant sunlight and moisture. It has also been demonstrated to prefer areas with enriched nitrogen levels (Lewandowski *et al*, 2003; Benton *et al*, 2006; Ambrose & Rundel, 2007).

General Impacts
Dense populations of *Arundo donax* affect riversides and stream channels, compete with and displace native plants, interfere with flood control, and is extremely flammable increasing the likelihood and intensity of fires. It may establish a invasive plant-fire regime as it both causes fires and recovers from them 3-4 times faster than native plants. It is also known to displace and reduce habitats for native species including the Federally endangered Least Bell's Vireo (*Vireo bellii*).
Its long, fibrous, interconnecting root mats of giant reed form a framework for debris behind bridges, culverts, and other structures that can effect their function and disturb ecosystems. Its rapid growth rate, estimated 2-5 times faster than native competitors, and vegetative reproduction, it is able to quickly invade new areas and form pure stands. Once established, *A. donax* has the ability to outcompete and completely suppress native vegetation, reduce habitat for wildlife, and inflict drastic ecological change (Benton *et al*, 2006; McWilliams, 2004; Ambrose and Rundel, 2007; Rieger & Keager, 1989).

Management Info
Preventative measures: A Risk assessment of *Arundo donax* for Australia was prepared by Pacific Island Ecosystems at Risk (PIER) using the Australian risk assessment system (Pheloung, 1995), resulting in a score of 12 with a recommendation \"to reject the plant for import (Australia) or species likely to be of high risk (Pacific)\".
A weed risk assessment study of *Arundo donax* for Queensland, Australia was conducted by Csurhes (2009). The study concluded that to conclude that \"*A. donax* has the potential to become a significant weed in certain riparian habitats in Queensland, as it has done elsewhere in the world. Areas most at risk appear to be well-drained soils associated with disturbed riparian (freshwater) habitats in the subtropics\".
Chemical: The use of systemic herbicides such as glyphosate or fluazipop applied after flowering either as a cut stump treatment or foliar spray have been found to control *Arundo donax*. Caution should be taken when using such herbicides around water or in wetlands (Benton *et al*, 2005; PIER, 2008).
Physical: Hand pulling may be effective at removing small infestations of *Arundo donax*, but care must be taken to remove all rhizomes to prevent re-establishment. Cutting is not recomended unless the rhizomes are dug up, as tiny rhizomes can grow into new colonies. Burning is not recomended either as it has been demonstrated to aid the growth of *Arundo donax* because it regrows 3-4 times faster than native plants (PIER, 2008; Ambrose & Rundel, 2007).
Biological control: Native flora and fauna typically do not offer any significant control potential of *Arundo donax*. It is uncertain what natural controlling mechanisms for giant reed are in its countries of origin, although corn borers, spider mites, and aphids have been reported in the Mediterranean. A sugar cane moth-borer in Barbados is reported to attack giant reed, but it is also a major pest of sugar cane and is already found in the United States in Texas, Louisiana, Mississippi, and Florida. A leafhopper in Pakistan utilizes *A. donax* as an alternate host but attacks corn and wheat. In the United States a number of diseases have been reported on giant reed, including root rot, lesions, crown rust, and stem speckle, but none seem to have seriously impacted advance of this weed. Giant reed is not very palatable to cattle, but during the drier seasons they will graze the young shoots, followed by the upper parts of the older plants. However, in many areas of California the use of Angora and Spanish goats is showing promise for controlling *A. donax*. Also an unidentified stem-boring sawfly that appears similar to *Tetramesa romana* has been demonstrated to cuase significant damage to *A. donax*, and it is being tested in quarantine as a candidate biocontrol agent for it (McWilliams, 2004; Dudley *et al*, 2006).
Integrated management: A popular approach to treating giant *Arundo donax* has been to cut the stalks and remove the biomass, wait 3 to 6 weeks for the plants to grow about 1 m tall, then apply a foliar spray of herbicide solution. The chief advantage to this approach is less herbicide is needed to treat fresh growth compared with tall, established plants, and coverage is often better because of the shorter and uniform-height plants. However, cutting the stems may result in plants returning to growth-phase, drawing nutrients from the root mass. As a result there is less translocation of herbicide to the roots and less root-kill. Additionally, cut-stem treatment requires more time and personnel than foliar spraying and requires careful timing. Cut stems must be treated with concentrated herbicide within 1 to 2 minutes of cutting to ensure tissue uptake. This treatment is most effective after flowering. The advantage of this treatment is that it requires less herbicide and the herbicide can be applied more precisely. It is rarely less expensive than foliar spraying except on very small, isolated patches or individual plants (McWilliams, 2004).

Pathway

Principal source: McWilliams, John D. 2004. *Arundo donax*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer).
Pacific Island Ecosystems at Risk (PIER)., 2006. Risk Assessment *Arundo donax* L., Poaceae

Compiler: National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)
Updates with support from the Overseas Territories Environmental Programme (OTEP) project XOT603, a joint project with the Cayman Islands Government - Department of Environment

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ALIEN RANGE

[1] ARGENTINA
[1] BERMUDA
[2] BRAZIL
[1] CHILE
[1] COSTA RICA
[1] DOMINICAN REPUBLIC
[1] EL SALVADOR
[2] FRANCE
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[1] GREECE
[1] GUATEMALA
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[1] BOLIVIA
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[5] FRENCH POLYNESIA
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[2] MICRONESIA, FEDERATED STATES OF
[1] NAURU
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[1] PARAGUAY
[3] PORTUGAL
[1] SAINT LUCIA
[1] SOUTH AFRICA
[1] SWAZILAND
[24] UNITED STATES
[1] VENEZUELA

Red List assessed species 1: VU = 1;

Echium callithyrsum **VU**

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Summary: This compilation of information sources can be sorted on keywords for example: Baits & Lures, Non Target Species, Eradication, Monitoring, Risk Assessment, Weeds, Herbicides etc. This compilation is at present in Excel format, this will be web-enabled as a searchable database shortly. This version of the database has been developed by the IUCN SSC ISSG as part of an Overseas Territories Environmental Programme funded project XOT603 in partnership with the Cayman Islands Government - Department of Environment. The compilation is a work under progress, the ISSG will manage, maintain and enhance the database with current and newly published information, reports, journal articles etc.
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Team Arunde del Norte
Summary: Team Arundo del Norte is a forum of local, state, and federal organizations dedicated to the control of *Arundo donax* (giant reed), where it threatens rivers, creeks, and wetlands in Central and Northern California. The organization formed in the summer of 1996 (see TAdN History). The Team meets several times per year in the Sacramento area to explore opportunities for information exchange and partnerships in support of the ongoing work of eradication of this harmful weed. This website is an important part of the Team s mission to facilitate networking. We hope you find useful information and contacts at this site and by joining the discussions on the TAdN email listserv. Available from: http://teamarundo.org/ [Accessed 27 February 2009]

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