

Iris pseudacorus [简体中文](#) [正體中文](#)

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Liliopsida	Liliales	Iridaceae

Common name yellow-flag iris (English), fleur-de-lis (French), iris jaune (French), yellow flag (English), water flag (English), pale-yellow iris (English), yellow water iris (English), yellow iris (English)

Synonym *Iris acoriformis* , Boreau
Iris acoroides , Spach
Iris bastardii , Boreau
Iris curtopetala , F. Delaroche
Iris flava , Tornab.
Iris lutea , Lam.
Iris paludosa , Pers.
Iris pseudacorus , L. var. *parviflora* Bastard
Iris sativa , Mill.

Similar species *Iris versicolor*

Summary *Iris pseudacorus* is a perennial monocot forb that forms dense stands of robust plants. It thrives in temperate climates and can grow in water up to 25cm deep. It is a fast-growing and fast-spreading invasive plant that can out-compete other wetland plants, forming almost impenetrable thickets. *Iris pseudacorus* is poisonous to grazing animals and caution should be used if pulling out this plant as it causes skin irritations. It has typically been introduced as an ornamental, but has also been used in erosion control and for making dyes and fibre.



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Species Description

Sutherland (1990) describes *I. pseudacorus* as "an erect glabrous perennial, 40-150cm tall. The rhizome is 1-4cm in diameter, with roots usually 10-20cm long but up to 30cm. The leaves, which number about 10 per ramet, are rather glaucous, 50-100cm x 10-30mm, with raised midrib, coming to a fine point. They are broad, ensiform, about equaling the often-branched compressed terete scape. the spathes have broadly scarious margins towards the top and are 5-10 flowered. The pedicels are about as long as the ovary. The flowers are 8-10cm in diameter, yellow, varying from a pale shade to almost orange. The outer perianth segments are variable in form, shortly clawed, often purple-veined with an orange spot near the base; the inner perianth segments are spatulate, smaller than the outer; the tube is short. The style branches are yellow. The capsules are 4-8cm, elliptic, apiculate; the seeds are dark brown, smooth and very variable in size. the seeds are closely packed in three rows and the majority are disc-like in form, whilst the terminal seeds in each loculus are more or less plano-convex and often larger; this is to some extent true also of those seeds which, although not terminal, are adjacent to ovules that have failed to develop. There are two rows in each of the three compartments of the fruit and all begin to enlarge after fertilization. If most of the ovules in each of the two rows mature as seeds, the seeds are closely packed, overlap each other and are irregularly wedge-shaped; however, if the ovules in only one of the rows become seeds, whilst those of the other row fail, the seeds assume a disc like form (Guppy 1912, in Sutherland 1990)."

Notes

Tu (2003) states that, "*I. pseudacorus* does not provide food for native animals and contains large amounts of glycosides that are poisonous to grazing animals (IPANE 2001, in Tu 2003). All parts of the plant are poisonous, especially the rhizomes. Symptoms of *I. pseudacorus* poisoning include moderate to severe bouts of abdominal pain, gastroenteritis, nausea, vomiting, diarrhea, spasms, staggering, and paralysis (Forsyth 1976 in Sutherland 1990; Jacono 2001, in Tu 2003). Birds do not consume any part of *I. pseudacorus*, nor are they known to disperse of the seeds (IPANE 2001; Thomas 1980, in Tu 2003)."

Lifecycle Stages

In the North American region *I. pseudacorus* dies back during winter. During spring long leaves and flower stalks re-grow from the rhizomes and flowering occurs by late spring or early summer. The rhizomes spread to form dense stands (The King County Noxious Weed Program, Undated).

Habitat Description

Sutherland (1990) reports that in its native range, "*I. pseudacorus* is present in coastal regions mainly near the arid southern limit and towards its northern limit in Scandinavia. The restriction to relatively low altitudes and coastal sites in Scandinavia suggests that it is intolerant of low temperatures." The author goes on to state that, "*I. pseudacorus* usually grows in sites with a continuously high soil-water content but the soil does not need to be submerged and the plant is capable of growth in dry sandy soil (Dykes 1974, in Sutherland 1990). It is present on peats as well as on permanently submerged organic and inorganic soils at the edges of ponds, lakes and rivers. This species is less frequent in areas of chalk, but occurs in fens, on chalk and in fen woodland."

Reproduction

Lamote *et al.* (2002) state that, "*I. pseudacorus* grows as clones that spread radially and become fragmented as they develop. The thick rhizome tends to prevent much intertwining of adjacent genets but frequently two or three genets may lie on top of each other. Rhizomes branch as a consequence of flowering, and repeated flowering results in a patchy distribution. If the plant remains vegetative it shows a more linear clonal growth. Colonization of new sites occurs mainly by rhizomes, which become fragmented and are transported downstream during winter flood. Seeds float for a long time and can be washed into existing vegetation on the higher shoreline during high water levels (Coops and Van Der Velde, 1995). However, establishment of seedlings is reported to be rare in the field and clonal propagation is generally assumed to be much more frequent than sexual reproduction."

The King County Noxious Weed Program (Undated) points out that, "Up to several hundred flowering plants may be connected rhizomatously. The flowers are pollinated by bumblebees and long-tongued flies. Seed germination is not light dependent, and plants need temperatures above 15 C to germinate, but are most successful at a range of 20 to 30 C. Germination is increased by scarification, and submerged seeds will not germinate."

Nutrition

I. pseudacorus rhizomes can tolerate long periods of anoxia (low soil oxygen). *I. pseudacorus* grows well in soils with high acidity with a pH range of 3.6 to 7.7. It has a high nitrogen requirement (Ramey, 2001).

General Impacts

Tu (2003) states that, "Once established, *I. pseudacorus*'s thick tuberous rhizomes can tolerate both prolonged anoxic and/or drought conditions, and its rhizomes and seeds can be transported downstream for further spread (Sutherland 1990; Jacono 2001, in Tu 2003). The rhizome mat can prevent the germination and seedling growth of other plant species. The mat also creates improved habitat for *I. pseudacorus* by compacting soil and elevating the topography, therefore creating a habitat that is drier and with increased rates of siltation and sedimentation. Along the eastern seaboard, *I. pseudacorus* often invades open marsh areas, where it can form dense stands.

Ramey (2001) reports that, "*I. pseudacorus* is a fast-growing and fast-spreading invasive plant that can out compete other wetland plants, forming almost impenetrable thickets, in much the same way as cat-tails." IPANE (2001) states that, "In its native habitat, this plant is not widely grazed because of the glycosides it contains, making it poisonous to grazing animals. Caution should be used if pulling out this plant, for it can cause skin irritation."

Management Info

The key to successful and cost-effective control of *I. pseudacorus* is to prevent new infestations or to begin control efforts while populations are still small and manageable. With early intervention the potential for successful management is high. An integrated approach with close monitoring for any re-growth from seeds or re-sprouts or any new populations followed by restoration appears to be an effective method with the best results (Tu, 2003).

Mechanical: Tu (2003) states that, "Manual or mechanical methods that remove the entire *I. pseudacorus* rhizome mass can successfully control small, isolated patches. These methods, however, are very time consuming and labor-intensive, since even small rhizome fragments can resprout. Additionally, digging disturbs the soil, may fragment rhizomes, and promote germination of *I. pseudacorus* and other undesirable species from the soil seed bank (Jacono 2001, in Tu 2003). Pulling or cutting *I. pseudacorus* plants may provide adequate control, but only if it is repeated every year for several years to weaken and eventually kill the plant. Dead-heading (removing the flowers and/or fruits) from plants every year can prevent seed development and seed dispersal, but will not kill those plants (Crawford 2000, in Tu 2003)." Ramey (2001) states that, "Once an infestation, with its extensive rhizomes, has taken hold, machines and possibly fire are the only possibilities for management."

Chemical: Tu (2003) reports that, "*I. pseudacorus* can be effectively controlled by herbicides. Since it usually grows in or adjacent to water, an aquatic-labeled herbicide and adjuvant must be used. Glyphosate (for example, tradenames Rodeo®, Aquamaster® or Glypro®) applied in a 25% solution (13% a.i.) using a dripless wick/wiper applicator, or applied in a 5 to 8% solution if sprayed, when used with the appropriate non-ionic surfactant adjuvant, can effectively kill *I. pseudacorus* (R. McClain, pers. comm.). The timing and choice of application technique will determine control efficacy and should work to minimize off-target effects. *I. pseudacorus* can be controlled by either directly applying the herbicide to foliage, or by immediately applying herbicide to freshly cut leaf and stem surfaces. Herbicides can be directly applied to *I. pseudacorus* foliage or cut stems by a dripless wick system or using a backpack sprayer. Be sure to always take appropriate precautions and wear suitable clothing and equipment, and follow all instructions on the herbicide label. Use a dye in the herbicide mix so you can watch for accidental contact or spill of the herbicide." Ramey (2001) reports that, "*I. pseudacorus* is susceptible to many registered herbicides, but is resistant to terbutryne."

Pathway

Ramey (2001) states that *I. pseudacorus* continues to be sold through garden and plant dealers and over the Internet. It was brought to North America as an ornamental. Ramey (2001) states that *I. pseudacorus* has been used in erosion control.

Principal source: [Ramey, 2001](#). *Iris pseudacorus* L.
[IPANE, 2001](#) *Iris pseudacorus*

Compiler: National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

Review: Expert review underway

Publication date: 2005-11-16

ALIEN RANGE

[10] CANADA

[2] NEW ZEALAND

[45] UNITED STATES

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Management information

[Champion, P. Clayton, J. and Rowe, D. 2002. Alien Invaders Lake Managers Handbook. Ministry for the Environment.](#)

Summary: Available from: <http://www.mfe.govt.nz/publications/water/lm-alien-invaders-jun02.pdf> [Accessed 3 February 2005]

[Champion, P.D.; Clayton, J.S. 2000. Border control for potential aquatic weeds. Stage 1. Weed risk model. Science for Conservation 141.](#)

Summary: This report is the first stage in a three-stage development of a Border Control Programme for aquatic plants that have the potential to become ecological weeds in New Zealand.

Available from: <http://www.doc.govt.nz/upload/documents/science-and-technical/sfc141.pdf> [Accessed 13 June 2007]

[Champion, P.D.; Clayton, J.S. 2001. Border control for potential aquatic weeds. Stage 2. Weed risk assessment. Science for Conservation 185. 30 p.](#)

Summary: This report is the second stage in the development of a Border Control Programme for aquatic plants that have the potential to become ecological weeds in New Zealand. Importers and traders in aquatic plants were surveyed to identify the plant species known or likely to be present in New Zealand. The Aquatic Plant Weed Risk Assessment Model was used to help assess the level of risk posed by these species. The report presents evidence of the various entry pathways and considers the impact that new invasive aquatic weed species may have on vulnerable native aquatic species and communities.

Available from: <http://www.doc.govt.nz/upload/documents/science-and-technical/SFC185.pdf> [Accessed 13 June 2007]

[ECORC \(Eastern Cereal and Oilseed Research Centre\), 2003. Iris pseudacorus L.. Agriculture and Agri-Food Canada, National Science Programs.](#)

Summary: Information on description, economic importance, distribution, habitat, history, growth, and impacts and management of species.

Available from: http://res2.agr.gc.ca/ecorc/weeds_herbes/fam18_e.htm [Accessed 11 November 2003]

[IPANE \(Invasive Plant Atlas of New England\), 2001. Iris pseudacorus. Department of Ecology and Evolutionary Biology, University of Connecticut \[Online Database\].](#)

Summary: Information on description, economic importance, distribution, habitat, history, growth, and impacts and management of species.

Available from: <http://webapps.lib.uconn.edu/ipane/browsing.cfm?descriptionid=59> [Accessed 11 November 2003]

[King County Noxious Weed Program. Undated. Yellow Flag \(Iris pseudacorus L.\). King County Natural Resources and Parks, Water and Land Resources Division.](#)

Summary: Information on description, economic importance, distribution, habitat, history, growth, and impacts and management of species.

Available from: http://dnr.metrokc.gov/wlr/lands/weeds/Iris_pseudacorus.pdf [Accessed 11 November 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]

[Ramey, V. 2001. Iris pseudacorus L. Non-Native Invasive Aquatic Plants in the United: States Center for Aquatic and Invasive Plants, University of Florida and Sea Grant.](#)

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Available from: <http://aquat1.ifas.ufl.edu/seagrant/iripse2.html> [Accessed 11 November 2003]

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[Tu, M., 2003. Element Stewardship Abstract for Iris pseudacorus L. Yellow flag iris, water flag. The Nature Conservancy's Wildland Invasive Species Team, Dept. of Vegetable Crops & Weed Sciences, University of California, Davis.](#)

Summary: A detailed report on the description, economic importance, distribution, habitat, history, growth, and impacts and management of species.

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General information

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GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Iris pseudacorus*

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Summary: Information on taxonomy and synonyms.

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Summary: A scientific study that investigates nutritional requirements of species and includes some biological information on species.

[ITIS \(Integrated Taxonomic Information System\), 2005. Online Database *Iris pseudacorus*](#)

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.

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Summary: A distribution account of species.

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Summary: A detailed study on the genetics of species with an introduction covering the biology of the species.

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Summary: A scientific study reporting on the anoxia and tolerance of species to varying environmental factors.

Sutherland, W. J., 1990. *Iris pseudacorus* L. *The Journal of Ecology* 78(3): 833-848.

Summary: An account on the biology and ecology of species.

[USDA-GRIN \(Germplasm Resources Information Network\), 2003. *Iris pseudacorus*. National Genetic Resources Program \[Online Database\] National Germplasm Resources Laboratory, Beltsville, Maryland.](#)

Summary: Information on common names, synonyms, and the distributional range of species.

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[USDA-NRCS \(Natural Resource Conservation Service\), 2002. *Iris pseudacorus*. The PLANTS Database Version 3.5 \[Online Database\] National Plant Data Center, Baton Rouge, LA](#)

Summary: Available from: <http://plants.usda.gov/java/nameSearch?mode=Scientific+Name&keywordquery=Iris+pseudacorus> [Accessed 11 November 2005]