

Pteris cretica

System: Terrestrial

| Kingdom | Phylum | Class | Order | Family |
|---------|--------------|-------------|--------------|-------------|
| Plantae | Pteridophyta | Filicopsida | Polypodiales | Pteridaceae |

Common name ribbon fern (English, Ireland), owali (Hawaiian, Hawaii), Cretan brake (English), Cretan fern (English), white-lined Cretan brake (English), oali (Hawaiian, Hawaii), kretischer saumfarn (German), white ribbon fern (English, Canterbury Region)

Synonym

Similar species

Summary *Pteris cretica* commonly known as Cretan brake is a variegated green fern that has been widely distributed as an ornamental species. The native range of *P. cretica* is unclear; it has an almost pantropical distribution. The potential environmental and economical impacts of this species are not well known. It is documented to be problematic along with a range of other exotic species in the ecologically fragile Florida limestone grotto communities where space and resources are limited. *P. cretica* is capable of becoming widespread in areas where it has been introduced such as the British Isles where a progressive radial expansion has been occurring since 1930.



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

Species Description

Nauman (1993) gives the following botanical description for *Pteris cretica* in the Flora of North America: Stems slender, creeping, sparingly scaly; scales dark brown to chestnut brown. Leaves clustered to closely spaced, to 1m. Petiole straw-coloured to light brown distally, darker proximally, 10-50cm, base sparsely scaly. Blade irregularly ovate, primarily and irregularly pedately divided, 10-30 × 6-25cm; rachis not winged; only terminal pinna decurrent on rachis. Pinnae 1-3 pairs, well separated, blade often 5-parted with terminal pinna and 2 lateral pairs of pinnae remaining green through winter, not articulate; sterile pinnae to 25 × 0.8-1.5cm, serrulate; fertile pinnae narrower than sterile pinnae, to ca. 11mm wide, spiny-serrate; base acute acroscopically and decurrent (sometimes narrowly and barely so) basiscopically, glabrous; proximal pinnae with 1 (rarely 2) basiscopic lobes. Veins free, simple or forked. Sori narrow, blade tissue exposed abaxially. Webb et al. (1988) give the following botanical description in the Flora of New Zealand Series: Rhizomes short-creeping, scaly. Stipes 25-75 cm long, ± devoid of scales except at very base. Laminae ovate or broadly ovate, 20-40 × 10-30 cm, 1-pinnate or with lower pinnae forked. Primary pinnae in 2-7 pairs, widely spaced, linear, tapering to acute apices, entire or minutely crenate at apices, 12-27 × 0.8-1.8 cm; upper pinnae adnate; lower pinnae stalked. Sori occupying whole of both margins of pinnae except at apices, protected by reflexed margins. *P. cretica* can be distinguished from native New Zealand ferns by its pinnate fronds with the lower pinnae often forked (Webb et al., 1988).

Valier (1995) writes that fronds of the Cretan brake can grow up to 2 feet (60 cm) tall with spores produced on separate fertile fronds; sterile fronds are noted to be wider. See [Starr & Starr \(2008\)](#) for images of this species from Hawai'i.

Notes

Pteris cretica commonly hybridises with *P. irregularis* in Hawai'i to form *P. x hillebrandii* (Valier, 1995). *P. cretica* var. *albolineata* Hooker, 1860 has also been described and possesses pinnae with a white or pale green longitudinal stripe along the middle (Nauman, 1993).

Uses

Pteris cretica is commonly grown as an ornamental species in pot plants and gardens (Stace, 2010). *Pteris* ferns such as *P. vittata* and *P. cretica* have shown a remarkable ability to tolerate and accumulate high concentrations of arsenic as well as antimony (in Robinson, 2009) in their fronds. They have been used to remove arsenic from residential soils in Washington DC (Blaylock & Elless, 2007). This phytofiltration ability makes it capable of rapidly filtering arsenic from drinking water supplies (Elless *et al.*, 2007).

Habitat Description

In Hawai'i, *Pteris cretica* can be found in dry or wet forests up to an elevation of 3000 feet (915 m) (Valier, 1995).

Reproduction

Pteris cretica reproduces through spores and can be apogamous, skipping the sexual stage of gametophytes (Robinson, 2009).

General Impacts

Little is known about the potential impacts of *Pteris cretica*. On the British Isles it is considered a threat more so for its progressive radial expansion in range that has been apparent since 1930 rather than any potential ecological and economic impacts (Robinson, 2009). In the ecologically fragile limestone grottoes of Florida, *P. cretica* and a range of other invasive exotic species can be problematic to rare native species if facilitated by shady, humid conditions (Florida Natural Areas Inventory, 2010).

Management Info

Preventative measures: There is little information available on the management of *Pteris cretica*. In Europe there are virtually no restrictions on the trade of alien fern species such as *P. cretica*, despite the well documented escape of some species into the wild (Robinson, 2009).

While not legally declared a pest plant in New Zealand and no restrictions on its growth and propagation, *P. cretica* has been listed as a "Research Organism" under the latest Auckland Regional Pest Management Strategy (Auckland Regional Council, 2007) requiring further research into its potential threat and dispersal pathways.

Pathway

Pteris cretica is grown as an ornamental in gardens (Stace, 2010).

Principal source:

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ALIEN RANGE

[1] AUSTRALIA

[1] BRITISH ISLES

[1] IRELAND

[1] PERU

[4] NEW ZEALAND

[5] UNITED STATES

BIBLIOGRAPHY

23 references found for *Pteris cretica*

Management information

General information

[Alien Plants in Ireland, 2008. *Pteris cretica* L.](#)

Summary: Available from: http://www.biochange.ie/alienplants/result_species.php?species=2&volg=i&lang=latin&p=l [Accessed 15 July]

[Blaylock, Michael J. and Mark P. Elless, 2007. Phytoextraction of Arsenic Using *Pteris* Ferns](#)

Summary: Available from:

<http://www.phytosociety.org/Document%20Bin/2007%20Phyto%20Conference/ICP%20Abstracts/Presentation%20Abstracts.pdf> [Accessed 15 July]

[Calflora, 2010. *Pteris cretica*.](#)

Summary: Available from : http://www.calflora.org/cgi-bin/species_query.cgi?where-calrecnum=6931 [Accessed July 27, 2010]

Elless, M.P., Bray, C.A., Ferguson, B.W., & Blaylock, M.J., 2007. Validation of fern-based phytofiltration for continuous removal of arsenic from drinking water. International Phytotechnologies Conference 2007.

[Fern Factor, 2004. Catalogue 2004-2005.](#)

Summary: Available from: <http://www.fernfactor.co.nz/catalogwww.pdf> [Accessed July 27, 2010]

[Flora of Australia, 1998. *Pteris cretica* Australian Biological Resources Study, Canberra.](#)

Summary: Available from: <http://www.anbg.gov.au/abrs/online-resources/flora/redirect.jsp> [Accessed July 26, 2010]

[Florida Natural Areas Inventory \(FNAI\), 2010. Guide to the Natural Communities of Florida: 2010 Edition Limestone Outcrop](#)

Summary: Available from: http://www.fnai.org/PDF/NC/Limestone_Outcrop_Final_2010.pdf [Accessed 15 July]

[Integrated Taxonomy Information Service \(ITIS\), 2010. *Pteris cretica* L.](#)

Summary: Available from: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=17701 [Accessed July 26, 2010]

Jones, George Neville, 1955. On the Occurrence of *Pteris multifida* in the United States. American Fern Journal, Vol. 45, No. 3 (Jul. - Sep., 1955), pp. 107-113

Mitcalfe, B.J., & Horne, J.C. 2005. A botanical survey of the indigenous forest remnants in Wellington Botanic Garden, Glenmore Street, Wellington. Friends of the Wellington Botanic Garden Incorporated.

[Morton, F. Julia, 1976. Pestiferous spread of many ornamental and fruit species in Florida. Proc. Fla. State Hort. Soc. 89: 348-352 1976](#)

Summary: Available from: [http://www.fshs.org/Proceedings/Password%20Protected/1976%20Vol.%2089/348-353%20\(MORTON\).pdf](http://www.fshs.org/Proceedings/Password%20Protected/1976%20Vol.%2089/348-353%20(MORTON).pdf) [Accessed 15 July]

[NatureServe, 2009. *Pteris cretica* - L. Cretan Fern. NatureServe Explorer: An online encyclopedia of life \[web application\]. Version 7.1. NatureServe, Arlington, Virginia.](#)

Summary: Available from: <http://www.natureserve.org/explorer/servlet/NatureServe?searchName=Pteris+cretica> [Accessed 15 July]

[Nauman, C.E. 1993. *Pteris*. In: Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 16+ vols. New York and Oxford, Vol. 2](#)

Summary: Available from: http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=200003349 [Accessed July 16, 2010]

[Pacific Island Ecosystems at Risk \(PIER\), 2008. *Pteris cretica* L., Pteridaceae](#)

Summary: Available from: http://www.hear.org/pier/species/pterus_cretica.htm [Accessed 15 July]

Porter, S., Aldridge, B., & Wilcox, F. 2009. Ecological effects assessment of the proposed Titoki Sands Ltd quarry access road and culvert on the Mangaone Stream. Kessels and Associates Ltd., for Titoki Sands Ltd.

Reynolds, F.C.P. 2002. A catalogue of alien plants in Ireland: ferns and gymnosperms. Occasional Papers, 14, 45-52

[Robinson, R. N., 2009. Invasive and Problem Ferns: A European Perspective. International Urban Ecology Review, No 4, 2009](#)

Summary: Available from: http://www.ukconet.co.uk/images/stories/news/Aliens_Proceedings_CD_web.pdf#page=83 [Accessed 15 July]

Stace, C. 2010. New flora of the British Isles. Canterbury University Press. 3rd Edition.

[Starr, Forest & Kim Starr, 2008. Plants of Hawaii: *Pteris cretica* \(cretan brake\)](#)

Summary: Available from: <http://www.hear.org/starr/images/species/?q=pterus+cretica&o=plants> [Accessed 15 July]

[USDA, ARS, 2010. Taxon: *Pteris cretica* 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?311394> [Accessed 15 July]

[USDA-NRCS, 2010. *Pteris cretica* L. Cretan brake. The PLANTS Database \(<http://plants.usda.gov>, 15 July 2010\). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.](#)

Summary: Available from: <http://plants.usda.gov/java/profile?symbol=PTCR2> [Accessed 15 July]

Valier, K. 1995. Ferns of Hawaii. University of Hawaii Press

[Webb, C. J., Sykes, W.R., & Garnock-Jones, P.J. 1988. Flora of New Zealand Volume IV; Naturalised Pteridophytes, Gymnosperms, Dicotyledons. Christchurch, Botany Division, D.S.I.R.](#)

Summary: Available from <http://floraseries.landcareresearch.co.nz/pages/Book.aspx?fileName=Flora%204.xml> [Accessed July 15, 2010]