Berberis darwinii **System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Ranunculales	Berberidaceae

Common name Darwin's Berberis (English), Darwin's Barberry (English), berbére (French)

Synonym

Similar species *Berberis thunbergii, Berberis vulgaris*

Summary *Berberis darwinii* exists as varying habits in New Zealand from shrubs with interlaced branches, reaching 3-4m in height and 3-6m wide in the open and at the forest edge to lianoid small trees growing to about 10m and spreading 15m under the forest canopy. Dispersal is key to *B. darwinii*'s survival. Introduced bird species act as dispersers in New Zealand. Despite being considered a shade-tolerant species it has been shown that *B. darwinii* actually requires high light environments to germinate. It is tolerant of both frost and drought.

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Species Description
Berberis darwinii exists as varying habits in New Zealand, from shrubs with interlaced branches, reaching 3-4m in height and 3-6m wide in the open and at the forest edge to lianoid small trees growing to about 10m and spreading 15m under the forest canopy (Allen & Wilson, 1992). Dispersal is key to *Berberis darwinii*'s survival as shown by MacAlpine & Jesson (2008). They found great numbers of seeds dispersed at least 150m, with others also being consistantly detected up to 450m away from the parent population. This was further shown in their study with seedling survival; nearly all seedlings under the parent population died within the first 5 months of germination. Despite being considered a shade-tolerant species (Webb *et al* 1988), MacAlpine & Jesson (2008) and MacAlpine *et al* (2008) have shown that *B. darwinii* actually requires high light environments to germinate. It is tolerant of both frost and drought (Allen 1991; Timmins & Mackenzie 1995; as seen in McAlpine & Jesson, 2007)

Lifecycle Stages
Berberis darwinii flowers in Spring (August to November) and fruits in Summer (December to February) in New Zealand, (MacAlpine & Jesson, 2008), although fruits and flowers can both be seen on the species nearly year-round (Webb *et al*, 1988; as seen in McAlpine & Jesson, 2008).

Reproduction
The main pollinator in New Zealand of *Berberis darwinii* is the honey bee (*Apis mellifera*) (Allen & Wilson, 1992).

Management Info
Preventative measures: On the Falkland Islands, Whitehead (2008; as seen in Oyley *et al*, 2008) conducted a risk assessment on potentially invasive species. *Berberis darwinii* scored 18. Any species with a score over 15 is considered invasive.
Physical: Several management techniques have been trialled on *B. darwinii* in New Zealand (Ward & Henzell, 2004), each a combination of physical and chemical methods. Cut-Stem treatment on saplings proved very effective and involves the cutting of all sapling stems coupled with an application of herbicide. A Wedge-Method and a Trunk Injection method, whilst not entirely physical, each proved very effective when also coupled with herbicide. The Wedge-Method involves the cutting of wedges out of the trees at constant intervals and applying herbicide within each wedge. The trunk Injection technique involves the drilling of holes into the main tree trunks and injecting herbicide within each hole. The Cut-Stem and Wedge-Method each had a 100% kill rate in trials, whereas the Trunk Injection had an 80-90% kill rate. These methods have only been trialled within New Zealand (Ward & Henzell, 2004).
Chemical: Several management techniques have been trialled on *B. darwinii* in New Zealand (Ward & Henzell, 2004), each a combination of physical and chemical methods. Cut-Stem treatment on saplings proved very effective and involves the cutting of all sapling stems coupled with an application of herbicide. A Wedge-Method and a Trunk Injection method, each proved very effective when also coupled with herbicide. The Wedge-Method involves the cutting of wedges out of the trees at constant intervals and applying herbicide within each wedge. The trunk Injection technique involves the drilling of holes into the main tree trunks and injecting herbicide within each hole. The Cut-Stem and Wedge-Method each had a 100% kill rate in trials, whereas the Trunk Injection had an 80-90% kill rate. The most effective herbicide found within these trials was the Vigilant herbicide (a mixture of 5% picloram potassium salt). These methods have only been trialled within New Zealand (Ward & Henzell, 2004).
Biological: MacAlpine *et al* (2008) suggest that controlling efforts should be directed at removing individuals in high light as opposed to across all environments, due to its fast growth capabilities in such an environment. MacAlpine & Jesson (2008) further suggest that control should focus on elimination of the seed source, however when this is not possible, efforts should ignore seedlings under parent populations as they generally don't survive anyway, and that the seed bank should be of no concern as most seeds do not last for more than 1 year.

Principal source:

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

Review:

Pubblication date: 2010-06-08

ALIEN RANGE

[1] AUSTRALIA
[1] IRELAND
[3] UNITED STATES
[1] FALKLAND ISLANDS (MALVINAS)
[1] NEW ZEALAND

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16 references found for **Berberis darwinii**

Managment information

IUCN/SSC Invasive Species Specialist Group (ISSG)., 2010. A Compilation of Information Sources for Conservation Managers.
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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