

Menai Strait Whitebeam

Sorbus arvonensis P.D.Sell

An apomictic tetraploid shrub or small tree to at least 10 m tall. It is found on the top of the shore of the Menai Strait on limestone rock in open and tall woodland. Most of the known plants are protected within North Wales Wildlife Trust's Nant Porth Nature Reserve. The species is threatened by rising sea levels (Rivers and Rich'2017), thus, a detailed understanding of its ex-situ requirements could greatly aid future conservation efforts (IUCN Species Survival Commission, 2014). There are at least two *ex situ* collections known for this species, including one *ex situ* collection in the Millennium Seed Bank, Wakehurst Place however neither of these ex-situ sites is documented on Botanic Gardens Conservation International's Plant Search database (PlantSearch, 2018) and as such do not count toward the Global Strategy For Plant Conservation's target 8: At least 75 per cent of threatened plant species in *ex situ* collections, preferably in the country of origin, and at least 20 per cent available for recovery and restoration programmes (CBD, 2010)

Background

S. arvonensis is a shrub or small tree to at least 10 m tall. It is found on the top of the shore of the Menai Strait on limestone rock in open and tall woodland is endemic to this area of the Menai Strait, in North Wales. The population contains about 30 plants, and most of these are thought to be mature. It also has a highly restricted range (both extent of occurrence and area of occupancy) and is found at a single location. The main threat is from future sea level rise. Both the extent of occurrence (EOO) and the area of occupancy (AOO) are very small (<4 km² and probably c.0.1 km²). It is found in a single location. In the future sea level rise could be a significant threat to this species, through causing erosion of the shoreline. It is therefore classified as Critically Endangered.

IUCN Red List Category & Criteria:	Critically Endangered D ver 3.1
Year Published:	2017
Date Assessed:	2016-06-09
Assessor(s):	Rivers, M.C. & Rich, T.C.G.
Reviewer(s):	Salvesen, P.H. & Allen, D.J.

Project details

Sorbus arvonensis is currently not documented as being cultivated in any botanic garden (BGCI PlantSearch 2018) and is held under the name *Sorbus menai-strait* ined. In the Royal Botanic Garden, Kew's Millenium Seed Bank where 2839 seeds are held and have shown a 0% viability in germination trials (Millenium Seed Bank Partnership, 2018). It is also known to have historically been grown at Ness Botanic Garden (McAllister, Pers. Coms.).

This joint project between FossilPlants and the National Botanic Garden of Wales would aim to bring into cultivation a number of individuals of *Sorbus arvonensis* through seed collection, produce a cultivation protocol for the species; as per the guidelines of the International Union for the Conservation of Nature (IUCN) Species Survival Commission Guidelines on the Use of Ex situ Management for Species Conservation, and thus enable the distribution of plants of this species to the wider botanic garden network securing the species in cultivation.

This project would provide background information for any future restoration or translocation initiative for *S. arvonensis*.

Collection method statement

Due to a cold winter (Treborth Min. -4.2°C) and warm summer (Treborth max. 34.2°C) *S. arvonensis* has produced an abundant fruit set (Broadmeadow and Ray, 2005) as it did in 2014 (Rivers and Rich, 2017). The opportunity should be taken to collect seed to carry out a collaborative ex-situ conservation management program for this species.

Seed would be collected from each of the fruit bearing mature individuals with each collection being accompanied by an unambiguous identifier in the form of a collecting number.

A maximum of 10% of fruit on each individual would be collected although in reality this percentage would be significantly less and be more likely <5%.

A voucher specimen for each individual would also be collected and stored for future verification purposes.

Seed would then be transferred to and germinated at both the National Botanic Garden of Wales, Llanarthne SA32 8HN and FossilPlants' Conservation Research Nursery, Treborth, Bangor, LL57 2NX where its ex situ management would be observed, documented and subsequently published to aid future ex-situ management and potential restoration initiatives.

Individuals from the project would be distributed to suitable botanic collections within the UK.

About

National Botanic Garden of Wales seeks to develop a viable world-class national botanic garden dedicated to the research and conservation of biodiversity, lifelong learning and the enjoyment of the visitor. The Garden is a registered charity and accredited by BGCI as a botanic garden.

FossilPlants is a small, private, botanic garden and conservation research nursery based in Llanberis, North Wales and Bangor, North Wales. Its main aim is that of conservation, education and to promote the study of plant evolution, paleobotany, taxonomy and plant sciences for all. FossilPlants is an institutional member of BGCI.

References

M. Rivers and T. Rich, The IUCN Red List of Threatened Species, 2017, <http://www.iucnredlist.org/details/97154635/0>, accessed July 2018.

IUCN Species Survival Commission Guidelines on the Use of Ex situ Management for Species Conservation Version 2.0, IUCN Species Survival Commission, 2014.

BGCI PlantSearch database. https://www.bgci.org/plant_search.php , accessed July 2018.

Global Strategy for Plant Conservation, The Convention on Biological Diversity, 2010. <https://www.bgci.org/policy/gspc/>

Millennium Seed Bank Partnership, <http://brahmsonline.kew.org/msbp>, accessed July 2018.

M. Broadmeadow and D. Ray, Climate Change and British Woodland, The Forestry Commission, 2005