

AN ACCESSIONS POLICY FOR BRECHFA FOREST GARDEN

Background

Brechfa Forest Garden covers a site of some 11ha near Abergorlech, in Llanymddyfri Forest District, on either side of a ridge dividing two tributaries of the Afon Gothi. The Forest Garden was established in the late 1950s and early 1960s by local foresters with the apparent objective of creating a collection of species to assess their suitability for forest use. In all the site currently contains plots of 86 different species of which 56 are conifers and 30 broadleaves. The plots are located at elevations between 150m and 250m and are on slopes of both northerly and southerly aspects. Before planting the whole area was open hillside grazed by sheep.

Although early data is scarce, an invaluable list of seed origins and planting treatments has survived. Some establishment records also survive from 1965, 68, 83 & 88.

Forest Research (FR) took over the management of the site in 1982 and work was undertaken to clear neglected plots, brash trees and open up access paths. For a number of years after that the plots were assessed research staff as funds permitted. A number of mensuration sample plots were established in 1982 to provide more detailed information on the yield of some of the less common species. FR continued to manage the site until the early 2000s after which the Forest District staff assumed overall responsibility. Two mensuration plots are still maintained and measured by FR – Macedonian Pine (*Pinus Puce*) and Coast Redwood (*Sequoia Sempervirens*), a third – Western Hemlock (*Tsuga Heterophylla*) has been removed.

The Forest District is keen to improve the Forest Garden and incorporate it into the wider recreational attraction of woodlands in the Abergorlech area. There is a car park and mountain bike route which encourage visitors and any improvements to the access and interpretation of the Forest Gardens will be an additional attraction. Currently access on foot from the existing car park takes approximately ¾ hour so visitor numbers will be limited unless vehicular access to the site can be improved. In partnership with the charity Woodland Heritage some work has been done since 2000 to improve signage and access on the site and also some plots have been replanted.

An assessment of the plots in 1998 (Danby and Mason) recognised their value as a living demonstration of a wide range of trees growing under forest conditions. This has become more relevant as we seek to increase the diversity of our woodlands to address climate change and its effects. At the time of the 1998 assessment the importance of maintaining records and replacing failed plots was stressed as was the recognition that information derived from the plots would illustrate the appropriate selection of species adapted to the sites where they were to be planted.

The climate is very favourable to tree growth with a mean annual rainfall of 1700mm and accumulated day degrees of 1375 – 1650. The plots lie within the 'warm moist' climatic zone as defined by the Ecological Site Classification (FC Bulletin 124) which makes the site suited to growing species from similar climatic zones worldwide. This climatic zone is also represents a significant proportion of Wales at lower elevations below 400 metres. See the *Guide for increasing tree species diversity in Wales*. Richard Carrick 2010.

The aim of this document is to identify the tree species that should be considered for future planting at Brechfa which will maintain the collection and support the main objectives for the site which are:

- To provide a display of an extensive range of trees growing in forest conditions to aid species selection to increase the diversity of woodlands

- To act as a trial for species anticipated to be suited to predicted climate change in Wales
- To illustrate and support Welsh forestry policies for increasing woodland diversity.
- To provide a collection of trees as an important resource for research and educational purposes
- To provide a destination for visitors as part of the wider recreational attraction of FCW woodlands in the Abergorlech area
- To raise the profile of the role FCW is playing in providing evidence for the need to change woodland management practices in response to a changing climate.

Implementation

Managed by staff in Llanymddyfri the Forest Garden is to be maintained and improved. A management plan is to be produced for the site and this accession plan will feed into it.

As part of the process to raise the profile of Brechfa Forest Gardens a partnership with the National Botanic Garden of Wales will be developed. Through this the educational and botanical value of the Forest Gardens can be highlighted and joint working can seek to create a national tree collection in this part of Wales.

The size of the plots (each existing plot is between 0.05 – 0.15 ha) will generally be maintained with 125 as the minimum number of trees of each species being planted.

One of the main objectives of the Forest Gardens is to provide a trial for species anticipated to be suited to changing climate in Wales. The focus be on those species which:

- May be anticipated to be adapted to a future climate
- Have the potential to produce utilisable timber.

It is assumed that work to remove or replace plots will involve just one or two plots per year. Plants will be raised by Forest Research or nurseries equipped to handle propagation of small lots. Close links will be made with seed collecting expeditions involving staff from Westonbirt and Bedgebury. The aim will be to grow material from wild sources of known origins wherever possible. **Appendix 1** lists those species that are to be considered for future planting with some commentary on the justification for their selection.

At the time of the last assessment in 2004 (Mason) over 65% of the collection was made up of conifer species. It is proposed that future planting should focus on *Abies* species. This genus is already well-represented in the Forest Garden and includes potentially useful shade-tolerant species which will be suited to CCF systems – use of which is to increase in Wales.

Support for Welsh Government Forestry policy

The maintenance and enhancement of the Brechfa Forest Gardens collection meets a number of aspirations of the Welsh Government (WG) as expressed in *Woodlands for Wales* (2009) the strategy for woodlands and trees. The evidence provided by the growth of different species will inform actions that support the following strategic outcomes:

- **Woodland ecosystems are healthy and resilient**

WG want woodlands in Wales to be more diverse to make them more resilient to the impacts of climate change and the effects of pests and diseases. One of the ways it seeks to do this is to increase the diversity of species planted and to move away from single aged single species plantations. The range of species grown in Brechfa will provide live examples of trees that are suited to the Welsh climate.

Brechfa Forest Gardens will help support the delivery of an action set out in the strategy's associated action plan:

3.a) Develop and publish guidance on increasing the diversity of woodlands in Wales, and apply this guidance to the Welsh Government Woodland Estate. Promote the guidance and encourage other woodland owners to apply it.

The Forest Gardens provide an educational tool to illustrate this guidance. In fact events have already been held there involving the private sector to encourage the use of a more diverse range of species.

- **Woodlands are better adapted to deliver a full range of benefits**

Moving away from single aged single species plantations will help woodlands adapt. Species growing in Brechfa will provide living examples of options for woodland owners and managers.

The Forest Gardens will also indirectly contribute to other outcomes from *Woodlands for Wales*:

- **More people enjoy the lifelong learning benefits of woodlands and their products**

Through their improvement and interpretation they will become a better learning resource for all ages.

- **More people live healthier lives as a result of their use and enjoyment of woodlands**

As the management of the Forest Gardens improves they will become a more attractive destination for visitors and more people will be encouraged to use the outdoors for healthy recreational activities

Records

All material planted in the Forest Gardens must be listed in the database of the collection. This will list the location of a plot, the species, the origin and identity of the source material, the number of trees planted and any other relevant information. The database will be updated annually with copies held by the Forest District, Forest Research at NRS, and the Curator of FC's National Collections.

In Appendix I we list all the species that have been planted at Brechfa Forest Gardens since the beginning of the collection in the 1950s those that were alive at the time of the last systematic surveys in the late 1990s, and those species which are proposed for future planting.

References

Brechfa Forest Plots: Results after 40 years. Neville Danby and Bill Mason. Royal Forestry Society Journal 1998 Vol 92 no. 2

An Ecological Site Classification for Forestry in Britain (2001) - FC Bulletin 124 Graham Pyatt, Duncan Ray and Jane Fletcher

Guide for increasing tree species diversity in Wales. (2010) Richard Carrick, FC Wales

Woodlands for Wales (2009) The Welsh Government's strategy for woodlands and trees