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Royal Botanic Garden Edinburgh

**Help Save the Giant Sequoia Avenue at
Benmore Botanic Garden**

**Prepared for Soroptimist International
January 2021**

rbge.org.uk/support-us/benmore-sequoia-appeal/

Introduction

Thank you for your interest in supporting the future of Scotland's Giant Sequoia Avenue at Benmore Botanic Garden. Following on conversations with several members of Soroptimist International based in Scotland, this document shares information about the Giant Sequoia Avenue, an area of remarkable beauty in Argyll on Scotland's west coast. We are honoured that Soroptimist International members are looking to mark the centenary of their founding, and to connect to their early philanthropic work Saving the



Redwoods in California. Your support would enable us to access essential materials that are urgently needed to safeguard these trees for future generations.

Described as one of the finest entrances to a botanical garden anywhere in the world, the magnificent Giant Sequoia Avenue at Benmore Botanic Garden is in desperate need of innovative actions or risks being lost to the nation through climate change and

disease. Work began in 2019 to assess the damage caused by waterlogging and compaction, and equipment has been purchased to carry out critical preservation work. To ensure this time-sensitive work can be delivered, we have launched an appeal to help cover the costs for geo injection materials, a horticultural apprenticeship, and staff time as part of a multi-year programme informed by a consultancy exercise carried out in 2019.

The Giant Sequoia Avenue: An Historic and Environmental Landmark

The magnificent Giant Sequoia Avenue at Benmore Botanic Garden was planted in 1863 by the wealthy American James Piers Patrick, and lined the original driveway to Benmore House. These trees (*Sequoiadendron giganteum*), native to California, were among the earliest to reach British shores when the species had only just been introduced to the outside world. This makes Benmore's 49



redwoods some of Europe's oldest and tallest, reaching up more than 50m high. They are still young at 158 years old, and have the potential to grow for millenia like their counterparts in the Sierra Nevada mountains.

Top left image: Benmore Avenue looking east, c. 1900, when the trees lined the driveway to Benmore House. Photo from the Younger Family Archive. Lower right image: The Avenue in the 1970s. Photo by RBGE Staff Member.

Threats to the Avenue's Future

Today, the spectre of climate change hangs over the trees and its effects are already marked. Benmore Curator Peter Baxter has described the problem:

‘The trees are now existing, rather than growing. Their crowns are thinning and many lower branches are completely defoliated. The reasons for the decline, which has accelerated worryingly in recent years, are complex and multifaceted. Soil compaction may be central to the issue, with the Avenue having for many years provided the main vehicle access to the house. Only a very thin layer of topsoil supports the turf that now tops the original hard-core road. This, combined with a typically wet west coast climate, and limited drainage, causes serious waterlogging and puddling around the roots.’

Mycologist and plant health expert Dr Katherine Hayden has assessed the issues: ‘The waterlogging can have dangerous consequences, both through creating a favourable habitat for pathogens, and by increasing trees’ disease-susceptibility through stress. The condition of the Benmore redwoods clearly suggests root problems’.



Left: An example of healthy foliage. Right: Unhealthy foliage, which has become increasingly prevalent in the avenue. Images by Peter Baxter.

The situation is expected to worsen. Using models developed by the UK Met Office, Benmore is anticipated to experience both increased rainfall, especially during winter, and more intense storms resulting in more rapid ground saturation.

A scientific approach is being taken to resolve the plight of the redwoods. With initial remedial action now in place, more drastic change is required to step up conservation efforts. The hope is that the answer lies in improving and accelerating soil drainage, preventing puddling and waterlogging around these delicate giants’ roots. This, in turn, should significantly reduce the ‘pathogen pressure’ the trees currently face.

Identifying and Implementing Solutions to these Threats

Benmore Botanic Garden is currently in the midst of critical activity informed by a consultancy period. Below is a summary of how we will continue this innovative work into 2023.

Phase 1: Consultancy Period, and Acquiring Materials, 2019 - 2020

Thanks to a combination of the Garden's own financial resources, grant funding, and gifts from individuals, we were able to carry out consultancy work that demonstrated geo injection will be an effective means of mitigating the threats to our Giant Sequoia Avenue.

Phase 2: Implementing Geo Injection, 2020 - 2022

We are currently in the early stages of geo injection and air lancing work, a critical step in helping to reduce waterlogging at the trees' roots. We also intend to appoint a horticultural apprentice, which will give a young person in Argyll the opportunity to train while contributing to this essential work. We have received much-needed grant funding and individual gifts for some of this activity, and are continuing to seek support to help us carry out this work.

Phase 3: Constructing a Central Drainage Raft, 2021-2023

Following the geo injection and air lancing work, we will construct a new central drainage raft along the entire grassed length of the avenue.

Below: An image taken during the consultancy period in 2019, resulting in the recommended activity that we are now implementing. Photo by Peter Baxter.





How you can help

If individual members of Soroptimist International are interested in making a gift to help us save this magnificent avenue, there are two easy ways to do this:

- Make a donation on our website: rbge.org.uk/support-us/benmore-sequoia-appeal/
- Become a Community Fundraiser to Save Benmore's Giant Sequoia Avenue on JustGiving: justgiving.com/campaign/benmoregiants

If groups would like to discuss making a larger gift to the project – for example, to establish a new horticultural apprenticeship – we would be very happy to arrange a conversation to discuss additional details.

**Thank you for your interest in supporting the future of
Benmore's Giant Sequoia Avenue.**

Above: An image of the new planting and mowing regime, started in 2015 to help mitigate the threat of waterlogging. Photo by Peter Baxter.



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