UGRLS Project Proposal: Ecological benefits of the gardens of historic homes

1. **Research Project Leader:** Julie Peacock and Karen Bacon

2. **Scholarship Project Supervisor:** Julie Peacock and Karen Bacon

3. **Working title of Scholarship Project:** Ecological benefits of differing management strategies on ancient trees

4. **Period of Scholarship Project Work:** 6 weeks May-September 2017 and 2018, to fit with student’s and Harewood’s timetables.

5. **Summary of the research to which the Scholar will contribute:**

   Large stately homes and their accompanying gardens provide a unique ecosystem with characteristic flora, fauna and soil function. Across the UK the Historic House Association supports over 1600 historic homes and their associated gardens. These gardens are of huge ecological importance. Not only for the diverse plant species they support, both native, wild and cultivated species and hybrids, but also for their potential to store significant amounts of carbon in their soils. Many such homes are on the edge of urban environments and they can help mitigate human impacts through the ecosystem services they provide. The Harewood House estate in Yorkshire has been actively managed for over 200 years and provides an ideal location to assess the management practices on plant and soil function and to assess its resilience to ongoing threats including climate change and disease outbreaks.

6. **Summary of the work to be undertaken by the Scholar:**

   As places of outstanding beauty and cultural significance, historic parks and gardens are important to society today in providing a stimulating and healthy environment for outdoor activities and social wellbeing. Many of the trees integral to these landscapes are of great age and, as independent ecosystems, they are naturally produce dead wood and shed branches. People accessing the area within falling distance of trees and their branches is therefore a concern for property management staff responsible for the conservation of heritage trees.

   One of the accepted methods of discouraging access to the ground beneath large trees is to allow long grass to grow under the trees. Although this method detracts from the original aesthetic design of the park it is preferred to obtrusive physical barriers. Moreover, rather than merely serving as a compromise these long grass zones may well be beneficial to the tree, such as in reducing soil compaction, protecting roots and supporting a greater range of biological communities beneficial to the tree.

   The Scholar will undertake a literature review, fieldwork, lab and data analysis and produce a report for the Harewood House Trust. Additionally, the scholar will develop educational/outreach materials to highlight the project’s findings to the general public.

7. **Detail of the work to be undertaken by the Scholar:**

   The Scholar will be responsible for developing specific aims and objectives for their project, with clear guidance from their supervisors and in negotiation with representatives from the Harewood House.

   They would undertake a literature review, plan and carry out a field campaign (with support from supervisors and Harewood Estate Managers), undertake lab analysis,
analyse data and produce a final report for Harewood House. In addition they will plan an outreach/educational activity for the public at Harewood and give a conference presentation.

The project is likely to focus on three to four different tree species chosen by the Scholar with guidance from the Harewood House Head Gardener, analysis of soil nutrients, soil carbon and bulk density. The Scholar will also conduct surveys of ground flora and insects at both ground level and in the trees.

8. **Detail of the Leadership development to be undertaken as part of the project**

The student will be responsible for developing project aims and objectives in negotiation with representatives from the Harewood House Trust and project supervisors. This will provide the Scholar with experience of research leadership and project planning.

They would undertake a literature review, lead the field campaign (with support from supervisors and Harewood Estate Managers), analyse data and produce a final report. We would expect the Scholar to spend one to two weeks each year in the field, the remaining time would be in preparation, and analysis of samples and data collected and dissemination. The Scholar will also present interim findings internally in Geography (at an EGC cluster meeting) and final results both internally and externally (British Ecological Society (BES) annual meeting).

Development of the educational/outreach materials for Harewood House would be led by the student, and they would need to decide the most appropriate way to produce these resources. The student will also be encouraged to lead an outreach event at the end of the project to highlight the findings to the public.

9. **Outputs expected of the Scholar including the final report**

- Produce a two page interim report for Harewood Estate Managers – end of year 1
- Present at a research cluster meeting in the School of Geography – end of year 1
- Outreach Event for the public to be delivered at Harewood House– end of year 2
- Produce a final report for Harewood Estate Managers – end of year 2
- Present at the BES annual meeting (oral or poster presentation) – end of year 2

10. **Details of supervision arrangements**

Julie Peacock and Karen Bacon will be available to meet with the Scholar before, during and at the end of the project. Supervisors will meet with the Scholar regularly (at least once every two weeks) and will be available for non-formal meetings throughout the placement. The Head Gardener at Harewood House estate will also provide guidance to the student.