**TREES IN OUR GARDENS**

We currently have almost 600 trees growing in our gardens: MP – 281, AP – 39, BG – 252 and RC – 49 of which 75 are new trees planted since 2019.

In managing our tree we follow best practice as set out in the National Tree Safety Group “Common Sense Risk Management of Trees” published by the Forestry Commission. Our trees are regularly inspected by the gardeners who have detailed knowledge of our trees and are very good at identifying potential issues at an early stage. Once potential issues are identified trees are closely monitored and, when necessary, we engage an independent professional arboriculturist to inspect any tree causing concern and then follow his recommendations.

As a general rule in our gardens, large woodland trees should be planted at least 10m apart, mid-sized trees should be at least 6m apart and small understorey trees at least 3m apart with wider spreading species in each case requiring a larger gap. Unfortunately, not all trees have been given this space in the gardens, leading to a few instances of poor-quality trees without enough space to flourish with suppressed crowns and which also have an adverse impact on adjacent trees to which they have been planted too close.

Change in gardens is continual and generally happens slowly. The major exception to this is when trees, and particularly large trees, are lost. Since 2019 we have sadly lost three of our few remaining magnificent mature Elms – one in Ainslie Place (D.E.D.), one at the east end of the Doune Terrace Strip (basal rot cause by Ganoderma fungus) one in Moray Place (also basal rot cause Ganoderma fungus). In both the latter cases, we first undertook substantial crown reduction and pruning to ease the strain on the base but the rot spread fairly rapidly, fatally weakening the structural integrity of the trees. The one in Doune Terrace proved to be significantly worse than the tomograph testing just above ground level disclosed, with very significant rot just below ground level which only became apparent when the stump grinder met little / no resistance. The other trees lost have been mainly poor quality trees growing in the wrong location.

In contrast, the slowest change in the gardens is the rate of growth of new trees, particularly newly planted woodland trees – after all it has taken almost 200 years for our larger woodland trees to reach their current size. Appendix I contains a note of the 13 trees lost since 2019 and in Appendix II the 75 trees which have been planted in that period. We have lost 9 large woodland trees species (of which only 3 were large mature trees) and planted 10 (with 2 further planned at present); 1 M/L tree and planted 5; 1 M and planted 16; 1 S/M and planted 14 and 1 S and planted 29. This is probably the most extensive planting of new trees over a four year period in the gardens since they were first established.

Currently the three major threats to our trees are:-

1. Disease

Dutch Elm Disease has undoubtedly had the most significant adverse impact, not only on our gardens but in Edinburgh as a whole since the disease first reached the city in 1976. The Elm was the main species of tree planted in Edinburgh in the 19th and 20th centuries and Edinburgh became known as the “City of the Elm” and the Elm as “Edinburgh’s tree”. Fortunately, CEC implemented a programme of containment as soon as DED was found in the city which has now been running for almost 50 years. It is testament to the success of this programme that there are still between 10-15000 Elm trees surviving in the city but the war is far from over (See Dutch Elm Disease Management in Edinburgh – treecare.org.uk. Like much of Edinburgh the Elm was one of the most widely planted trees in our gardens. We have, sadly, lost most of our Elms since 1976.

Unfortunately, disease resistant native Elm has not yet been developed. RBGE are promoting a programme to propagate healthy native elms that but this programme will be by its nature and the nature of the disease a long-term project (see Clarkson R & Coleman M “Propagating healthy mature elms that have survived in areas severely impacted by Dutch elm disease; a scoping study for a Wych Elm project in Scotland” published by RBGE March 2022.

Chalara “Ash Dieback” is a more recent disease affecting Ash trees in the UK and our trees have not been immune. We closely monitor our Ash trees for disease. Ash is a particularly brittle wood which means pruning dead branches at height is both essential and challenging. Fortunately, to date, removing dead branches affected by the disease appears to have met with some success, with a good amount of epicormic regrowth of the crown after pruning, but it is still very early days and only time will tell the effect of this disease on the Ash in our gardens.

1. Age

Trees are living organisms which can have very long lives but they do not last for ever. Many of our trees are approaching 200 years old. As they age, they become more prone to suffer from fungal attack and disease, as shown by both the Doune Terrace Elm and the Moray Place Elm and the Weeping Ash in the Bank garden, all venerable old trees lost in recent years.

1. Climate Change

Probably the greatest challenge facing our trees is the effect of climate change – wetter winters, summer droughts and stronger winds throughout the year being the most obvious challenges but, as all aspects of biodiversity face challenges, it will take some time to measure and understand the full effects of climate change on our trees.

In a keynote lecture in 2021, Sir David Attenborough highlighted the absolute importance of conservation and protection of endangered plants and, in particular, endangered trees throughout the world. One of the exemplars of this is the International Conifer Conservation Project of which RGBE is a leading participant. Malcolm Gardner was, for many years, the driving force behind this project until he retired last year. He provided us with seven of the worlds most endangered Conifers, the development of which in a city centre garden will provide some useful data for this research. Full details of these trees are in Appendix III.

It is now becoming ever clearer that, whilst many plants will adjust over time to climate change in their location, not all will. For this reason, it is becoming ever more important in planting for the future that a wide range of plants and trees is required to create a sustainable garden – native trees and plants will not all survive. This is a particular concern in the UK where we only have 1625 native plant species of which only 46 are trees. It is somewhat ironic that the Rhododendron ponticum which has been a blight, particularly in areas of the West Coast of Scotland and beyond, is now an endangered species in its native Spain and Portugal as a result of climate change.

It is always difficult and distressing to instruct our tree surgeons to fell a tree, even although there is invariably no choice in doing so.

Choosing new trees to plant, whilst always a joy, is, nevertheless, a much more difficult decision to make and is only made after a lot of careful consideration.

We have acquired some hawthorn, hazel and walnut trees from the “1,000,000 trees for Edinburgh” project – the hawthorn will be planted in the Bank garden adjacent to the wall with Baxters land; we intend to plant the hazel in a group to form a nuttery and have one or two prospective locations for some walnuts.

There are several particular highlights of recent tree planting in our gardens.

* 75 new trees planted, a net gain of 62 and an increase of almost 15% gross and a net gain of almost 12% in the trees in our gardens.
* Planting five Arran Sorbus, including Scotland’s rarest native tree (see “Arran’s unique trees” - <https://stories.rbge.org.uk/archives/13616> for more information). These delightful native trees were grown from seed at RBGE and acquired for our gardens through Paul Broda.
* Participating in the International Conifer Conservation Programme with the planting of seven of the world’s most endangered conifers, including what is believed to be the most endangered conifer, something Feuars can be particularly proud of.
* Planting the scientists’ Apple trees in collaboration with and in support of the James Clerk Maxwell Foundation. These trees should be well established and will hopefully produce fruit by the time of his bi-centenary in 2032. See Appendix 1V
* Planting four native Oaks with a fifth to follow, almost tripling the number of native Oaks in our gardens.
* Planting the Zelkova Serrata, a member of the Elm family, in Ainslie Place.
* Planting the Ginkgo Biloba in Moray Place garden – the world’s oldest tree – a single species unchanged for over 200 million years which once covered most parts of the world, including the UK.

(see https://e360.yale.edu/features/peter\_crane\_history\_of\_ginkgo\_earths\_oldest\_tree).

**APPENDIX I – Trees Lost Since 2019**

Moray Place

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Species** | **Type** | **Location** | **Year Felled** | **Comment** |
| Hawthorn | S Mature | The roundel | 2019 | Tree dead |
| Sycamore | Early Mature  L | On outer border opposite 10-11 Moray Place | 2019 | Tree planted inappropriately by Feuar, in poor condition and planted too close to adjacent much larger Sycamore |
| Highclere Holly | Early Mature  S/M | Bed in north-east quadrant opposite 4-5 Moray Place | 2019 | Allowed to overgrow for its location in shrub / flowerbed. Blocking light and impeding adjacent shrubs. |
| Wych Elm | Mature  L | Adjacent to barbecue | 2022 | Large old specimen suffering from Ganoderma fungus which had spread rapidly in space rendering the tree structural unsound. |

Ainslie Place

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Species** | **Type** | **Location** | **Year Felled** | **Comment** |
| Lime | Young L |  | 2020 | Tree developing poorly as planted between and too close to adjacent Whitebeam and a Gean. |
| Elm | Mature  L | Adjacent to east entrance opposite Great Stuart Street |  | Tree suffering from Dutch Elm Disease. Mandatory felling and safe disposal. |

Randolph Crescent

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Species** | **Type** | **Location** | **Year Felled** | **Comment** |
| Silver Lime | Young  M/L | Outer border opposite 9-10 Randolph Crescent | 2019 | Snapped near base in gust of strong wind. |
| Ash | Young  L | In central lawn opposite 6 Randolph Crescent | 2021 | Poor tree planted too close between established trees. |

Bank Garden

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Species** | **Type** | **Location** | **Year Felled** | **Comment** |
| Sycamore | Early Mature  L |  | 2019 | Split in fork of tree increasing in size rendering tree structurally unstable. |
| Sycamore | Early Mature  L |  |  | Poor quality tree with suppressed crown planted too close to adjacent trees. |
| Sycamore | Early Mature  L |  |  | Poor quality tree with suppressed crown planted too close to adjacent trees. |
| Weeping Ash | Mature  M |  |  | Tree in poor condition with decay and suffering Ash Dieback. Structurally unsafe and dying. |
| Elm | Mature  L |  | 2021 | Suffering from Ganoderma fungus which spread causing the tree to be structurally unsound – rot at ground level and just below – very exclusive. |

Trees planted in the gardens in the past 5 years – see appendix annexed.