

Lime Trees at Knepp Castle Estate

Short report with observations, findings, survey results and management recommendations

June 2017

Jamie Simpson – Knepp Estate Arborist and Woodsman

Introduction

I started working on the Knepp Castle Estate in November 2015 in order to aid the conservation value of their trees and woodlands. One of my early tasks was to organise and complete a woodland management plan in partnership with a woodland consultant that fitted with the wilding project and general nature conservation ethos of the estate owner. During visits to the wooded areas to undertake assessments and prescriptions for this plan, it became apparent that there were a number of interesting Lime trees across the estate. It also became clear that there were a variety of different species, forms and age classes and that further investigations were needed to establish the importance of individuals and populations. This was to ensure the estate knew what was present, its significance and safeguard their conservation and future management.

I contacted Hugh Milner of the Limewood Working Group with whom I had worked with on a previous Lime survey in South London and he agreed to a site visit. I took him to the trees I had noted with the primary objective of identifying any relict populations of *Tilia cordata* – Small Leaf Lime. Disappointingly it became clear that Knepp did not have any but there were some interesting plantings in the woodlands and, as expected, the parkland and arboretum veteran Limes were of importance. We both decided that attempts should be made to identify some of the Limes to species and varieties/cultivars and that help was needed for this difficult taxonomic group from Lime specialist Prof. Donald Pigott.

On 14th September 2016 I took six samples which included leaf, bract and seed. All of these were needed to best aid accurate identification. I then sent the samples to Prof. Pigott. They were from a selection of trees that I believed represented the different Limes at Knepp.

Knepp Castle

Donald Pigott Identified Lime Trees



- *Tilia platyphyllos* [Large-leaved Lime]
- *Tilia x europaea* 'Pallida' [Common Lime variety 'pallida']

Tree A – Parkland - Veteran maiden

Tree B – Arboretum - Veteran maiden

Tree C – Parkland - Mature coppice – possibly phoenix growth

Tree D – Southern Block - Recently coppiced woodland tree

Tree E – Southern Block – Mature coppice – Planted

Tree F – Parkland – Veteran coppice – Trollards Barn

Results and Survey

Results from Donald Piggott on 18th September were received via email and are shown below

Dear Jamie,

Your specimens arrived in good condition immediately after we came home from Scotland, having spent the last day at Ancrum near Kelso measuring some very large trees of *Tilia x europaea*, by a mediaeval church in the park.

I have identified your specimens as follows:

T x europaea 'Pallida' A,B,C,F

leaves with small dense patches of pale brown hairs in axils of main veins on underside –
fruits ca. 4-6 mm diameter

T. platyphyllos D,E

leaves with simple colourless hairs prominent along veins and also between them on underside. Fruits ca. 8-10 mm diameter.

Please could you send me your address for sending further information by post.

Kind regards, Donald

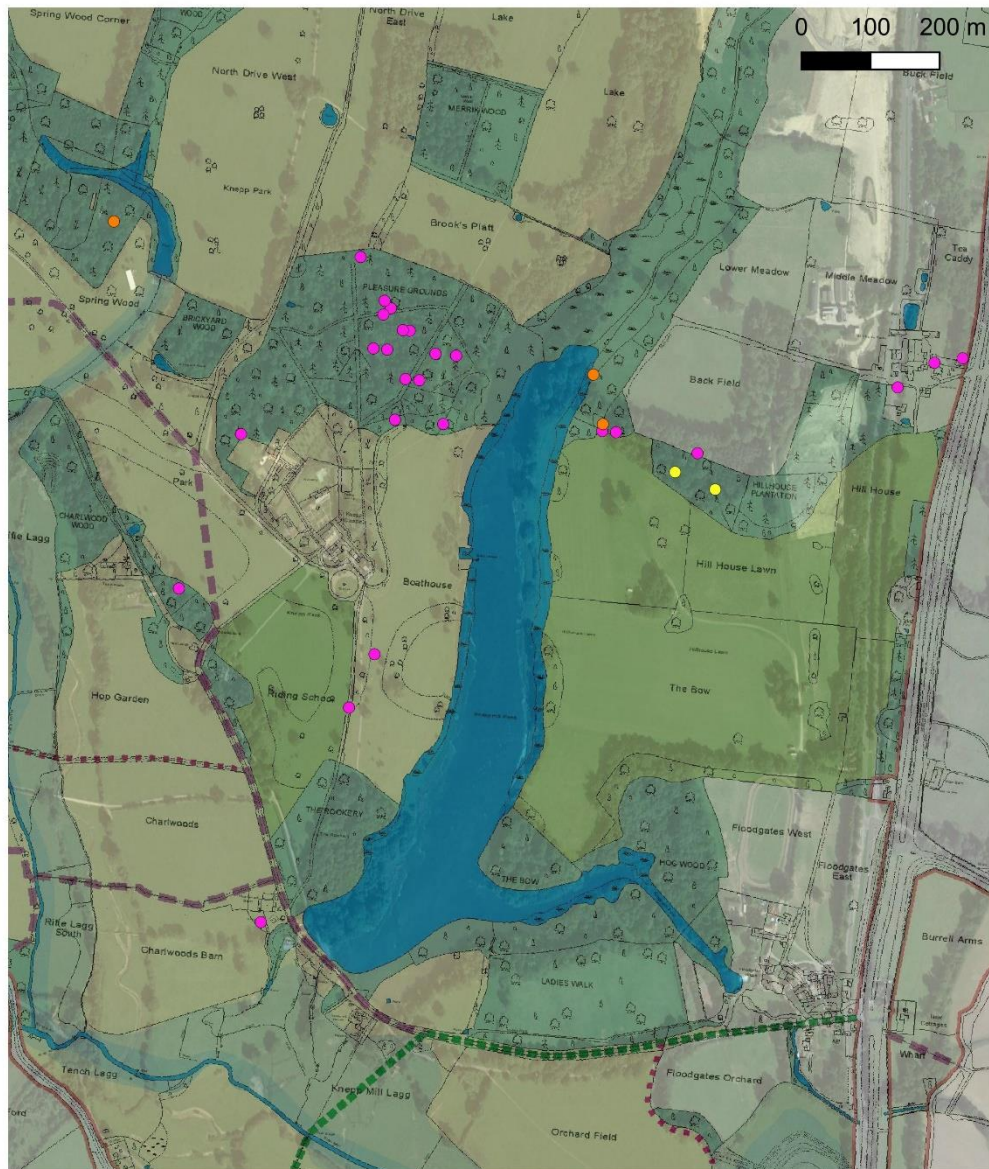
including diagnostic characteristics.

On the back of these results and as a natural next step I decided it was appropriate to map Knepp's most important Lime trees for future reference for the owners, myself, the ecologist and any forestry contractors. As I have a limited amount of time to allocate to recording work due to my multiple responsibilities I have focussed my efforts on notable trees. It is important to say that none of the new parkland plantings have been recorded and other mature/veteran Limes could yet be found. Also, some of the unrecorded new plantings are *Tilia cordata* (for example the new avenue at

New Barn Farm). I undertook this mapping exercise in May 2017 with Rachael Thornley who is familiar with botanical data collection and producing GIS maps. The survey results are below.

Knepp Castle

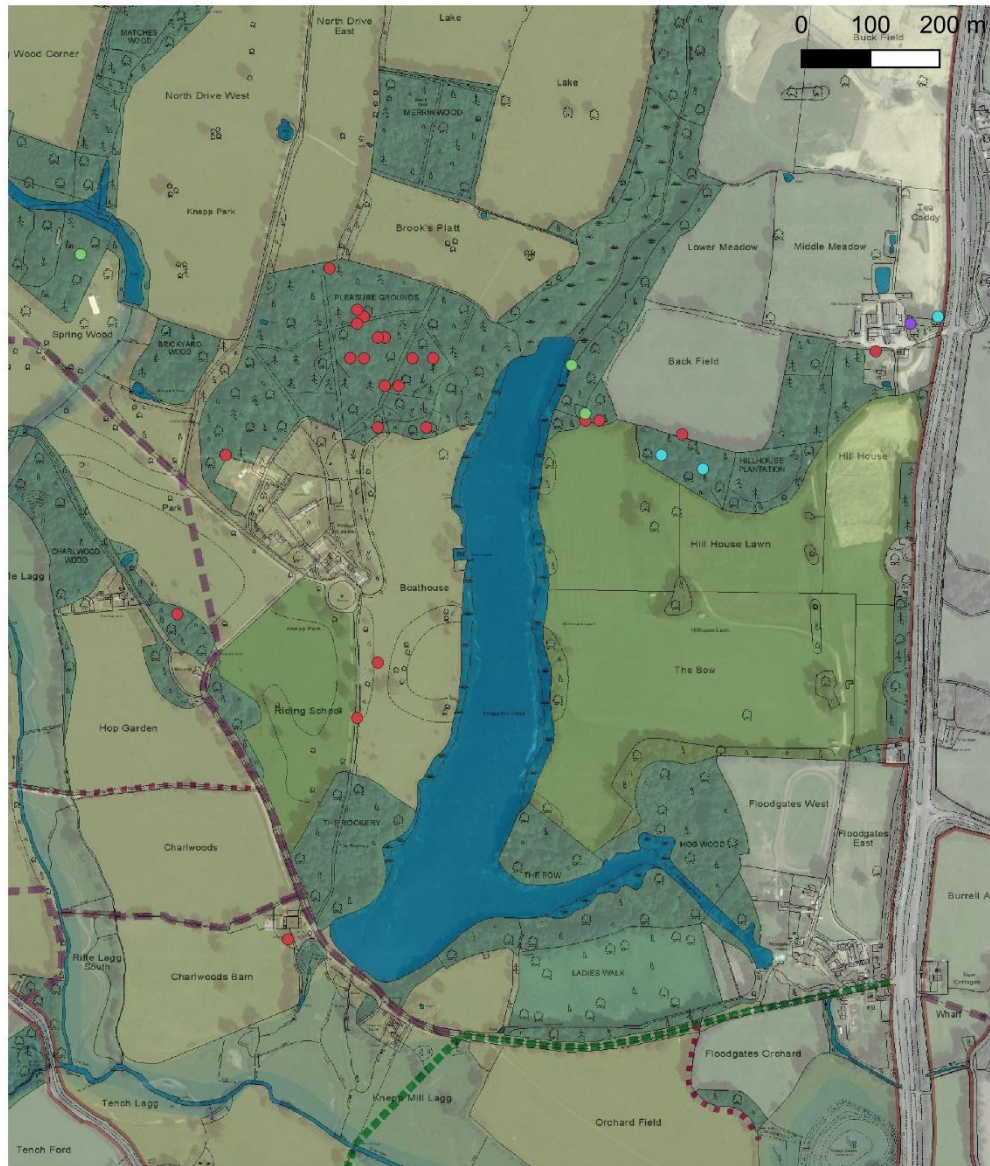
Notable Limes by species



- *Tilia platyphyllos* [Large-leaved Lime]
- *Tilia x europaea* 'Pallida' [Common Lime variety 'pallida']
- Unknown

Knepp Castle

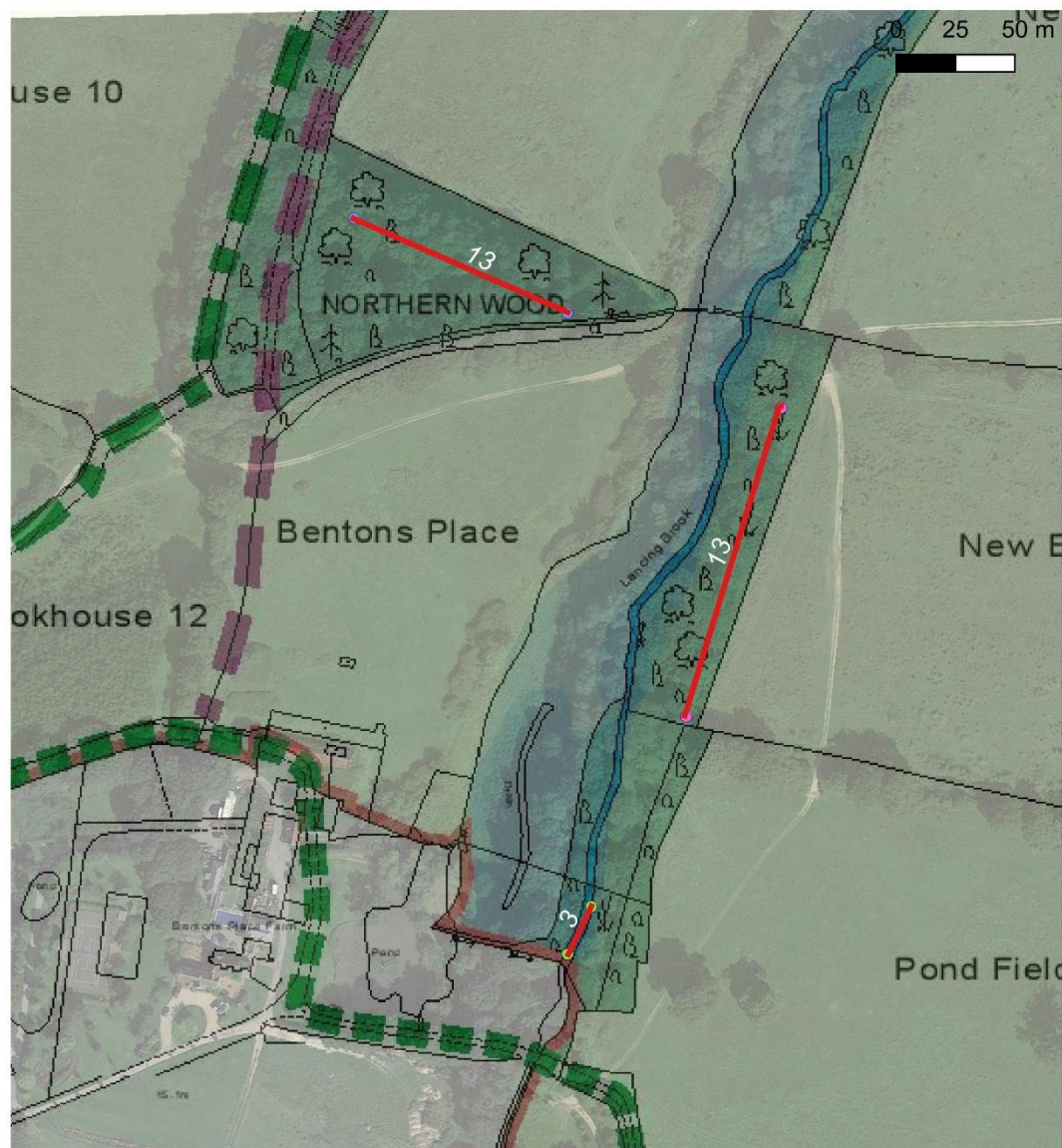
Notable Limes by age-class



- Mature
- Semi-mature
- Veteran
- Young

Knepp Castle

Lime groups



Populations of Limes labelled with number of individuals

Table 1: Notable Limes Across Estate

Tree Number	Record Date	Site Name	Taxon Name	Common Name	Location	Recorder	Form	Age Class	Location	Species if known	Verifier
1	5 May 2017	Knepp Castle Estate	Tilia spp	Lime	TQ16442208	RT/JS	Coppice	Young	Hill House Farm Yard	Tilia x europaea 'Pallida'	Jamie Simpson
2	5 May 2017	Knepp Castle Estate	Tilia spp	Lime	TQ16482209	RT/JS	Coppice	Semi-mature	Hill House Farm Yard	Tilia x europaea 'Pallida'	Jamie Simpson
3	5 May 2017	Knepp Castle Estate	Tilia spp	Lime	TQ16392204	RT/JS	Maiden	Veteran	Hill House Farm Garden	Tilia x europaea 'Pallida'	Jamie Simpson
4	5 May 2017	Knepp Castle Estate	Tilia spp	Lime	TQ16142187	RT/JS	Coppice Group c.5	Semi-mature	Polo Ground	Tilia platyphyllos	Jamie Simpson
5	5 May 2017	Knepp Castle Estate	Tilia spp	Lime	TQ16112192	RT/JS	Maiden	Veteran	Polo Ground	Tilia x europaea 'Pallida'	Jamie Simpson
6	5 May 2017	Knepp Castle Estate	Tilia spp	Lime	TQ16082189	RT/JS	Maiden	Semi-mature	Polo Ground	Tilia platyphyllos	Jamie Simpson
7	5 May 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15992194	RT/JS	Maiden	Veteran	Lake Side	Tilia x europaea 'Pallida'	Jamie Simpson
8	5 May 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15972194	RT/JS	Maiden	Veteran	Lake Side	Tilia x europaea 'Pallida'	Jamie Simpson
9	5 May 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15972195	RT/JS	Coppice Group c.4	Mature	Lake Side	Unknown	Jamie Simpson
10	5 May 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15952202	RT/JS	Coppice Group c.5	Mature	Lake Side	Unknown	Jamie Simpson
11	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15452189	RT/JS	Phoenix	Veteran	Arboretum	Tilia x europaea 'Pallida'	Jamie Simpson
12	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15602216	RT/JS	Maiden	Veteran	Arboretum	Tilia x europaea 'Pallida'	Jamie Simpson
13	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15752203	RT/JS	Phoenix	Veteran	Arboretum	Tilia x europaea 'Pallida'	Jamie Simpson
14	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15722203	RT/JS	Maiden	Veteran	Arboretum	Tilia x europaea 'Pallida'	Donald Pigott
15	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15682206	RT/JS	Maiden	Veteran	Arboretum	Tilia x europaea 'Pallida'	Jamie Simpson
16	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15672206	RT/JS	Maiden	Veteran	Arboretum	Tilia x europaea 'Pallida'	Jamie Simpson
17	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15652209	RT/JS	Maiden	Veteran	Arboretum	Tilia x europaea 'Pallida'	Jamie Simpson
18	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15642210	RT/JS	Maiden	Veteran	Arboretum	Tilia x europaea 'Pallida'	Jamie Simpson
19	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15642208	RT/JS	Maiden (coppice 4 m away)	Veteran	Arboretum	Tilia x europaea 'Pallida'	Jamie Simpson
20	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15632203	RT/JS	Maiden	Veteran	Arboretum	Tilia x europaea 'Pallida'	Jamie Simpson
21	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15652203	RT/JS	Coppice	Veteran	Arboretum	Tilia x europaea 'Pallida'	Jamie Simpson
22	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15702199	RT/JS	Maiden	Veteran	Arboretum	Tilia x europaea 'Pallida'	Jamie Simpson
23	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15742193	RT/JS	Maiden	Veteran	Arboretum	Tilia x europaea 'Pallida'	Jamie Simpson
24	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15682199	RT/JS	Maiden	Veteran	Arboretum	Tilia x europaea 'Pallida'	Jamie Simpson
25	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15672193	RT/JS	Maiden	Veteran	Arboretum	Tilia x europaea 'Pallida'	Jamie Simpson
26	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15382166	RT/JS	Phoenix	Veteran	Deer Park	Tilia x europaea 'Pallida'	Donald Pigott
27	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15542119	RT/JS	Coppice Group c.6	Veteran	Trollards Barn	Tilia x europaea 'Pallida'	Donald Pigott
28	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15642151	RT/JS	Maiden	Veteran	Deer Park	Tilia x europaea 'Pallida'	Donald Pigott
29	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15672159	RT/JS	Maiden	Veteran	Deer Park	Tilia x europaea 'Pallida'	Jamie Simpson
30	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ15242218	RT/JS	Maiden	Mature	Bothy Woodland	Unknown	Jamie Simpson

Table 2: Notable Limes Groups in the Southern Block

Tree Number	Record Date	Site Name	Taxon Name	Common Name	Location	Recorder	Form	Age Class	Location	Species if known	Verifier	Group Description
31 - first tree	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ13961998	RT/JS	Coppice	Mature	Southern Block	Tilia platyphyllos	Jamie Simpson	Coppice Group C.13
31 - last tree	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ14051994	RT/JS	Coppice	Mature	Southern Block	Tilia platyphyllos	Donald Pigott	Coppice Group C.13
32 - first tree	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ14051967	RT/JS	Phoenix	Mature	Southern Block	Tilia platyphyllos	Jamie Simpson	Various Group C.3
32 - last tree	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ14061969	RT/JS	Layered	Mature	Southern Block	Tilia platyphyllos	Jamie Simpson	Various Group C.3
33 - first tree	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ14101977	RT/JS	Coppice	Mature	Southern Block	Tilia platyphyllos	Donald Pigott	Various Group C.13
33 - last tree	7 June 2017	Knepp Castle Estate	Tilia spp	Lime	TQ14141990	RT/JS	Coppice	Mature	Southern Block	Tilia platyphyllos	Jamie Simpson	Various Group C.13

Discussion including Management Recommendations

We are lucky at Knepp to have all three UK species of Lime present: *T.cordata*, *T.platyphyllos*, *T.xeuropea*. These are represented in a range of age classes but unfortunately not all age classes for all species are present. There are two geographically distinct groups of limes on the estate; the first in the deer park and the second in the southern block.

Deer Park

It is clear that Knepp has some fantastic veteran Common Limes *T. x europeae* var. *Pallida* of local significance within the parkland and arboretum, and that they play an important role in giving the site its character through their girth and form. These veterans are also an historic link, they are plantings for ornamental purposes from around 200 years ago. It is likely that there were many more similar plantings and they have been lost at various stages due to modern farming and forestry practices. I have come to this conclusion as most of the survivors (large girth maidens) appear to be around the Castle. Most importantly in my view, the veteran Limes are part of the ecology of the parkland and will undoubtedly have species reliant upon conditions associated with veteran trees now and in the future. Works should be undertaken to ensure their longevity by haloing them (ie. felling trees that are directly competing with their canopy) and avoiding damage to the roots and trunks by livestock or vehicles. The value of the mature Limes (especially of coppice form) should be recognised as equal importance to the veterans due to the special regenerative ability of Lime. It is possible that they are the regrowth of veteran Lime trees that have been felled or windblown in the past so should be haloed and protected too.

Southern Block

The Large Leaf Lime *T. platyphyllos* in the southern block are also of importance. They are restricted to woodland edge in a linear, evenly spaced fashion, so are certainly planted (probably around the 1950s) along with some other exotic species. This was probably for landscape reasons but as an unusual native species they add to Knepp's tree species diversity and should be conserved. Works should be undertaken to encourage an open grown form which will aid their longevity and wildlife benefits especially as a nectar source to invertebrates. The group of 13 recently coppiced trees are suffering bark stripping, probably from deer, and they need fencing erected as protection in the near future.

Estate Wide

Right across the estate, and especially as part of the deer park restoration, are newly planted Limes. These are the next generation and should be safeguarded by appropriate protection from animals and vehicles. It is also critical to undertake best practice arboriculture by works such as formative pruning to ensure the strongest biomechanical form and mulching for improved chances of establishment as has already happened in places close to the Castle.