

Arboriculture and climate change course

Review by Dominic Scanlon

Dillington House, Somerset, 10 March 2015

This was the first of the one-day Arboriculture and Climate Change courses that the AA has run. It was presented by Dr Andy Moffat, a highly experienced environmental applied scientist who is well known for his research in the forestry and agriculture sectors. Andy has described himself as a 'self-confessed Generalist' (with a capital G!) in this area and this proved to be one of the strengths of the course.

The course gives an overview of the current research and thinking relating to climate change and how this might impact on how we grow and manage trees in urban situations.

For any doubters, the course starts with a look at the current research and it is soon clear that climate change is happening and that it is almost certainly a direct result of human activity. This isn't based on a single piece of research but on a wealth of literature that points in our direction. The course material was extensive and very well referenced and we were given plenty of resources to use or refer to.

We then examined adaptation and why this is important.

There are eight Adaptation Principles and these strongly influenced the remainder of the course. Given the magnitude and rate of predicted climate change, trees and woodlands will be significantly affected. Due to the long time-frames associated with this change, early action is essential – we do, after all, grow trees for periods well beyond our lifetimes. This raises challenges, and one clear message from the day was that we can't approach climate change with fixed ideas – we need to maintain open minds and respond to changes. The science clearly tells us that it's happening but it will impact on us in ways we can't possibly predict.

We then discussed climate change projections: which tree species are likely to suffer most and in what areas. There will need to be different responses depending on where you are. Problems in the south-east will be different to those in Scotland, for example.

Not all the effects will be negative: oak tree growth rings at Alice Holt are getting wider, indicating that some species benefit from change (in the short term). Opportunities will be presented by the change along with restrictions. Where we source plants from will become very important and we



(NASA/Goddard Space Flight Center Scientific Visualization Studio The Blue Marble data is courtesy of Reto Stockli (NASA/GSFC)/Public domain, via Wikimedia Commons)

will need to challenge preconceived ideas. But this also raises the question of whether non-native species will be part of the adaptation; it's pretty clear that they will need to be – just relying on native species is a risky approach.

Water management will become a key issue and may increase subsidence claims. Irrigation will need to be a fundamental consideration in parts of the UK.

Philip Ellis complemented Dominic's views. He said:

'The course was well presented and very well researched. Andy provides a very useful generalist view of a complicated subject – but that is exactly what is needed if you want to get a basic understanding of how this will influence your job and your role in tree care. As climate change is happening, with some effects faster than predicted, this course really should be essential if you want to be part of positive change'.



Is this horse chestnut (*Aesculus hippocastanum*) resistant to leaf miner?

Dr Martin Dobson



The horse chestnut leaf miner (*Cameraria ohridella*) has mounted a spectacular biological invasion across continental Europe over the last three decades. It was first described as a new species in Greece in 1986 and popped up in Austria in 1989. It reached UK shores in about 2001 and was observed in Wimbledon in 2002. Since then its 'march' northwards has been relentless, reaching Nottinghamshire by 2007 and Scotland by 2014 (see Forestry Commission distribution map below).

Damage to the foliage of horse chestnut by *Cameraria* is dramatic and is a depressing sight for most of us in England and Wales during July and onwards through the summer, with the leaf mines causing leaves to turn prematurely brown. In most parts of England the moth is regarded as endemic with an annual reinfestation rate of about 100%. Taken together with bleeding canker of horse chestnut caused by *Pseudomonas syringae* pv *aesculi*, the outlook for horse chestnut in amenity planting looks bleak.

So, imagine my surprise when I encountered an impressive mature horse chestnut in Hampstead in mid-July 2014 which appeared to be entirely free of leaf mines. Other trees in the area were showing the usual symptoms and therefore it struck me as unusual. I paid a further visit to the tree in late August to find that it still showed no signs of discolouration

(apart from minor infection with *Guignardia* leaf blotch). I wondered if I had stumbled inadvertently on a resistant or immune individual. Not wanting to jump the gun and appear foolish I sent photographs to Peter Thurman who confirmed in his opinion that the tree is indeed a white-flowered horse chestnut.

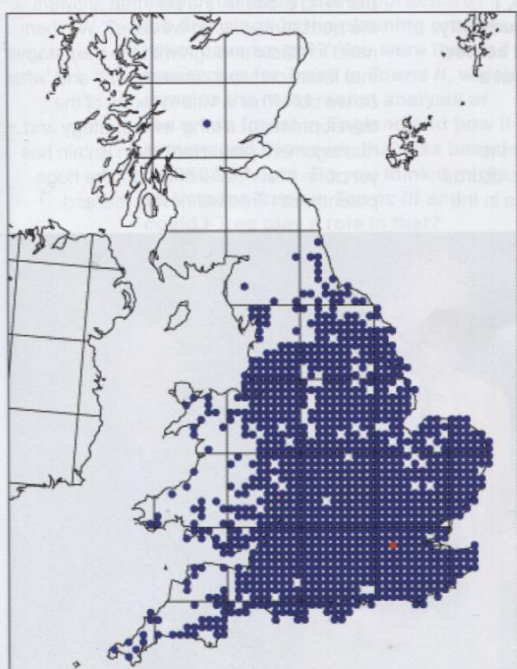
If the tree proves to be resistant or immune it represents a potentially valuable resource to fight back against the conquering *Cameraria*. Or, at the least, to enable horse chestnut to be planted again with the expectation of it enhancing rather than detracting from the summer landscape.

Further investigation of the tree appears to be warranted and I would be interested to hear from interested parties and potential funding partners to explore the possibilities of producing a resistant cultivar but also of trialling trees grown from conkers to test whether resistance is passed on to



Browning of leaves caused by *Cameraria*.

progeny. Please send me an email if you wish to express an interest at info@martindobson.org.uk or call 01420 488342.



Forestry Commission map showing areas where confirmed sightings of horse chestnut leaf miner have been reported up to 2014.



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