# Paradise Wood - Experimental Plantation in England

# 2012 FIELD REPORT

## Background Information

Lead PI: Daniel Bebber

Report completed by: Martha Crockatt

Period Covered by this report: 2012

Dear all,

Thanks so much for your help in 2012. We've had over 50 people visit us and contribute to data collection this season, and apart from my being grateful for the extra hands, its always a pleasure to introduce new people to the research and spend time with them.

Although full data analyses have not been completed yet, it is clear that growth was much faster in 2012 than 2011, probably due to the higher rainfall in 2012. Data analysis will reveal whether there are any consistent differences between the provenances in their response to these weather patterns.

We have now completed two seasons of data collection at Paradise Wood. In December 2012 / January 2013 the provenance trial is undergoing thinning, a routine forestry operation that removes a third of the trees to provide those remaining with sufficient space to grow. We are looking forward to seeing the effect of this thinning on the different provenances, and how growth is influenced relative to the two previous seasons. This, in combination with the prospect of ash dieback, will make 2013 an interesting year in the field. With our two years worth of data, if ash dieback does come to Paradise Wood, then we will be able to compare growth of different provenances before and after the disease and see which are most affected by it. Selecting provenances that are less susceptible to ash dieback will be a vital method of protecting British woodland for the future; our research at Paradise Wood could help to identify strains of ash that are appropriate for this.

Many thanks again to everyone who has contributed to the project in 2012. We look forward to seeing lots of you again in 2013.

Regards,

Martha Crockatt

# SECTION ONE: Scientific research achievements

## Top highlight from the past season

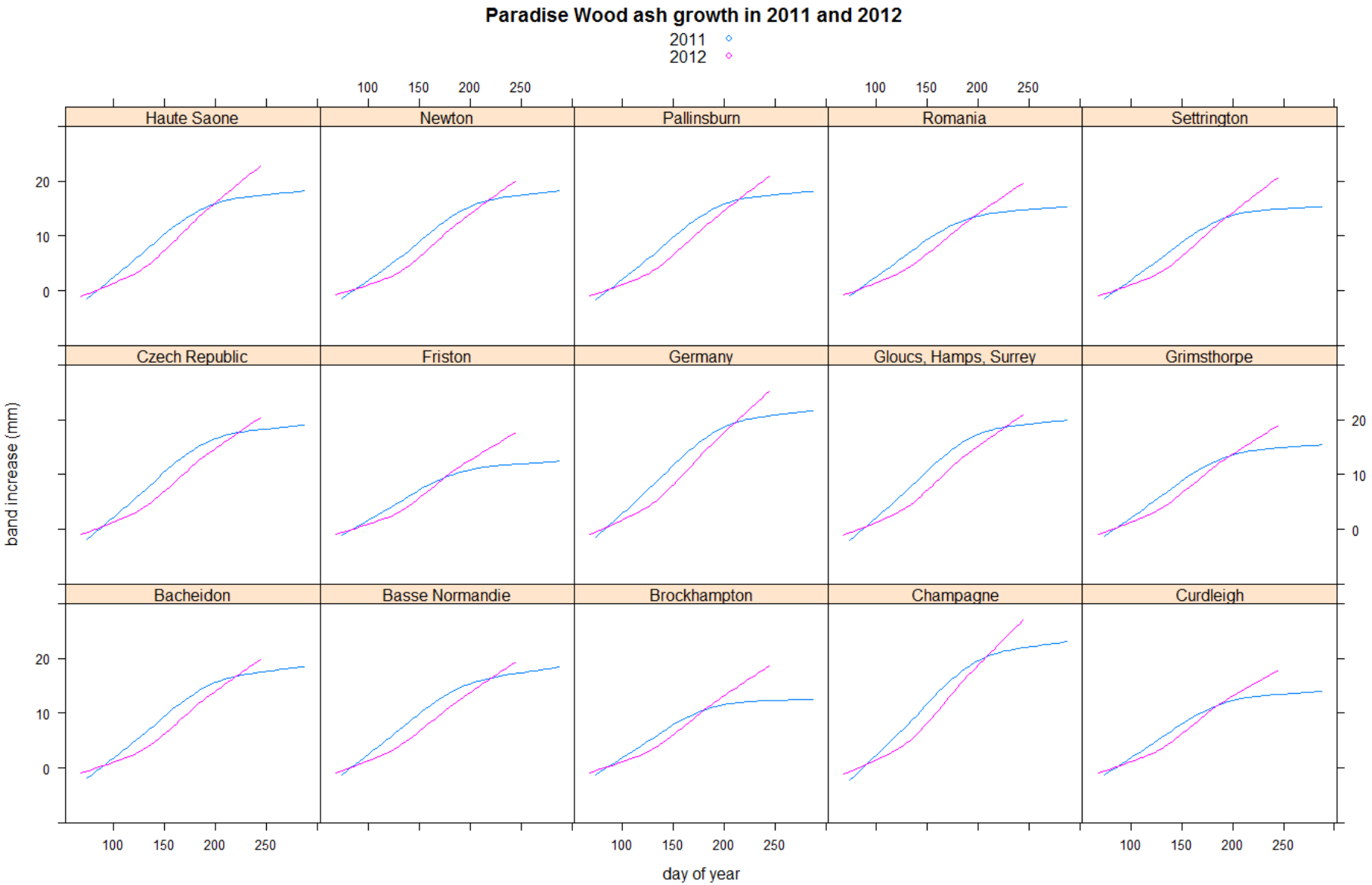
We have seen a significant difference in the growth curves between the drier 2011, and wetter 2012, i.e. a strong response to local weather conditions. This type of inter-annual variation is expected, but we are in the unusual place of having intra-annual data, i.e. measurements of growth throughout each season. Investigating the differences in these intra- and inter annual patterns between provenances will uncover the degree of variation between the populations from around Europe. Once the data from 2013 is added, following thinning, we will be able to see how this management operation influences the different provenances, with implications for forest management and carbon storage.

## Reporting against research objectives

We have continued fortnightly measurements of dendrometer bands. Data have not yet been analysed, but with the contrast in rainfall between 2011 and 2012 we are looking forward to analyzing different response patterns to this between the provenances.

In spring we again assessed leaf phenology, scoring trees on a weekly basis to understand differences in timing of leaf development between the provenances. These data will be used in conjunction with dendrometer data to compare differences in growing season length between the provenances.

In December 2012 a third of the trees have been felled, as part of routine felling operations. We have taken "cookies" from a subset of the trees. Cookies are discs of wood, taken from cal 1.3 m, which can be used to look at past growth, i.e. dendrochronology. Discs have been put into storage, and a proposal for an undergraduate student project has been placed with Oxford University. This analysis will provide data on past growth of the trees, and will provide an interesting comparison with our current data collected by dendrometer bands.


Paradise Wood ash growth in 2011 and 2012
2011
2012
Haute Saone
Newton
Pallinsburn
Romania
Settrington
Czech Republic
Friston
Germany
Gloucs, Hamps, Surrey
Grimsthorpe
Bacheidon
Basse Normandie
Brockhampton
Champagne
Curdleigh
band increase (mm)
day of year
0
10
20
100
150
200
250

# SECTION TWO: Impacts

## Partnerships

We continue to work closely with Earth Trust, our partners in the research project. We have worked together on data collection, and continue to discuss progress of the research, and future directions.

## Developing Environmental Leaders

Our intern program has allowed young scientists to gain hands-on experience of field research, thus better equipping them for employment. This year four interns have helped on the project.

## Conservation of Taxa

Our research may provide an important contribution to understanding ash dieback, and thus protecting ash for the future; this depends on whether ash dieback is found in Paradise Wood in 2013.

# SECTION THREE: Anything else

## Acknowledgements

We would like to thank everyone who has contributed to the project with their time in 2012, and acknowledge funding under the HSBC Climate Partnership.