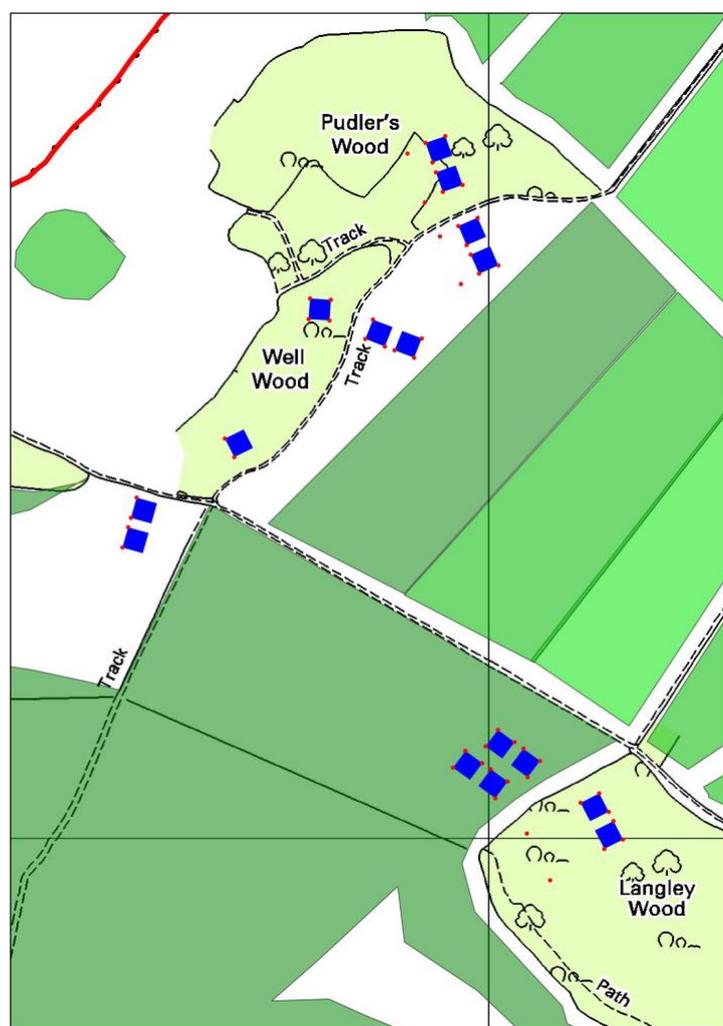


## Heartwood - Long term monitoring plots

Three permanently marked sets of plots have been established for long term monitoring of the changes in flora and ground dwelling fauna as Heartwood is developed. The three transects each consist of one 20x20 metre plot in an existing area of ancient woodland, one 20x20 metre plot at 25 metres from the woodland edge and one at 50 metres distance. Additional sets have been marked out for additional work when time and number of volunteers permit. The locations are shown as blue squares on the map below.



The long term monitoring plots at Heartwood were inspired by the 'Wilderness' plots established on the Rothamsted Estate (now Rothamsted Research) in the late 1880s. The first, Broadbalk field, had been carrying wheat for forty years in succession when, in 1882, about an acre was left unharvested. Three years later Geescroft field, where beans and clover were grown since 1847, had an area fenced off and left to run wild (Hall, 1905). These two plots, which became known as the Wildernesses, have continued to the present day with little direct human intervention and have both developed into mature mixed deciduous woodland (Harmer *et al.*, 2001). Unfortunately the succession from arable to woodland has only been recorded intermittently with the flora of Geescroft not studied until 30 years after abandonment (Harmer *et al.*, 2001) and the invertebrate fauna even less well studied. The recording of Broadbalk's flora fared better, with J. J. Willis surveying the flora in 1886 and again in 1894 (Witts, 1964), again the invertebrates went unrecorded. Despite these limitations the Wildernesses are the longest record of the development of arable land into semi-natural woodland.

Heartwood provides an ideal opportunity to replicate the Rothamsted Wilderness experiments and correcting some of the deficiencies identified in them. Three transects have been established, each consisting of one 20x20 metre plot in an existing area of ancient woodland, one 20x20 metre plot at 25 metres from the woodland edge and one at 50 metres distance, the locations are shown on the map. One transect runs through an area of natural regeneration, one through an area of planted saplings and the third will run through an area that will be maintained as a meadow.

There are additional transects on the natural regeneration and planted sites for use when time and number of surveyors permit. These plots will be used to monitor changes in the flora, fauna and soil chemistry as the woodland matures. They have marked using scaffolding poles buried close to the surface with wooden poles set in the corners for finding the plots in tall surface vegetation.

Initial baseline surveys will take place in the years 2011-2013 (three to six years after cultivation). Soil cores were taken in March and April 2012 and are being stored dry until money can be found for their composition to be determined. Work is underway on determining soil microbial diversity from these cores.

Insect surveys, consisting of pitfall and yellow-tray trapping, sweep netting, and D-vac sampling are planned for 2012 and 2013. Plant surveys will also be carried out.

It is hoped that local enthusiasts and possibly school and university students will use these plots for their own research as time goes on and that, in the long-term, the techniques used for the baseline surveys will be replicated on a regular basis in order to produce a dataset that rivals the Rothamsted Wilderness experiments for scientific value.

## References

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Text by Dr Chris Shortall. July 2012

Map prepared by Brian Legg with permission from Ordnance Survey