

How much additional biomass carbon does Ivy (Hedera Helix) contribute to woodlands? **A preliminary study**

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Ivy (Hedera helix)



2010 onwards

1970 - 1986 1930 - 1969

pre-1930

- Common & widespread
- Fertile, neutral, heavier
 - textured soils
- Secondary woodland (Ash)
- Hedgerows/ lines of trees



lvy as a carbon sink/ source of additional biomass?

- We know quite a bit about biomass and carbon contents of woodland and forest trees and how to estimate these from simple surrogate measurements made in the field (height, dbh).
- Other potential carbon pools, are often overlooked, including ivy. But, more variable and difficult to measure.
- The **objective** of this work was to quantify the ivy growing in an ash woodland and develop a predictive formula that could be easily used in the field to estimate ivy biomass carbon contents.





Methods

The experimental woodland site (Kemble, Glos) was dominated by ash, with 93% of the trees supporting lvy.

25m x 25m plot*

Trees were measured and five trees felled and cut into 1m sections. The biomass of both the tree and ivy was weighed in the field.

*McKenzie et al. (2000) Sampling, measurement and analytical protocols for carbon estimation in soil, litter and coarse woody debris National Carbon Accounting System Technical Report No. 14. Australian Greenhouse Office, Commonwealth of Australia, Canberra.



Ivy growth structure compared to the host tree. Mean values of 5 samples presented.



Results



Results cont.

Ash tree height vs tree mass

Ivy height vs Ivy mass



Ash tree mass vs lvy mass



Discussion & Conclusions

- Ivy biomass (carbon) was shown to be easily estimated from a simple surrogate measurement of ivy height: Care with variability.
- Good initial relationships, <u>but</u> more woodland tree/ Ivy samples needed to bolster relationships reported in this work – planned for Autumn.
- Ivy makes an important contribution to biomass C in woodland What about Ivy in hedgerows?
- The assumption of 50% C in Ivy needs to be tested. Ivy growth ring analyses work also being conducted.
- Extrapolation/ modelling work:
 - Additional surveys of Ivy in woodland/ hedges to better characterize the significance of this work.
 - Ivy growth/ biomass production in relation to tree species/ planting density/ girth/ management etc.



Questions?

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