

# Comparing plant and invertebrate diversity in coppice and high forest habitats within a historical coppice in Shropshire

## What is coppicing?

Coppicing is the process of cutting broadleaf trees to within 30cm of the ground on cycles ranging between 1 and 30 years [1], but typically around 8 years for hazel see fig. 1.

Each year an area called a coup is harvested within a coppice. This creates a woodland with various ages of growth which allows species to locally migrate to the most suitable habitat. The benefits this gives wildlife has lead to many conservation groups promoting and reinstating coppicing [3,4].

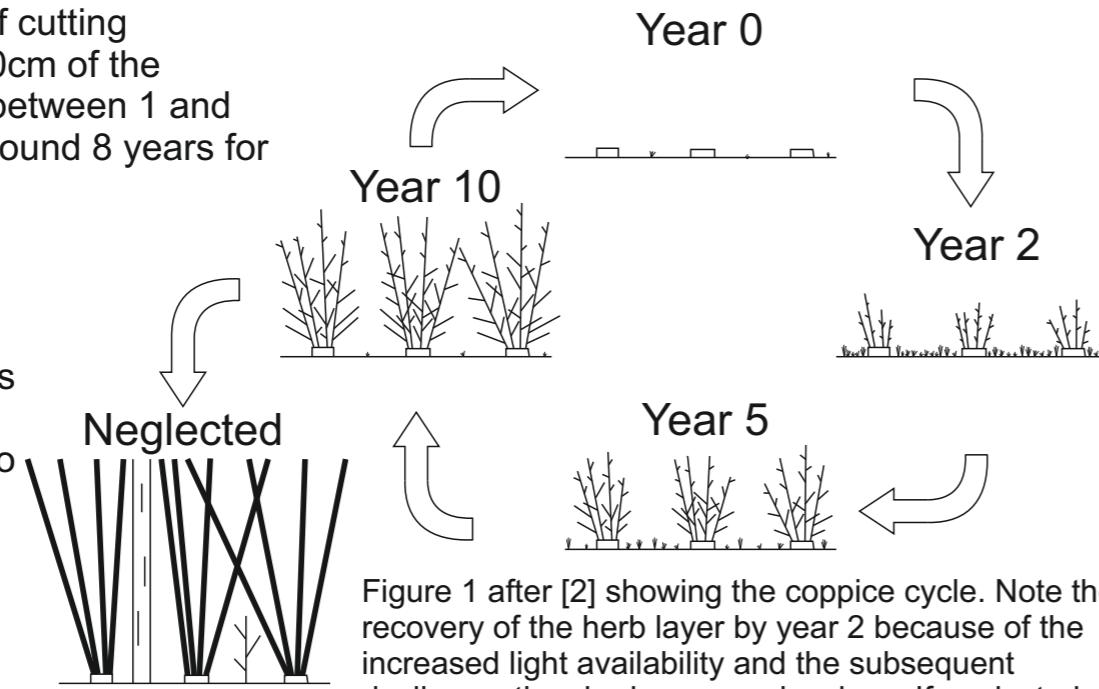


Figure 1 after [2] showing the coppice cycle. Note the recovery of the herb layer by year 2 because of the increased light availability and the subsequent decline as the shrub canopy develops. If neglected coppice becomes high forest.

## Methods

- 1m<sup>2</sup> quadrats for herb layer (<1m tall) plants.
- Pitfall traps for ground invertebrates. fig. 2
- Beating tray for shrub dwelling invertebrates.
- Moth sheet for moths and other nocturnal invertebrates.
- Collection will be monthly for each method apart from pitfall traps which will be collected twice a month.
- Multi-level taxa comparison at order, family and species levels.



Figure 2 Left a 1m<sup>2</sup> quadrat constructed from two tape measures. Right a 400ml pitfall trap quarter-filled with water and washing up liquid.

## References

- [1] Tabor, R., 2013. *A Guide to Coppicing*. s.l.:Eco-logic Books.[2] Fuller, R. J. & Warren, M., 1993. *Coppiced Woodlands: Their Management for Wildlife*, Peterborough: Joint Nature Conservation Committee. [3] The Wildlife Trusts, 2021. *How to Manage a Woodland for Wildlife*. [Online] Available at: <https://www.wildlifetrusts.org/wildlife-advice/how-manage-woodland-wildlife> [Accessed 18 April 2021]. [4] Small Woods, 2021. *The Economics of Managing Small Woodlands*. [Online] Available at: <https://www.smallwoods.org.uk/en/advice-and-information/the-economics-of/> [Accessed 18 April 2021]. [5] Kirby, K. J., Buckley, G. P. & Mills, J., 2017. Biodiversity implications of coppice decline, transformations to high forest and coppice restoration in British woodland. *Folia Geobotanica*, Volume 52, pp. 5-13. [6] Joint Nature Conservation Committee, 2007. *List of UK BAP Priority Terrestrial Invertebrate Species*. [Online] Available at: <https://data.jncc.gov.uk/data/98fb6dab-13ae-470d-884b-7816afce42d4/UKBAP-priority-terrestrial-invertebrates.pdf> [Accessed 16 April 2021].

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## Previous Research

- Coppices are generally more ecologically diverse than high forest (canopy-dominated) sites[4]. This is especially the case for open-woodland species that may be targeted by the U.K. Biodiversity Action Plan [5].
- Most research has focussed on the biodiversity benefits of continually coppiced sites, or on the negative effects that coppice to high forest conversion has on the ecosystem.
- This has lead to the assumption that simply reinstating coppicing on a site will be beneficial. However light-demanding coppice-associated species may have become locally extinct after decades of high forest shading.

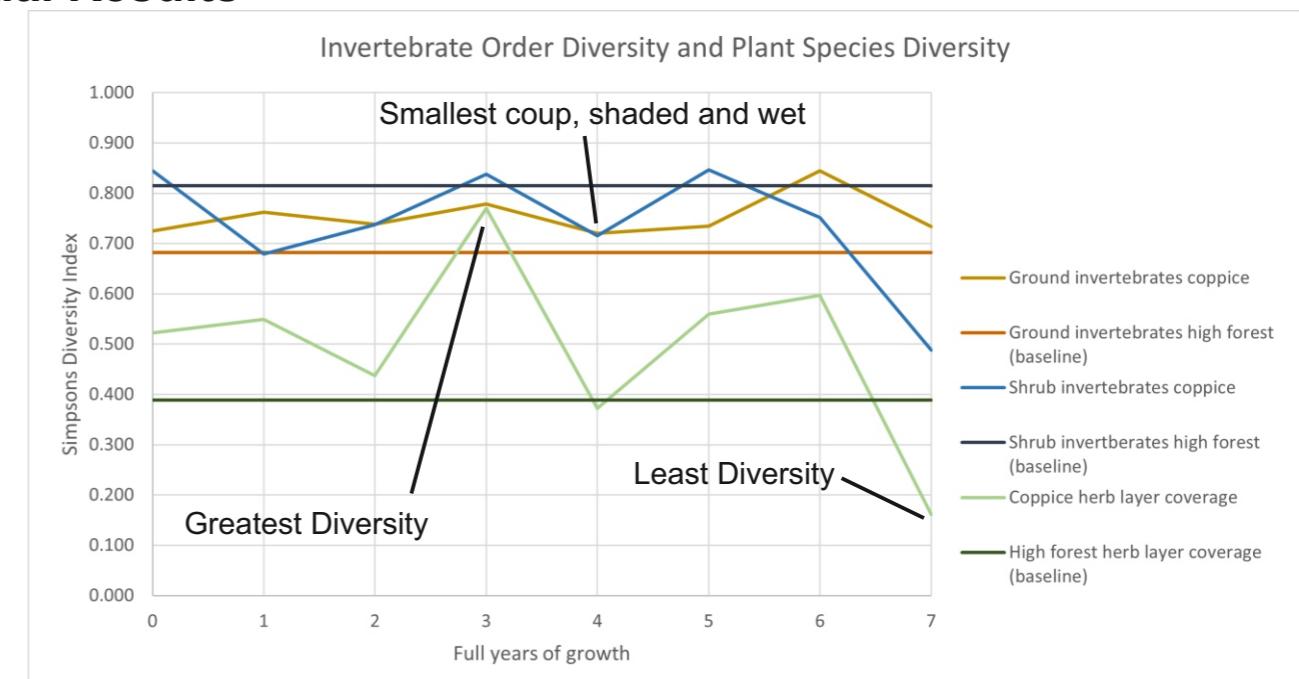
## Aim:

Investigate if restoring coppice after a 70 year hiatus has a positive impact on plant and invertebrate taxa.

## Objectives

1. Survey the high forest to establish a baseline.
2. Survey the coppiced section to allow for comparisons.
3. Survey from April to September to observe any seasonal variation.

## Initial Results



- Coppice diversity is usually greater than high forest diversity.
- Greatest diversity after 3 years of coppice regrowth despite being the dampest site.
- Lowest coppice diversity in year before harvest when there is the most shading.
- Currently unknown cause for the increased diversity in years 5 and 6.
- The increased shrub invertebrate diversity in high forest might be due to larger hazel shrubs giving larger sample populations per beating tray sample. The density of hazel shrubs in the high forest is lower than in the coppice, so likely lower overall populations.