



# TECHNICAL NOTE

<b>DATE:</b>	21 October 2025	<b>CONFIDENTIALITY:</b>	Public
<b>SUBJECT:</b>	University of Kent Disposal Sites - Ancient Woodland Strategy		
<b>PROJECT:</b>	UK-70080896	<b>AUTHOR:</b>	Georgie Vessey and Geroge Trill
<b>CHECKED:</b>	Nina Rygh	<b>APPROVED:</b>	Paul Joyce

## INTRODUCTION

WSP has been commissioned by the University of Kent (UoK; the 'Client') to provide transport and environmental advice for development of various sites in and around their Canterbury Campus. Land to the north of the University Campus, referred to as 'Disposal Sites BCD', have been identified for residential led development with a local centre accommodating up to 2000 homes. Development of Disposal Site B is constrained by the presence of ancient woodland within its boundary, and a requirement to clear a section of this woodland to provide an access route.

This technical note sets out the relevant legislative and planning context in relation to ancient woodland and its potential clearance to permit development of Disposal Site B, an assessment of the botanical and invertebrate value of the ancient woodland, options for compensation for its clearance, and case studies for similar compensation proposals. The purpose of the technical note being to provide additional supporting information to assist with consideration of the site in the Canterbury local plan process and build on the ecological mitigation strategy dated February 2025.

## PLANNING CONTEXT

The National Planning Policy Framework 2024 (the 'NPPF') sets out the Government's planning policies for England and it contains relevant policies specific to biodiversity and nature conservation (most notably in Section 15). It sets out provisions for biodiversity, including protected sites and species, for which local planning authorities (LPAs) must have regard. The NPPF states that when determining planning applications, development resulting in the loss of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused unless there are wholly exceptional reasons ((including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat), and a suitable compensation strategy exists. Removal of ancient woodland within Disposal Site B would require the development demonstrates "wholly exceptional reasons" in line with the NPPF.

Similar provisions are cascaded into the Canterbury District Local Plan, policies of which have not been reproduced here for brevity.

## BIODIVERSITY NET GAIN REQUIREMENTS

The Environment Act 2021<sup>1</sup> enacted a statutory requirement for biodiversity net gain in the UK, which became mandatory for developments requiring planning consent in February 2024. Biodiversity net gain is a quantitative method of assessing residual effects of a development on habitats. It places a requirement on a developer to not only off-set habitat loss, but that there should be a net gain in the value of habitats on

<sup>1</sup> The National Planning Policy Framework (NPPF) (2021); The Environment Act, 2021

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completion of a development, through creation of new areas of habitat and/or enhancement of existing ones. In Kent, the net gain target is 20% above baseline value<sup>2</sup>; more widely in the UK it is 10%.

Ancient woodland is considered by the biodiversity net gain process to be an irreplaceable habitat and thus a bespoke mitigation plan would need to be agreed with the local authority for its loss. For other habitats, evaluation through the Defra Statutory Biodiversity Metric<sup>3</sup> would establish the extent of habitat creation and/or enhancement that would be required to achieve compliance with the Environment Act 2021.

## BOTANICAL ASSESSMENT

### Methodology

A botanical assessment was undertaken to evaluate the flora of two woodland parcels within the Site, with the aim of determining their quality as ancient woodland. The survey focused on identifying plant species, with particular attention given to Ancient Woodland Indicator (AWI) species.

Two woodland parcels (A and B) were surveyed on 7<sup>th</sup> August 2025. Their locations are shown on **Figure 1**. Woodland A has a central grid reference of: TR 12955 60233 and Woodland B has a central grid reference of: TR 13137 60315.

Survey was carried out by an ecologist with experience in similar botanical surveys and who holds a Field Identification Skills Certificate (FISC) Level 4.

The methodology for surveying was adapted from the Woodland Condition Assessment guidance<sup>4</sup>. Before the survey, a walking route was planned through both woodlands using aerial photography and maps, ensuring that the planned route adequately covered the woodlands. Five stopping points were planned for each woodland, ensuring that stopping points were representative of the variation within the woodlands. At each stopping point, a 10-metre radius survey plot was established, within which a detailed plant species list was compiled. Particular attention was given to species classified as AWIs for the South East region, as listed in The Wildflower Key<sup>5</sup>. The DAFOR scale was used to estimate the relative abundance of each species recorded. This scale categorises species based on their observed coverage, using the following classifications:

- Dominant (>75% cover)
- Abundant (51-75% cover)
- Frequent (26-50% cover)

<sup>2</sup> Kent Nature Partnership (2021) Biodiversity Net Gain. Available at: [Biodiversity Net Gain | Kent Nature](#)

<sup>3</sup> DEFRA (2023) Statutory biodiversity metric tools and guides. Available at: [Statutory biodiversity metric tools and guides - GOV.UK \(www.gov.uk\)](#)

<sup>4</sup> Sylva Foundation (2024) Woodland Condition Assessment for Biodiversity Metric (WCA6). Available at: <https://sylva.org.uk/wp-content/uploads/2024/05/WCA6.pdf>

<sup>5</sup> Rose, F. & O'Reilly, C. 2006. The Wild Flower Key (2nd edn). Warne (Penguin), London

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- Occasional (11-25% cover)
- Rare (1-10% cover)

In addition to species recording, general woodland characteristics were noted, including tree age, health, cover of deadwood, evidence of grazing or physical damage.

## Limitations

The survey was carried out in early August, which may mean that some early-flowering AWI species were not visible at the time of survey. This may have been exacerbated by the dry weather of the 2025 summer. However, many AWI trees, grasses, ferns and sedges remain identifiable in August, and the survey was also likely to have captured later flowering AWI species. Therefore, the timing of the survey is not considered a significant constraint on the overall assessment.

## Results

### Woodland A

The woodland parcel measured approximately 0.8 hectares and was bordered by an arable field to the west, a footpath to the east and a small watercourse to the north. The canopy was predominantly composed of mature English oak (*Quercus robur*), with abundant mature ash (*Fraxinus excelsior*) and rare sweet chestnut (*Castanea sativa*). The understorey was sparse, featuring occasional hazel (*Corylus avellana*), hawthorn (*Crataegus monogyna*), and holly (*Ilex aquifolium*), as well as rare elder (*Sambucus nigra*), redcurrant (*Ribes rubrum*), beech (*Fagus sylvatica*), and field maple (*Acer campestre*). The ground flora was limited, consisting largely of bare ground and leaf litter. However, bramble (*Rubus fruticosus*) and common nettle (*Urtica dioica*) were locally abundant. Red campion (*Silene dioica*) and ground ivy (*Glechoma hederacea*) were recorded as rare. A single patch (approximately 5 metres wide) of the Schedule 9 (Wildlife and Countryside Act 1981, as amended) species variegated yellow archangel (*Lamiastrum galeobdolon*) was recorded. Along the watercourse in the north of the parcel, a number of ferns and sedges were recorded, including broad buckler fern (*Dryopteris dilatata*), common male fern (*Dryopteris filix-mas*), hart's tongue fern (*Asplenium scolopendrium*), soft shield fern (*Polystichum setiferum*), pendulous sedge (*Carex pendula*), and remote sedge (*Carex remota*). Footpaths were present throughout the woodland, with small amounts of litter recorded.

A total of seven AWI species for the South East region were recorded, with their average abundance across all survey plots noted in brackets: field maple (rare), holly (rare), redcurrant (rare), pendulous sedge (rare), remote sedge (rare), hart's tongue fern (rare), and soft shield fern (rare).

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## Woodland B

The woodland parcel measured approximately 0.75 hectares and was located between two arable fields with a small watercourse running through its centre. The woodland is narrow, ranging in width from 12 to 42 metres. The canopy is primarily composed of mature English oak, with occasional to rare mature ash and wild cherry (*Prunus avium*). A single *Salix* sp. and *Poplar* sp. were also recorded in the canopy. The understorey was well-established across all survey plots and included frequent holly, occasional hazel and hawthorn, and rare sweet chestnut, dogwood (*Cornus sanguinea*), beech, downy birch (*Betula pubescens*), elder, field maple and blackthorn (*Prunus spinosa*). The ground flora was patchy, with frequent areas of bare ground. Ivy and common nettle were locally dominant. Additional ground flora species recorded included occasional dog's mercury (*Mercurialis perennis*) and herb robert (*Geranium robertianum*), rare pendulous sedge, remote sedge, common male fern, broad buckler fern, soft shield fern, wood millet (*Milium effusum*), tufted hair grass (*Deschampsia cespitosa*), wood speedwell (*Veronica montana*), enchanter's nightshade (*Circaea lutetiana*), wood avens (*Geum urbanum*), red campion, wood dock (*Rumex sanguineus*), Lords and Ladies (*Arum maculatum*), common figwort (*Scrophularia nodosa*), great willowherb (*Epilobium hirsutum*) and greater burdock (*Arctium lappa*).

A total of eight AWI species for the South East region were recorded, with their average abundance across all survey plots noted in brackets: holly (frequent), wild cherry (occasional), field maple (rare), wood speedwell (rare), wood millet (rare), pendulous sedge (rare), remote sedge (rare), and soft shield fern (rare).

## Assessment

The botanical survey results indicate that both Woodland A and Woodland B support a limited presence of AWI species, with seven and eight species recorded, respectively. Most AWIs were present at low abundance, and the overall ground flora diversity was limited and comprised large areas of bare ground, particularly in Woodland A. Woodland B showed greater structural complexity and species richness. Whilst there is no threshold for the number of AWI species a woodland should have to be classed as an ancient woodland, the Tree Council<sup>6</sup> notes that the presence of ten or more AWI species may support the classification of a site as ancient woodland.

Natural England and the Forestry Commission<sup>7</sup> provide guidance that an ancient woodland is 'any area that's been wooded continuously since at least 1600 AD'. Historical mapping confirms that both Woodland

<sup>6</sup> Tree Council (2023). Ancient Woodland Indicators. Ecology Training UK. Available at: <https://treecouncil.org.uk/guidance-resources/ancient-woodland-indicators/>

<sup>7</sup> Natural England and Forestry Commission (2022). Ancient woodland, ancient trees and veteran trees: advice for making planning decisions. GOV.UK. Available at: <https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions>

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A and B have been present since at least 1872<sup>8</sup>, however, mapping does not extend as far as back 1600 to confirm whether they have existed continuously from this time.

Previous general survey of the ancient woodland was also completed in July 2021 by WSP<sup>9</sup> which found veteran trees likely to be between 150 to 200 years old. It also found presence of Ash dieback in some trees. Presence of a few ancient woodland indicator plants were recorded, including red Campion and possibly common bluebell (*Hyacinthoides non-scripta*). However Himalayan balsam (*Impatiens glandulifera*) was recorded in the northeast part of the woodland.

In summary, from a botanical perspective, while both woodlands support a small number of AWI species and have been present since at least 1872, the low number of AWIs recorded is indicative of poor ancient woodland quality. The limited presence of AWI species, combined with extensive adjacent agricultural land pollution and clear signs of human disturbance—such as large areas of bare ground and scattered litter—suggest that both woodlands have been subject to considerable external pressures. These factors have likely contributed to reduced ecological integrity and diminished their botanical value.

## INVERTEBRATE ASSESSMENT

An invertebrate assessment was undertaken to identify species associated with ancient woodland and high-quality deciduous woodland. Light trapping for moths was selected as the primary method, due to the time of year limiting other techniques and allowed for the evaluation of moth species as indicators of habitat, given that many moths have specific habitat associations, some linked to ancient woodland characteristics. Additional walkover survey and netting were conducted in Woodland B to assess general habitat quality for various invertebrate groups and to record daytime active species.

### Methodology

Invertebrate Habitat Potential (IHP) assessment was conducted on the 11<sup>th</sup> of August 2025 to assess Woodland B for its potential to support diverse and significant invertebrate populations. This is completed through assessing and grading the woodland for eleven different habitat elements, elements which are set out in **Appendix B**. A walkover was also completed to assess features and to identify day flying invertebrates within the woodland.

Robinson light moth trap equipped with a mercury vapour bulb (selected for high catchment ratio) was deployed on the 11<sup>th</sup> and 12<sup>th</sup> of August 2025 in suitable weather conditions in two separate sections of Woodland B for approximately two and half hours after sunset. The traps were monitored during this period and moth were caught within the trap and on approach to the trap via butterfly nets. They were then processed, identified on-Site and released at the end of the survey. Macro and micro moths (*Lepidoptera*)

<sup>8</sup> National Library of Scotland. Available at: <https://www.nls.uk/>

<sup>9</sup> WSP (2021) Technical Note: University of Kent, Canterbury Campus Long Thin Wood – Summary Assessment. 70080896

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and beetles (*Coleoptera*) were identified to species level while wasps (*Hymenoptera*) and mayfly's (*Ephemeroptera*) were noted, but not identified. All works were carried out by ecologists with appropriate training in light trapping and entomological techniques.

## Limitations

Light trapping and the walkover were completed only within the month of August which limited the species that may only be present during certain months of the year. Surveying during this period also limited the use of long-term trapping and species-specific techniques as it did not correspond with the correct catchment seasons, however the surveys were completed in a month and season which would record the highest level of species presence.

The light trap could not be left out overnight due to security, which limited the total catchment hours. Several species (listed in results) were identified to species level with the understanding that without lab dissection a full confirmation could not be completed (however all corresponding other potential species would not have affected the findings of this report).

## Results

**Table 1:** Table of species found across light trapping and invert walkover surveys with common name, scientific name, common group and the technique they were observed during.

Common name	Scientific name	Common group name	Technique
Red legged shield bug/Forest bug	<i>Idea subsericeata</i>	Beetle	Light trapping
Cabbage	<i>Mamestra brassicae</i>	Moth	Light trapping
Chinese character	<i>Cilix glaucata</i>	Moth	Light trapping
Cloaked minor*	<i>Mesoligia furuncula</i>	Moth	Light trapping
Common Wainscott	<i>Mythimna pallens</i>	Moth	Walkover
Dingy footman	<i>Eilema griseola</i>	Moth	Light trapping
Gypsy	<i>Lymantria dispar</i>	Moth	Light trapping

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Common name	Scientific name	Common group name	Technique
Large yellow underwing	<i>Noctua pronuba</i>	Moth	Light trapping
Lesser common rustic*	<i>Mesapamea didyma</i>	Moth	Light trapping
Mother of Pearl	<i>Patania ruralis</i>	Micro-Moth	Light trapping
Micro moth 1	<i>Eudonia mecurella</i>	Micro-Moth	Light trapping
Micro moth 2	<i>agapeta hamana</i>	Micro-Moth	Light trapping
Rosy footman	<i>Miltochrista miniata</i>	Moth	Light trapping
Rustic*	<i>Hoplodrina blanda</i>	Moth	Light trapping
Satin wave	<i>Idaea subsericeata</i>	Moth	Light trapping
Small fan foot wave	<i>Idaea biselata</i>	Moth	Light trapping
Straw dot	<i>Rivula sericealis</i>	Moth	Light trapping
Yellow shell	<i>Camptogramma bilineata</i>	Moth	Light trapping
Comma	<i>Polygonia c-album</i>	Butterfly	Walkover
Gatekeeper	<i>Pyronia tithonus</i>	Butterfly	Walkover
Large white	<i>Pieris brassicae</i>	Butterfly	Walkover
Emperor dragonfly	<i>Anax imperator</i>	Dragonfly	Walkover

\*Species which cannot be identified with complete certainty without lab dissection.

**Table 2:** Table of Invertebrate Habitat Potential walkover findings for land Parcel B.

Habitat Elements	Grade
Decaying Wood	Moderate (C)
Rotational Management	Negligible/Absent (E)
Nectar Resources	Negligible/Absent (E)

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Habitat Elements	Grade
Wet Substrates	Moderate (C)
Open Water Habitats	Moderate (C)
Structural Patchwork	Minor (D)
Still Air (S)	Minor (D)
Still Air (H)	Minor (D)
Connectivity	Minor (D)
Ecolines	Negligible/Absent (E)
Bare earth	Minor (D)

## Assessment

Light trapping identified 17 species of moth over two nights with approximately 27 individuals caught (approximation based on risk of recapture). Sixteen of the species were common natives with one species Gypsy moth (*Lymantria dispar*) a common English migrant species. Eleven of the species had common woodland association with a further six associated with the surrounding grassland and arable habitat. No legal protected or nationally scarce species were identified. The red legged shield beetle is a common woodland species, and no solitary bees were caught within the trap.

The IHP walkover of Woodland B found only three moderate grade habitat elements within the woodland; presenting a good example of decaying wood in the form of collapsed decaying trees throughout which are suitable for ants (*Formicidae*), beetles and bees (*Hymenoptera*), however lacked distinct deadwood piles that could be more suitable for larger beetle grubs. The second and third moderate habitat elements were Wet Substrates and Open Water Habitats which were both associated with the woodland stream and bank habitats within the woodland parcel. These did not extend beyond the central stream in the form of ditches, ponds or pools and the terrain within the parcel did not suggest these would form in wetter seasons. The overview of the woodland suggests suitability for certain groups, however it is partially isolated and lacks distinct elements such as nectar resources, still air (S&H) and rotational management which would be found in more complex woodlands. This has limited the number of pollinators and more specialist species that could be present within the woodland. Further surveys over a more extended period may identify more specialist species with stronger associations should a more in-depth review of the habitat be required.

These findings are consistent with a moderate quality deciduous woodland, but no species identified had ancient woodland association and the level of daytime (walkover) and nighttime (around the light trap)

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activity was notably low. This is likely due to a lack of distinct understory habitat, leaf litter layer and nectar resources in the form of flowering plants. A higher diversity and abundance of moths and other invertebrate would have been expected with a good quality ancient woodland, even within the limited catchment period.

## MITIGATION HEIRARCHY

Effects on ecological features should be mitigated through application of the 'Mitigation Hierarchy'. CIEEM defines this as "...everything possible to first avoid and then minimise impacts on biodiversity. Only as a last resort, and in agreement with external decision-makers where possible, compensate for losses that cannot be avoided. If compensating for losses within the development footprint is not possible or does not generate the most benefits for nature conservation, then offset biodiversity losses by gains elsewhere"<sup>10</sup>.

Ancient woodlands are defined as areas that have been continuously wooded since at least 1600 AD, and are complex, irreplaceable ecosystems that have taken hundreds of years to establish. Although the ancient woodland habitat within Disposal Site B has no doubt received significant human influence through adjacent agriculture, forestry and in more recent times leisure (due to the adjacent public right of way), it has maintained a continuous link between the ancient woodland present in the past by maintaining tree cover without conversion to another land use type (such as arable, pasture etc). It is therefore not possible to mitigate for removal of this habitat; it is only possible to provide compensation. Clearance of ancient woodland for development will lead to an irreversible alteration from which it could not be restored.

## COMPENSATION OPTIONS

The loss of ancient woodland within land parcel B, for access purposes would require an estimate of only 25m<sup>2</sup> amount of loss on the west edge of woodland parcel B. The ancient woodland parcel A will be retained and ensured a 15m buffer from the access route.

Woodland B exhibits poor quality ancient woodland, with only a rare occurrence of botanical species indicating ancient woodland presence. The presence of decaying wood, and open water habitats points to some ecological value; however, the woodland lacks distinctive features such as deadwood piles, diverse understory, and abundant nectar resources. These shortcomings have resulted in relatively low diversity and abundance of invertebrates, particularly pollinators and woodland specialists, as evidenced by limited moth and beetle catches during survey efforts.

While the loss of habitat resulting from the construction of the access route cannot be fully mitigated, it could be compensated by prioritising renewed efforts to improve the ecological condition of the remaining ancient woodland within both woodland A and B. In addition, further on-site compensation measures could

<sup>10</sup> CIEEM (2019). Biodiversity Net Gain Good Practice Principles for Development. Available at: <https://cieem.net/wp-content/uploads/2019/02/Biodiversity-Net-Gain-Principles.pdf>

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be implemented to support biodiversity, ensuring that the ecological value of the area is maintained and potentially enhanced. These options are discussed below.

### Ancient Woodland Soil Translocation

Although mitigation for ancient woodland loss is not possible, retaining its unique character through habitat compensation may be possible by retention of soils and other living materials, and their translocation to a new site where a new woodland would be established. A number of case studies where ancient woodland soil translocation has occurred have been reviewed below. Translocation could comprise the following:

- *Salvaging of ancient woodland soil and applying it to land to become new woodland;*
- *Translocation of coppice stools to move trees directly between the existing ancient woodland and new woodland site; and*
- *Movement of leaf litter, dead wood and other materials to supplement the establishment of new woodland.*

It has not been possible to calculate the size of the compensatory woodland that would need to be created at this stage. Further detailed survey work would be required of the ancient woodland and consultation with the local planning authority, as well as a bespoke mitigation plan to cover issues associated with the irreplaceable nature of the habitats.

### Woodland Planting Without Soil Translocation

If translocation techniques are not used then new woodland could be planted directly on land with little or no existing ecological value, such as arable land. In this case likely a greater area would be required to compensate for the loss of ancient woodland characteristics.

## ANCIENT WOODLAND SOIL TRANSLOCATION CASE STUDIES

### Background

This chapter comprises a rapid review of available literature on ancient woodland soil translocation. Key messages relating to the practical aspects of translocating woodland soils and the success, or otherwise, of the process are described. This review does not consider the legislative or policy case for translocation ancient woodland soils nor does it endorse the technique or confirm that the approach should be adopted for the project in question. The relative financial costs of different techniques is not studied and would require a further, larger piece of work.

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### Existing Best Practice, Standing Advice and Position Statements

The standard industry best practice guidance is Penny Anderson Associates/CIRIA (2003) or the CIRIA C600 publication<sup>11</sup>. However, this document is relatively old and there is limited specific coverage of ancient woodland soils translocation. In general, there is relatively poor guidance and evidence underpinning ancient woodland soil translocation. New guidance is expected on ecological restoration practices from the Chartered Institute for Ecology and Environmental Management in 2024. It is unclear if this will specifically deal with ancient woodland as a habitat or soil translocation as a practice.

Natural England and the Forestry Commission do not have a formal position statement on ancient woodland soil translocation that was detected during this rapid review. However, Natural England's standing advice<sup>12</sup> makes the following comments:

*“Planting new trees and creating new native woodland is not a direct replacement for lost or damaged trees or woodland. You can accept large-scale woodland creation as a compensation measure alongside other measures. This could be on soil that has been moved from the destroyed area of ancient woodland (soil translocation) which could include other ancient woodland ecosystem features, such as:*

- *tree hulks*
- *coppice stools*
- *saplings*

*You cannot accept plans to move an ancient woodland ecosystem because:*

- *it's not possible to replicate the same conditions at another site; and*
- *it's no longer an ancient woodland”.*

The Woodland Trust published a position statement on ancient woodland soil translocation<sup>13</sup> which makes a number of points, most important of which are:

- *We reject suggestions that “translocation” of materials from areas of ancient woodland subject to damage or destruction can be considered as mitigation for loss of ancient woodland.*
- *Such “translocation” is not avoiding or minimising the loss; it can only be viewed as a “salvage” operation seeking to move components of a complex habitat, when loss of woodland is inevitable, as part of a compensation package.*
- *Translocation of soils, vegetation or other materials from damaged or destroyed habitats should not be used to justify development decisions in the name of sustainable development.*

<sup>11</sup> Penny Anderson Associates/CIRIA (2003). Publication C600 Habitat translocation - a best practice guide. CIRIA. London

<sup>12</sup> Natural England (January 2022). Guidance: Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - How to assess a planning application when there are ancient woodland, ancient trees or veteran trees on or near a proposed development site [on-line] <https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions> (accessed March 2024)

<sup>13</sup> Woodland Trust (October, 2014). Position statement – ancient woods and translocation [on-line] <https://www.woodlandtrust.org.uk/media/4730/ancient-woodland-translocation-position-statement.pdf>

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- *A biodiversity cost-benefit analysis should be applied to assess if translocation of soil, vegetation or other elements from damaged or destroyed ancient woodland is sufficient compensation for the loss of biodiversity, compared to, for example, a high ratio of new native woodland creation.*
- *Clear objectives, a binding commitment to subsequent management and stringent monitoring should be an essential requirement of any consented translocation of ancient woodland components. Monitoring should be long term (a minimum of 25 years), with agreed sanctions or interventions should the translocation not meet its objectives.*

## Literature Review Method

A search on conservationevidence.com was undertaken for search terms such as ‘ancient woodland’, ‘soil translocation’, ‘ancient woodland soil’. However, no relevant studies were identified.

Enquiries were lodged within WSP’s ecology team for experience and relevant studies on ancient woodland soil translocation. This generated a list of resources which are reviewed in Appendix A, and form the basis of this chapter. A summary of relevant findings is presented below arising from a review undertaken of these studies. Additional studies were accessed by search Google for ‘ancient woodland soil translocation’.

It is recognised that a more extensive literature search (e.g. including a full academic literature search) is likely to warrant additional literature resources. It is also noted that many studies are not published or available for review e.g. those undertaken by developers in response to planning commitments etc.

A key finding of this chapter is that a full synthesis of ancient woodland soil translocation approaches is needed.

## Summary of Key Issues

### AVAILABLE LITERATURE

Appendix A reveals that there are few long-term studies (i.e. greater than 10 years in age) charting the success of ancient woodland soil translocation. This is particularly important for a habitat which takes decades, or even centuries, to reach its ecological potential. It cannot be clearly stated if the outcomes of soil translocation will be sustained into the long term. There are few studies which look at the impact on translocation on soil faunal and fungal communities compared to a controlled reference community not subject to translocation. Most studies examine the effect of soil translocation on high plant community composition and/or abundance (i.e. trees, shrubs and woodland ground flora). However, few studies looking at plant communities adopt a truly quantitative comparison of the donor community verses the receptor community.

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### KEY TECHNIQUES DESCRIBED IN THE LITERATURE

The following key techniques are described for ancient woodland soil translocation:

- Ancient woodland soil translocation – the process of moving soils, to rescue habitats which would otherwise be lost. Translocation may involve features such as trees, shrubs, individual plants, litter and deadwood; and
- Soil translocation may comprise loose tipping of soils or turf translocation.

### STATED AIMS OF THESE PROJECTS

The various attempts to translocate ancient woodland soils have the following stated objectives:

- Translocate donor site ground flora and recreate at receptor site;
- Translocate donor site coppice stalls, shrubs and trees and re-plant at receptor site;
- Preserve soil horizons during translocation process; and
- Improve the condition, quality or species-richness of new/compensation woodland by inoculating it with ancient woodland soils.

Other stated reasons for translocating ancient woodland soils included:

- Soil will be disposed of otherwise; and
- Newly created woodland is likely to be more species-rich and be given a better head start if inoculated with ancient woodland soils, even if the precise ancient woodland community isn't recreated.

### KEY PRACTICAL CONSIDERATIONS

The following issues were stated as key practical considerations:

- Translocation should find a receptor site with similar soils, hydrology and topography;
- The correct machinery should be used to translocate soils, different machines may be needed for loose tipping compared to turf translocation;
- Woodland soils should be translocated in the correct season;
- Soil moisture and structural integrity levels should be monitored throughout the process. Soils should not be translocated when too wet or allowed to become too dry;
- Surface water may need to be managed at the receptor site – keeping soils from excessive flooding or drying;
- The work should be supervised by ecological, soil scientist and other appropriate qualified personnel;
- Setting up a grid system to ensure translocation of woodland soils in the same spatial configuration between donor and receptor; and

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- Use of matting to prevent compression of donor and receptor site soils by vehicles and personnel.

### DO ANCIENT WOODLAND SOIL TRANSLOCATION PROJECTS MEET THEIR OBJECTIVES?

The following key messages were drawn from analysis of the studies in Appendix A:

- In general, most translocation exercises appear to retain some of the ancient woodland plants present at the donor site, but the majority of cases report marked differences between donor and receptor woodland communities (e.g. species abundance, composition, structural characteristics);
- In respect to translocated coppice stools, trees and ancient woodland field layer plants, the majority of the translocation projects appear to have achieved their aims as far as preserving the viability of translocated coppice stools, shrubs and the regeneration of ancient woodland field layer plants;
- Few of the published sources quantify the recovery of ancient woodland plants compared to the donor site baseline, they focus instead on presence/absence. Although the HS2 studies do quantify the number of coppice stools, shrubs and trees that were translocated;
- For certain studies it is very difficult to compare the translocated community to the baseline (donor) community in all but qualitative terms;
- There appears to be no long-term monitoring of these sites. However, both HS2 and A21 projects occurred recently, within the last 5 – 10 years. The Buckley et al. study<sup>14</sup> used a 25-year monitoring period; and
- None of the published sources report on the success of translocation when it comes to soil fungi and soil fauna.

A rigorous monitoring strategy should accompany any new proposal for ancient woodland soil translocation. The Woodland Trust suggest that it should continue for a minimum of 25 years.

## CONCLUSIONS

Case studies of ancient woodland soil translocation within the UK were reviewed, and the key techniques and practical considerations highlighted. In general, most translocation exercises appear to retain some of the ancient woodland plants present at the donor site, but the majority of cases report marked differences between donor and receptor woodland communities (e.g. species abundance, composition, structural characteristics). Few of the published sources quantify the recovery of ancient woodland plants compared to the donor site baseline, they focus instead on presence/absence. The difficulty in comparing the case study results in terms of translocated community to the baseline (donor) community in all but qualitative terms was also highlighted by the review. None of the published sources report on the success of translocation when it comes to soil fungi and soil fauna.

<sup>14</sup> Buckley Helliwell, Milne and Howell, (2016). Twenty-five years on – vegetation succession on a translocated ancient woodland soil at Biggins Wood, Kent, UK. *Forestry-An International Journal of Forest Research Science* 90: 561–572



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In light of the above case studies and legislative/planning policy context, there is a lack of direct evidence on the translocation with or without soil is a reliable method for ancient woodland translocation for compensation for ancient woodland loss. Overall ancient Woodland B has a low presence of AWI species both botanical and invertebrate. The woodland is overall degraded by human interference and agricultural impacts.

The loss of approximately 25m<sup>2</sup> ancient woodland within Woodland B, could be potentially offset through the creation of new and extended ancient woodland connected to woodland parcel A and through habitat enhancement of both woodland parcels to improve overall quality of the woodlands. Consultation with the LPA would be required to agree this strategy.

The Environment Act 2021 enacted a requirement for biodiversity net gain in the UK, which became mandatory for developments requiring planning consent in February 2024. In Kent, the net gain target is 20% above baseline value; more widely in the UK it is 10%. Ancient woodland is considered by the biodiversity net gain process to be an irreplaceable habitat and thus a bespoke mitigation plan would need to be agreed with the local authority for its loss. An area of 1 hectare of land has been identified to compensate for the ancient woodland loss, which has been set out within the Ecological Mitigation Strategy (February 2025). This compensation proposal would need to be discussed and agreed with the LPA. A rigorous monitoring strategy should also accompany any new proposal for ancient woodland soil translocation. The Woodland Trust suggest that it should continue for a minimum of 25 years.



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### Appendix A – Review of ancient woodland soil translocation case studies



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Project	Location	Approx. Area Translocated	Type of woodland (donor)	Key lessons	Successful?	Reference
HS2 Phase 1	Warwickshire and Buckinghamshire	Not stated	<ul style="list-style-type: none"><li>N/A</li></ul>	<ul style="list-style-type: none"><li>Plan translocation around other ecological requirements (e.g. protected species issues).</li><li>Involve a soil scientist and map to document donor site soils. To set a baseline and to inform translocation technique.</li><li>Use a grid system to record donor site soils and transfer this system to the receptor site for translocated soils.</li><li>Soils scientist and ecologist supervision of works is necessary.</li><li>May need to involve forestry and horticultural expertise when it comes to translocating coppice stools and shrubs.</li><li>Seek to preserve the soil profile.</li><li>Translocation of soil in turves is preferable as it preserves soil horizons but may not always be possible.</li></ul>	<ul style="list-style-type: none"><li>Not stated – but see Decoy Pond Wood case study below.</li><li>Large literature on the practical methods for ancient woodland soil translocation.</li></ul>	HS2 Ltd. (2022) <sup>15</sup>

<sup>15</sup> HS2 Ltd. (2022). Ancient woodland soils translocation. HS2 Learning Legacy [on-line]

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Project	Location	Approx. Area Translocated	Type of woodland (donor)	Key lessons	Successful?	Reference
				<ul style="list-style-type: none"> <li>Monitor the moisture content of soils during translocation to prevent excessive drying.</li> <li>Management of water at receptor site is critical for soils with a high clay content to prevent 'smearing' of translocated soils.</li> <li>Soils were translocated during the dormant season for plant growth which is c. October to March.</li> </ul>		
HS2 Phase 1 - Decoy Pond Wood	Buckinghamshire	1ha	<ul style="list-style-type: none"> <li>Holly, blackthorn, hazel, hawthorn, oak sp., privet sp., guelder rose, dog rose, honeysuckle, dogwood, wild service tree.</li> <li>Primrose, yellow archangel, lords and ladies, wood anemone, wood</li> </ul>	<ul style="list-style-type: none"> <li>As above for HS2 in general.</li> <li>Project involved translocation of dead wood, clumps of ancient woodland indicator species (c. 1,000), trees and saplings (c. 40) and coppice stools (c. 130).</li> </ul>	<ul style="list-style-type: none"> <li>Anecdotal evidence provided in HS2 et. al. (undated) of recovering ancient woodland ground flora plants e.g. bluebell.</li> </ul>	HS2 Ltd, Fusion and RSK Habitats (Undated) <sup>16</sup>

<sup>16</sup> HS2 Ltd, Fusion and RSK Habitats (Undated). Learning Legacy Case-Study – Decoy Pond Wood



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Project	Location	Approx. Area Translocated	Type of woodland (donor)	Key lessons	Successful?	Reference
			sedge, wild strawberry, germander speedwell, St Johns Wort sp., ribwort plantain, bugle, wood speedwell.			
HS2 Phase 1 – Ashow Road	Warwickshire	0.1ha	<ul style="list-style-type: none"> <li>Intermediate between W10 and W8 woodland.</li> </ul>	<ul style="list-style-type: none"> <li>As above for HS2 in general.</li> <li>Project involved soil translocation but also coppice stools, living trees and standing deadwood.</li> </ul>	<ul style="list-style-type: none"> <li>Anecdotal evidence provided in HS2 et. al. (undated) of recovering ancient woodland ground flora plants.</li> </ul>	LM, Three Shires Ltd, Lochart Garratt (Undated) <sup>17</sup>
National Highways/Balfour Beatty - A21	Kent	15.6ha	<ul style="list-style-type: none"> <li>Sweet chestnut coppice.</li> </ul>	<ul style="list-style-type: none"> <li>Soil waterlogging frustrated the process in places.</li> </ul>	<ul style="list-style-type: none"> <li>Translocated coppice stools were mainly found</li> </ul>	Middlemarch Environmental Ltd. (July 2018) <sup>18</sup>

<sup>17</sup> HS2 Ltd, LM, Three Shires Ltd, Lochart Garratt (Undated). Learning Legacy Case-Study - Ashow Road

<sup>18</sup> Middlemarch Environmental Ltd. (July 2018) A21 Tonbridge to Pembury Dualling Habitat Translocation Monitoring Report - A Report to: Balfour Beatty / Highways England. Report No: RT-MME-115836-20-06

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Project	Location	Approx. Area Translocated	Type of woodland (donor)	Key lessons	Successful?	Reference
Tonbridge to Pembury			<ul style="list-style-type: none"> <li>NVC types W8 and W10.</li> </ul>	<ul style="list-style-type: none"> <li>Non-native invasive species and fly tipping of hazardous materials reduced the area of donor woodland available for translocation.</li> </ul>	<p>to be health in the receptor site.</p> <ul style="list-style-type: none"> <li>Most receptor sites supported several of the donor site ancient woodland ground flora species (presence/absence not quantified).</li> </ul>	
Biggins Wood - Channel Tunnel Rail Link	Kent	1.1ha	<ul style="list-style-type: none"> <li>Tree canopy consisted of ash, elm, pedunculate oak and field maple over hazel, with willow.</li> <li>Several wet springs were present.</li> </ul>	<ul style="list-style-type: none"> <li>After 25 years the project succeeded in transferring some shade-tolerant elements of the ground flora including over 70 per cent of its ancient woodland indicator species.</li> <li>However, the new community was significantly different from the original, principally because soil conditions were drier</li> <li>In future translocations, the tree species should be carefully chosen to match the prevailing topographic and edaphic factors.</li> </ul>	<ul style="list-style-type: none"> <li>After transference there was an increase in the abundance of open-ground species, reflected in the soil seedbank</li> <li>Some losses of ancient woodland</li> </ul>	Buckley et al. 2016 <sup>14</sup>

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Project	Location	Approx. Area Translocated	Type of woodland (donor)	Key lessons	Successful?	Reference
				<ul style="list-style-type: none"> <li>■ Close spacing to hasten an initial canopy cover may be an advantage at first, but tree ‘nurse’ crops should be removed promptly once their purpose has been served.</li> <li>■ Location of the new site as close as possible to an existing wood may provide additional colonizing sources of propagules.</li> <li>■ The priority for the surviving field layers is to re-establish a canopy quickly, but once developed, the long, dark phase of woodland development can become a threat to woodland-edge species and others requiring more light.</li> </ul>	<ul style="list-style-type: none"> <li>■ indicator plants occurred.</li> <li>■ The comparatively drier conditions of the receptor strongly influenced the field layer. The planted trees also differed from that of the canopy in the donor wood.</li> <li>■ Tree canopy uniformity at the receptor site was much greater than in the donor wood.</li> </ul>	
Brickhouse Wood – quarry and	Kent	2.8ha	■ Not stated	<ul style="list-style-type: none"> <li>■ Autumn translocation promoted better immediate recovery of forest species than spring translocation.</li> </ul>	<ul style="list-style-type: none"> <li>■ After 10 yr the field layer at the receptor site still</li> </ul>	Craig et al. 2015 <sup>19</sup>

<sup>19</sup> Craig, Buckley and Howell, (2015). Responses of an ancient woodland field layer to soil translocation: methods and timing. Applied Vegetation Science 18: 579–590



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Project	Location	Approx. Area Translocated	Type of woodland (donor)	Key lessons	Successful?	Reference
landfill site development				<ul style="list-style-type: none"><li>Soil placement caused less initial damage than loose-tipping. soils spread by bulldozer rather than loose-tipping had higher levels of total nitrogen and organic matter than loose-tipped areas but were more heavily compacted.</li><li>Ancient woodland indicators (AWI) declined by an average of about one species per 4 x 4-m plot.</li></ul>	resembled that of the donor, but with differences in abundance of some individual species.	



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## Appendix B – Invertebrate Habitat Potential

**Table 1B- Invertebrate Habitat Potential Habitat elements proforma**

Habitat Elements	No.	Comment
Decaying Wood	HE1	In all its forms; from decaying wood on/in large trees to woodland floor debris
Rotational Management	HE2	Planned or serendipitous; and whether for nature conservation or other purposes
Nectar Resources	HE3	As a proxy for nectar- and pollen resources, as assessment of pollen resources is impracticable on a walk-through survey
Wet Substrates	HE4	Including marginal, marshy, muddy and seasonally inundated habitats, as well as flushes
Open Water Habitats	HE5	The open water element of rivers, lakes, ponds, streams, ditches, etc.
Structural Patchwork	HE6	Habitat mosaics, including, but by no means restricted to open mosaic habitats on previously developed land
Still Air (S)	HE7	Suntraps and still-air microclimates in open situations; the term 'still air' is used in preference to 'wind breaks' as many rigid wind breaks are likely to produce turbulent air in their lee
Still Air (H)	HE8	Humid still-air microclimates in sheltered and shaded situations



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Habitat Elements	No.	Comment
Connectivity	HE9	Landscape-scale connectivity between the site and external habitats
Ecolines	HE10	A graded transition between two or more broad habitats
Bare earth	HE11	Unshaded bare or sparsely vegetated well-drained substrate, regardless of soil type

**Table 2B- Invertebrate Habitat Potential Habitat grade proforma**

Grade	Description
Negligible/Absent (E)	Habitat element is absent or of insignificant (barely perceptible) quantity.
Minor (D)	Habitat element is present but is insufficient quality to qualify as Moderate or above. For example, it may be of extremely limited extent, or very sparsely dispersed. Likely to support common and widespread, generalist species.
Moderate (C)	A clear example of the habitat element is present, but which does not qualify as Major. Likely to be of sufficient quality to support a characteristic invertebrate fauna.
Major (B)	Good quality examples of each habitat element which do not meet the criteria for Exceptional. Likely to be a predominant factor in supporting characteristic and specialised invertebrate assemblages. Considerations might include the extent, maturity and historic and current connectivity of the element.



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Grade	Description
Exceptional (A)	Very high-quality examples of the habitat element, including but not restricted to those of potential regional significance. This may be for reasons of intrinsic quality, rarity, vulnerability or the perceived importance of its position in the wider landscape.



LEGEND:

Site Boundary

Survey locations

Moth trap locations

Botanical survey plots

Ancient woodland

Ancient and Semi-Natural Woodland

Ancient Replanted Woodland

Woodland B

Moth trap 1

Moth trap 2

Woodland A

STATUS:

FOR INFORMATION ONLY



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CLIENT:

University of Kent

PROJECT:

University of Kent Disposal Sites

TITLE:

Ancient Woodland Survey Locations

SCALE @A3:

1:1,262,189

DRAWN:

NMR

APPROVED:

PJ

VERSION:

1

DATE:

DATE:

22/08/25

PROJECT No:

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Figure 1

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