Scottish & Southern Electricity Networks
TRANSMISSION

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Safety, Health and Environment

Wood Ant Species Protection Plan

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1 General Protection Plan Introduction

This Protection Plan provides guidance and agreed procedures for the protection of wood ants during construction works on SSEN Transmission projects. The plan details the procedures that must be followed where wood ants have been observed within the construction area.

2 Background

2.1 There are three key species of wood ant, which are as follows:

Formica aquilonia (Scottish wood ant) This species has a fringe of hairs at the rear of the head which does not extend down to the compound eyes. Viewed from the side, it does not appear hairy. It builds very large mound nests, up to two metres in diameter and up to 1.5 m high. These nests are rarely isolated and are often linked by long trails to neighbouring mounds, effectively forming one huge colony.	 ©Gabor Pozsgai	 ©Jenni Stockan
Formica lugubris (Hairy or Northern wood ant) In *F. lugubris* the fringe of hairs at the rear of the head extends down to the compound eyes. There are also long hairs on the thorax and when viewed from the side, the top of the thorax looks very hairy. They build large mound nests about two metres in diameter and one metre high. Some nests exist in isolation, but large groups of interconnecting nests often occur, and may contain many hundreds of queens.	 ©Hayley Wiswell	 ©Hayley Wiswell
Formica exsecta (Narrow-headed ant)[1] The distinctive feature of this ant is the notch in the top of the head and the narrow appearance of the head. It is smaller in size compared to the other wood ants, with workers around seven millimetres long. Their nests are dome-shaped mounds, smaller in size than the other two species, about 30 cm in diameter. Note: Narrow-headed ant has a very restricted distribution: Abernethy, Glenmore, Carrbridge, Mar Lodge (all in the Cairngorms National Park), and Camghouran alongside Loch Rannoch. It's not known elsewhere in Scotland.	 © Alex Hyde	 ©Jenni Stockan

[1]*Formica exsecta is not strictly speaking a wood ant however they share a common ancestor. Therefore, F. exsecta is being considered as a wood ant for the purposes of this plan.*

2.2 The nests of all three species offer opportunities for shining guest ant (Formicoxenus nitidulus) which is about 2.8 to 3.6 mm long and lives in the colonies of the much larger species. It is difficult to detect; therefore, all wood ant nests should be considered to be potential habitat.

2.3 Further information on wood ants can be found in a 'Guide to the Wood Ants of the UK and related species', published by the Cairngorms National Park Authority in 2021. A digital copy of this guide and further guidance on relocation of wood ant nests can be found at www.woodants.org.uk.

3 Responsibilities

It is the Contractor's responsibility to comply with all the requirements of this Protection Plan where wood ants may be present, and it is both the Contractor's and SHE Transmission's responsibility to monitor compliance with the Protection Plan.

4 Legislation

4.1 Narrow-headed ant and shining guest ant are both included on the Scottish Biodiversity List.

4.2 Section 1(2)(a) of the Nature Conservation (Scotland) Act 2004 requires every public body and office-holder to have regard to the Scottish Biodiversity List as a requirement of their biodiversity duty under section 1(1) of the Act. This requirement includes SSEN Transmission as the holder of a licence under section 6(1) of the Electricity Act 1989.

5 Surveying for Wood Ants

5.1 In advance of construction a walkover will be undertaken by a qualified and experienced ecologist to check construction areas for wood ants. Once the survey has been carried out, the ecologist / Environmental Clerk of Works (ECoW) shall review the survey results and apply the mitigation hierarchy outlined below.

5.2 Ongoing checks will be undertaken throughout construction by the project ecologist. Construction teams should be advised of existing / new constraints, together with mitigation requirements by the ecologist / ECoW.

5.3 Relevant site documentation and project information sources should be updated with new and amended information on constraints as it is produced, with changes communicated to appropriate staff immediately.

6 Mitigation Hierarchy

There is a general presumption against works being carried out which could destroy wood ants. A hierarchical approach to mitigation of Avoidance – Relocation will be applied nest that may be affected (See Figure 2.1):

6.1 Avoidance

6.1.1 This is the preferred option for nests identified within construction areas. A protection zone of at least five metres around the nest should be marked and signed on the ground with appropriate material to restrict work access. This protection zone may need to be larger depending on size of nest and activity of workers around the nest. The protection zone should ideally take into consideration significant foraging routes, and 'foraged' trees if these are present to avoid a large number of workers being harmed.

6.1.2 Protection zones must be maintained until works are completed. Site staff should be briefed of their purpose through a Toolbox Talk and works micro-sited out with the protection zone.

6.2 Relocation

6.2.1 Where avoidance is not possible, the following wood ant relocation protocol shall be followed.

6.2.2 Wood ant species have different habitat requirements. The microhabitat of the affected site must be surveyed to include aspect, slope, elevation, hill-shading, canopy, location and size of trees etc. Potential receptor sites that match these requirements must be identified.

6.2.3 Wood ants are territorial and will compete with the same and other ant species. Territory differs between species but may be up to 100m from the nest. As such a survey for other ant nests within 100m of potential receptor sites will also be undertaken.

6.2.4 Wood ants are active throughout the summer, while queens hibernate during winter. These are sensitive times for the colony and relocation should not be undertaken at these times.

6.2.5 The relocation of narrow-headed ants should be avoided where at all possible as current evidence suggests a high risk or probability the nest will fail if it is relocated. Relocation should only be considered as an emergency last resort when a nest is threatened with likely imminent extinction if there is no intervention.

6.2.6 The optimum time for relocation of F. aquilonia and F. lugrubis is Spring, however it is possible in Autumn. The optimum time for relocation of F. exsecta is late summer (after August) to late autumn. The optimum temperature for relocations is between 5 to 10ºC.

6.2.7 Relocation must be carried out in fine weather and be followed by at least several days of similar weather, so that the ants can organise themselves and set about nest building. It is crucial therefore to watch for weather forecasts during the relocation season, so that optimum conditions prevail.

6.2.8 All relocations must be supervised by the ecologist / ECoW to tackle any issues arising.

6.2.9 Prior to relocation preparations are essential and include:

- The ecologist / ECoW undertaking a site survey to identify a suitable resettlement location away from construction activities. The potential resettlement site(s) should be visited in advance at different times of the year. A site which appears suitable in winter may have a completely unsuitable state in summer, and vice versa. Unsuitable factors principally include excessive shading and/or potential water-logging due to poor drainage, lack of food-source trees etc
- When deciding on a new location the following factors should be considered:
  - It should preferably have an open southerly aspect, free from shading overgrowth and with good drainage. If necessary, any shading vegetation should be cleared or thinned. A focal point for nest building, such as an old stump or decaying tree trunk or boughs, should be present, or artificially added if not. Twiggy 'brash' added over the stump or boughs will serve to provide a framework for nest building
  - It should be as similar as possible to the source site
  - It should be in a location that facilitates monitoring for as long as possible
  - Suitable tree and shrub species must be present to provide enough food in the form of honeydew from aphids and other plant-lice
  - Prepare the resettlement site by excavating a hole to at least the same size (nests can extend one metre below ground depending on the size of the nest, and underground components usually mirror those above ground)
- The ecologist / ECoW undertaking a detailed Toolbox Talk in advance of the relocation works to all personnel involved

6.2.10 When planning for relocation there are two possible methods, as outlined in Table 6.1 and below.

Table 6.1 - Planning for Relocation Methods

Method	Strengths	Weaknesses
Hand Tool Method	Less reliance on retaining nest architecture. Can allow nests to be moved in a vehicle to a distance resettlement site. Can work for any size of nest and particularly useful for large nests where digging whole nest is not feasible. Can be done using hand tools and at sites when access for machinery is not possible	Results in total loss of nest architecture, though the "layers" of material are still retained. Relies on the ability of the ants to rebuild the nest structure and thatch which they can do surprisingly quickly depending on size of colony and time of year. Best timed to seasons when the ants are active and able to recover (i.e., not immediately before hibernation and cold spells of weather).

Method	Strengths	Weaknesses
Excavator Method	Can retain nest architecture if done carefully Can make use of machinery that may already be on site.	Should only be used when nests are being moved very short distances, to avoid loss and damage to nest whilst being carried in excavator bucket. Best suited to small-medium sized nests.

6.3 Hand Tool Method

6.3.1 Tools to be used include spades, shovels, and possibly saws or axes (if roots etc are a problem). Nest transfer into the sack should preferably be done using wide, flat coal-type shovels, which are less potentially damaging than sharp digging spades. Organic Hessian-type potato sacks make the best containers, and the use of plastic sacks must be avoided. String or similar cord is necessary to tie up each sack as it is filled. Sixty litre plastic barrels with lids have also proven successful, and could be considered for this method.

6.3.2 When using hand tools shovel up as much of the massed ants and material as possible, in as few scoops as possible, in order to minimise the time taken and the disturbance to the ants. Work down as far as the soil structure will allow. Do not over-fill each hessian sack, which could lead to some crushing at the bottom, and try to include some small branches etc to alleviate pressure. Tie up each sack as quickly as possible after filling.

6.3.3 Keep the time between removal of the ants from the old location and their release at the new location as short as possible.

6.3.4 Untie the sack(s) and carefully tip the ants and nest material over the prepared nest site. After the bulk material is emptied, there will still be many ants clinging to the inside (and outside) surfaces of the sack, which should be shaken vigorously to dislodge as many as possible. The sack should be turned inside out, and then cut into two or three sections which can be placed and left on and around the nest heap. This will enable all the ants to keep together, and also ensure that any other small creatures, such as myrmecophilous beetles etc, which might be clinging to the sack, will be able to remain with the ants. The Hessian sack material will add to the overall nest framework and will eventually rot away.

6.4 Excavator Method

6.4.1 Prepare the route between the old location and resettlement site. A trial run should be undertaken to identify and remove hazards when not using existing roads or tracks prior to relocation.

6.4.2 Ensure the excavator slowly moves to the ant nest and excavates the entire nest using the bucket (ensuring minimal damage to the nests architecture occurs).

6.4.3 Care needs to be taken to ensure the nest is kept as intact as possible and where possible move the nest as one complete unit to maintain nest architecture.

6.4.4 Once the nest has been excavated ensure the bucket is covered in thermal breathable fabric coverings to help retain heat within the nest, should the transport take longer than 30 minutes. This covering will assist in preventing any ant's falling out of the bucket during transit. The excavator shall move the nest as slowly and steadily as possible (around 2.5 miles per hour).

6.4.5 Ensure the excavator places the bucket containing the ant nest into the resettlement site, ensuring retention of the nest aspect. The bucket is to be retracted slowly, ensuring the nest is gently placed into the resettlement site and limits damage of the internal structure of the nest.

6.5 Post Excavation (either method)

6.5.1 After the nest has been excavated, the excavation site should be checked by the ecologist / ECoW for any significant number of ants, ant queens or signs of nest architecture (nests can extend one metre below ground depending on the size of the nest, and underground components of the nest usually mirror those above ground). These should be gathered and taken to the resettlement site.

6.5.2 If the relocation site is in proximity to construction activities a protection zone of at least five metres around the nest should be marked and signed on the ground with appropriate material to restrict work access. This protection zone may need to be larger depending on size of nest and activity of workers around the nest. The protection zone should ideally take into consideration significant foraging routes, and 'foraged' trees if these are present to avoid a large number of workers being harmed.. If the nest is out with the construction area it should be clearly marked so it can easily be located for monitoring.

6.5.3 Where badgers are known to be present physical barriers may be required for the first year after relocation to prevent the nest being damaged or destroyed.

6.5.4 Provide supplementary sugary food (e.g. bee food dough, honey-breadwater mash, or jam) at the receptor site daily for first two weeks post-move to ensure long term success in the new site.

6.5.5 During the initial days after the relocation the old location should be checked if possible, and if necessary, remaining ants should be collected and moved to the resettlement site.

7 Monitoring

The ecologist / ECoW will attend site on a regular basis throughout the construction period to ensure all environmental mitigation relevant to wood ants are delivered, including:

- food supply – have the ants set up foraging routes to a foraged tree(s), which may harbour an aphid colony?
- If not, then further supplementary feeding may be required
- are the ants active and remained where they were relocated with evidence of thatch repair and/or growth in the size of the nest?

- have the ants moved to a new site of their own choosing? This often happens, sometimes after an initial period (lasting a few days to perhaps a week or so) of stability and is not a problem unless the uncertainty becomes prolonged
- where protection measures around the relocated nest have been installed, as described above, does this require to be modified and/or repaired?
- It is not unusual for the population to appear to be significantly reduced in the next season after relocation. This is due to losses during the previous year and over the winter, caused by physical injury, predators and/or 'shock' – older workers in particular may not adjust to their new surroundings. If all is well, however, losses are made up during the succeeding months and years. To ascertain success / failure, the nest shall be monitored through the first season and in the April of the following season. For the purposes of monitoring the following process is recommended as a minimum:
    - following relocation supplementary feeding should be undertaken daily for the first two weeks
    - in the third week following relocation check whether the ants have established foraging routes and decide whether to continue supplementary feeding or not
    - a month later check whether the nest has been damaged or had major disturbances
        - If so, protection measures to prevent further damage or disturbance should be considered
    - where protection measures to prevent damage by badgers are installed they can be removed after one year
    - in April of the season following relocation determine short-term success / failure to ascertain if there is any learning that can be used to update / amend the relocation process. If so, this should be reported to the SSEN Transmission Consents and Environmental Manager for the project

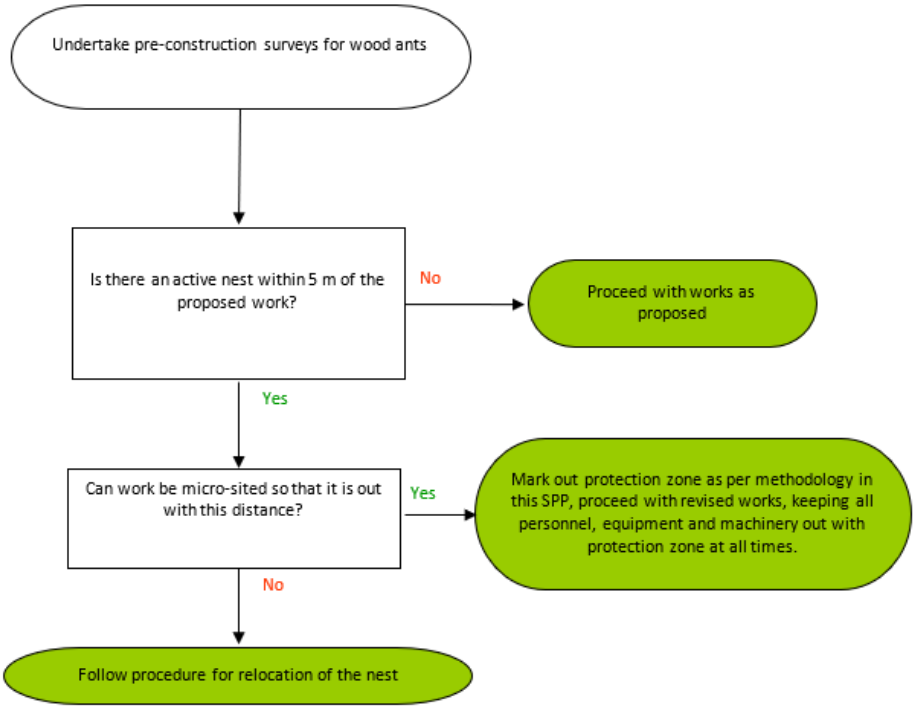

Figure 7.1 - Wood Ant Mitigation Decision Tree

8 Revision History

No	Overview of Amendments	Previous Document	Revision	Authorisation
01	Created after review by Hayley Wiswell (Cairngorms National Park), Athayde Tonhasca (NatureScot) and Jenni Stockan (James Hutton Institute)	n/a	1.00	Richard Baldwin
02				