

Birse Community Trust

WOOD ANT COLONIES IN BIRSE PARISH

(December 2014)



INTRODUCTION

The purpose of this report is to record the results of a survey during 2014, to map the distribution of wood ant nests in Birse parish.

Wood ant nests have a domed shaped and can be up to a metre high and two metres across, as illustrated in the cover photograph from the Glen Ferrick Pinewood, Finzean.

Wood ants are an important natural component of native pinewood ecosystems in Scotland. The presence of wood ant nests in a pinewood is also a key indicator of woodland continuity, as the colonies can not survive without tree cover and have limited capacity to move to new areas.

During the 2014 survey, a total of 41 wood ant nests were found at several locations spread across Birse parish. The distribution of the nests in the parish is shown on the map at the end of this report.

The wood ant nests in Birse parish are considered to be the most easterly surviving wood ant colonies in Scotland.¹ This reflects that Scotland's most easterly areas of surviving native pinewood are also in Birse parish.

The first section of this report provides an introductory note about wood ants. The second section of the report then comments on the distribution of the wood ant nests in the parish and how the pattern is closely related to the parish's woodland history.

In 2015, BCT plans to carry out further survey work to search for additional wood ant nests and then to produce a revised version of this report.

¹ Distribution maps in Hughes and Broome 'Forests and Wood Ants in Scotland' (FC, 2007) and confirmed by Jenni Stockan, Hutton Institute, Aberdeen

WOOD ANTS

- 1 There are two species of native wood ant in Scotland, the Northern Wood Ant (*Formica lugubris*) and the Scottish Wood Ant (*Formica aquilonia*).²
- 2 Both species are associated with native pinewoods and birchwoods, and are seen as 'keystone' species because of the importance of their role in forest ecosystems.³
- 3 Both species build domed shaped nests, which can be a metre or more high and around 2 metres in diameter.⁴ Over 100 other species of invertebrates are associated with wood ant nests in the UK ('myrmecophilous species').
- 4 Wood ants are active above ground when temperatures are sufficiently warm (March/ April to November in Birse). They winter in the ground below their nests. During this period, the mound of the nest may be damaged by deer, particularly roe, which have been known to sit on them for warmth. The enrichment of the vegetation immediately around nests is also known to attract deer to them.
- 5 The main vertebrate predators on wood ants in Birse, are capercaillie and woodpeckers. Historically, wild boars would also have been a predator (and prehistorically, bears). In some European countries, wood ant nests are protected from wild boar by fences, because of the value placed on wood ants as part of maintaining forest health against invertebrate pest species.
- 6 Wood ants are a top predator amongst invertebrates and taken by few other species. However, a wood ant eating spider (*Diplocephalus* *torva*) occurs in Scotland's native pinewoods. While the spider occurs on Deeside and was found in Glen Tanar in 2011, it has only been found so far feeding on the Scottish Wood Ant.⁵
- 7 The two wood ant species are difficult to distinguish without close examination. The Northern Wood Ant is also known as the Hairy Wood Ant, as its hairiness is a distinguishing feature from the Scottish Wood Ant.
- 8 Wood ants from 26 of the nests in Birse have been examined and all were considered to be the Northern Wood Ant.⁶ The nearest known occurrence of the Scottish Wood Ant is in the native pinewood at Torphantric, west of Glen Tanar, where there is also the Northern Wood Ant.
- 9 The different habitat requirements of the two species, and why one or both species might survive at a location, do not seem well understood. It seems, however, that the Northern Wood Ant may be more resilient to woodland change, with the Scottish Wood Ant possibly needing larger areas of suitable habitat, older trees and less disturbance.⁷

² For more information on the ecology and distribution of wood ants, see the Forestry Commissions Information Note: Hughes and Broome 'Forests and Wood Ants in Scotland' (FC, 2007)

³ FC (2007). They can also occur in other conifer woodlands (eg Balfour Forest)

⁴ There are conspicuous examples of these nest on the verge of the public road up the Forest of Birse, just west of the Bucket Mill before the road crosses the Finlets Burn.

⁵ Mike Davidson "Some Observations on the Wood Ant Spider (*Diplocephalus torva*)" (British Arachnological Society)

⁶ The specimens were collected and examined by Dr Gus Jones (Nethybridge) in August 2014. The nests that were not checked, were the Upper Glen Ferrick group, one on the east side of the Finlets Burn and at Creagandummie.

⁷ Jenni Stockan

- 10 The 41 known wood ant nests in Birse will consist of a smaller number of wood ant colonies. This is because the Northern Wood Ant can have more than one queen per colony and colonies can consist of more than one nest ('polydomous'). This appears the case with some nests in Birse parish, which are overlapping or very close to each other (as in cover photo).
- 11 Wood ants spread by budding or the dispersal of mated queens, but the dispersal of Northern Wood Ant queens appears very rare in Scotland.⁸ Colonies with small nests may not have the capacity to create new colonies, with nest size potentially reflecting the quality of the habitat for wood ants.⁹
- 12 Wood ants do not survive without their woodland environment and historically, they have declined with the reduction in Scotland's native pinewoods and birchwoods. Their dependence on woodland and their specific habitat requirements, together, with their limited and slow ability to colonise new areas, make wood ants a good indicator of native woodland continuity.
- 13 The wood ant colonies still found in Birse parish are the direct descendants and survivors of the wood ants that have potentially lived in the area for around 8,000 years or so, since the area was colonised by forest following the last glaciation.
- 14 While 41 wood ant nests were recorded in the parish in 2014, it is considered likely that there are more nests than that. It is anticipated that, for example:
 - a more systematic search of the area west of Newmill, would record more than the 6 nests noted in 2014.
 - more nests might also be found in the upper Glen Ferrick area, including across the Finzean march dyke in the Commonty and on Ballogie Estate. .
 - there may be some further colonies at additional locations that have not been recorded yet, for example, the suggestion that there might be some nests on Ballogie Estate.

⁸ FC (2007), Jenni Stockan

⁹ for example, generally smaller nests in birch wood areas

WOODLAND HISTORY

- 1 The distribution of wood ant nests in Birse parish forms an approximately straight line across the parish. This line divides the parish's land area of nearly 13,000 ha more or less in half, with close to 50% of the area on either side of it.
- 2 The distribution of the wood ant nests along this approximate line, reflects that the forest history of Birse parish is a tale of two halves.
- 3 The map shows that the northern half of the parish to the north and east of the line, is well wooded with over 50% tree cover.¹⁰ By contrast, the southern half of the parish to the south and west of the line, is very largely bare of trees other than the area of pinewood regenerating on the slopes between the Forest of Birse and Glencat.
- 4 Historically, over 500 years ago, the contrast was the opposite way round. There were extensive woodlands in the southern half of the parish and little by way of woodland in the northern half.
- 5 The current pattern of wood ant nests reflects the line or 'hinge' along which this very marked switch in the distribution of the parish's woodlands, took place.
- 6 While the 'woodland switch' between the halves of the parish occurred over centuries, the pivotal moment can be considered to be the mid 17th century. That was the period when the area of woodlands in the parish reached its smallest extent.
- 7 In the southern half of the parish by then, the woodlands in the forests of Glencat, Birse and Glen Aven which had formed the medieval hunting forests of the Crown and Bishops of Aberdeen from the 10th to 16th centuries, had reached their lowest extent with the destruction of most of the remaining woodlands in the Forest of Birse in the 1640s.¹¹
- 8 Long before that time, the extent of woodlands in the lower lying and more fertile northern half of the parish, had already been greatly reduced by expanding settlement and agriculture. However, from the mid 17th century, local land owners started to plant trees and manage woodlands on their individually held lands in the northern half of the parish.
- 9 The position in the mid 17th century is illustrated by the map of the parish by Robert Gordon of Straloch from around 1630.¹² This indicates both the extensive woodlands that still survived in the Forest of Birse just before their destruction,¹³ and the very limited amount of woodland elsewhere in the parish.
- 10 The extent of woodland in the northern half of the parish continued to increase from that time, as shown on subsequent maps. However, this did not happen in the southern half of the parish, because most of the land there continued to be subject

¹⁰ Neil MacKenzie 'The Extent and Distribution of Woodlands in Birse Parish' (BCT, 2014)

¹¹ For more information on the woodland history, see articles in History in Birse (BCT, 2000)

¹² The map is the BCT website on the Cultural and Natural Heritage reports page

¹³ including woodland spread around the slopes of Peter Hill into the Aven

to the common grazing that local inhabitants still made of the former hunting forest areas.

- 11 Wood ants appear to have survived the woodland low point in the 17th century along the line of their current distribution, because the boundaries of the individual properties that became established following the break up of Bishop's ownership of the parish, incorporated areas of surviving pinewood.
 - 12 While the current distribution of the wood ant nests reflects historic boundaries, it has also been determined by subsequent forest exploitation. Thus, when the Glen Ferrick Pinewood was felled in the early decades of the 19th century, wood ants survived at the top and bottom of the hill, but not in the middle slopes. The ants survived at the top because the trees were not considered worth felling, due to their poor form in that more exposed location. The ants also survived at the bottom of the hill where the trees were more scattered and open grown in wood pasture.
 - 13 The pattern of wood ant nests in the north west of the parish has a similar top of hill / bottom of hill survival pattern, although the history of the woodlands is less well documented. The nests at the bottom of the hill to the west of Newmill have survived in wood pasture, while the nests around the summit of Creagandummie reflect the survival of an area of native pinewood there until around 40-50 years ago.
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8 January 2015



Birse Community Trust

Wood Ant Colonies in Birse Parish

Scale 1 : 55,000 8/1/2015

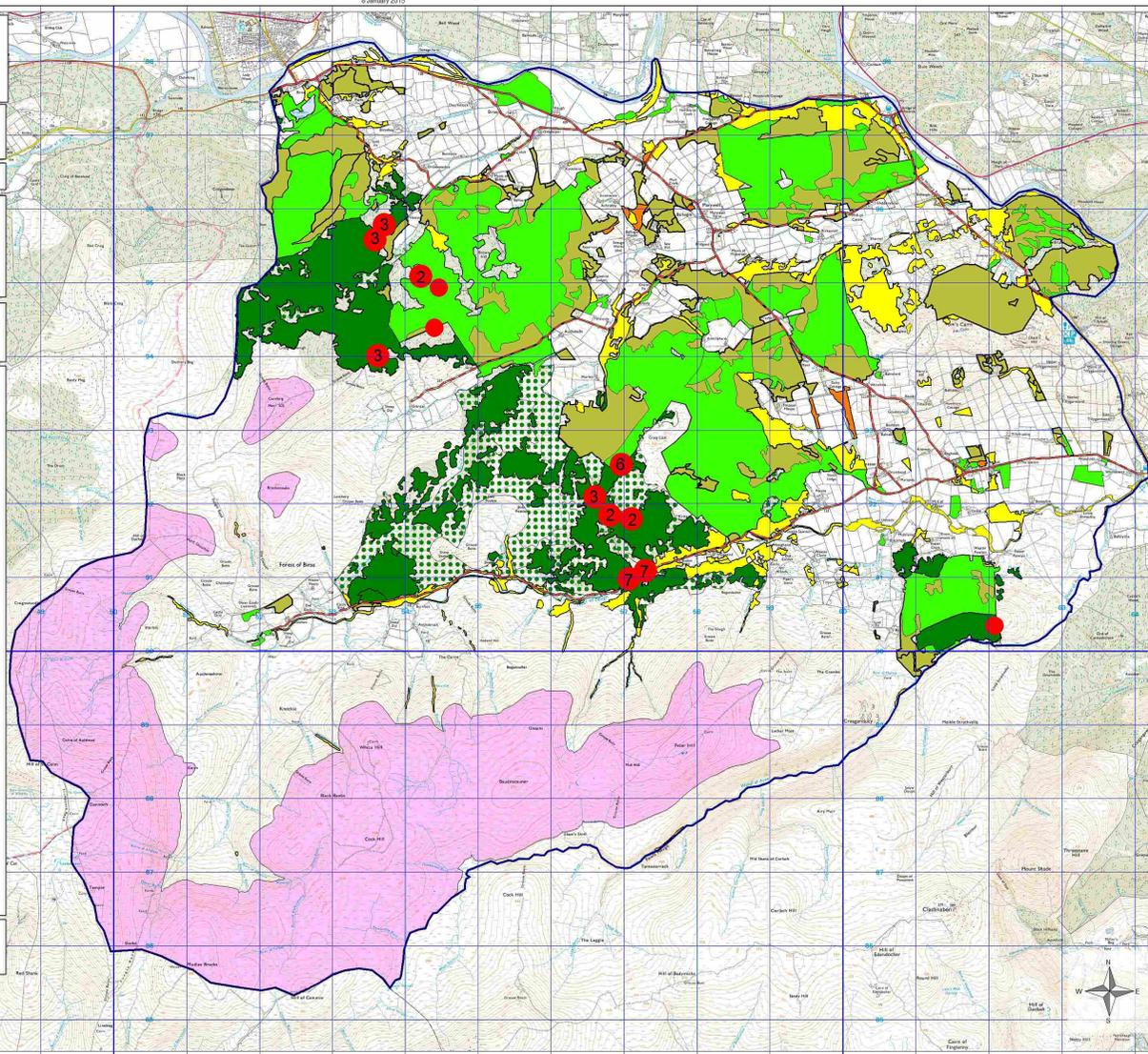
- Single wood ant nest
- Number of wood ant nests in group

All 41 nests shown are considered to be the Northern Wood Ant *Formica lugubris*

Woodlands over 0.5ha

- Native pinewood -self-sown
- Native pinewood - self sown (low density)
- Scots pine woodland - planted
- Non-native conifer woodland
- Native broadleaved woodland
- Mixed broadleaved woodland
- Land above 450m
- Public road
- Parish boundary

Sources: National Forest Inventory (2013); Native Woodland Survey of Scotland (2014)



KILOMETRES 1 0 1 2 3 4 5 6 7 8