



DRAFT REVISED PLAN AUGUST 2015

RED WOOD ANT

Formica rufa

1. INTRODUCTION

Formica rufa is the familiar large black and red wood ant of southern Britain (north of Cumbria), although in the north of Britain it is replaced by the very similar *Formica lugubrious* and *F. aquilonia*. It has a preference for coniferous plantations but is capable of using broad-leaved woods, though it tends to form weaker colonies in the latter.



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Wood ants produce large dome-shaped nests up to a metre in height, often constructed from pine needles but will use any available materials. A nest can support over several hundreds of thousands of workers and, in the UK, up to 100 queens, and from May to July numerous males. Nests are often very precisely located at the edges of rides and clearings so that they receive plenty of sunlight whilst remaining sheltered from cool winds. They require high levels of insolation because a brood cannot be reared without the heat of the sun; light dappled shade is ideal. Nests will be abandoned or moved to warmer spots if they become shadowed by vegetation; turnover rates can be as high as 22% per year (Hughes, 2006). The 1cm long workers carefully maintain the nest's structure and temperature.

Essential to the success of *F. rufa* is the presence of certain species of aphid which are tended in colonies and protected from predators; they are milked for honeydew, the ants' main source of carbohydrate. Important host plants for the ant-tended aphids are juniper, Scots pine, sycamore, birch, oak, gorse and nettle; honeydew can account for 70% of the food requirements of a colony at certain times of the year (Hughes, 2006). Workers collect other food too, foraging over a radius of several hundred metres in search of small invertebrates (the main source of protein) and plant seeds containing elaiosomes (protein/fat rich bodies), usually along well-defined trails and up trees (Donisthorpe, 1927).

Because of their predatory activity, large populations have a considerable effect on the ecology of a wood, reducing the levels of many other invertebrates and possible other insectivores as they are very aggressive, biting and squirting formic acid as intruders. The nests support a number of scarce 'inquiline' insects, including the beetle *Clytra quadripunctata*, which is present at the known Warwickshire site, and another ant *Formicoxenus nitidulus*, which is historically recorded from Knowle.

2.	OBJECTIVES	TARGETS
Associated Action Plans are: 'Woodland'		
PLEASE CONSULT THE ' GENERIC SPECIES ' ACTION PLAN IN CONJUNCTION WITH THIS DOCUMENT FOR OBJECTIVES COMMON TO ALL SPECIES PLANS		
A.	To maintain the size and range of the known Warwickshire population of the red wood ant by appropriate management.	ongoing
B.	To increase population size and range by translocation to other sites, following extensive research into their suitability.	2020

3. NATIONAL BAP OBJECTIVES & TARGETS

The red wood ant is not currently a UK Biodiversity Action Plan (BAP) Priority Species ([Joint Nature Conservation Committee](#) 2007) although the decline of all wood ants has been flagged at a European level. It was a UK Priority Species in the original UKBAP Tranches 1 and 2 (1995-1999) and the [Red Wood Ant](#) BAP (now archived) may still be seen online.

4. CURRENT STATUS

The decline in coppicing in the 20th century has been a major factor in the decline of wood ants in Europe (Hughes, 2006).

The [Victoria County History](#) for Warwickshire (1904) gives old records of *F. rufa* for Sutton, Hay Wood and Knowle, though [Hymenoptera](#) recording was very limited in such times. A strong colony was discovered in Arley Wood, seemingly in the late 1900's and seems to be the only surviving one in our area. The presence of the associated beetle *Clytra quadripunctata*, suggests it is an old colony. This beetle has also been found at [Bentley Park Wood](#), even though no wood ants are known to exist there. Four small nests from the [Wyre Forest](#) were released at Hay Wood in the 1987 in an attempt to re-introduce it there, but they do not appear to have established.

It is not certain whether the Arley Wood population is adequate to sustain the removal of any nests without endangering the persistence of those left behind or the success of those removed to a new site (pers.comm. Cedric Collingwood, 2014). However, population size and range in Warwickshire could be increased by an introduction from out of the county to historic and appropriately managed sites. Ideally this should be carried out in May when the ants, having come through winter, are about to enter a growth phase. It is possible to transfer only part of a nest as they are multi queened (pers.comm. C.Collingwood, 2014).

Prior to any introductions, it would be essential to establish why the ant is no longer at historic sites and why it is so successful at various sites in Worcestershire (pers.comm. Phil Rudlin, 2014). It is also essential subsequently to monitor any introductions over a considerable period of time.

4.1 Legal and Policy Status

A wide range of species and habitats are protected under international and domestic laws, including the [Wild Birds Directive](#) (1979), the [Wildlife and Countryside Act](#) (1981), the [Conservation Regulations](#) (1994) and [EC Habitats Directive](#) (1992). Protection of sites is afforded nationally through [Sites of Special Scientific Interest](#) (SSSI) designation, [Special Areas of Conservation](#) (SAC) and [Local Nature Reserve](#) (LNR) statutory status. Other sites are offered recognition of their value through Local Wildlife Site status (LWS), Local Character Areas and identified Landscape Scale Areas. The [National Planning Policy Framework](#) (2012) chapter/section 11 states conditions with regard to any development negatively affecting biodiversity, including protected sites, ancient woodland and other irreplaceable habitats (paragraph 118). The Wildlife & Countryside Act and schedule 2 of the [Conservation of Habitats & Species Regulations](#) (2010) make it an offence to intentionally kill, injure, take, possess, sell, buy or transport a range of species.

No legal protection exists for the red wood ant although its rarity, and the rarity of its associated beetle *Clytra quadripunctata*, in the sub-region makes both of them Regionally Scarce species that can be considered when designating LWSs. Arley Wood was classified as a LWS in 2008 and thus has an element of protection through the planning process.

4.2 Current Factors Affecting the Species

- **Large-scale forestry operations** could potentially eliminate the species, though it is fairly tolerant of normal woodland management and recreational pressure.
- **Overgrazing** by deer and cattle and trampling by cattle, following clear felling.
- **Pheasant shoots**, since the birds eat the ants.
- **Deliberate persecution of the nests** by uninformed individuals could always pose a threat.
- **Continuing incremental loss** as scrub and woodland patches are lost to agricultural diversification.
- **The need for a high quality ecologically diverse habitat** as red wood ants can take as many as 60000 prey items per day and over a quarter of a tonne of honeydew per nest per season.
- **The current trend for returning [PAWS](#) (Planted Ancient Woodland Sites) to broadleaf** – these are ancient woodland sites where the semi-natural woodland has been replaced with a plantation.
- **Corsican pine is subject to infection** from the fungus [Red Band Needle Blight](#).
- **Change of ownership**

5. LOCAL ACTION

- Occasional visits to Arley Wood by naturalists provide feedback to the Warwickshire Biological Record Centre regarding the continuing presence of the ant colony.
- The '[North Arden Heritage Trail](#)' board (North Arden Heritage Trail Project 2007-12) in the centre of the wood gives information about the ant and its rarity in the county.
- The 'Warwickshire Forest Design Plan' for Arley Wood (FC, 2012) involves the management of the current areas of broadleaves using a selective felling programme that will ensure that there is a continuous broadleaf cover and seed source to help regenerate this former ancient woodland site. However, the presence of a UKBAP Priority species takes precedence over PAWS policy to the effect that:
 - there will be continuation of the open conifer stands that the red wood ants occupy by the partial replanting of the Corsican pine stands with small groups of evergreen conifers.
 - any broadleaves that regenerate in these areas will also be retained to allow a mixed conifer broadleaf stand to develop.
 - the remaining area of the wood will be allowed to regenerate with broadleaves.

Warwickshire, Coventry and Solihull Local Biodiversity Action Plan

- all known ant nests will be conserved by the removal of bracken and overhanging branches and selective thinning of the surrounding trees on an individual nest- by-nest basis.
- due to the mobility of the ants' nests, surveys will be undertaken to monitor their spread and growth to ensure forest operations including restocking do not adversely affect population growth.
- Mapping of wood ant nests by the FC recorded 17 in 2012; in 2014 the number was 16/17 with 3/4 other areas of activity.
- In 2014 habitat management was carried out, clearing bracken from around nests along the main path and marking their position with posts. Location of more nests in the area of the wood towards the pond is predicted and further mapping and management will take place in 2015.
- The current work being carried out by the FC in Hay Wood should improve habitat for the wood ant, so restoration of suitable habitat is underway (2014).

Arley Wood – proposed Forest Structure in 2014

Corsican pine dominates the central area of the woodland. Rides have been widened.

Arley Wood – proposed Forest Structure in 2025

Corsican pine stands have been opened up and an understorey of pine and broadleaves is now becoming established.

6. PROPOSED LOCAL ACTIONS

ACTION	Lead	Partners	By
PLEASE CONSULT THE '<i>GENERIC SPECIES</i>' ACTION PLAN IN CONJUNCTION WITH THIS DOCUMENT FOR ACTIONS COMMON TO ALL SPECIES PLANS			
Policy, Legislation & Protection			
PL1. Ensure that Forestry Commission Design Plans continue to consider the needs of the red wood ant.	FC	WBRC NWBC	ongoing
Site / Species Safeguard & Management			
SM1. Ensure that the current Design Plan for Arley Wood accounts for the needs of the red wood ant, in particular protection for the nest sites, by appropriate management: <ul style="list-style-type: none"> • bracken bashing / brush cutting • removal of overhanging branches • selective thinning of the conifers in the region of the nests on an individual basis 	FC	WBRC WCC	ongoing
SM2. Continue the restoration of at least one site (e.g. Hay Wood, Waverley Wood) to good condition for the ant, following research (see RM2).	FC	LOs	2016-2020
SM3. Following a feasibility study (see RM4), implement the findings by carrying out a re-introduction at one site.	WBRC	CRec	2020
Research & Monitoring			
RM1. Continue to map nests and monitor the ant population at Arley Wood; record changes in distribution and number and responses to management activities in the wood.	FC	WBRC	annual
RM2. Research records for all woodlands in the county to find historic sites..	WBRC	CRec	2014
RM3. Research conditions at all identified historic sites to determine why the species is no longer there, prior to any translocation work. Check sites for relic populations.	WBRC	WWT CRec Unis	2015
RM4. Undertake a feasibility study (see SM4) to see if the reintroduction of the species is viable to one historic/new site. Produce a 3-year plan for the reintroduction project, and apply for funding.	WBRC	SBF FC CRec Unis	2015
RM5. Monitor the results of any translocation at both donor and recipient woods for at least 5 years.	WBRC	CRec	2025

Communication, Education & Publicity			
CP1. Install information on marker posts at each nest to prevent interference and possible damage to nest and/or person.	FC	WWT WCC	2015
CP1. Ensure that the County Council ecologists and Local Biodiversity Action Plan (LBAP) team are informed of any revisions to the management plan for Arley Wood.	FC	WBRC	ongoing

Abbreviations: CRec – County Recorder, FC – Forestry Commission, LEs – Local Entomologists, NWBC - North Warwick Borough Council, SBF – Stratford Butterfly Farm, Unis – Universities, WBRC – Warwickshire Biological Record Centre, WWT – Warwickshire Wildlife Trust.

7. PROGRESS WITH ACTIONS

From 2015–2020 there will be a rolling programme of reporting on progress, of 10 action plans per year with an annual summary of results. Results will be entered onto the national Biodiversity Action Reporting System [BARS](#). Progress with this plan up to 2008 can be seen at www.warwickshirewildlifetrust.org.uk/LBAP.

8. BIBLIOGRAPHY

Donisthorpe, J. K. (1927). British Ants – their life-history and classification. 2nd edition, revised and enlarged. Routledge & Sons, London.

Collingwood, C.A. (1979) Fauna Entomologica Scandinavica Vol 8 The Formicidae (Hymenoptera) of Fennoscandia and Denmark.

Wilson, E. & Holldobler, B. (1994) Journey to the Ants: a Story of Scientific Exploration. Belknap Press of Harvard University Press: ISBN 0-674-48526-2

Hoy, S. & Roberts, S.P.M. (1997). Species account for *Formica rufa* In: Edwards, R. ed. Provisional atlas of the aculeate Hymenoptera of Britain and Ireland. Part 1. Bees, Wasps and Ants Recording Society. Huntingdon: Biological Records Centre.

Skinner, G. (1998). British Wood-ants. British Wildlife 10 (1):1-8 Our Partnership with Nature: A Local Biodiversity Action Plan for Powys (2002) Red and Northern Wood Ant Action Plan.

Czechowski, W., Radchenko, A. & Czechowska, W. (2002) The ants (Hymenoptera, Formicidae) of Poland.

Hughes, J. (2006) A review of wood ants (Hymenoptera: Formicidae) in Scotland. SNH Commissioned Report no.178.

Lawton, J.H. (2010) [Making Space for Nature](#): a review of England's wildlife sites and ecological network. Report to Defra.

Defra (2011) [Biodiversity 2020](#): A strategy for England's wildlife and ecosystem services.

Forestry Commission (2012) Warwickshire Forest Design Plan 2011 – 2021

RSPB (2013) State of Nature – a stocktake of all our native wildlife by 25 wildlife organisations.

9. FURTHER INFORMATION

Habitat Biodiversity Audit (HBA) for Warwickshire, Coventry & Solihull – mapping data set and associated information. Phase 1 ([JNCC](#)) 1996-2002 and Phase 2 (Local Wildlife Sites) ongoing.

Kirby, P. (1992). [Habitat management for Invertebrates](#): a Practical Handbook. RSPB.

[Buglife](#) - the Invertebrate Conservation Trust

[Bees, Wasps & Ants Recording Society](#) (BWARS) is the national society dedicated to studying and recording bees, wasps & ants (aculeate Hymenoptera) in Britain & Ireland.

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10. CONTACT

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