Southern red wood ant (*Formica rufa*)

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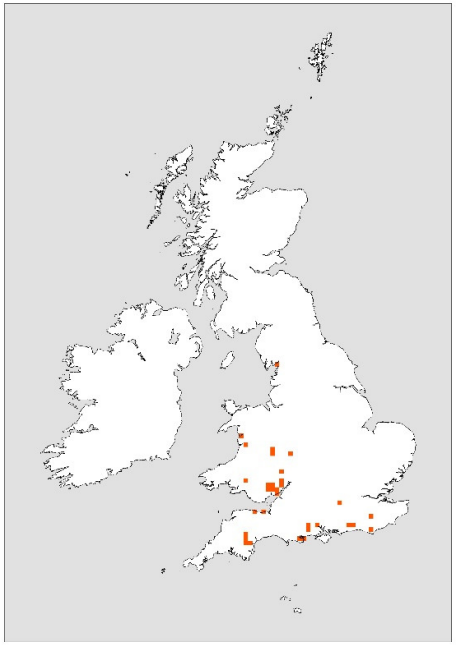
Areas and status: The southern red wood ant is very locally distributed across England and Wales, with a few outlying populations north as far as Cumbria and Yorkshire. The majority of its British population lie in the band of counties stretching across the extreme south of England. Many colonies appear to have been lost during the twentieth century, particularly in the northern part of its range. In upland regions of Wales, northern England and Scotland, *F. rufa* is replaced by two other very similar species: the hairy wood ant *Formica lugubris* and the northern wood ant *Formica aquilonia*. Though none of these have any conservation status, they support a rich fauna of specialist invertebrates (myrmecophiles) that are only found in and around their nests, many of which are of high conservation status. Examples include the scarce seven spot-ladybird *Coccinella magnifica* (nationally scarce), and the shining guest ant *Formicoxenus nitidulus*. Wood ants are 'keystone' species in woodland ecosystems that exert a profound influence on the ecology of woods they are found in, primarily through their foraging and aphid-tending activities.

Woodland type: Upland Broadleaved Woodland, Lowland Broadleaved Woodland, PAWS, Scrub.

Preferred habitat niches: Wood ants construct large and conspicuous nest mounds composed of twig fragments and other plant matter. Favoured habitats are in glades, rides, edges, clear-fell, coppice, scrub and open heath or grassland and scrub mosaics. Southern wood ants may also thrive in coniferous plantations, especially those where active management is providing a supply of the wood-edge habitats favoured by this species. A similar range of habitats is occupied by the hairy and northern wood ants in upland landscapes.
Though large, well-established nests may persist for many years under closed woodland canopies, new colonies derived from mated queens are only founded in the nests of black ants (*Formica fusca* and *F. lemani*), which require open, sunny nesting sites. Many of its remaining British sites are in closed-canopy woods where there are only a few ancient nests remaining and no prospect of new colonies becoming established.



NBN Atlas occurrence download at http://nbnatlas.org. Accessed Jan 2019

Potential habitat management issues associated with decline:

- Overshading and scrubbing up of glades, rides, edges, clearings, scrub and open heath/grass and scrub mosaics
- Reduction or loss of woodland management, such as coppicing and felling, leading to loss of canopy gaps
- Conversion of open scrub and edge habitats to more intensively managed grassland
- Re-stocking of woodland clearings and tree planting of open areas adjacent to woodlands
- Habitat fragmentation and loss of connectivity leading to isolation of surviving populations

Potential habitat management solutions:	
Prescription	*Comment*
Rides	2 zone maintenance regime. Cut zone 1 regularly for access. Cut zone 2 on a 4-7 year rotation.
Rides	Widen rides and enlarge glades if necessary; widths should be >1.5 times the height of nearby trees; clear strips of ride-side trees/shrubs 50-100m long by 10-20m wide; leave irregular edges or scallop ride edges (30-50m x 10-20m) to create sheltered conditions. Creating new east-west rides and box junctions within woods can be valuable especially where they link existing nest sites
Glades	Cut on relatively long rotation to ensure a continuous supply of open wood-edge habitat is maintained.

Glades	Adults feed on other invertebrates and tend aphids on a range of native trees and shrubs. Retain some site-native trees and shrubs within larger glades.
Rotational coppice (<12yr rotation) and Rotational coppice (>12 yr rotation)	Coppice large coupes (70x70m to 140x140m) on short rotations (<12yrs), leaving less than 10-15% standards canopy cover (about 40 standards/ha). Leave at least 50% of the ground clear by removing brash through burning, stacking in windrows or removal from site; an even brash cover will encourage rapid bramble encroachment and severely reduce habitat quality. Longer rotations (>12 yrs) suitable where coppice re-growth slow or where total area of coppice woodland is large (e.g. commercial Sweet Chestnut (*Castanea sativa* - coppice on 20 yrs rotation). Coppice adjacent coupes and if this is not possible, locate coupes beside wide rides and glades.
Small group clear-fell	Clear-fell small to medium-sized coupes (max. 50x50m) on 15-30yr cycles. Clear-fell adjacent coupes; if this is not possible ensure isolated coupes are linked by wide rides and glades.
PAWS	Manage glades and rides (see above). PAWS restoration offers opportunities for wood ants if non-native trees are cleared to provide extensive areas for natural regeneration or re-planting. It will be best to carry out such restoration work progressively such that a continuous supply of early-successional (seedling/sapling growth stages) habitats are generated for colonisation by wood ants. Retention of some mature trees is also important in maintaining an adequate food supply.
Plantations	Manage glades and rides (as above). Clear-fell coupes to maximise continuity of early successional seedling and sapling growth stages.
Scrub (including wayleaves)	Cut scrub patches on rotation when cover exceeds 20% by area, to prevent excessive shading of wood ant nests. Maintain open areas within the scrub by cutting. Grazing may also be appropriate in grass or heath and scrub mosaics (see below).
Grazing	Where livestock/deer are having a negative impact on coppice re-growth, erect stock-proof/deer-proof exclosures. Deer control will also be required if they are causing significant problems in this respect.
Grazing	Moderate grazing of grass-heath and scrub mosaics by agricultural stock may be appropriate where wood ants are present in this habitat. Cattle and/or pony grazing in winter and early spring will be most suitable where bracken is a significant component of the vegetation.
Grazing	Lightly graze wood-pasture, woodland edges and other open habitat associated with woodland where this is a traditional form of management at the site.
Connectivity	Manage woodlands on a landscape-scale by creating new areas of suitable habitat in, and close to existing wood ant colonies and by linking these colonies together (eg opening up of rides within a wood to link nest sites or creation of new woodland or hedge 'corridors' in unsuitable open land between existing colonies).