

ANT DISTRIBUTION IN A SOUTHERN ENGLISH HEATH

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The density distribution of ants in lowland heath formed on Bagshot sands and clays in the Poole basin is being studied; here, a preliminary survey is described.

Diver & Good (1934) planned a comprehensive faunistic survey of a similar though more coastal area and so far the plants (Good 1935), the orthoptera (Diver & Diver 1933), the birds (Lack & Venables 1937), and parts of some other groups (mentioned in Diver 1938 and 1940) have been reported. In addition Good (1948) has produced a detailed account of the geology, topography, climate, soil and flora of Dorset which includes these heaths. They have also been fully discussed by Tansley (1939).

An area of about 8 ha at the west end of Hartland National Nature Reserve was selected for special study (this is 2 miles south-east of Wareham with National Grid reference at centre SY 942852). It provides a good range of variation in height (2–30 m above sea level), in soil moisture (from bog to dry soil on rock) in aspect (it has a central almost conical knoll) and in soil (predominantly sandy but with patches of clay and gravel). The vegetation varies as a consequence and though mostly dominated by *Calluna vulgaris* (L.) Hull, and frequently swept by fire it contains small areas of tree regeneration (mainly *Betula pendula* Roth. and *Pinus sylvestris* L.). Light grazing by the rabbit (*Oryctolagus cuniculus* (L.)) is regular but by no larger mammal.

The area has a long history of human interference. It has probably been open heathland with scrub since at least the twelfth century and there is evidence that ironstone was mined before that. Many trackways both mediaeval and more recent (connected perhaps with the transport of clay to Poole Harbour) have left rough corrugations. In one area of wet heath peat has been cut. About 1880 *Pinus sylvestris* was planted but cut after a fire in 1916 and not replanted. Since then, the heath has been subject to frequent sporadic fires.

The plantation phase which endured 36 years could have eliminated any pre-existing fauna except in exposed places, like rides and the tops of knolls with shallow soil or in wet areas. for typical woodland ants like *Formica rufa* Linnaeus and *Myrmica ruginodis* Nylander tend to be excluded by pine plantation. There may thus have been during the 45 or so years since it was clear felled a gradual process of development towards the type of ant community that characterizes Callunetum in this locality. Throughout this period there would have been abundant sources for recolonization in the immediate vicinity for the surrounding land for many square miles was at that time normal heath.

SAMPLING

Early observations showed that the pattern of variation in ant species necessitated a sampling area of several hectares. The 8 ha piece chosen was divided into hectare squares in each of which twenty samples were taken at random (using random numbers and co-ordinates for location). Each sample was obtained by placing a sugar bait (crystalline sucrose in a tin with holes) in the top 5 cm of soil and recording the species of ant on it at weekly intervals. This method of course gave no estimate of the population density, only of the species present.

*Sugar
baits*