

M.S.H. elements as, along the bank of the river Dodder at Old Bawn, County Dublin, where of 23 colonies examined 12 were *L. niger* and 11 *M. laevinodis*. At Roundstone, County Galway, there was a mixed community dominated by *L. flavus* (19) colonies, with *F. fusca* (5), *L. niger* (3), *M. rubra* (3), and *M. sabuleti* (1), as the other species.

(c) *The high soil humidity fauna.*

The third type or community, the H.S.H. fauna, is characterised by *M. rubra* and *Leptothorax acervorum* F. Occasionally the dominant species may be *L. fuliginosus* Latr., as at Glenmalure, County Wicklow, or *F. rufa*, as at Killarney, County Kerry (O'Rourke, 1950). *S. west-woodi* and *F. rufa*, our only stenotypic species, are found in no other type of community.

**Discussion**

It seems clear that this distribution pattern is determined to a large degree by the soil moisture content, which in its turn is responsible for the relative humidity of the nest itself. Weber (1942) showed that the great drought of 1930 considerably reduced the ant population in Manitoba, Saskatchewan, and North Dakota and that this reduction was still noticeable eleven years later in 1941. Little work has been done on the reactions of ants to moisture. Talbot (1934) seems to be the only author who has dealt with the problem experimentally. In a study of the ants of the Chicago region she came to the conclusion that moisture was the chief limiting factor in their distribution. To test this she subjected ants to a slow flow of air of specified dryness and temperature until they died. For the six species of *Formica* tested it was found that those that normally inhabit drier places were more resistant to dryness than those that normally inhabit places where the moisture supply was greater. However, no such differentiation was found for *Lasius* species. The ants of this genus do not forage on hot dry days and so do not face extremes of temperature and humidity to the extent encountered by the species of *Formica*. She also found that females lived much longer under dry conditions than did either males or workers from the same colonies. While this is to some extent because of their larger size, it is of definite survival value to the species, as the future of the incipient colony depends upon the ability of the fertilised female to withstand unfavourable conditions. The inter-specific differences are probably also adaptive, in that they are correlated with the ability of the species to penetrate habitats where the moisture supply may be very low at times.

In preliminary experiments on the workers of various Irish species it was found that at a Relative Humidity of 50% *M. rubra* workers survived 22 hours, *M. laevinodis* 26 hours, *M. scabrinodis* 48 hours, *F. fusca* 120 hours, and *L. flavus* 139 hours. Apart from the surprisingly high resistance of *L. flavus* to this rather low humidity the results are what might be expected from the type of community in which these species are normally found. At a high Relative Humidity (98%) *M. scabrinodis* survived for only 72 hours, by *M. laevinodis* for 118 hours, *M. rubra* for 432 hours, *F. fusca* for over 680 hours and *L. flavus*