from *Myrmica* as outlined above. Thus the different species of *Sifolinia* could be phylogenetically closer to their host *Myrmica* species than to each other, the morphological similarities resulting from convergence due to their pattern of evolution. If this is so, the generic name of *Sifolinia* is unnecessary and *Sifolinia* species would best be called *Myrmica.* However, until more convincing morphological proof or proof obtained, for example, by electrophoretic studies of *Sifolinia* species and their hosts is available, the generic status of *Sifolinia* is best left alone; although the concept of a satellite genus (Kutter, 1973) should be more fully appreciated. As long as the two genera are recognized as being separate there exists the difficulty of placing those species that are intermediate between the typical forms, *M.hirsuta* being such a species: this can only be resolved by placing them in the genera to which they bear most resemblance. Although this is not satisfactory, if the close relationship of the genera is borne in mind it makes very little difference in practice.

There are only four species of parasitic *Myrmica* known at this time and *M.hirsuta* is the fifth, assuming that it is not a microgyne of *M.sabuleti* nor a species of *Sifolinia*; multivariate analysis of the morphometry rejects the former, and presence of pectinate tibial spurs and absence of *Sifolinia* like wing venation and post-petiolar lobes reject the latter supposition. The four species are *Myrmica bibikoffi* Kutter (1973), *Myrmica myrmicoxena* Forel (1874), *Myrmica lampra* Francoeur (1968) and *Myrmica faniensis* van Boven (1970). *M.lampra* is a North American species that is parasitic on *Myrmica kuschei* Wheeler; the female has curved antennal scapes with no projections and the male has only twelve antennal joints, this is quite different from *M.hirsuta*. The female of *M. myrmicoxena* resembles the *rubra*-group (Bernard, 1968) whereas the female of *M. hirsuta* falls in the *scabrinodis*-group; the male of *M.myrmicoxena* has *scabrinodis*-group characters but it differs from *M.hirsuta* in several ways according to Kutter (1973). *M.faniensis* has been found with *M.scabrinodis* and is quite different from *M.hirsuta* especially in the possession of *Sifolinia*-type characters shown by the female (van Boven, 1970).

M.bibikoffi is the only other parasitic *Myrmica* and this is the species that most resembles *M.hirsuta*; the females are slightly larger than *M.hirsuta* and rather less hairy, also their tibial spurs are either indistinctly or not pectinate (Kutter, 1973). In common they have broad post-petioles with no ventral projections, males that have thirteen antennal joints and a shared host, *M.sabuleti*. Another very similar form is *Sifolinia lemasnei* (= *M. lemasnei* Bernard, 1968) which is parasitic upon *M.sabuleti* and is very similar to *M.hirsuta* in general description. However it is smaller than *M.hirsuta* and has sufficient *Sifolinia* characters, the most notable of which is a male that has only twelve antennal joints, to be considered a member of that genus.

The parasites of *M.sabuleti* show a range as follows: *M.sabuleti* microgynes (unknown and hypothetical); *M.bibikoffi* which is microgyne-like but has been found free-living with its own workers; *M.hirsuta* a parasitic form without workers; *S.lemasnei* an obligate parasite with many characters normally associated with parasitic ants; and *Sifolinia laurae* Emery a true and widespread parasite. These then illustrate a hypothetical evolutionary range from the widspread host species through locally distributed parasitic forms to a widespread parasite. *M.scabrinodis/Myrmica alboa* Forel, *M.faniensis, Sifolinia cabylica* Cagniant (1970) and *Sifolinia karavajevi* (Arnoldi) show a similar though less well defined range. At the present time, with the exception of the nearctic *M.lampra*, few parasites have been discovered from the *M.rubra/ruginodis* group although microgynes are well known for these two species. It seems likely that as more nests are examined in detail more parasitic forms will be reported, for since the first discovery of *Sifolinia* in Britain myrmicologists have become more alert to its likely occurrence and subsequently it has been reported on several other occasions (Barry Bolton, personal communication).

Earlier in this paper it was suggested that *M.hirsuta* queens might show a bimodal frequency distribution of size. Elmes (1976) discussed variations iu queen size for *M.rubra* and suggested that normal queens have a size range that reflects trophic variations during their larval stage. It was suggested that microgynes of *M.rubra* not only have a smaller size as a result of genetic variation but also show trophic variation in the same manner