

With respect to prey species, the *Sphinctomyrmex* studied appears not to be highly specific, since a variety of ant species were attacked, among them *Myrmica* which do not naturally occur in Australia. *Monomorium* cf. *rubriceps* was not attacked, presumably because of an effective defensive secretion, but its brood was eaten, as was that of any other ant species provided. Surprisingly, pieces of *Tenebrio* larvae and pupae were also eaten, and we therefore cannot exclude the possibility that *Sphinctomyrmex* might occasionally exploit other dead insects, too.

One colony survived for a year under the conditions as described, but reproduction stopped after 2 months, during a second brood period in the laboratory. The larvae did not complete their development, and having laid the second batch of eggs the queens did not resume egg-laying later. This failure may have various reasons, but diet may be involved, since reproduction ended when no more *Amplioopone* pupae could be supplied, all other conditions remaining alike. Further studies will be necessary to check whether a particular prey is necessary for maintaining the fertility of *Sphinctomyrmex* queens.

Some of our observations correspond with the suggestions of Wilson (1958) and Brown (1975), namely that early stages of army ant behavior may be represented in cerapachyine ants. As did these authors, and Hölldobler (1982), we also found a marked brood periodicity, the army-ant-like carrying behavior of brood under the body, and frequent nest relocation, the latter without periodicity, however.

More important, the morphology and biology of the queens apparently also tend towards army-ant features. As mentioned above, Brown (1975) found a morphological cline in *Sphinctomyrmex* ranging from winged "females with large eyes, ocelli, etc. to blind subdichthadiiform queens", with *S.* cf. *steinheili* representing an intermediate condition: They "have compound eyes of moderate size and 3 ocelli, but workerlike trunk" (Brown, 1975).

We emphasize here that because of the ergatoid condition of the queens which lack wing muscles that can be resorbed to feed the first generation of workers, and the myrmecophagous life habits, independent colony foundation by single females is quite improbable. Instead, we assume that new colonies of *Sphinctomyrmex* cf. *steinheili* and other polygynous species of this genus are formed through