

by no means always young and recently inseminated. Callows were easily distinguished from older individuals by their coloration, and by very short and thin ovarioles. Furthermore the fat body of most inseminated individuals looks somewhat different in its color from that of callows. Thus, we are sure that most of the inseminated, sterile "replacement queens" had mated during the previous year, and remained in their mother colonies. This would correspond to the "functional monogyny" in *Formicoxenus* (Buschinger and Winter 1976, Buschinger 1979). The results of the dissection of individuals from further 5 colonies which were kept alive until spring 1980, do also fit into this interpretation:

No. 3: 10 individuals died during hibernation and could be dissected. There was one intermorph whose spermatheca was filled with sperm, however the ovarioles were short. Two ergatomorphs exhibited the same condition. One intermorph and one ergatomorph had empty receptacula; two intermorphs and 3 ergatomorphs were found to have no spermathecae.

We suggest that, in this colony, the fertile female had died during the laboratory culture, or that the sample represents only part of a colony the queen of which was lost during collecting.

No. 4: During hibernation 17 individuals died and were dissected. Among them was one intermorph with the spermatheca filled with sperm, with 6 ovarioles of about the specimen's total length, with corpora lutea: *the functional queen* of this colony. 8 intermorphs were inseminated, but had short ovarioles, 2 had empty receptacula. However, among the ergatomorphs there were further two with filled receptacula, two with empty receptacula, and two without receptacula. One of the latter nevertheless was fertile, this means she had ovarioles of about half her body's length, and corpora lutea.

No. 5: 24 individuals died during hibernation. One intermorph with 8 long ovarioles, corpora lutea, and spermatheca filled with sperm, *the functional queen*; 9 additional intermorphs had filled receptacula, but were not egg-laying; 8 intermorphs and 3 ergatomorphs had empty receptacula; two ergatomorphs with empty receptacula and one ♂ without receptaculum had small corpora lutea indicating a previous egg-laying.

No. 14: Four specimens died during hibernation: One ergatomorphic individual was *the functional queen*, one ergatomorph had a spermatheca filled with sperm, and two workers had no spermathecae.