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Chapter 34 *Longest Adult Life*

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A queen ant Lasius niger *(Hymenoptera: Formicidae) has the longest recorded adult life of any insect: 28¾ years in captivity.*

The aim of this paper is to identify the insect species with the longest adult life—i.e., the one with the longest period from adult emergence to death.

Methods

To find candidates I looked in general entomology text books and asked professors and fellow graduate students in University of Florida's Entomology and Nematology Department. The two candidates selected were investigated using standard library methods (i.e., AGRICOLA , CAB and secondary literature).

Results

The two candidates for the champion were queen ants (Hymenoptera: Formicidae): *Lasius niger,* with a maximum recorded longevity of 28¾ years in captivity (Kutter & Stumper 1969), and *Pogonomyrmex owyheei,* with a maximum estimated longevity of 30 years in the field (Porter & Jorgenson 1988). In the case of *Pogonomyrmex owyheei*, worker ants live only one or two years but colonies themselves live for several decades. Queens live as long as the colony.

Discussion

Kutter & Stumper (1969) indicate that *Lasius niger* queens have lived from 18 to 29 years based on individuals in laboratory colonies. On the other hand, Porter and Jorgensen (1988) estimated that *Pogonomyrmex owyheei* queens lived from 14 to 30 years in the field, based on their studies and those of Sharp & Barr (1960).

Kutter & Stumper (1969) state that ant workers can live 7-8 years but queens can live almost 30 years. They report that a queen of *Lasius niger* was held in captivity by Hermann Appel for 28¾ years.

The estimates for *Pogonomyrmex owyheei* by Porter and Jorgenson (1988) were based on the survival of colony mounds in the Raft River Valley, Idaho. Such mounds were checked by Sharp & Barr (1960) during a two-year period (1956-58) and by Porter & Jorgenson (1988) during a three-year period (1977-80) and six years later (1986). In each case the researchers determined whether the mounds remained active or the colonies had perished. The latter researchers estimated average longevity of colonies by dividing the "mound years" of observation by the number of colony deaths. For example, Sharp & Barr had 121 mound years of observations in six plots vegetated with shadscale and recorded 4 colony deaths. This is the basis for Porter & Jorgenson's maximum estimate of 30 years for average colony longevity. The weakness of this estimate is that colony mortality during the two-year monitoring period may have been unusually low. The maximum estimate of longevity based on three years of monitoring was 15 years (Porter & Jorgensen's Plots A & B).

Ant colonies are apparently very long lived once they became established. Colonies with one queen can live 5-30 years (Tschinkel 1987, Chew 1987), but most do not survive nearly as long in

the field due to the rigor of competition, predation, pathogens and habitat change. Because mature queens might be replaced by young queens after they die, the longevity of individual queens in field colonies is uncertain (Lavigne l969).

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