OR062

Social evolution and behavior of the queenless clonal raider ant

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The clonal raider ant *Cerapachys biroi* has an unusual reproductive system: colonies are queenless and consist entirely of totipotent workers that reproduce via thelytokous parthenogenesis. As a consequence, all workers in a natural colony are essentially clonally identical. This allows us to set up large numbers of arbitrarily sized experimental colonies from stock colonies, without the need to mate the species in the lab. It also allows us to experimentally control and replicate the genetic composition of social groups, something that is impossible in most social insects due to the difficulties associated with creating inbred lines. Colonies of *Cerapachys biroi* undergo stereotypical reproductive cycles of about one month that alternate between reproductive and brood care phases. The colony cycles emerge from the interaction between workers and larvae: larvae develop in discrete cohorts, suppress ovarian activity and induce brood care and foraging behavior in adult workers. Therefore, a discrete cohort of age-matched young workers emerges once per cycle, providing easy experimental control over individual age and group demography. Finally, despite the fact that queens are absent, *Cerapachys biroi* workers show some level of phenotypic plasticity. For example, the number of ovarioles in workers ranges from two to six, and correlates with external morphological characters. As in other social insects, ovariole number also correlates with reproductive output, behavior, and longevity. Because different types of individuals can be arbitrarily mixed in experimental colonies, the unusual biology of *Cerapachys biroi* provides unparalleled control over the composition of social groups with respect to important factors that are known to affect social insect behavior and development, and thereby division of labor: group size, genotype, age, and reproductive physiology. Based on this experimental accessibility, I will discuss how the species can be leveraged as an interesting model system to provide novel insights into social evolution and behavior.