The reproductive division of labor is perhaps the defining and most interesting feature of social insect success. The worker caste is sterile and performs all tasks related to colony maintenance and growth. The queen caste specializes in reproduction, generating tens of thousands of worker eggs over the course of her life, but colony fitness is determined primarily by the production of new reproductive individuals, males, and potential new queens (gynes). Subsequently, this reproductive potential depends on early and sustained worker production such that the colony can attain reproductive maturity.

The process of caste determination in most social insects is governed by environmental influences on development, but colonies from many populations of *Pogonomyrmex barbatus* exhibit genetic caste determination (GCD) generated by the interbreeding of two distinct yet interdependent lineages. Maintenance of this system relies on obligate polyandry, because same-lineage matings produce gynes, while alternate-lineage matings produce workers. The sperm ratios acquired from mating randomly with multiple males of each lineage result in a genetic load for a subset of queens that mate with primarily same-lineage males. This translates into a nutritional load for the incipient colony because the limited resources of the founding queen are diverted from worker production, and invested in nonfunctional gyné-destined brood.
Two gynes produced by an incipient GCD colony devouring the larva of a sibling worker.

This photograph illustrates the article, “Distribution and evolution of genetic caste determination among cryptic lineages of seed-harvester ants *Pogonomyrmex barbatus* and *P. rugosus,*” by Kirk E. Anderson, Jürgen Gadau, Brendon M. Mott, Robert A. Johnson, Annette Altamirano, Christoph Strehl, and Jennifer H. Fewell, part of the Special Feature on Interspecific Hybridization in Ants, tentatively scheduled to appear in *Ecology* 87(9), September 2006.