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Thelytoky in honeybee invaders

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Some social insects are highly invasive, quickly establishing as pests in new locations where they threaten agricultural services and the environment. What makes these social insects such successful invaders? We investigate the role of thelytoky in a recent social insect invasion: the Asian Hive Bee (*Apis cerana*) to Australia. Thelytoky is a form of asexual reproduction in which unmated queens or workers produce daughters. It occurs in some ants and honeybees, including *A. cerana*. Thelytoky might increase the invasive potential of a species because it permits the species to overcome the problem of locating mates in initially low-density populations. *A. cerana*'s introduction into Australia presents an excellent opportunity to assess the role of thelytoky in a social insect invasion. Samples of queens and workers were collected throughout the invasion as part of the Biosecurity response, beginning with the first observed swarms in Cairns in 2007 to the present day. We genotype these samples to determine if there is evidence of past thelytoky either by queens or by workers. This allows us to generate a timeline of the reproductive strategies used by *A. cerana* over its past 5 years of rapid population growth. In addition, we assess the number of source colonies from which the invasion spread, the degree of inbreeding in the current population, and the heterozygosity of the sex locus. Understanding the role of thelytoky in this honeybee invader may help in the prevention and management of future social insect invasions.