

Impacts of two alien ants, *Anoplolepis gracilipes* and *Pheidole megacephala*, on native ant fauna in Okinawa, Japan

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Exclusion of native species is one of the most serious impacts caused by invasive alien species. *Anoplolepis gracilipes* (yellow crazy ant: YCA) and *Pheidole megacephala* (bigheaded ant: BHA) are widely known as invasive ant species due to their negative impacts on ecosystems in the world. However, even though they have been reported as alien species in Okinawa main land, their impacts on native ant fauna are unknown. Ant fauna was investigated at sites infested by YCA or BHA and non-infested sites. Abundance of each of all ant species and species richness were compared between them. For both of the two alien species, ant fauna differed significantly between infested and non-infested sites (ANOSIM, $p < 0.01$). However, the effects differed greatly between the two species. Presence of YCA did not have negative impacts on abundances of native species nor species richness. *Tetramorium kraepelini* and *Monomorium chinense* increased in the infested sites (GLMM, $p < 0.05$). In contrast, BHA had strong negative impacts on native ant fauna. Abundances of three major species, *Tetramorium bicarinatum*, *Monomorium chinense*, and *Pheidole fervens*, and species richness decreased in the infested sites (GLMM, $p < 0.05$). However, in our survey, BHA disappeared from five sites out of seven, in which BHA was distributed in the preliminary survey. This result indicates that BHA colony does not persist for long though the reasons remain unclear. Thus, in Okinawa, the impacts of invasion by YCA and BHA on native ant fauna are relatively small in comparison to previous studies conducted in abroad.

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