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Using a native ant to control the Argentine ant

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Biological invasion is one of the foremost drivers of loss of biodiversity around the globe. Identification and investigation of native species as effective competitors against the invasive species is a relatively underutilised line of inquiry. Argentine ant, *Linepithema humile*, is 'one of the 100 of the worst invasive species' on the planet at present as identified by IUCN, and is gradually increasing its range in temperate regions around the world. In this study, we investigated changes in behaviour, survival and productivity of *L. humile* by pairing it with the native Mediterranean ant *Tapinoma nigerrimum*. We found baseline differences between the two species as well as differences in behaviour, survival and productivity arising due to the presence of a competing species. 1. *L. humile* outcompeted *T. nigerrimum* when in equal numbers. For *T. nigerrimum* to pose as an effective competitor, it had to be at least ten times more abundant than *L. humile*. 2. *L. humile* showed behavioural plasticity with change in group size; displaying more aggressive and group-based behaviours when group size was larger, and more submissive and escape behaviours when group size was smaller. 3. In a surprising discovery, we found a third strategy when *L. humile* colonies were smaller. In some replicates, we observed a close living-in between *L. humile* and *T. nigerrimum* colonies, wherein *L. humile* individuals were neither aggressive nor were aggressed. This could be an indication of a less commonly exercised yet an effective survival strategy. *L. humile* is a highly adaptive species, but *T. nigerrimum* was found to impact *L. humile* survival, productivity and behaviour. Studies such as these should pave way for field trials and if successful, should be incorporated in broader conservation policy.