The catastrophic collapse of Argentine ant populations in New Zealand

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The Argentine ant (Linepithema humile) is a widespread invasive species and is thought to exert great pressure on native communities. In their introduced range they are well known to displace resident ant species where they occur. First detected in Auckland in 1990, this invasive has since spread widely around New Zealand, with the date and location of the first observed infestations recorded. However, like many invasive organisms, little research has investigated their long-term persistence. We surveyed 150 sites throughout the known distribution range of Argentine ants within the country and recorded the presence of these and other ant species. Argentine ant populations were found to have collapsed at many sites across this range. A survival analysis indicated that the time to collapse was significantly influenced by temperature and rainfall. Climate change may delay the time to population collapse in some areas, but enhance collapse in others. Ant species richness was significantly reduced at currently invaded sites compared to formerly invaded; however, resident ant communities appeared to recover after the collapse of Argentine ant incursions. In Auckland, formerly invaded communities were indistinguishable from those that had never been invaded. This study demonstrates the widespread collapse of an invasive species and the recovery of resident communities, suggesting that the Argentine ant, though devastating elsewhere, may not be a long-term threat to New Zealand’s ant communities.