

BIOSECURITY FAILURES IN AUSTRALIA: 12 CASE STUDIES

9. ARGENTINE ANTS ON NORFOLK ISLAND

A case study of the potential to eradicate Argentine ants on Norfolk Island and impediments to protecting island biodiversity from tramp ants.

Species: Argentine ant (*Linepithema humile*)

Origin: South America

Australian occurrence: Widely established in mostly urban areas in temperate Australia, including in southwest WA, SA (Adelaide), NSW (south of Sydney), across Victoria and Tasmania. Detected on Norfolk Island in 2005.

Potential environmental impacts: The Argentine ant is one of the world's worst invasive species. It forms super-colonies and is an aggressive competitor, displacing most other ant species. It can alter ecosystem processes such as pollination and seed dispersal of native plant species. An assessment for the federal environment department concluded that impacts on 2 (of 33) bird species, 2 (of 6) reptile species and 1 (of 1) mammal species would 'be sufficiently severe to cause population declines'. All 5 invertebrates assessed, including 4 snails listed as critically endangered, are predicted to suffer declines.¹⁶⁵ Lach and Barker (2013) say, 'The consequences for most native invertebrate species and communities will be dire, with potential ecological cascade effects to other components of the foodweb that are dependent on invertebrates as a food resource.'



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Potential economic impacts: Argentine ants farm aphids for honeydew, and more abundant aphids can destroy or reduce the yield of horticultural crops. The permanent establishment of these ants on Norfolk Island would 'seriously threaten the island's self sufficiency in horticultural production'.¹⁶⁶ Honey production would probably be affected. The ants are a household pest and could be a threat to tourism (Norfolk Island's main source of income) if they regularly invaded accommodation facilities or food-based enterprises.¹⁶⁷

Pathways: It's unknown how the ants arrived on the island. Their dispersal to multiple sites on the island is attributed to the processing of contaminated garden waste at the island's waste management centre sold as mulch.

Summary of biosecurity issues: This incursion highlights the need for stringent quarantine on islands. The 5 years it took to identify the Argentine ant exemplifies the limited resources available for surveillance and response on islands. Substantial effort and resources have since been invested in surveillance and control of the ant on Norfolk Island, and there is good potential for eradication based on a 5 year strategy. But Australia could lose this potential unless sufficient funding is provided soon. Most ant eradication programs are threatened by insufficient or inconsistent funding.

Particular biosecurity issues

Quarantine, surveillance and early response: The ant was first identified on the island in 2005, about 5 years after its arrival (according to modelling). A survey in 2006 found it was limited to 2 properties, and some control was undertaken.¹⁶⁸ Unfortunately, one of these sites was a waste management centre selling green waste as mulch. An ant expert brought in in 2008 warned that it was likely to be spreading by this means and

¹⁶⁵ Lach and Barker (2013)

¹⁶⁶ Davis (2008)

¹⁶⁷ Thomas and Davidson (2014)

¹⁶⁸ Lach and Barker (2013)

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subsequent surveys found the ant at an additional 8 sites. The expert warned that ‘Norfolk Island provides an ideal environment for Argentine ants and, left untreated, they will eventually spread over its entire land surface area’.¹⁶⁹ He recommended eradication.

The arrival of Argentine ants on Norfolk Island demonstrates the need for rigorous quarantine for islands. The delayed detection illustrates the need for regular surveillance for new incursions and the need for community engagement to encourage monitoring for and reporting of new species. Davis (2008) notes that the ‘existence of a new and unusual ant species on Norfolk Island had been suspected for several years’. On islands, where human populations are small, crucial time can be wasted due to a lack of local knowledge of the threats posed by tramp ants.¹⁷⁰ The preventable spread of the ants on the Island illustrates the need for early expert advice on new incursions detected. Costs are typically higher on islands due to transport and limited access to experts. There have been delays in treatment due to logistical problems with transporting the bait.¹⁷¹ Delays have made eradication a more difficult and costly task.

Eradication program: Infestations are in 10 zones covering about 240 hectares (the island is 3529 hectares).¹⁷² Treatment since 2008 has contained, fragmented and reduced the size of infestation. Some smaller infestations may have been eliminated. An eradication strategy has been developed with the goal to achieve eradication in 3 years (for a cost of \$1.3 million) with monitoring for 2 years to confirm eradication.¹⁷³

It is an ambitious program – most successful eradications worldwide are over areas less than 1 hectare and the largest in the last decade has been 41 hectares¹⁷⁴ – but the strategy developers are confident it can be achieved provided the program ‘is adequately funded and consistently and rigorously implemented’.¹⁷⁵ A review of tramp ant programs in Australia found that ‘Australia is at the forefront of developing methodologies to implement eradication attempts on large scales and has made considerable progress’.¹⁷⁶ Much has been learned from programs for the red imported fire ant, electric ant and yellow crazy ant (on Christmas Island and in the Northern Territory) that can be applied to other infestations. Lach and Barker (2013) note that achieving eradication at this scale ‘is a long-term process, requiring a sustained, dedicated effort, and lots of trial and error along the way’. Discontinuous or insufficient funding is the major threat.¹⁷⁷ The island administration has very limited financial capacity so funding will need to come from the federal government. Caring for our Country funds were provided from 2010-2012.

Funding for eradication: The short-term cycles of most funding programs are not well suited to eradication projects, which often require consistent investment over many years and need funds for monitoring once eradication has been achieved. Australia should consider a new funding model to maximise the prospects of achieving eradications. In a review of projects funded through Caring for our Country, Lach and Barker (2013) say that it is not appropriate that Norfolk Island (and Lord Howe Island) had to apply for funding through Caring for our Country’s open call for proposals to respond to invasive species incursions that threatened nationally and internationally significant biodiversity assets. Any lag between detection and treatment provides an opportunity for the ants to spread. ‘Commonwealth and state governments, in a coordinated manner, need to take the lead in immediate response to biosecurity incursions.’¹⁷⁸ We recommend a fund be established for eradications not eligible cost-sharing under NEBRA to enable rapid responses after detection and financial commitments over the necessary timeframes to maximise the chances of success.

Threat abatement: Although Argentine ants are a major threat to biodiversity on the Australian mainland, threat abatement has been neglected. The 2012 review of the threat abatement plan found there had been

¹⁶⁹ Davis (2008)

¹⁷⁰ Lach and Barker (2013)

¹⁷¹ Lach and Barker (2013)

¹⁷² Thomas and Davidson (2014)

¹⁷³ Thomas and Davidson (2014)

¹⁷⁴ Lach and Barker (2013)

¹⁷⁵ Thomas and Davidson (2014)

¹⁷⁶ Lach and Barker (2013)

¹⁷⁷ Lach and Barker (2013)

¹⁷⁸ Lach and Barker (2013)

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‘minimal progress with Argentine ants in relation to the objectives of the threat abatement plan to increase and improve: science-based knowledge; border detection and internal spread; and government action for this ant.’¹⁷⁹ Lach and Barker (2013) note that if the 2006 threat abatement plan had been implemented ‘it is likely that the tramp ant incursions on Lord Howe Island and Norfolk Island and their threats would have been recognised earlier, and coordinated management could have commenced sooner and more efficiently.’

Issues for inquiry

Biosecurity capacity

- How can the capacity on islands to detect and respond to new incursions be improved and supported?

Eradication

- How can funding models be adapted to maximise the prospects of successful eradication projects?

References

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¹⁷⁹ Department of Sustainability, Environment, Water, Population and Communities (2012).