

Red Imported Fire Ants in Australia submission by the Department of Climate Change, Energy, the Environment, and Water



**Australian Government**

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**Department of Climate Change, Energy,  
the Environment and Water**

# **Red Imported Fire Ants in Australia**

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## Executive summary

The Australian Government Department of Climate Change, Energy, the Environment and Water welcomes the opportunity to provide a submission to the Rural and Regional Affairs and Transport References Committee inquiry into Red Imported Fire Ants in Australia.

Red imported fire ants could significantly impact Australia's unique biodiversity. This submission describes the impact on Australia's environment should these ants become established and the complementary actions this department undertakes to support the Australian Government's response to this threat.

## RIFA in Australia

The Australian Government recognises *Solenopsis invicta*, or red imported fire ants (RIFA), as one of the world's most invasive pests.

RIFA was first detected in Australia at two separate sites in Brisbane, Queensland, in 2001. Since 2001, RIFA has been the focus of an extensive national eradication program, under a National Environmental Biosecurity Response Agreement (NEBRA)-like arrangement, in recognition of its significance in the Australian context. RIFA is a nationally significant pest under NEBRA.

Native to South America, RIFA have had serious impacts on biodiversity in other parts of the world (Gruber et al 2021), including the United States and China and, uncontrolled, its impacts are likely to be similarly devastating for Australian species and ecosystems.

RIFA have the potential to spread over 97% of Australia. Climate change is likely to increase risks of RIFA spreading into previously forested/ bushfire-affected land and by increased spread with flooding events. If established RIFA would surpass the combined effects of pests regarded as Australia's worst invasive species – feral cats, feral pigs dogs, foxes, camels, rabbits and cane toads (Magee et al 2016).

## RIFA - The ultimate invader

RIFA exhibit characteristics that make them very successful invaders: they are colonial, aggressive, generalists able to survive in a range of environments. They employ multiple dispersal methods (and are able to take advantage of translocation with inadvertent human-assistance) and are highly competitive when it comes to foraging and recruitment.

Worker ants sting repeatedly and aggressively to defend a disturbed nesting mound. They prey on a large variety of invertebrates, vertebrates, plants and seeds. Colonies of RIFA may be monogyne (one queen) or polygyne (multiple queens) with millions of ants and up to 5,000 nest mounds per hectare (McNaught et al 2014). The ants can disperse and create new nests through several different mechanisms; 'budding' where one or more queens and a group of worker ants establish a new

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colony locally; mating flights, where male and female ants leave the nest to create a new colony up to several kilometres away; and dispersing on water by joining together and creating a raft or mat, a formation in which they can survive for weeks until flood water recedes or the ants drift ashore.

RIFA are also notorious ‘hitch-hikers’. They can be transported through human-assisted dispersal in soil, hay, mulch, nursery stock, turf and other items being moved (including shipping containers being transported globally). This is the most common means of RIFA range expansion.

The distribution of RIFA across the world suggests that the species occurs in most habitats except swamp and dense forest. They thrive in areas of disturbance such as lawns, pastures, roadsides, and agricultural lands or in open natural areas such as grasslands or open forests. High density polygyne colonies (colonies with more than one egg laying queen) sometimes even spread into what would usually be regarded as unsuitable habitat.

## Environment impacts

Australia’s environment is rich and unique, supporting very high levels of endemism as a result of our long isolation from other continents. Our plants and animals are central to the cultural identity of First Nations people. Our species and ecosystems are particularly susceptible to threats with which they have not evolved. In the last 200 years over 100 of our Australian species have become extinct due to threats such as invasive pests.

The same characteristics that make RIFA successful invaders also mean they are alarming ‘super pests’ in terms of environmental impact. RIFA cause compounding threats to which our native species struggle to adapt, such as habitat degradation, competition, injury and change in ecosystem processes.

## Species level impacts

RIFA are anticipated to have extensive impacts on Australian native species based on research from the United States, and Australian research published to date outlined in Moloney and Vanderwoude 2002 and Wylie et al 2016. For example, research based in the south-east Queensland bioregion found that RIFA is likely to have effects sufficiently severe to cause population declines in 45% of birds, 38% of mammals, 69% of reptiles and 95% of amphibians (Lach and Barker 2013).

While any individual animal coming into contact with RIFA will likely experience adverse impact, examples of species likely to be at particular risk from RIFA include:

- the Illidge’s ant-blue butterfly (*Acrodipsas illidgei*) and apollo jewel butterfly (*Hypochrysops apollo apollo*); RIFA disrupt a symbiotic process where native ants collect the butterfly larvae and move them to a nest (where the larvae are afforded protection whilst developing and excrete a sugary substance

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consumed by the ants). RIFA's ability to out compete native ants could lead to a reduction in the recruitment of these butterfly species.

- the threatened loggerhead turtle (*Caretta caretta*) and other threatened fresh and saltwater turtle species; RIFA may kill and injure vulnerable hatchlings, and are attracted to nests by the mucous and moisture released by a laying female.
- frogs in the genera *Philoria* and *Pseudophryne*, which include threatened species that occur in habitats where RIFA could thrive. This includes the magnificent brood frog (*Pseudophryne covacevichae* <https://www.frogid.net.au/frogs/pseudophryne-covacevichae>), northern and southern corroboree frog (*Pseudophryne pengilleyi* and *P. corroboree*) and baw baw frog (*Philoria frosti*).
- Australian ground-nesting bird species or those with low arboreal nests; RIFA may prey on eggs and hatchlings in nests. They are also vulnerable to indirect impacts, given RIFA can reduce the number of invertebrates, a key food source for birds. Examples of species that are likely to be impacted include the Australian brush-turkey (*Alectura lathamii*), bush stone-curlew (*Burhinus grallarius*), black-breasted button-quail (*Turnix melanogaster*), little tern (*Sterna albifrons*) and the rainbow bee-eater (*Merops ornatus*).
- young platypus and short beaked echidna, given they shelter in terrestrial dens and are unable to protect themselves or flee.
- carnivorous marsupials, such as the spotted-tail quoll, that feed on larger invertebrates may be affected by RIFA causing declines to their food source.
- even arboreal animals such as koalas risk being stung and killed by ants as they travel across the ground.

RIFA can also impact plants directly, tunnelling into stems, ringbarking seedlings and consuming plants.

(References - Lach and Barker 2013, Magee et al 2016, Moloney and Vanderwoude 2002, Nattrass and Vanderwoude 2001, TSSC 2003, Vinson 2013, Wojcik et al 2001, Wylie et al 2016, Wylie and Janssen-May 2016).

## Ecosystem level impacts

RIFA can disrupt and alter ecosystems and associated services by affecting critical species, as well as species richness and abundance. The initial disruption of the assemblage of invertebrates and vertebrates in an area may also ultimately affect plant assemblages.

Invertebrate pollinators, including bees and wasps, can be particularly susceptible to RIFA. This susceptibility can alter crucial interactions between plants and animals and have flow on impacts for plant reproduction, contributing to changes to vegetation abundance and distribution in a given locale. For example, there are well documented species-specific relationships between many Australian terrestrial orchids; many of these pollinating insects are ground-breeders. The effect of RIFA on

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pollinators, ground-dwelling native bees, and thynnid wasps is potentially devastating for the natural fertilisation of flowers and subsequent seed production of orchids (TSSC 2003, Vinson 2012).

RIFA outcompete native ants, which play a key role in ecological processes as well as being an important food source for many native animals. Over 1000 Australian plants rely on native ants to disperse their seeds; however, RIFA relocate and eat seed which, if it occurred in Australia, would alter the ratios of seeds available to germinate in various locations, likely leading to major ecosystem change (Moloney and Vanderwoude 2002, TSSC 2003, Wylie et al 2016).

## **Management and control responses**

The Australian Government recognises the seriousness of RIFA in Australia – and the potential, if uncontrolled, for devastating consequences on the assets and characteristics of our country and way of life that Australians hold dear. For this reason, the Australian Government has recently committed new funding of \$268 million (in addition to \$28.2 million from the previous plan) to the National Fire Ant Eradication Program over the next 4 years, to intensify activities to control and contain RIFA.

### **Biosecurity governance**

The Department of Agriculture, Fisheries and Forestry (DAFF) is the Australian Government lead on biosecurity emergency response related matters, including in relation to the National Fire Ant Eradication Program in south-east Queensland and other national RIFA eradication efforts.

However, given invasive species are second only to habitat destruction in impacting threatened species, DCCEEW has significant interest in the prevention of any exotic species becoming established and managing those already here. For this reason, DCCEEW maintains a close relationship with DAFF (as well as with relevant state and territory agencies) on matters of environmental biosecurity. The department engages on RIFA through DAFF's Chief Environmental Biosecurity Officer, who is the Australian Government member of the Steering Committee overseeing the National Red Imported Fire Ant Eradication Program.

The Threatened Species Commissioner and the Chief Environmental Biosecurity Officer meet regularly to discuss matters of relevance to both portfolios, including RIFA and connect formally through the Environmental Biosecurity Interdepartmental Group. DCCEEW and DAFF are both represented on the key national environmental biosecurity policy forum, the Environment and Invasives Committee, which reports through the National Biosecurity Committee to all Australian ministers responsible for biosecurity.

### **National Environmental Biosecurity Response arrangements**

The 2001 RIFA detections pre-date the arrangements under which national biosecurity incidents with predominantly public benefits (exotic pests and diseases

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that impact the environment and our way of life) are now managed, namely the National Environmental Biosecurity Response Agreement (NEBRA).

At the time, however, the Australian (through the Department of Agriculture, Fisheries and Forestry) and state and territory governments recognised the significance of RIFA in Australia and agreed to cost share nationally an eradication response in south-east Queensland, modelled on other existing biosecurity response agreements.

Under NEBRA, DCCEEW furnishes expert members, where appropriate, to the consultative committee that advises the standing management committee's decisions on whether a national eradication response is recommended.

There have been numerous successful eradication programs of potentially significant environmental invasive species under the NEBRA, including of RIFA from Yarwun (QLD), Port Botany (NSW), Brisbane Airport (QLD), Port of Brisbane (QLD) and Fremantle Port (WA).

## **Overall funding**

The Australian Government has provided over \$640 million since 2001 to the National Fire Ant Eradication Program. A new response plan was recently agreed with a budget of \$592.8 million over four years (2023-2027) – an increase of more than \$100 million per annum.

The plan is co-funded by all Australian governments under NEBRA-like arrangements, with the Australian Government contributing 50% of the total cost. As of January 2024, the Australian Government, Queensland, New South Wales, the Northern Territory, Australian Capital Territory and Victoria have now all locked in their funding contributions to deliver this four-year response plan, with Western Australia initially confirming funding for two years.

## **Threat abatement**

Complementing DAFF's lead on biosecurity-related matters, including eradication responses, under the EPBC Act DCCEEW has responsibility for protecting matters of national environmental significance (MNES), including threatened species and ecological communities from the impacts of invasive species.

The EPBC Act provides for the listing of a key threatening process (KTP), where the process threatens the survival, abundance or evolutionary development of a native species or ecological community. A threatening process can be listed as a KTP if it could:

- cause a native species or ecological community to become eligible for inclusion in a threatened list, or
- cause an already listed threatened species or threatened ecological community to become endangered, or

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- adversely affect two or more listed threatened species or threatened ecological communities.

The primary effect of listing a KTP is to trigger a decision by the Minister for the Environment on whether to have a threat abatement plan (TAP). A TAP provides for the research, management, and any other actions necessary to reduce the impact of a listed KTP on native species and ecological communities. Implementing the plan should assist the long-term survival in the wild of affected native species or ecological communities.

‘The reduction in biodiversity of Australian native fauna and flora due to the red imported fire ant, *Solenopsis invicta*’ was listed as a KTP in 2003, in line with advice from the expert statutory advisory group, the Threatened Species Scientific Committee (TSSC). The TSSC advised the then Minister that a TAP for RIFA should be developed as it was the ‘most feasible, effective and efficient way to abate the process’.

A TAP to reduce the impacts of tramp ants (including RIFA) on biodiversity in Australia and its territories was released in 2006 and then superseded by the *National Invasive Ant Biosecurity Plan 2018-2028*. The plan provides a nationally agreed approach to manage invasive ants and an associated implementation plan. The plan is not a statutory TAP, but does include similar content, in that it provides for the research, management and other actions necessary to reduce the KTP to an acceptable level in order to maximise the chances of long-term survival in nature of affected native species and ecological communities.

The National Biosecurity Committee oversees the implementation plan and, as the key national biosecurity policy forum, has been instrumental in has advising on and supporting the latest commitment to eradication.

## Conclusion

As a species, RIFA is a highly successful invader and one of the world’s worst ‘super pests’. RIFA have the potential, unchecked, to cause great harm in Australia, including to our unique and precious environment and biodiversity. For this reason, the Australian Government is:

- bolstering the sustained commitment to the fight against RIFA in south-east Queensland
- committed to implementation of the *National Invasive Ant Biosecurity Plan 2018-2028*.

The National Fire Ant Eradication Program has been successful in containing RIFA, keeping densities low and reducing spread. Through DAFF, the Australian Government participates in all levels of the program’s governance, which is being strengthened as part of the next phase of delivery under the 2023-27 Eradication Plan.

The Australian Government remains committed to the response program.

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