Red imported fire ants (*Solenopsis invicta*)

fact sheet

UPDATED DECEMBER 2016

Red imported fire ants in Australia

Australia could remain free of red imported fire ants – one of the world's worst invasive species – but only if current infestations are eradicated.

Fire ants found at Port Botany in Sydney and Gladstone in Central Queensland have been brought under control, but the largest infestation, from Brisbane to the NSW border, remains.

If not eradicated the impacts of red imported fire ants in Australia will surpass the combined damage done each year by our worst pests: feral cats, wild dogs, foxes, camels, rabbits and cane toads.

Over the past four years Australia has experienced, on average, one new incursion each year. The fact fire ants continue to make it into Australia reveals major gaps in our defences against the arrival of new invasive species.

We must eradicate the fire ants that have already made it into the country and at the same time commit to stronger preventative border biosecurity.

About red imported fire ants

Red imported fire ants are native to South America, but have spread to the United States, China, Taiwan, the Philippines and Australia.

They are omnivores, preying on invertebrates and vertebrates and eating plants and honeydew. They are highly aggressive, with a venomous sting used to kill their prey and defend their nest. They swarm in large numbers to attack any animal disturbing their nest. They are tiny (2-6mm) but their sting and high numbers enable them to overwhelm and kill prey much larger than themselves.

Fire ant colonies contain 200,000 to 400,000 workers, although some super colonies have many millions of individuals.

Photo: April Noble, Antweb.org, Bugwood.org

There are two forms – colonies with a single egg-laying queen (monogyne) and those with multiple reproductive queens (polygyne). The multi-queen colonies (sometimes with several hundred queens) reach higher densities than single-queen colonies – up to 50 million ants per hectare. They mostly spread by budding – a new queen mates within the nest and then sets up a new nest just metres away. In the monogyne form, the virgin queens and the males mate in the air, the queens then fly 500 metres or so to build a new nest. The infestation between Brisbane and the NSW border has both forms.

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Invasive ants

The red imported fire ant is one of at least seven highly invasive ant species that have arrived in Australia and threaten the country's environment, economy and way of life.

Invasive ants typically arrive with cargo and often dominate new environments due to traits such as aggression towards other ants. Some form vast super-colonies made up of many interconnected nests, with millions of workers.

Eradicating red imported fire ants in Australia

The infestation between Brisbane and the NSW border found in 2001 was the first time fire ants established in Australia. Since then there have been six further arrivals. Other colonies were discovered in the Port of Brisbane in 2001 and 2016, in Gladstone in 2006 and 2013, in Sydney's Port Botany in 2014 and in Brisbane airport in 2015. Genetic studies show they have each resulted from separate arrivals.

The outbreak in southeast Queensland between Brisbane and the NSW border covers a large area and will take many more years to eradicate. The minor infestations at Brisbane airport (2015) and Port of Brisbane (2016) are subject to treatment.

The eradication program suffered from a lack of funds and poor planning in its early stages. The costs for eradication are shared between state and federal governments. So far, the red imported fire ant program has cost state and federal governments about $330 million.

Table 1 Red imported fire ants found in Australia

Location	Year	Extent	Current status
Port of Brisbane	2001	470 known colonies, >12,000 hectares	Eradicated (2005)
Richlands/Southeast Queensland	2001	Initially discovered in Wacol and spread to more than 450,000 hectares from Brisbane to the NSW border	Eradication underway – awaiting sufficient funds for full eradication
Yarwun, Gladstone	2006	14 known colonies (but possibly 100), >1000 hectares treated	Eradicated (2007)
Port of Gladstone	2013	80 known colonies spread over 4600 hectares	Eradicated (2016)
Port Botany, Sydney	2014	1 colony detected	Eradicated (2016)
Brisbane Airport	2015	At least 1 colony, genetically distinct	Eradication underway
Port of Brisbane	2016	At least 1 colony, genetically distinct	Eradication underway

A red imported fire ant nest found in Queensland. © The State of Queensland (Department of Agriculture, Fisheries and Forestry) 2010–2014.

Successful eradication requires detecting all ant colonies as early as possible, destroying the colonies and preventing the spread to new areas by the movement of soil, mulch, plants and fodder.

In Queensland, methods used to detect colonies include aerial photography (with high definition visual, near infrared and thermal cameras to detect mounds), and ground searching, including with sniffer dogs, which are sensitive enough to detect single ants. Communities also need to be educated – they can help check for and report suspicious ants and avoid spreading them if they are within the infestation zone.

The best method for destroying ant colonies is a bait that renders all queens infertile. This method has the least impact on other wildlife and the environment

Consequences of failure

What would Australia be like if eradication fails or if more red imported fire ants arrive in the country? More than 95% of Australia is climatically suitable for these ants. They could inhabit almost the entire continent except for the most extreme, coldest locations.

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Left unchecked they will infest the entire populated coastal belt – spreading over decades through the flight of the fire ant queens and the regular movement of people and goods.

Environment

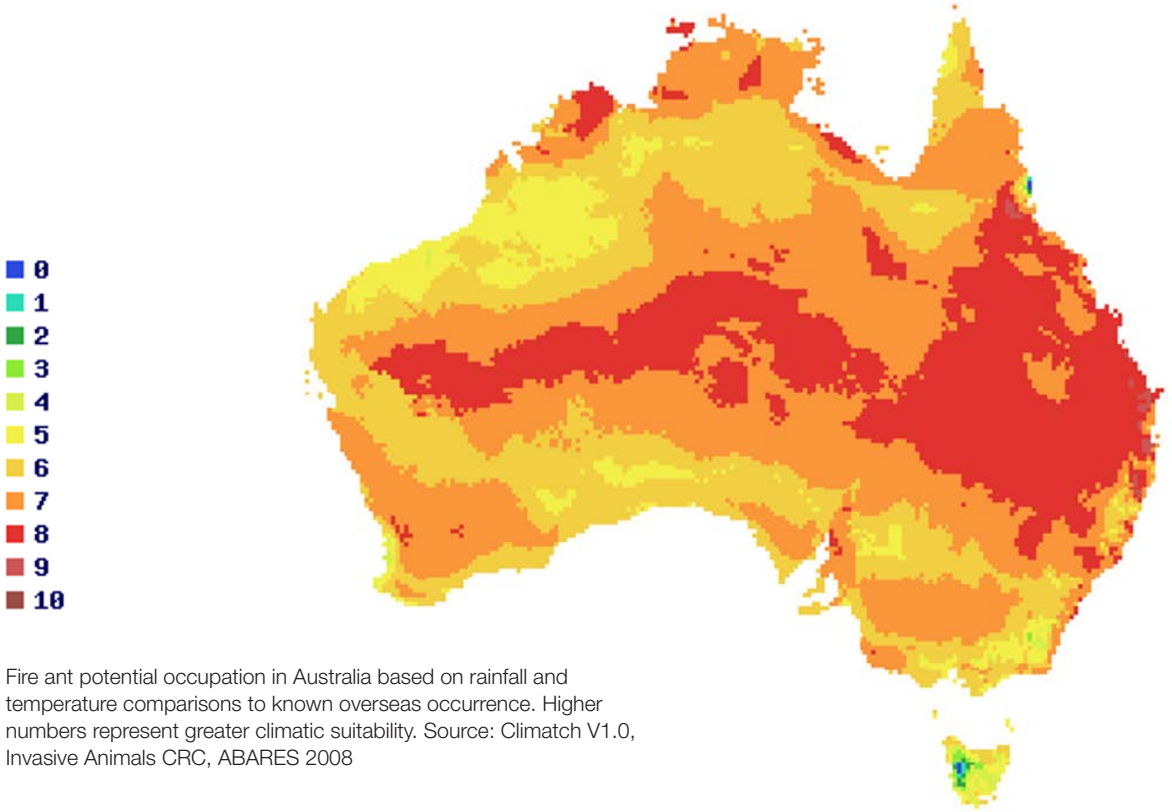
Fire ants have more ecological impacts than most ants because they reach extremely high densities. An assessment of their likely impact on 123 animals in southeast Queensland predicted population declines in about 45% of birds, 38% of mammals, 69% of reptiles and 95% of frogs. These reductions will result in the extinction of some birds, mammals, reptiles and frogs. By reducing plant populations and competing with native plant and insect-eaters they can affect entire ecosystems. Plants may face risks from red imported fire ants disrupting pollination, seed dispersal and germination.

Health and lifestyle

When a fire ant mound is disturbed, thousands of ants swarm to the surface and repeatedly sting the intruder. In the US, 30 to 60% of people in infested areas are stung each year. The stings are painful – the alkaloid venom causes pustules and, in some people, allergic reactions. More than 85 people in the US have died of anaphylactic shock. Some elderly people in nursing homes have died after mass stings. If not controlled in Australia fire ants could cause an extra 140,000 medical consultations and 3000 anaphylactic reactions a year.

Economic

By mid-2016, federal, state and territory governments had spent $330 million attempting to eradicate red imported fire ants. Additional costs have been borne by local governments, energy utilities, industry and others. Although expensive, this is far less than the costs of failing. Modelling by the Queensland Government indicates that in southeast Queensland alone fire ants would impose costs of about $45 billion over 30 years. In the US the ant costs $7 billion a year in damage and control. Among the costs are damage to infrastructure (roads, footpaths and electrical equipment) and to farming enterprises. These ants damage crops, rob beehives and kill newborn livestock. During dry times they dominate the margins of dams, making it impossible for livestock to reach water without being seriously stung.



Fire ant potential occupation in Australia based on rainfall and temperature comparisons to known overseas occurrence. Higher numbers represent greater climatic suitability. Source: Climatch V1.0, Invasive Animals CRC, ABARES 2008

Agricultural production

Fire ants are linked to a reduction in agricultural output ranging from 10% for cropping land and 20% for livestock to 40% for beef. Key agricultural communities in the Lockyer Valley and northern New South Wales sit

directly in fire ant expansion paths. If predicted levels of productivity are realised it will make farming difficult if not unviable in these communities.

Biosecurity gaps

Of all the invasive species that should be kept out of Australia, red imported fire ants are one of the most serious and costly. The number of fire ant incursions this decade is evidence that serious gaps in Australian biosecurity are undermining our chances of becoming fire-ant free, putting at risk the more than $330 million already spent trying to eradicate them.

Risk assessment and planning

We need to do more work identifying and closing off pathways for red imported fire ant arrivals and spread in Australia, assess the biodiversity that is at risk and how to protect native species from these ants.

Surveillance

The fact that many incursions are not detected until many years after they arrive shows surveillance in high risk areas such as ports is inadequate. The first two incursions in 2001 were not detected for at least a decade, the second Gladstone incursion for probably three years and the Port Botany incursion for six months. Most are discovered by chance rather than through systematic surveillance.

Funding for eradications

The eradication programs in Queensland have suffered from too little and short-term funding. Eradication efforts tend to fail if the budget is insufficient. The southeast Queensland infestation was almost eradicated in 2003 but the failure to conduct broad enough surveillance allowed the infested area to double between 2004 and 2010. Since 2010 there has been no long-term funding for the eradication program.

An independent review of the southeast Queensland eradication program completed in May 2016 confirmed that eradication is still possible and in the 'national interest' and recommended increasing yearly funding from $18 million to $38 million for the next ten years. State and federal agricultural ministers will consider the review recommendations in 2017

Public education

The community is a largely untapped asset in detecting invasive species and much more could be done to educate Australians about what to do when unfamiliar species are encountered. Most invasive ant incursions are detected through chance by the public.

Have you seen red imported fire ants?

Red imported fire ants are between 2mm and 6mm long and reddish-brown in colour. They have an intense sting. If you think you've seen one phone the Exotic Plant Pest Hotline on 1800 084 881 (NSW) or 13 25 23 (Queensland).

For information on how to identify and report these ants:

- Queensland: www.daff.qld.gov.au/biosecurity
- NSW: www.dpi.nsw.gov.au/biosecurity

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