Red imported fire ants (*Solenopsis invicta*)

fact sheet

RELEASED JANUARY 2015

Red imported fire ants in Sydney

A colony of red imported fire ants was discovered in Port Botany, Sydney, in November 2014. Biosecurity officers immediately began baiting the Port Botany colony and searching for other nests. Winged ants were found in the nest, so they may have spread into other areas. Queens fly an average 500 metres to set up a new nest.

Sydneysiders in the vicinity can help out by checking if ants in their backyards, on footpaths and in parks are red imported fire ants.

This incursion and the others in Queensland reveal major gaps in Australia's defences against the arrival of new invasive species and a real threat that red imported fire ants may cover large areas of Australia.

It is thought the Sydney ants arrived at least six months ago, probably on a cargo ship. Their discovery was a stroke of good luck – not due to regular surveillance but in response to checks for another recent unwelcome arrival (of a giant African snail).

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 omninvores, 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 (2-6 mm) but their sting and high numbers enable them to overwhelm and kill prey much larger than they are.

Fire ant colonies contain 200,000 to 400,000 workers,

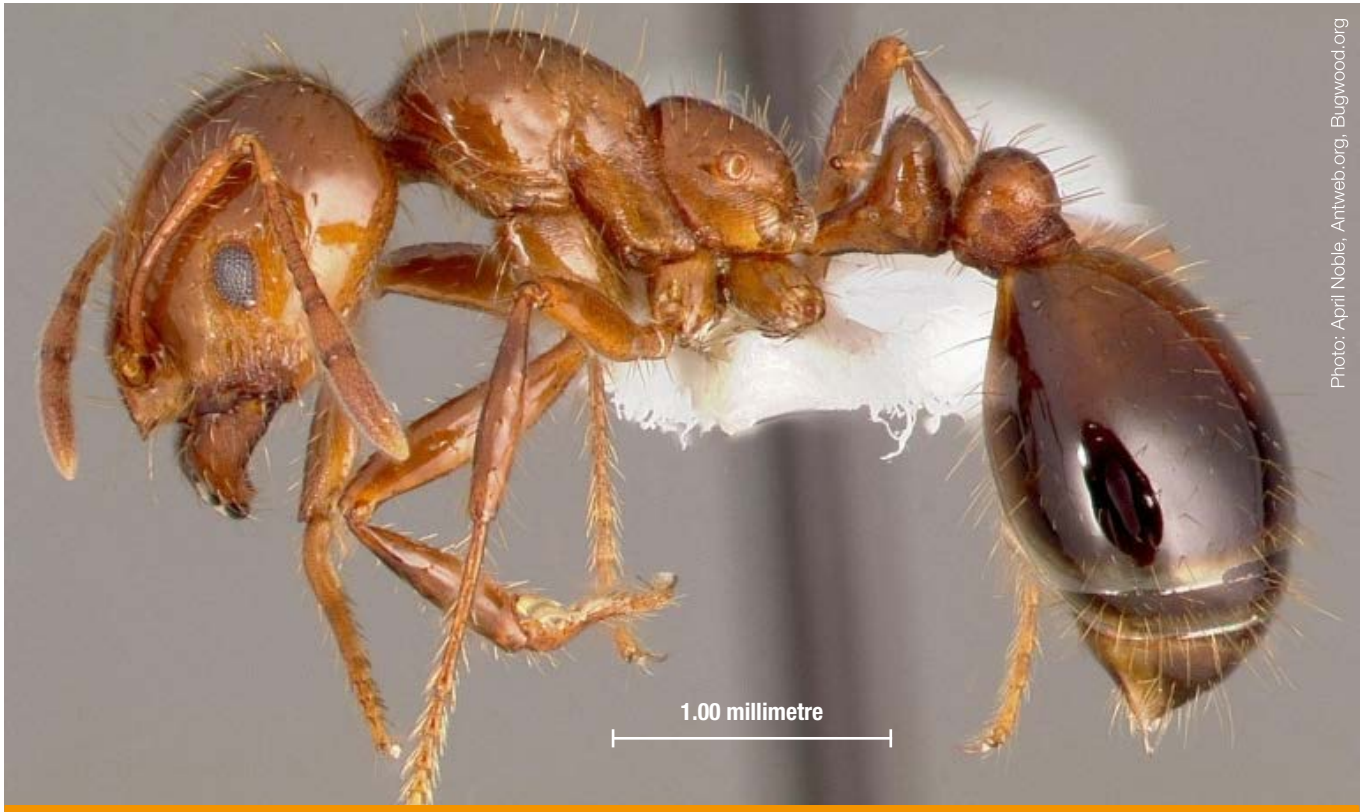


Photo: April Noble, Antweb.org, Bugwood.org

Table 1 Red imported fire ants found in Australia

Location	Year detected	Extent	Current status
Port of Brisbane	2001	470 known colonies, >12,000 hectares	Eradicated (2005)
Southeast Queensland	2001	Initially discovered in Wacol and spread over >300,000 hectares in parts of Brisbane and south and west of Brisbane	Containment (with view to eradication)
Yarwun, Gladstone	2006	14 known colonies (but possibly 100), >1000 hectares treated	Eradicated (2007)
Gladstone	2013	80 known colonies spread over 4,600 hectares	Eradication underway
Port Botany, Sydney	2014	1 colony detected	Eradication underway

although some super colonies have many millions.

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 walks a few metres with a few workers and brood to set up a new nest. In the monogyne form, the virgin queens and the males mate in the air, and the queens fly 500 metres or so to build a new nest.

The ants discovered at Port Botany were in a single-queen colony while Queensland has both forms.

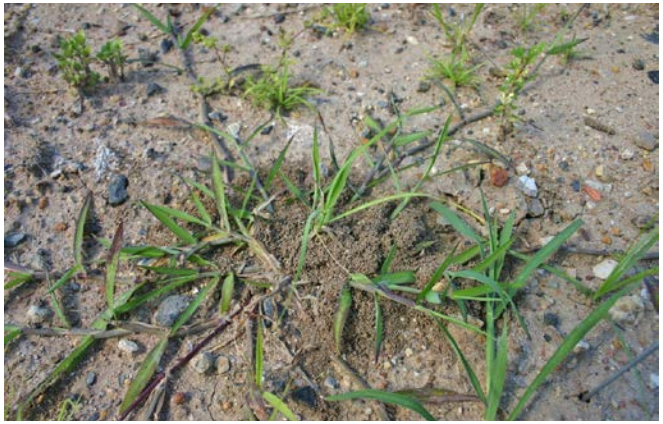
Tramp ants

The red imported fire ant is one of at least seven 'tramp ant' species that have invaded Australia and threaten the Australian environment, economy and way of life.

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

Eradicating red imported fire ants in Australia

The Port Botany colony is the fifth time red imported fire ants have established in Australia. Two colonies were discovered in Southeast Queensland in 2001 and two in Gladstone in 2006 and 2013. Genetic studies show they have each resulted from separate arrivals.



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

There are currently three eradication programs in Australia for red imported fire ants: in southeast Queensland (which is officially a containment program), Gladstone and, now, Port Botany. The costs for the Queensland programs are shared between state and federal governments. So far, the red imported fire ant program has cost state and federal governments about $300 million. It has achieved the eradication of the 2001 Port of Brisbane and the 2006 Gladstone incursions.

To achieve eradication requires detecting all colonies (as early as possible), destroying those colonies and preventing the spread to new areas by humans.

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. Educating the community to check for and report suspicious ants and avoid spreading them (eg. by moving soil) is essential.

The best method for destroying ant colonies is a bait with delayed toxicity to allow the workers to take it to the queen. There are several toxins in use.

Consequences of failure

What would Australia be like if eradication fails or if more red imported fire ants arrive in Australia? About one-quarter of Australia, including much of the populated coastal belt and wetter inland areas, is climatically suitable for these ants.

If any of the eradications fail, the red imported fire ant is likey to spread to these areas over subsequent decades through 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. 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 disruption of 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. This makes infested parks and gardens uninhabitable. In the US, 30 to 60% of people in infested areas are stung each year. The stings are painful and the alkaloid venom

causes pustules and, in some people, allergic reactions. More than 80 people in the US have died of anaphylactic shock. Some elderly people in nursing homes have died after mass stings.

Economic

By mid-2014, federal and state/territory governments had spent $300 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 $43 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 and livestock cannot reach water without being seriously stung.

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 increasing rate of fire ant incursions and interceptions (table 2) shows there are serious gaps in Australian biosecurity that undermine our chances of becoming red imported fire ant-free, putting at risk the more than $300 million already spent trying to eradicate them.

Risk assessment and planning

We haven't done enough to identify and close 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.

Table 2 Timeline of incursion detections (red) and interceptions (orange)

2001	Port of Brisbane. SE Queensland.
2006	Gladstone.
2009	4 interceptions.
2011	3 interceptions.
2013	Gladstone.
2014	Port Botany, Sydney.

Surveillance

The fact that many incursions are not detected until many years after they arrive shows that surveillance in high risk areas such as ports is inadequate. The first two incursions in 2001 were not detected probably 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 tight. 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. There is currently no guaranteed long-term funding for the eradication programs.

Public education

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

Have you seen red imported fire ants?

Red imported fire ants are up to 6mm long and reddish-brown in colour. 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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