

Watch out for red imported fire ants

SUMMARY

The red imported fire ant eradication program has been tackling Queensland's fire ant infestation since 2001, but recent reports show infestation areas have grown from 40,000 hectares to more than 750,000 hectares over the past 22 years.

Of Australia's invasive ant species, fire ants pose the most serious threat to our biosecurity status because they move and colonise quickly, and have significant environmental, social and economic impacts.

The current Fire Ant Response Plan 2023-27 aims to tackle the fire ant infestation in Queensland. However, there are other invasive ant species you should also look out for to prevent and manage infestations.



Fire ants of varying size on coin.
Source: DAFFQ.

BACKGROUND

The National Plant Health Committee says in addition to fire ants, the nine species of exotic ants we should be most worried about are:

- Asian needle ant (*Brachyponera chinensis*)
- Carpenter ant (*Camponotus pennsylvanicus*)
- Invasive garden ant (*Lasius neglectus*)
- European fire ant (*Myrmica rubra*)

- Tawny crazy ant or raspberry ant (*Nylanderia fulva*)
- Black imported fire ant (*Solenopsis richteri*)
- Odorous house ant (*Tapinoma sessile*)
- Japanese pavement ant (*Tetramorium tsushimae*)
- Technomyrmex species, excluding *Te. difficilis* and *Te. vitensis* that are already established in Australia (white footed ant, about 100 species)

Asian needle ant

Photo by Jessica Louque, Smithers Viscient, Bugwood.org



Carpenter ant

Photo by Whitney Cranshaw, Colorado State University, Bugwood.org



Invasive garden ant

Source: AntWiki



European fire ant

Source: Photo by Ryszard Ryszard, Flickr, CC BY-NC 2



Tawny (raspberry) crazy ant

Nylanderia fulva
Photo by Lauren Ward and Danny McDonald



Black imported fire ant

Photo by Ken Childs, AntWiki



Odorous house ant

Photo by Joseph Berger, Bugwood.org



Japanese pavement ant

Photo by Jonghyun Park, iNaturalist.org



White footed ant

Source: Government of South Australia, Department of Primary Industries and Regions





Red imported fire ants

Australia first detected red imported fire ants (*Solenopsis invicta*) in south-west Brisbane in February 2001. Since mid-2001, a nationally cost-shared eradication response plan has been addressing this issue.

Fire ants pose a significant risk to agriculture, in particular exporters within horticulture.

What this means for you

You have a major role to play in preventing the spread of fire ants.

Fortunately, fire ants do not like high traffic areas or pesticides. Nurseries and garden centres grow, sell and use many of the materials that are high risk for the spread of fire ants.

These materials include:

- soil
- pot plants
- mulch
- potting mix
- baled hay or straw
- landscaping and construction materials
- machinery and equipment
- timber products such as sleepers
- tomato stakes
- any material that has come in contact with fire ant infested ground.



Fire ant mounds in potted plants. Source: DAFFQ.

What you should know

It is an offence under the Queensland Biosecurity Act to spread fire ants. Most states have a law which requires you to report the detection of a suspect pest within 48 hours of becoming aware of it.

Fire ants are spread by moving the queen in the nest (usually through soil) or when the queen and her mated female alates (winged ants) fly to a new site to make a new nest. Worker ants are sterile and die when separated from their nest and queen.

Regardless of where you are, be aware of the fire ant risk and check the source of any material brought onto your property. Be aware of high-risk material and that nests can be inside large pot plants. Do not buy material from a treatment zone unless you are sure that the supplier is monitoring for fire ants.

If your business is in a treatment and surveillance zone (see below), have risk management plans in place. Nurseries and garden centres outside treatment zones should take precautions by storing pot plants, potting mix and mulch hay off the ground.

Check your property regularly for fire ants and inspect vulnerable materials and transporters that come on site. Ensure nursery products originating from, and transport companies operating in the affected area, are taking adequate precautions and are implementing movement controls.

What do fire ants look like?

Fire ants are reddish brown with black abdomens and vary in size from 2mm to 6mm long. They're very aggressive, are agitated when disturbed and can inflict a fiery sting.



Fire ant. Photo by Queensland Department of Agriculture and Fisheries.

Stings form small pustules, which become itchy and can take weeks to disappear. Fire ants usually attack en masse, potentially making outdoor life – and gardening, in particular – unpleasant.



New fire ant nest in sandy soil. Source: DAFFQ.

Fire ant nests are initially flat. As the colony matures, the nest develops into a dome shape that can be up to 40cm high. There are no visible entry or exit holes. Nests have a honeycomb-like internal structure and vary in shape and size.

Ant characteristics

Keep an eye out for unfamiliar ant species, particularly around anything newly imported, or if you live near ports.

Invasive ant species have most of the following biological characteristics:

- They consume a wide variety of food items, are predators of native wildlife and scavengers, often feeding on honeydew produced by sucking bugs.
- Some species can move their nest when disturbed or with certain other environmental conditions.
- Their nests may have many queens (polygynous) and may extend into super colonies (polydomous).
- They are very aggressive towards other species, but much less aggressive to their own.
- They have the potential to significantly reduce biodiversity in the ecosystems they inhabit.

Despite sharing broad biological characteristics, other aspects of species' biology are variable and modify how we prevent and manage them.

For example, even though fire ants may have multiple queen colonies, only single queen colonies were present at Yarwun, in Queensland (Telford and Nelson 2010). Data shows this is also the case across most of South East Queensland. Single queen colonies are more likely to produce winged queens that may establish a new colony up to two kilometres away.



A winged fire ant queen preparing to fly to her mate and begin a new colony. Photo by Johnny N. Dell, BugwoodWiki.



Ant dispersal

The ability of ants to disperse plays a significant role in your response. All invasive ants have the ability to bud into super colonies and can spread approximately 300 to 500 meters per year. To fully eradicate a colony, you need to eliminate all subsidiary colonies.

Ant life cycle

Some species of invasive ants are active – workers forage daily throughout the year (or when certain temperatures are met). In contrast, other species hibernate.

Ant habitat

Exotic invasive ants can make nests almost anywhere, for example:

- under logs, wood, stones, pavers and items placed on the ground that retain moisture
- in pot plants
- in soil, growing media, compost and leaf litter
- inside electrical equipment, water meter boxes and fire hydrants
- in tree crotches, rotten tree limbs, under palm leaf sheaths
- underground in grasslands and lawns
- in gardens or environments where aphids are abundant
- within walls or termite nests
- in shipping containers, furniture and vehicles
- within cracks in paths
- next to external building walls
- in fodder and other agricultural products

Why you should test your ant genetics

Ant species might exhibit slight differences in their biology in Australia depending on whether the incursion is attributed to only one or a very small number of queens.

When observing ants in your nursery it is important to recognise the potential presence of a cryptic species. Cryptic species may closely resemble other ant species but can significantly differ in aspects of their biology and behaviour.

For these reasons, genetic testing can be an invaluable tool. While there are many reasons to do genetic testing of nests at an early stage, the most important is to quickly inform how to treat infestations.

Early-stage genetic analysis can determine the country of origin, how many times the same genetics are being detected, whether the colony is multi-queen or single queen, and establish whether nests were founded by budding (colony splits) or nuptial flights. A nuptial flight is when a large, winged female and a smaller winged male fly joined together to find a new nest location.

Ants have been known to fly or form 'rafts' on water to move to new territory.

Chemical management

Chemicals for treating fire ants are the insect growth regulators methoprene and pyriproxyfen. In special circumstances where fire ants pose a health threat, hydramethylnon or chlorpyrifos are used.

Other management activities

Other key activities of the National Fire Ant Eradication Program (NFAEP) include risk management



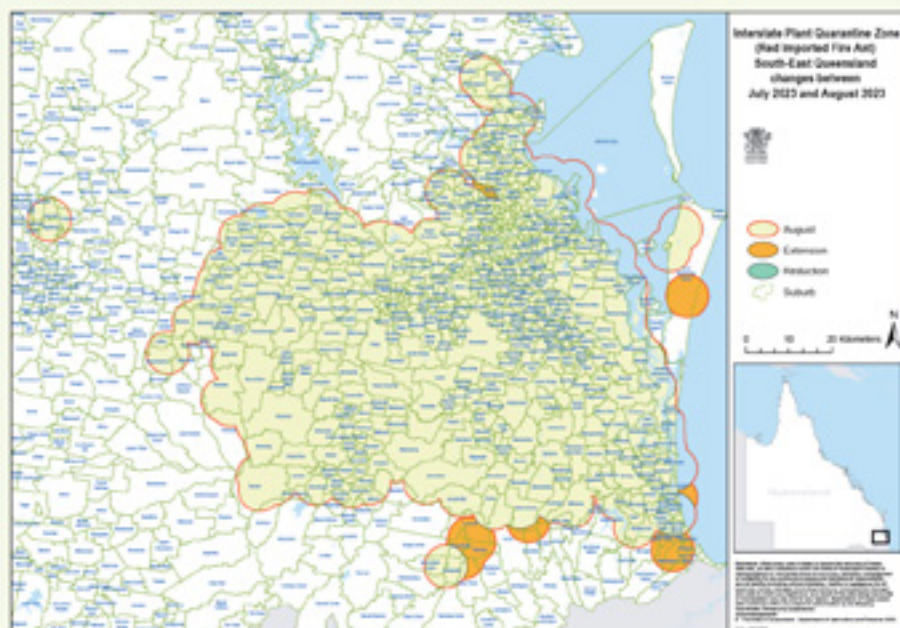
Fire ants can survive up to a month in entirely waterproof floating colonies like this one. Photograph by TheCoz, courtesy Wikimedia.

and security, scientific and diagnostic services, community engagement, mapping, industry liaison and education and training.

For example, the NFAEP runs training sessions for industry workers to identify and prevent the spread of fire ants. This is helping business and residents prevent their spread. At the same time, the NFAEP is undertaking research on the environmental impacts and finding new ways of treating the ants. There is also a diagnostic unit where suspicious ants are sent for diagnosis.

BIOSECURITY: Current biosecurity treatment and surveillance plans

The continued national investment in the eradication of fire ants has successfully prevented the ants from becoming established outside South East Queensland. Modelling shows that without the program, fire ants would have spread north to Bowen, west to Longreach and south to Canberra by now (August 2023).



MAP 1: Interstate Plant Quarantine Zone (fire ant) South-East Queensland changes between July 2023 and August 2023.

Continued >>



BIOSECURITY: Current biosecurity treatment and surveillance plans (continued)

Estimates suggest that if fire ants were left uncontrolled, they could infest 97% of the Australian landscape, costing up to \$2 billion per year, forever.

To give Australia the best chance of a future free of fire ants, in August 2023 the NFAEP, together with all cost-share partners, designed a new fire ant response plan. All Agricultural Ministers are unified on the need to continue eradication efforts and maintain momentum under this response.

The new Fire Ant Response Plan 2023–27 aligns with the recommendations of the recent Strategic Program Review and builds on the learnings of the program over more than two decades of delivering the world's most successful fire ant eradication program. The focus is on scaling up operations to strengthen containment and compliance and intensify program-led and community treatment using an outside-in approach.

The program will keep doing its main tasks: treatment, surveillance, and promoting legal obligations, but on a bigger scale. The supporting roles of scientific research, innovation, compliance, information and technology, communication, and business services will also grow accordingly.

The program's new containment area forms a horseshoe around the infestation, spanning from Moreton Bay in the north, west to the Lockyer Valley, east to the Gold Coast and south to the Tweed Shire.

The targeted treatment area will wrap around the inside of this containment band and cover approximately 300,000ha. This band is around 10 km wide and will receive up to six fire ant treatments over a two-year period, moving towards the centre over the next 10 years. The NFAEP will administer treatment through a variety of methods, including both aerial and ground approaches.

See **MAP 2** above.



MAP 2: Proposed 2023-24 Treatment and Surveillance Areas.

Unsure what type of ants you have?

Use the free Pest ID Tool available at pestid.com.au to determine which ants you may have.

If you're still having difficulty, another useful resource is the AntWiki identification tool. It offers detailed biological information on the sub species of ants. Access the website here: https://www.antwiki.org/wiki/Category:Key_to_subfamilies

Otherwise, if you are unsure and would like further guidance, please reach out to your local Extension Officer.

MORE INFO HERE: www.greenlifeindustry.com.au/about/association/our-team or call the **EXOTIC PLANT HOTLINE** on 1800 084 881.

MORE INFORMATION

Pest Contingency Plan: nurseryproductionfms.com.au/download/pest-contingency-plan-exotic-invasive-ants

Exotic Invasive Ant fact sheet: nurseryproductionfms.com.au/download/pest-and-disease-fact-sheet-exotic-invasive-ants

AntWiki Article: The Red Imported Fire Ant: www.antwiki.org/wiki/Solenopsis_invicta

Fire ant identification information: pestid.com.au

National Fire Ant Eradication Program identification courses for nursery staff at www.fireants.org.au/training-and-tools/fire-ant-training

Fire ant brochures from your government agriculture department

PAST EDITIONS OF NURSERY PAPERS ARE AVAILABLE ONLINE on the Greenlife Industry Australia website: <https://www.greenlifeindustry.com.au/communications-centre>