National Red Imported Fire Ant Eradication Program
South East Queensland

Annual Performance Report 2020

This publication has been compiled by the National Red Imported Fire Ant Eradication Program, administered by Biosecurity Queensland, Department of Agriculture and Fisheries.

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Cover: Dogs can find what the human eye cannot see. A program fire ant odour detection dog team checks hay bales for fire ants after compliance officers intercepted hay destined for Roma.

The National Red Imported Fire Ant Eradication Program is a nationally cost-shared program funded by all Australian state and territory governments, and the federal government. The program is governed strategically and operationally by a national Steering Committee and independent chair, who work with Biosecurity Queensland to deliver the program on behalf of the other jurisdictions.

Australian Government

Queensland Government

Government of South Australia
Primary Industries and Regions SA

Tasmanian Government

AGRICULTURE VICTORIA

NORTHERN TERRITORY GOVERNMENT

ACT Government

NSW Government | Department of Primary Industries

Department of Primary Industries and Regional Development
Government of Western Australia

National Red Imported Fire Ant Eradication Program
South East Queensland

Left: The program uses aerial and ground-based treatment.

About the program

The National Red Imported Fire Ant Eradication Program is Australia's largest biosecurity eradication initiative and is committed to ridding the nation of one of the world's most destructive pests.

Red imported fire ants (fire ants) can destroy our environment, economy and way of life. As one of the world's most invasive and destructive species, if left uncontrolled, the estimated social, environmental and economic impact was estimated in 2016 to be as much as $1.65 billion a year[1]. This would surpass the combined effects of rabbits, foxes, feral pigs, camels, wild dogs, feral cats, carp and cane toads which, even today, would be in the millions rather than billions of dollars[2].

Fire ants not only destroy crops but attack our pets, livestock and native wildlife. They can also pose a serious health risk to humans by triggering a toxic, sometimes life-threating, allergic reaction.

The program aims to rid Queensland of this invasive pest and protect our way of life in partnership with the Australian community. We use practices informed by domestic and international science experts and what we learn leads to the development of new ways of beating the ants as new challenges arise.

The South East Queensland community can play a vital role in fire ant eradication through reporting fire ant infestations, enabling the targeted treatment of fire ants and by taking action to reduce the risk of human-assisted spread of fire ants through potential carrier materials.

Without an eradication program, scientists estimate fire ant infestation could have spread beyond Mackay in the north, south to Goulburn, New South Wales and west to Quilpie (see Figure 1). The program has already successfully eradicated six of the eight separate incursions of fire ants—two in Gladstone, one at Port Botany (assisting New South Wales), one at Brisbane Airport, and three at the Port of Brisbane. No other country can make this claim. Two remain—one in South East Queensland and a new incursion found in Freemantle, Western Australia in 2019.

In 2017 all state and territory governments and the Australian Government agreed to fund a new 10-year Eradication Plan which uses a staged approach to find, contain and eradicate the pest. Implementation began in 2017 and is the focus of this report. The program is governed strategically and operationally by a national Steering Committee and independent chair, who work with Biosecurity Queensland to deliver the program on behalf of the other jurisdictions.

[1] F. Ross Wylie, Sharon Janssen-May 2016, Red Imported Fire Ant in Australia: What if we lose the war? Ecological Management & Restoration, Vol.18. Issue 1, January 2017, viewed 19 November 2020 at ‹https://doi.org/10.1111/emr.12238›.

[2] McLeod, R. (2004) Counting the Cost: Impact of Invasive Animals in Australia 2004. Cooperative Research Centre for Pest Animal Control. Canberra.

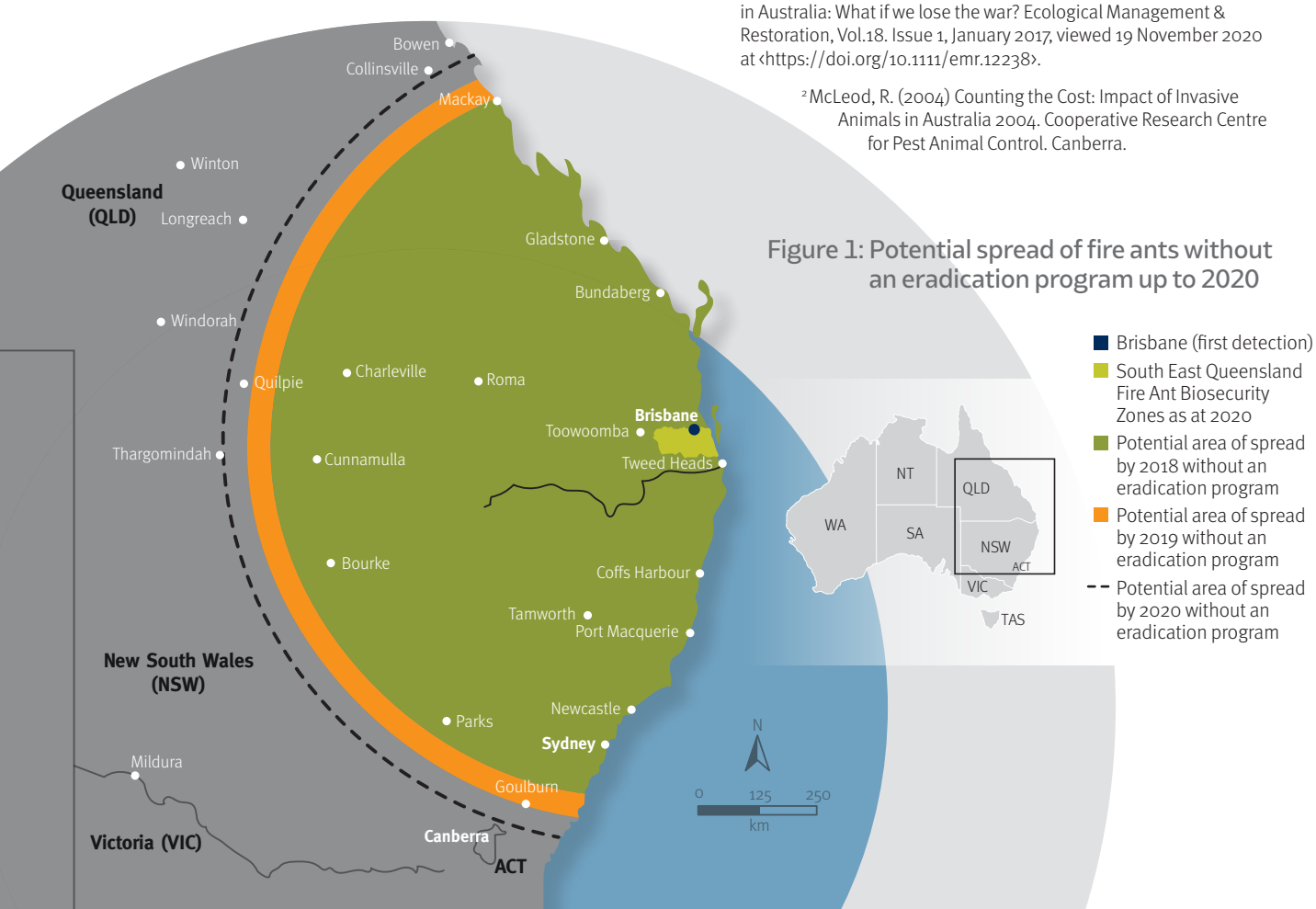


Figure 1: Potential spread of fire ants without an eradication program up to 2020

Fire ants can kill

This might look like any other suburban yard but for off-duty police officer Ryan trimming this lawn could have been fatal.

Ryan was using his whipper snipper at his Western suburbs home when he accidentally knocked the top off a fire ant nest concealed by long grass.

"When I hit the nest, I was showered with loose earth and there must have been a number of fire ants because I was stung five times on my arm and leg," the 32-year-old said.

He suffered a seizure due to an anaphylactic reaction and spent the next four days recovering in hospital.

"I'm very lucky to be alive—my five-year-old son fetched our neighbours who assisted my wife administering first aid before the ambulance came," he said.

While rare, fire ant stings do have the potential to kill. Fire ants are dangerous and a key reason why they need to be eradicated.

Both Ryan and his neighbours' properties, while not in an eradication area, were treated for fire ants and residents asked to be vigilant in keeping a look out and reporting future sightings.

Our mission

To protect our lifestyle, environment and economy by eliminating fire ants from South East Queensland.

Our objectives

Objective 1:

Reduce infestation until fire ants are no longer present in South East Queensland and ensure areas remain free from fire ants through the implementation of eradication measures as outlined in the 10-year Eradication Plan.

Objective 2:

Prevent the spread of fire ants to non-infested areas by using a combination of treatment, monitoring of compliance with movement restrictions pertaining to fire ant carriers and public education/engagement.

Objective 3:

Provide evidence to demonstrate freedom from fire ant infestation in the South East Queensland region (following the process to declare proof of freedom described in the 10-year Eradication Plan).

Objective 4:

Help prevent the establishment of new incursions of invasive ant species Australia-wide by building capability in and provision of invasive ant response and eradication expertise.

Our operating principles

- **Customer focused**—enable and support a safe, healthy and successful South East Queensland community through transparent and strategic engagement.
- **Science driven**—integrate scientific expertise, risk-based analysis and current empirical evidence to design program activity.
- **Collaborative**—partner with government agencies, industry and the South East Queensland community to amplify the program's treatment objectives.
- **Efficient and effective**—invest in contemporary technologies and practices to continuously improve our operations and maximise the program's benefit to the public.
- **Flexible**—adapt to the dynamics of our environment and improvise in order to overcome the challenges we encounter.
- **Empowered**—invest in staff training and development to nurture a culture of high performance and responsibility.

Our history

Our fire ant story begins in 2001, although they likely first arrived in Australia in the 1990s.

Increased globalisation has meant greater risk to our shores with fire ants being intercepted and stopped at every capital city port in Australia, except Tasmania. Despite increased vigilance in protecting Australia, genetic analysis shows seven distinct incursions and three post-quarantine detections have made it past our ports.

As at 30 June 2020, all three of the post-quarantine detections (where ants have not spread) and six out of the eight incursions (where ants have spread) have been eradicated. One of those—the 2001 Port of Brisbane incursion at 8300 ha—is the largest known ant eradication in the world.

2001

- Two separate incursions from the United States found in South East Queensland at the Port of Brisbane and Richlands in western Brisbane.
- National Red Imported Fire Ant Eradication Program is launched as an emergency response to fire ants.

2002

- Scientific review of the program finds remarkable progress in one year and recommends funding to eradicate until 2004. If not eradicated suggests changing the treatment focus to containment.

2004

- Senate enquiry on the regulation, control and management of invasive species supports a robust strategic approach to managing significant invasive species.
- Scientific review of the program finds dramatic reductions in fire ant populations in treated areas and supports the continuation of the program for two years.
- Post-quarantine eradication at Port of Brisbane, Queensland.

2006

- New incursion of fire ants from Argentina found in Yarwun near Gladstone in central Queensland.
- Quarantine eradication in Melbourne, Victoria.
- Scientific review of the program concludes the eradication campaign has delayed fire ant spread by 10–12 years, has greatly reduced polygyne colonies cutting the impact of the fire ants by 50–70 per cent and that fire ants could potentially still be eradicated.

2007
- Quarantine eradication in Darwin, Northern Territory.

2009
- Quarantine eradications at Port of Brisbane, Queensland and Adelaide, South Australia.
- Post-quarantine eradication at Lytton, Brisbane.

2010
- Roush Review (national program review) recommends the program focus on containment of the current infestation for 18–24 months. Resources diverted to remote sensing surveillance.
- Yarwun 2006 **fire ant incursion declared eradicated**.

2011
- Quarantine eradication in Western Australia.
- Post-quarantine eradication at Roma, Queensland.

2012
- Port of Brisbane 2001 **fire ant incursion declared eradicated.**

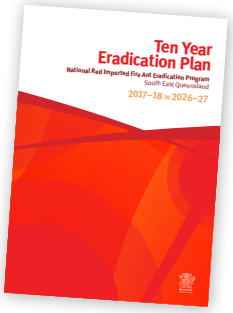
2013
- New incursion from the United States of America found at Port of Gladstone, Queensland.

2014
- Quarantine eradication in Brisbane, Queensland.
- New incursion from Argentina found in Port Botany, New South Wales.

2015
- New incursion from the United States of America found at Brisbane Airport, Queensland.
- Quarantine eradication in Melbourne, Victoria.

2016
- Port of Gladstone 2013 **fire ant incursion declared eradicated.**
- New incursion from Argentina found at Port of Brisbane, Queensland.
- Independent Review of the National Program finds there is a small window to eradicate the ants and recommends unified long-term national action to fund the eradication program in South East Queensland.
- Port Botany 2014 **fire ant incursion declared eradicated.**

2017
- Quarantine eradication in Adelaide, South Australia.
- The National Red Imported Fire Ant Eradication Program supported by governments nationally begins operations under new 10-year Eradication Plan on 1 July.



2019
- Brisbane Airport 2015 and Port of Brisbane 2016 **fire ant incursions declared eradicated.**
- New incursion from China found in Fremantle, Western Australia.
- A 5 km strip is added to the west boundary of the eradication area in South East Queensland in response to fire ants found in 2017–18.
- Biennial Independent Efficiency and Effectiveness Review of the national program makes recommendations to support the program.

Fire ants arrive via air and sea with incursions impacting both rural and urban Australia.

Message from the Chair

I am pleased to present the annual performance report for the National Red Imported Fire Ant Eradication Program under its *10-year Eradication Plan 2017–18 to 2026–27* (the plan).

This year (2019–20) showcases the program's ability to adapt and innovate to tackle challenges and work with the community to deliver promising results.

Impact of COVID-19

As fire ants are considered a category 1 restricted matter under the *Biosecurity Act 2014* (Qld), the program is an essential service that operated full steam ahead despite Coronavirus (COVID-19). The health and wellbeing of our staff and the community remained the highest priority. Office staff were able to work from home while social distancing and hygiene initiatives meant extra vehicles and other strategies were implemented for those who continued to work in the field. Other impacts included limited access to laboratory supplies needed by our science team and delays to research projects due to travel limitations and lock-downs. However, despite these challenges staff remained vigilant and focused on the program's mission, achieving great results.

Major milestone in sight

This was a milestone year for the program with the final broadscale treatment being applied to Area 1 and the Western Boundary. In late June 2020, treatment evaluation surveillance began in these areas with almost 600 ha surveyed by the end of the month. All going well, these areas will move to the eradication clearance (search and clear) phase in 2020–21 and planned eradication treatment will then move east into parts of greater Ipswich and western Logan (Area 2).

Treatment this year

Eradication treatment, in Area 1 and the Western Boundary—as far west as the Lockyer Valley and including the Scenic Rim— began in 2017 and 2018, with most of this area receiving at least five rounds of insect growth regulator (IGR) bait treatment by June 2020. In 2020 alone, with multiple rounds of treatment included, the program delivered planned eradication treatment across 342 832 ha achieving 95 per cent of the planned target.

Other treatment this year included planned suppression treatment to help contain the spread of fire ants in areas which have not yet undergone eradication treatment. With multiple rounds of treatment included, the program delivered suppression baiting across 96 913 ha achieving 93 per cent of the planned target.

Our teams also managed treatment for more than 10 000 suspect ant reports from the community. With a new treatment regime implemented this year, the average response to community reports went from 120 days in the previous year to only eight.

Biosecurity zone and regulation update

On 27 May 2020 changes to the fire ant biosecurity zones and supporting amendments to the Biosecurity Regulation 2016 came into effect. These changes aim to protect Area 1 and the Western Boundary from fire ant reinfestation by the potential human-assisted movement of fire ants via high risk carrier materials across and within zones. It also aims to reduce red tape and clarify the fire ant spread prevention activities required for industries that work with these materials. An extensive communication campaign rolling-out the changes was implemented within the restrictions of COVID-19. The program's engagement teams continue to work with the industry and community on best practice that reflects the updated requirements.

10-year plan addendum and efficiency review

In October 2019, the Steering Committee endorsed an addendum to the 10-year Eradication Plan to acknowledge the extension of the program's western operational boundary by 5 km earlier in the year and include associated changes to treatment timelines and methods. The extension was necessary to acknowledge the significant two-fold increase in the area to receive eradication treatment. This did not change the end goal to conclude eradication treatment in South East Queensland within 10 years.

This year, the Steering Committee also initiated an independent efficiency and effectiveness review of the program in line with 10-year Eradication Plan requirements to review activities every two years. Review recommendations have on the whole been adopted with a new Efficiency and Effectiveness Sub-Committee appointed by the Steering Committee to oversee their implementation.

Research and innovation

The work of the program's science team continues to be a vital part of the program, whether it be trialling new baits and treatments, evaluating the effectiveness of treatment or obtain a better understanding of how genetics can help rid Australia of fire ants. This includes continued collaboration with the University of Queensland on gene silencing and rain-stable baits.

The new mobile data capture application 'Forage' also underwent further development, with tablets due to replace handwritten notes and GPS devices used by our field staff and enabling real time data capture by early 2020-21.

Working with the community

Eradicating fire ants requires an all-of-community response to rid our shores of fire ants. In addition to working with industry and the community on potential human-assisted movement of fire ants, the community is encouraged to treat fire ants themselves as part of the fire ant containment strategy. The first self-treatment pilot focussed on cane farmers in the Gold Coast region—supporting these primary producers treating their own properties began in June 2020. The success of this project will help inform further projects planned for 2020-21.

Budget

As of 30 June 2020, the program's expenditure was below the project year to date budget of $66.5 million by $5.5 million. This was due to some eradication treatment being hampered by bushfires, wet weather and the need to adapt activities responsive to COVID-19 requirements.

Our team

I would like to acknowledge the dedicated Steering Committee members, staff and the community who have chosen to join the fight against fire ants. I thank all for their continued hard work and vigilance, particularly during COVID-19 which brought new challenges for our staff in 2020 both professionally and personally.

Striving for excellence, adapting to the unpredictability of fire ant activity and trying new things is essential to the success of the program.

The task ahead cannot be achieved without you as we continue to work with the community to rid Australia of this invasive pest.

Wendy Craik AM
Steering Committee Chair
National Red Imported Fire Ant Eradication Program
South East Queensland

"Striving for excellence, adapting to the unpredictability of fire ant activity and trying new things is essential to the success of the program."

WENDY CRAIK AM, STEERING COMMITTEE CHAIR

The 10–year Eradication Plan

The National Red Imported Fire Ant Eradication Program began its 10-year Eradication Plan in July 2017, which is focused on finding, containing and eradicating fire ants in South East Queensland.

A 2016 independent review of the program drew a line in the sand—eradication was still possible if the program was given long-term funding and was able to build and implement a 10-year eradication plan.

Funding of $411.4 million over the 10 years was agreed by the National Agricultural Ministers' Forum (AGMIN) in July 2017.

That same year, for the first time in the history of the program:

- funding was allocated beyond a one to a three-year horizon to 10 years
- a long-term strategy was developed
- knowledgeable trained and skilled personnel were retained, along with their corporate knowledge; and
- the science underpinning the program was adequately funded.

The 10-year Eradication Plan incorporates the recommendations of the review:

- a significant boost in all eradication activities
- a progressive rolling strategy
- a risk-based eradication planning approach through scientific analysis and modelling of infestation spread
- quality assurance to closely monitor the implementation of eradication activities
- collaboration to promote shared responsibility between the program, industry and the wider community to achieve eradication.

In October 2019, the program's Steering Committee endorsed an addendum to the plan primarily to acknowledge the extension of the program's western operational boundary by 5 km which effectively doubled the eradication treatment needed to eliminate fire ants further west. Associated changes to treatment timelines and methods also required amendment. This did not change the end goal to conclude eradication treatment in South East Queensland within 10 years.

In December 2019, an external efficiency and effectiveness review of the program was completed in line with plan requirements. Review recommendations have been adopted during the 2019-20 year or are slated for the future.

Below: Containment activities include surveillance in high risk fire ant areas.

Fire ant management strategy

Running from 2017–27, the plan's underpinning strategy is made up of five phases and three checkpoints before Proof of Freedom from fire ants is declared (see Table 1 over page). The aim is to contain fire ant infestations (Phase 1) and reduce the size of the infestation in South East Queensland until fire ants are eradicated in a staged, rolling treatment program from west to east.

Eradication treatment (Phase 2) began in 2017–18 in the Lockyer Valley, Scenic Rim and parts of Ipswich, which make up Area 1 and the Western Boundary of the program's operational area (see Figure 2 on p10). Treatment surveillance checking the success of treatment began in late June 2020 and results may indicate these areas could soon progress to Phase 3 Clearance.

Phase 3 search and clear activities locate and destroy any residual ants in these former intensive eradication treatment areas. Intensive eradication treatment will then progress east into parts of greater Ipswich and western Logan (Area 2).

Treatment surveillance checking the success of treatment began in late June 2020 and results may indicate these areas could soon progress to Phase 3 Clearance.

Table 1: Overview of fire ant management strategy

PHASE	WHAT?	HOW LONG?
Phase 1: Containment	Establishing and containing fire ant infestation boundaries	Until area moves to Phase 2: Eradication in line with the program's 10-year Eradication Plan
Phase 2: Eradication (treatment)	Treatment of large, targeted eradication areas	Over 1-3 years depending on eradication treatment approach
Checkpoint 1: Evaluation of eradication treatment completion to check success of treatment		
Phase 3: Clearance	Search eradication areas and treat any residual fire ants	Minimum 2 years
Checkpoint 2: Check probability of freedom from fire ant infestation for each Clearance Zone		
Phase 4: Clearance Zone Freedom	Conduct further surveillance in Clearance Zones to be confident no fire ants remain	Until risk of ceasing surveillance is acceptably low (1-5 years)
Checkpoint 3: All Clearance Zones have individually reached a low risk level of fire ants		
Phase 5: (Area) Freedom	Respond to any detections reported with active surveillance discontinued	When there is overall probably that all of South East Queensland is free from fire ants (5+ years)
All clearance zones declared free = **Proof of Freedom declared of Queensland Infestation**		

Operational area

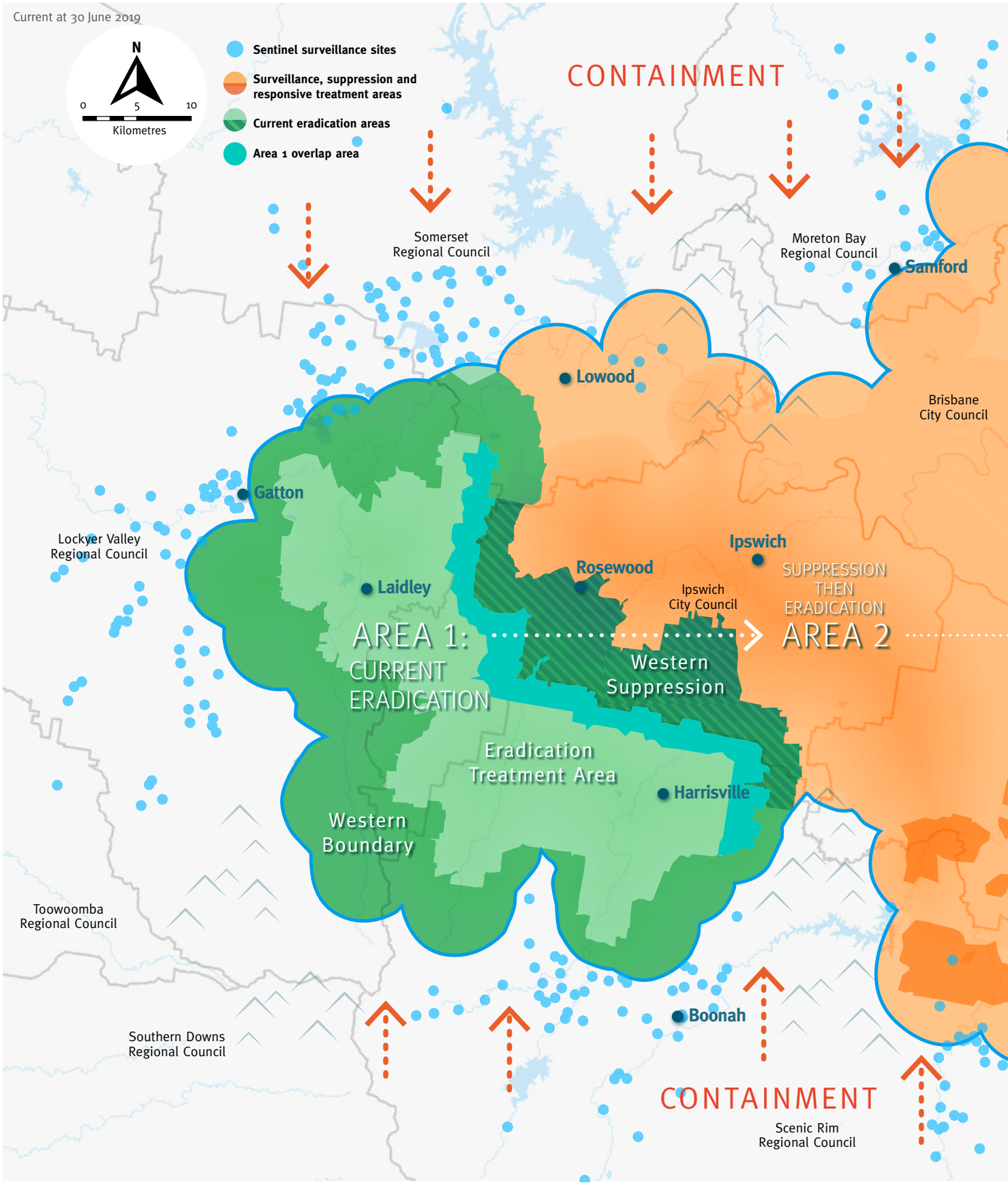
The total operational area of the program is 645 100 ha. It has been divided into four priority areas for focused eradication activity over successive stages of the plan. Staged treatment areas (beginning with Area 1) are overlapped to reduce the risk of areas being reinfested when eradication treatment moves to the next area.

This year, eradication treatment focused on Area 1 (87 590 ha) and its Western Boundary (77 710 ha) along with the 2 km Area 1 overlap (15 170 ha).

Planned containment treatment, designed to suppress or slow down infestation, was delivered in the Western Suppression area (26 620 ha) along with around 22 000 ha which had high-density fire ant infestation and infested waste facilities (1600 ha) found in Areas 2, 3 and 4. Figure 2 outlines the operational boundary and planned treatment and suppression areas.

Responsive treatment of all areas remained agile and responsive to community reports and changes in fire ant activity. This includes prioritising community reports aligned to their risk to public safety and new fire ant finds near or beyond the operational area boundary.

Figure 2: National Red Imported Fire Ant Eradication Program 10-year Eradication Plan Area Map 2019-20



This year, eradication treatment focused on Area 1 (87 590 ha) and its Western Boundary (77 710 ha) along with the 2 km Area 1 overlap (15 170 ha).

2020 Key insights

Fire ants are highly invasive and highly adaptive. In 2019–20 we continued to deliver against the 10-year Eradication Plan, responding directly to challenges and adapting to emergent issues informed by science-based research and technical expertise.

As always, our focus is on using eradication, suppression and containment to manage fire ants. Key insights into work done this year include:

Eradication treatment

Planned eradication treatment of Area 1 and the Western Boundary concluded this year, with treatment evaluation activities beginning in these areas in late June 2020.

342 832 hectares treated
as part of planned baiting of eradication areas[1]

95% of target
for 2019–20

Effectiveness of treatment

An evaluation of 90 nests in Area 1 set up to regularly monitor how well eradication treatment rounds kill fire ants concluded in February 2020. Results were promising, with no active nests found after four or five rounds of treatment in these monitoring sites.

Containment activities

FIRE ANT SURVEILLANCE
19 655 ha surveyed
as part of fire ant containment

9% increase
from 2018–19

COMMUNITY REPORTS
10 417 reports
of suspect fire ants with 5858 confirmed as fire ants

11% increase
from 2018–19

SUPPRESSION TREATMENT
96 913 ha treated
as part of planned baiting of suppression areas[1]

93% of target
for 2019–20

COMPLIANCE CHECKS
619 checks
of industries dealing with high-risk fire ant carrier materials

32% decrease
from 2018–19

SIGNIFICANT DETECTIONS
4 detections
of fire ants identified outside the program's operational boundary

50% decrease
from 2018–19

[1] Includes multiple rounds of treatment of the same areas.

Right: All-terrain vehicles are used to treat large areas and rough terrain.

Clearance

Surveillance to evaluate treatment effectiveness began in Area 1 and the Western Boundary in late June 2020 to check whether these areas were ready to move to the clearance phase. Surveillance will continue into the 2020-21 year.

SURVEILLANCE

600 ha surveyed

as part of fire ant treatment evaluation

Industry and community engagement

On 27 May 2020 the fire ant biosecurity zones were changed to:

- protect Area 1 and Western Boundary from reinfestation via human-assisted movement
- remove red tape on movement controls for fire ant carrier materials, and
- align the zones to the program's operational boundary.

The promotional campaign supporting the changes reached an estimated **2 million people**.

Analysis activities

11 036 suspect ant samples analysed

as part of community reports and fire ant population genetics monitoring

31% increase

from 2018–19

Polygyne vs monogyne

Nests with more than one queen (polygyne nests) increase the likelihood of a reproductive nest moving through human-assisted movement and increase genetic diversity within the population. Polygyne populations usually remain stable once established.

> Polygyne infestation is at its lowest in the history of fire ants in South East Queensland at around one per cent of the fire ant population—down from 1.2 per cent in 2017–18.

This population drop is due to targeted eradication by the program. The polygyne percentage in countries without targeted eradication is as high as 92 per cent.

Eradication treatment

In the 2019–20 financial year our focus has continued to be on eradication treatment, targeting one infested area at a time while containment activities in all operational areas protect area boundaries and minimise spread.

Planned treatment progress

In line with the program's 10-year Eradication Plan, Area 1 and the Western Boundary were the focus for fire ant eradication treatment in 2019–20, receiving a final round of broadcast bait.

The treatment season began on 16 September 2019 and concluded on 26 June 2020. Up to four rounds of broad-scale insect growth regulator (IGR) bait was applied to these areas, adding to multiple rounds of treatment made to these areas in the Lockyer Valley, Scenic Rim and parts of Ipswich in subsequent years (see Figure 2 on p10).

At the completion of the treatment season, 96 per cent of round 1 planned eradication treatment for 2019–20 was achieved; 97 per cent of round 2; 94 per cent of round 3 and 85 per cent of round 4 (see Table 2 below). An additional round of aerial treatment in the Western Boundary targeted areas which had received fewer rounds of treatment in previous years.

This was the last year of intensive eradication treatment planned for Area 1 and the Western Boundary. Since 2017, up to five rounds of IGR has been applied across the 165 296 ha of these areas. The program analysed areas of high-risk due to treatment gaps, proximity to infestation and risk of spread and will survey these areas in 2020–21 and complete targeted treatment. Depending on treatment evaluation findings, these areas will progress to the next phase of the 10-year Eradication Plan treatment strategy (see **clearance and freedom** on p26).

Eradication treatment is scheduled to move east to the next planned eradication treatment area (Area 2) in 2020–21.

With multiple rounds of treatment included, the program delivered planned eradication treatment across 342 832 ha out of the planned 361 482 ha in 2019–20, achieving 95 per cent of the planned treatment target.

Table 2: Planned treatment progress 2019–20

Round 1

HECTARES (ha)

Location	Planned	Actual	%
Area 1	87 589	85 892	98
Western Boundary	77 709	72 203	93
TOTAL	165 298	158 095	

Round 2

HECTARES (ha)

Location	Planned	Actual	%
Area 1	15 168	15 565	98
Western Boundary	77 709	74 132	95
TOTAL	92 877	89 697	

Round 3

HECTARES (ha)

Location	Planned	Actual	%
Western Boundary	77 709	73 199	94
TOTAL	77 709	73 199	

Round 4

HECTARES (ha)

Location	Planned	Actual	%
Western Boundary	25 598	21 841	85
TOTAL	25 598	21 841	

Note: Hectares treated on waste facilities in round 1 was higher than the planned hectares due to several facilities having entire properties treated as opposed to the smaller "operational" area that was planned for treatment.

What treatments are used?

Fire ant bait is made up of small pieces of corn grit (about 1–3 mm in size) soaked in soybean oil with an active ingredient. The bait is not harmful to humans, plants, pets or livestock.

Types used depends on the location of the nest:

- Fast acting bait—contains indoxacarb or a combination of hydramethylnon and pyriproxyfen, active ingredients commonly found in cockroach baits or flea collars
- IGR bait—**insect growth regulator (IGR)** (pictured) containing S-methoprene or pyriproxyfen, which are widely used in mosquito control programs or dog and cat flea collars.

Bait is distributed with a hand-held spreader, an all-terrain vehicle or helicopter depending on the size of the property. Maximum effect is achieved if baited ground remains undisturbed and is not watered, or rained on, for at least 24 hours.

Direct nest injection (DNI) involves flooding the fire ant nest and ant tunnels with a registered insecticide known as fipronil. Fipronil is effective at very low application rates and is often also used in termite control programs. After DNI, maximum effect is achieved if a one metre area around each mound remains undisturbed for at least seven days.

Below: Mitch Brimblecombe on his Forest Hill property.

Forest Hill farm free from fire ants

Forest Hill farmer Mitch Brimblecombe says his property is fire ant free thanks to the past two years of baiting by the program.

"I just look around my farm and it's fire ant free—there's no nests, we don't have any," Mitch said.

"We first noticed the fire ants present in our area about four or five years ago. It wasn't a huge dramatic influx of the pest instantly.

"We did start to see them in the laneways and irrigator tracks that don't get ploughed or tilled often and are quite moist sometimes.

"We had one employee who actually stood on a nest and that's how we found that one—and he had some blisters on his foot. After that, you just noticed one or two here and there.

"We haven't actually noticed any nests on our farm and we haven't heard of too many either since aerial baiting began two years ago.

"That obviously shows that it's working."

Challenges this season

Access to properties and the timing of agricultural cropping when bait cannot be spread contributed to the program not achieving 100 per cent treatment this season.

Additional challenges included lost time of 107 days during the treatment season, mainly due to delays in aerial baiting which then impacted ground treatment scheduling. Issues included:

- unsuitable weather conditions, such as wet weather and excessive wind speed
- mechanical breakdowns due to dust at helicopter landing sites causing aircraft maintenance to increase
- reduction in aircraft availability due to the need to respond to bushfires and local council requirements for spraying mosquitoes
- reduced efficiency due to aircraft needing to divert from Wacol to Archerfield Airport because kangaroos were encroaching on the landing area.

Solutions included:

- purchasing mobile helicopter landing pads to mitigate dust and allow the program to utilise remote landing sites
- fencing the Wacol landing area to prevent kangaroos from entering the site
- deploying a minimum of four helicopters seven days a week to get treatment back on schedule.

The improvements resulted in a tripling of the rate of aerial treatment from 24 000 hectares in February to approximately 78 000 hectares in March.

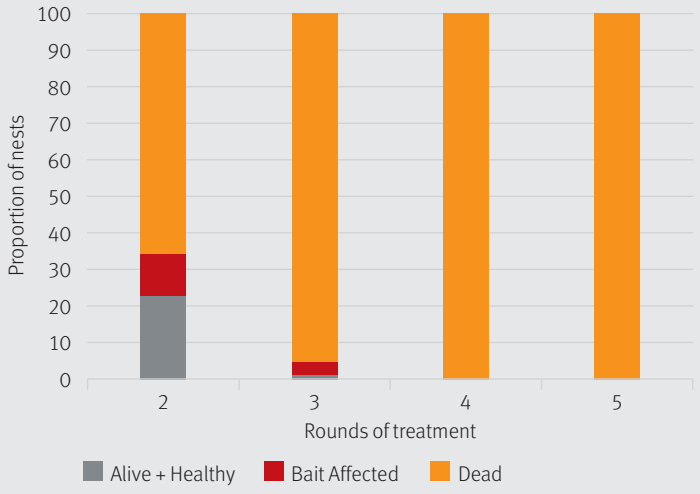
The program's response to comply with a health directive for COVID-19 also presented challenges resulting in changes to work routines and additional resourcing (see **our people** on p44).

Eradication treatment effectiveness

An evaluation of 90 nests in Area 1 set up to regularly monitor how well eradication treatment rounds kill fire ants concluded in February 2020. Results were promising, with no active nests found after four or five rounds of treatment in these monitoring sites (see Figure 3 right).

The next evaluation of Area 1 and the Western Boundary treatment will be made at the end of the eradication treatment season. This will form part of the surveillance activities used to determine whether these areas can move to the next phase of the fire ant management strategy i.e. Phase 3 Clearance.

Figure 3: Treatment verification Area 1 – 2018—2020



Below: Solutions to treatment delays included the purchase of mobile helicopter landing pads.

Containing the spread

Fire ants are spread in one of four ways—over-ground, by flight, rafting on water and human-assisted movement. The program has succeeded in keeping this pest contained to part of South East Queensland but this requires constant vigilance. Tactics include planned suppression treatment, strict monitoring of operational boundaries, stamping out detections of importance and working alongside the community to manage fire ant movement.

Fire ant surveillance

The program's surveillance season runs from June to September. During this time in the 2019 calendar year, 19 655 ha were surveyed. This included 3 064 ha of sentinel surveillance to detect potential fire ant spread near the operational boundary.

General surveillance found no detections in the 2019–20 surveillance season, however sentinel site surveillance found one significant detection of fire ants in Mount Tarampa in 2020 (see **detections of importance** on p20).

Responsive surveillance activities for boundary detections, detections outside the boundary (significant detections), and high risk detections identified continued through the 2019–20 year. Delineation surveillance was conducted around any new detection to determine the extent of the infestation. The responsive work for these detections will continue throughout the surveillance season.

Clearance (search and destroy) surveillance took place for the first time in late June 2020 (see **clearance and freedom** on p26).

Above: A program fire ant odour detection dog in action.

Above: DNI treatment used for responsive treatment.

Surveillance activities were critical to containing the spread of this pest with over 19 600 ha surveyed in 2019–20.

Responsive treatment

The community continues to be a vital information source for the program by identifying possible fire ants in their backyards and neighbourhoods. This year there were 10 288 suspect fire ant reports from the community with more than half (5858) confirmed positive.

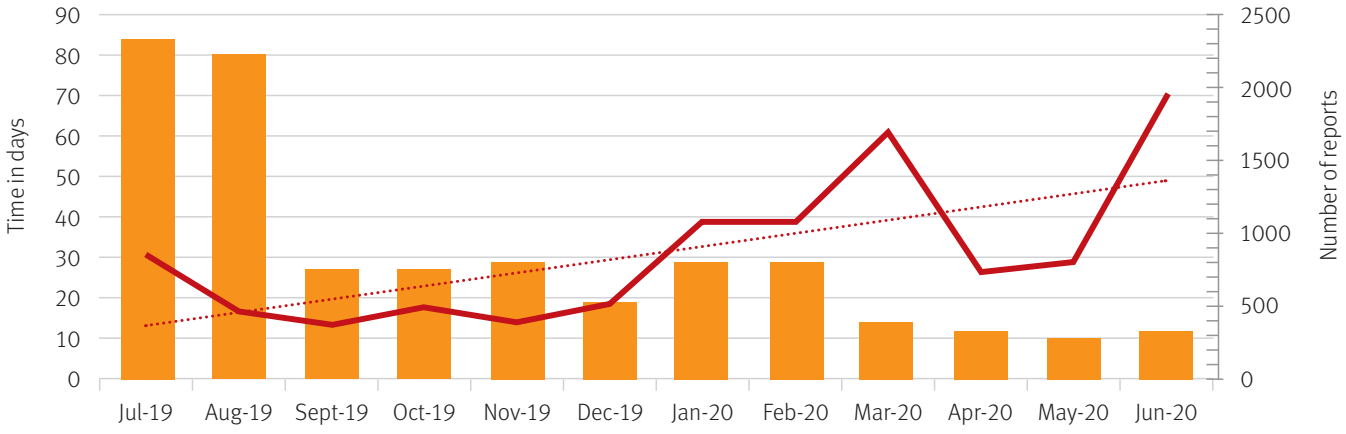
Responsive treatment is prioritised according to level of risk. Detections presenting a high risk to public safety (such as those in schools, parks and sporting grounds) are given the highest priority along with fire ant finds outside or near the program's operational boundary (see **detections of importance** on p20).

The program's new treatment regime implemented in September 2019 improved response rates to community reports and reduced the treatment backlog of direct nest injections to treat properties. Fast-acting bait (direct nest injection of fipronil pesticide or DNI) is now applied on the first visit to a property if the field operators consider the infestation likely to be fire ants. Previously the operators waited for confirmation from the laboratory testing of suspect ants before treating. As a result, the program's response timeframes have improved significantly going from a response rate of 120 days at peak times down to around eight days.

There was a significant spike in community reports in 2020 with the highest number of reports in June. This is likely due to cooler temperatures making nests more visible and the success of the program's promotional campaigns supporting surveillance and the upcoming treatment season.

Residents and landowners were asked to check their properties, report suspect ant activity and consider options to treat their properties while awaiting planned eradication treatment in their area.

Figure 4: Public reports and maximum days to DNI treatment from July 2019–June 2020



	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Max. Days to DNI	84	80	27	27	29	19	29	29	14	12	10	12
Total reports	854	475	371	491	390	528	1077	1071	1693	726	796	1945

Linear (Total reports)

Responsive treatment effectiveness

During the 2019–20 year, DNI treatment efficacy was evaluated by assessing the standard DNI treatment of nests by the program.

Firstly, it was confirmed that a nest had live fire ants, ant samples were collected and the treatment activity completed. Treated nests were then visited 12 weeks after treatment to determine if any fire ants were still present. If ants were still present, samples were taken and genetics tested to ensure it was the nest that had been treated previously.

Of the 173 nests evaluated on 36 sites, no ants from the original nests remained, indicating 100 per cent mortality by the DNI operating procedures (see Table 3 below).

If ants are still present, data is collected to determine if there is a link between any ineffective DNI and particular site variables, such as compacted soil, under cement or various weather conditions. However, this analysis was unnecessary as no treatments were ineffective.

Table 3: Results of surveillance to determine the effectiveness of DNI treatment 2019–2020

Sites assessed	Nests assessed	Nests alive after DNI	Efficacy of DNI
36	173	1*	100%

*The single nest alive during assessments was confirmed to be of different genetics to the initial treated nest, indicating reinfestation at this location and not persistence of the treated nest.

Detections of importance

When fire ants are found outside the program's operational boundary, they are considered **significant detections** and immediate action is taken to destroy nests to reduce the risk of fire ants establishing and spreading.

Genetic testing of all these significant detections confirmed they were not new fire ant incursions into Australia, but related to the existing South East Queensland infestation.

Similar action is taken when a new detection is found up to 5 km inside the operational boundary (**boundary detections**) to contain fire ants within the program's operational area.

In 2019–20 there were four significant detections and 58 boundary detections (see Table 4 below).

High-risk detections are also considered detections of importance. These detections pose a heightened risk to the program's eradication and clearance efforts and immediate action is taken to prevent re-establishment and further spread of fire ants into areas that have already received eradication treatment. There were 17 of these found during 2019–20 (see Table 4 below). These detections are evaluated as part of risk mapping under the *Clearance and Proof of Freedom Strategy*.

Table 4: Fire ant detections of importance 2019–20

Detection	No.	Locations
Significant	4	Gleneagle (1), Mount Nathan (1), Witheren (1), Mount Tarampa (1)
Boundary	58	Allenview (1), Anthony (1)—also a clearance detection, Arundel (8), Beaudesert (3), Boyland (2), Brookfield (1), Clagiraba (1), Crowley Vale (1)—also a clearance detection, Gleneagle (1), Guanaba (3), Helensvale (1), Josephville (2), Kagaru (10), Karalee (2), Lowood (2), Marburg (1), Maudsland (3), Moorang (1)—also a clearance detection, Mt Nathan (1), Mulgowie (1)—also a clearance detection, Pacific Pines (1), Pinkenba (1), Tamborine Mountain (7), Upper Kedron (1), Veresdale (1), Wongawallan (1)
High risk	17	Peak Crossing (3), Rosevale (6), Harrisville (2), Summerholm (1), Mulgowie (1), Moorang (1), Minden (1), Crowley Vale (1), Anthony (1)

Suppression treatment

Suppression treatment is used to help contain the spread of fire ants in some hot spot areas that have not yet undergone eradication activity. This may be in the form of planned suppression (rounds of IGR bait treatments) or responsive treatment. Areas 2–4 received planned suppression treatment in areas showing high density fire ant infestation.

At the completion of the treatment season, 95 per cent of round 1 planned suppression treatment was achieved, 91 per cent of round 2, and 84 percent of round 3. The ability to complete planned suppression treatment was impacted by the prioritisation of the eradication treatment in Area 1 and the Western Boundary.

Responsive treatment was completed in response to reports of fire ants from the public and fire ant detections of importance (see **responsive treatment** on p19 and **detections of importance** p20).

With multiple rounds of treatment included, the program delivered planned suppression baiting across 96 913 ha out of the planned 104 269 ha in 2019–20 achieving 93 per cent of the planned treatment target.

Table 5: Planned suppression treatment progress 2019–20

Round 1

HECTARES (ha)

Location	Planned	Actual	%
Western Suppression	26 622	26 073	98
Areas 2–4 (high density)	22 265	20 084	90
Waste facilities	1600	2030	127
TOTAL	50 487	48 187	

Round 2

HECTARES (ha)

Location	Planned	Actual	%
Western Suppression	26 622	25 237	98
Areas 2–4 (high density)	23 210	20 118	87
Waste facilities	1600	1399	87
TOTAL	51 432	46 754	

Round 3

HECTARES (ha)

Location	Planned	Actual	%
Areas 2–4 (high density)	2350	1972	84
TOTAL	2350	1972	84

Note: Hectares treated at waste facilities in Round 1 were higher than the planned hectares due to several facilities having entire properties treated as opposed to the smaller "operational" area that was planned for treatment.

Preventing human-assisted movement

A crucial part of containing fire ant infestations and preventing reinfestation is reducing the risk of the human-assisted movement of fire ants through high-risk fire ant carrier materials. These include soil, mulch, manure, baled hay or straw, potted plants, turf and quarry products.

Fire ants are considered a category 1 restricted matter under the *Biosecurity Act 2014* (Qld) with high risk carrier movement regulated under the Act. Fire ant biosecurity zones set up under the Act provide the foundation for controlling the movement of high risk materials within and across these zones.

Fire ant biosecurity zone realignment

On 27 May 2020 changes to the fire ant biosecurity zones and supporting amendments to the Biosecurity Regulation 2016 came into effect.

These changes restructured the fire ant biosecurity zones to provide additional protection to areas which had already received eradication treatment from the program to better align the zones with the program's operational boundary. Rather than three fire ant biosecurity zones there are now only two, making it fewer zones to be aware of and easier for industry and other members of the public who move soil, potted plants, hay, mulch and other materials to do the right thing in the fight against fire ants. Some suburbs are included in the biosecurity zones for the first time (see Appendix A – for a list of suburbs and zone areas).

In addition to supporting zone changes, amendments to the Biosecurity Regulation 2016 also reduced some of the administrative burden involved in transporting material which may contain fire ants.

As soil is recognised as a frequently used, high-risk material, a new guideline on risk mitigation strategies for individuals and businesses who move quantities of soil was released. This further supports voluntary compliance across the program's operational area and makes it easier for tradespeople to understand how to reduce the risk of spread.

The communication of these activities was rolled out by the program from 13 May 2020 and communication and engagement activities continue with relevant industries (see **education and awareness** on p30).

The feedback received on the biosecurity changes was predominantly positive, particularly in relation to the communication package and follow-up engagement. Concerns raised by stakeholders mostly related to insufficient notice to adapt business processes before changes came into effect.

Left: Hay is one of the potential fire carrier products subject to storage, treatment and movement requirements under the Biosecurity Act 2014 (Qld).

A crucial part of containing fire ant infestations and preventing reinfestation is reducing the risk of the human-assisted movement of fire ants through high-risk fire ant carrier materials.

Reducing risk through compliance

The *Biosecurity Act 2014* (Qld) outlines compliance requirements for the management of fire ant carrier materials including the storage, treatment and movement within and across fire ant biosecurity zones. Due to the high number of businesses and individuals moving carriers in, between and outside the biosecurity zones, compliance activities are prioritised based on risk, resulting in different industries being targeted each quarter based on a range of risk factors.

In 2019–20 the targeted industries included landscaping supply yards, pool builders, earthmovers, government utilities, builders and landscapers. Priority was also given to high-risk locations where significant urban development is taking place. This included the northern Gold Coast and Logan, north of the biosecurity zones to Brendale and southwest to Bromelton and Beaudesert.

Where checks occurred in suburbs outside the biosecurity zones, the focus was on making industries aware of their general biosecurity obligation. In particular, smaller businesses and individuals who frequently move and receive carriers such as soil and may not have had previous contact with the program were targeted.

In total, 619 compliance checks of high-risk industries were made by the program in 2019–20 with 56 non-compliant.

Due to COVID-19 and social distancing requirements, some planned compliance activities in 2020 were scaled back with a greater focus placed on responding to reported instances of non-compliance and monitoring activities that had a high risk of infestation.

Above: The program and industries work together to help prevent the human-assisted spread of fire ants.

As part of a Biosecurity Queensland initiative, penalty infringement notices (PINs) were issued by the program for the first time this year. They also enable the program to quickly respond to breaches of the movement controls and have a strong deterrence value. The use of the PINs aligns with the recommendation of the *National Imported Fire Ant Eradication Program Efficiency and Effectiveness Review 2019* to make effective use of penalty infringement notices and, where appropriate, prosecution provisions, to improve compliance with movement controls. In total, nine PINs were issued over this financial year. These were mainly in response to unlawful movements of mulch and soil. One was issued when a landscaping supplier failed to comply with a biosecurity order.

A total of 23 biosecurity orders were issued, mainly due to non-compliance of a minor or administrative nature. Several were issued where a person had failed to apply for a permit, had failed to meet hay regulatory requirements, or to ensure remedial actions were taken to address low risk carrier movements. Other actions to address minor non-compliance included the issuing of advice notices, permits or revisions to permits.

The industry which had the most substantial non-compliance was landscaping supply yards, with 10 (or 22 per cent) of 45 non-compliant. However, most non-compliance stemmed from a failure to meet administrative requirements as opposed to a failure to implement relevant risk mitigation.

Although it is encouraging industries such as earthmovers and builders had high levels of compliance, these assessments were a 'snapshot in time' and wider evidence-based assessments are planned for the next financial year.

Population genetics monitoring

The genetics of the fire ant population are key indicators as to whether the program's eradication and containment activities are working. A reduction in genetic diversity puts a strain on the survival of fire ants and reduced diversity and fragmentation of populations indicates the program's efforts are effective. In contrast, increases in genetic diversity suggest changes in eradication tactics may be needed.

The program monitors:

- whether fire ants found are part of an existing infestation source or a new one
- whether the populations are showing genetic bottlenecks, which tells us about the 'health' of the infestation.
- what social form (polygyne vs monogyne) a particular nest takes, which guides what fire ant treatment is required, and
- how nests may relate to each other and other spread patterns.

Table 6 identifies the number of ant samples analysed and the proportion of polygyne sites for each quarter of 2019–20. As of 30 June 2020, only nine per cent of samples collected between April and June were analysed for social form (polygyny or monogyny). Of this nine per cent, 1.11 per cent were polygyne. A backlog of 1011 samples were still to be analysed as at 30 June due to the difficulty in sourcing required consumables during COVID-19.

Table 6: Ant samples analysed and percentage of polygyne samples 2019–20

Quarter	No. suspect ant samples analysed	Proportion polygyne sites
1	3268	1.11%
2	2966	0.57%*
3	2151	0.90%*
4	2651**	1.11%***

*Due to delays in sample analysis at time of previous reporting, Quarter 2 and Quarter 3 polygyne proportions are slightly different from the previous quarter reports.** The majority of the tests undertaken in Quarter 4 were from samples collected in previous quarters due to delays in testing. *** Only 9% of samples for Quarter 4 were analysed for social form. Some samples may receive more than one test.

Polygyne vs monogyne

Identifying polygyne (multiple queen) nests is important due to the increased likelihood of a reproductive nest being moved through human-assisted movement and the ability to increase genetic diversity within the population.

Polygyne infestation is at its lowest in the history of fire ants in South East Queensland at around one per cent, likely due to eradication activities by the program.

This is much lower than overseas incursions (e.g. United States of America at 15–54%, Taiwan at 24–92%), where there is no coordinated eradication, but only management (at best) at a local scale.

Genetic diversity

While genetic diversity is generally very low in the entire infestation, clusters in the centre and eastern parts of the program's operational area, where eradication treatment is yet to occur, show signs of a slight increase in fitness. Further increases in the genetic fitness in these areas could pose complications for eradication efforts in future years.

Above: Fire ants can fly up to 5 km.

Clearance and freedom

Clearance 'search and clear' activities are set to begin for the first time in Area 1 and the Western Boundary as the next stage of fire ant eradication.

In late June 2020, after three years of intensive treatment, surveillance to assess the effectiveness of eradication (clearance surveillance) began in Area 1 and the Western Boundary with almost 600 ha surveyed. As at 30 June 2020, there was one detection of fire ants at Peak Crossing. This was treated immediately as a high-risk detection (see **detections of importance** p20). Surveillance will continue into 2020–21.

Depending on the extent of the remaining infestation, these areas will move to the next phase of eradication (Phase 3 Clearance). This phase uses a 'risk map' to locate and clear remaining ants from the areas.

Risk evaluation and mapping

Clearance surveillance activities are prioritised based on a 'risk map' which was developed from biological and operational criteria. Specifically, the map combines a spatial and mathematical model to determine which areas within the Area 1 and Western Boundary eradication areas have the highest probability of infestation.

The first model calculates the risk of infestation in any/all particular locations, by combining data from known infestation, distance to known infestation and data from negative public samples.

The second model calculates the effectiveness of treatment at any particular location using treatment history data. This includes the number of rounds of treatment, intervals between treatment and season of treatment in relation to fire ant biology.

The first version of the risk map was completed in February 2020 and updated in May. From this, a further surveillance priority map was developed for use to prioritise winter 2020 surveillance activities and inform clearance surveillance into the next financial year (see the surveillance priority map at Figure 5 on p27).

It was expected remnant ants would be detected despite the broadscale eradication treatment in Area 1 and Western Boundary. This was due to the time between rounds of treatment in some areas and property access issues. The delay between the previous treatment plan and the start of current 10-year Eradication Plan activities in 2017 also left a legacy of fire ant infestation due to no or little treatment during that time.

Fire ants are also very adept at dispersing i.e. they can fly up to 5 km, raft on water and be transported to eradication areas via human-assisted movement of high risk fire ant carrier products (e.g. soil, hay and mulch). This is why clearance strategies include multiple phases and checkpoints.

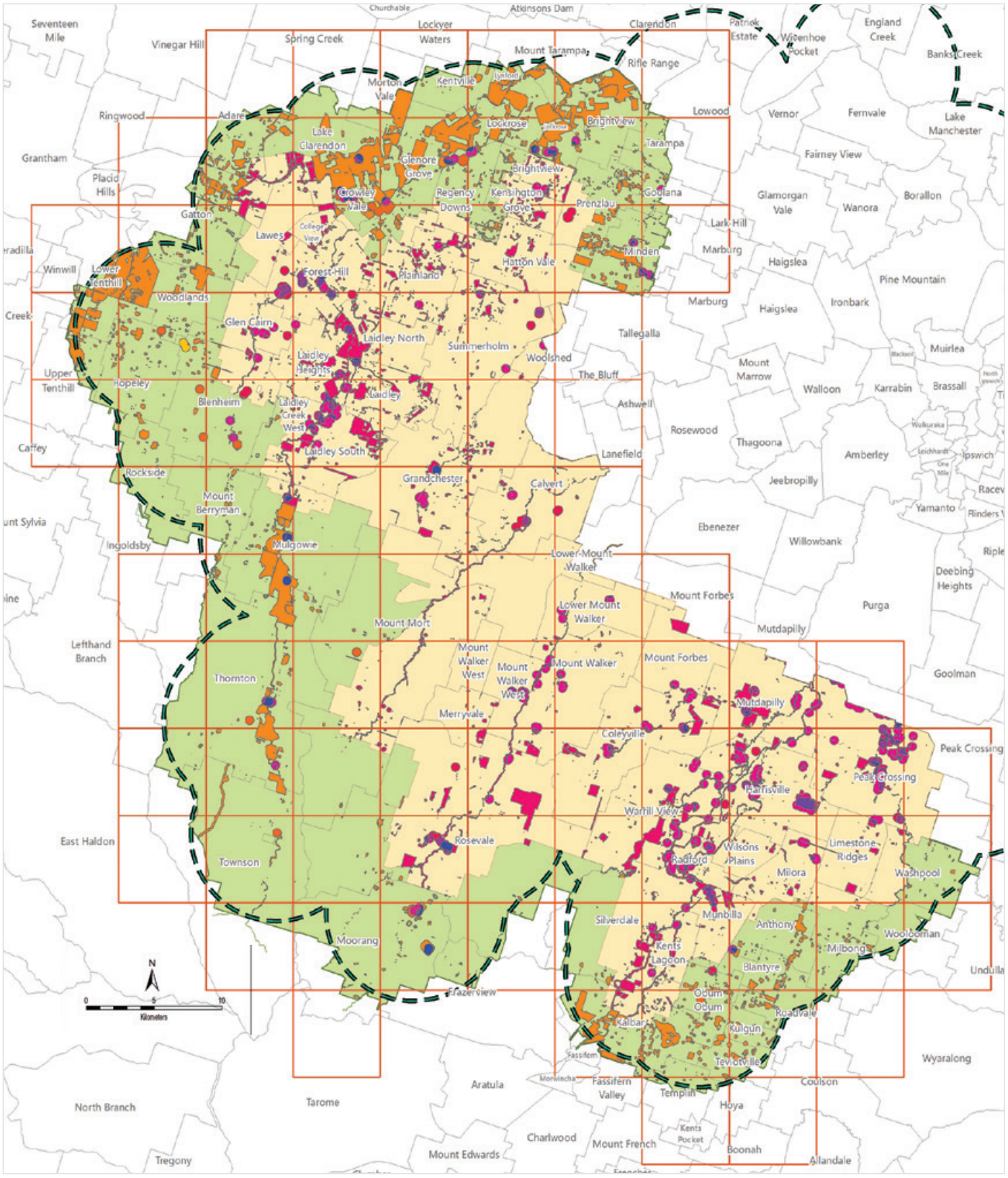
Working towards freedom

Phase 4 (Clearance Zone Freedom) begins when nominated clearance zones are considered close to being free from fire ants. The fifth and final phase of planned eradication (Freedom) is when clearance zones are considered free of fire ant activity.

A *Clearance and Proof of Freedom Strategy* outlining these phases was provided to the program's Steering Committee in June 2020. Activities to maintain proof of freedom retention past the 10 year life of the program were not included in the budget of the program's 10-year eradication plan.

Below: Surveillance in Area 1.

Figure 5: Clearance surveillance priority map



LEGEND

- Clearance zones (2500ha)
- Area 1 Treatment area
- Western boundary
- Operational Boundary
- Suburbs

Surveillance selection guide

Priority

1 2 3 4 5 6 7 8 9 10 11 12 13

Our shared responsibility

Eradication success requires a whole-of-community response to locate and treat areas of infestation, prevent reinfestation and ensure the management of fire ants is achieved with the least disruption to our way of life.

Partnering to protect

Under Queensland law (*Biosecurity Act 2014*) all Queenslanders are legally required to report suspected sightings of fire ants within 24 hours of their discovery or face penalties. Residents and visitors to the state also have a general biosecurity obligation to take action likely to minimise the biosecurity risk posed by fire ants. Specific activity requirements in fire ant biosecurity zones in South East Queensland also aim to help prevent the spread of fire ants.

Independent research in 2018 showed 60 percent of people surveyed believed responsibility of biosecurity is shared. They felt government (the program) had a strong role to play, but they too played an important role. However, one in three said they were unsure what they could do to help with Queensland biosecurity measures and were open to education on their role.[1] This year, the program spearheaded communication and engagement activities to not only educate but empower the community to participate in the fire ant fight. (See **self-management** initiative below and **education and awareness** on p30).

This work is supported by the *National Red Imported Fire Ant Eradication Program Efficiency and Effectiveness Review 2019* which recommended awareness strategies target community understanding of their general biosecurity obligations to fire ant management.

Self-management initiative

Encouraging governments, industry, landowners and residents to report, treat and contain fire ants (pending planned eradication treatment) is an essential part of the 10-year Eradication Plan and a priority of the program's self-management initiative.

The focus of the program along with its resourcing is primarily on eradication treatment as defined in this plan. For this reason, the suppression and control of fire ants in areas not currently undergoing eradication treatment will need to be managed by public and private landholders.

These stakeholders are in a unique position to fight fire ants in a way the program cannot—they can act as the first line of defence by proactively treating properties under their control as they do for any other pest. This could include purchasing bait and treating the ants themselves or hiring a pest manager.

This treatment will not replace the program's rolling eradication treatment. Instead, it is complementary to it, aiding in the suppression and containment of fire ants until the program's eradication treatment can be applied.

A self-management project board was established to oversee the self-management initiative, first meeting on 10 September 2019. This pilot targets primary producers and began in June 2020 with cane farmers in the Coomera, Gold Coast region participating (see **working with industry and primary producers** on p29).

A number of other pilot projects are planned for 2020–21 along with promotional campaigns encouraging landowners to treat fire ants throughout operational areas that are not yet undertaking planned eradication treatment.

A research project was completed to determine community attitudes towards biosecurity, fire ants and their treatment, particularly in relation to residents purchasing and applying bait on their property. This research was used to inform engagement and communications strategies about community treatment of fire ants.

Qualitative research was conducted to further explore attitudes and perceptions of residents in the three potential pilot suburbs of Oxley, Yarrabilba and Ripley. Yarrabilba was selected to host a small-scale pilot to test the validity of community driven fire ant treatment. This will take place in 2021.

The research project was expanded in April 2020 to gauge the Gold Coast community's attitudes towards the fire ant program and treatment options. This research will inform the northern Gold Coast Community Self-Management Pilot. Engagement which will begin in early 2021, with treatment planned for May 2021.

[1] Kantar Public (2018), National Fire Ant Eradication Program Market Segmentation, Sydney.

Bait supply

The issue of bait is a critical one if the community treatment of fire ants is to succeed. Discussions were held with chemical suppliers about bait availability, size and cost and the need for a broader offering of products.

The program continues to work with chemical companies to strengthen the bait supply chain. Three chemical companies are trialling products in collaboration with the program. One is working with the Australian Pesticides and Veterinary Medicines Authority (APVMA) to have different packaging approved to make their products more attractive for the domestic market.

Above: First self-management trial was with cane farmers.

Working with industry and primary producers

The second industry Steering Committee Stakeholder Forum was held in August 2019 for stakeholders to have their say on future treatment of fire ants by landowners. More than 25 representatives from peak bodies, local government and a range of industries met to discuss.

A second Industry Collaboration Forum was run with building and development industry stakeholders who called for more cost-effective risk mitigation options for soil which is identified as one of the highest risk fire ant carriers. Clarification on the general biosecurity obligation (GBO) was also requested.

The program met with turf industry representatives for the fifth time in August 2019 to discuss the alternative treatment option–bifenthrin–to replace chlorpyrifos. Based on industry feedback, the program is negotiating with APVMA on changes in the application of this chemical. The program also continued engagement with the nursery industry to negotiate practical solutions to potential fire ant carrier movement controls for this industry.

Engagement with local government included updating them on the successes of the eradication efforts in the west of the program's operational area and reinforced the 10-year Eradication Plan. Presentations focused on introducing pest management training and clarifying the important role local government plays in treating fire ants on public land to help prevent human-assisted spread. This is particularly important in urban renewal and new areas of development where turned over soil and the movement of construction products creates the ideal habitat for fire ants. Transportation of material to other areas in fire ant biosecurity zones is also an issue.

Pest manager and industry training

Training of pest management technicians (PMTs) and other industry stakeholders on fire ant awareness and best practice fire ant eradication continued this year with 347 taking part in the program's training. Pest management technicians submitted 378 reports to the program of fire ant treatment they had undertaken.

These outcomes were achieved despite the need to move from a face-to-face training model to purpose-built online training in response to COVID-19 social distancing restrictions.

Primary producers

The first pilot for treatment of fire ants by primary producers began in June 2020. The canegrowers pilot involves 18 cane farmers in the Coomera, Gold Coast region using bait supplied by the program to treat their 39 properties.

Pre-treatment surveillance was carried out by the program to collect baseline data on the fire ant infestation on these farms. Post-treatment surveillance will occur in late 2020 once the baiting has ended which will help determine the success of the pilot.

If successful, this project will stand as an example of the viability of landowner treatment on cropping properties. It will also help shape internal processes and systems which support the self-management initiative.

Restrictions on treating areas with crops (human food supply) can create gaps in eradication treatment with some areas potentially receiving less or no bait despite being part of planned treatment. Offering primary producers an alternative where they can undertake fire ant baiting around their produce themselves provides a solution. The program is exploring ways to ensure alignment with its treatment schedule to maximise efficacy.

An engagement strategy is in development to provide primary producers with the option to treat their properties within the program's treatment Area 2 as the program prepares to begin planned eradication
in this area.

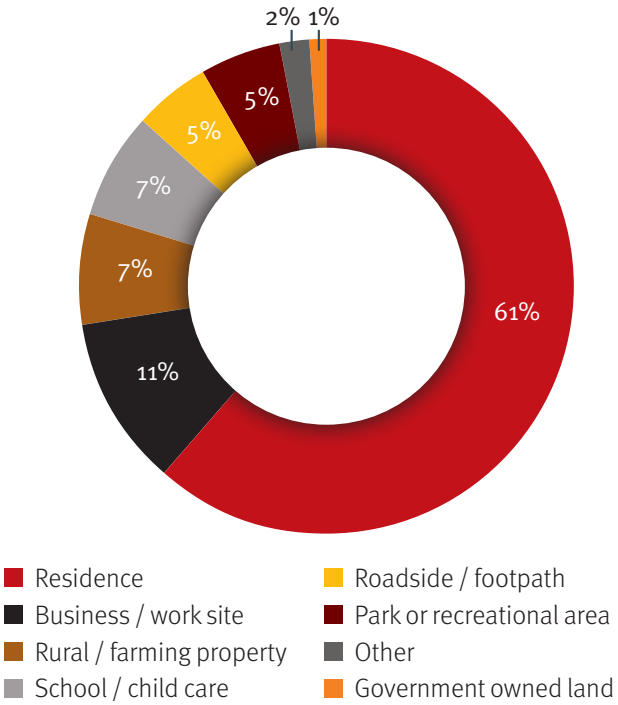
In your backyard

Under the *Biosecurity Act 2014* (Qld) anyone who suspects they have found fire ants must report this within 24 hours, regardless of whether they decide to treat the ants themselves or ask the program to treat their property.

Reports from those who find suspected fire ants continued to provide the program with important information to inform treatment priorities and awareness campaigns. This included help with identifying potential fire ant hot spots as well as where targeted awareness campaigns were needed.

In 2019–20, 10 417 community reports were received about suspected fire ants. Most (61 per cent) reported they found the fire ants at their residence.

Figure 6: Community reports: where suspect ants were found



Community surveillance campaign

Early in the financial year, a community surveillance campaign was conducted in the first eradication area (Area 1 and Western Boundary) to help provide evidence of the absence or presence of fire ants within treated areas and test community commitment to checking their properties. The campaign had two parts: a broad community engagement campaign and a targeted engagement campaign.

While the response to requests to report was limited, Facebook engagement supporting the campaign was high compared to industry standard.

A detailed communications and engagement strategy was presented to the Steering Committee this year. It aims to mobilise the community and industry across the program's operational area focusing on:

- creating greater awareness about fire ants
- fostering community support
- encouraging participation in program-led activities.

Topic areas include eradication and self-treatment as well as the implementation of the new biosecurity zones and amended biosecurity legislation.

Education and awareness

While community events and training were impacted by restrictions on public gatherings due to COVID-19, this has not stopped the program undertaking critical education and awareness activities across the South East Queensland community.

Highlights included a major campaign to support the roll out of the new fire ant biosecurity zones and associated movement controls. Activities to support program treatment and surveillance, mobilising stakeholders on detections of importance and attendance at events where staff engaged with more than 23,000 people also continued. This included our flagship display at Brisbane's Royal Queensland Show (Ekka) in August 2019.

The aim was to:

- increase **awareness** in the community to the presence and risks of fire ants
- generate **behavioural change** to foster community support for the program-led activities
- empower communities to **participate** in and promote fire ant containment activities themselves.

Key messages focused on working together to contain the spread of fire ants, pending eradication treatment under the 10-year Eradication Plan.

Stakeholders, including industry, landholders and residents, were asked to:

- **report** fire ants found within and outside the fire ant biosecurity zones
- **suppress** fire ants ahead of eradication by treating them pending planned eradication by the program
- **stop human-assisted movement** of fire ants by having an awareness of fire ant biosecurity zones and following high-risk fire ant carrier management requirements.

Above: Fire ants are copper-brown in colour and tiny, at anywhere between 2–6 mm in length.

Where to look for fire ants

Residential

- Lawns
- Footpaths and driveways
- Garden beds
- Around taps, sprinklers and other water sources
- Utility pits

Above: Fire ant nests appear as mounds of loose soil and have no obvious entry or exit points. They are most commonly found in warm, open places.

Rural

- Dams and irrigation lines
- Edges of cultivate land
- Cropland post-harvest
- Fence lines
- Piles of organic matter

Right: Fire ants like to build their nests when soil is damp and easy to move, such as new development sites.

Biosecurity regulation and zone changes

An integrated communications and engagement campaign informed high-risk fire ant carrier industries and key stakeholders of changes to the Biosecurity Regulation 2016 and fire ant biosecurity zones which took effect in May 2020.

While a major communications campaign had been planned it was reshaped to a minor social media campaign due to COVID-19 impacting industry, potential media buy and other engagement activities.

To maximise the social media campaign's success a series of pre-launch and launch materials were developed. This included a boosted post and a series of nine video ads that guided users depending on their responses (see Table 7 below).

Public notices were placed, and direct marketing targeted nearly 5000 known contacts in high-risk industries.

Central to the campaign was the online engagement platform (eHub) which provided an interactive one-stop-shop for all information about changes to the fire ant biosecurity zones and requirements.

Businesses and industry representatives viewed the eHub content almost 10 000 times by the end of June.

An estimated 6500 documents were also downloaded from the site including the new fire ant biosecurity zone map, suburb list and Managing Soil fact sheet.

Changes to the website were also made providing additional tools to assist industry. This included a compliance advice tool which aims to make clear the risk mitigation measures required for movement of specific fire ant carriers. An interactive map was also developed to aid in identifying suburbs within the new fire ant biosecurity zones.

Sixty-five organisations (including peak bodies) were contacted by the program, to confirm receipt of emails and offer additional information and further clarification. Content was provided for 29 industry publications including Master Builders, Housing Industry Association, Growcom and Turf Australia.

Other engagement included direct or online discussion with government departments and local councils impacted by the changes. The program continues to work with industries in support of these changes

Above: Campaign image supporting the new biosecurity zone roll-out.

Table 7: Summary of social media engagement about changes to the fire ant biosecurity zones

Campaign	People reached	Impressions*	Engagement	Video plays (3 secs or more)
Biosecurity zone and requirement changes boosted post	112 306	172 489	6 504	86 152
Biosecurity zone and requirement changes launch	413 440	2 158 390	8 555	875 597

*where the item is on the users' webpage.

Connecting with kids

The program's 'Aka the fire ant tracker' school program concluded at the end of 2019 when former fire ant detection odour dog Flip retired after years of valuable service (see the related story below). The program's success meant 1963 school students took part in 2019–20.

A new educational activity about fire ants specifically for children is in development.

Eight-year-old welcomes new fur-ever friend

Eight-year-old Isla is pleased as punch to welcome another eight-year-old into her home— her new fur-ever friend, Flip.

Flip is now part of Isla Bell's family. The family live on acreage property, perfect for furry frolics, mud rolls, sniffing through garden beds and giving and receiving lots of love. We asked Isla what she thought about the new arrival.

"The best things about Flip are that he can do amazing tricks, he's super fluffy and he's allowed to sleep on my bed!" she said.

Isla's dad Bob said he was overjoyed to welcome Flip into his family home.

"I feel honoured to be providing what is hopefully a wonderful retirement for one of the program's most dedicated workers," he said.

"He's really enjoying his big yard, and playing ball with the family, especially with Isla. That said, he still spends plenty of time relaxing in the office air-con and on cold nights, by the fire."

Research and innovation

The program is recognised as a world leader in the eradication of fire ants. It does this through the continual refinement and improvement of treatment, surveillance and diagnostic techniques informed by scientists, systems intelligence and national and international research partners.

Science is the foundation of the program. Our science team not only provides diagnostic services but undertakes research and evaluations on current and new treatment and surveillance methodologies, shares vital research and works with others to develop new technologies that ensure activities are best practice.

Trialling new treatments and methods

Silica treatment trial

The final report for the collaboration with Davren Global Pty Ltd was received on their research using synthetic amorphous silica (SAS) to kill fire ants.

This product is used successfully in agriculture to prevent insect damage to seed in grain silos. Research on its effectiveness for fire ants was conducted with a funding grant from the Australian Government's Department of Agriculture and Water Resources.

In 2019 laboratory trials showed 100 per cent mortality within 24 hours when fire ants were enclosed with SAS and within three days when exposed to SAS for one minute. Fire ants also transferred SAS between worker ants, which ensures the whole nest would be exposed to the product.

Despite these positive results, a variation in soil type and soil moisture content had a significant negative effect on the efficacy of SAS, which raises questions as to its effectiveness in the field. Davren Global Pty Ltd is investigating whether further field evaluation of the product is feasible.

Use of fast-acting baits and treatments

Research was conducted on the use of fast-acting baits for both nest treatments and broadscale baiting. Fast-acting (toxicant) baits have rarely been used by the program in recent years due to concerns of bait shyness (where a pest learns not to select a potentially lethal fast-acting bait). The National Exotic Invasive Ant Scientific Advisory Group (SAG) has recommended their use be investigated as no reports of bait shyness have been substantiated in fire ants in the United States of America, nor other invasive ant species with the same toxicants. Trials proved positive, particularly with indoxacarb and toxicants will be used at first response in low risk infestations, as well as part of the eradication treatment in Area 2. These baits are safe for humans and other vertebrate animals.

A proof-of-concept trial on a new method for fipronil treatment (used in DNI) was undertaken in December, aimed at providing an alternative method to traditional DNI which may be more time-efficient and require less chemical in high-density infestations. Initial results were positive and whether this should be incorporated into the program's practices is being investigated.

Winter broad-scale IGR bait treatment

A trial to evaluate the possibility of expanding the fire ant treatment window in South East Queensland into cooler months began in June 2019.

The current eradication treatment season for fire ants usually runs from September to May based on optimal ground temperatures for fire ants to forage and take up bait. However, the program has observed fire ants foraging at other times of the year.

Results of the trial indicate a single late season IGR application appeared to be as successful as in warmer months. Overall mortality was up to 64 per cent of the monitored nests across all sites within five months of treatment and up to 93 per cent within 8–9 months of treatment. These results are comparable to baiting in warm months, supporting the use of bait treatments outside the standard treatment window. Research on this project is continuing.

Opening up the window for effective treatments—particularly planned treatment—to be applied through more of the year has the potential to dramatically re-shape the program's efficiency and effectiveness.

Polygyne project

Surveillance is continuing on previously identified polygyne infestations detected within the last five years, with most of these in the west of the operational area. This surveillance is part of a project to help the program better target treatments for polygyne infestations as it moves into new eradication areas in 2020. More than 365 ha was surveyed to the end of April 2020 and any nests found were sent for genetic testing to confirm whether remaining ants are polygyne.

Through this surveillance the program has also identified at least three heavily infested sites which are being used to test several different bait regimes over winter. Initial results will be available by October 2020 and used to guide targeted polygyne treatments over the 2020–21 treatment season.

Bait stations

Bait stations (pictured above) are being investigated to provide an effective and user-friendly alternative to spreading bait by hand. These stations aim to provide landowners and residents with a method to treat their own properties without concerns about animals or children accessing bait products.

In early June preliminary trials began to assess whether fire ants would take bait from inside the stations. Stations were deployed for a week at the end of June, with a sticky trap at the entrance point to determine what types of ants were accessing the stations.

No ants were present in any traps but as this may be due to the cold weather which can reduce fire ant activity, further testing will be done in warmer weather.

Sharing new knowledge

The work of the program is recognised internationally and wherever possible is shared, leveraging skills, expertise and resources beyond the program.

Conferences and presentations

In July 2019, Dr Erin Wallace attended the Equine Veterinarian conference on the Gold Coast to answer questions relating to impacts of stings to horses and the current baits the program uses.

In December that year, program scientists organised a symposium on Invasive Ants at the Australian Entomological Society conference in Brisbane. This brought together invasive ant experts from around Australia to discuss new frameworks, chemistry and methodology in research and eradication for a range of invasive species, including red imported fire ants, electric ants, yellow crazy ants and African big-headed ants. Five presentations were given by program scientists on fire ant behaviours and their management.

Above: Dr Erin Wallace at Equine Veterinarian conference on the Gold Coast, July 2019.

Three members from Victorian Biosecurity visited the program in November to further their knowledge of the program's activities and improve their preparedness to respond to a fire ant incursion.

The program was invited to present at the Australia-Korea Science Symposium in Canberra, aimed at increasing collaboration between the two countries on biosecurity issues. Dr Liz Williams presented on the challenges and resulting scientific innovation of the eradication program, which was well received.

An abstract to present a paper on *Foundations for success: Developing a scientific foundation to support the success of detection dogs in the National Red Imported Fire Ant Eradication Program* was submitted for the Australian Conservation Dog Network conference held in August 2020. A poster abstract was also submitted.

Publications

The program's Science Leader Dr Ross Wylie was the lead author on a peer-reviewed scientific paper published in the journal Ecological Research in December 2019. Titled *Invader at the Gate: The status of red imported fire ant in Australia and Asia*, it describes the current and historic distribution and incursions of fire ants in the Asia-Pacific region, and lessons learned from invasion and eradication efforts.

A peer-reviewed scientific paper published in 2016 by Dr Wylie, Mr Craig Jennings, Dr Melinda McNaught, Dr Jane Oakey and Mr Evan J. Harris *(Eradication of two incursions of the Red Imported Fire Ant in Queensland, Australia.* Ecological Management & Restoration, 17:1, 22-32) was selected for the special 20th anniversary issue of the journal *Ecological Management and Restoration*. The special edition celebrates the best feature articles over the journal's 20-year history. A project update to the original paper was included with this edition.

Into the future

Remote sensing surveillance research

The Remote Sensing Research and Development Project concluded on 30 April 2020, culminating in the development of a custom image capture system and a very promising prototype deep learning algorithm.

The imagery collected during the research and development project trial flights showed the algorithm successfully identified visible fire ant nests in most situations. There was, however, a lower precision when the imagery was taken in paddocks with highly disturbed soil.

The next stage is a short-term project to improve the prototype algorithm through further field training and validation of the algorithm output. To achieve this up to 20 000 ha of imagery will be captured between June–September 2020, primarily over Area 2 via the helicopter-mounted image capture pod, with thousands of additional nests digitised and used to train the algorithm. An update on the remote sensing project was provided at the SAG meeting in April 2020. The program received positive feedback regarding the progress on image capture, algorithm development and potential future improvements.

Collaboration with The University of Queensland on gene silencing and rain-stable baits

A collaboration with the Queensland Alliance for Agriculture and Food Innovation (QAAFI) at The University of Queensland (UQ) began in early 2019, on the potential for BioClay nanoparticles to be used in the control of fire ants. The plan during 2019–20 was to investigate whether nanoparticles, as a platform for delivering double-stranded ribonucleic acid (dsRNA)–mediated gene silencing technology, caused mortality in fire ants. This product may be useful in situations where current baits are not permitted, such as organic farms and other sensitive situations, as well as for a more rain-stable option to current baits which are not as effective in rain.

Above: Blue dye is used to confirm dsRNA is reaching the digestive system.

While the onset of COVID-19 in early 2020 delayed some of the final milestones, the UQ team had success in preliminary studies of selected dsRNA targets, with ants consuming dsRNA for up to 45 days at various temperatures and remaining bound to corn grit even when wet.

Additionally, adding a polymer to the current bait matrix appears to increase water tolerance, which potentially may provide another rain-stable bait option which would aid treatment for the program.

Due to the inability to undertake the final laboratory work during university restrictions with COVID-19, it is planned that the project be extended with additional scope around rain-stable bait development added.

Above: Team setting up for remote sensing field validation work.

Digital field capability project

The new mobile data capture application Forage was developed by the program's business systems and intelligence team and is scheduled for its Stage 1 release on tablet devices (pictured right) on 31 July 2020. Forage will significantly enhance how teams work, removing the need to complete handwritten site visit data or carry separate handheld GPS devices. At a glance:

- tablets will be integrated with the program's Fire Ant Management System (FAMS) and Community and Stakeholder Engagement Solution (CaSES) data systems
- field staff will be able to review and capture hazard, mound, site activity/coverage and client notification
- automatic synchronisation of the captured data will occur—meaning there isn't any further data entry required back in the office creating real-time data capture ability.

It is projected associated enhancements to the program's main business system FAMS will decrease GIS mapping software annual licence costs and reduce mapping errors. The first stage will support the program's planned surveillance activities.

Governance and accountability

The National Red Imported Fire Ant Eradication Program Steering Committee was established by the Agriculture Ministers' Forum in July 2017 to provide strategic oversight of the program.

The program is governed strategically and operationally by a national Steering Committee and independent chair, who work with Biosecurity Queensland, Department of Agriculture and Fisheries, to deliver the program on behalf its funding partners.

The Steering Committee's most important role is providing strategic guidance to the program to ensure it achieves its four objectives. The Committee provides independent leadership and guidance to the program team and is responsible for monitoring the program's efficiency, finances and progress towards eradication.

An independent chair is appointed by the National Biosecurity Committee and members made up of representatives from Australian and state and territory government funding partners with expertise in areas relevant to the program.

Meeting at least quarterly, the Steering Committee also engages with critical stakeholders to provide updates, answer questions and receive advice and feedback from industry, environmental and community groups.

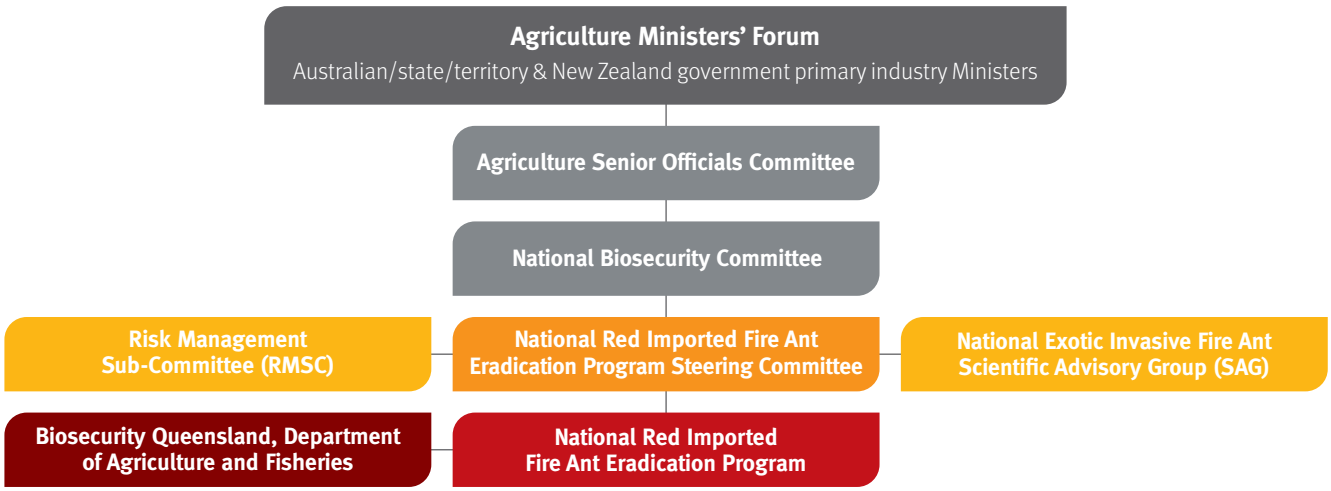
The Steering Committee's work this year included approving the program's 2019–20 Work Plan, clearance strategy, budget, and business improvement plan along with the issues and risks documentation, monthly and quarterly reports. It also commissioned and reviewed the program's efficiency and effectiveness audit and recommendations.

The Steering Committee is advised by its sub-committees—the **National Exotic Invasive Fire Ant Scientific Advisory Group (SAG)**, the **Risk Management Sub-Committee (RMSC)** and the newly established **Efficiency and Effectiveness Review Sub-Committee (E&E)**. Each committee meets at least quarterly.

The SAG provides specialist scientific advice from national and international invasive ant experts to the Steering Committee. This includes matters such as the scientific basis of the tools, techniques, products and strategies used by the program. Matters SAG reviewed this year included the requirements for proof of freedom, the decision process for transitioning from a planned broad-scale treatment strategy to the next stage in eradication, the self-management initiative and the scientific principles that underpin the movement controls for fire ant carriers.

The management of risk is essential to ensuring program success and continuous improvement in risk mitigation practices. The RMSC is made up of the Steering Committee Chair and selected Committee members as well as two independent external risk specialists, one of whom chairs the sub-committee. Each committee meets at least quarterly.

The E&E Sub-Committee was established this year to support the implementation of the recommendations of the Efficiency and Effectiveness Review completed this year. The sub-committee is Chaired by the Steering Committee's Chair and includes the Australian Government, New South Wales and Queensland Steering Committee members, along with key program personnel, its two Directors and Business Manager. It had its inaugural meeting on 9 April 2020.



Efficiency and effectiveness

The program's 10-year Eradication Plan provides that an external efficiency evaluation of the program is to occur every two years. A review began in mid-August 2019 and concluded on 22 December 2019. It made 37 recommendations for improvements to program efficiency. A number of positive observations were also made including:

- the 10-year Eradication Plan is 'a methodical and sophisticated approach' to eradication and 'well-reasoned'
- positive trials of the new helicopter-mounted remote sensing equipment and self-management project could lead to significant cost savings
- the program has built some important partnerships with industry and the community.

The vast majority of the recommendations were accepted by the Steering Committee and an Efficiency and Effectiveness Review Sub-Committee established to monitor the implementation of the recommendations. This included developing a new set of outcome-focused key performance indicators and a Three-year Strategic Plan addressing the implications of decisions on key issues identified in the review.

Focus on quality

During 2019–20 the program continued to implement a culture of continuous improvement and quality outcomes. Nominated document champions from each program area were engaged to review and either update or archive 133 procedures. The aim is complete this project by 31 December 2020.

Gap analysis work to ensure treatment was applied correctly and completely was undertaken with a dedicated engagement officer appointed. The officer's role was to negotiate tailored treatment options with landowners with unique circumstances, such as cropping and organic farming, to avoid potential gaps in treatment.

A framework for operational desktop and field auditing is scheduled to be developed by late 2020 to define auditing processes and schedules. The focus in 2020–21 will be further developing and implementing the auditing processes to increase efficiencies and ensure staff are trained in any new procedures.

Above: Program staff with SAG committee members. L-R: program General Manager Graeme Dudgeon, Bill Magee (Chair), Science Manager Dr Liz Williams, Dr Ross Wylie (QLD), Marc Widmer (WA), Ben Hoffman (NT) Lori Lach (QLD), Gary Morton (QLD), Monica Gruber (NZ), David Oi (USA).

Steering Committee

Wendy Craik AM

BSc (Hons), GradDipMgt, PhD
Independent Chair
Member, Risk Management Committee
Chair, Efficiency and Effectiveness Committee
Appointed 2017

Wendy is recognised as one of Australia's leading independent public policy advisors, particularly on issues related to natural resource and invasive species management. Her wide-ranging experience includes her roles as Board member of the Reserve Bank of Australia, Chair of the Climate Change Authority, Chair of the Australian Rural Leadership Foundation, Deputy Chancellor for the University of South Australia, Chair of the New South Wales Marine Estate Management Authority and Member Advisory Board for the Centre for Strategy and Governance. Wendy was appointed a Member of the Order of Australia (AM) in 2007 for her service to the natural resource sector and for her contributions to policies affecting rural and regional Australia.

Nigel Ainsworth

BSc (Hons), PhD
Appointed 2020

After an early career in air pollution research Nigel has worked in the Victorian Government for 24 years, firstly in research and later in policy and scientific advisory roles. He has had a longstanding involvement with invasive ant management, beginning with membership of the former Tramp Ant Consultative Committee. His experience includes reviewing national eradication programs for Tropical Weeds and Electric Ants. He was also closely involved in the five-year review of the National Environmental Biosecurity Response Agreement (NEBRA) through membership of a group established by the National Biosecurity Committee to coordinate the process. He represents Victoria on the national Environment and Invasives Committee. His current position is Deputy Director Invasive Species Science.

Scott Charlton

BSc
Appointed 2020

Scott Charlton is the Director of Invasive Species Biosecurity with the New South Wales Department of Primary industries. Scott joined the Department in 2007 during the Equine Influenza response in New South Wales and has worked in the invasive species field for 13 years. Prior to joining the department he worked at the Sydney Royal Botanic Garden where he was awarded the prestigious Friends of the Botanic Gardens scholarship travelling to the United States of America, France and Republic of South Africa.

During his time in the department, Scott led significant invasive species management reforms and had a key role in the introduction of contemporary Biosecurity Legislation in 2015. Scott has a keen interest in risk management and behavioural sciences and how they can be applied for beneficial biosecurity outcomes. He has worked on many emergency responses and in 2014 oversaw the successful eradication of red imported fire ants from Port Botany and the eradication of yellow crazy ant from the New South Wales north coast in 2019. The latter program was awarded the National Biosecurity Award in 2020 in recognition of its many innovative approaches and great community engagement initiatives.

Josephine Laduzko

BEc (Hons) MMgtEc
Member, Risk Management Committee
Appointed 2017

Josephine Laduzko is the Head of the Biosecurity Strategy and Reform Office, within the Department of Agriculture, Water and the Environment. Jo is the Australian Government representative on the National Biosecurity Committee (NBC) and National Management Group (NMG) for national responses to exotic pests and diseases. Her responsibilities include national response policy across the various emergency response deeds, the conduct of NBC and NMG meetings, and strategic biosecurity system reform. Prior to this, Jo was most recently responsible for Australian government state relations within the Department of the Prime Minister and Cabinet. She was a member of the steering committee for the inter-jurisdictional Report on Government Services Provision. Previous experience covers tax and superannuation policy, determination of proposals before the Foreign Investment Review Board, and competition policy agendas with the Australian Government Department of the Treasury.

Lloyd Klumpp

BVSc, GradDipPsySt, GradDipProjMgt
Appointed 2018

Lloyd holds the position of General Manager of Biosecurity Tasmania, which is responsible for managing Tasmania's Biosecurity, Animal Welfare and Primary Produce Safety systems. He has overseen Tasmania's responses to biosecurity incursions such as Little Cherry Virus 2, Blueberry Rust, Myrtle Rust, Pacific Oyster Mortality Syndrome and most recently Queensland Fruit Fly. In an operational capacity, Lloyd undertook the role of Director State Disease Control Headquarters for the Equine Influenza response for Victoria as well as numerous other roles in Agricultural emergencies. Lloyd represents Tasmania at the National Biosecurity Committee and National Management Group.

John Robertson

BSc, MSc, PhD, MBus
Appointed 2017

John is the General Manager of Invasive Plants and Animals for Biosecurity Queensland covering policy, stakeholder engagement, research, and state-wide operations including national eradication programs. Having led the invasive species area in Queensland for some time, John leads the development of new technologies including a strong presence in biocontrol. He has extensive experience in leading programs with large multidisciplinary teams. He has also led research and innovation programs in government and private industry settings. John is well versed in biosecurity response practices and performance, and has played a crucial role in the management of the fire ant program.

John Van Schagen

BAppSc (Biology), GradDip (Natural Resources), MAppSc (Natural Resources)
Appointed 2018

John has worked at the Western Australian (WA) Department of Primary Industries and Regional Development in several roles including an entomologist working on the control of a number of tramp ant species including the Argentine ant. John then took up the role of Quarantine Entomologist and Manager of Quarantine Western Australia. His current role is Manager, Invertebrate Pests. John was the WA representative on the Domestic Quarantine and Market Access Working Group. He then managed the European house borer response in WA, before being appointed as Chief Plant Biosecurity Officer, including membership on the Plant Health Committee and Tramp Ant Consultative Committee.

Anne Walters

Appointed 2020
BAqua, MBA, PhD

Over the past 13 years, Anne held senior roles in the Northern Territory Government across a range of portfolios and sectors. Ongoing success in these roles required an ability to understand and respond sensitively to the complex relationships between government, community and business. Anne is the Chief Plant Health Officer for the Northern Territory with the Department of Industry, Tourism and Trade. In this role, Anne has been instrumental in implementing eradication programs for citrus canker and browsing ant. Anne has also recently been appointed as Deputy Chair of the Plant Health Committee.

Anne has a keen interest in building professional capacity and capability and a passion for promoting and supporting women to achieve their career aspirations.

Sarah Corcoran

BSc (Hons)
2017 to 2020

Sarah Corcoran is the Northern Territory Executive Director for Biosecurity and Animal Welfare, first joining the Department of Primary Industry and Resources (DPIR) as Chief Plant Health Officer in September 2016. She has a passion for preserving agricultural industries and Australia's unique environment from invasive pests and disease. She has experience working as a biosecurity practitioner in the Australian Government and two state departments of primary industries. She has worked on a number of emergency responses to incursions of exotic pests and pathogens across the biosecurity continuum, and has led national eradication programs for red imported fire ants, electric ants, banana freckle, browsing ants and most recently citrus canker.

Bruce Christie

BVSc, MANZCVS, GAICD
Member, Risk Management Committee
2017 to 2020

Bruce is the Deputy Director General Biosecurity and Food Safety, New South Wales Department of Primary Industries and is responsible for biosecurity and food safety strategy and policy. Bruce has extensive experience working in biosecurity across a broad spectrum of animal and plant pests, diseases and weeds. As New South Wales Chief Veterinary Officer he led responses to a number of exotic disease incursions, including the successful eradication of Equine Influenza from New South Wales and Australia. He represents New South Wales on the National Biosecurity Committee and was a key driver in the development of the national Intergovernmental Agreement on Biosecurity and the National Environmental Biosecurity Response Agreement.

Michael Rosier

BSc (Hons), MBA
2018 to 2020

Michael has undertaken a wide range of operational and policy roles in biosecurity during his 18 years working in the Victorian Government and is experienced in leading large and diverse teams. He began his career working in invasive species management and has undertaken a number of key strategic leadership roles at regional and state levels, including the roles of Director Plants, Chemicals and Invasives and Executive Director, Biosecurity. Michael has chaired numerous project control boards overseeing the implementation of significant biosecurity initiatives in Victoria. He also represents Victoria on the National Biosecurity Committee.

National Exotic Invasive Fire Ant Scientific Advisory Group (SAG)

Bill Magee

Chair, Scientific Advisory Group
BSc (ANU), Audit Assessor, approved by the Assessor Registration Board (UK) and National Association of Testing Authorities, Australia (NATA)
Appointed 2018

Bill is the Director of Magee Consultancy Services Pty Ltd, specialising in plant biosecurity and market access negotiations. Between 2009 and 2014 he was Assistant Secretary, Plant Biosecurity, in the Australian Government's Department of Agriculture. Other appointments include: Project Leader, Pacific Plant Biosecurity Partnership, 2017 to present. Chair, IPPC Expert Working Group on the International Movement of Grain, Melbourne, 19–23 September 2016; Project Leader, Plant Biosecurity Cooperative Research Centre, 2014—December 2017; Chair, Independent Review of the National Red Imported Fire Ant Eradication Program 2015–2016; Member, IPPC Expert Working Group for the Development of a Commodity Standard, Edinburgh, June 2015; Australian delegation leader to the OECD Working Group on pesticides 2006–2009 and Australian delegation leader to the Codex Committee on General Principles 2006–2009.

David H. Oi

BSc, MSc, PhD
Appointed 2018

David is a research entomologist/lead scientist in the Imported Fire Ant and Household Insects Unit of the United States of America Department of Agriculture (USDA), Agricultural Research Service, in Gainesville, Florida. For the past 28 years his research has focused on the development of integrated pest management strategies for the control of imported fire ants and other invasive ants. This includes research on ant baits, the biological control of fire ants using pathogens and the biology and control of tawny crazy ants. He recently served as the acting National Program Leader of the USDA Agricultural Research Service's Veterinary, Medical and Urban Entomology National Program. Other positions held include entomologist for the Mauna Loa Macadamia Nut Corporation in Hawaii, research associate at the University of Florida and affiliate faculty at Auburn University, Alabama.

Monica Gruber

BSc (Hons First Class), PhD (Ecology and Biodiversity)
Appointed 2018

Monica initiated and leads the Pacific Biosecurity group of Victoria University of Wellington (New Zealand) where the goal is to build resilience to biosecurity threats from invasive ants throughout the Pacific. Primarily working with regional agencies the Secretariat of the Pacific Regional Environment Program (SPREP) and the Pacific Community (SPC) and in Tokelau, Kiribati, Tuvalu, Samoa and Fiji, a key function is to provide advice on prevention and control of invasive ants. A major focus of Pacific Biosecurity is on the prevention of the spread of red imported fire ants to Pacific Island countries and territories. Pacific Biosecurity is a founding partner in the SPREP Pacific Regional Invasive Species Management Support Service (PRISMSS). Monica's experience includes over 10 years in ecological research, primarily on invasive species and more than 20 years in project and program management.

Lori Lach

BA, MPH, PhD
Appointed 2018

Lori is a community ecologist with over 20 years' experience researching ant invasions in various parts of the globe. She has authored dozens of scientific articles, book chapters and popular articles on invasive species. She led the national review of impacts on biodiversity of the six nationally funded tramp ant management programs in 2012. She provided evidence on the effects of invasive ants and their management to the 2014 Senate Enquiry into Environmental Biosecurity. She provides scientific advice and research support to the Yellow Crazy Ant Eradication Program run by the Wet Tropics Management Authority and has served on its Steering Committee since its inception in 2014.

Marc Widmer

CAppSc
Appointed 2019

Marc has worked for the Department of Primary Industries (entomology) for 38 years and is the department's myrmecologist and social insect specialist, working on pests of agricultural, economic and biosecurity significance. He represents WA as subject matter expert on biosecurity pests such as European house borer, subterranean and drywood termites, exotic snails, Macao paper wasp, keyhole wasp and many ants including electric ants, fire ants and browsing ants. Marc was responsible for several successful social insect pest eradications across Australia including drywood termites, European wasp, Argentine ants, tropical fire ants and browsing ant.

Ben Hoffmann

BSc (Hons First Class), PhD
Appointed 2018

Ben is an ecologist with an international reputation in invasive ant biology and management. Ben's research model is predominantly to embed strategic science within eradication programs to influence management practices in real-time and improve on-ground outcomes. He is engaged with every ant eradication program within Australia ranging from committee oversight to coordination. Ben is an invited member of the International Union for Conservation of Nature (IUCN) Invasive Species Specialist Group and is on multiple advisory committees for eradication programs and conservation organisations.

Ross Wylie

BSc, MSc, PhD
Appointed 2018

Ross has a background in forest entomology where his career spanned 42 years, beginning in 1967 in Papua New Guinea and from 1974 to 2009 with forestry in Queensland. He has a particular interest in invasive species and has conducted projects and consulted in 20 countries in Asia-Pacific establishing early warning systems for invasive pests. He has authored over 120 publications, including four books, the latest on insect pests in tropical forests. He has been involved with the National Red Imported Fire Ant Eradication Program since the discovery of the ant in Brisbane in 2001, first as the foundation Chair of the Science Advisory Panel and since 2010 as Science Manager and now Science Leader.

Gary Morton

BSc (Ecology)
Appointed 2018

Gary is an Inspector under the *Biosecurity Act 2014* (Qld) and a licenced pest controller. He has worked for Biosecurity Queensland on the National Electric Ant Eradication Program since 2007, initially as a field officer, then program scientist and for the last eight years as Program Coordinator. He is a member of the Wet Tropics Management Authority Yellow Crazy Ant Eradication Program (WTMA YCAEP) Steering Committee and Operational Management Group. Gary was the coordinator for Biosecurity Queensland's North Queensland Yellow Crazy Ant Program and was Operations Coordinator on the RIFA Yarwun Eradication in 2013–14 and Local Control Centre Controller on the Panama TR4 Response in 2015.

Risk Management Sub-Committee (non-Steering Committee members)

Alan Millis

Chair, Risk Management Committee
BE (Hons), MEngSc, BEcon, DipCompSc, GAICD
Appointed 2018

Alan is an experienced senior public service and corporate executive and company director with over 20 years' experience in executive general management, governance and risk management, business development and energy and resources policy. He has held a number of senior executive roles within the Queensland Government departments responsible for energy and in Government-owned corporations in the energy sector. Alan is a past member of the Audit Committee of the Queensland Department of Energy and Water Supply and former Chair and Audit and Risk Committee member of the not for profit, Carinity. He is a member of the Board of Powerlink Queensland and Chair of the Board's Audit, Risk and Compliance Committee.

Irene Sitton

BCom, LLB, MBA (Exec), GradDipCSP, MAppFin, AGIA, ACG, CA, CertEDC
Appointed 2018

Irene has extensive governance, risk and commercial advisory experience across a range of industries in both the private and public sector. She began her career in audit and advisory services with the international professional services firms of PwC and KPMG. In a career spanning 30 years, she works as Principal Advisor with Building Queensland supporting the provision of advice to state government on the risk and socioeconomic evaluation of major infrastructure proposals. Both a Chartered Accountant and Chartered Governance Professional, Irene is Chair of the Queensland Council of the Governance Institute of Australia and since 2009 has been a member of its national Public Sector Governance Committee. She additionally is Chair of the Energy and Water Ombudsman Queensland Audit and Risk Management Committee.

Our people

Our diverse team of ground crews, scientists and behind the scenes staff work hard with the community to rid Australia of fire ants.

The 10-year Eradication Plan's commitment to the long-term funding of the program has meant changes to structure and leadership, consolidated accommodation for work teams as well as the ability to maintain and grow expertise and experience.

Our leaders

The leadership team reports to the National Steering Committee. This year saw two new Directors appointed to the program and the appointment of a new Manager of Communications and Engagement. Team leaders during 2019-20 were:

- Graeme Dudgeon—General Manager
- Dr Andrew Turley—Director Strategy
- Brett Turville—Director Operations
- Heather Leeson—Manager Policy and Compliance
- Sharon Janssen—Manager Planning and Quality Management
- Barry Cooper—Manager Operations
- Dr Liz Williams—Manager Science
- Julie Fullerton—Manager Communications and Engagement
- Brian Bond—Manager Business Services and Executive Officer

Our team

People are at the heart of our business. Creating an environment where our staff feel engaged, supported and equipped to do their best is essential to our success.

Our team includes:

- treatment and surveillance ground crews, and aerial task managers
- scientists, including technical experts in genetics and remote sensing
- client liaison and customer service officers
- geographical map makers
- logistics and quality assurance officers
- data analysis and planning officers
- policy writers, accountants, communications and engagement officers, administrators and IT analysts.

We use platforms such as our staff newsletter, online group discussion boards (agile walls) and management team visits to our depots to support information sharing and cross-team discussion. We engage employees through interactive forums and team meetings which encourage two-way conversations and problem resolution. Our management updates give employees the chance to comment and ask questions about the business.

This year internal newsletters were introduced to regularly update staff about COVID-19 requirements and activities and to increase staff knowledge of team's treatment success, major changes to policy and public campaigns. This included changes to biosecurity zones and biosecurity regulations, along with other news about the program.

A number of temporary field staff do not currently have access to the program's email which limits the ability to engage with these staff digitally. While hard copies of newsletters are distributed to these team members, engagement levels cannot be tracked. Solutions to this issue are being investigated.

Staff are encouraged to create a personal development plan with their manager to build their capability for future roles.

Permanent staff numbers remained constant throughout the year and in line with COVID-19 Queensland Government policy not to increase the permanent workforce. Short-term contractors were engaged to meet business needs, particularly during treatment season when extra field staff are needed to complete treatment (see Table 8 below).

Table 8: Staff numbers 2019–20

Position	Q1	Q2	Q3	Q4
Permanent	79	77	76	74
Temporary	30	31	50	56
Contractor—office	34	29	22	27
Contractor—field	129	167	190	188
TOTAL	272	304	338	345

> "I have a great passion for protecting the environment and seeing first-hand the devastating environmental impacts that fire ants can do shows the importance of eradication even more."
>
> *SAM MCLEAN, AREA COORDINATOR*

Meet Area Coordinator Sam McLean

As Area Coordinator Sam is responsible for looking after treatment staff who work from the program's Berrinba, Queensland site. He shares his experiences of working with the program.

Where have you worked in the program?

I started as a Team Leader with the program in October 2017, in the early days of the ramp up to the 10-year Eradication Plan working with a number of the Laidley field teams, including the Science Field Team. Since then, I have been very thankful for the opportunity to work in a number of different roles within the program including Job Creation Officer, Community Engagement Officer, Compliance Officer and Operations Coordinator.

What's the best thing about your job?

The best thing been working with customers who are initially reluctant to allow treatment or otherwise cooperate with the program. I get a real kick out of addressing the concerns of these customers and providing information and assurances to turn these interactions into positive ones for both the program and the customer.

I find that most people are on board with the final goal of eradicating fire ants from their properties. When they feel listened to and are provided with all the information the program has to offer, more often than not, they are happy to allow us to do the work we need to do.

What's the most challenging thing about your job?

The most challenging thing about working in the program is trying to keep one step ahead of where the fire ants are—staying adaptable and being able to react to detections of interest. Fire ants are not easy to go up against as they are the ultimate survivors.

Do you think eradicating all fire ants from Australia is important?

It's extremely important and it's great coming to work every day to work with my colleagues towards a goal that I truly believe in.

Where we work

Teams in South East Queensland are based across six sites:

Table 9: Fire ant program home base work sites and activities

Central office	Satellite sites			
Berrinba	Mutdapilly and Laidley	Wacol	Coopers Plains	Brisbane City
Base for ground crews for parts of Area 2 and all of Areas 3 and 4. Executive, business services, policy and compliance, systems and intelligence,community engagement, science diagnostic and research, planning and quality management.	Base for ground crews for Area 1, the Western Boundary and Western Suppression area, and the Western edge of Area 2.	Aerial operations	Genetics research	Corporate support, including human resource management and finance.

Learning and development

Training and development activities undertaken by staff this year included:

- Public entities and the Human Rights Act 2019 (Qld)
- Public Service Commission's framework Conduct and Performance Excellence (CaPE)
- Writing for Policy Results
- Cardiopulmonary resuscitation (CPR) training
- Certificate IV in Work Health and Safety
- Digital and online engagement strategy
- IAP2 engagement design
- All-Terrain Vehicles (ATV) refresher course
- Health and safety representative training course

Workplace health and safety

During 2019–20 there were 206 workplace health and safety incidents recorded. The incidents that resulted in injury were minor and required minimal first aid. Incidents included a dog bite, fire ant bites, slipping or tripping and cuts or abrasions caused by grasses and weeds while undertaking work activity.

This year a dedicated Workplace Health and Safety Officer was appointed to:

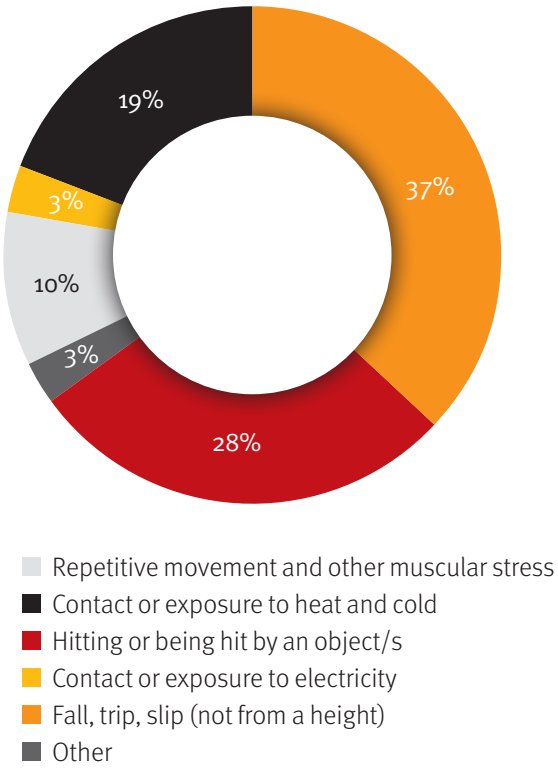
- provide practical advice and assistance in supporting, improving business effectiveness, and assuring corporate governance in Workplace Health and Safety assurance
- provide clear, timely, succinct, and accurate reports with accurate data into the relevant systems
- ensure accurate data is entered correctly into the relevant systems.

Table 10 outlines the number of hazards and injuries recorded during the year and Figure 7 breaks down injury types. There were two WorkCover cases but no associated lost days.

Table 10: Hazards and injuries

WHS incident	No	WHS incident	No
Hazards	11	Near misses	28
Injuries	106	Property damage	61

Figure 7: Breakdown of injury types 2019/20



Impacts of COVID-19

The program has continued to operate at full capacity during the COVID-19 pandemic because it is considered an essential service for the Queensland community. As at 30 June 2020, no program staff tested positive for COVID-19.

To protect staff and the community during the pandemic actions included:

- alternative working arrangements for staff with the capacity to work from home and social distancing practices and hygiene for staff working in the office
- securing and recording of additional equipment i.e. data sims, headsets, stands to enable staff to work from home
- hiring additional vehicles to limit two staff per vehicle
- contacting customers in advance via telephone to avoid face-to-face contact when on-site
- practising extra vigilance with staff showing any symptoms of sickness, as well as immediate isolation of teams if a member tested positive for COVID-19.

Due to the impacts of COVID-19 and associated social distancing restrictions, operational teams experienced some negative responses from residents and resistance to program officers entering properties to treat. A social media campaign was launched to inform the community treatment would continue during the COVID-19 response and social distancing and other health precautions would be adhered to. Residents were also encouraged to co-operate with program staff to rid their properties of fire ants.

The program collaboration with the University of Queensland on BioClay technology was significantly impacted by shutdowns since March 2020. Key experiments were delayed as UQ moved to a work from home and critical maintenance phase only.

Laboratory consumables were made more difficult to procure, which has resulted in a backlog of genetic testing.

Volunteers

More than 360 hours were invested by volunteers during 2019–20 in conducting educational displays and administration support providing a substantial cost-saving to the program. The skills, experience and support of our volunteers is recognised and much appreciated and aids our mission to eradicate fire ants by 2027.

During the fourth quarter volunteer arrangements were suspended due to COVID-19.

Our funding

During 2019–20 the program spent $61 million of a $66.5 million budget. The variation is largely due to not completing all eradication treatment and the need to adapt activities responsive to COVID-19 requirements. Unspent funds of $5.5 million are carried to 2020–21.

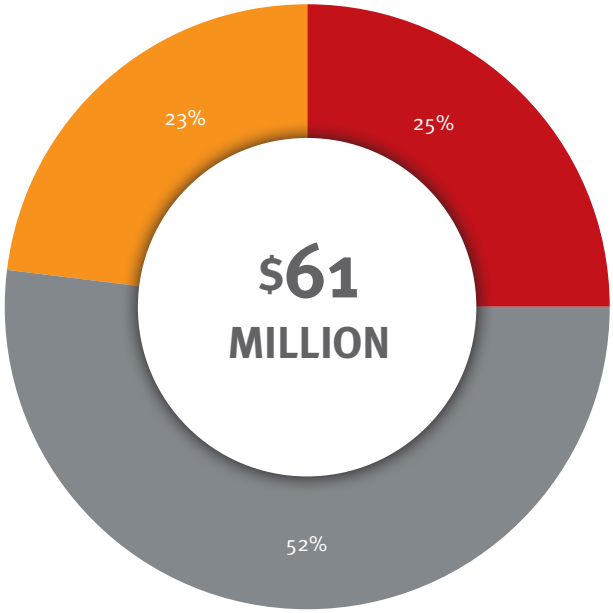
The National Red Imported Fire Ant Eradication Program is a nationally cost-shared program between the Australian and state governments.

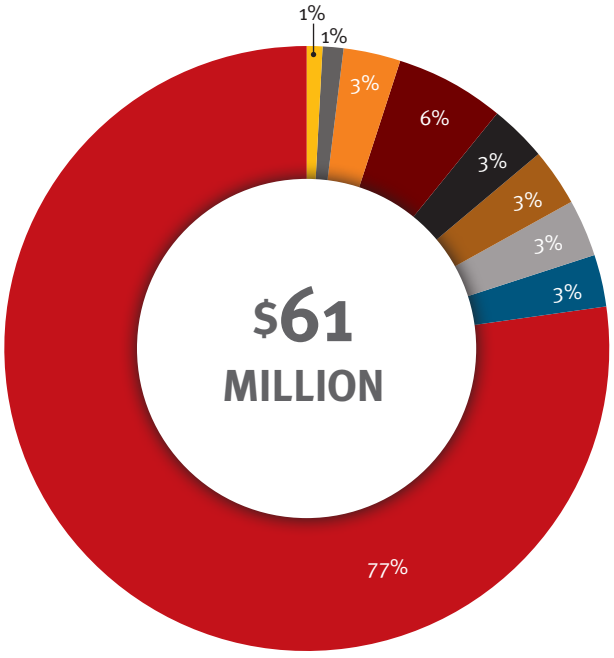
Income

Figure 8: Cost sharing 2019–20

- Other States and Territories
- Australian Government
- Queensland*

* Includes underspend from previous years and funds brought forward.





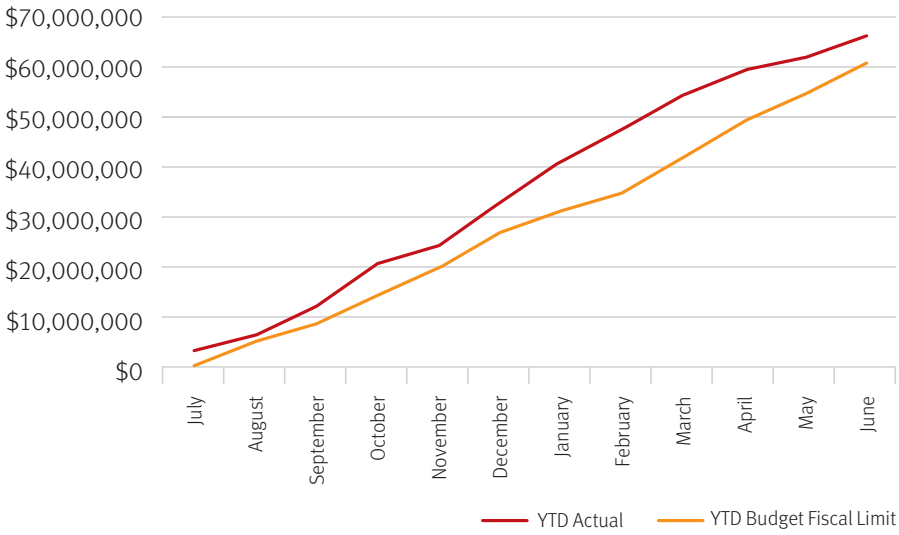
Expenditure

Figure 9: Program expenditure areas 2019–20

- Program logistics & business support
- Remote sensing surveillance R&D
- Systems & technology innovation
- Community & stakeholder engagement
- Science services & eradication assessment
- Operations
- Directorate
- Self-treatment
- Strategic policy, performance & compliance

Expenditure to budget trend

Figure 10: Expenditure to budget trend 2019–20



The program's financial management information is included in the annual financial statements of the Queensland Department of Agriculture and Fisheries, which are audited by the Queensland Audit Office in accordance with Section 40 of the *Auditor-General Act 2009* (Qld). The Auditor General has provided an unqualified audit opinion on the 2019–20 financial statements of the Department of Agriculture and Fisheries.

Right: Hand spreading fire ant bait.

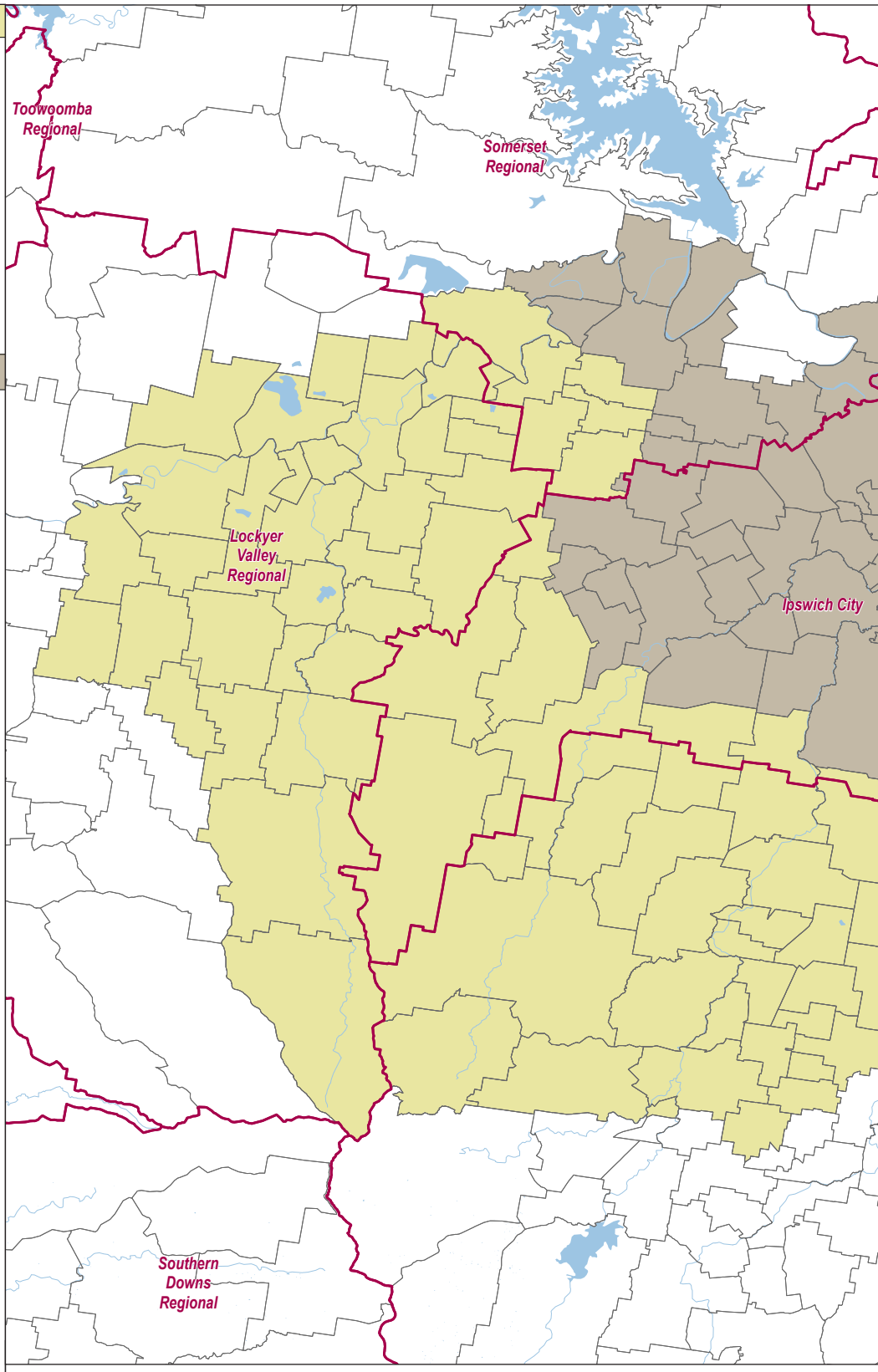
Appendix A—National Red Imported Fire Ant Eradication Program: Fire Ant Biosecurity Zones

Fire Ant Biosecurity Zone 1

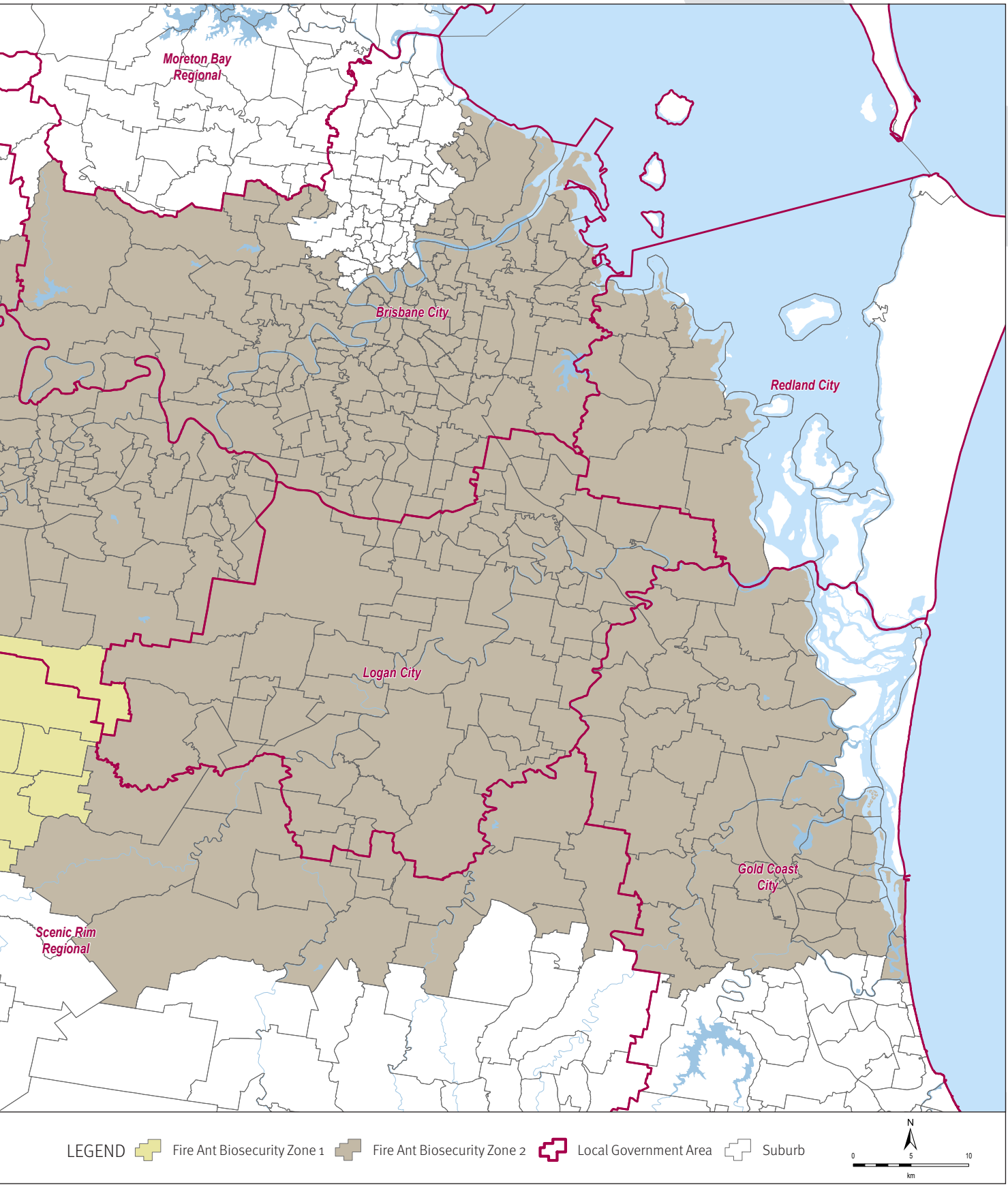
Adare
Anthony
Blantyre
Blenheim
Brightview
Calvert
Coleyville
College View
Coolana
Crowley Vale
Fassifern
Forest Hill
Frazerview
Gatton
Glen Cairn
Glenore Grove
Grandchester
Harrisville
Hatton Vale
Kalbar
Kensington Grove
Kents Lagoon
Kentville
Kulgun
Laidley
Laidley Creek West
Laidley Heights
Laidley North
Laidley South
Lake Clarendon
Lawes
Limestone Ridges
Lockrose
Lower Mount Walker
Lower Tenthill
Lynford
Merryvale
Milbong
Milora
Minden
Moorang
Morton Vale
Mount Berryman
Mount Forbes
Mount Mort
Mount Tarampa
Mount Walker
Mount Walker West
Mulgowie
Munbilla
Mutdapilly
Obum Obum
Peak Crossing
Plainland
Prenzlau
Radford
Regency Downs
Roadvale
Rockside
Ropeley
Rosevale
Silverdale
Summerholm
Tarampa
Templin
Teviotville
Thornton
Townson
Upper Tenthill
Warrill View
Washpool
Wilsons Plains
Woodlands
Woolooman
Woolshed

Fire Ant Biosecurity Zone 2

Acacia Ridge
Alberton
Alexandra Hills
Algester
Allenview
Amberley
Annerley
Anstead
Archerfield
Arundel
Ascot
Ashmore
Ashwell
Augustine Heights
Bahrs Scrub
Balmoral
Bannockburn
Banyo
Bardon
Barellan Point
Basin Pocket
Beaudesert
Beenleigh
Belivah
Bellbird Park
Bellbowrie
Belmont
Berrinba
Bethania
Biggera Waters
Birkdale
Birnam
Blacksoil
Blackstone
Booval
Borallon
Boronia Heights
Boyland
Brassall
Brisbane Airport
Brisbane City
Bromelton
Brookfield
Brookwater
Browns Plains
Buccan
Bulimba
Bundamba
Burbank
Calamvale
Camira
Camp Hill
Cannon Hill
Capalaba
Carbrook
Carina
Carina Heights
Carindale
Carole Park
Cedar Creek
Cedar Grove
Cedar Vale
Chambers Flat
Chandler
Chapel Hill
Chelmer
Churchill
Chuwar
Clagiraba
Clarendon
Cleveland
Coalfalls
Collingwood Park
Coombabah
Coomera
Coopers Plains
Coorparoo
Corinda
Cornubia
Crestmead
Daisy Hill
Darra
Deebing Heights
Dinmore
Doolandella
Drewvale
Durack
Dutton Park
Eagle Farm
Eagleby
East Brisbane
East Ipswich
Eastern Heights
Ebbw Vale
Ebenezer
Edens Landing
Eight Mile Plains
Ellen Grove
Enoggera Reservoir
Fairfield
Ferny Grove
Fig Tree Pocket
Flagstone
Flinders Lakes
Flinders View
Forest Lake
Forestdale
Gailes
Gaven
Gaythorne
Gilberton
Glamorgan Vale
Gleneagle
Glenlogan
Goodna
Goolman
Graceville
Greenbank
Greenslopes
Guanaba
Gumdale
Haigslea
Hamilton
Hawthorne
Heathwood
Helensvale
Hemmant
Hendra
Heritage Park
Highgate Hill
Hillcrest
Holland Park
Holland Park West
Hollywell
Holmview
Hope Island
Inala
Indooroopilly
Ipswich
Ironbark
Jacobs Well
Jamboree Heights
Jeebropilly
Jimboomba
Jindalee
Kagaru
Kairabah
Kangaroo Point
Karalee
Karana Downs
Karawatha
Karrabin
Kenmore
Kenmore Hills
Keperra
Kholo
Kingsholme
Kingston
Kuraby
Labrador
Lake Manchester
Lanefield
Larapinta
Lark Hill
Leichhardt
Logan Central
Logan Reserve
Logan Village
Loganholme
Loganlea
Lota
Lowood
Luscombe
Lyons
Lytton
MacGregor
Mackenzie
Main Beach
Manly
Manly West
Mansfield
Marburg
Marsden
Maudsland
Meadowbrook
Middle Park
Mitchelton
Moggill
Molendinar
Monarch Glen
Moores Pocket
Moorooka
Morningside
Mount Coot-tha
Mount Cotton
Mount Crosby
Mount Gravatt
Mount Gravatt East
Mount Marrow
Mount Nathan
Mount Ommaney
Mount Warren Park
Muirlea
Mundoolun
Munruben
Murarrie
Nathan
Nerang
New Beith
New Chum
New Farm
Newtown
Norman Park
North Booval
North Ipswich
North Maclean
North Tivoli
Norwell
Nudgee
Nudgee Beach
One Mile
Ormeau
Ormeau Hills
Ormiston
Oxenford
Oxley
Pacific Pines
Pallara
Paradise Point
Park Ridge
Park Ridge South
Parkinson
Parkwood
Patrick Estate
Pimpama
Pine Mountain
Pinjarra Hills
Pinkenba
Port Of Brisbane
Priestdale
Pullenvale
Purga
Raceview
Ransome
Redbank
Redbank Plains
Redland Bay
Regents Park
Richlands
Rifle Range
Ripley
Riverbend
Riverhills
Riverview
Robertson
Rochedale
Rochedale South
Rocklea
Rosewood
Runaway Bay
Runcorn
Sadliers Crossing
Salisbury
Seven Hills
Seventeen Mile Rocks
Shailer Park
Sheldon
Sherwood
Silkstone
Silverbark Ridge
Sinnamon Park
Slacks Creek
South Brisbane
South Maclean
South Ripley
Southport
Spring Mountain
Springfield
Springfield Central
Springfield Lakes
Springwood
St Lucia
Stapylton
Steiglitz
Stockleigh
Stones Corner
Stretton
Sumner
Sunnybank
Sunnybank Hills
Surfers Paradise
Swanbank
Tabragalba
Tallegalla
Tamborine
Tamborine Mountain
Tanah Merah
Taringa
Tarragindi
Tennyson
Thagoona
The Bluff
The Gap
Thorneside
Thornlands
Tingalpa
Tivoli
Toowong
Underwood
Undullah
Upper Brookfield
Upper Coomera
Upper Kedron
Upper Mount Gravatt
Veresdale
Veresdale Scrub
Vernor
Victoria Point
Wacol
Wakerley
Walloon
Wanora
Waterford
Waterford West
Wellington Point
West End
West Ipswich
Westlake
White Rock
Willawong
Willow Vale
Willowbank
Windaroo
Wishart
Wivenhoe Pocket
Wolffdene
Wongawallan
Wonglepong
Woodend
Woodhill
Woodridge
Woolloongabba
Woongoolba
Wulkuraka
Wyaralong
Wynnum
Wynnum West
Yamanto
Yarrabilba
Yatala
Yeerongpilly
Yeronga



Fire Ant Biosecurity Zone Map


Moreton Bay Regional
Brisbane City
Redland City
Logan City
Gold Coast City
Scenic Rim Regional
LEGEND
Fire Ant Biosecurity Zone 1
Fire Ant Biosecurity Zone 2
Local Government Area
Suburb
N
0
5
10
km

Notes

National Red Imported Fire Ant Eradication Program
South East Queensland

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