National Red Imported Fire Ant Eradication Program
South East Queensland

Annual Report 2019

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

Acknowledgements: The State of Queensland – Department of Agriculture and Fisheries 2019.

Cover: Ripley, South East Queensland property owner John Scott.

Mount Walker, Queensland farmer Geoff Freiberg.

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

Australian Government

Queensland Government

Government of South Australia
Primary Industries and Regions SA

Tasmanian Government

AGRICULTURE VICTORIA

NORTHERN TERRITORY GOVERNMENT

NSW Government
Department of Primary Industries

Government of Western Australia
Department of Primary Industries and Regional Development

ACT Government

Below: Unlike other ants, fire ant nests have no visible entry holes.

National Red Imported Fire Ant Eradication Program
South East Queensland

Fire ants can destroy our way of life, making our backyards and parks unusable.

About the program

The National Red Imported Fire Ant Eradication Program is Australia's largest biosecurity eradication initiative, which commenced in 2001 and built on an emergency response after the discovery of fire ants in South East Queensland. The current National 10–year Eradication Program commenced in 2017 and is the focus of this report.

Red imported fire ants (fire ants) are one of the world's most invasive and destructive species and if left uncontrolled, can have serious impacts on our health, environment and economy. They can inflict painful stings that can lead to anaphylactic shock and death, blindness and kill pets and other animals, including Australia's unique native species. Fire ants can destroy crops and reduce yield by up to 60 per cent. They also have the potential to impact the Australian way of life, making our backyards and parks unusable.

The program aims to rid Australia of this invasive pest and protect our way of life in partnership with the Australian community.

We aim to do this by using practices informed by domestic and international experts and what we learn about ant activity, leading the development of new ways of beating the ants as new challenges arise.

As well as scientific and operational innovations, community support is crucial in the fight to eliminate fire ants from Australia. The support from the South East Queensland community has been vital in identifying the extent of fire ant infestations and enabling the targeted suppression of ants.

The program has already successfully eradicated five separate incursions of fire ants—two in Gladstone, one at Port Botany (assisting New South Wales), one at the Brisbane Airport, and one at the Port of Brisbane. No other country is able to make this claim.

In 2017, all state and territory Governments and the Australian Government agreed to a new 10–year eradication plan. Guided by an independently-chaired National Steering Committee the plan uses a staged approach to search, suppress and eradicate this pest once and for all.

Fire ant stings can result in blisters and, in rare cases, death from anaphylactic shock.

Our mission

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

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 spread of fire ants to non-infested areas (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 SEQ 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 commitment

We are committed to being:

- **Science driven**—We integrate scientific expertise, risk-based analysis and current empirical evidence to determine treatments to suppress and eradicate fire ants
- **Customer focused**—We enable and support related local industries e.g. agricultural, to meet the needs of the domestic and international markets they serve
- **Collaborative**—We partner with government agencies, industry and the SEQ community to protect and sustain our way of life
- **Efficient**—We invest in contemporary technologies and practices to continuously improve our operations and maximise the program's benefit to the public
- **Flexible**—We adapt to the dynamics of our environment and improvise in order to overcome the challenges we encounter
- **Empowered**—We invest in staff training and development to nurture a culture of high performance and responsibility.

> "Fire ants are not just another invasive ant; fire ants are a 'super pest' that can surpass the combined devastation caused by Australia's worst invasive species." *DR ROSS WYLIE , PROGRAM SCIENCE LEADER*

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 2019, all three of the post-quarantine detections (where ants have not spread) and five out of the seven incursions (where ants have spread) have been eradicated. One of those—the 2001 Port of Brisbane incursion at 8 300 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.

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

2007
- Quarantine eradication in Darwin, Northern Territory.

2009
- Quarantine eradications at Port of Brisbane, Queensland and 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.**

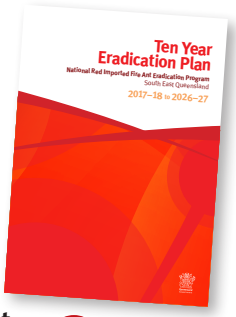
2013
- New incursion from the United States found at Port of Gladstone, Queensland.

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

2015
- New incursion from the United States found at Brisbane Airport, Queensland.
- Quarantine eradication in Melbourne, Victoria.
- Program remote sensing technology accurately determines full extent/area boundary of infestation in South East Queensland.

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 Plan on 1 July.



2019
- Brisbane Airport 2015 **fire ant incursion declared eradicated.**

Message from the Chair

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

Fire ants are survivors and are masters of adapting to new environments. To eradicate them we must do the same, but do it better. This financial year (2018–19) has seen the program work hard to respond to challenges and create new solutions as we adapt and change how we work to fight one of the most invasive pests on our planet. Not fighting fire ants is not an option. Our Australian way of life depends on it.

Treatment this year

Preventing fire ants from spreading further west continues to be a focus of the program. Five, out of nine, infestations found outside the operational boundary in 2017–18, were west of Area 1. This has impacted the program both last year and into 2018–19.

While a crucial and strategic decision, adding a 5 km Western Boundary strip to treatment Area 1 has almost doubled the planned eradication treatment area for the 2018–19 year. This also meant advising our funding partners of the expansion and seeking agreement to bring forward some of the program funding. A delay in bringing forward funding meant that the teams needed to complete priority treatments could only be organised in 2019. Despite extending the treatment time into June, there was only time to do two rounds of treatment of Area 1 and one in the Western Boundary (96 per cent). Combining treatment rounds for all eradication and suppression treatment areas, the program still treated over 300 000 ha with fire ant bait. In addition, 61 284 nests were treated with Direct Nest Injection (DNI) across all areas inside the program's operational boundary.

DNI treatment was mostly in response to public reports of suspected fire ants. This year, the program received over 9 000 public reports of suspected fire ants. People in our communities play an important role as the program's eyes-on-the-ground in the program's operational area. We know from market research that people want to help and no one knows their own communities better.

Effectiveness of treatment

To test the effectiveness of eradication treatment, in July 2018 13 surveillance sites with 90 nests recorded were established in Area 1. At the time of the first assessment up to two rounds of treatment had already been applied. Seven sites contained only dead ant nests. After an additional two treatments all 35 nests at the remaining six sites were also inactive. This is encouraging news for the program and the people of South East Queensland.

New advisory bodies appointed

This year, the Steering Committee appointed two sub-committees to provide expert advice to the Committee.

The **National Exotic Invasive Ant Scientific Advisory Group (SAG)** provides guidance and recommendations on the scientific validity of the program's activities while the **Risk Management Sub-Committee** will contribute to the continuous improvement of the program's risk mitigation practices. Membership includes domestic and internationally based subject experts. Find out more about the sub-committees at pp. 28–33.

Research and innovation

The program's science team continues to be a vital part of the program, not only providing diagnostic services but evaluations on current and new treatments and sharing new research and technologies internationally. This year, this included several articles published in two peer-reviewed publications about the program's fire ant experiences and strategies. Other work included testing new DNI treatment methods, work with the community on treatment alternatives, and further testing of new remote sensing technologies.

Working with the community

Industry, city councils and others in the community play a vital part in eradicating fire ants from our shores. The program continued to engage with industries at high risk of spreading fire ants by transporting fire ant infested materials across biosecurity zones. The Steering Committee was pleased to meet with industry representatives during the year to talk face-to-face about how the program is performing and listen to their needs. In addition, a total of 2 331 industry personnel attended fire ant awareness training sessions throughout the year. The program also met with the largest residential development and civil construction companies in the Gold Coast Development Corridor to talk about risk mitigation strategies.

Community engagement and awareness activities were also an important part of the year with attendance at Brisbane's Royal Queensland Show (the Ekka) in August 2018 greeting around 15 000 people at the program's display. The program also continued to reach out to communities undertaking eradication and suppression treatment to talk about what they could expect and attended local events to provide another point of contact for the program.

New premises

From July to October 2018, the opening of a new site at Berrinba saw the Richlands and Moggill sites close and teams relocated to Berrinba or Wacol. This and other site movements has enabled key business and operational teams to be located together and/or close to ant eradication areas enabling higher levels of efficiency for the program.

Budget

As at 30 June 2019, the program's expenditure was below the projected year to date budget. This was due to the delay in bringing forward funding impacting the commencement of program activities for the year. Unspent funds have been carried forward to 2019–20.

Our team

I would like to acknowledge the dedicated program staff and the community who have chosen to be part of the solution and thank all for their continued hard work and vigilance.

Striving for excellence, adapting to the unpredictability of fire ant activity and trying new things is essential to the success of the program. We must do all of these things if we are to get ahead of fire ants and the extreme harm they can do.

The task ahead could not 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

"Fire ants are survivors and are masters of adapting to new environments. To eradicate them we must do the same, but do it better."

WENDY CRAIK AM, STEERING COMMITTEE CHAIR

The 10–year Eradication Plan

The National Red Imported Fire Ant Eradication Program began implementing a new 10–year Eradication Plan in July 2017 focused on finding, containing and eradicating fire ants in South East Queensland.

A 2016 independent review of the program said eradication of the red imported fire ant is still possible if the program was given long-term funding and was able to implement a 10–year plan.

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

In 2017, 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 aim of the eradication strategy, running from 2017–2027, is to reduce the size of the infestation until fire ants are eradicated in a staged, rolling treatment program, with intensive eradication treatment starting in the west—Lockyer Valley, Scenic Rim and parts of the Ipswich local government area—and progressively moving to the east. The plan is achieving positive results. Since the plan commenced, ant activity in Area 1 has significantly decreased.

While eradication is focused in the west, planned surveillance, containment and suppression, as well as responsive treatment continues in other operational areas—Logan, the northern Gold Coast and Redlands—until full eradication treatment is focused on those areas.

Key strategies

The 10–year plan incorporates the recommendations made in the 2015–16 independent review. The key strategies include:

- a significant boost in all eradication activities
- a progressive rolling suppression then eradication strategy from west to east
- 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
- self-management options initially for builders and industry, eventually rolling out to the public.

The program also provides other Australian states and territories with expert scientific and technical advice, operational assistance and resources to respond to fire ant incursions.

Fire ant management

The program uses three primary treatment and protection tactics to manage fire ant activity.

Eradication
Identified areas undergo intensive treatment including multiple rounds of fire ant bait until ants are eradicated from the area.

Suppression
Identified areas receive suppression treatment to lessen the spread of fire ants until planned intensive eradication treatment can occur.

Containment
A combination of surveillance and compliance activities are used to minimise the spread of fire ants until planned intensive eradication treatment can occur.

During the year, self-management strategies in which businesses and individuals can elect to treat their own properties or worksites were piloted. As treatment moves further east and into areas of greater urban development, the ability for landowners to self-treat their properties will be critical.

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

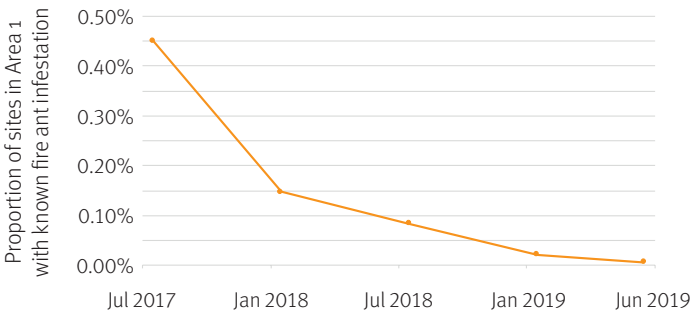
Operational area

The total operational area is just over 584 450 ha. It has been divided into four priority areas for focused eradication activity over successive stages of the plan. Staged treatment areas will be overlapped to ensure areas are not at risk of reinfestation. Treatment of all areas will remain responsive to changes in fire ant activity. See the **National Red Imported Fire Ant Eradication Program 10–year Eradication Plan Area Map** on pp. 10–11.

Area 1 covers 87 583 ha. Intensive eradication activity is currently focussed in this area to stop the spread of fire ants further west and protect Australia's food supply. The area contains high value agricultural and horticultural production regions, including parts of the Lockyer Valley. The Lockyer Valley not only provides 12–14 per cent of the Queensland agricultural economy but is one of the nation's most important 'food bowls', supplying nearly all (95 per cent) of Australia's Winter vegetables.[1] Fire ants are at high risk of spreading in this area due to the environment created by intensive farming activities.

Area 1 contains 14 247 sites (or property lots). Since the plan commenced, the proportion of sites in Area 1 where positive fire ant samples have been found has significantly decreased, going from 0.45 per cent in 2017 to close to zero per cent (0.01) in 2019 (see Figure 1).

Figure 1: Reduction in number of known fire ant infested sites over time in Area 1 from 1 July 2017–30 June 2019



In response to fire ant nests being identified outside Area 1 in 2017–18, in January 2019 a 5 km strip (totaling 77 713 ha)—the Western Boundary—was added to existing Area 1. This expanded intensive eradication activities to additional sections of the Lockyer Valley, the Scenic Rim and parts of the Somerset local government area.

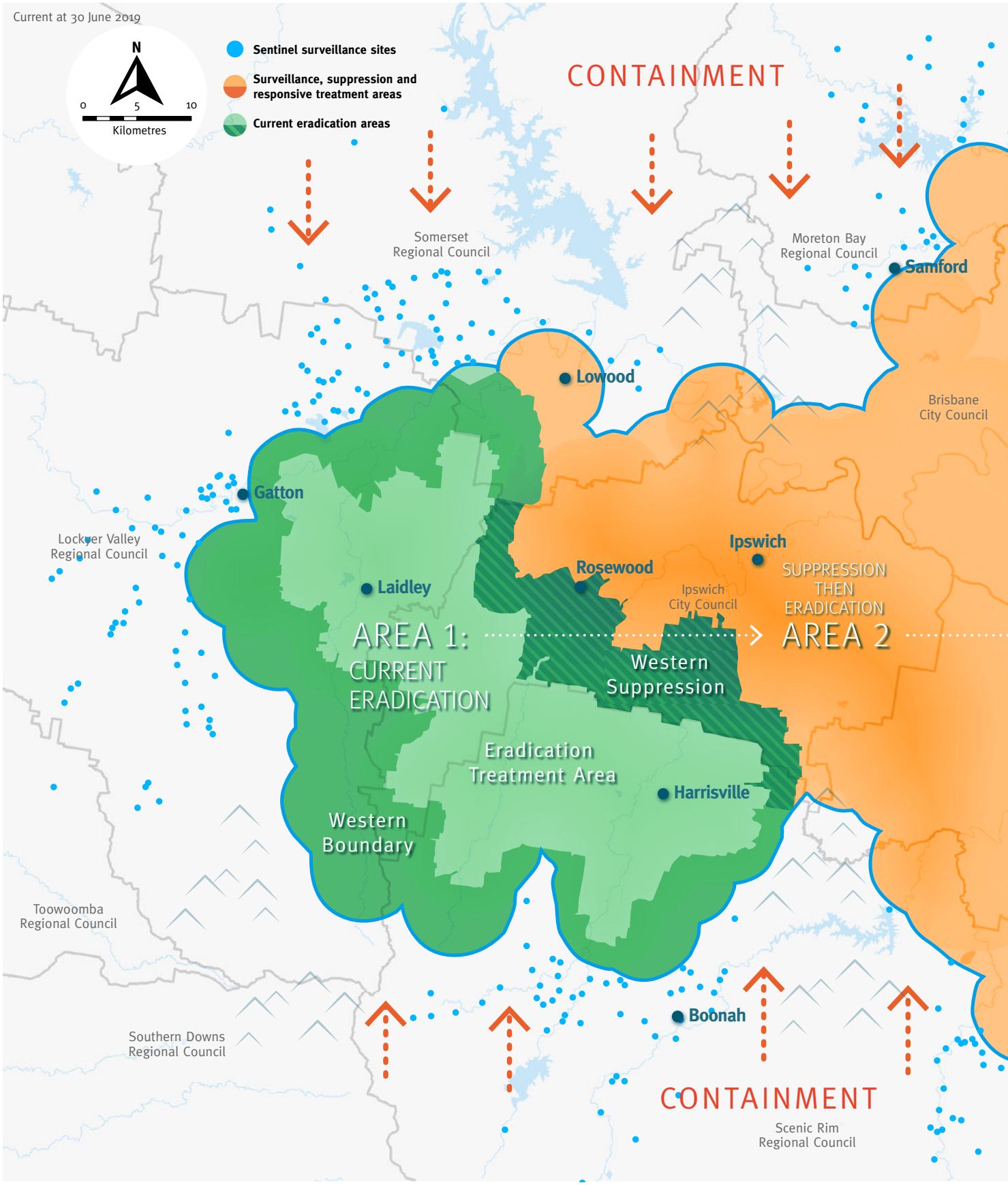
To the east of Area 1 is the Western Suppression Area. Almost all this area is considered a viable habitat for fire ants. The area covers 19 181 ha and also forms the western part of Area 2. It is currently receiving surveillance, suppression and responsive treatment to prevent reinfestation of Area 1.

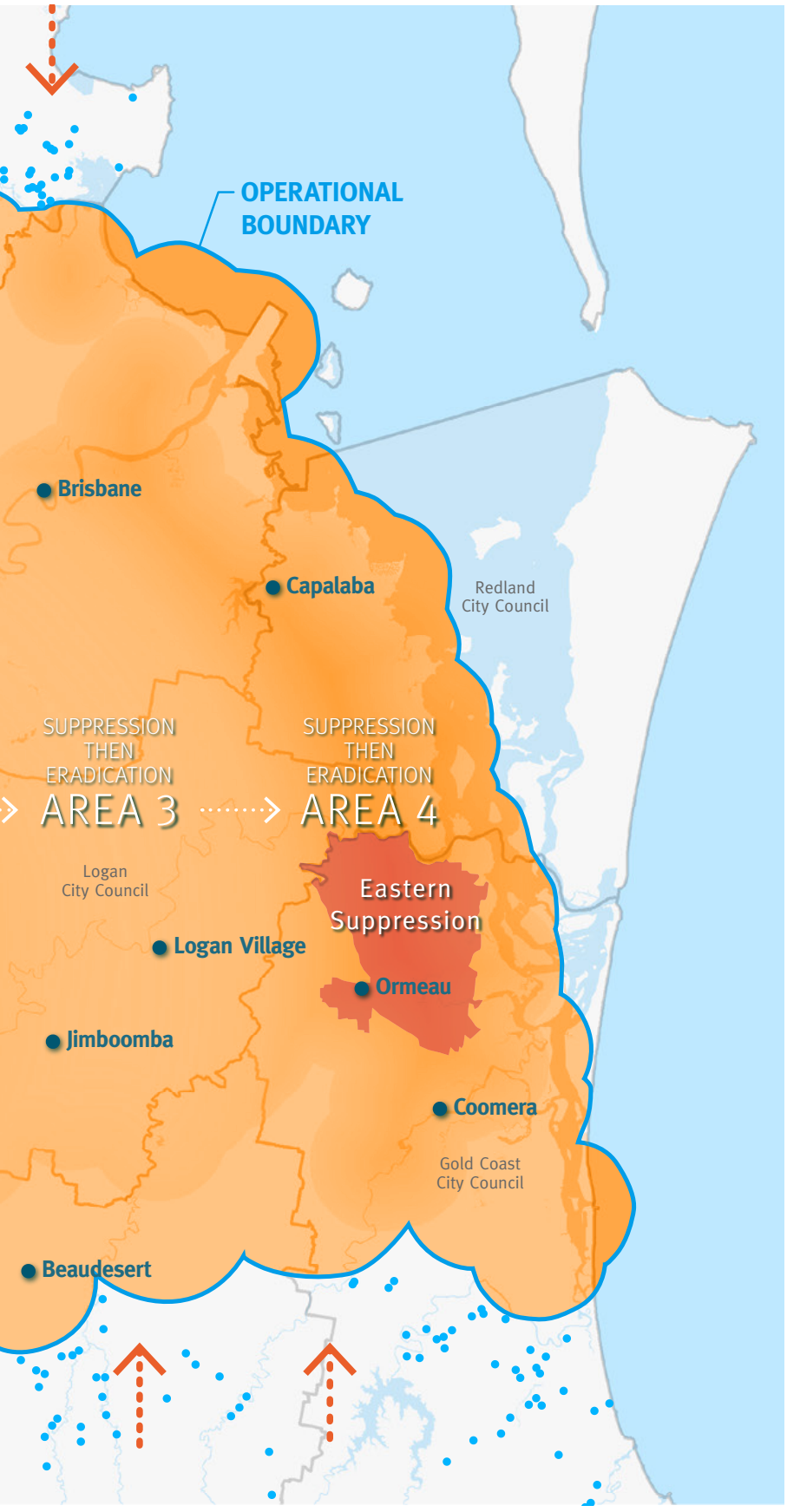
Areas 2, 3 and 4, covering parts of approximately 400 000 ha, will progressively receive planned eradication treatment in the later years of the program. These areas receive targeted suppression and responsive treatment and surveillance when needed. The areas contain high density urban residential properties, as well as peri-urban and some larger rural properties in the local council regions of Logan, Ipswich, Brisbane, Gold Coast and Redland. The eyes on the ground and reporting provided by residents in these areas are critical to both current and future treatment and eradication goals.

In the northern part of the Gold Coast in Area 4, a 13 577 ha area known as the development corridor, represents an ideal habitat for fire ants and has experienced high-density infestation. It is receiving targeted intense suppression treatment (Eastern Suppression Area) pending planned eradication treatment in the future.

[1] Lockyer Valley Regional Council 2019, viewed 12 December 2019 (www.leadingroles.com.au/lockyer-valley-regional-council).

National Red Imported Fire Ant Eradication Program 10–year Eradication Plan Area Map





The aim of the plan is to reduce the size of the infestation until fire ants are eradicated in a staged, rolling treatment program, starting in Area 1 in the west and progressively moving east (Areas 2, 3 and 4).

2019 Key insights

Fire ants are super pests, highly invasive and highly adaptive. In 2018–19, we have continued to deliver against the 10–year Eradication Plan, responding directly to challenges and adapting to emergent issues informed by science-based research, technical expertise and the best information available.

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

284 367 hectares treated
as part of planned baiting of eradication areas[1]

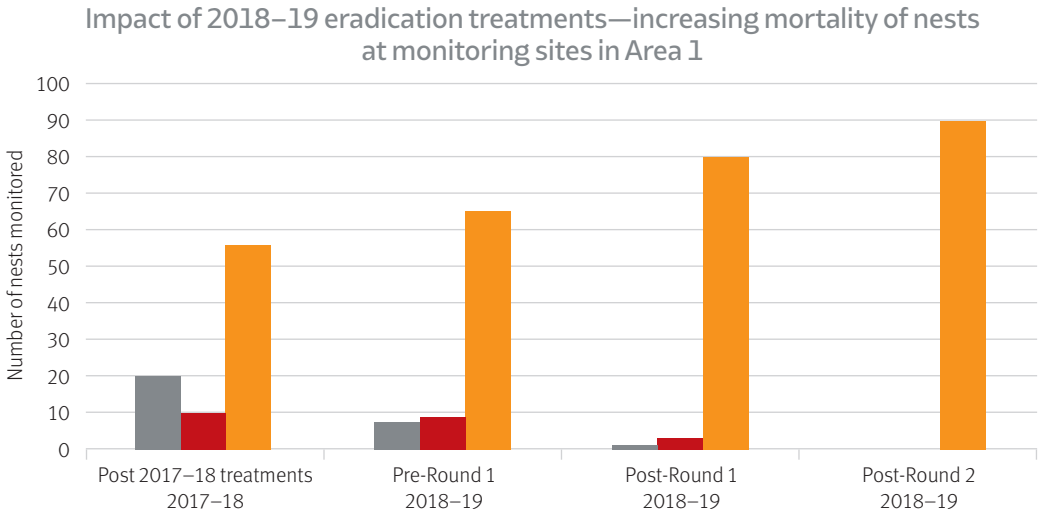
77% of target
for 2018–19

The 23 per cent not treated was largely due to the delayed bringing forward of funds needed to treat an extended treatment area. Areas not receiving both rounds of treatment will be prioritised next year.

Results of eradication treatment Area 1

Areas receiving intensive eradication treatment receive multiple rounds of fire ant bait. Area 1 received two rounds in 2017–18 and a further two rounds in 2018–19. After all 2017–18 and 2018–19 treatment rounds had been done, all nests in the monitoring sample area had no live ants.

- Alive + Healthy
- Bait Affected
- Dead



Suppression treatment and public reports

24 055 hectares treated
as part of planned baiting of suppression areas[2]

89% of target
for 2018–19

61 284 nests treated
with Direct Nest Injection (DNI)

186% increase
from 2017–18

9 380 public reports
of suspect fire ants

39% increase
from 2017–18

Containment activities

912 compliance checks
compliance with biosecurity control measures

71% increase
from 2017–18

18 018 hectares surveyed
as part of planned surveillance

12% increase
from 2017–18

8 significant detections
of ants identified outside of the program operational area

11% decrease
from 2017–18

Industry and community engagement

40 000[3]
people attended information sessions
and events where they could find out about fire ants and the program

8 435
students attended
the program's school fire ant awareness program

2 331
industry personnel attended training
and awareness sessions about fire ants

Analysis activities

8 397
suspect ant samples analysed
with 6 777 positively identified as fire ants

1.03%
nests are polygyne (multiple queens)
down from 1.2% in 2017–18 and representing less risk to high density infestation and spread

Unlike monogyne nests, polygyne nests have multiple queens and represent a greater risk due to both the higher density of ants and the chance of a queen being moved in high risk fire ant carriers such as soil, and spreading infestation.

Right: Containment activities include surveillance in high risk ant areas.

[1] Includes planned treatment rounds 1 and 2 of: Area 1, Western Boundary and Western Suppression. [2] Includes planned treatment rounds 1 and 2 of the Eastern Suppression area. [3] Approximate numbers only.

Treatment and protection

In the 2018–19 financial year, our focus has continued to be on eradication by targeting one section of the infested area at a time. Suppression and containment activities are undertaken in all operational areas to protect boundaries and minimise spread.

Eradication treatment

Despite what we learn through science and experience, fire ant activity can be unpredictable. Ants can fly up to 5 km and float in rivers and streams. The human-assisted movement of high risk fire ant carriers such as soil, mulch and hay, also plays a part in the movement of ants across the landscape. This means a key part of the program must be its ability to adapt and respond to changes in fire ant activity.

In 2017-18, five, out of nine, fire ant detections found outside the operational boundary were west of Area 1. This resulted in the addition of a 5 km strip (Western Boundary) to the west of Area 1, adding 77 713 ha to the eradication treatment area for 2018-19. This set the program the challenge of covering close to double the originally planned eradication treatment area as well as the planned suppression and responsive treatment for all program operational areas. It was necessary to redirect resources from suppression treatment areas while obtaining approval to fund and appoint additional ground crews. Additional crews were appointed (in April 2019) but late in the treatment season, which this year was from October 2018 to June 2019.

Despite these challenges, across all priority treatment areas 183 720 ha received at least one of two planned rounds of Insect Growth Regulator (IGR) treatment while 124 702 ha received two (see Table 1).

Priority eradication Area 1 received two rounds of IGR treatment completing 98 per cent of planned treatment for this area. The new Western Boundary eradication area received one round of treatment (96 per cent) with 35 per cent receiving a second round. The Western Suppression Area, which contributes to eradication by limiting fire ant spread from the east, received just over half the treatment planned (56 per cent) in round one and 0.6 per cent of treatment planned in round two.

In total, with multiple rounds of treatment included, the program delivered planned IGR baiting across 308 422 ha out of the planned 396 108 ha in 2018–19.

Since the 10–year plan began in 2017, the Area 1 eradication area has received up to four rounds of bait. Subsequently, the program has received few reports from the community reporting new fire ant nests in Area 1 and those received were treated immediately.

Treatment in areas that did not receive both rounds of planned treatment will be prioritised next year.

Encouraging results

In Area 1, 13 sites known to be infested were set up as monitoring sites in July 2018 with a total of 90 nests recorded. At the time of the first assessment up to two rounds of treatment had already been applied. Seven sites contained only dead ant nests. After an additional two treatments all 35 nests at the remaining six sites were also dead.

Left: Helicopters are used to spread bait over larger areas, e.g. farmland, in consultation with property owners.

Table 1: Planned treatment and completion rates, 2018–19

Round 1	HECTARES (ha)			SITES		
AREA	Planned	Completed	%	Planned	Completed	%
Eradication treatment						
Area 1	87 583	85 874	98	14 218	14 009	98
Western Boundary	77 713	74 792	96	9 662	9 530	99
Western Suppression	19 181	10 684	56	2 616	1 895	72
Suppression treatment						
Eastern Suppression	13 577	12 370	91	13 945	13 342	96
TOTAL	198 054	183 720		40 441	38 776	

Round 2	HECTARES (ha)			SITES		
AREA	Planned	Completed	%	Planned	Completed	%
Eradication treatment						
Area 1	87 583	85 430	97	14 218	14 044	99
Western Boundary	77 713	27 472	35	9 662	5 096	53
Western Suppression	19 181	115	0.6	2 616	950	36
Suppression treatment						
Eastern Suppression	13 577	11 685	86	13 945	13 622	98
TOTAL	198 054	124 702		40 441	33 712	

Source: Fire Ant Management System (FAMS)

"Since the baiting program started, we went from finding nests everyday practically...to not having found one nest. They just don't go away for no reason. The baiting program is really working."

GEOFF FRIEBERG, MOUNT WALKER FARMER, QUEENSLAND

Left: DNI treatment involves flooding the fire ant nest and ant tunnels with a registered insecticide.

Suppression treatment

The intent of suppression treatment is to lessen the spread of fire ants in the areas that have not yet undergone intensive eradication activity. This could be planned suppression or responsive treatment resulting from reports of ant activity from the community.

Areas 2–4, while outside the eradication area, receive planned suppression treatment in areas showing high density of fire ant infestation in order to suppress the ant populations in these areas.

Eastern suppression

In 2018–19, the Eastern Suppression Area included planned suppression treatment of the northern part of the Gold Coast in Area 4. As this development corridor of 13 579 ha attracted high-density infestation, it was targeted for treatment. As an area which significant building and development is occurring, it was also at high risk of spreading fire ants through the transport of fire ant carriers such as soil and mulch. Given two rounds of treatment, just over 24 000 ha in total were treated.

Community reports

In response to new detections reported during 2018–19, nests were destroyed through the direct nest application (DNI) of fipronil pesticide on 9 548 sites (61 284 nests) and IGR bait treatment across 7 850 ha.

Detections presenting a high risk to public safety (such as those in schools, parks and sporting grounds) are given highest priority and usually responded to within two days. All other high-risk detections require a response within 10 days. Other detections regarded as not high-risk are responded to as quickly as possible.

Although high risk detections are prioritised for treatment, responses to other operational areas were sometimes delayed due to the extent of the area to be covered, the availability of treatment crews, issues with accessing properties and inclement weather. Higher numbers of reports than expected prompted by media coverage also had an impact.

In Areas 2–4, 42 per cent of detections posing a high risk to public safety were treated within two days, and 83 per cent of other high-risk detections were treated within 10 business days.

In the Eastern Suppression Area, 47 per cent of detections posing a high risk to public safety were treated within two days, and 90 per cent of all high-risk detections were treated within 10 business days.

Future program planning will include revising and implementing a new response protocol for the program.

Minimising the spread

Fire ants are spread in one of four ways—over-ground and by flight, flood and human-assisted movement. The program has succeeded in keeping this pest contained to part of South East Queensland but containing the spread requires constant vigilance including monitoring operational boundaries, responding to significant detections and working with the community to manage the movement of high risk ant carriers.

The average rate of fire ant spread in Australia is 4.8 km per year which is significantly less than that of the United States at 48 km per year and China at 80 km per year. The slow rate of spread compared to the United States and China can be attributed to the program's surveillance and treatment regimes, community support, and the strict controls on the movement of high risk fire ant carriers.[1]

Surveillance

Surveillance to monitor fire ant infestation and spread, and the success of treatment included:

- setting up approximately 330 sentinel sites beyond the operational areas to monitor possible early indicators of the spread of infestation
- defining a 5 km area around any new detection to determine the extent of infestation, and
- surveying after treatment to determine its success.

Surveillance activities were critical to containing the spread of this super pest with over 18 018 ha surveyed in 2018–19.

Right: Fire ant bait includes soybean oil, an active ingredient and corn grit.

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 treatment products.
- Slow acting bait—**insect growth regulator (IGR)** containing S-methoprene or pyriproxyfen, which are widely used in mosquito control programs or dog and cat flea treatment products.

Bait is distributed with a handheld 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, preferably 48 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.

[1] Wylie R, Yang C-CS, Tsuji K. Invader at the gate: The status of red imported fire ant in Australia and Asia. Ecological Research. 2019; 1-11 (https://doi.org/10.1111/1400-1703.12076)

Hitting new fire ants fast

Fire ants found outside the operational boundaries (significant detections) are hit fast with activities to lessen the risk of the further spread of this pest. These include:

- initial IGR bait treatment of each nest across a 10–100 m radius, followed by destruction of the nests by DNI
- collecting samples for genetic testing to assess social form and to inform any relationship with other nests known to the program
- alerting the local community that fire ants have been found
- surveillance (initial surveillance out to 500m, which may be followed by targeted surveillance out to 2–5 km) to determine the extent of infestation
- post-treatment surveillance to determine efficacy of treatment to ensure no nests remain and compliance investigations around the area to determine how the ants may have arrived there, including as a result of human-assisted movement.

Significant detections

When fire ants are detected outside the program's operational boundary they are considered significant detections and immediate action is taken to lessen the risk of fire ant spread (see **Hitting new fire ants fast** above). In 2018–19, eight new significant detections were found at Boyland, Brendale, Brisbane Airport, Bromelton, Fernvale, Helensvale and Southport.

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

Preventing human-assisted movement

Human-assisted movement of fire ants through fire ant carriers has the potential to increase the spread of fire ants beyond the current operational boundary. High risk carriers include soil, mulch, manure, baled hay or straw, potted plants and turf, along with some mining/quarry by-products.

To minimise the risk of fire ants spreading, there are strict requirements on the movement of high-risk carriers from known fire ant infestation areas or biosecurity zones. Breaching these requirements can result in penalties. High risk industries are those that are in regular contact with high risk carriers and are significant stakeholders in the fight against this invasive pest.

High risk carrier movement and the management of related biosecurity risks are regulated under the *Biosecurity Act 2014 (Qld)*.

Compliance activities by the program focus on reducing risk. Over the year, 912 compliance verification checks of high risk carrier industries were completed with an emphasis on their internal procedures and how these ensure compliance with movement controls at all levels of operation. Larger operators have also been encouraged to take greater responsibility for subcontractor compliance through contractual arrangements and self-check systems. This approach has contributed in reducing the risk profile as a whole. Compliance and movement controls by smaller-scale operators remains a challenge and will be a particular focus in 2019–2020.

Left: Odour detection dogs specifically trained for the purpose of searching for and positively identifying fire ants are an important part of surveillance.

The compliance team works with industry to monitor how high risk fire ant carriers are moved in biosecurity zones.

Of the 912 checked, 82 operators were found to be non-compliant in some aspect of their operation, though the majority did not pose a significant biosecurity risk. Effective risk mitigation practices were largely in place and most breaches were unintentional and rectified immediately.

Biosecurity orders

This year, 12 biosecurity orders, which require an individual, business or organisation to improve how they manage biosecurity risks, were issued. Five were to infested turf farms to manage the risk of infested materials leaving the farms. Biosecurity orders were also issued to:

- a non-compliant nursery to address the risk of infested potted plants leaving the site
- a mulch haulage company to address the risk of fire ant spread after non-compliance with Biosecurity Instrument Permit (BIP)[1] conditions was detected
- an infested landscape company located outside the biosecurity zones which required the same risk mitigation measures as other companies within the biosecurity zone
- a logistics company, operating at the site of the Bromelton significant detection to manage the risk of infested shipping containers moving from the site
- a local city council to manage a public safety risk at a sporting field.

Finding solutions together

For the program, compliance is not about bringing a 'brick bat' to the table, but about the patience and determination to work together to find solutions that minimise the risk of fire ant spread.

This year one of those solutions was jointly developed by the program and a turf farm with high density fire ant infestation. The compliance team confirmed from treatment records that the farmer was treating the turf using the recommended chemical treatments but fire ants were still active i.e. fire ants were found in in freshly cut turf. The team stopped all turf farm sales while the situation was assessed.

The program's science team performed tests over several weeks that confirmed fire ants were surviving the application of the recommended treatment which had been successful elsewhere.

After onsite trials performed in cooperation with the turf farmer, an alternative chemical was introduced that had a high impact on the fire ants. After introducing the alternative chemical in all production areas on the farm the fire ants were no longer present.

This knowledge is being shared across the whole turf industry operating within fire ant biosecurity zones to propose changes to how the industry manages fire ants. The program's science team is also undertaking farm trials with current recommended chemicals and testing new ones to ensure the most effective treatments are made available and to keep pace with the needs of industry.

[1] Biosecurity instrument permits are required to move high risk ant carriers from a property within the biosecurity zone.

Our shared responsibility

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

Partnering to protect

Under Queensland law *(Biosecurity Act 2014)* all Queenslanders have a general biosecurity obligation to take all reasonable steps to prevent the spread of fire ants.

Independent research in 2018 showed that many people 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 can do to help with Queensland biosecurity measures and were open to education on their role.[1]

In addition to treatment activities this year, the program worked with the community to provide information and discuss how we can work together to fight fire ants and manage activities most at risk of spreading ant infestation. This includes understanding:

- what fire ants and their nests look like and where they are likely to hide
- what materials can be moved and where
- which biosecurity fire ant zone you live and work in
- knowing what your legal obligations are in these zones
- how to follow movement controls
- how to inspect fire ant carriers for ant activity, and
- how to clean equipment that can potentially transport fire ant carriers such as soil and mulch.

Self-management

Self-management of fire ants is an essential part of the 10-year eradication plan. As the program moves east into high density residential areas where aerial baiting may not be suitable, it will be imperative that residents and businesses play their part by self-managing the fire ant treatment of their property.

During the year, self-management strategies progressed through policy development and program design to piloting self-management with individual land owners.

In May 2019, a dedicated self-management project team was appointed to plan self-management options and provide specialised training to the pest management industry and building and development industry. Further engagement with the community about self-managing fire ants is planned for next year.

High risk fire ant carriers

Materials known to attract fire ants include:

- soil
- mulch
- gravel
- manure
- baled hay or straw
- potted plants
- turf
- some construction by-products.

Left: Turf farm soil is tested to determine treatment efficacy.

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

Working with industry and councils

Industry and local councils are key stakeholders and major contributors in the fight against fire ants.

A total of 2 331 industry personnel attended fire ant awareness training sessions throughout the year at either their place of business or at the program's central office in Logan, Queensland.

The program also held its inaugural Industry Collaboration Group meeting on 29 November 2018, with 22 representatives from local city councils and the building and development industry. The meeting focused on issues and key challenges specific to the building and development industry, with discussions about legal requirements, the implementation of measures to assist in the reporting, treatment and eradication of fire ants, as well as effective management of fire ants by particular industries.

With the Nursery and Garden Industry Australia and Nursery and Garden Industry Queensland (NGIA/Q), a new nursery risk self-assessment tool is in development to assist with managing fire ant risk in the biosecurity zones. This is intended to address challenges a small number of nurseries are having in complying with legal requirements. The program will continue to work with the industry to refine and evolve this tool.

City councils, as managers of public land, are also important in identifying, reporting and treating the pest. This year, engagement included the Logan, Gold Coast, Redland and Brisbane city councils. Discussions included the risk of fire ant spread between the Brisbane and the Gold Coast Development Corridor (Eastern Suppression Area) due to residential and commercial development.

These development sites have been identified as ideal habitat for fire ants and the movement of machinery and fire ant carriers increases the risk of spread. The program and councils are working together to share information on key development activity and decide on risk mitigation measures as part of the development approval process. This includes making assistance from fire ant crews part of the risk strategy as well as developing self-management options.

The program also met with the largest residential development and civil construction companies in the Gold Coast Development Corridor, and monitored large-scale development sites. Following a number of detections outside the fire ant biosecurity zones associated with that area, companies in the area were given advice on applying risk mitigation measures.

Below: The program is working with industry and councils to minimise the risk of fire ant infestation and spread.

Right: Fire ants can be under gardening materials.

Why are people reporting?

34% "I just noticed something different or unusual"

23% "I disturbed a nest whilst mowing the lawn or gardening"

15% "I found something suspect whilst conducting an inspection for my business"

9% "I actually went looking"

9% "I or someone I know was stung"

In your backyard

The lifestyle of all Australians is at risk if we as a community allow fire ants to spread. This highly aggressive, highly adaptive super pest loves Australian conditions and could make the humble picnic or BBQ a thing of the past.

Research tells us that nearly 60 per cent of residents and property owners living with fire ants believe they have a part to play in eradicating the ants.[1] This is great news. People know what's in their backyards and community areas better than anyone and are critically important to the fire ant eradication plan.

Between April and June 2019 alone, the community submitted 3 090 reports of suspected fire ants. Of the samples diagnosed, 83 per cent were positively identified as red imported fire ants.

Over 65 per cent of all fire ant reports are made by the public. These reports are vital to the program's understanding of fire ant populations and areas of high infestation.

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

A total of 9 380 suspect ant reports were received in 2018–19 compared to 6 755 in 2017–18, representing a 39 per cent increase in reporting. The majority of reports made were from residents who had 'noticed something unusual'. This is a significant increase in comparison to 6 755 reports made in 2017–18.

To find out more about how you can play your part in the fight against fire ants visit **daf.qld.gov.au/fireants**.

Here's what you can do:

- Know how to identify fire ants
- Check your yard
- Report sightings immediately
- Don't bring infested materials onto your property
- Educate neighbours, family and friends.

Below: It's important to know what fire ants and their nests look like.

How to identify fire ants

Size and colour

- Unlike other ants, red imported fire ants can have a variety of sizes in one nest
- Can be 2–6mm in size
- Coppery brown in colour with a darker abdomen

Nests

- Unlike other ants, nests have no visible entry holes
- Look like mounds of loose dirt
- May be found under logs, rocks, gardening materials and near water

Behaviour

- Unlike other ants, they swarm and can use collective intelligence to sting together.

Top 5 places to check for ants

Residential properties

1. Lawns
2. Footpaths
3. Garden beds
4. Taps
5. Utility pits

Rural properties

1. Dams
2. Edges of cultivated land
3. Crop land post-harvest
4. Fence lines
5. Piles of organic matter

Education and awareness

Education is key to preventing the spread of fire ants in Australian communities and we want everyone to know the part they can play.

It is not only industries using high risk carrier products that need to know about fire ants. Fire ants can potentially be anywhere in backyards and community spaces in identified fire ant areas.

The program works hard to get messages out to the community about fire ants and what we are doing, especially those areas undergoing eradication and targeted suppression treatment.

Areas undergoing treatment

In 2018–19, we reached out to dozens of communities in areas where eradication and suppression treatment was planned.

Topics discussed included:

- treatment schedules and processes
- bait safety for animals and humans, water sources and organic properties, and
- aerial treatment operations and how they may affect communities.

Following detections on the Gold Coast, information about fire ants was delivered through flyers, social media, signage using Department of Transport and Main Roads emergency signs and displays at community hubs to ask people to be on the lookout and report any suspicious ant activity.

Above: Ekka visitors' check out the complex structure of a fire ant nest.

Right: Aka the fire ant tracker' program teaches kids about their environment.

Creating awareness face-to-face

During the year, around 40 000 people attended events and presentations in community spaces where they could learn about fire ants and the program. This included the Royal Queensland Show (Ekka), fairs and market stalls such as:

- Lockyer Valley Country Music Festival
- Providence Community Developers
- The Workshops Rail Museum Open Day
- Community Interactive Display at Grandchester State School
- Laidley Fat and Store Cattle Sale
- Gatton Square Shopping Centre
- Fernvale Country Markets
- Brisbane to Gold Coast Corridor Laboratory Workshop
- Laidley Xmas Festival
- Laidley District State School
- Boonah Library Display
- Riverlink Shopping Centre
- Logan City Council Conservation Incentives Program Celebration Day
- Brisbane Garden and Plant Expo
- Laidley Village Markets
- Pine Rivers Garden and Plant Fair
- Fernvale Village
- Marburg Show
- Beaudesert Library Community Q&A session
- Brookfield Show
- National Volunteers Week
- LEAF Festival Logan
- Boonah Show
- Green Heart Fair at Chermside

Connecting with kids

Schools get fire ants too so it's important to educate children and their teachers on the risks, what to look for and what to expect if they are found at school. A popular engagement activity is the fire ant school education program 'Aka the fire ant tracker'. It features a former fire ant odour detection dog who demonstrates to students how he has been trained to find fire ants. This schools program is a free 45-minute interactive presentation that teaches students about fire ants and the messages they need to take home to their parents. It is also sparks their interest in current environmental issues. Close to 8 500 students took part in the activity this year.

The Ekka

Our flagship display this year was at Brisbane's Royal Queensland Show (Ekka) in August 2018. This provided a great opportunity for the program to engage with thousands of people about fire ants and the program's activities. On display was a live fire ant tank, nest sculpture and fire ant biosecurity zone maps. It's estimated that around 15 000 people visited the display.

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 program scientists 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 methodologies, shares vital research, and works with others to develop new technologies that ensure activities are best practice.

Diagnostics and monitoring

This year's activities included:

- diagnosing 8 397 suspect ant samples collected by program ground staff or the public. Of these, 6 777 samples were positively identified as fire ants.
- identifying sites outside the operational boundary for planned surveillance by the Program during May–September 2019
- continued monitoring of sites in eradication Area 1 treated by aerial baiting, as well as selected ground treated sites in Areas 2–4, to determine the effectiveness of treatment activities. Tests showed encouraging results, with ants either dead or bait affected.

Genetic testing

Genetic testing is a significant tool used to understand fire ant populations, inform fire ant treatment and measure its success. This includes knowing the social form of nests to help determine the level of treatment needed (e.g. nests that are monogyne—with a single queen or polygyne—with multiple queens co-habiting, with polygyne the most difficult to eradicate), understanding fire ant spread patterns, and being aware of genetic bottlenecks or changes in population structures that are likely caused by program treatments.

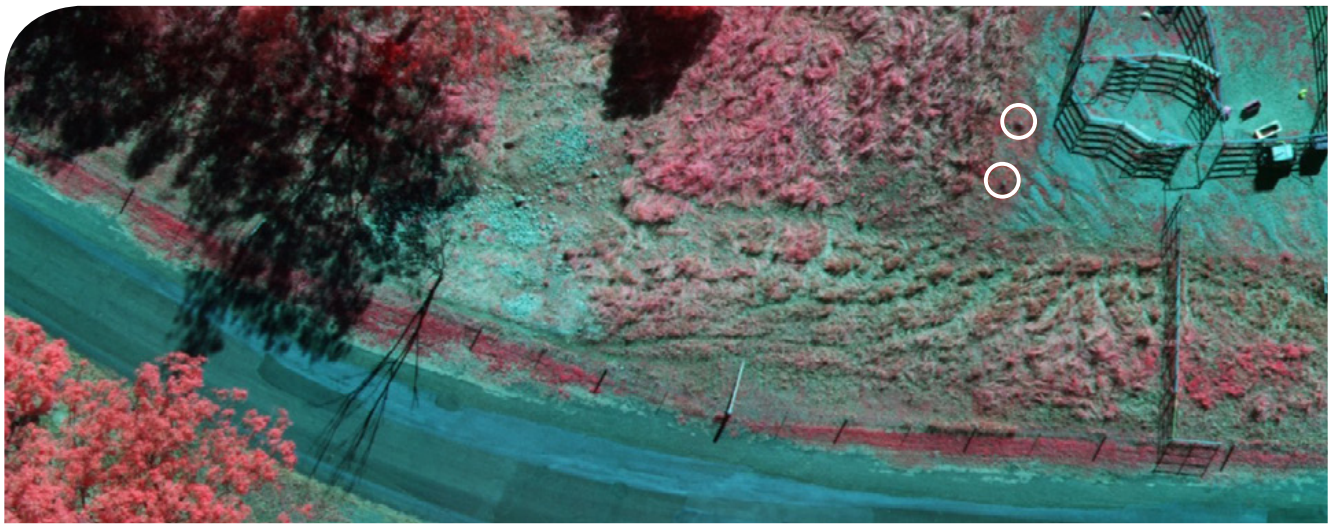
Of the sites sampled during 2019, only 1.03 per cent were confirmed to be of polygyne social form, which is a decrease from the 1.2 per cent found in 2017–2018 and is considerably less than international polygyne infestations of 40–70 per cent. The annual genetics report for evaluating sub-population trends and genetic health is due in August 2019.

Trialling new treatments and methods

In 2018–19, this included:

- Testing the efficacy and introducing an alternative Direct Nest Injection (DNI) technique ('trench and drench') into standard operating methods where the typical spearing technique is not feasible. Testing involved a before-after control-impact scientific trial at an infested property in the Logan area. Multiple evaluation methods (pitfall traps and nest assessments) recorded no fire ant activity in treated nests seven days after treatment, indicating the technique was effective.
- Reviewing and maintaining the chemical permits used by the program. For example, modifications were made to the fipronil permit to include the alternative DNI technique mentioned above, as well as allowing external pest management technicians to perform DNI on the program's behalf in line with new self-management policy.

Left: Field testing new remote sensing technology in South East Queensland.



Above: Aerial remote sensing infrared technology can locate nests in large areas.

- Continued discussion and trial planning regarding alternative baits with external organisations including Sumitomo (to provide a water-resistant corn grit alternative), UQ bioclay (using nanoparticle technology) and Davren (using a silica-based product).
- Fostering industry collaborations to verify existing treatments or evaluate potential alternative options for managing fire ants in commercial products. This included working with the turf industry to confirm the efficacy of the chemical bifenthrin as an alternative to chlorpyrifos to treat fire ants and provide additional options to manage the risk of infected turf leaving farms across the industry.

Sharing new knowledge

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

In 2018–19, this included the publication of 'Join the Ant Hunt: How Accurately Can the Public Recognise Red Imported Fire Ant *Solenopsis invicta* (Hymenoptera: Formicidae) in Australia?' by Dr Melinda McNaught, Dr Ross Wylie and Mr Robert Bell in the peer-reviewed journal *Austral Entomology*.

Dr Wylie was also invited to submit a follow up article to his 2016 paper (with co-authors Dr McNaught and Dr Jane Oakey) 'Eradication of two incursions of the Red Imported Fire Ant in Queensland, Australia' in the peer-reviewed journal *Ecological Management & Restoration*.

In addition, Austin McLennan presented on the entomological science and effort underpinning efforts to eradicate fire ants from Australia at the Australian Entomological Society conference in Alice Springs.

The program also hosted a senior biosecurity officer from Tuvalu in May as part of the Pacific Plant Biosecurity Partnership (funded by the Australian Centre for International Agricultural Research and Department of Agriculture and Water Resources). This partnership is aimed at sharing knowledge with our Pacific neighbours on our biosecurity measures and research.

Into the future

The program led the world in the use of remote sensing technology to locate fire ants. The aerial thermal, near-infra-red and colour based technology has the ability to comprehensively and accurately search for fire ant nests over large tracts of land. It successfully identified the full extent of the South East Queensland Fire Ant incursion in 2015 with 99.9 per cent accuracy. As this equipment has reached the end of its life and there have been advances in artificial intelligence, a new generation state-of-the-art remote sensing system is in development. The prototype adds high-resolution short-wave infrared and long wave infrared senses to the device, which increases the ability to identify fire ant nests from other ground objects. Field tests began in June 2018 with further research and testing to take place over the next financial year.

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 10–year National Red Imported Fire Ant Eradication Program.

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. It is chaired by an independent chair appointed by the National Biosecurity Committee and is 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 committee also engages with critical stakeholders annually to provide updates, answer questions and receive advice and feedback from industry, environmental and community groups.

The Steering Committee is advised by its sub-committees—the **National Exotic Invasive Fire Ant Scientific Advisory Group (SAG)** and the **Risk Management Sub-Committee (RMSC)**.

The SAG provides specialist scientific advice from national and international invasive ant experts to the Steering Committee including matters such as the scientific basis of the tools, techniques, products and strategies used by the program. The SAG group held its inaugural meeting in November 2018.

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, selected Committee members as well as two independent external risk specialists, one of whom chairs the Sub-committee. The RMSC met twice during 2018–19. The Risk Sub-Committee held its inaugural meeting in December 2018.

The program is managed by Biosecurity Queensland, Department of Agriculture and Fisheries on behalf of the Australian Government and all state and territory governments.

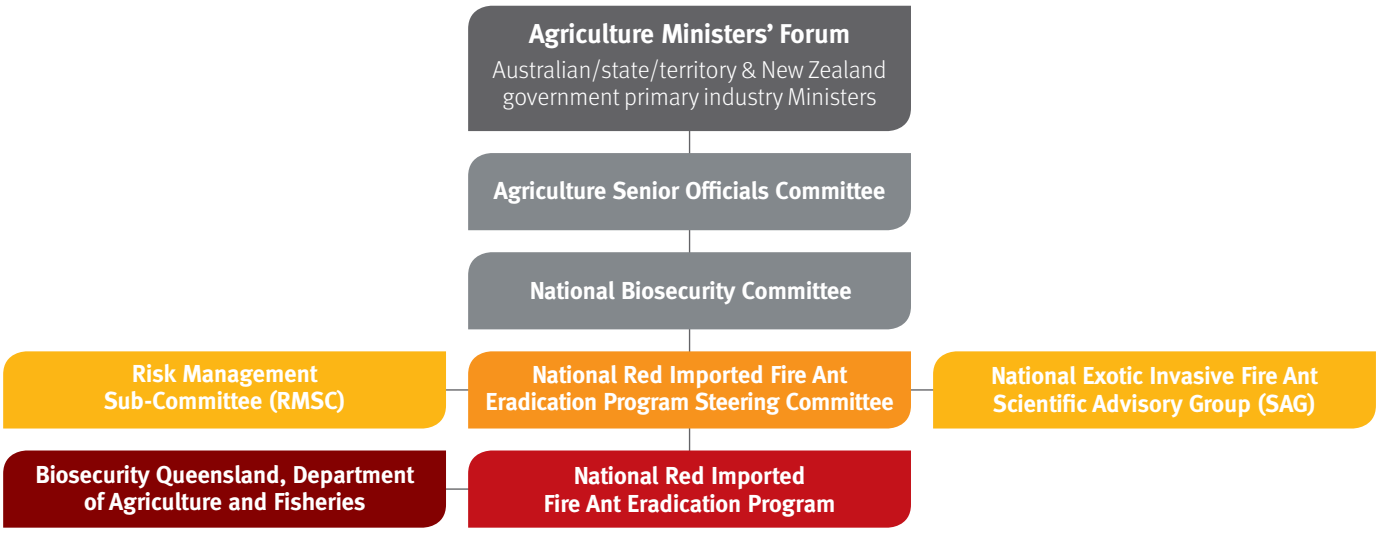
Planning and development

The Steering Committee's work this year included approving the program's 2018–19 Work Plan and budget, quarterly reports, policy proposal for self-management of fire ants by the community, and the approach to western suppression. In addition, it appointed the respective Chairs and members of the new National Exotic Invasive Ant Scientific Advisory Group (SAG) and Risk Management Sub-Committee (RMSC), and approved financial and in-kind support for research and development of alternative bait technologies for fire ants in collaboration with the University of Queensland. The Committee also visited fire ant science sites as well as carrier producers and suppliers to discuss infestation and risk mitigation.

Focus on quality

In 2018–19, a newly formed Quality Management team began implementing a new quality assurance system designed to drive a culture of quality and continuous improvement. This included improving fire ant eradication procedures and processes to support operational decision making and delivery.

Protocols for detections of importance and defining the operational boundaries were also finalised this year. Work in 2019–20, will focus on operational auditing for field based activities.



Steering Committee

L-R: Bruce Christie (NSW), Lloyd Klumpp (TAS), John van Schagen (WA), Dr Wendy Craik (Chair), Dr John Robertson (Qld) and Karina Keast (for Josephine Laduzko, Australian Government). Absent: Sarah Corcoran (NT), Michael Rosier (VIC) and Josephine Laduzko.

Wendy Craik AM

BSc (Hons), GradDipMgt, PhD
Independent Chair
Member, Risk Management 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 NSW 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.

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 lead 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. Further, John has 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 to date.

Left: Science Advisory Group member and program Science Leader Dr Ross Wylie and Queensland Minister for Agricultural Industry Development and Fisheries, the Honourable Mark Furner MP, view eradication activities in Area 1.

Josephine Laduzko

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

Josephine Laduzko, is currently the head of Biosecurity Policy and Response Branch, within the Department of Agriculture and Water Resources. Jo is the Australian Government representative on the Environmental and Invasives Committee and the National Biosecurity Emergency Preparedness Expert Group, subcommittees of the National Biosecurity Committee. Her responsibilities include national response policy across the various emergency response deeds, and the conduct of NBC and National Management Group meetings. Prior to this, Jo was most recently responsible for Commonwealth State Relations within the Department of the Prime Minister and Cabinet. She was a member of the steering committee for the interjurisdictional 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 Commonwealth Department of the Treasury.

Bruce Christie

BVSc, MANZCVS, GAICD
Member, Risk Management Sub-Committee
Appointed 2017

Bruce is the Deputy Director General Biosecurity and Food Safety, New South Wales (NSW) Department of Primary Industries 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 NSW Chief Veterinary Officer he led responses to a number of exotic disease incursions, including the successful eradication of Equine Influenza from NSW and Australia. He represents NSW on the National Biosecurity Committee and has been 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
Appointed 2018

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 that have overseen implementation of significant biosecurity initiatives in Victoria and represents Victoria on the National Biosecurity Committee.

Lloyd Klumpp

BVSc, GradDipPsySt, GradDipProjMgt
Appointed 2018

Lloyd holds the position of General Manager of Biosecurity Tasmania, the government division 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 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 several 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, Plant Product Integrity.

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.

Sarah Corcoran

BSc (Hons)
Appointed 2017

Sarah Corcoran is the 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 holds 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.

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. From 2009 until March 2014 he was the Assistant Secretary, Plant Biosecurity, in the 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 in the Imported Fire Ant and Household Insects Unit of the United States Department of Agriculture, Agricultural Research Service, in Gainesville, Florida. His research emphasis for the past 28 years is 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 received B.S. and M.S. degrees from the University of Hawaii, and a Ph.D. from the University of California at Riverside with a major in insect pest management and minors in biological control and statistics. 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), whose goal is to build resilience to biosecurity threats from invasive ants throughout the Pacific. Primarily working with regional agencies SPREP and 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 over 20 years in project and programme 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 currently 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 has been 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. Ben has been directly responsible for achieving more than half of the world's site-level ant eradications. He is engaged with every ant eradication program within Australia in capacities ranging from committee oversight to coordination. Ben is an invited member of the IUCN Invasive Species Specialist Group, represents CSIRO on the National Biosecurity Management Consultative Committee, 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, commencing 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 consultancies in 20 countries in Asia-Pacific establishing early warning systems for invasive pests. He has authored numerous papers and 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 8 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 the North Queensland Yellow Crazy Ant program for Biosecurity Queensland and was Operations Coordinator on the RIFA Yarwun Eradication in 2013–14 and LCC Controller on the Panama TR4 Response in 2015.

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

Alan Millis

Chair, Risk Management Sub-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 currently 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, ACIS, 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 Price Waterhouse and KPMG. In a career spanning 30 years she currently is a Principal Advisor with Building Queensland supporting the provision of advice to state government on the risk and social cost benefit of major infrastructure proposals. Both a Chartered Accountant and Chartered Secretary, Irene serves on 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.

Right: The program works with industry and businesses on strategies that reduce the risk of fire ant spread.

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 once and for all.

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 and is evolving with the needs of the program. In April 2019, new General Manager Graeme Dudgeon was appointed along with Dr Jacqui King–Director. Team leaders during 2018-19 included: Heather Leeson–Manager Policy Governance and Compliance, Sharon Janssen–Manager Planning and Quality Management, Barry Cooper–Manager Operations, Dr Liz Williams–Manager Science, Louise Morgan and Sharyn Sawyer–Manager of Communications and Engagement, Leandra Viviers–Manager Business Support and Dr Ross Wylie–Science Leader.

Our team

Our team includes:

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

Our team this year

The number of staff remained steady throughout the year with temporary short-term contractors engaged to meet business needs, particularly during treatment season when extra field staff are needed. This year, the addition of the Western Boundary saw six extra ground crews appointed in April 2019 (Q4) to undertake planned eradication treatment. This was later than the traditional treatment season due to the addition of the boundary earlier in the year and related funding delays.

	2018–19			
POSITION	Q1	Q2	Q3	Q4
Permanent	97	98	86	87
Temporary	30	25	29	35
Contractor—office*	34	34	26	31
Contractor—field*	129	119	99	147

Q: year quarter. Source: Aurion and *Internal accounts database

Where we work

From July to October 2018, the opening of a new site at Berrinba, Logan saw the Richlands and Moggill sites close and teams relocated to Berrinba or Wacol. This has enabled key business and operational teams to be located together and/or close to current eradication treatment areas enabling higher levels of efficiency for the program. Teams in South East Queensland are now based across six sites:

Central Office	Satellite Sites			
BERRINBA	MUTDAPILLY AND LAIDLEY	WACOL	COOPERS PLANS	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.

Ground crew and operational staff based at the new Berrinba facility.

Learning and development

In 2018–19, new training on chemical management, privacy and disability awareness was introduced for all program staff. Where relevant, staff also undertook new training on the requirements and obligations of the *Biosecurity Act 2014 (Qld)*, including when entering private property and monitoring the potential human-assisted movement of fire ants.

Workplace health and safety

During 2018–19 there were 212 workplace health and safety incidents recorded up from 111 reports in 2017–18. The majority of incidents that occurred were minor, with injuries not needing first aid. Seven major injuries required medical clearance to return to work. Incidents included a dog bite, fire ants bites, slipping or tripping and wounds caused by weeds while undertaking work activity.

The increase in reports reflects new initiatives implemented to improve the reporting culture of our team, including the appointment of a designated Workplace Health and Safety Officer. This will continue to improve the program's safety culture in the coming year.

Volunteers

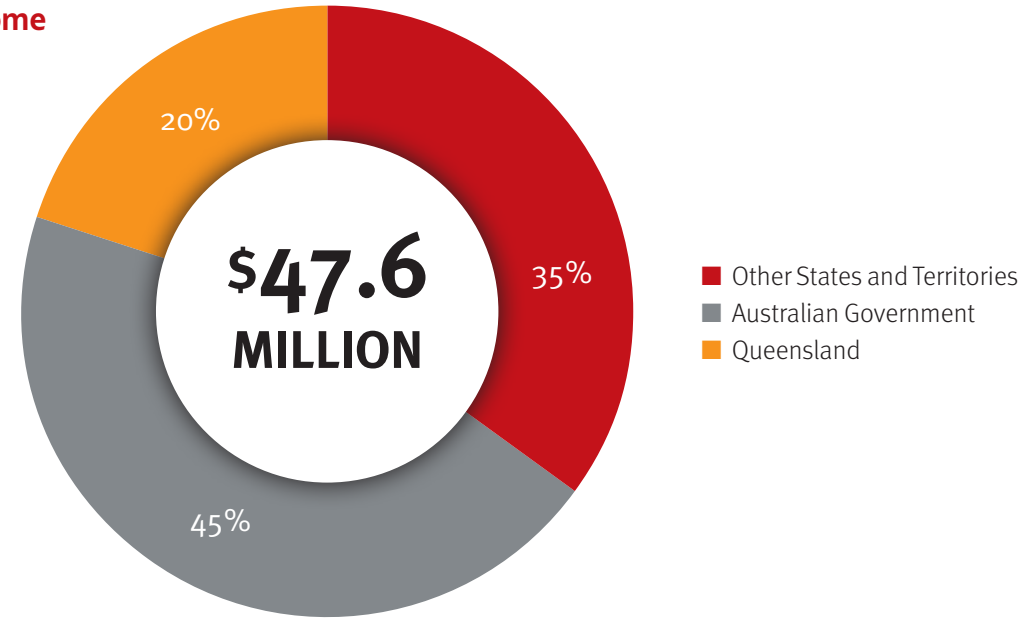
More than 900 hours were invested by volunteers during 2018–19. The skills, experience and support of our volunteers is recognised and much appreciated, aiding our mission to eradicate fire ants. During the year, the program acknowledged their contribution through the presentation of awards by the Steering Committee.

Our funding

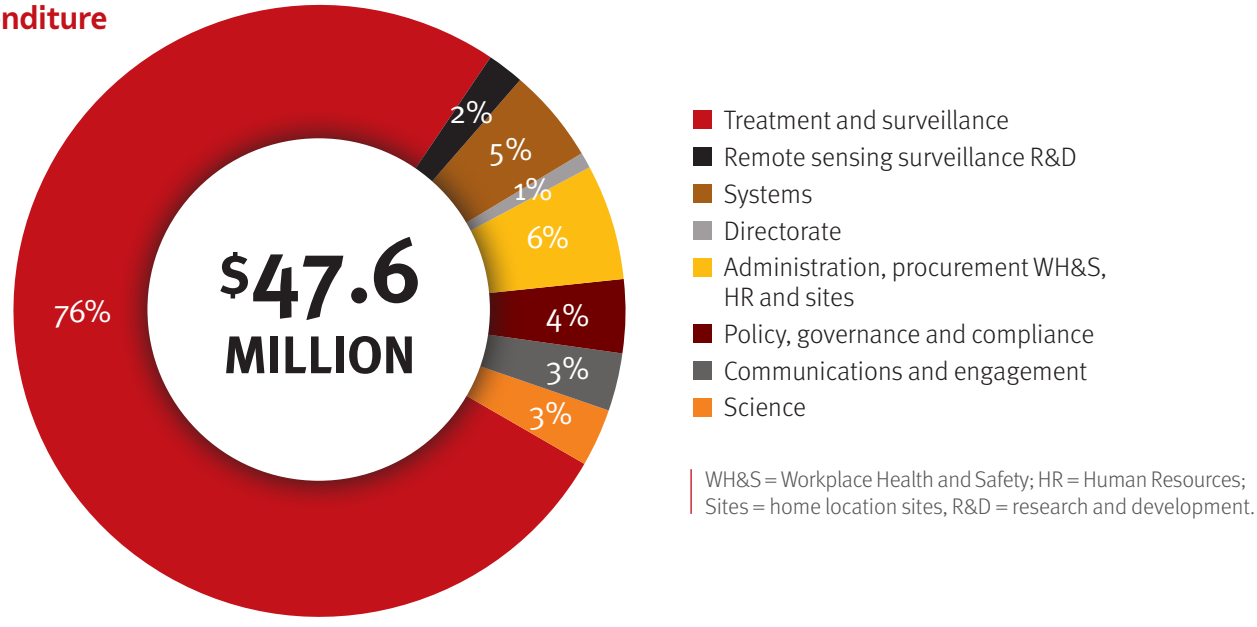
During 2017–18, the program expended $47.6 million of a total approved budget of $52.9 million. The variation is largely due to the late bringing forward of funding, which impacted the timing of the commencement of program activities for the year. Unspent funds of $5.2 million have been carried forward to 2019–20.

The National Red Imported Fire Ant Eradication program is a nationally cost-shared eradication program delivered by Biosecurity Queensland on behalf of the Australian Government and all state and territory governments.

Income

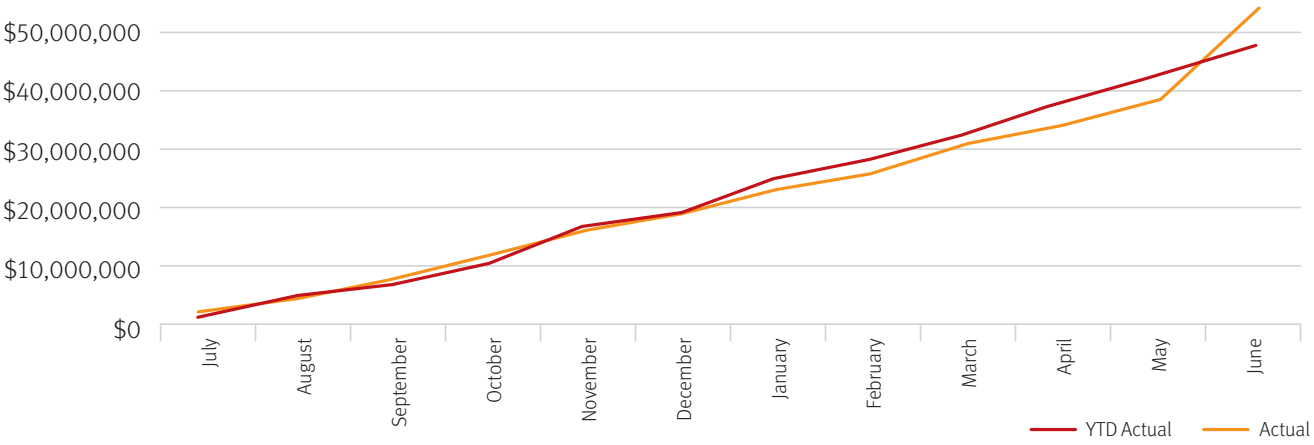


Expenditure



WH&S = Workplace Health and Safety; HR = Human Resources; Sites = home location sites, R&D = research and development.

Expenditure to budget trend



The program's financial management information is included in the Queensland Audit Office's audit of the annual financial statements for the Queensland Department of Agriculture and Fisheries in accordance with Section 40 of the *Auditor-General Act 2009*. The Auditor General has completed an audit of the annual financial statements and prepared an unqualified audit opinion in relation to the 2018–19 financial statement for the Department of Agriculture and Fisheries.

In addition, a program specific financial audit for 2017–18 and 2018–19 is to be conducted in 2019–20. Financial and Efficiency audits are conducted as required by the Steering Committee and in accordance with the National Red Imported Fire Ant Eradication Program – South East Queensland Principles for cost-sharing arrangements.

Right: Handheld spreaders are used to spread bait in urban areas or hard to get to spaces.

National Red Imported Fire Ant Eradication Program
South East Queensland

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