Annual report 2022–23

NATIONAL
Fire Ant Eradication
PROGRAM

National Fire Ant Eradication Program

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Contents

Chair message 5
About the program 8
Mission 8
Objectives 8
Program history 8
Program outcomes 10
Key performance indicators (KPIs) 10
Treatment 13
Eradication and containment 14
Suppression 15
Treatment gaps 16
Surveillance 18
Remote sensing surveillance 19
Odour detection dog surveillance 20
Outbreak control 20
Detections of importance 20
Polygyne infestations 23
Support for other jurisdictions 23
Compliance enforcement 23
Business services 25
Procurement 25
Facilities 25
Human resources 25
Strategic policy 26
A new response plan and 2023–24 work plan 26
Regulatory reform 27
Review of the biosecurity zones 27
Science 28
Research and development 28
Scientific services 29
Systems and intelligence 29
Business intelligence 29
Systems 30
Communications and engagement 30
Social and behavioural research 30
Broadscale communication and marketing 32
Industry engagement 33
Community engagement 33
Stakeholder training 34
Directorate 34
Program governance 34
National Steering Committee 35
Risk management 38
Finance 45

2022–23 budget 45
Remaining funding under 10-year eradication plan 47
Fire ant response plan 2023–27 48
Acronyms 49

Figures

Figure 1: Potential fire ant spread without and eradication program (June 2023) 10
Figure 2: Map of operational areas 13
Figure 3: Planned treatment – eradication and containment areas 2022–23 15
Figure 4: Community reports and business days elapsed before treatment 16
Figure 5: Fire ant biosecurity zones (30 June 2023) 27
Figure 6: Stakeholder training 34
Figure 7: Program governance structure 35
Figure 8: Financial result 45
Figure 9: National cost sharing 46
Figure 10: Income statement 46
Figure 11: Budget to actual 47

Tables

Table 1: Successful management of fire ant incursions 9
Table 2: Achievement against KPIs 11
Table 3: Treatment gap causes 17
Table 4: Planned and responsive surveillance 19
Table 5: High-risk industry audits 2022−23 24
Table 6: Staff numbers 2022–23 25
Table 7: Workplace health and safety incidents 26
Table 8: Stakeholder research summary (June 2023) 31
Table 9: National Steering Committee members 36
Table 10: Risk assessment 39
Table 11: Funding dissection for 2023–24 47

Chair message

I am pleased to present the National Fire Ant Eradication Program (NFAEP) annual report 2022–23. The NFAEP's primary goals of eradicating and containing red imported fire ants (fire ants) continued over the 2022–23 financial year. This report is designed to communicate the activities of the NFAEP against the NFAEP's 2022–23 work plan. The NFAEP remains Australia's largest eradication program, targeting an ant species acknowledged as one of the world's worst invasive species with international experience demonstrating its pervasive human health, economic, and environmental costs.

An Independent Strategic Review (Independent Review) of the NFAEP delivered to the National Steering Committee (NSC) in 2021 recommended changes to Australia's eradication approach. This annual report is the first one presented on the NFAEP's efforts to contain and eradicate fire ants from Australia under this new recommended approach.

To solidify Australia's eradication effort and in line with the 2021 Independent Review, the Queensland Government committed $37.1 million over 5 years to establish a complementary Fire Ant Suppression Taskforce (FAST). This taskforce commenced suppression activities in December 2022, working closely with local governments and communities across South East Queensland (SEQ) to reduce the population and intensity of fire ant populations in preparation for eradication by the NFAEP. The FAST and NFAEP work in unison to combat this invasive ant species.

The NFAEP's scientists continued to enhance eradication efforts during 2022–23 by focusing on remote sensing surveillance (RSS), advising on treatment, and establishing new external collaborations, including with universities to explore using environmental DNA for fire ant surveillance. During 2022–23, the NFAEP recorded significant growth in demand for the science team's expertise in diagnostic services, which has built collective knowledge about these ants and their genetics as well as informed the NFAEP's strategic and operational response to eradication. The science team also assumed a pivotal role in supporting important industry and community educational events, including live ant demonstrations, designed to build general and specific knowledge about the ants and their threat to Australia's way of life. The NFAEP scientists are recognised as world leaders with their contributions growing the global understanding about this super pest. The NFAEP scientist consult regularly with national and international ant experts through the National Exotic Invasive Ant Science Advisory Group to ensure the best and most recent knowledge is employed in the eradication response.

Planned and targeted treatment activities incorporating broadscale aerial and on-ground field treatment across the eradication and containment zones in Queensland's Lockyer Valley, Scenic Rim and Ipswich regions were undertaken over the reporting period. Despite delays associated with funding, greater than projected wet weather conditions and supply-chain disruptions, the NFAEP treated 401,079 hectares across the eradication and containment zone in the 2022–23 financial year.

The NFAEP achieved its targeted 98% treatment coverage across the planned eradication treatment area. The 2% treatment gap, representing 1,642 hectares of suitable fire ant terrain, resulted from poor weather, cropping gaps, and landowner refusals. The NFAEP continued to work closely with landowners to clarify and address individual concerns about treatment. While voluntary participation is preferred, the NFAEP team exercised legislative

powers under the *Biosecurity Act 2014* for 83 properties in 2022–23 in response to landowner refusals. Most landowners (93%) subsequently permitted entry for treatment after consultation with program representatives.

During 2023–23, the NFAEP faced new detections across 9 locations within and outside the SEQ eradication and containment area. Detections in the Gold Coast and Scenic Rim received priority treatment to prevent spread into New South Wales (NSW). Discovery of fire ants on Minjerribah (North Stradbroke Island) in January 2023 culminated in a working collaboration with the Quandamooka Yoolooburrabee Aboriginal Corporation (QYAC) for treatment and future surveillance. An incident response team investigated the first detection of fire ants in the Toowoomba region, an area outside the NFAEP's current and future operational areas. The NFAEP also assisted Agriculture Victoria with a fire ant incident in the outer Melbourne suburb of Thomastown.

The NFAEP's compliance and enforcement team completed 819 audits of businesses across high-risk industry sectors, such as earthmoving, construction, nurseries, and landscaping suppliers. As a result, 34 Biosecurity Orders and 53 Advisory Notices were issued to businesses for non-compliance under the Biosecurity Regulation 2016. Two Penalty Infringement Notices (PIN) were issued over the reporting period. The NFAEP commenced a review of existing legislation and planning for targeted compliance activities in response to the 2021 Independent Review's recommendation to build its compliance enforcement capability, particularly to address the risk of human-assisted spread; build voluntary compliance, including enhancing community and industry knowledge about their obligations; and inform high-risk industries about fire ant safe practices.

The NFAEP's partnership and engagement team undertook social and behavioural research to build the effectiveness of stakeholder-centred communication and engagement. This commitment stemmed from survey results which revealed that while community awareness about fire ants in 2022–23 was very high (97%), just over half of respondents (58%) proactively looked for fire ants on their premises. Eighty per cent of businesses surveyed reported an appreciation of biosecurity zone controls, representing a 10% increase from an earlier survey findings. Of businesses surveyed, 64% had built in fire ant practices as part of their business. Building this strong coalition with business and communities to eradicate fire ants represents an ongoing commitment by the NFAEP. On behalf of the committee, I would like to extend my appreciation to the industries that have engaged with the NFAEP and the more than 17,000 community members who reported suspected fire ants and acknowledge their important role in our eradication efforts and protecting Australia's way of life. I am pleased to report that the NFAEP improved its response time to community reports from an average of 9 days in 2021–22 to an average of 7 days in 2022–23.

FAST launched its community self-treatment initiative in February 2023, asking residents to voluntarily register to receive free fire ant kits to treat their property. This initiative, which attracted more than 11,400 Ipswich residents, would not have been possible without the support of Ipswich City Council, local businesses, and the community. These uptake levels demonstrate the importance of collaboration to the NFAEP's objective of eradication.

The NFAEP and the NSC remains committed to working collaboratively with residents, businesses, and government stakeholders to eradicate and suppress fire ants. The experience of other countries emphasise that this is an eradication program we cannot lose – what is on the line for Australia is simply too important. As we proceed into 2023–24, a

year of expansion and innovation, the NFAEP reaffirms its commitment to Australia's environment, economy, health, and lifestyle by eradicating fire ants.

The committee through the Risk Management Sub-Committee (RMSC) has regularly reviewed the risks to the NFAEP with consideration of the recommendations of the Independent Review and challenges, such as funding, inclement weather, property access and supply chain disruptions.

I thank on behalf of the committee all those who work in the NFAEP team and commend you for your efforts to eradicate and suppress this super pest. Our thanks also go to the Queensland community – the residents and the businesses who have contributed to the fight against fire ants, who self-treat their own properties, share their knowledge with friends and family and in doing so, support of the work of the NFAEP. What you do makes a big difference in this important effort.

I acknowledge and thank the members of the committee who have again demonstrated through this year their commitment to ensure the NFAEP is successful in its eradication objective. I particularly acknowledge the enormous efforts of the previous NSC Chair, Dr Wendy Craik who stepped down, in April 2023 after 5 years as Chair. I also acknowledge the RMSC and the National Exotic Invasive Ant Science Advisory Group for their ongoing support in 2022–23 and their shared belief in and commitment to the NFAEP's core objective of protecting all Australian communities through total eradication of red imported fire ants.

Dr John Robertson
Chair – National Steering Committee
National Fire Ant Eradication Program

About the program

Mission

To protect the Australian lifestyle, environment, and economy by eliminating fire ants from SEQ.

Objectives

- **Objective 1**: Reduce infestation until fire ants are no longer present in SEQ and ensure areas remain free from fire ants through the implementation of eradication measures.
- **Objective 2**: Prevent the spread of fire ants to non-infested areas by treating fire ant infestations, enforcing compliance with fire ant carrier movement restrictions, and engaging with the community to provide fire ant education.
- **Objective 3**: Provide evidence to demonstrate freedom from fire ant infestation in SEQ.
- **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.

Program history

The NFAEP launched in 2001 as an emergency response to a fire ant incursion at the Port of Brisbane and the detection of fire ants at Richlands, a suburb in Brisbane's west. The NFAEP is a national cost-shared eradication program funded by the Australian and state and territory governments that is delivered by Biosecurity Queensland in the Queensland Department of Agriculture and Fisheries (QDAF).

The NFAEP is governed by a NSC comprising representatives from Australian and state and territory governments and led by an independent chair. It provides strategic and operational oversight, monitors performance, and guides NFAEP efforts to achieve its objectives.

By 2017, Australian governments had invested $367 million for fire ant eradication. Additional funds of $411.4 million was committed under the 2017–27's 10–year eradication plan to eradicate fire ants from Queensland by 2027. An Independent Review of the NFAEP occurred in 2021, assessing the first 4 years of the 10-year eradication plan. This review recommended a more comprehensive program focused on stronger containment, aggressive suppression, and a stronger compliance response to addressing human-assisted movement (HAM) to prevent fire ants spreading beyond SEQ.

The draft national fire ant eradication response plan 2023–27 (the response plan) implements the recommendations of the Independent Review and will be presented to the Agriculture Ministers Meeting (AMM) for endorsement in July 2023.

The NFAEP has contained fire ants to SEQ, prevented their expansion into other Australian states and territories and successfully eradicated 5 discrete fire ant incursions (see Table 1).

Table 1: Successful management of fire ant incursions

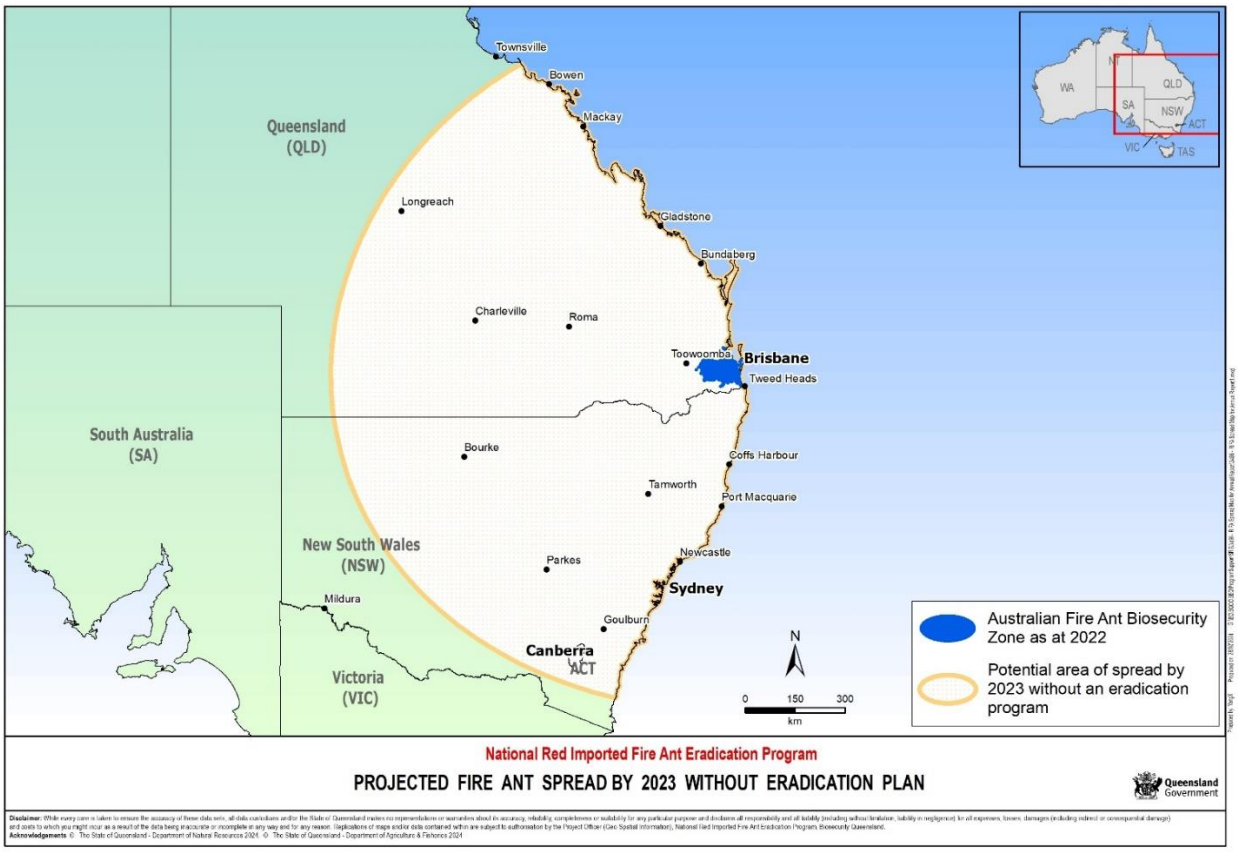
Location	Detected	Source	Outcome
Port of Brisbane, Brisbane	2001	New incursion from United States of America (USA)	Eradicated 2012
Yarwun, Gladstone	2006	New incursion from Argentina	Eradicated 2010
Port of Gladstone, Gladstone	2013	New incursion from USA	Eradicated 2016
Port Botany, NSW	2014	New incursion from Argentina	Eradicated 2016
Brisbane Airport, Brisbane	2015	New incursion from USA	Eradicated 2019

In addition to several quarantine interceptions at the international border by Commonwealth agencies, the NFAEP assisted in 4 post-quarantine detections, eradicating fire ants before they were able to establish. These include Melbourne in 2001, the Port of Brisbane in 2004, Lytton (Qld) in 2009 and Roma (Qld) in 2011. The Roma detection was on a shipment of goods intercepted enroute to Western Australia.

An additional 8 fire ant quarantine interceptions have occurred, including Darwin (2007), Melbourne (2006 and 2015), South Australia (2009 and 2017), the Port of Brisbane (2009 and 2014), and Western Australia (2011). All interceptions were destroyed at the point of entry.

The 2021 Independent Review revealed that without the interventions undertaken by the NFAEP, fire ants would have spread as far south as Canberra, north to Bowen and west to Longreach. This projected spread modelling is based on the documented spread of fire ants across the USA, which now involves 17 American states. Fire ant spread across the USA is reported as 50 km annually, while China records a spread of 80 km annually. In SEQ, fire ants have spread at the much slower pace of approximately 4 km per year. Figure 1 below illustrates the extent of potential spread based on modelling and biosecurity zone controls in Queensland.

Figure 1: Potential fire ant spread without and eradication program (June 2023)



Program outcomes

The NFAEP's operational activities comprise 4 specific and complementary components:

- eradication and containment
- surveillance
- compliance enforcement
- community engagement.

In 2022–23, the NFAEP restructured its operational areas into 3 areas eradication, containment, and suppression to better align with recommendations of the 2021 Independent Review for a new, stronger approach.

This annual report reflects the first time the NFAEP has reported its activities under this new approach.

Key performance indicators

As this report reflects the first year of reporting under the new, stronger approach, the KPIs for 2022–23 (see Table 2) focus on scaling up the NFAEP's enhanced treatment and surveillance activities to align with the recommendations in the 2021 Independent Review. There were factors throughout 2022–23 that significantly impacted the NFAEP's ability to

meet KPIs. This included protracted negotiations with the aerial contractor that resulted in 2 months in the treatment season where aerial capability was grounded, and there were delays associated with greater than projected poor weather conditions that reduced available days to treat.

The strategic goals of the national fire ant response strategy 2022–27 are listed in Table 2.

Note: Evidence of a reproductively viable fire ant queen may include detection of the queen itself, evidence of fire ant nests and/or genetic evidence suggesting multi-generational reproduction of a novel colony.

Table 2: Achievement against KPIs

KPI	Target	Outcome
Strategic goal – Foster public engagement and participation in fire ant responses in all affected areas		
An increase in percentage of households within the *containment* and *eradication areas* that disclose they look for fire ants in targeted surveys.	10% increase from 2021–22 survey results.	This target was not met – 58% of surveyed residents in June 2023 reported they checked their yard or local green space for fire ants. While representing a 2% increase from 56% reported in April 2022, this falls short of the targeted 10% increase.
Strategic goal – Prevent the spread of fire ants beyond their current extent in Australia		
Total number of unique ha [1]surveyed for fire ants in *eradication* and *containment areas* by remote sensing surveillance (RSS) or ground surveillance.	Minimum of 45,000 ha of land is surveyed.	This target was not met, however good progress was made. A total of 36,582 unique ha of land was surveyed during 2022–23. The approximate 20% shortfall from the target was attributed to poor weather (greater than projected), unsuitable habitat and unsafe terrain.
Evidence of a reproductively viable fire ant queen detected beyond of the outer limits of the *containment* area.	Zero detections.	This target was not met – 6 fire ant detections beyond the outer limits of the containment area occurred during 2022–23. Refer to the *Detections of importance* section for more details.

[1] Unique ha[s] refer to one ha of land that has received one round of treatment.

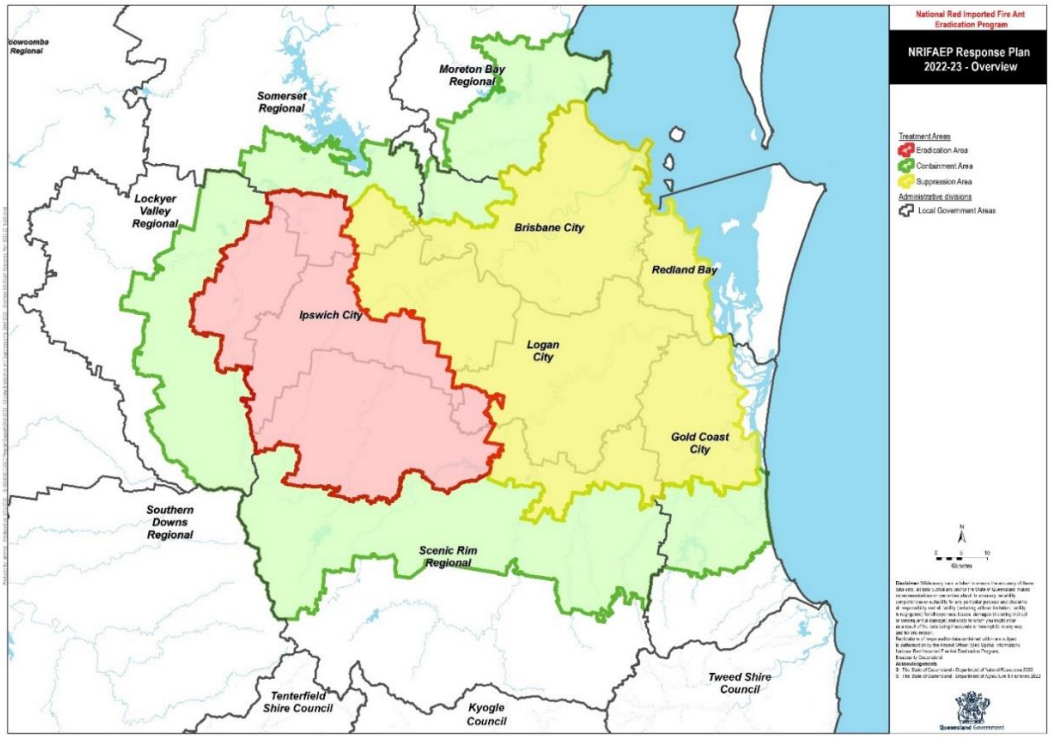
KPI	Target	Outcome
Response time to treat fire ants detected within the *containment* area.	All suitable habitat within 500 m of a fire ant outbreak within the *containment* area and outside the current treatment area is treated within 31 days of a confirmed fire ant detection.	This target was met – a total of 30 fire ant nests were detected outside of planned treatment areas within the containment area during 2022–23. All nests were immediately destroyed upon detection and insect growth regulator (IGR) was applied on all suitable habitat out to 500 m from the nests within 31 days.
Awareness of biosecurity zones that restrict the movement of fire ant carriers.	At least 80% of industry is fully aware of biosecurity zones that restrict the movement of fire ant carriers.	This target was met – the June 2023 survey results revealed that 80% of industry members were fully aware of the fire ant biosecurity zones. This represents an improvement from April 2022 (71%).
Strategic goal – Suppress fire ants in all infested areas		
Total number of unique ha of land receiving at least one round of treatment in the *eradication* area (379,000 ha).	One round of planned treatment completed across 150,000 unique ha of land.	This target was not met, however good progress was made. The 2022–23 treatment season began 5 September 2022. A total of 136,316 ha received at least one round of treatment in the 2022–23 period. Poor weather (greater than projected) impacted the full realisation of this target.
Total number of unique ha of land receiving at least one round of treatment in the *containment* area (205,000 ha).	One round of planned treatment completed across at least 36,000 unique ha of land.	This target was met – at least one round of treatment was applied to 69,046 ha in the containment area.
Strategic goal – Achieve and prove absence of fire ants from targeted areas through eradication treatment and clearance surveillance		
Total number of unique ha of land receiving three rounds of treatment in the *eradication* area.	3 rounds of planned treatment across at least 150,000 ha.	This target was not met – 17,219 ha received 3 rounds of treatment. The target shortfall was due to an accumulation of issues primarily revolving around aerial contract negotiation delays and poor weather (greater than projected).

KPI	Target	Outcome
Per cent of suitable habitat that was planned, but not treated (i.e. treatment gaps).	Less than 2% gaps in suitable habitat that was planned to be treated.	This target was not met – at the completion of the third round of treatment in 2022–23, 2% of suitable habitat remained untreated. Treatment gaps occur for varied reasons, including cropping cycles. Entry refusals may result in the NFAEP leveraging enforced entry provisions. For 2022–23, treatment delays associated with greater than projected poor weather conditions, refusals and unsafe terrain represented the most significant contributors to the treatment gap. The NFAEP is working with landowners to address their concerns and will treat cropping land when fallow.

Treatment

To reflect the reframed approach recommended in the 2021 Independent Review, the NFAEP restructured its areas of operation along 3 complementary and functionally connected sections: eradication, containment, and suppression (Figure 2). In accordance with the 2021 Independent Review, the NFAEP assumed responsibility for treatment and surveillance operations across the containment and eradication areas and for broadscale communications across the entire operational zone during 2022–23. Activities across the suppression area during the reporting period were planned and managed by FAST.

Figure 2: Map of operational areas



Eradication and containment

In 2022–23, the NFAEP prioritised areas that presented the highest risk of spread beyond the containment area. The treatment season commenced on 5 September 2022 and concluded on 14 July 2023. The NFAEP treated a total of 401,079 ha in 2022–23, comprising 167,163 ha in round 1,157,318 in round 2, and 76,598 ha in round 3.

Eradication treatment involves an application of 6 rounds of IGR to an area of land over a 2-year period, either by field staff on the ground or by aerial services (e.g. helicopter).

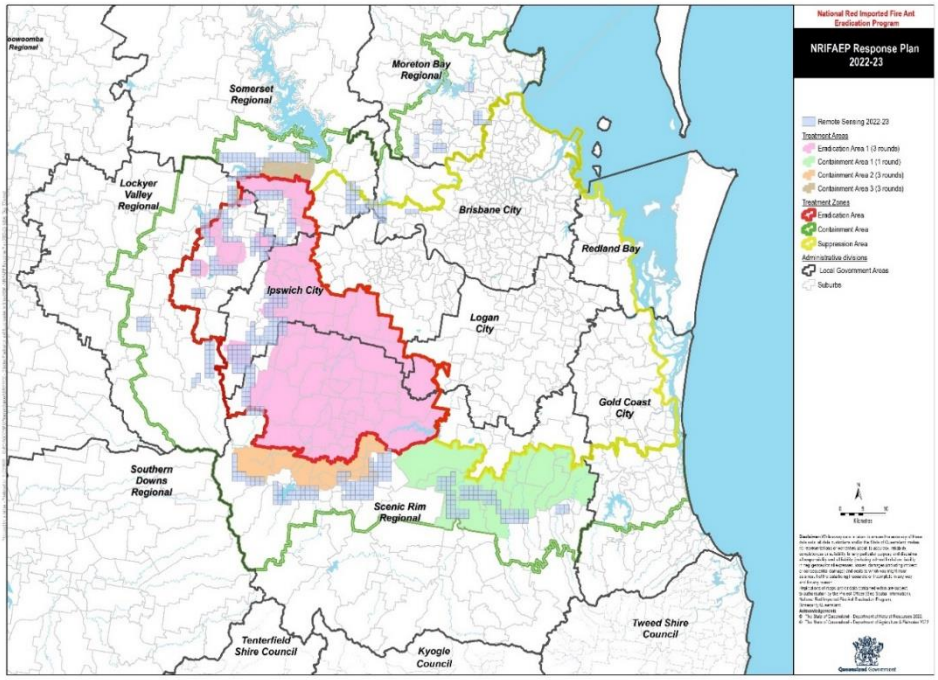
Containment treatment involves fewer IGR applications and is designed to reduce the intensity and vigour of fire ant populations. Combined with the enforcement of movement controls, containment treatment aims to reduce the risk of HAM of organic materials contaminated with fire ants.

To facilitate effective planning, service delivery and reporting, the eradication and containment areas were divided into sub-operational areas and work lots, including discrete areas designated for polygyne bait trials and responsive treatment (see Figure 3).

Planned treatment targets were not achieved due to treatment budget constraints, delays in procurement negotiations, and contractual issues for aerial services. The NSC noted adjustments to planned treatment areas in November 2022 and March 2023. Planned eradication treatment was adjusted to 300,000–315,000 ha for the eradication treatment area. The NFAEP completed treatment of 205,362 unique ha of land (136,316 ha eradication + 69,046 ha containment).

Aerial services for broadscale treatment ceased aerial operations due to contractual related issues in November 2022 and recommenced in February 2023. These issues resulted in a re-evaluation of the planned treatment areas with a focus of applying bait to contain the spread.

Figure 3: Planned treatment – eradication and containment areas 2022–23



Suppression

Operational activities in the suppression area were jointly managed by the NFAEP and FAST. The NFAEP responded to suspect ant reports across all operational areas, including the suppression area. This involved field verification, sampling, localised surveillance, and treatment. FAST was established in early 2022, thus 2022–23 included the delivery of a range of pilot projects to build systems, governance, on-board partners, and progressively familiarise a broad range of stakeholders to the concept of self-management. Suppression area treatment is designed to reduce the intensity and vigour of fire ant populations and prevent spread to areas that have received eradication treatment.

FAST activities included community self-treatment projects in Ipswich and Logan local government areas and setting up of agreements with the Department of Education, City of Gold Coast and Canegrowers (Rocky Point) to provide treatment products to facilitate their self-management. A separate FAST annual report 2022–23 details the activities during this reporting period.

Suppression of the fire ant population across the suppression area is intended to increase the likelihood of successful eradication when the NFAEP's eradication operations move into that area in future years.

Community reports

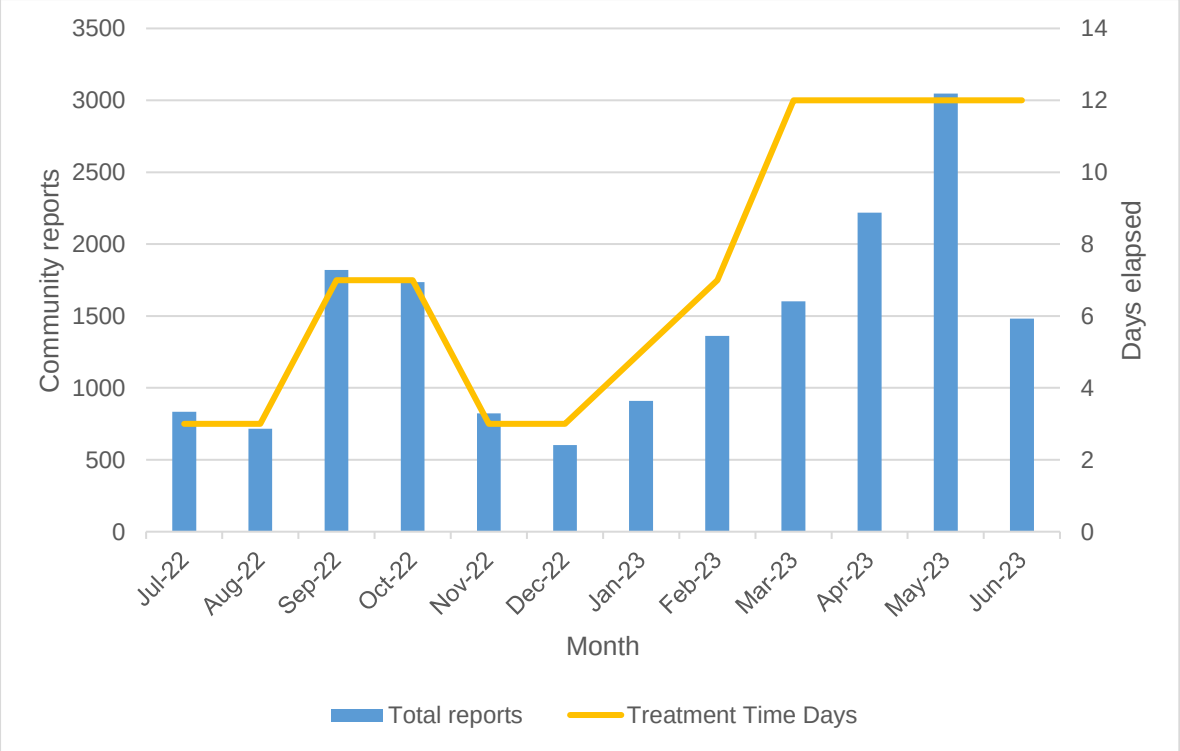
Under section 42 of the *Queensland Biosecurity Act 2014*, red imported fire ants (RIFA) is classified as restricted matter category 1 and requires an authorised officer to be notified in 24 hours. Community members who report suspect fire ants on their properties and in their neighbourhoods assume a critical role in identifying locations of known fire ant infestations and informing NFAEP's combined efforts. The NFAEP promotes the importance of community and industry cooperation. Identified infestations that present a risk to schools, parks and sporting grounds are prioritised. The NFAEP recorded 17,148 community reports

in 2022–23, marginally lower than the 19,226 recorded in 2021–22. The average time taken to respond to community reports in 2022–23 was 7 days (Figure 4), representing a time reduction from almost 9 days recorded in 2021–22.

Following community reports, samples of suspected fire ants are collected and referred to NFAEP scientists for testing. Scientists assess the social form of confirmed fire ants to guide treatment. Nests that pose a high risk to eradication success are treated using direct nest injection (DNI) with a fast-acting insecticide, and surrounding areas are treated with IGR baiting to a level commensurate to their social form. Nests that represent a lower risk to the NFAEP's eradication attempts are treated with a toxicant. The NFAEP's DNI teams visited 12,513 sites and treated 61,943 fire ant nests in 2022–23.

In 2022–23, the NFAEP leveraged community awareness campaigns run simultaneously with FAST, as well as interest generated by media scrutiny of the NFAEP to promote community engagement and the importance of reporting suspected fire ants.

Figure 4: Community reports and business days elapsed before treatment



Treatment gaps

During 2022–23, the NFAEP faced challenges that culminated in gaps in treatment, including difficulties to accessing properties and impacts on baiting effectiveness due to prevailing weather conditions. In 2022–23, the NFAEP's treatment strategy was impacted by landowners who refused entry, poor weather conditions that exceeded accepted modelling projections, and inaccessible terrain. Treatment gaps risk the NFAEP's efforts both directly due to enabling infestations to persist and indirectly through the movement of organic materials like hay, soil, mulch, and manure contaminated with fire ants. Treatment gaps also risk reinfestation of nearby areas that have already received eradication treatment.

Throughout this period, landowner refusals were associated with perceptions that the NFAEP treatment activities would:

- damage food crops
- lead to the loss of organic certification
- injure livestock
- impact the environment.

The NFAEP invested in efforts to provide accurate advice, build voluntary compliance, and work with communities and industries to eradicate fire ants over the reporting period. This included clarifying and addressing landowner concerns directly and rescheduling treatment to accommodate farming operations. To retain the NFAEP's treatment efficacy, it enlisted the Queensland Police Service to help gain entry to 6 properties for treatment purposes in situations when landowners continued to refuse access.

The NFAEP aimed to deliver planned treatment to at least 98% of suitable terrain, which is defined as land suitable for fire ant nests to establish. At the end of the treatment 2022–23 season, a treatment gap of 2% for suitable fire ant terrain remained. Poor weather exceeding the accepted modelling projection represented the greatest contributor to the 2% treatment gap, followed by refusals or safety and access issues (see Table 3). In 2022–23, NFAEP compliance officers were required to negotiate with 77 landowners to gain entry to treat and on 6 occasions required police-assistance to enforce entry to treat during the reporting period.

Table 3: Treatment gap causes

Treatment gap category	Explanation	Eradication area (ha)	Containment area (ha)
Refusal or safety and access issues	• Landowners refused to allow treatment. • Safety issues caused by dogs, very steep slopes, and extremely long grass. • Access prevented by issues, such as locked gates.	66	288
Cropping	Unable to treat crops due to Australian Pesticides and Veterinary Medicines Authority (APVMA) permit conditions.	184	117
Poultry	APVMA permit conditions to prevent poultry access to bait.	1	0
Unsuitable habitat	Land that was impassable and not suitable terrain for fire ant nest establishment.	19	110
Not visited	Rain or low temperatures prevent effective treatment as planned and/or insufficient staff to complete within time available.	112	745
Other	Nil.	0	0

N/A	Total	382	1,260
Percentage of total planned areas not treated		**1%**	**2%**

Surveillance

The 2022–23 planned surveillance season commenced in late June 2022 and concluded in September 2022. The NFAEP prioritised surveillance in areas around the perimeter of the containment area and for high-risk 'outbreak' areas to confirm that infestations had been successfully contained. An allocation of 5,000 ha for surveillance of new outbreak detections was included into the NFAEP's surveillance plan.

The NFAEP's surveillance approach uses 3 techniques:

- RSS using multi-spectral cameras mounted on helicopters
- field teams on foot
- odour detection dogs.

In 2022–23, the NFAEP achieved 87% (59,211 ha) of the planned surveillance goal of 67,900 ha of land across the eradication and containment areas using RSS, field teams, and odour detection dogs (see Table 4).

In 2022–23, planned surveillance was undertaken for:

- new and previous detections of importance to ensure that treatment areas to eradicate the infestations are well placed
- suitable fire ant terrain out to 2 km from new infestations detected in 2022–23 to assess the risk of spread
- locations flooded during 2022 that may be a cause for possible 'rafting' or areas that may be related to possible HAM
- pre- and post-treatment monitoring of sites to assess infestation before treatment and then to measure the effects of treatment on nest survival.

Table 4: Planned and responsive surveillance

Surveillance area/type	Planned ha	Actual ha	% completed
Clearance	3,350	2,921	87%
Targeted*	7,050	4,733	67%
Responsive**	5,000	6,542	131%
Odour dog detection surveillance^	500	234	47%
Remote sensing	52,000	44,781	86%
Total	**67,900**	**59,211**	**87%**

** Includes planned surveillance for outbreak control of previous season's detections of importance (500 m from detection), targeted sites out to 2 km for new detections during 2022–23, targeted surveillance of locations flooded during 2022, and targeting of monitoring sites.*

*** Includes an allocation for surveillance of new outbreak detections.*

^ It should be noted that for the planned area categories associated with responsive, RSS, and odour detection dogs was a notional amount used for budgetary purposes as opposed to a KPI.

Remote sensing surveillance

During the 2022–23 surveillance season, remote sensing surveillance (RSS) captured imagery for areas that bordered the planned treatment area, extending to the containment boundary. This surveillance technique assists to prioritise risk areas for ground surveillance and identify any residual infestation across areas designated to receive additional IGR treatment. Validation of RSS enabled field teams to confirm several nests across locations with previously undetected infestations. In 2022–23 reporting period, the field teams validated RSS predictions for more than 2,540 sites.

The remote sensing season extends from May 2022 to October 2022, covering both the 2021–22 and 2022–23 reporting periods. Across this season, remote sensing covered 44,781 ha, representing 86% of planned 52,000 ha. The 14% (7,219 ha) shortfall was associated with poor weather. Only 62 (or 48%) of the 130 operational days available in this season (May 2022 – October 2022) were suitable for RSS due to the greater than projected poor weather conditions.

A significant infestation was detected in July 2022 in Summerholm in the Lockyer Valley that raised the need for changes to supporting processes to maximise operational effectiveness of the RSS solution. The NFAEP concluded these changes needed to be addressed before it deploys the solution more broadly. Outline Global provided several recommendations to NFAEP for its consideration about the future utility of RSS. These focused on improving the performance of the model, reducing processing times, and the number of points of interest provided to validation teams.

Odour detection dog surveillance

During 2022–23, the NFAEP's odour detection dog team was deployed across SEQ locations, providing post treatment surveillance to validate the efficacy of treated fire ant nests towards the containment boundary. Odour detection dogs serve an important quality assurance and monitoring role for the NFAEP across its active treatment zones. Odour detection dog teams assist NFAEP's compliance officers during investigative and product movement tracing activities. Surveillance of potential fire ant carriers have improved practices implemented by many businesses that operate in the infested zone, mitigating the risk of human-assisted spread of fire ants via their products.

Outbreak control

Effective responses to outbreaks that occur outside planned treatment areas are critical to the NFAEP's eradication and containment objectives for SEQ. The NFAEP's operational approach prioritises these detections of importance for immediate treatment.

Detections of importance

The NFAEP classifies detections of importance according to 5 categories:

1. Detections outside of the containment area boundary – these detections are outside of the containment boundary and more than 2 km from a previous detection.
2. Detections inside the containment area – these detections occur in the NFAEP's containment area, but outside of planned treatment areas.
3. Detections inside the eradication area – these detections are within the NFAEP's eradication area, but outside of planned treatment areas.
4. Detections in an import/export facility – these detections occur in areas that undertake import/export activities, posing the potential for a new incursion of fire ants to enter Australia from overseas.
5. Polygyne infestations – these detections are for nests categorised through genetic analysis as polygyne social form.

Detections of importance trigger an immediate response to eradicate the ants, determine the extent and source of the infestation and assess the risk of spread to non-infested areas.

A detection of importance may be escalated to *outbreak* status if the associated risk assessment determines that the infestation occurred in an area that *should* be free of fire ants. Any detection escalated to *outbreak* following a risk assessment receives an intensified response to mitigate the elevated risk it poses to the NFAEP's ability to achieve its eradication objective. The NFAEP response to outbreaks includes:

- assessments of the extent of the detection
- genetic analysis to inform the treatment regime
- risk assessment of spread potential
- investigation into the source of the infestation
- an extended post-treatment surveillance regime to confirm eradication of the detection

- a multi-modal communication plan to build awareness and collaborative action against fire ants from relevant communities and/or industries.

Detections of importance continued to be a major concern for the NFAEP's eradication efforts during 2022–23. Over this period, 78 detections of importance within and beyond the eradication and containment areas were immediately destroyed using DNI with an insecticide. IGR and/or toxicant baits were applied to land surrounding individual nests up to 2 km from the infestations, depending on the assessed level of risk. The NFAEP treated an estimated 5,375 ha of land surrounding detections of importance in 2022–23, representing a marginally higher proportion from the notional allocation (5,000 ha) allocated for responsive treatment.

Fire ant outbreaks occurred at 9 locations across SEQ during 2022–23, ranging from the Gold Coast in the south to the Moreton Bay region in the north, and from the Redlands coast in the east to the Scenic Rim in the west. All detections inside the southern portion of the operational boundary were prioritised for urgent treatment to prevent potential spread towards the NSW border. These high-risk outbreaks will receive 2 rounds of surveillance for each of 2 consecutive years during the surveillance seasons.

Lockyer Valley region

A fire ant outbreak was confirmed on 7 July 2022 at Summerholm in the Lockyer Valley on cultivated land, consisting of approximately 100 nests. By the end of September 2022, NFAEP investigations found a further 200 nests on surrounding properties. The Summerholm area received previous eradication treatment in 2018–2020. Genetic analysis could not ascertain a single source for the reinfestation. It was determined that this reinfestation plausibly resulted from a combination of HAM, flooding events, and natural spread from a remaining infestation. A comprehensive compliance investigation and risk assessment was unable to definitively confirm that any one fire ant carrier caused the infestation.

Gold Coast region

During November 2022, 45 nests were detected at Carrara and Worongary on a recently developed industrial estate located outside the fire ant biosecurity zones, within the containment area. Genetic analysis failed to confirm the source of the infestations. A broadscale treatment was applied 500 m from the nests to mitigate the risk of spread.

A serious containment risk was generated by 2 subsequent detections in April and May 2023 at Mudgeeraba and Mermaid Waters due to their proximity to the NSW border. Three nests at both locations were treated using a combination of DNI and an IGR, and surveillance was undertaken of an area with a radius of 500 m from the nests. No further nests were detected. Due to their proximity to the NSW border, surveillance was undertaken up to 2 km from the nests.

Redlands Coast region

A fire ant outbreak in an area of previously unknown infestation was identified following the detection of a single fire ant nest at Dunwich on Minjerribah (North Stradbroke Island in Moreton Bay) on 13 January 2023. By April 2023, 27 additional nests were detected across 4 properties. The NFAEP developed and implemented a comprehensive response plan in consultation with the QYAC. All nests were destroyed, and extensive surveillance at identified risk areas adjacent to the detections occurred. Investigations into compliance with

legislative biosecurity obligations were conducted on Minjerribah and Kanaipa (Russell Island) and at businesses operating from the mainland, including the ferry service, and landscaping suppliers. The NFAEP's treatment area was extended to include Minjerribah in recognition of the cultural and ecological significance (including biodiversity) and environmental sensitivity of this area.

Moreton Bay region

During May and June 2023, fire ant nests were detected on a residential development site in the suburb of Burpengary East, and on vacant land in the suburb of Burpengary in the Moreton Bay local government area. The nests were destroyed, and surveillance occurred to assess the extent of the infestation. Compliance investigations into the movement of fire ant carriers were undertaken. The NFAEP appreciated the assistance Moreton Bay Regional Council provided with surveillance activities, with planned training designed to build the capability of council representatives to continue this effective collaboration.

Scenic Rim region

A fire ant infestation was detected on a rural grazing property at Innisplain in the Scenic Rim on 25 May 2023. This detection represents the most southerly infestation the NFAEP has encountered. Treatment and surveillance to assess the extent of the infestation was completed and compliance investigations into the movement of fire ant carriers were undertaken. A risk assessment was undertaken at the conclusion of surveillance. Findings from this risk assessment determined that the risk of further spread from this infestation warranted the area’s inclusion into planned treatment in 2023–24.

Toowoomba region

The NFAEP confirmed a fire ant detection at Kleinton, Toowoomba on 9 June 2023, following a report from a property owner. The nests were destroyed, and the NFAEP’s field teams and odour detection dog teams inspected more than 200 properties in the surrounding area, identifying an additional nest on a nearby property. NFAEP scientists conducted genetic analysis to assist the compliance team’s investigation of a possible link to HAM via potted plants and mulch. Treatment and surveillance activities are continuing in the Kleinton area to ensure effective eradication.

Melbourne, Victoria

A single fire ant queen in a consignment of potted plants was detected at a nursery in the outer Melbourne suburb of Thomastown, Victoria on 23 February 2023. Tracing and genetic analysis confirmed the sole ant originated from SEQ. This detection triggered the formation of an emergency incident response team comprising staff from the NFAEP, QDAF and interstate jurisdictions.

Moving potted plants interstate requires compliance with the entry provisions of individual jurisdictions. Tracing the movements of potted plants from SEQ identified interstate businesses that had received shipments. The NFAEP conducted an extensive tracing exercise and provided lists of consignees to relevant jurisdictions for their investigation. These investigations did not reveal any additional detections. The NFAEP also conducted tracing and investigation of all Queensland businesses that received product from the source and, although 2 nurseries were found to be infested with fire ants, there was no link to the queens detected in the consignment to the Melbourne nursery. The NFAEP’s emergency incident response team stood down in late March 2023.

Polygyne infestations

NFAEP scientists conduct genetic analysis of fire ant samples to determine if infestations are monogyne, or polygyne. Determining the social form of nests is important for the NFAEP's objectives as it informs treatment approach. Monogyne nests comprise a single queen and polygyne nests comprise multiple queens. Polygyne infestations require intensive treatment and are more difficult to eradicate than monogyne nests.

With potentially hundreds of queens per nest, polygyne fire ants are more likely to spread and effectively populate new colonies in response to treatment or in situations involving HAM of infested carrier materials. In 2022–23, the NFAEP treated 6,842 ha of polygyne infestations. This included up to 6 rounds of treatment over polygyne infested areas with toxicant bait or a combination of toxicant and IGR baits.

Support for other jurisdictions

The NFAEP assists other Australian state and territory governments to prevent fire ants establishing and assists them to build capability in responding to and managing new incursions. The NFAEP's odour detection dog teams are a valuable resource deployed for surveillance activities in other jurisdictions. These highly trained dogs can determine the location of colonies and underground nests long before they become visible to the human eye.

Odour detection dogs were deployed over the 2022–23 reporting period to high-risk sites for surveillance to confirm presence or absence of fire ants, including assisting to validate proof of freedom. The NFAEP odour detection dogs teams assisted Western Australia in post-treatment clearance surveillance for an incursion at the Port of Fremantle in 2022. These teams also undertook clearance surveillance in 2022–23 at the Port of Brisbane on behalf of the Australian Government for an incursion detected in March 2021.

Compliance enforcement

The NFAEP's compliance enforcement activities under the *Biosecurity Act 2014* and the Biosecurity Regulations 2016 focus on the storage, treatment, and movement of fire ant carriers, including organic materials that have potential to be contaminated with fire ants. HAM of materials like soil, hay, mulch, manure, quarry products, turf, and potted plants represent a significant risk to the NFAEP's objective of preventing the spread of fire ants to non-infested areas.

The NFAEP continued to work with high-risk material industries over 2022–23 to build compliance with movement controls and prevent the movement of fire ants within, across and beyond the fire ant biosecurity zones. NFAEP compliance enforcement officers conducted audits and inspections of high-risk businesses. In 2022–23, significant detections at Minjerribah (Stradbroke Island) and at Thomastown, Victoria increased a focus on landscape suppliers and nursery production businesses at risk of supplying fire ant carriers to locations outside fire ant biosecurity zones. The investigation focussed on these high-risk industries.

In 2022–23, 819 audits were undertaken by the NFAEP's compliance enforcement team. These audits revealed 99 non-compliant businesses and culminated in the owners being issued 34 Biosecurity Orders, 53 Advisory Notices and 2 PINs. Compliance enforcement

team staff work with non-compliant businesses to help them achieve compliance with the *Biosecurity Act 2014* and Biosecurity Regulations 2016. (see Table 5).

Compliance enforcement officers also worked with landowners who refuse entry to their properties for fire ant treatment. In 2022–23, NFAEP compliance officers were required to negotiate with 77 landowners to gain entry to treat and on 6 occasions required police-assistance to enforce entry to treat during the reporting period.

Table 5: High-risk industry audits 2022−23

High-risk industry	No. audits	No. non-compliant	% non compliant	Compliance action
Poultry	1	0	0	• Nil
Hay	113	24	21	• 19 Advisory Notices • 6 Biosecurity Orders • 2 PINs
Earthmoving	109	8	7	• 4 Advisory Notices • 2 Biosecurity Orders
Civil construction and builders	313	5	2	• 6 Advisory Notices • 1 Biosecurity Order
Landscaping supplier	110	31	28	• 12 Advisory Notices • 10 Biosecurity Orders
Quarry	32	7	22	• 2 Advisory Notices • 7 Biosecurity Orders
Local council	7	1	14	• 1 Advisory Notice
Waste management	24	4	17	• 3 Advisory Notices • 1 Biosecurity Order
Landscaping	28	1	4	• 1 Advisory Notice
Nursery and potted plants	69	16	23	• 4 Advisory Notices • 7 Biosecurity Orders
Turf	13	2	5	• 1 Advisory Notice
Total	**819**	**99**	**143**	**All non-compliance rectified and risk mitigated.**

Business services

Procurement

During 2022–23, the NFAEP matured its procurement capability to support operational objectives. The objective was to improve skills and knowledge and facilitate better delivery of significant procurement activities and contracts. Despite funding challenges, the NFAEP made continuous improvement in obtaining value for money through effective management of significant contracts, maintaining supplier relationships, and identifying opportunities for enhancing procurement and contracting processes to align with the procurement program of works within the response plan.

Facilities

A dedicated NFAEP facilities team assesses and manages the operational footprint and fleet of vehicles to enable the NFAEP to deliver services in line with its objectives. The following facilities were maintained by the NFAEP over 2022–23:

- aerial operations, Wacol
- western operations, Laidley and Mutdapilly
- southern operations and administration, Berrinba as the headquarters base.

The team managed a fleet of approximately 160 vehicles, comprising utilities, passenger vehicles and off-road vehicles (utility terrain vehicles (UTVs).

All sites and vehicles were routinely assessed for efficiency, ensuring they are fit-for-purpose and uphold the NFAEP's commitment to the health and welfare of all staff.

The team identified and assessed potential future sites that will accommodate projected upscaling of NFAEP activities into 2023–24 and future financial years.

Human resources

Program staffing

The NFAEP staffing profile remained relatively constant throughout 2022–23, employee full time equivalent (FTE) caps maintained within budgetary restrictions and in accordance with the *Public Sector Act 2022*. Short-term contractors were engaged to meet business need patterns, particularly during treatment seasons when additional field staff were needed to meet planned treatment objectives.

Table 6: Staff numbers 2022–23

Position	Q1 (FTE)	Q2 (FTE)	Q3 (FTE)	Q4 (FTE)
Permanent FTE	93.59	97.98	95.99	91.90
Temporary FTE	21	23.78	25	27
Contractor – **office**	43	48	44	59

Contractor – field	258	371	357	283

Workplace health, safety and wellbeing

The NFAEP remained committed to the health, safety and wellbeing (HS&W) of its workforce in 2022–23, including strengthening the relevance of the Think, Act and Be Safe framework to NFAEP activities. The NFAEP team promotes positive safety and welfare outcomes through good work design, safe work environments, and providing resources and tools for staff to understand safety and its relevance to their everyday work. During 2022–23, the NFAEP:

- maintained a robust and responsive work health and safety management system
- integrated effective risk management processes into operations and work practices
- consulted and engaged with stakeholders within the NFAEP generally and specifically through the Health and Safety Committee
- worked collaboratively with Biosecurity Queensland and QDAF to implement best practice in health and safety and adherence with legislative requirements
- reviewed procedures and protocols, and risks and controls relating to workplace health and safety.

In 2022–23, 241 workplace health and safety incidents were recorded and managed (see Table 7).

Table 7: Workplace health and safety incidents

Activity	Q1	Q2	Q3	Q4	Total
Incidents	23	48	49	43	163
Near miss	4	6	7	9	26
Property damage	10	18	13	11	52

Strategic policy

In 2022–23, the NFAEP undertook a range of strategic policy activities in support of the NFAEP's objectives.

A new response plan and 2023–24 work plan

In 2022–23, the NFAEP prepared a new eradication response plan (response plan) and supporting work plan for 2023–24 in response to the 2021 Independent Review. This incorporated learnings from past efforts and use of the best available science, technology, and innovative approaches to address the recommendations from the Independent Review.

The new approach reflected in the response plan and supporting work plan 2023–24 was finalised for presentation to the NSC, the National Biosecurity Committee (NBC), the Agriculture Senior Officials Committee (AGSOC), and the agriculture ministers.

Regulatory reform

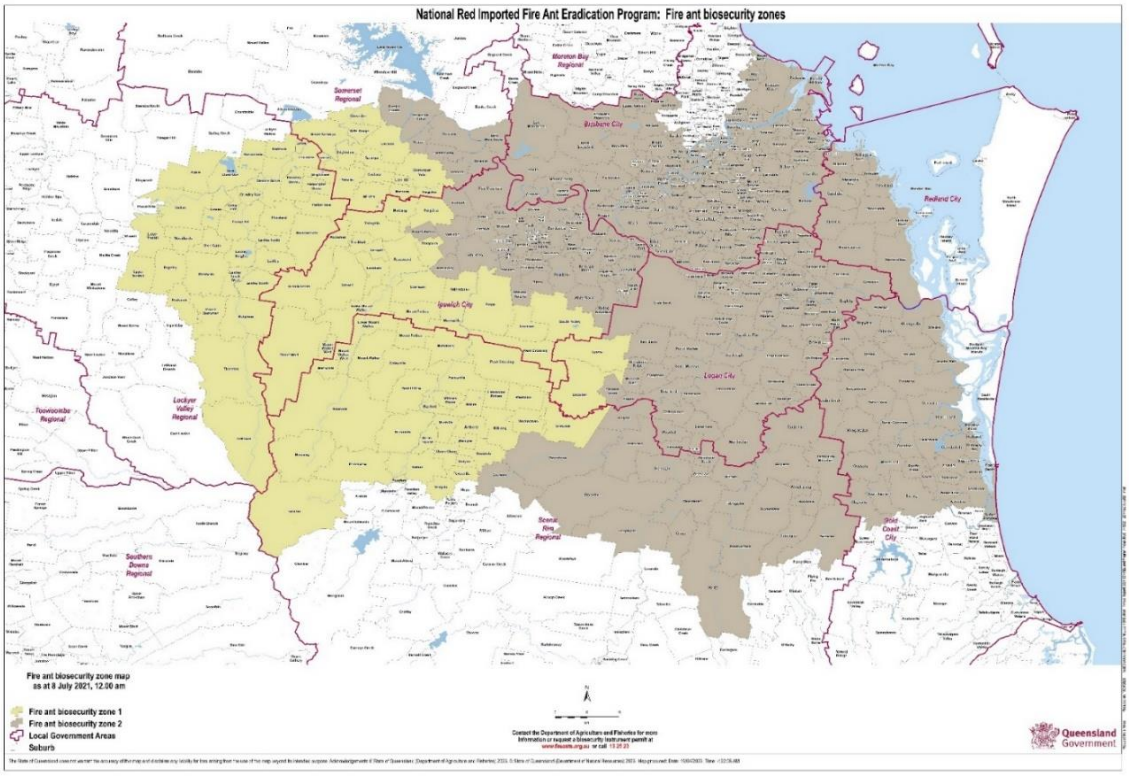
Several regulatory reforms were identified and pursued during 2022–23 to expand and clarify the obligations of Queenslanders to prevent the establishment and spread of fire ants. Work also commenced in this reporting period on formal guidelines explaining how Queenslanders and industry can effectively discharge their legislated general biosecurity obligation.

Review of the biosecurity zones

The NFAEP amends fire ant biosecurity zones in response to detections and to manage the risk of fire ant spread through controls on activities and movements of material. Fire ant biosecurity zones give effect to the Biosecurity Regulation 2016 and represent a key tool used to reduce the risk of human-assisted spread of fire ants through the movement of organic materials into areas without known infestation/s or those outside the fire ant biosecurity zones.

A 2022–23 review of the fire ant biosecurity zones produced a new map which came into effect on 1 September 2022. The new map added 60 suburbs to the existing 439 suburbs in the fire ant biosecurity zones. The inclusion of these additional suburbs and proposed changes to align with new treatment areas increased the overall size of the zones by 60,915 ha.

Figure 5: Fire ant biosecurity zones (30 June 2023)



Other activities undertaken by the NFAEP's strategic policy area included:

- liaising with the APVMA to ensure compliance with permit conditions, allowing for effective treatment deployed by NFAEP staff to eradicate fire ants
- an analysis of the risk posed by waste facilities to the establishment and spread of fire ants within SEQ.

Science

Research and development

Surveillance optimisation and interpretation

During 2022–23, the NFAEP investigated the efficacy of RSS for fire ant detection over different land use types and the potential for mounting RSS technology in airplanes instead of helicopters to maximise reach.

Unmanned aerial systems (UAS)

The use of remotely piloted aircraft (commonly referred to as drones) and other robotic solutions was identified as a potential method to complement and expand the NFAEP's current treatment capabilities, to increase both efficiency in operations and uplift effectiveness. During 2022–23, a feasibility assessment was completed that led to a pilot project to research, develop, and operationalise the use of drones as a suitable capability for the NFAEP. The pilot project was separated into 3 distinct phases, discovery, pilot, and production. A pilot program demonstrating the utility of drone-based technology as an additional treatment method was initiated in early 2023, demonstrating that this technology is well suited to extend the NFAEP's capacity. The pilot program aimed to determine the most suitable application and investigated 12 different NFAEP specific treatment scenarios to assess which treatment areas were most suitable for drones. Early results confirmed drones are a practical and safe method for treatment of sensitive crops, difficult terrain, sites with reactive livestock, active work sites, responsive treatments, and helicopter buffering across rural areas. The pilot project aims to be completed in the third quarter of 2023.

Treatment optimisation

Research is planned to test the efficacy of fast-acting toxicant baits over a large scale to enhance IGR treatment options, potentially reducing treatment timeframes. Shifts in operational priorities required changes to the trial's parameters. Outcomes from the trial will inform future treatments in 2023–24 financial year.

External collaborations

Research into the potential use of fire ant eDNA to enhance detection and surveillance was advanced in 2022–23 with the successful development of a fire ant specific genetic assay in collaboration with University of Canberra. Engagement with relevant experts at James Cook University was initiated to progress the next stage of determining if fire ant eDNA is detectable in the landscape.

An industry partnership with a major bait supplier was explored to examine the viability of water-resistant baits and focused on testing ant palatability through field uptake trials.

Collaboration with Commonwealth Scientific and Industrial Research Organisation (CSIRO) continued with the initial development of a research project into innovative RNAi technology

to be based in Brisbane that aims to silence critical fire ant genes that would render colonies dysfunctional and therefore provide an additional eradication tool.

Scientific services

Scientific advice

The 2022–23 reporting period recorded ongoing demand for scientific advice. This included strategic advice to inform risk assessments of outlier detections and the development of the response plan, as well as technical advice to guide policy development and treatment planning and optimise ground operations and compliance assessments. The NFAEP scientists also provided advice for program communications, partner interactions, and public events, including addressing concerns, such as the safety of the baits.

Genetic testing continued to inform eradication efforts by prioritising social form testing to guide treatment intensity, particularly for polygyne colonies. For 2022–23, more than 4,600 nests were tested, of which 329 (7%) were polygyne. The level of polygyne confirms the NFAEP's suppression success particularly when compared to overseas incursions where eradication is no longer feasible. To address challenges with persistent backlog, genetic testing equipment was purchased, enhancing the processing capacity for polygyne testing and significantly reducing associated labour and expenses.

Laboratory services and fire ant colony management

The NFAEP provided expert ant identification, as well as for the community and partner organisations. This included diagnostic services for fire ants, as well as other invasive ant species regarding potential new incursions, supported by an expanding reference collection for both exotic and native species. During 2022–23, 17,842 suspect ants were processed for identification, which included both images and ant samples. This represented a 65% increase in the number of suspect ants assessed over the previous year.

Live fire ant colonies continued to be maintained in secure facilities to support research and the training of detection dogs by providing material impregnated with fire ant odour. These colonies are also used for secured displays of fire ant workers during public awareness initiatives for building and sustaining an understanding of the fire ant threat. The NFAEP also maintained live colonies of browsing ants in partnership with the Northern Territory Government to ensure ongoing eradication capability.

Systems and intelligence

In 2022–23, the NFAEP continued its investment in enhanced data capture and reporting. Acknowledging the critical role of effective systems in planning, progress tracking, and issue identification, the NFAEP implemented various tools and applications to seamlessly record, represent and manage data.

Business intelligence

In 2022–23, the NFAEP commenced development of an intelligence function to enhance its analytical capability. This structured process began with an analysis of current against projected skill sets in data analytics, critical thinking, and reasoning. The NFAEP recruited additional technical resources into the science team and progressed development of

technologies and practices to collect, integrate and analyse data. The NFAEP will continue to explore opportunities for maturing its intelligence function.

Systems

Program systems

The NFAEP continued to leverage key systems, including operations applications (Forage and FAMS) and customer relationships applications (CaSES and CRM Apps), for planning, scheduling, and coordinating work as well as reporting on collective efforts and progress. Over 2022–23, NFAEP staff continued to expand using ArcGIS software to map data from FAMS and other sources to secure accuracy in spatial analysis.

A significant development in the 2022–23 financial year involved the continuous rollout of in-field data capture capabilities for NFAEP activities (Forage). Concurrently, the NFAEP implemented a suite of system reporting enhancements to facilitate more effective and timely reporting against agreed KPIs. In 2022–23, the NFAEP confirmed its strategic intent to digitise to build efficiencies and enhance timeliness in informed decision-making.

Digital collaboration with stakeholders

A NFAEP priority in 2022–23 was to enhance the system's interface with other systems and applications used by the public and local councils. This commitment extended to developing information capture, reporting, analysis, and operational work across different geographical levels.

Given the role stakeholders assume in fire ant control, digital collaboration with stakeholders was prioritised. Examples included development of integrated systems for community reporting of fire ants, tools for managing treatment and surveillance operations, and data for analysing treatment and surveillance records across agencies/institutions. The collaborative development and optimisation of these tools with stakeholders during 2022–23 ensured they remain fit-for-purpose and support fire ant control efforts.

Communications and engagement

In 2022–23, the NFAEP continued working to empower communities to:

- look for and report fire ants
- not spread fire ants
- raise awareness of the importance of providing authorised field officers access to targeted properties.

Activities included localised communication and engagement in treatment areas as well as broadscale advertising. A summary of the primary functions used to deliver key information to stakeholders, are outlined in the social and behavioural research section.

Social and behavioural research

In 2022–23, the NFAEP undertook quantitative and qualitative social research to inform strategy design, in particular interventions to increase adoption of behaviours to support fire ant eradication.

An annual telephone survey was conducted across 550 residential and 250 industry stakeholders to assess awareness, behaviour, and attitudes towards fire ant eradication.

Results from the survey highlighted that awareness of fire ants (97%) and the NFAEP (90%) is high, and residents in SEQ are willing to play their part in assisting with eradication activities. Despite this high level of awareness and willingness to support the NFAEP, only 58% of residents have checked their yard for fire ants and 64% of businesses have fire ant-safe practices in place to prevent HAM. Table 8 provides a summary of the research findings.

To better understand motivation and barriers to desired behaviours, several focus groups were also undertaken in 2022–23 across residential and industry stakeholders. These focus groups were also used to test new intervention concepts.

Table 8: Stakeholder research summary (June 2023)

Survey results 2022–23	
Research category – Awareness	
Are aware of the presence of fire ants in SEQ	• 97 % of residents (93% in 2021–22) • 100 % of businesses (98% in 2021–22)
Are aware that fire ants can cause painful stings	• 95 % of residents (95% in 2021–22) • 99 % of businesses (98% in 2021–22)
Are aware of the NFAEP	• 90 % of residents (88% in 2021–22) • 92 % of businesses (94% in 2021–22)
Research category – Behaviour	
Percentage of people who have looked for fire ants in their yard or local area	• 58 % of residents (56% in 2021–22)
Percentage of businesses who report that their business has fire ant-safe practices in place	• 64 % of businesses • (not measured in 2021–22)
Percentage of people who report that they have treated fire ants themselves	• 5 % of residents (3% in 2021–22) • 12 % of businesses (6% in 2020–21)
People who report that they have spoken with people they know about fire ants	• 51 % of residents (44% in 2021–22) • 42 % of Businesses (33% in 2020–21)
Research category – Attitude and advocacy	
How strongly people believe fire ants are a high priority issue in their local community or for their business	• Residents: 5.5 out of 10 (4.7 in 2021–22) • Businesses: 3.2 out of 10 (2.8 in 2021–22)
How strongly people believe trying to stop fire ants spreading is a waste of resources	• Residents: 1.9 out of 10 (2.8 in 2021–22)

Survey results 2022–23	
	• Businesses: 2.3 out of 10 (2.5 in 2021–22)

Broadscale communication and marketing

In 2022–23, the NFAEP delivered another multi-faced mass-media fire ant campaign across eradication and non-eradication areas. The year-round campaign encouraged industry and community stakeholders to support national fire ant eradication efforts by adopting behaviours that help eradicate this super pest from Australia.

The campaign messaging, creative and repeated approach reinforced the need for people to act and understand what steps they need to adopt to fulfil their part in the fight against fire ants. The campaign comprised 3 distinct pillars, costing $392,216 (excluding GST).

Goal 1: Mobilise communities across Queensland and in northern NSW to proactively look for, report and treat fire ants on land they own or manage.

- **Key message:** Look for and report fire ants.
- **Audience:** Residents and businesses based in Lockyer Valley, Scenic Rim, Somerset, Ipswich, Brisbane, Logan, Gold Coast, Redland, and Moreton Bay.
- **Tactics:** Broadscale advertising to educate our stakeholders about how to spot fire ants and report them.
- **Channels:** Billboards, street furniture, roadside signage, digital and social media advertising, direct mail, and commercial radio.

Goal 2: To improve rate of effort for treatment and surveillance work by building community support and willingness to allow our teams quick and easy access to their properties.

- **Key message:** Let our fire ant teams in.
- **Audience:** Property owners and tenants located in the eradication treatment and/or surveillance areas.
- **Tactics:** Targeted communication and engagement with stakeholders scheduled to receive eradication treatment and/or surveillance.
- **Channels:** Print, out-of-home programmatic and large format, online display ads, direct mail, social media, and direct mail.

Goal 3: To reduce human-assisted spread of fire ants by increasing voluntary compliance with fire ant movement controls.

- **Key message:** Don’t spread fire ants.
- **Audience:** Business and industry stakeholders dealing with materials that can carry fire ants sourced from within the fire ant biosecurity zones.
- **Tactics:** Broadscale advertising to increase stakeholders understanding of fire ant movement controls and tools to assist them to meet their obligations.
- **Channels:** Billboards, street furniture, roadside signage, transit, digital, social media and print advertising, petrol station bowsers, on-demand streaming, direct mail, and commercial radio.

Industry engagement

The Don't Spread Fire Ants campaign aimed to reach and engage diverse audiences, promoting voluntary compliance in handling fire ant carriers and enhancing biosecurity measures. Building upon the success of the 2021–2022 campaign, the 2022–23 comprehensive strategy was responsive to industry feedback.

The 2022–23 reporting period, 60,000 brochures targeting primary producers across 180 rural suburbs were distributed informing individuals about their legislative obligations when transporting materials potentially carrying fire ants. This targeted approach significantly reduced complaints stemming from a misunderstanding about program activities in rural areas. Additionally, the NFAEP participated in key national events like the National Fodder Industry Conference and conducted five local workshops (Hay Days) in crucial hay growing areas across SEQ.

The NFAEP targeted the distribution of 10,000 brochures across the building and development sector at major industry events, such as the Heavy Equipment and Machinery Show, Master Builder Road Shows on the Gold Coast and Sunshine Coast, and through specialised industry publications.

The NFAEP successfully engaged with target audiences at 22 events throughout the year directly reaching at least 1,048 individuals.

In addition to face-to-face engagement, the NFAEP continued to build online tools to assist people adopt fire ant-safe practices. The NFAEP launched an improved online biosecurity instrument permit process and an online fire ant movement compliance tool. These tools help business owners quickly and easily understand their legal obligations when moving fire ant carriers. Users can develop relevant business practices that reduce the chance of spreading fire ants.

Relevance of market research and focus groups

The NFAEP’s campaign approach will evolve based on insights garnered from market research focus groups across the building and development, and primary producers sectors. Qualitative insights from 2022–23 revealed a strong awareness among businesses ranging from 73–80% about fire ants, but gaps in their clarity around their compliance responsibilities.

To address these challenges, the communications team plan focus groups in 2023–24 to gain detailed insights and develop targeted strategies. The aim is to bridge the gap between awareness and compliance. This approach ensures a more effective implementation of fire ant requirements in SEQ, fostering collaboration and practical solutions for businesses and government entities.

Community engagement

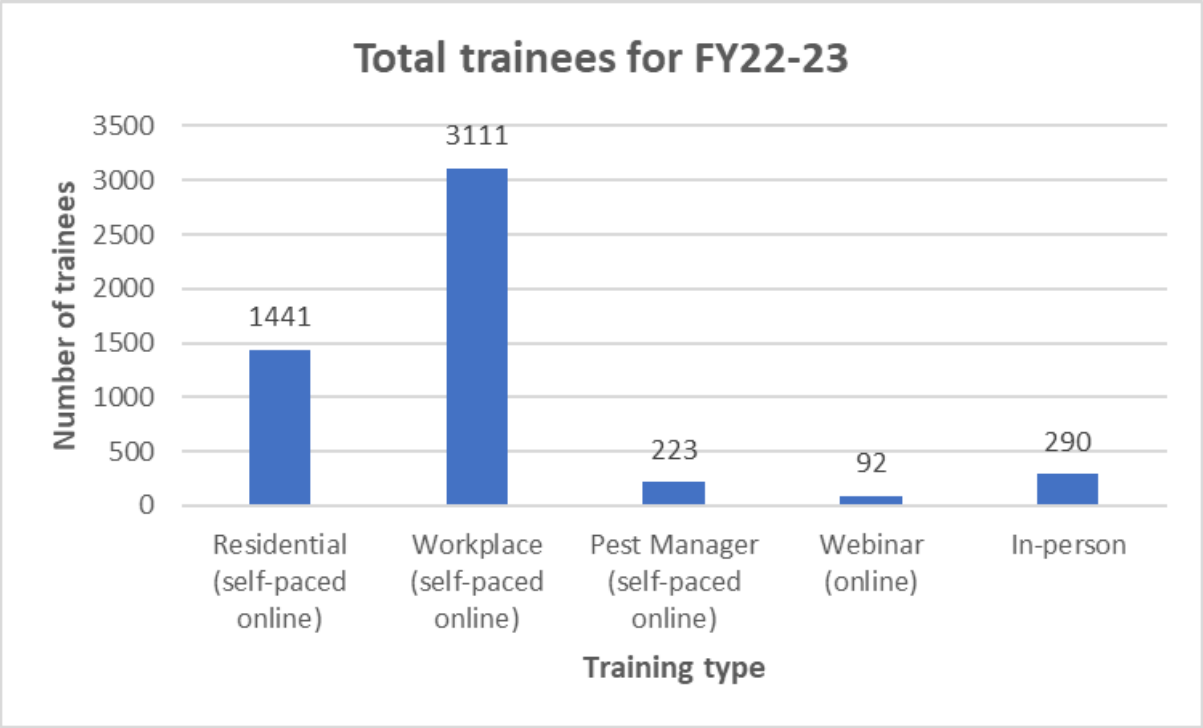
In 2022–23, the NFAEP delivered 31 engagement events targeting local communities and residents, engaging directly with 3,990 people. A further 9 engagements were delivered to a mixed audience of community and industry or internal staff, reaching an additional 1,438 people. These engagements targeted areas impacted by the NFAEP activities under the Look for and Report and Let our Teams in campaigns.

Stakeholder training

The NFAEP delivered training to 5,157 people during 2022–23. In 2022–23, fire ant training transitioned from in-person delivery over Teams to self-paced online training modules. The online course for pest managers was finalised and enabled in November 2022.

Prior to the availability of digital courses, the NFAEP delivered training to 960 individuals across industry and 480 pest managers per year. The online delivery platform increased accessibility for anyone to complete fire ant training as it allowed people to educate themselves and their workforces at a time convenient to them and at their own pace. Online delivery also enabled the Program to provide quick and easy information to help educate residents about fire ants.

Figure 6: Stakeholder training



Directorate

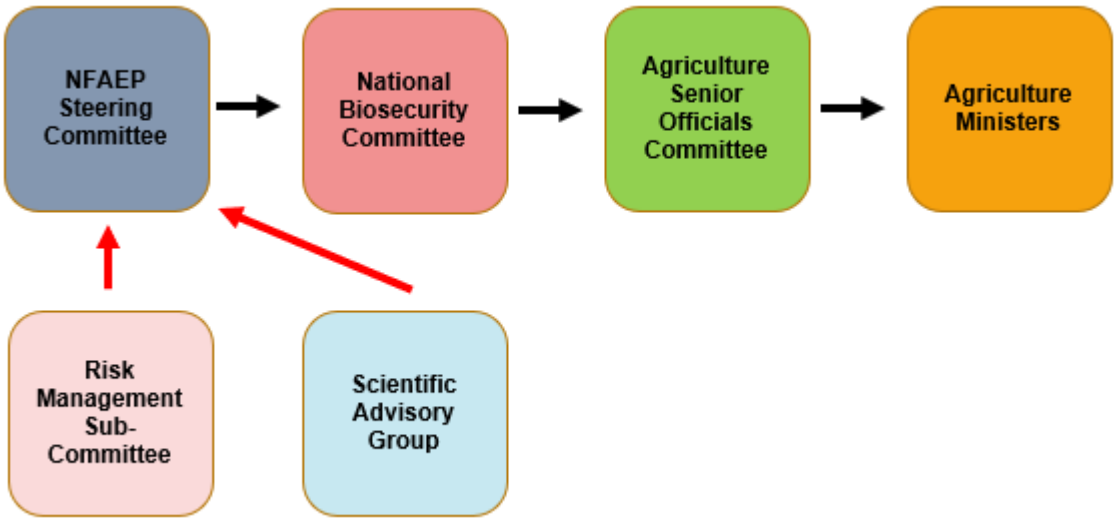
Program governance

The NFAEP is governed by the NSC and delivered in Queensland by QDAF on behalf of cost-share partners. The NSC, led by an independent chair, is comprised of representatives of the Australian Government and Australian state and territory government agriculture agencies.

Robust governance arrangements, designed to ensure transparency and monitor progress towards the NFAEP's objectives are in place and include independent efficiency and effectiveness reviews, and financial and performance monitoring. The NSC provides strategic and operational oversight of the NFAEP and reports progress on the NFAEP's

activities to Australian and state and territory agriculture ministers through AGSOC – see Figure 7.

Figure 7: Program governance structure



National Steering Committee

The NSC was established by the Agriculture Ministers' Forum in July 2017 to provide strategic oversight of the NFAEP. The NSC's independent chair is appointed by the NBC.

The NSC, supported by its sub-committees, the National Exotic Invasive Ant Scientific Advisory Group (SAG) and RMSC, provides independent leadership and guidance, and monitors progress to help the NFAEP achieve its objectives. The NSC meets at least quarterly, the SAG and RMSC meet twice a year and/or as directed by the NSC. The SAG aims to have one face-to-face meeting per year. Membership of committees comprises representatives of Australian and state and territory governments (the cost share partners) who have expertise relevant to the NFAEP's operations.

The NSC met 8 times in 2022–23, for both scheduled quarterly meetings and unscheduled out-of-session meetings as required.

The NSC engages with critical stakeholders at the national level to provide NFAEP updates, respond to queries, and receive advice and feedback as well as with industry, environmental and community groups to further the NFAEP's reach. The NSC approved the NFAEP's 2022–23 work plan, including KPIs, in May 2022. Table 9 outlines the NSC members.

Table 9: National Steering Committee members

Name	Position	Experience
Dr John Robertson	Independent Chair	John was appointed as the NSC chair in June 2023. Before retiring from the QDAF, John was Queensland's representative on the NSC and a member of the RMSC. Before retiring, John was General Manager of the Invasive Plants and Animals Program, Biosecurity Queensland. He has a background in overseeing large operational programs in the primary industries and natural resources sectors. John succeeded Dr Wendy Craik AM after Wendy's resignation on 30 April 2023.
Dr Bertie Hennecke	Australian Government	Bertie is the Australian Chief Environmental Officer in the Department of Agriculture, Fisheries and Forestry and is the primary representative of, and adviser to, the Australian Government on all matters relating to environmental biosecurity risks. Bertie provides policy leadership on national environmental biosecurity issues ensuring Australia's environment, rich culture and social amenity is safeguarded from the impacts of exotic pests, diseases, and weeds. Bertie replaced Josephine Laduzko at the beginning of 2023.
Scott Charlton	New South Wales	Appointed to the NSC in 2020, Scott is Director of Invasive Species Biosecurity with the NSW Department of Primary Industries. Scott oversaw the successful eradication of red imported fire ants at Port Botany in 2016 and the eradication of yellow crazy ants from the NSW north coast in 2019.
Dr Nigel Ainsworth	Victoria	Appointed to the NSC in 2020, Nigel is Deputy Director Invasive Species Science with the Victorian Government and is a member of the National Environment and Invasives Committee and the National Established Weeds Priorities advisory group. Previously Nigel contributed to reviews of the National Environmental Biosecurity Response Agreement and the national eradication program for electric ants.
Dr Rachel Chay	Queensland	Rachel Chay is the Queensland Chief Biosecurity Officer and Deputy Director-General of Biosecurity Queensland in the QDAF. Rachel replaced Malcolm Letts following his retirement in April 2023.
John Van Schagen	Western Australia	Appointed to the NSC in 2018, John is Technical Area Manager, Invertebrate Pests with the Western Australia Department of Primary Industries and Regional Development. As well as the current 2021 African black sugar ant incursion, John has had responsibility for response to several other tramp ant incursions.

Name	Position	Experience
Rae Burrows	Tasmania	Appointed to the NSC in 2020, Rae is General Manager Biosecurity Tasmania, a member of the National Management Group for exotic plant pest and animal disease eradication and represents Tasmania on the NBC. Rae is also Chair of the Tasmanian Dairy Industry Authority. Marcelle O'Brien also attended several meetings during the year, representing Tasmania. Marcelle is Principal Policy Advisor, Invasive Species Branch, within Biosecurity Tasmania and a member of the National Environment and Invasives Committee Terrestrial Invertebrates Working Group.
Claire Morton	Northern Territory	Appointed to the NSC in 2022, Claire is Principal Plant Biosecurity Officer with the Northern Territory (NT) Government and oversees the National Browsing Ant Eradication Program in the NT, and the National Banana Freckle Response. Claire is a member of the National Plant Health Sub-Committee on Preparedness and was previously the Program Manager for the National Citrus Canker Eradication Program.

Scientific Advisory Group

SAG provides specialist scientific advice to the NSC. In 2022–23, this included:

- research priorities
- proof of freedom strategy framework update
- sampling strategy/protocol within the suppression area
- bait trials
- RSS
- gap treatment summary
- drone pilot project
- eDNA
- prospects for RNAi research for control of fire ants.

The SAG met twice during the 2022–23 year. committee members included:

- Dr John Robertson, Director, Robertson Executive
- David Oi, Research Entomologist, USDA-ARS Center for Medical, Agricultural and Veterinary Entomology
- Lori Lach, Associate Professor, College of Science and Engineering, James Cook University
- Marc Widmer, Senior Technical Officer, Biosecurity and Regulation, WA Department of Primary Industries and Regional Development
- Ben Hoffmann, Principal Research Scientist, Health and Biosecurity, CSIRO
- Dr Ross Wylie, Science Leader, NFAEP, QDAF

- Gary Morton, Principal Project Officer, National Electric Ant Eradication Program, Biosecurity Queensland

Risk Management Sub-Committee

The management of risk is essential to ensuring the NFAEP's success and continuous improvement in risk mitigation practices. The RMSC is made up of the NSC chair and selected committee members as well as 2 independent external risk specialists, one of whom chairs the sub-committee**.** The RMSC met twice during 2022–23.

Committee members included:

- Alan Millis, Chair and external expert
- Dr Enrico Perotti, General Manager, Invasive Plants and Animals, Biosecurity Queensland, QDAF
- Dr John Robertson, Chair, Steering Committee
- Dr Bertie Hennecke, Chief Environmental Biosecurity Officer, Commonwealth Department of Agriculture, Fisheries and Forestry

Risk management

In keeping with the risk management policy and plan, the NFAEP has a program risk management framework that reflects the NFAEP's operating environment. Under this framework, the NFAEP operates with 2 levels of risk management – strategic and operational. The framework is used across the NFAEP to help set strategy, achieve objectives, and make informed decisions. It assists the NFAEP leadership team with governance by identifying and managing strategic and operational risk, at any time, and across all levels of the NFAEP. The framework is based on the International Standard for risk management (AS/NZS ISO 31000:2018) and is reviewed annually to ensure its contemporary relevance to NFAEP's work. The work plan identified 13 key risks.

Table 10: Risk assessment

Risk	Description	Mitigation plan	Contingency plan	Commentary
Amount of funding is insufficient to implement plan	The NFAEP budget is insufficient due to issues, such as: • errors or increases in input costs • higher than planned for inflation rates • detections of fire ants beyond the scope of the plan.	• Invest in management and research that increases efficiency of operations. • Plan for sufficient contingency budget each year. • Execute plan on time.	• Prioritise containment over eradication. • Raise issues with NSC for resolution.	This risk did not materialise into an issue registered in the NFAEP issue register.
Mis-timing of approval from external funders	• Funding for the response plan is dependent on approvals 2022–23. • Delays in committing to funding may impact procurement of resources in time for operations to start on schedule.	• Develop funding documentation in a timely manner and seek feedback/approval as soon as possible. • Where possible, seek exception permission to begin procurement documentation before final approval has been granted.	• Reduce scale of plan for 2022–23. • Raise issue with NSC for resolution. • Raise with Queensland Government for consideration.	This risk did not materialise into an issue registered in the NFAEP issue register.
Internal authorisation for major procurements is too slow	The NFAEP was unable to commence implementation of the response plan on 1 July 2022 (operations doubled in first year). For example, the NFAEP was unable to obtain financial approvals, enter contracts, procure services	• Maintain clear communication between NFAEP activities and plans with corporate procurements team to improve understanding of potential issues.	• Prioritise containment over eradication • Raise issue with NSC for resolution	This risk was triggered due to contractual delays for the aerial capability, resulting in aerial capability been grounded for 2 months. The NSC was appropriately briefed and resulted in

Risk	Description	Mitigation plan	Contingency plan	Commentary
	and supplies, source accommodation, vehicles, and source additional staff.	• Develop detailed procurement plan that identifies critical milestones to be met. • Dedicate resources to ramp up program in early 2022. Begin procurement documentation and process as soon as possible, in preparation for final approvals.		NFAEP prioritising areas of highest risk of further spread.
Loss of community and political support for NFAEP activities	A lack of community support may lead to: • community resistance to treatment and surveillance on land they own or manage • lack of political support for implementing legislation like movement control compliance and right of entry to treat • reluctance to communicate risks of fire ants to the community and full range of negative impacts and treatment • loss of political support and funding for fire ant control.	• Dedicate resources to raising fire ant awareness and support for eradiation and treatment strategies. • Conduct targeted engagement of high-risk stakeholders. • Conduct regular surveys of the community to measure community sentiment towards fire ant eradication.	• Review effectiveness of current communication and engagement strategies and develop appropriate responses. • Raise issue with NSC for resolution.	This risk did not materialise into an issue registered in the NFAEP issue register.

Risk	Description	Mitigation plan	Contingency plan	Commentary
Fire ant treatment is not possible in 100% of fire-ant suitable habitat	Some land types may be suitable for fire ant habitation but not accessible for treatment due to restrictions caused by: • growth of organic produce • WHS issues (railways, highways) • chemical sensitivity of residents • chemical sensitivity of produce (crayfish farms etc.) • community opposition.	• Systematic identification of treatment gaps and reasons for their existence. • Dedicated team to manage gaps. • Research into alternative treatment methods where required.	• Prioritise containment over eradication. • Raise issues with NSC for resolution. • Increase interdepartmental communications, increase scope of engagement activities. • Develop refusal protocols.	This risk was triggered because of several situations, APVMA permit conditions restraints under crops and poultry, and safety issues and access related issues. The NSC was appropriately briefed, and processes set up to resolve barriers, such as hosting the APVMA to work through issues and develop protocols to address refusals.
Fire ants are already established beyond the planned limit and response capacity of the plan	It is possible that fire ants are detected in areas beyond the limit of the plan due to: • new importations from overseas • long-distance movement of fire ants from current infestation • non-compliance with movement regulations.	• Enhance HAM controls and compliance audits • Planning and budgeting for control of outbreaks beyond the suppression area • Help Commonwealth and interstate agencies to detect and respond to fire ant incursions outside of Queensland's jurisdiction.	• Prioritise outbreak response to these detections. • Raise issue with NSC for resolution.	This risk was triggered with several detections outside the containment boundary. The NSC was appropriately briefed and all detections resulted in an immediate response to eradicate the ants, determine the extent and source of the infestation, and assess the risk of spread to non-infested areas.
Controls to restrict HAM of	Controls on the HAM are ignored by the public and industry and fire ants spread	• Enhanced HAM controls and compliance	• Prioritise containment over eradication.	This risk was triggered with several detections outside the containment boundary. The NSC was appropriately

Risk	Description	Mitigation plan	Contingency plan	Commentary
fire ants are ineffective	beyond their current limits in SEQ.	operations to minimise HAM. • Planning and budgeting for control of outbreaks beyond the suppression area. • Annual contingency budget to be applied in response to emergency situations as determined by the NSC.	• Raise issues with NSC for resolution. • Identify opportunities in biosecurity regulations to improve compliance.	briefed and all detections resulted in an immediate response to eradicate the ants, determine the extent and source of the infestation, and assess the risk of spread to non-infested areas.
Fire ant treatment regimes are ineffective	Planned fire ant treatment is insufficient to kill all ants in the targeted area.	• Annual monitoring of eradication and containment areas to measure effectiveness. • Dedicate project teams to address issues (i.e. gaps in treatment). • Ongoing research and develop into treatment tools and strategies (i.e. toxicant use)	• Prioritise containment over eradication. • Raise issues with NSC for resolution.	This risk did not materialise into an issue registered in the NFAEP issue register.
Fire ant surveillance and monitoring is ineffective	Surveillance is ineffective at detecting fire ants.	• Invest in management and research that increases effectiveness of surveillance. • Conduct Quality assurance and quality control on surveillance activities.	Raise issues with NSC for resolution.	This risk did not materialise into an issue registered in the NFAEP issue register.

Risk	Description	Mitigation plan	Contingency plan	Commentary
Fire ant surveillance and monitoring is not possible on 100% of land	Some areas of land are not conducive to surveillance, for example: • contaminated land • heavily forested land.	• Maximise the use of RSS. • Survey multiple times over sequential years. • Use clearance modelling to inform decision making.	Raise issues with NSC for resolution.	This risk was triggered due to unfavorable weather conditions and reduced confidence in the RSS capability. The NSC was appropriately briefed.
Insufficient data collected to prove freedom from fire ants	Systematic collection of data is required to demonstrate proof of freedom. If systems and criteria are not established, relevant data may not be collected.	• Plan surveillance to accommodate proof of freedom from start of plan. • Invest in systems that integrate with all response partners.	Raise issues with NSC for resolution	This risk did not materialise into an issue registered in the NFAEP issue register.
Sufficient critical resources (independent of funding) are not available to execute the plan	Current suppliers of critical resources are unable to supply quantity required within the timeframe available, including: • fire ant baits • RSS equipment and services • staff • vehicles • helicopter services • electronic hardware (tablets etc.).	• Seek additional suppliers/products, where possible. • Prioritise procurement in scale-up phase to allow sufficient time for resource allocation.	• Prioritise containment over eradication. • Raise issue with NSC for resolution.	This risk did not materialise into an issue registered in the NFAEP issue register.

Risk	Description	Mitigation plan	Contingency plan	Commentary
Fire ant suppression (by FAST) is insufficient to prevent reinfestation of e*radication* and *containment areas*	Suppression of fire ants in the suppression area is insufficient, leading to reinfestation of containment and eradication areas, preventing proving area freedom from fire ants.	• Ensure NFAEP provides input into prioritisation of target areas. • Continue fire ant movement control enforcement until FAST/industry are adequately prepared and resourced to adopt compliance themselves. • Help FAST wherever practical (i.e. without otherwise compromising NFAEP objectives).	• Raise issues with FAST for resolution. • Raise issues with NSC for resolution.	This risk did not materialise into an issue registered in the NFAEP issue register.

Finance

NFAEP cost sharing apportionments are calculated in accordance with the cost sharing formula in the National Environmental Biosecurity Response Agreement (NEBRA). Each funding party's share is based on its proportion of Australia's population and an Australian government contribution of 50% of the total cost.

2022–23 budget

The 2022–23 NFAEP budget was aligned to the funding profile of $90.772 million, which included the $6.224 million carryover of funds from last financial year (2021–22). The NFAEP budget position on 30 June 2023 was $77.628 million with an underspend of $13.144 million. A significant proportion of this variance is the reduction in employee expenses to the value of $3.395 million and supplies and services costing $9.642 million. This variance is due to longer than expected aerial service contract negotiations, resulting in a subsequent reduction in operational activities.

The underspend of $13.144 million in the 2022–23 financial year will be carried over to the 2023–24 financial year. While it represents an underspend across the current budgeted year, it is still within the overall approved NRFAEP allocation (see Figure 8 thru to Figure 11).

Figure 8: Financial result

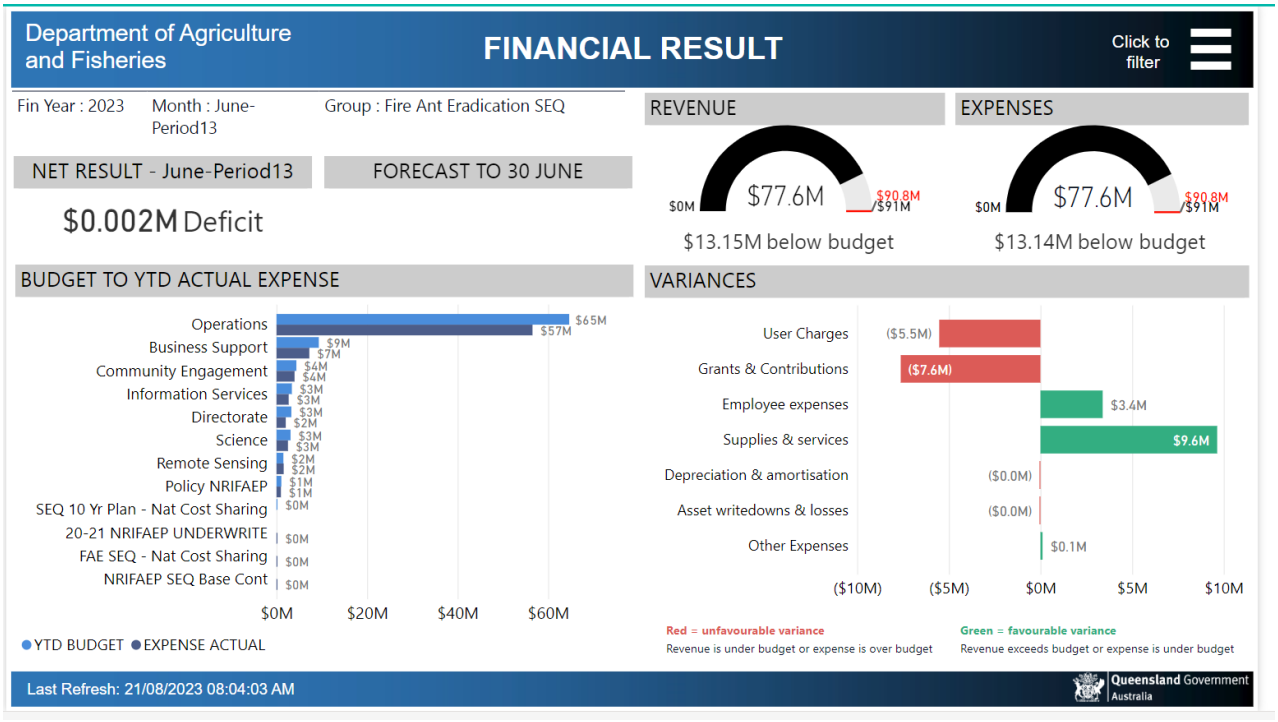


Figure 9: National cost sharing

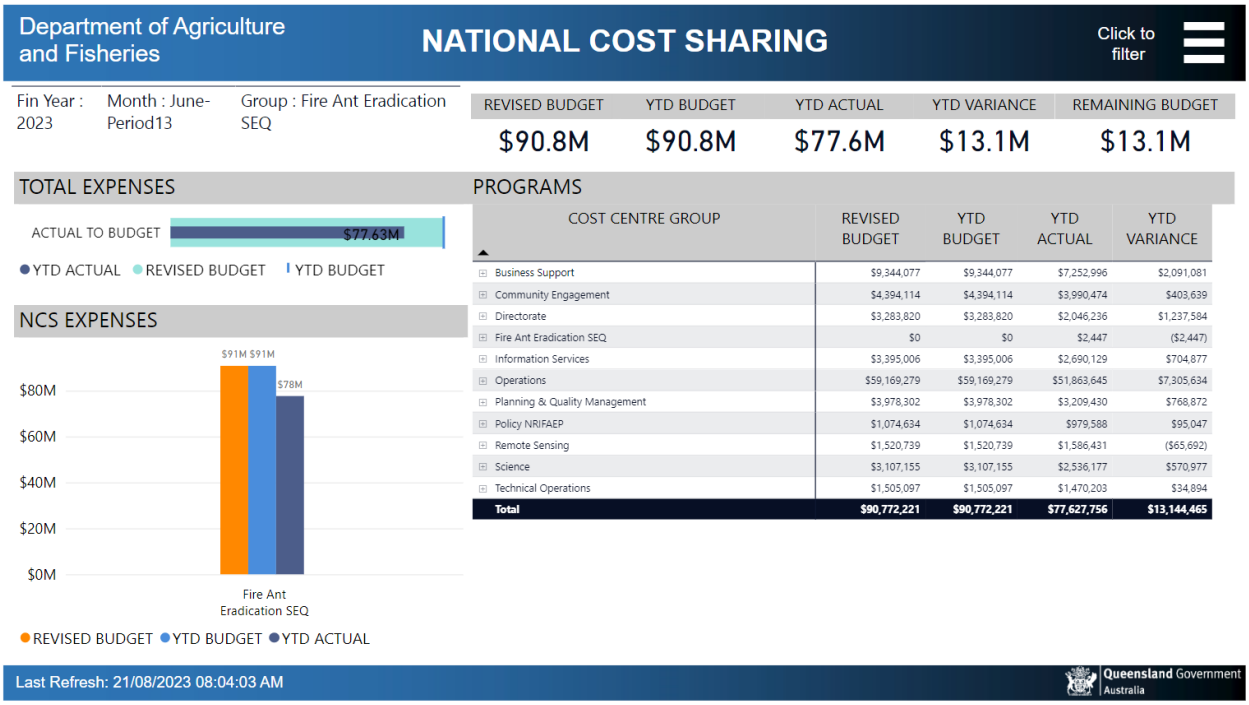


Figure 10: Income statement

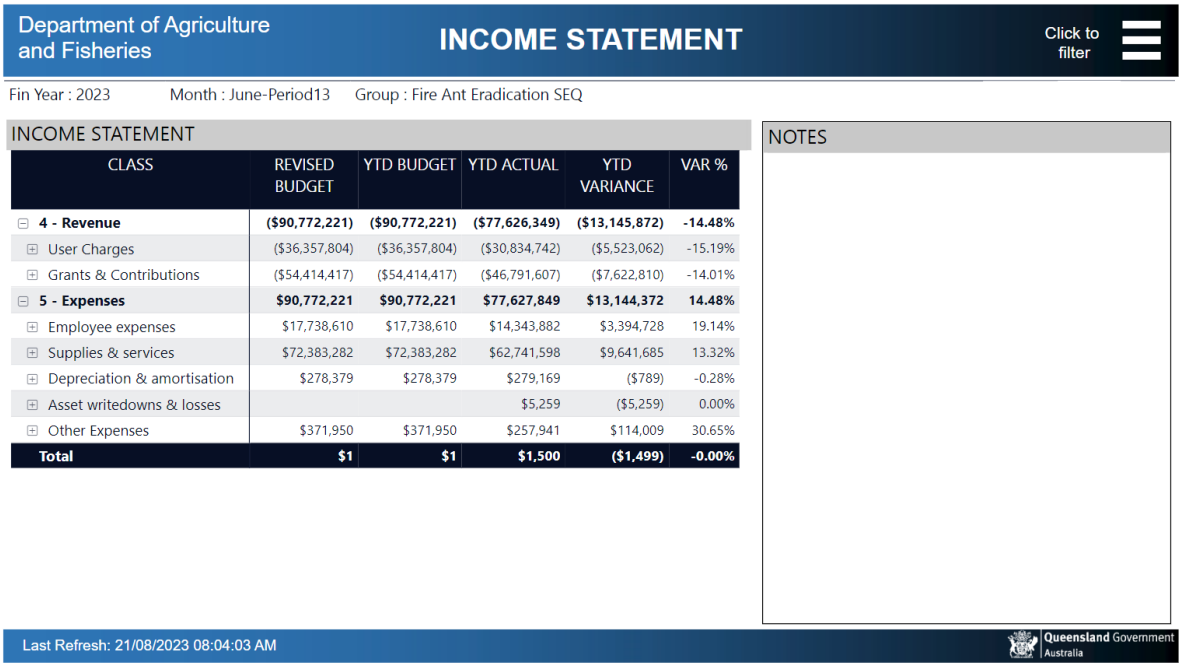
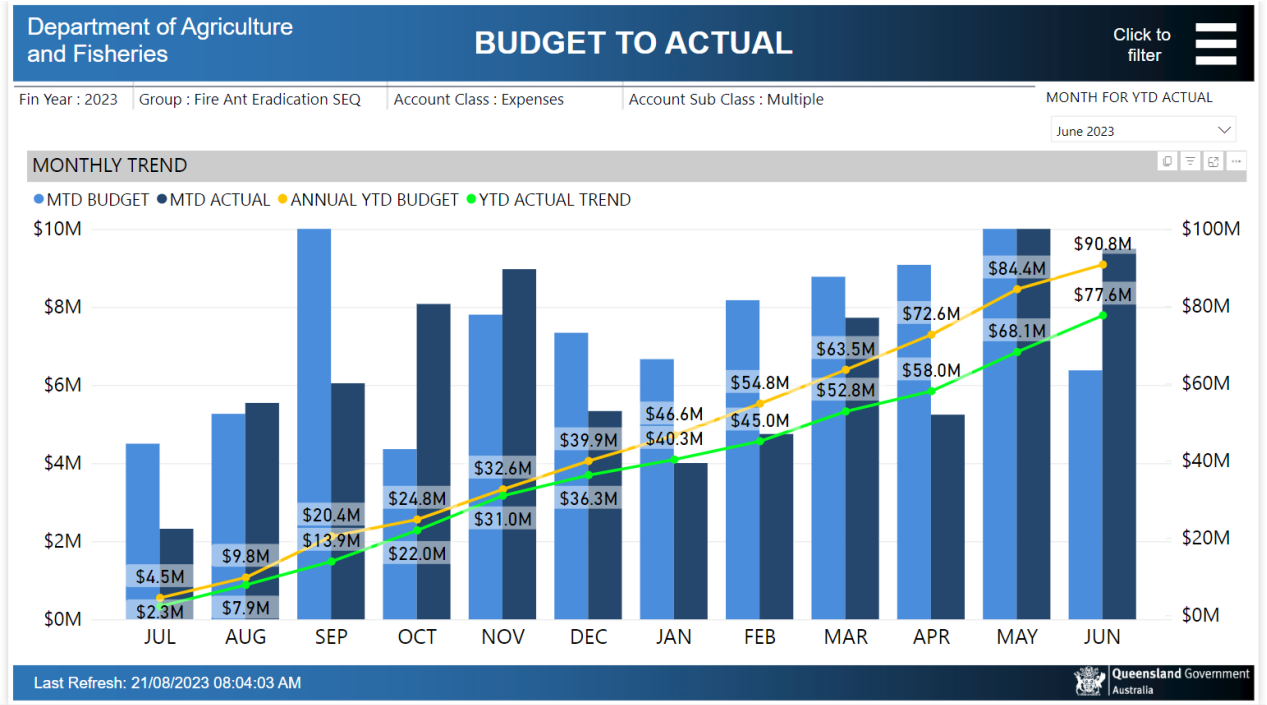


Figure 11: Budget to actual



Remaining funding under 10-year eradication plan

To ensure the NFAEP was adequately funded for 2023–24 and to maintain progress, key capabilities, and resources as well as transition to the response plan, agricultural ministers were asked to endorse a request to a bring forward of $46.472 million from the remaining funding from the out-years of the 10-year eradication plan.

The remaining approved funds under the existing 10-year eradiation plan equal $60.634 million. This includes $14.162 million of original committed funds for 2023–24 and all remaining funds up to 2027 totalling $46.472 million.

Table 11: Funding dissection for 2023–24

Jurisdiction	Committed funding for 2023–24 (‘000)	Remaining funding from out years of 10-Year Plan 2023–27 (‘000)	Total funding for 2023–24 (‘000)
Commonwealth	$6,216.98	$21,960.02	$28,177.00
NSW	$2,216.57	$6,649.70	$8,866.27
Victoria	$1,729.15	$5,187.46	$6,916.62
Western Australia	$1,955.14	$6,230.07	$8,185.21
South Australia	$1,583.40	$4,988.45	$6,571.85
Australian Capital Territory	$300.20	$900.60	$1,200.80

Jurisdiction	Committed funding for 2023–24 (‘000)	Remaining funding from out years of 10-Year Plan 2023–27 (‘000)	Total funding for 2023–24 (‘000)
Tasmania	$84.97	$293.29	$378.26
NT	$76.02	$262.46	$338.48
Queensland	$0.00	$0.00	$0.00
Total	**$14,162.42**	**$46,472.06**	**$60,634.48**

Fire ant response plan 2023–27

The combined bring-forward amount and committed funds ($60.634 million) together with the 2021–22 carryover of $13.144 million will bring the total funding available for 2023–24 to $73.779 million, which is less than the $133.094 million proposed in the 2023–24 financial year of the response plan.

Several operational variations will be implemented to meet the reduced amount until full response plan funding is secured from all jurisdictions as agreed under the response plan. These include rationalising treatments across some areas and focusing on areas at greatest risk of fire ant spread in the south and west. Surveillance and responsive treatment will be prioritised for areas pending broadscale treatment.

Acronyms

Acronym	Name
ACEBO	Australian Chief Environmental Officer
AGSOC	Agriculture Senior Officials Committee
AMM	Agriculture Ministers Meeting
APVMA	Australian Pesticides and Veterinary Medicines Authority
DNA	Direct next injection
DNI	Direct nest injection
FAST	Fire ant suppression taskforce
FTE	Full time equivalent
Ha	Hectare
HAM	Human assisted movement
HS&W	Health safety and wellbeing
IGR	Insect growth regulator
Independent Review	Independent Strategic Review
Km	Kilometre
KPIs	Key performance indicator
NBC	National Biosecurity Committee
NEBRA	National Environmental Biosecurity Response Agreement
NFAEP	National Fire Ant Eradication Program
NSC	National Steering Committee
NSW	New South Wales
NT	Northern Territory
PIN	Penalty infringement notice
QDAF	Queensland Department of Agriculture and Fisheries
QYAC	Quandamooka Yoolooburrabee Aboriginal Corporation
RIFA	Red imported fire ant
RMSC	Risk Management Sub-Committee
RSS	Remote sensing surveillance
SAG	Science Advisory Group
SEQ	South East Queensland
UAS	Unmanned aerial systems
USA	United States of America
UTV	Utility-terrain vehicle