NATIONAL
Fire Ant
Eradication
PROGRAM

Quarterly Report 2 2021–2022

Report to: National Steering Committee: October to December 2021

Contents

Tables

Figures

1. Scope of report

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

Running from 2017 to 2027, the 10-year Eradication Plan's underpinning strategy is subject to verifiable eradication. It includes five phases and three checkpoints before proof of freedom from fire ants is declared (see Table 1 below). Using a staged, rolling treatment strategy from west to east, the aim is to contain the extent of the fire ant infestation (Phase 1) and reduce the size of the infestation in South East Queensland until eradication.

Table 1: Overview of fire ant management strategy

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

This report outlines progress in delivering the 10-year Eradication Plan and the program's annual work plan. This includes relevant key performance indicators for the period of October–December 2021.

2. Key insights

Progress against key performance indicators (KPIs)

Progress against program KPIs is summarised in Table 2. Most KPIs are reported on a yearly and/or three-yearly basis, however since they apply to activities scheduled at different times not all KPIs are reported in the quarterly reports.

Table 2: Progress against KPIs traffic light report at 30 December 2021

Yearly KPI completed | On track/progress as anticipated | Monitoring/minor issues | Off track/critical issues | Not required/not relevant

Stakeholder mobilisation				
Objectives		**KPI**	**KPI target (2021–22)**	**Progress against KPIs**	**Status**
1	Stakeholders within, and adjacent to, the fire ant biosecurity zones are aware of the presence of fire ants, risks, controls and options to manage them	**a.** Percentage of stakeholders aware of the presence of fire ants in South East Queensland	95% of stakeholders report awareness in surveys by June 2022	The report providing stakeholder behavioural insights was received in November 2021. Of those surveyed, 97% reported awareness of fire ants which exceeds the target. See Appendix 5 for a more detailed summary of survey results.	
		b. Percentage of stakeholders aware of the risks posed by fire ants	95% of stakeholders report awareness in surveys by June 2022	The aforementioned stakeholder report showed 99% were aware of the risk which exceeds the target.	
		c. Percentage of stakeholders aware of fire ant biosecurity zones	85% stakeholders report awareness in surveys by June 2022	The aforementioned stakeholder report showed 86% of those surveyed were aware of the of the zones which exceeds the target.	
		d. Percentage of stakeholders aware of fire ant self-management options	50% of stakeholders report awareness in surveys by June 2022	The aforementioned stakeholder report showed 38% of those surveyed were aware of self-management options which does not meet the target.	
2	Stakeholders within the fire ant biosecurity zones support the program and its activities to eradicate fire ants	**a.** Percentage of stakeholders opposing NFAEP operations	Less than 1% opposition annually	The program received 39 refusals out of a total 23 413 properties visited for treatment during the quarter. This equates to less than 1% opposition (0.2%).	
		b. Percentage stakeholder disclosing to be satisfied with NFAEP operations	80% satisfaction disclosed in surveys by 2022	The aforementioned stakeholder report showed 90% of those surveyed said they were satisfied which exceeds the target.	
3	Stakeholders within the fire ant biosecurity zone actively participate in fire ant self-management actions (i.e., checking yards, reporting fire ants and/or treating fire ants)	Percentage of stakeholders participating in fire ant self-treatment actions	90% stakeholders participating in fire ant self-treatment actions by June 2022	The aforementioned stakeholder report showed 63% of those surveyed participated which does not meet the target.	

Containment					
Objectives		**KPI**	**KPI target (2021–22)**	**Progress against KPIs**	**Status**
4	To mitigate the spread and establishment of fire ants by reducing the relative density and vigour of the fire ant infestation	**a.** Percentage of stakeholders who treat fire ants themselves (i.e., self-management)	10% increase annually in stakeholders surveyed disclosing that they treat fire ants themselves	The aforementioned stakeholder report showed 8% of stakeholders treated fire ants themselves. This is an increase from the 6% reported in the February 2021 stakeholder report but does not meet the target.	
		b. Percentage of fire ant infestations that are polygyne	Less than 1% of fire ant infestations are polygyne	Samples tested: • Of the 1835 samples tested for social form in Q2, 28 (1.5%) were polygyne, collected from 27 sites (1.7% of all sites tested). • For the year to date, of all 3864 samples tested, 72 (1.9%) were polygyne, collected from 44 sites across 22 suburbs (1.3% of all sites tested). • *In the previous financial year (2020–21), 91 (1.4%) of the 6586 samples tested were polygyne. These came from 69 separate sites across 30 suburbs (1.3% of the total number of sites tested).* Samples collected: • In the FY year to date, 5714 field samples have been collected and sent for genetic analysis. Only 405 of these have been tested for social form so far due to the current backlog of samples from 2020–21. This includes 72 samples collected in Q2, four of which were polygyne. • The backlog in genetic testing exists mainly due to an increase in samples over recent years.	
		c. Relative spread of fire ants within containment area as measured through population genetics	Maintain at 4 or increase the number of genetically distinct fire ant populations (i.e., family clusters) within South East Queensland	The number of distinct populations for 2020–21 will not be known until the annual analysis report is finalised in February 2022. The 2019–20 annual genetic analysis found 5 genetically distinct fire ant sub-populations. While this is an increase from 4 in 2018–2019, the new cluster was formed by two other clusters merging. All clusters are still in genetic bottleneck, indicating genetic fitness is still low.	
5	To mitigate spread of fire ants by restricting the movement of fire ant carriers (materials) within, between and beyond the fire ant biosecurity zone	**a.** Percentage of high-risk stakeholders aware of fire ant movement controls	95% of high-risk stakeholders are aware of movement restrictions/ requirements by June 2022	The aforementioned stakeholder report showed 93% of those surveyed were aware which does not meet the target.	
		b. Percentage of high-risk stakeholders checked for compliance with human-assisted fire ant movement controls	The top 25% riskiest stakeholders checked for compliance at least once annually	• 215 audits were undertaken in this quarter (noting compliance staffing levels were not at full complement). • 434 audits conducted year to date is 25% of the 1698 (top 25% riskiest stakeholders) planned annual audit target.	
		c. Number of significant detections linked to human-assisted movement	Zero significant detections linked to human-assisted movement	Genetic results indicate that human-assisted movement, or flight facilitated by human-assisted movement, may be the source of one infestation detected outside of the program's operational boundary during the quarter, however no confirmed links have been made.	

Objectives		KPI	KPI target (2021–22)	Progress against KPIs	Status
6	To mitigate the establishment of fire ants near (within 5 km) and beyond the 2019–20 Operational Boundary.	**a.** Total area that is surveyed for fire ants near and beyond the operational boundary	Area surveyed in a surveillance season is increased by 66% from 2019-2020 levels (5 710 ha) by June 2022	• The total ground surveillance completed in 2020–21 was 10 178ha, 78% above 2019-20 levels. In 2021–22 to date, it is 6 299 ha. • RSS was not undertaken in the 2020–21 year. RSS flights have been completed over a total of 24 240 ha in 2021–22. • Total ground and RSS (validated) surveillance for 2021–22 at 31 December 2021 is 16 946 ha or 197% above 2019-20 levels, and on track.	
		b. Percentage of stakeholders living near and beyond the Operational Boundary who look for and/or treat fire ants themselves	50% stakeholder participation by June 2022	The aforementioned stakeholder report showed 55% of those surveyed looked for and/or treated fire ants themselves which exceeds the target.	
		c. Presence/absence of fire ants following prescribed treatment regime at a site detection of fire ants near and beyond the 2019-20 Operational Boundary	Zero fire ants that are likely to be from original nests remaining alive 12 months after prescribed treatment regime	• The prescribed treatment regime is currently underway for all detections that were confirmed near and beyond the boundary this quarter. • No fire ants were confirmed to be survivors from original nests.	
7	To mitigate the re-establishment of fire ants in eradication and clearance areas from adjoining (within 2 km from; buffer areas) fire ant infested areas	**a.** Percentage stakeholders living in buffer areas who look for and/or treat fire ants themselves	75% stakeholder participation by June 2022	The aforementioned stakeholder report showed 69% of those surveyed in buffer areas looked for and/or treated fire ants themselves which does not meet the target.	
		b. Percentage of buffer area receiving the prescribed treatment regime for fire ant containment (i.e., 2x insecticide treatment)	Prescribed treatment regime applied to 99% of planned area	As of 31 December 2021, a total of 34 646 ha of Overlap treatment has been completed. This is 111% of the planned YTD progress as per Table 4.	
		c. Presence/absence of fire ants following application of prescribed treatment regime for fire ant containment at a site detection of fire ants within a buffer area	Zero fire ants remaining from original nests 12 months after prescribed treatment regime completed	• There were 137 confirmed fire ant detections in the eastern overlap area and two in the western overlap area during the quarter. • No fire ants were confirmed to be survivors from original nests. • The eastern overlap area has not yet received six rounds of IGR baiting, so persistent infestation is expected. • The western overlap detections were added to new treatment areas that were created to mitigate the risk of re-establishment in Area 2. These treatment areas will also receive an additional two rounds of baiting with an IGR during 2021–22.	
8	Assist with other (outside of SEQ) fire ant detection and eradication activities in Australia as requested	The reported level of stakeholder satisfaction of the program's response to requests for assistance with new fire ant incursions	100% satisfaction reported by stakeholders	Assistance by the program is limited due to movement controls between borders during the COVID-19 pandemic.	

Eradication

Objectives		KPI	KPI target (2021–22)	Progress against KPIs	Status
9	To effectively eradicate fire ants from targeted areas within South East Queensland	**a.** Percentage of stakeholders who support NRIFAEP activities within eradication area	Less than 1% stakeholder opposition annually	Opposition to treatment activities is negotiated with less than 1% opposition to the program this quarter.	●
		b. Total area receiving prescribed treatment regime for fire ant eradication (i.e., all planned insecticide treatment rounds)	Prescribed treatment regime applied to 99% of planned area	There is no planned eradication treatment related to this KPI to report on in 2021–22.	●
		c. Number of fire ant nest infestations in monitoring (positive control) sites following completion of prescribed treatment regime	Zero fire ants present in monitoring sites within three months of completion of prescribed treatment regime	• Prior to the commencement of broadscale eradication treatments in Area 2 in September 2020, multiple monitoring sites were established to evaluate the effectiveness of treatment regimes. Fire ant nests on these sites have been monitored continuously since then. • By the end of the current Q2, none of the original 480 nests from any of the monitoring sites are showing signs of activity and all appear to be dead. The one section of Area 2 that still had some surviving nests at the commencement of the 2021–22 treatment season (and had received 4 IGR treatments in 2020–21), now has no active nests following an additional two rounds of IGR bait in 2021–22. These results indicate that when the prescribed treatments are applied (6 consecutive rounds of IGR baits within 2 years) they are successful. • Monitoring is continuing at these sites and will include full-site surveillance in the upcoming winter to further confirm the effectiveness of the treatment regimes applied in Area 2 from 2020-2022.	●
		d. Percentage of eradication area within which fire ants are detected following prescribed treatment regime completion	Residual fire ant infestations are detected in less than 1% of the eradication area	• Eradication Area 2 consists of 8582 sites (or properties). • From June 2021 to December 2021 17.2% of the total number of sites in Area 2 have been surveyed with 1% confirmed to have fire ants. • Additional treatment rounds are planned during 2021– 22 in these areas.	●
10	To progressively decrease the fire ant infestation in South East Queensland through targeted eradication	Increase in the operational area that has effectively completed a prescribed treatment regime for fire ant eradication (as in obj 9)	33% of the 2020–21 operational area by June 2022	• There is no planned eradication treatment related to this KPI to report on in the 2021–22 financial year, however this target was achieved by June 2021 (following the previous treatment season). The total area that has received treatment as a proportion of the total operational area is 33% (Total area of WB, EA1 and A2 = 211 580.65ha; Total area of operational boundary = 645 105.25ha).	●
11	To reduce the cost of fire ant eradication treatment, monitoring and	**a.** Average per hectare cost of the program's prescribed treatment regime to effectively eradicate fire ants	Average per hectare cost of applying prescribed treatment regime for fire ant eradication is reduced by 33% from 2019–20 costs by June 2022	• The calculation for this KPI is being finalised and will be reported by June 2022. • Preliminary data indicates the program is achieving savings with an average combined spend of $121 per	●

Objectives		KPI	KPI target (2021–22)	Progress against KPIs	Status
	surveillance activities while meeting KPIs			hectare for all treatment and surveillance for Q2, 2021–22. This is 13% less than $139 per hectare for Q2, 2020–21. • Further analysis will be reported in future reports.	
		b. Average per hectare cost of the program's fire ant monitoring and surveillance regimes to effectively eradicate fire ants	Average per hectare cost of monitoring and surveillance regime is reduced by 33% from 2019–20 costs by June 2022	The calculation for this KPI is being finalised and will be reported by June 2022. See 11a for preliminary combined surveillance and treatment spend per hectare.	
Clearance					
Objective		**KPI**	**KPI target (2021–22)**	**Progress against KPIs**	**Status**
12	To detect and destroy any residual fire ant infestations and gather evidence to support the demonstration of freedom from fire ants in clearance areas	**a.** Searches of locations[2] deemed to be at highest risk of residual fire ants	The top 10% riskiest locations[3] have been searched by June 2022	• On track to achieve this target by June 2022. • No additional ground surveillance occurred in these areas during this Quarter. As of 31 December 2021, 2983 ha of the required 5125 ha of clearance surveillance by ground teams had been completed (58% of riskiest locations by ground teams). Of these locations, 7 are within a 2021–22 treatment area so no further surveillance will be conducted there. • There are no Area 2 clearance zones within the top 10%. • RSS flights had been completed over 8419 ha in these locations and validation of predictions by ground teams had been completed over 2 910 ha (31% of riskiest locations by air).	
		b. Total area searched for the presence/absence of fire ants	Every clearance zone has at least 5% of the area[3] surveyed by June 2022	• Of the 101 Clearance Zones in the Western Boundary, Area 1, and Area 2, all 101 have received a minimum 5% of the area surveyed (100%). • 65 clearance zones had received remote sensing surveillance over at least 5% of the area[1].	
		c. Presence/absence of fire ants in areas searched	Zero fire ant detections at locations **other than** the top 20% riskiest locations	• This target was not met. Seven (7) detections made in the clearance area this quarter were outside the top 20% riskiest locations. • Four of the detections are in areas that were identified as re-infested during 2020–21 and are included in planned treatment for 2021–22. • The program assessed the risk associated with the other three detections and determined that additional treatment areas, and extensions to existing treatment areas, were required to mitigate the risk of further spread.	
		d. Presence/absence of fire ants following application of prescribed treatment regime for fire ant clearance at a site detection of importance	Zero fire ants remaining from original nests 12 months after prescribed treatment regime completed	• Nineteen (19) detections were made in the clearance area in the second quarter. • None of the fire ant detections were from original nests. • Treatment will be undertaken to ensure zero fire ants remain from original nests 12 months after the prescribed treatment regime is completed.	

[1] From a total 86 clearance zones in A1/WB viable for RSS this season

Summary of planned treatment and surveillance

Planned treatment in 2021–22 includes suppression and clearance treatment. The summer treatment season commenced in September 2021 and is scheduled to finish in early June 2022.

See Appendix 1 to view the map of planned treatment areas and progress.

Figure 1: Planned treatment progress against schedule at 31 December 2021

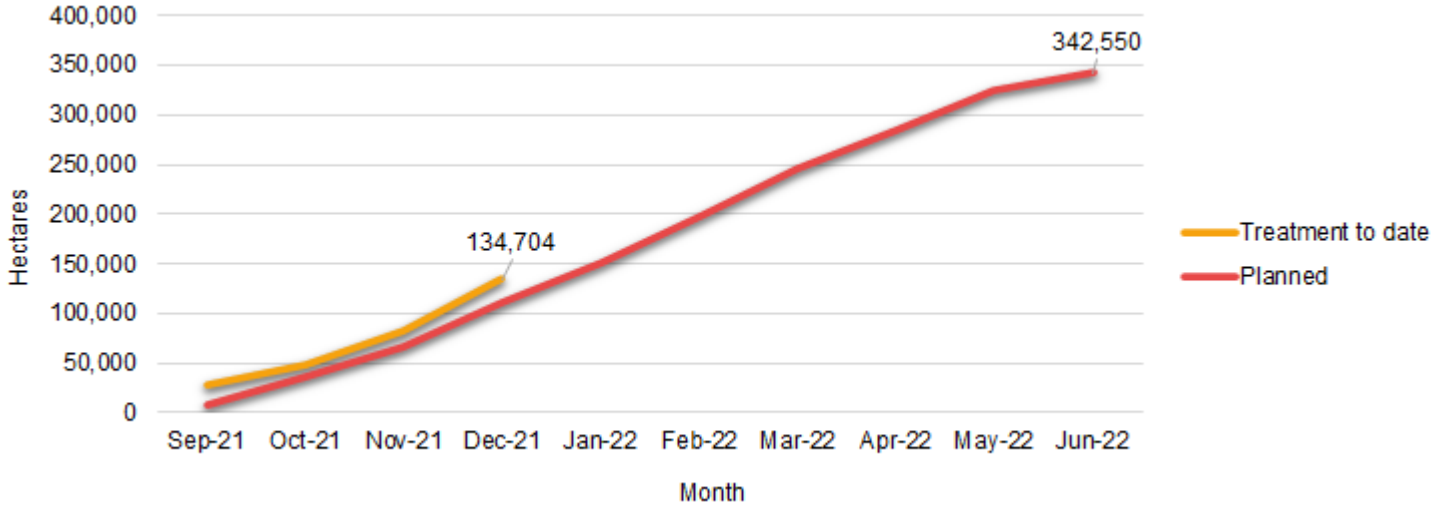


Table 3: Planned treatment progress at 31 December 2021

Area	No. of hectares			
Treatment area	Planned year (Ha)	Actual YTD (Ha)	Planned YTD (Ha)	% YTD
Area 1	99 690	51 274	41 439	124
Significant detections	51 660	31 913	21 381	149
Contingency for new detections (A1/SD/A2)	25 000	11 191	2 608	428
Overlaps	75 400	34 646	31 226	111
Southern suppression	85 800	4 794	10 725	45
Self-treatment	5 000	886	2 500	35
Total	342 550*	134 704	109 879	123

*excludes polygyne and responsive notional allocations of 10,100 ha.

The Southern Suppression treatment is less than planned because treatment was delayed due prioritising the completion of Round 2 of aerial treatment in the Significant Detections treatment area.

See Appendix 2 to view the map of responsive and planned surveillance areas and progress.

Figure 2: Planned surveillance progess against schedule at 31 December 2021

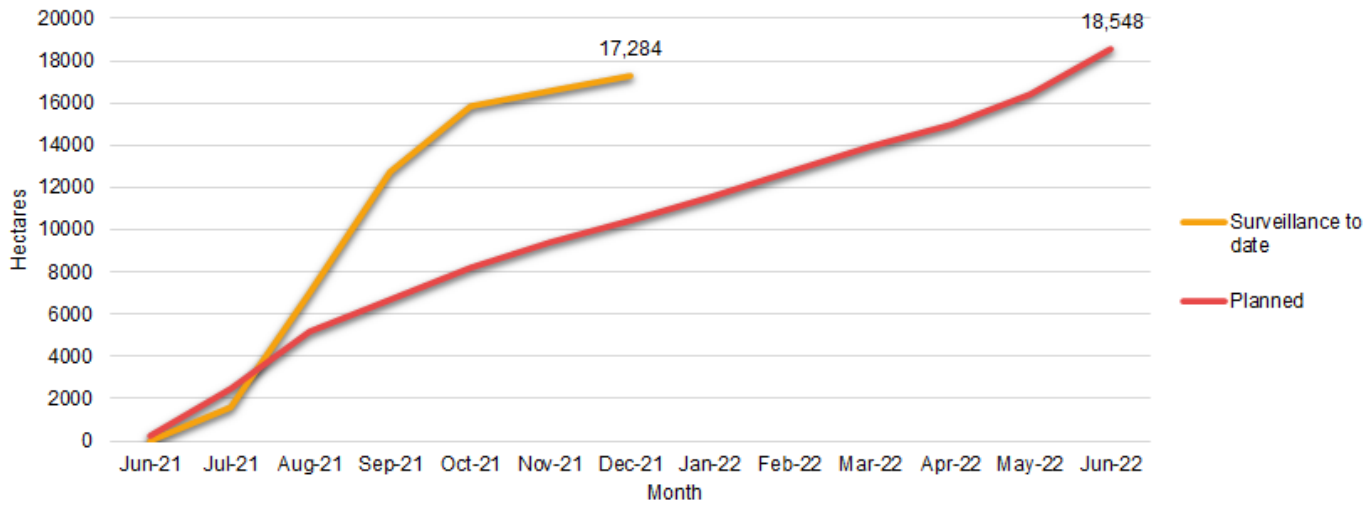


Table 4: Surveillance progress—planned and responsive at 31 December 2021

Surveillance Area*	Planned Year (Ha)	Actual YTD (Ha)	Planned YTD (Ha)	% Ha Completed YTD
Clearance	4 500	3 834	2 948	130
Sentinel	1 300	1 019	601	170
Targeted	4 200	4 182	2 911	144
Responsive	8 500	8 485	3 961	214
Total	**18 500**	**17 520**	**10 421**	**168**

*Sentinel surveillance—planned ground surveillance on sites outside and just inside the operational boundary; Clearance surveillance—planned ground surveillance on sites within previous eradication treatment areas: Area 2; Targeted surveillance—planned ground surveillance on sites within 5 km of the operational boundary which had previous infestation; '** This refers to a notional allocation for responsive surveillance around new detections based on previous years, for planning purposes only. See containment below for further information on surveillance.

A further 58 000 hectares were surveyed via Remote Sensing Surveillance technology. See p14 for more information.

The winter surveillance season commenced in late June 2021 and concluded during September 2021. The program will continue surveillance in all areas for the remainder of the financial year.

3. Stakeholder mobilisation: Activities to generate and maintain stakeholder awareness, support and participation that enables fire ant elimination from South East Queensland.

Stakeholder behavioural insights report

The second report for the 2021 calendar year providing stakeholder behaviour insights against our KPIs was received in November 2021. In most cases the program has already exceeded most of the mobilisation and related targets for this financial year (Table 2). The exception is for self-treatment and like activities which in most cases have not yet met KPI targets for 2021–22. In summary the report indicated:

- High stakeholder awareness in general (94%) but low perception that it is an issue for individuals (6%).
- High number willing to take action to help fight fire ants, but not translating into action at the same level.
- Much higher awareness in Areas 1 and 2 where eradication treatment has taken place, which reflects targeted marketing in those areas as opposed to Areas 3 and 4 which are not currently receiving eradication treatment.
- Increased awareness in agricultural industry noted, a likely a result of high levels of engagement with the hay producing and cropping industries.

The level of consistency between Report 1 (February 2021) and Report 2 (November 2021) data supports the validity of the stakeholder sample researched (800 stakeholders i.e. 550 residents and 250 businesses).

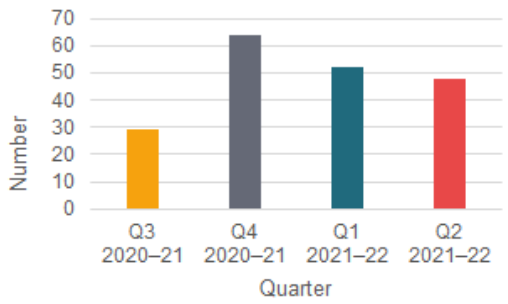
The findings will assist the design of behavioural interventions and the communication and engagement strategy of the program. This includes future actions regarding self-treatment awareness and activity.

See **Appendix 5** for more information.

Raising stakeholder awareness

Primary communication channels used to raise awareness across community and industry, including trends across quarters.

Figure 3: Media stories mentioning the fire ant program



- A total of 48 news media stories mentioned the program this quarter, an 8% drop on in those received in Quarter 1, 2022.
- The sentiment of the articles was varied with program media releases and relationships with local journalists resulting in some positive stories (27%) about self-treatment pilots and engagement work in the Somerset region.
- Several neutral sentiment stories were syndicated across ABC following the General Manager's interview with the ABC Gold Coast about the program's progress.

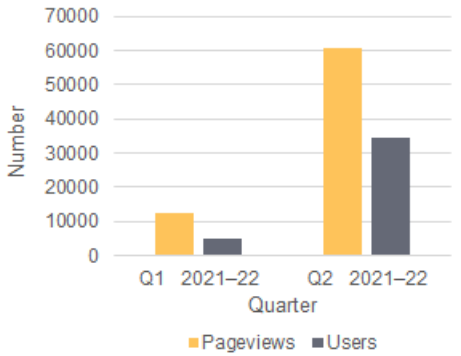
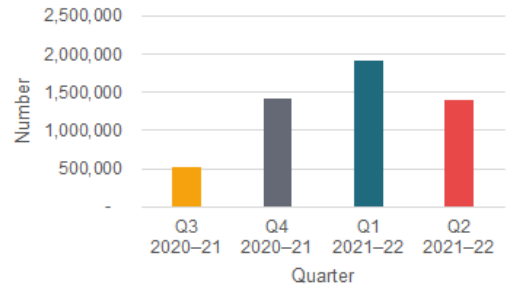
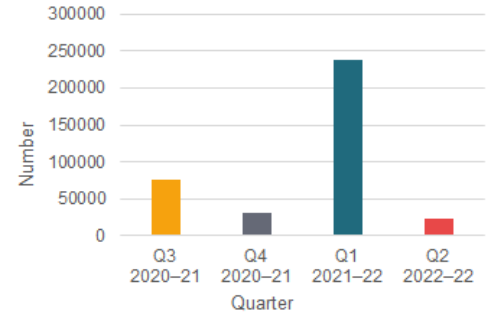
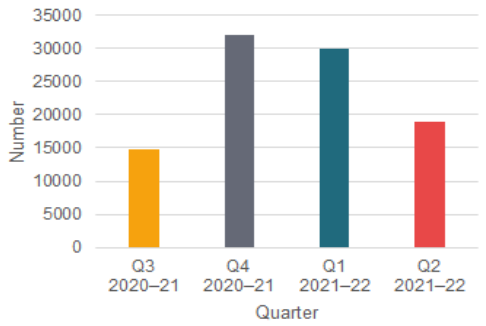
Figure 4: Website pageviews—fireants.org.au 	• The new website launched in August 2021 (Q1) continues to attract more users—a likely direct result of more content being migrated from Queensland Government franchise sites. • 60 721 pageviews from 34 548 users were received this quarter, a pageview increase of 382% from Q1. • Nearly 74% of web visitors were driven from social media advertising and organic posts. • To better gauge community satisfaction of the program, a Net Promoter Score (NPS) was added to the website in November 2021. Scores are measured with a single survey question and reported with a number between -100 to 100. The program's NPS score was 17 at the close of this quarter. A score of 10–30 is rated as 'good'.
Figure 5: Social media reach 	• Paid social advertising saw a total of 45 adverts shown to an audience of 1 406 423 people as part of 8 social media advertising campaigns and 4 boosted posts, covering topics such as significant detections, treatment, surveillance and self-treatment. • Overall, the paid adverts garnered 573 612 engagements and 35 716 clicks to fireants.org.au • Across this quarter, the program published 16 monthly organic social media (4 boosted) posts on Facebook, Twitter, Instagram and LinkedIn, covering topics such as our new website, fire ant nests, staff profiles and Christmas. • Organic social posts were viewed by 78 917 people with 14 203 of these engaged at some level.
Figure 6: Direct mail delivered 	• A total of 22 606 direct mail pieces were delivered in Q2 across four separate campaigns – three responding to detections of importance in Nerang, Rothwell and Camp Mountain, and one delivered as part of the phase 2 Tamborine Mountain self-treatment campaign. • This is less than the 10% of the previous 238 244 direct mail pieces delivered in Q1. • The delivery of direct mail pieces tends to be highest in the first quarter of each year as this corresponds to the seasonal commencement of two major communication campaigns – Community Surveillance and Planned Treatment Operational Support.

Figure 7: Emailed newsletters and notices opened

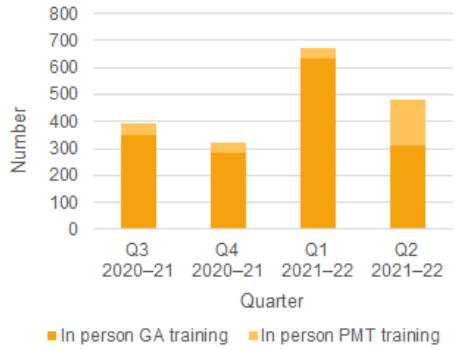


- A total of 28 electronic newsletters and notifications were sent to external and internal stakeholders in the form of Fire ant news, InformANT, community and industry alerts in this quarter.
- Overall 49 617 people were reached with 18 972 (38%) opening or reading the message—four percent less than the industry standard.

Building support and empowering stakeholders

Stakeholder training

Figure 8: Stakeholder fire ant awareness and treatment training



- During this quarter, General Awareness (GA) and PMT (Pest Management Technician) training were combined into one training session.
- Training was changed to 45 minutes in person live online delivery (previously a pre-recording) mostly delivered via Teams.
- Online sessions allowed up to 60 attendees in contrast to 40 face-to-face.
- Three self-paced training courses designed for specific groups i.e. residents, workplaces and pest management technicians, are being developed for staged roll out from January to June 2022. This training will be accessible 24/7 and there will be no limit to how many can attend each course at the same time.

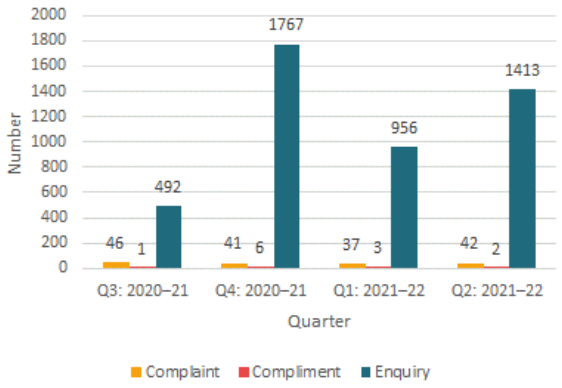
Community treatment projects

Table 5: Community self-treatment projects status

Location	Status
Gold Coast	• Campaign commenced in October 2021, including a direct mail delivery to all residents in the target suburbs (Arundel, Gaven, Maudsland, Molendinar, Pacific Pines and Parkwood) encouraging them to participate and place stickers on their letterbox to opt in. • Field operations teams started treatment In November 2021 and left behind bait shakers at properties displaying the sticker. • Of the 14 894 households targeted, 6040 bait shakers were delivered, a participation rate of 40.5%. • The second round of this project is due to commence in February 2022.
Tamborine Mountain – Phase 2	• Only a small number of residents have collected bait from the Visitor Information Centre. Further communication activities are planned to drive more people to participate.
Calamvale Ward, Brisbane	• Project commenced in suburbs of Algester, Calamvale, Drewvale, Forest Lake, Heathwood, Karawatha, Larapinta, Pallara, Parkinson, Stretton and Willawong. • program responsive teams are leaving behind bait shakers after responding to reports of fire ant nests, which most residents are consenting to receive. • There have been very few residents who have proactively collected bait from distribution points at the Calamvale Ward office or the Karawatha Forest Discovery Centre. Number of shakers distributed will be provided at the end of the project in Quarter 3.

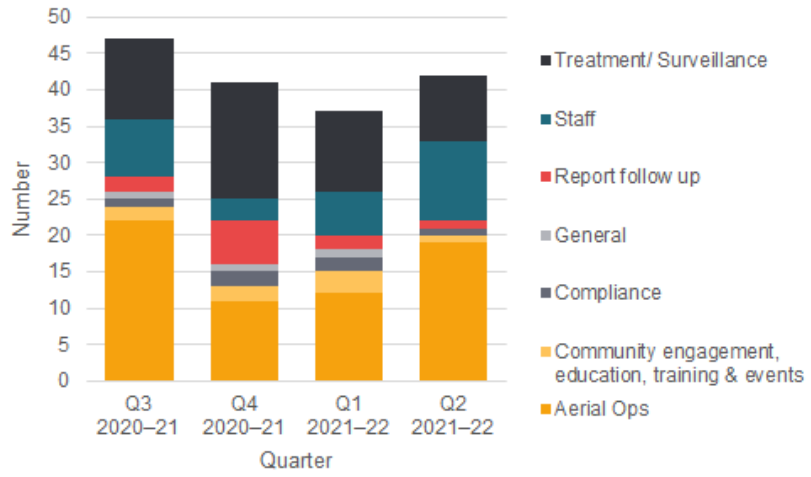
Complaints and feedback

Figure 9: Public contacts about fire ants other than suspect fire ant reports Q3 2020–21 to Q2 2021–22



- In addition to reports of suspect fire ants, 1457 contacts were received by the Department of Agriculture and Fisheries' Customer Service Centre about fire ants this quarter.
- For 453 of those contacts, the centre referred the contact to the program for action. Overall, there were 42 complaints (2.9%), 2 compliments (0.1%), and 1413 enquiries (97%).

Figure 10: Complaints per quarter from Q3 2020–21 to Q2 2021–22



- The majority of complaints were related to aerial operations (46%) followed by staff (27%) and treatment and surveillance activities (22%).
- Complaints about aerial operations were predominantly about livestock concerns and bait treatment or notification issues. Complaints about treatment and surveillance were mainly bait concerns and perceived lack of notification of treatment occurring. Staff complaints focused on damage, gates left open or other inconvenience allegedly caused by staff.
- Typically, more complaints about aerial operations and staff are received in Quarters 2 and 3 when planned treatment is being delivered. Complaints about responsive treatment/surveillance will generally increase when there is an extended response time for treatment due to a large volume of public reports. All complaints are addressed and responded to promptly by the relevant team within the program.
- To minimise angst towards the program's operational activities, the community and stakeholder engagement team continue to include targeted messaging in a variety of communication materials. Regular meetings and toolbox talks are conducted by operational team leaders and managers to discuss any immediate or ongoing issues with staff.

Refusing treatment by the program

The program received 39 refusals out of a total 23 413 properties visited for treatment during the quarter. This equates to less than 1% opposition (0.2%).

Table 6: Refusals to accept fire ant treatment 2021–2022

Action	Q1	Q2	Total as at Q2
Clients refusing treatment	6	39	45
Consented to avoid compliance actions*	0	0	0
Treatment enforced with QPS assistance	0	2	2
Refused properties that remain to be treated	6	37	43

*When faced with compliance action, i.e., a penalty infringement notice (PIN) for obstructing the program's authorised officers from undertaking treatment under a biosecurity program, some clients relented and gave permission for the treatment to occur.

- Gaps in treatment coverage and failure to complete treatment rounds have prevented treatment success in the past.
- Landowner refusal to treatment is monitored and strategies implemented to ensure treatment occurs on all properties.
- Under section 261 of the *Biosecurity Act 2014* Authorised Officers may, at reasonable times, enter the place to take any action authorised by a biosecurity program.
- If landowners continue to refuse access the program will enforce its legal right to enter and treat the property with Queensland Police Service (QPS) in attendance and it is likely the landowner will be issued with an infringement notice.

4. Containment: Activities to prevent the spread of fire ants within and beyond the program Operational Area.

Containment through the suppression of the existing infestation in non-eradication areas and preventing further spread remains a high priority. This includes prioritising detections of importance (DoI) at or near the operational boundaries, work with high-risk material industries to ensure compliance and vigilance to prevent spread through the human-assisted movement of fire ants, and working with the community to suppress the pest in area with a of heavy ant population. Landowners and residents in South East Queensland also play a critical role in suppressing the pest by treating properties or land they own or manage. This helps reduce the size and scope of the eradication task and degrades the genetic integrity of fire ant colonies.

Boundary containment and eradication area protection

The program uses a risk-based approach to surveying for and eradicating fire ants from near the operational boundary. This includes sentinel surveillance in high-risk habitats and targeted surveillance around operational boundary areas to detect new or returning ant infestation. Clearance surveillance is also done using monitoring sites within previous planned eradication areas to detect any residual ants (refer to the clearance section). During 2021–22 planned surveillance in the containment areas is being undertaken using ground teams and remote sensing cameras mounted on helicopters. Suppression treatment is also conducted protect the boundary and previous eradication areas.

Surveillance

The winter surveillance season went from late June 2021 to September 2021. The program commenced sentinel surveillance during September 2021, as planned, and will continue clearance and sentinel surveillance during periods of unsuitable treatment weather. Targeted and responsive surveillance will continue throughout the season utilising responsive field teams. Clearance and targeted surveillance using remote sensing cameras mounted on helicopters began in the 2021–22 surveillance season to locate any residual infestation in Area 1 and the Western Boundary. Clearance surveillance by ground teams focused on Area 2.

See **key insights** above to view surveillance data for this quarter and **Appendix 2** to view the progress map.

Remote sensing surveillance

The Remote Sensing Surveillance (RSS) project began collecting imagery in July 2021, and the imagery provider Outline Global immediately began processing images and producing predictions validation, which is the process by which predictions are checked by field staff for actual presence of fire ant colonies. Field staff also began validating predictions. As of 31 December 2021, imagery was collected above 580 flight grid cells, incorporating approximately 58 000 hectares. Of those 580 grid cells, 172 (approx. 17 200 ha) have progressed through validation. Rain events during October through December hampered the ability to achieve validation surveillance in any additional grid cells. This will be taken into consideration in planning for future treatment and surveillance activities.

Analysis of the intelligence gathered, and therefore inference possible, on the infestation in surveyed areas is ongoing. Goals for the next 2 quarters will be to use validation data to refine estimates of RSS accuracy, and then to optimize the level of ground-based validation effort required in the RSS surveillance package, both for delineation purposes and for proof of freedom estimation.

Suppression treatment

The program will conduct up to two rounds of western and eastern overlap treatment to prevent reinfestation of areas where eradication treatment has been completed in 2020–21. The western overlap area is a minimum two km buffer west from the eastern edge of Area two and the eastern overlap is a minimum two km buffer east from the eastern edge of Area 2. One to two rounds of treatment will also occur in southern suppression treatment zones: North—a minimum 3 km buffer inside the operational boundary, north of known detections and South—a minimum two km buffer outside the operational boundary to the south of known detections. Suppression treatment in the Overlap treatment areas started in October whilst the Southern Suppression treatment areas started in November 2021.

Responsive treatment

Responsive treatment is delivered when the community reports suspected fire ants and they are identified as positive. It is also delivered when positive sightings are found by program field staff in the normal course of treatment and surveillance work. These are prioritised according to level of risk. Detections presenting a high risk to public safety (such as those in schools, parks and sporting grounds) are given the highest priority along with fire ant detections outside or near the program's operational boundary (see **Detections of importance** for more information).

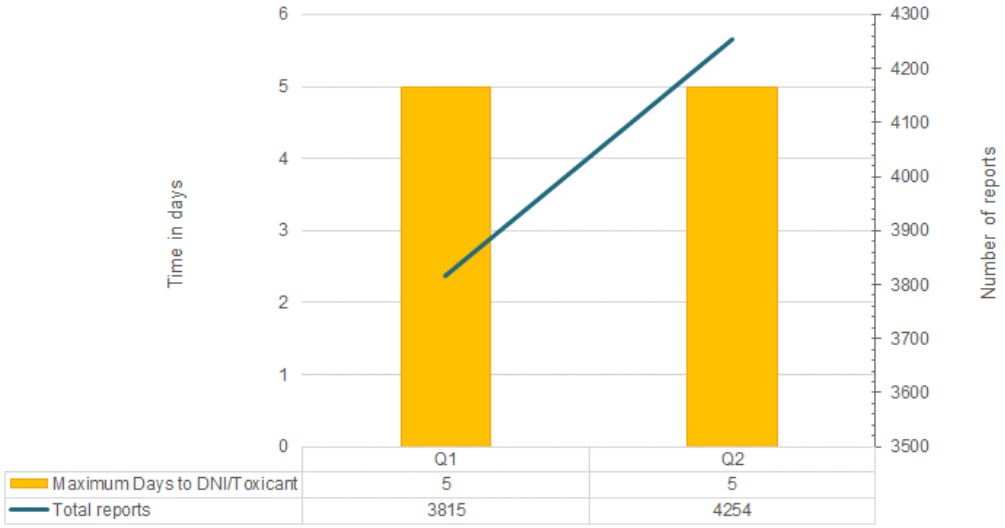
Community reports of fire ants

There were 4254 public reports of potential fire ants this quarter. Only four of these reports were residents confirming that they checked their yards and found nothing.

The top 10 suburbs to report fire ants were Park Ridge (Logan City), Jimboomba (Logan City), Redbank Plains (Ipswich City), Logan Reserve (Logan City), Greenbank (Logan City), South Ripley (Ipswich City), Ripley (Ipswich City), Pimpama (Gold Coast City), Spring Mountain (Ipswich City), and Yarrabilba (Logan City). These 10 suburbs made up 24% of reports made this quarter.

The maximum days for the program to treat reported suspect fire ants this quarter was 5 days.

Figure 11: Public reports and maximum days to direct nest injection (DNI) treatment 2021–2022



Detections of importance

Detections of importance pose a heightened risk to the achievement of the program objectives and overall success and receive urgent attention. They include detections outside the operational boundary, detections up to five kilometres inside the operational boundary in place at the time of detection and detections located within areas that are currently undergoing clearance and freedom activities.

During the first quarter there were 39 confirmed detections of importance, a breakdown of which can be found in table 9.

Table 9: Fire ant detections of importance Quarter 2 2021–22

Type*	No.	Location/s
Significant	2	Rothwell, Kentville
Boundary	18	Boyland (2), Allenview (9), Gleneagle (2), Kagaru (1), Camp Mountain (1), Wongawallan (1), Biddaddaba (1), Beaudesert (1)
Clearance area	19	Munbilla (2), Harrisville (2), Kulgun (1), Mutdapilly (1), Templin (2), Coleyville (3), Anthony (1), Mount Forbes (1), Purga (1), Peak Crossing (1), Rosewood (2), Thagoona (1), Willowbank (1)

*Significant = A new detection found outside the program Operational Area boundary. Boundary = A new detection found up to 5 km inside the program Operational Area boundary. Clearance area = Former eradication area undergoing surveillance and residual ant search and destroy activities.

Significant detections

- Two new significant detections were confirmed in the local government areas of Moreton Bay (1) and Lockyer Valley (1).
- The program's response to the detections was to immediately destroy all nests and undertake treatment and surveillance activities between a minimum of 500 metres and up to 2 km beyond the infestation.
- Investigations were undertaken regarding the movement of inbound and outbound fire ant carriers onto and from each site, specifically focussing on the last 12 months.
- If fire ant carriers needed to be removed from the site, co-operation was sought with the companies/landowner to implement measures prior to the movement.
- Genetic analysis was conducted to determine if the nests were related to the existing Southeast Queensland population and the fire ant colony's social form (monogyne or polygyne). Both detections were from the current SEQ infestation and were monogyne.
- Further testing is also undertaken to identify relatedness to nearby colonies and investigations are carried out into related fire ant carrier movements. Of note, it was found that:
    - There is a direct link between samples taken from Griffin and a nest sampled more recently at Brendale, more than 5 km away which suggests human assisted movement. A potential source of infested materials is being investigated.
    - The nest at Rothwell has been identified as being strongly related to a nest from Griffin. This may indicate either natural flight from Griffin, or a human assisted movement where product was either moved between Griffin and Rothwell or that they both received product from the same source. Movement tracing investigations have not established a specific movement to be responsible for this detection, however human assisted movement is possible given the recent development activity in proximity of the detection including a new train station and associated infrastructure.
    - The results of the analysis on the Kentville nests indicated a prominent level of inbreeding and given their proximity to nearby infestation, it is assumed that this detection is a result of flight.
- Further genetic testing is undertaken periodically as more samples are collected.

Boundary detections

- There were 18 boundary detections during the second quarter in local government areas of Scenic Rim (15), Gold Coast (1), Logan City (1) and Moreton Bay (1).
- The program assessed the risk associated with each detection and responded in accordance with program protocols.
- All nests were destroyed with an insecticide by either applying direct nest injection or broadcast baiting, depending on risk. Scope of treatment ranged from a minimum of 10 m from the nest to 2 km beyond the infestation.

- The number of detections around the boundary presents a significant risk to the program's containment objectives. The program's southern suppression treatment will ensure two rounds of broadscale baiting with an IGR are applied to the areas to the south of the program's operational area, where most of the infestation was detected, during the 2021–22 treatment season.

See **Appendix 4** for a map of detection locations.

Polygyne detections

Genetic analysis of the social form of fire ants is undertaken to guide treatment activities. Multi-queen colonies (polygynes) have an increased risk of spread via human-assisted movement and are more expensive and difficult to eradicate compared with single queen colonies (monogynes). As such, one of the KPIs of the program is to maintain the percentage of polygyne infested sites in southeast Queensland at or below ~1%. This is far less than the proportion of polygyne colonies seen in overseas infestations, which is often between 40% to 70% or higher.

Results for samples tested in Q2 are presented in Table 10. Of the 1835 samples tested for social form in Q2, 28 (1.5%) were polygyne. These were collected from 27 separate sites (1.7% of all sites tested). For the year to date (Q1-Q2), of all 3864 samples tested, 72 (1.9%) were polygyne, collected from 44 sites across 22 suburbs (1.3% of all sites tested). These results are comparable to those from the previous financial year (2020–21) where 91 (1.4%) of the 6586 samples tested were polygyne and these came from 69 separate sites across 30 suburbs (1.3% of the total number of sites tested). Because multiple samples are frequently taken from a site, the percentage of polygyne-infested sites is more critical than the raw percentage of polygyne samples.

Progress in the testing of field-collected samples is presented in Table 11. In the year to date (Q1-Q2), only 405 of the 5714 field samples collected and sent for genetic analysis have been tested. This includes 72 samples collected in Q2, four of which were polygyne. The backlog in genetic testing exists mainly due to an increase in samples over recent years. While methods for increasing sample throughput are being investigated, methods for prioritising which samples should be collected/tested for social form will also be important to ensure that the program is able to rapidly detect polygyne detections and respond to prevent their spread.

Table 10: Fire ant samples tested for social form 2021–22

Testing period	No. samples tested^	No. monogyne samples	No. polygyne samples	No. sites with monogyne colonies only	No. Sites with polygyne colonies	No. Suburbs with polygyne detections
Q1 2021–22	**2029**	1984	44 (2.2%)	1593	15 (0.9%)	12
Q2 2021–22	**1835**	1807	28 (1.5%)	1601	27 (1.7%)	22 (10 new in Q2)
YTD 2021–22	**3864**	**3791**	**72 (1.9%)**	**3031**	**41 (1.3%)**	**22**
Previous Year						
Q1 2020–21	226	224	16 (1.0%)			
Q2 2020–21	2695	2544	51 (1.9%)			
TOTAL Q1–Q4 2020–21	**6586**	**6495**	**91 (1.4%)**	**5057**	**69 (1.3%)**	**30**

^Excludes samples found to have <15 ants, which are not suitable for analysis.

Table 11. Progress of samples collected and tested in each quarter 2021–22

Sample collection period	No. samples collected	No. samples tested *^	No. monogyne samples	No. polygyne samples
Q1 2021–22	3324	334	334	0
Q2 2021–22	2390	71	67	4
YTD 2021–22	5714	405	401	4

*Data is accurate up to the end of Q2 2021–22 (31 December 2021). Note the ants tested in a quarter are typically not able to be tested in the same quarter due to the large number of samples being collected and the resulting sample backlog.
^Excludes samples found to have <15 ants, which are not suitable for analysis.

Human-assisted spread mitigation

Human-assisted spread poses a significant risk to containment where fire ants are transported via fire ant carriers like soil, mulch, turf, hay and potted plants. To manage these risks the program promotes voluntary compliance through stakeholder education (see Mobilisation above) and targets industries most likely to transfer fire ants through compliance audits. Changes to fire ant biosecurity zones in June 2021 introduced new suburbs within the zones and meant several businesses and individuals were subject to the Biosecurity Regulation 2016 for the first time. Given both their general limited knowledge and previous contact with the program, if found non-compliant this group has been made aware of the requirements and generally given two weeks to achieve compliance.

Compliance audits

The *Compliance Plan 2021–22 Human Assisted Spread Mitigation* (compliance plan) was developed to ensure 25% of the highest risk industries undergo compliance assessment over the fiscal year with the results of these assessments creating reliable inferences of overall industry compliance levels each year. Through various processes (field inspections, compliance inspections, paying for business data etc) the program captures businesses that work with fire ant carriers that operate within the fire ant biosecurity zones. Such businesses are landscaping services, hay producers, earthmovers, waste facilities, civil construction, builders and developers and quarries. To target the top 25% of these businesses (approximately 6792 businesses in the data base) equates to auditing approximately 1700 businesses annually, 424 audits a quarter which equates to an individual officer conducting approximately 70 audits a quarter, based on having a full complement of compliance officers employed (six). If the compliance team is down personnel they aim to maintain 70 audits per officer.

The compliance team prioritised industries based on their level of risk of potential movement of fire ants, factors they consider are the time of year (some industries are seasonal like hay producers), their proximity to high density infestation, if an area has recently been included into the fire ant biosecurity zone and the location a business is to the biosecurity zone boundaries, are all considered. For the second quarter of 2021/22 hay producing businesses in the areas along both the southern containment area and the north-west area of zone 1 were targeted due to recent significant detections and some suburbs had recently been included into the biosecurity zone. As well businesses in the civil construction industry were targeted that were close to the border of zone 1 and zone 2 as they had recently transitioned from zone 2 to zone 1. Nurseries were also targeted in the quarter in support of ICA-40 interstate market access.

During Quarter 2 the compliance team had approximately 3 operational officers, as a result the target for the second quarter audits based on personnel was 203 audits. Compliance conducted 215 audits during this period, of note the audits in hay producing areas took longer as considerable education of clients was needed as well a number of investigations were required for noncompliance resulting in compliance action to a number of businesses. Based on the current staffing levels (50% capacity) the number of audits completed year to date 434 is 25% of the 1698 target.

Table 12: High risk industry audits—numbers compliant versus non-compliant Quarter 2 2021–22

High risk industry	No. audits	No. non-compliant	% non-compliant	Outcome
Hay	60	16	26%	15 Advisory Notices issued for hay storage. 1 Biosecurity Order issued to cease any movement of non-compliant hay.
Earthmoving	33	3	9%	4 Advisory Notices issued for non-compliance with Soil Movement Guidelines.
Civil construction and builders	63	1	1%	1 Advisory Notice issued for non-compliance with Soil Movement Guidelines.
Pool builders	2	1	50%	1 Advisory Notice issued for non-compliance with Soil Movement Guidelines.
Potted Plant	32	2	6%	1 Advisory notice issued to a nursery to treat potted plants prior to moving from the property. I biosecurity order issued to a nursery to treat potted plants prior to moving from the property
Poultry	1	0	0	
Landscaping Supplier	13	2	15%	1 Advisory Notice issued for keeping of records. 1 Advisory Notice issued for hay storage.
Quarry	5	1	20%	1 Advisory Notice issued for minor non-compliance with a BIP condition.
Waste facilities	3	0	0	
Tree lopping and mulching	1	0	0	
Turf	2	0	0	
Total	**215**	**26**	**12%**	**All Businesses are now compliant.**

Continuing to extensively engage and communicate with industry in addition to audits will be key to improving compliance levels. See **Appendix 3** for the locations of compliance activities.

5. Eradication: Activities to effectively eradicate fire ants from South East Queensland.

During 2020–21, the program confirmed 216 detections of importance, 73 of which were located within the program's previous eradication areas: Area 1 and the Western Boundary. This resulted in a decision to postpone treatment of Area 3. During 2021–22, the program's strategy is to focus on treatment of residual infestation in the previous Area 1, Area 2, Western Boundary areas and high-risk areas outside boundary areas. The objective being to destroy remnant infestations in the clearance areas (where eradication treatment has been completed in previous years); prevent further spread outside the operational area; and protecting previous eradication areas from re-infestation.

Monitoring the efficacy of broadscale bait treatments in Area 2

In the 2020–21 treatment season, as the program prepared to move into a new eradication area (Area 2), a more intensive methodology for broadscale eradication treatments was developed as part of an adaptive management approach. Under this approach, four bait rounds were applied in a single treatment season (September 2020–June 2021) and, in some sections of Area 2, a fast-acting bait (Advion®) was included in the treatment sequence to investigate if this could further accelerate eradication.

Before applying these eradication treatments, extensive surveillance was undertaken to locate live fire ant nests so their responses to baiting could be monitored. The number of fire ant nests detected and included in a monitoring strategy to measure the efficacy of the three eradication treatment strategies in Area 2 was:

- 323 nests (northern section: treatment strategy = 4 x IGR treatment rounds)
- 66 nests (central section: treatment strategy = 3 x IGR treatment rounds + late Advion® treatment in round 4)
- 91 nests (southern section: treatment strategy = 3 x IGR treatment rounds + early Advion® treatment in round 2).

All monitoring nests have been visited on a four-week/monthly schedule since September 2020 and assessed for the level of fire ant activity. In conjunction with this monitoring of treatment efficacy, pitfall trapping at six-week intervals occurred to monitor the potential impacts of broadscale baiting on non-target ant species.

By the end of December 2021, no fire ant activity was detected at any of the original 480 monitoring nests across Area 2. This included a section of Area 2 that still had a small number of surviving nests at the commencement of the 2021–22 treatment season (and had received 4 IGR treatments in 2020–21). Because of these survivors, this section was planned to receive an additional two rounds of IGR bait through Q1-Q2 in 2021–22. These have been applied and results from these monitoring sites indicate that when the prescribed treatments are applied (6 consecutive rounds of IGR baits within 2 years) they are successful.

Monitoring is continuing at these sites and will include full-site surveillance in the upcoming winter to further confirm the effectiveness of the treatment regimes applied in Area 2 from 2020-2022.

Apparent mortality of monitoring nests in Area 2 as of December 2021 (Summary):

- 100% (n=323) Northern section; 4 x IGR 2020–21 + 2 x IGR 2021–22
- 100% (n=66) Central section; 3 x IGR + toxicant in Round 4 2020–21
- 100% (n=91) Southern section; 3 x IGR + toxicant in Round 2 2020–21

6. Clearance: Activities to ensure defined areas remain free from fire ants after eradication is complete.

Because of the risk posed by detections of fire ants in Area 1, Area 2, and the Western Boundary, broadscale treatment is being undertaken during 2021–22. Detections will be monitored and if infestation persists, the areas will receive additional treatments during 2022-23. Under the proposed Clearance and Proof of Freedom Strategy, clearance zones must have 2 consecutive years of clearance surveillance without any observed living fire ants before they can be declared 'clear'.

Clearance surveillance in these areas will be performed through a combination of ground and remote sensing surveillance (RSS).

- 19 detections were found in clearance areas this quarter in local government areas of: Scenic Rim (13) and Ipswich (6).
- Ten of the detections are in areas that were identified as re-infested during 2020–21 and are included in planned treatment for 2021–22.
- The program assessed the risk associated with the other nine detections and determined that additional treatment areas, and extensions to existing treatment areas, were required to mitigate the risk of further spread.
- All nests were destroyed with an insecticide by applying direct nest injection.

Table 13: Challenges and solutions to clearance activities Quarter 2 2021–22

Challenges	Solutions
• Incorporating RSS into every aspect proof of freedom surveillance and treatment planning and strategy. • Timely validation of remote sensing predictions by field staff (i.e. needs to occur as close to imagery collection as possible)	• Analysis of RSS accuracy data, as well as costs. • Building surveillance and detection simulations, as well as computer programs, to optimise expenditure on ground-based surveillance in the RSS package towards statistical evidence of freedom. • It was intended that validation of predictions from RSS imagery would continue through Q2/summer to maximise the amount of clearance surveillance completed. In practice, this proved difficult due to weather-related interference and the need for program field staff to switch to and focus on treatment through most of Q2. As such, efforts within the RSS project are working to ensure that predictions from RSS next year are obtained and sent for field validation as close to imagery collection as possible. These solutions range from increasing efficiencies in image collection and processing to ensuring adequate staffing levels for RSS validation surveillance.

Clearance and Proof of Freedom Strategy

All formal clearance surveillance activities in Area 1 and Western Boundary (second year) and in Area 2 (first year) were concluded by December 2021, although not all areas imaged by RSS were able to be validated by field staff within this timeframe.

Final estimates from RSS in 2021 of its coverage, cost and accuracy will be critical in creating potential rules and procedures for transforming results from RSS into statistical evidence of freedom. In advance, program scientists have been developing simulation programs to help in this analysis and the integration of RSS into standard clearance surveillance activities under the Clearance and Proof of Freedom Strategy.

Final analysis of clearance surveillance conducted in 2021 will be completed early in Q3. Clearance Zones meeting the necessary criteria will be recommended for "clearance" declaration and progression into the next stage of the Clearance and Proof of Freedom Strategy.

7. Research and innovation: Science and innovations to improve treatment, surveillance and diagnostic techniques.

Field trials to support APVMA permit changes by measuring the interception of fire ant bait by crops

APVMA permits allowing the program to aerially apply IGR fire ant baits (Distance and Engage) require that crops can be treated but that treated produce must be washed following harvest. However, for many crop types this is frequently impractical or not standard agricultural practice. As such, these permits conditions have resulted in treatment gaps in parts of the eradication area and contributed to some persisting fire ant infestations. Given the low concentrations of the chemical active ingredients in both IGR baits and their low application rates, desktop studies by program scientists indicated it would be unlikely for scheduled MRLs (maximum residue levels) to be exceeded when crops were treated for fire ants.

Advice received from the APVMA in 2021 was that trial data would be required to support permit changes that were less restrictive in relation to the treatment of crops. Field trials were therefore undertaken through Q1 and Q2 in two different crop types (brassicas and leafy vegetables) to assess how bait granules interacted with the crops and to measure any chemical residues. By the end of Q2, all planned field work has been completed, while data analysis and the preparation of these into a submission to the APVMA is continuing.

Testing of alternative treatment products

A pilot trial was undertaken with a newly registered fire ant control product that may be useful for both the program and self-treatment by the community. The product (DeadAnt, containing 0.25 g/kg fipronil) is an ant-sand treatment registered for non-specialist users (i.e., is not restricted to licensed Pest Management Technicians) and is likely most suitable for the cost-effective spot treatment of individual nests. It may also be able to provide longer-term residual control in small areas (such as residential yards). Because the product is sand grains coated with a persistent contact insecticide (fipronil), it is likely able to be applied under wetter conditions than standard fire ant baits and does not require ingestion to be effective. In the pilot trial with a small number of nests, DeadAnt performed well so further field evaluations will be undertaken in 2022.

Collaborating for the development of eDNA surveillance tools

The use of eDNA (environmental DNA) analytical tools in monitoring and surveillance activities is being developed in consultation with James Cook University, the University of Canberra and the Department of Agriculture, Water and the Environment Biosecurity Innovations Team.

An analytical method is being developed for detecting the presence of target specific DNA from several invasive ant species, including fire ants, in soil and/or water samples taken from previously infested habitat, habitat vulnerable to invasion or water bodies adjacent to potentially infested farmland. Collaboration activities in Q2 involved the collection and sending of soil samples from near fire ant nests in southeast Queensland to assist in the proof-of-concept research for the real-world application of a fire ant specific eDNA assay. If successful, this technology may be a beneficial addition to existing surveillance methods and tools.

Triaging of samples for genetic testing

The number of genetics samples collected annually has dramatically increased over the last few years outstripping the current testing capacity, resulting in a backlog of samples. As testing capacity cannot be increased without additional resources, there has been a need to optimise sample collection and processing to reduce the backlog without impacting the quality of the results. In Q2, desktop studies were conducted to determine the effect of applying a distance-based triage protocol on sample collection. The study showed that samples being collected within 25m of a nest previously sampled within 12 months were able to be omitted without affecting the quality of genetic analysis. This triaging method has been applied to the backlog samples at genetics. The next stage of project is to integrate a set of rules dictating sample collection into the FORAGE system used by field staff, which will reduce the number of field samples taken.

8. Governance and accountability: Includes business improvement, significant meetings related to governance, and risk management.

Risk management

Table 14: High risks to the program 2021–22

High Risk information			
Type	**Description**	**Controls**	**Treatment**
Strategic	*Risk to eradication and containment: Extreme wet weather events (e.g., flood, heavy rainfall) assist fire ant colonies to disperse over a greater geographical area.*	1. Contingency planning will be undertaken to ensure appropriate targeted surveillance/treatment is undertaken following a significant climatic event. 2. Pre-planning including infestation assessment, genetic tracing, spatial analysis of spread.	• Reprioritisation of planned suppression treatment to limit the risk of spread along water courses. • Flooding contingency fund. • Flood modelling and responsive planning.
Strategic	*The timing of national cost sharing funding does not align to the treatment strategy*	Establishment of collaborative funding agreements with states and territories and National Partnership Agreement with Commonwealth. Review of budget occurs regularly.	• Approach QLD and Commonwealth Treasury to secure drawdown of additional funds required in the early years • Ensure funding partners have a full understanding of the success, activities, and concerns of the program. • Regular reporting arrangements in place. • Review statement.
Operational	*Risk to capability:* Information systems are ineffective at supporting increased scope of National program and demand for timely and accurate performance data, which can arise from poor functionality or data integrity due to data entry, programming, configuration errors, viruses or incorrect business logic.	1. Resources dedicated to developing the program's existing information systems to improve efficiency and accuracy of data entry and reporting. 2. Server performance monitoring. Ability to upgrade if required.	• Information systems to undergo continual improvement. • Review of existing systems technology and current business processes to ensure best fit solutions are implemented. • Continually review performance and recommend upgrades accordingly.
Operational	*Risk to eradication:* If self-management does not have the desired take up by Industry the program should focus on avoiding possible increasing costs of suppression, at the expense of eradication.	The self-management program is divided into a number of sub-programs to better meet the needs of each target group; improvements to baiting options available to landowners and industry.	• Ongoing refinement and adjustment will be undertaken to meet the needs to consumers and industry sectors. • Coordination with high-density suppression treatment will also be undertaken to ensure the self-management projects are effective as possible.

Meetings of importance

The Steering Committee held an extraordinary meeting on 7 October 2021 via teleconference to discuss options recommended by the 2021 Strategic Review of the program. The Steering Committee endorsed Option A under the review, pending the provision of further costings and analysis. The Committee also reviewed the Cost Benefit Analysis paper produced for the program and discussed its results with the paper's authors.

The Scientific Advisory Group met on 28 October 2021 via teleconference. Items discussed included the 2021 Strategic Review report; eradication strategy and Area 2 results; challenges and opportunities related to the use of Remote Sensing Surveillance; and the future of the program's Genetic program.
The Steering Committee held its quarterly meeting on 24 and 25 May November 2021 via teleconference. The Steering Committee discussed updates to program areas, including self-management projects; progress of planned surveillance and treatment; detections of importance; communication and engagement; and remote sensing surveillance. Discussion was also held on program funding as well as regulatory reform following the release of the Commonwealth Scientific and Industrial Research Organisation's (CSIRO) *Review of Red Imported Fire Ants Scientific Principles and Movement Controls*.

The Steering Committee held an extraordinary meeting on 10 December 2021 via teleconference to discuss changes to a paper for consideration by the Agriculture Senior Officials' Committee (AGSOC), regarding the Committee's recommendations for the future of the program. Further discussion was held on collaboration with local governments and the Steering Committee was provided updates on the progress of program funding and operational activities.

9. People and culture: Includes staff levels, workplace health and safety, and employee development, engagement and culture.

The program engages with the approved recruitment agencies to increase the number of field contractors for the treatment season (which typically begins at the start of September) due to the increased number of resources required to deliver the treatment plan as opposed to surveillance.

Table 15: Staff numbers 2021–22

Position	Q1	Q2
Permanent	90	79
Temporary	39	33
Contractor—office	29	29
Contractor—field	247	230
Total	**405**	**371**

Workplace health and safety

The program received 19 incidents related to workplace health and safety during this quarter compared to 36 in the previous quarter. Workplace health and safety representatives maintain a focus across the program to heighten awareness and identify workable solutions for all identified risks.

Table 16: Workplace health and safety incidents 2021–22

Category	Q1	Oct	Nov	Dec	Q2
Hazards	19	0	3	4	7
Near miss	6	0	0	0	0
Property damage	11	6	3	3	12
Totals	36	6	6	7	19

10. Finance

The 2021–22 initial budget build for the program was $33.3 million above the program fiscal limit. Queensland requested from all cost share partners necessary funding to be brought forward from future years. Queensland has received letters to date indicating agreement from Northern Territory ($221K), Tasmania ($246K), Victoria ($4.51M), NSW ($5.78M) and the Commonwealth ($18.38M). This brings program to have total budget of $62.581M comes from the agreed funding including additional bring forwards approved by cost share partners and an additional $31K from gains on sale of old asset. The program will review treatment and other activities to ensure the spending is within agreed fiscal limit.

Expenditure to budget

The program's national cost share funding incurred a $2.1M underspend as 31 December 2021. The overall variance includes material underspends in Community & Stakeholder Engagement and self-treatment respectively of $534K & $281K, Remote Sensing Surveillance $643K, Information Services $264K, offset by overspend in Operations ($301K). The underspend in Community & Stakeholder Engagement relates largely to baiting expense budget for self-treatment ($334K), contractor expense $169K, timing issues for self-treatment and Biosecurity Zone campaigns ($189K), and the impact of two vacant AO4 positions ($53K). The underspend in Remote Sensing includes real savings of Aircraft Hire expense for remote sensing $232K and Remote sensing field surveillance staff expense $34K, delay in payment for Remote Sensing contractor ($271K), and a timing delay in the Gate Review expense ($75K). The underspend in Information Services relates mainly to timing on IT discretionary expenses for system development ($280K). All program areas in NRIFAEP incurred underspend except for Operations. The overspend in Operations is mainly due to an Aircraft hire price increase in new contract which was backdated to September 2021 ($600K), field contractor expense ($181K) and slight overspend in bait expense ($43K). The total treatment area is currently ahead of target plan due to suitable weather. Operations also incurred material underspends in employee expenses due to some vacant positions partially filled by contractors ($233K) and an underspend in office contractor expense as there are several unfilled budgeted office contractors ($206K). Further major underspend is a timing issue on planned Financial Audit expense ($150K)

Table 17: Expenditure to budget as of 31 December 2021

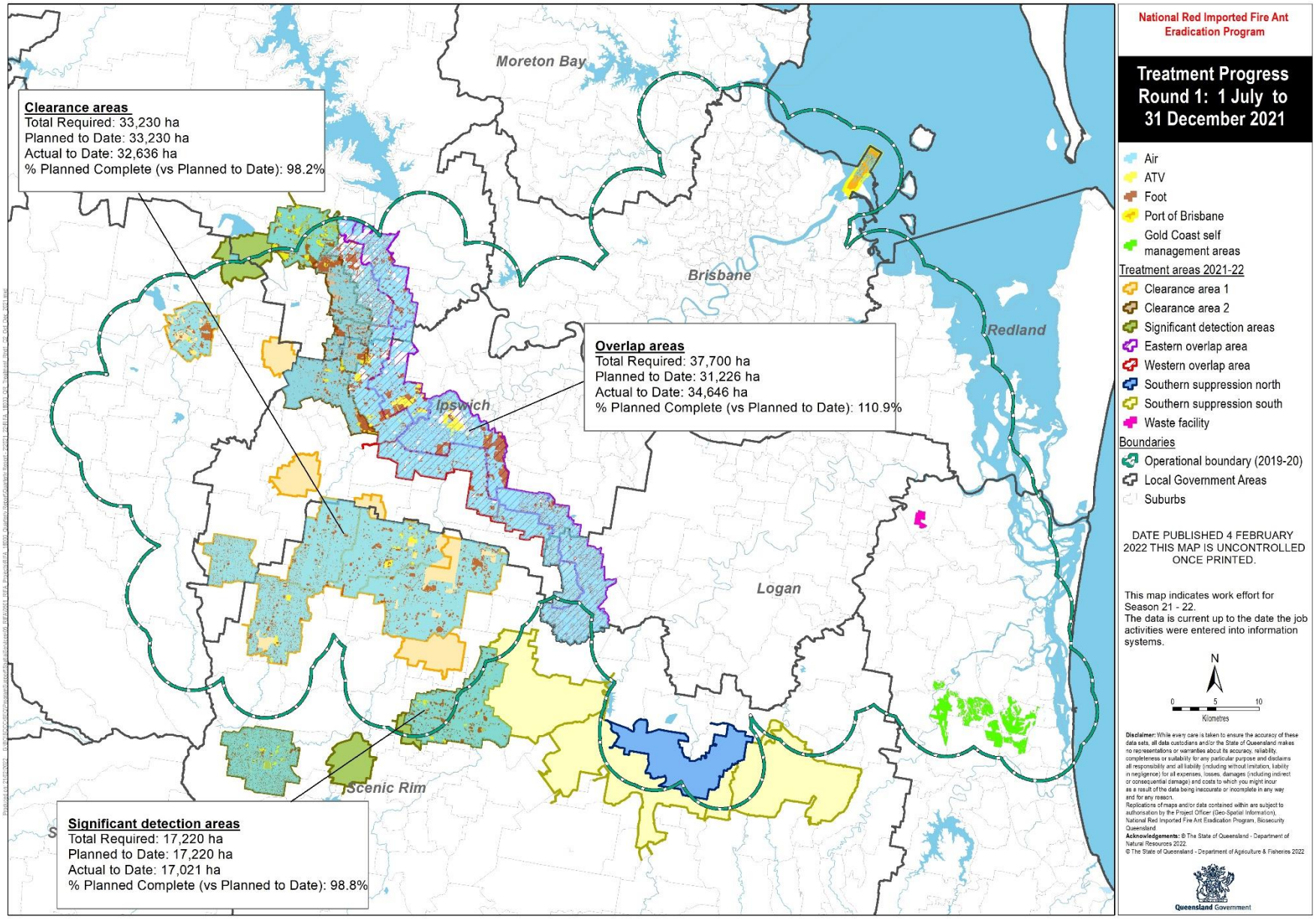
program Area	Requested Budget*	Current Budget	YTD Budget	YTD Actual	Variance	Note
Program logistics and business support	4 138 114	4 138 114	2 053 801	1 881 884	171 917	1
Remote sensing surveillance (R&D)	3 842 267	3 842 267	3 290 949	2 648 212	642 737	2
Systems and technology innovation	2 756 251	2 756 251	1 373 800	1 109 447	264 353	3
Community and stakeholder engagement	3 417 242	2 431 988	1 188 041	907 512	280 529	4
Science services and eradication assessment	2 963 197	2 963 197	1 482 055	1 340 674	141 381	5
Planning and quality assurance	2 786 626	2 786 626	1 352 498	1 252 709	99 789	6
Operations	43 069 151	43 069 151	18 328 168	18 629 169	-301 002	7
Directorate	1 462 522	1 462 522	922 645	798 521	124 124	8
Self-management	515 603	1 500 857	804 252	270 171	534 081	9
Strategic policy and performance	928 130	928 130	473 078	305 935	167 143	10
SEQ program balance	820 898	- 32 474 102	820 898	820 898	0	11
Total	**66 700 001**	**33 405 001**	**32 090 185**	**14 039 561**	**54 454**	

* 2021–22 Budget as approved by the programs National Steering Committee at its August 2021 Meeting.

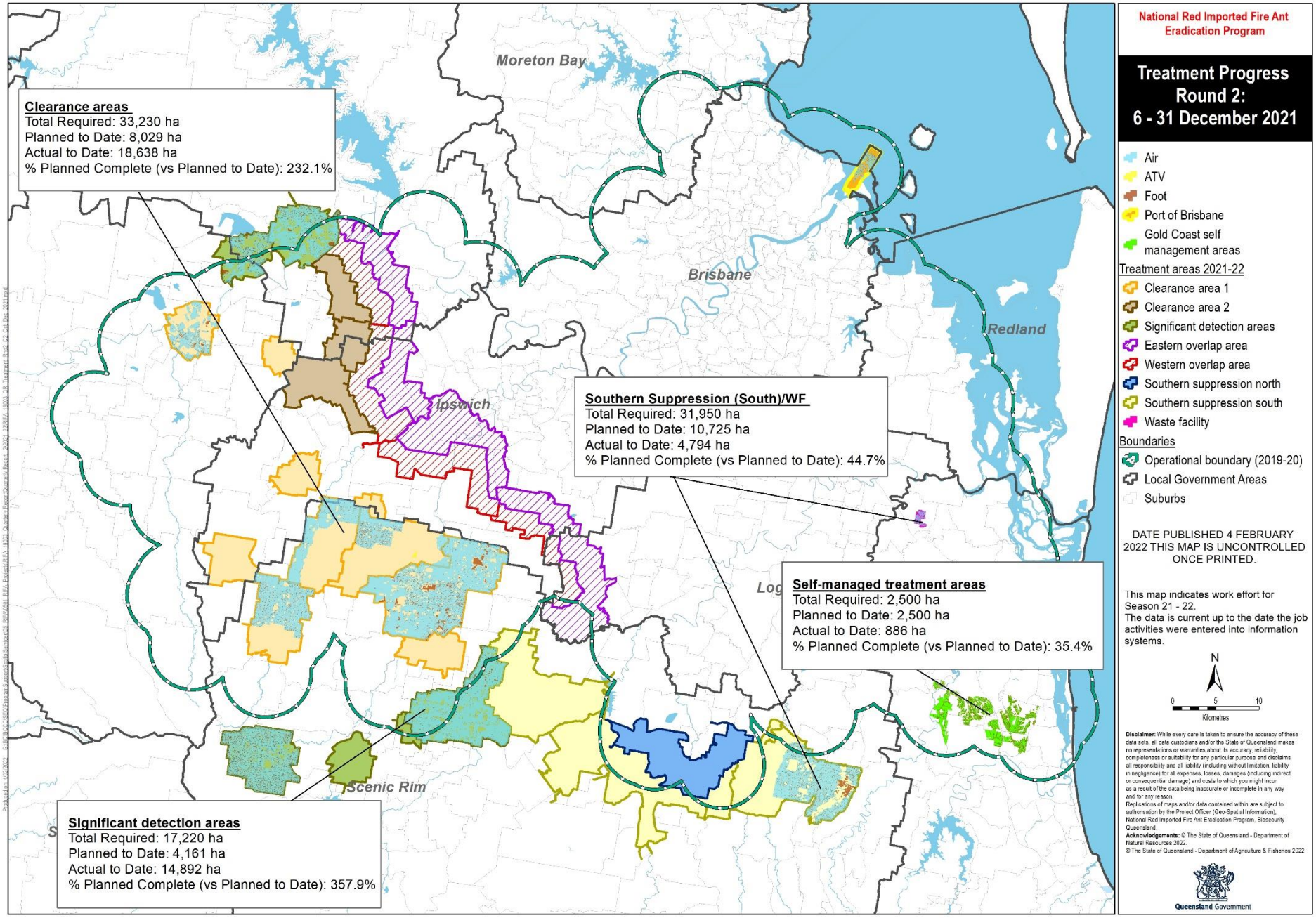
1. Favourable variance mainly due to underspend and timing issue across property facilities and building expense $85K, contractor expense $34K, timing issue on training expense $32K, PPE Expense $33k and offset by overspent in employee expense due to Admin Officer was charged to Business Support but budget sit in Operations ($53K)
2. Favourable variance mainly due to underspend on Aircraft Hire ($232K), Remote sensing Field staff expense ($34K), Data storage expense ($22K), timing issue on Remote Sensing Contract payment for main contract and additional component ($271K) and unspent Gate Review budget $75K
3. Favourable variance is due to timing issue on Informational and Technology Partners (ITP) Discretionary Services expense ($383k) and contractor expense savings ($21K), offset by a higher than budgeted charge for FAMs within October till December ($104K) and overspend in employee expenses ($38K) due to 5% vacancy rate applied and unbudgeted special leave taken
4. The favourable variance is mainly due to contractor savings ($99K) from vacant positions in Community Engagement account, savings in employee expense due to vacant positions ($47K) Timing issue on following expenses: website development expense ($25K), campaign cost ($84K), SEQ Awareness marketing project expense ($20K). This overspend is offset by overspend in Design and Production (including binding and printing) cost $96K
5. Favourable variance due to timing issue on Bait Research project ($25K), Drone Research Project($25K) and Bioclay Project final payment $10K and savings from Salary expense due to vacant positions across Sciences ($61K)
6. Favourable variance mainly due to timing issue on software charges for ESRI GIS, Spatial Imagery and Nearmap ($86K), as well as timing issue related to laptop replacement expenses ($10K). Additionally, underspend in contractor expenses ($25K) This offset by overspend in employee expenses ($22K)
7. The unfavourable variance consists of overspend in aircraft hire for treatment due to price increase $600K (expense has factored in the back charges of price increase from September 2021), field contractor expense ($181K) and bait expense $43K. This is due to significant increase of treatment activities in December. Other overspend is due to internal charges for RSS field staff is less than budgeted ($34K). This overspent is offset by $233K savings in employee expense due to vacant positions across operation which some positions were replaced by contractors, $86K, savings in MV related expense, Office contractor expense ($206K) and timing issue on new odour detection dog purchase $30K.
8. Favourable variance mainly due to timing of budgeted financial audit ($150k), timing issue on HR review contractor expense payment($27k), underspend in Strategic review expenses ($10K). The underspend is offset by overspend in employee related expense as vacant positions due to rec leave taken is fully backfilled and due to backpay for SO level in July ($46K), unbudgeted contractor payment for Senior Change Management Officer ($56K).
9. Favourable variance mainly due to contractor expense $70K, campaign expense ($104K), underspent on self-management bait ($334K), timing issue on Online training expense ($35K) and Self-Management training registration process budget ($15K)
10. Favourable variance mainly due to underspend in contractor expense ($63K) resulting from unfilled Principal Policy Officer (AO7) and Policy Officer (AO4) contractor positions. Savings in employee expense due to vacant position of Manager policy since Oct 21 ($41K), training expenses ($13K) and a saving on Professional (Technical) consultancy ($50K).
11. No Material Variance. No Funds held. SEQ program Balance is to recognise the actual program overspend in the 2020–21 financial year to be met from the 2021–22 program budget as agreed by the National Steering Committee.

11. Appendices

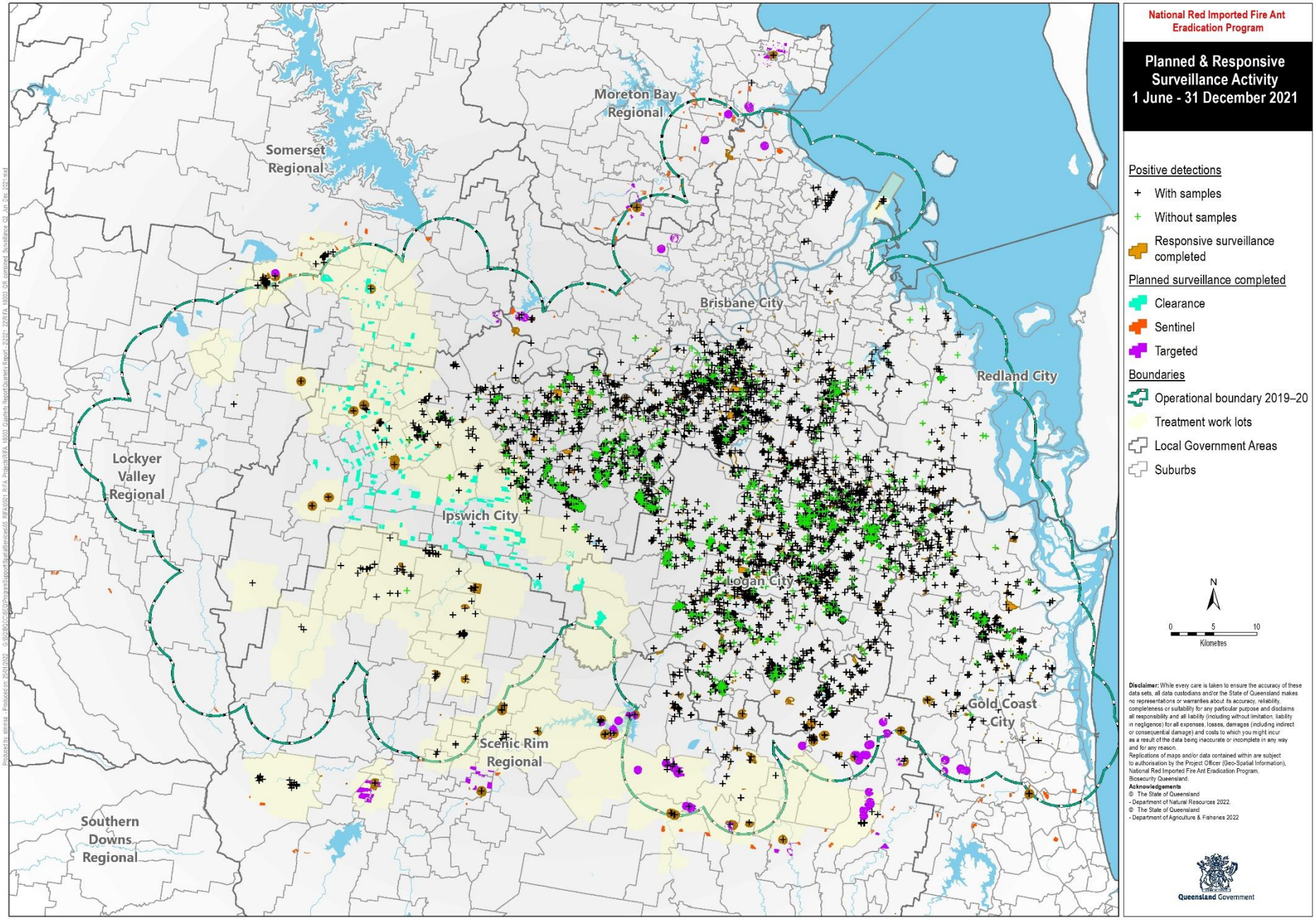
Appendix 1A—Planned treatment progress as of 31 December 2021 (Round 1)



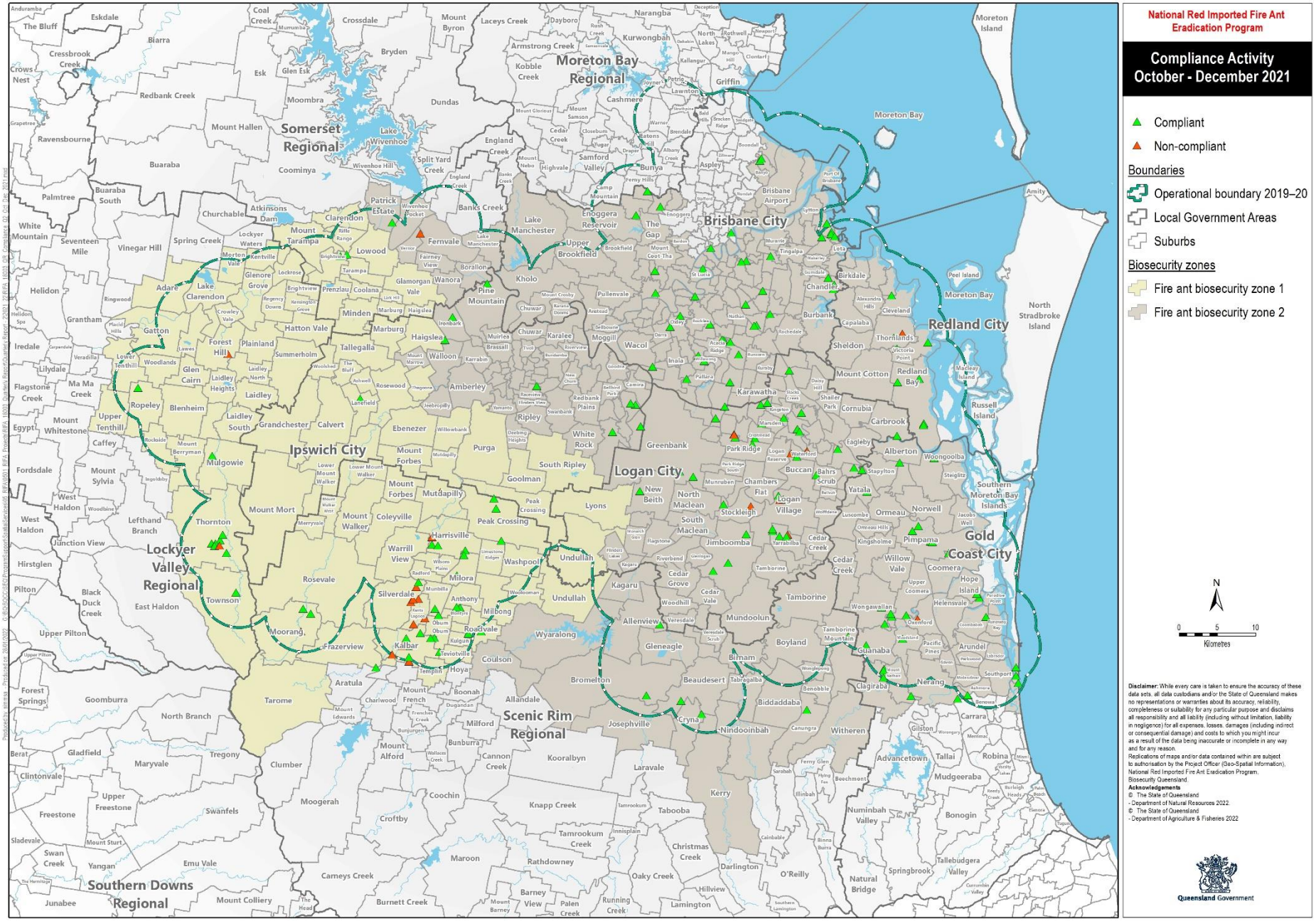
Appendix 1B—Planned treatment progress as of 31 December 2021 (Round 2)



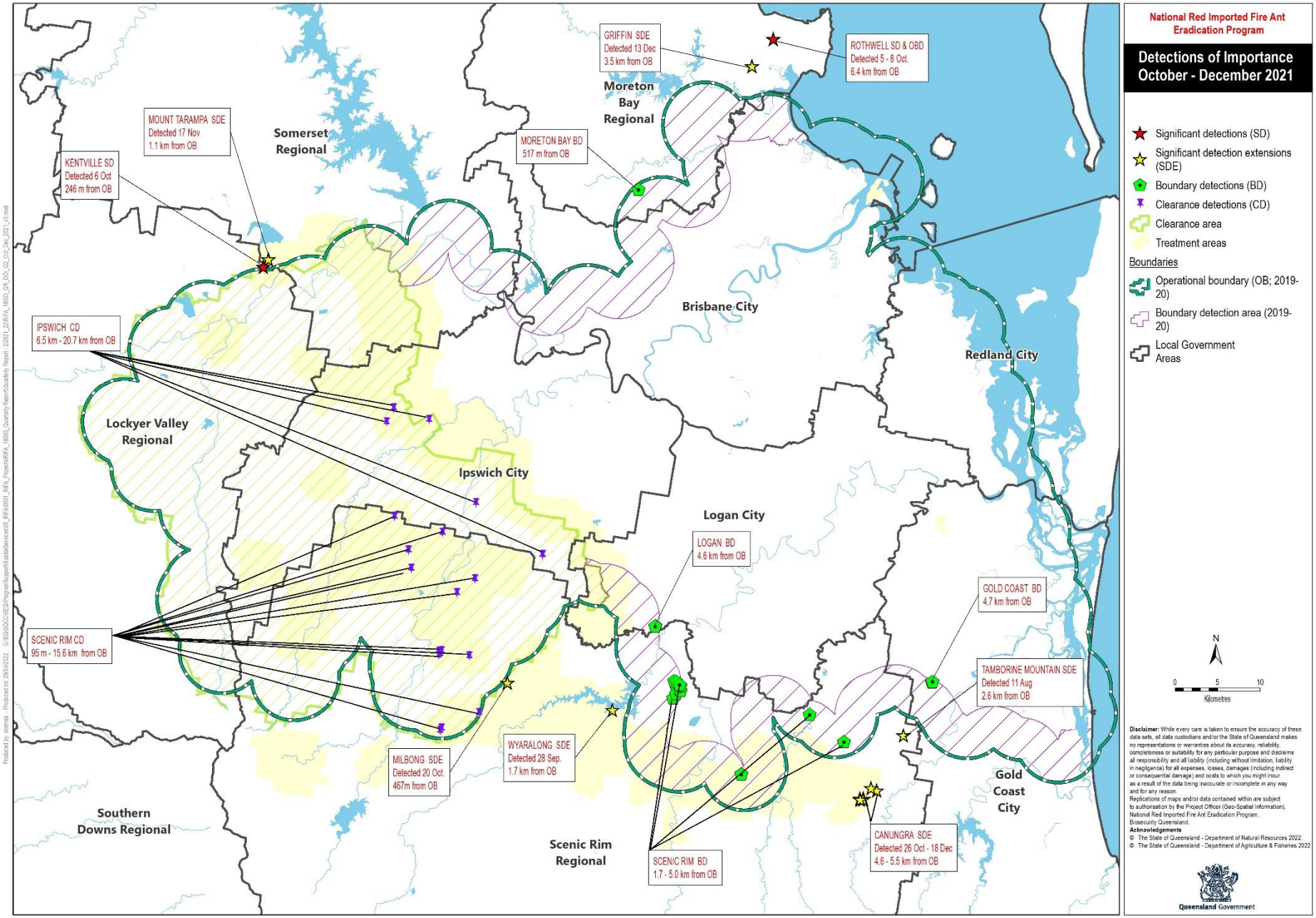
Appendix 2—Responsive and planned surveillance progress as of 31 December 2021



Appendix 3—Compliance activity in Quarter 2 2021–22



Appendix 4—Detections of importance in Quarter 2 2021–22



SNAPSHOT: Residents

AWARENESS

Identification
fully aware

W1	W2	
85%	87%	that fire ants are present in SEQ
78%	78%	of the treatment Program
45%	50%	what a fire ant looks like
30%	36%↑	what a fire ant nest looks like
26%	30%	of the free training available

Impacts
fully aware

W1	W2	
92%	93%	painful sting for humans
75%	78%	could make backyards, parks, sporting fields unusable
70%	74%	painful sting for pets/livestock
59%	58%	fatal reaction for humans
53%	54%	fatal reaction for pets/livestock
61%	68%↑	could make agricultural land unusable/exclude industries

Obligations
fully aware

W1	W2	
63%	66%	biosecurity zones that restrict movement of materials
47%	53%	every resident required to report suspected activity within 24 hours
54%	57%	every resident required to regularly check for fire ants

Self-treatment
fully aware

W1	W2	
34%	43%↑	that residents can engage a licenced pest manager to treat
51%	54%	that the Program will treat if landowner is unable to
15%	21%↑	that residents can self-treat by buying bait and applying it

↑↓ Arrows indicate a significant difference to the previous measure (i.e. February 2021) at the 95% confidence level

PARTICIPATION

51% had checked their yard for fire ants in last 12 months
50% W1

33% had treatment in last 12 months
36% W1

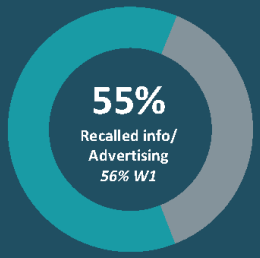
73% 65% W1 TA1	77% 71% W1 TA2	71% 74% W1 TA1	80% 89% W1 TA2
36% 34% W1 TA3/4	38% 49% W1 Buffer	7% 6% W1 TA3/4	4% 3% W1 Buffer

Of those who had made a report:
83% satisfied with reporting process
77% W1

Of those who had had treatment:
83% satisfied with treatment
80% W1

SNAPSHOT: Residents

INFORMATION AND ADVERTISING RECALL



81% 82% W1 TA1	83% 88% W1 TA2
36% 36% W1 TA3/4	46% 43% W1 Buffer

Top sources:

Road signage

Wave 1	Wave 2
30%	26%

Letterbox drop

Wave 1	Wave 2
34%	38%

Radio advertising

Wave 1	Wave 2
13%	13%

Info stalls

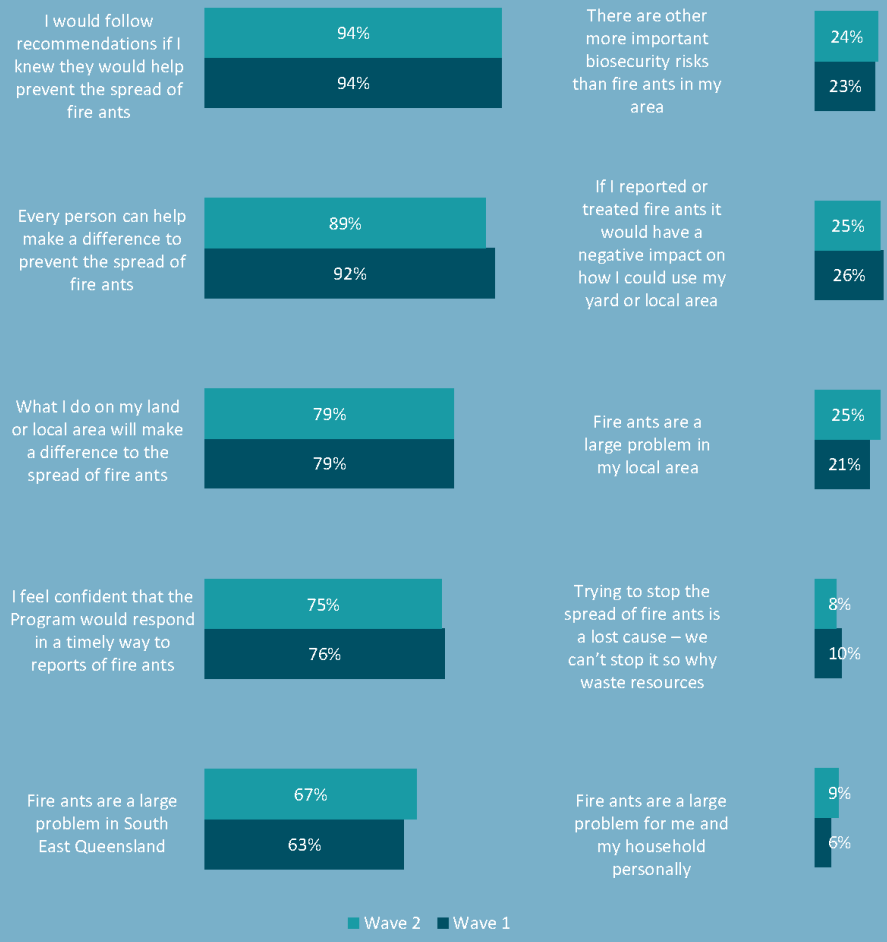
Wave 1	Wave 2
14%	14%

Websites / social media

Wave 1	Wave 2
18%	21%

ATTITUDES

% agreeing (6-10/10) with attitude statement



SNAPSHOT: Business

AWARENESS

Identification
fully aware

W1	W2	
92%	89%	that fire ants are present in SEQ
83%	84%	of the treatment Program
64%	59%	what a fire ant looks like
47%	44%	what a fire ant nest looks like
44%	37%	of the free training available

Impacts
fully aware

W1	W2	
96%	95%	painful sting for humans
84%	84%	could make backyards, parks, sporting fields unusable
78%	82%	painful sting for pets/livestock
75%	64%↓	fatal reaction for humans
67%	55%↓	fatal reaction for pets/livestock
77%	72%	could make agricultural land unusable/exclude industries

Obligations
fully aware

W1	W2	
80%	73%	biosecurity zones that restrict movement of materials
70%	68%	every business required to report suspected activity within 24 hours
66%	60%	every business required to regularly check for fire ants

Self-treatment
fully aware

W1	W2	
60%	49%↓	that businesses can engage a licenced pest manager to treat
66%	54%↓	that the Program will treat if business is unable to
38%	25%↓	that businesses can self-treat by buying bait and applying it

↑↓ Arrows indicate a significant difference to the previous measure (i.e. February 2021) at the 95% confidence level

PARTICIPATION

54% had inspected business or workplace sites for fire ants in last 12 months
52% W1

27% had treatment in last 12 months
31% W1

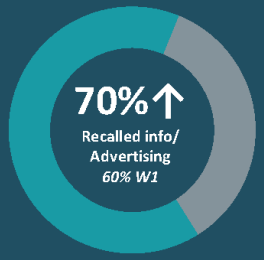
71% (74% W1) TA1	82% (54% W1) TA2	52% (54% W1) TA1	73% (71% W1) TA2
54% (49% W1) TA3/4	24%↓ (37% W1) Buffer	19% (20% W1) TA3/4	10% (15% W1) Buffer

Of those who had made a report:
72% satisfied with reporting process
59% W1

Of those who had had treatment:
68% satisfied with treatment
79% W1

SNAPSHOT: Business

INFORMATION AND ADVERTISING RECALL



94%↑ 76% W1 TA1	100% 96% W1 TA2
62% 53% W1 TA3/4	59% 41% W1 Buffer

Top sources:

Road signage

Wave 1	Wave 2
32%	37%

Social media

Wave 1	Wave 2
20%	19%

Radio advertising

Wave 1	Wave 2
18%	20%

Industry publications advertising

Wave 1	Wave 2
17%	22%

Program's email newsletter

Wave 1	Wave 2
16%	20%

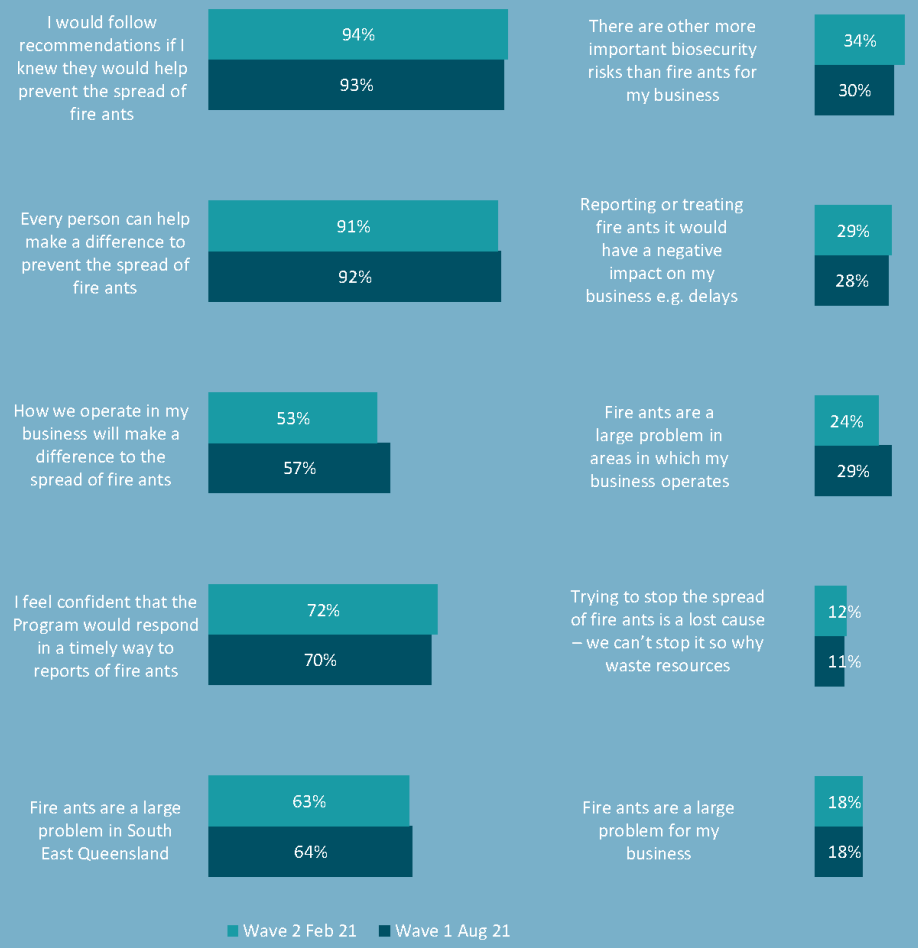
Social media, ads on websites and Facebook groups

Wave 1	Wave 2
28%	27%

↑↓ Arrows indicate a significant difference to the previous measure (i.e. February 2021) at the 95% confidence level

ATTITUDES

% agreeing (6-10/10) with attitude statement



Abbreviations and definitions

Term	Description
NRIFAEP	National Red Imported Fire Ant Eradication Program
The Program	National Red Imported Fire Ant Eradication Program
TA1	Treatment Area 1 (See adjacent map)
TA2	Treatment Area 2 (See adjacent map)
TA3/4	Treatment Area 3 or Treatment Area 4 (See adjacent map)
BUFFER	Biosecurity buffer zone 5kms outside plus Outside operational zone buffer
SEQ	South East Queensland
LOTE	Language other than English

Note on percentage rounding
Where totals do not add to 100% this is due to rounding.