Quarterly Report 2
2020–21

National Red Imported Fire Ant Eradication Program
South East Queensland

Report to: National Steering Committee
Period: October–December 2020

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1. Scope of report

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

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 probably 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 2020.

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 as at 31 December 2020

On track/progress as anticipated | Monitoring/minor issues | Off track/critical issues | Not required/not measurable at this time

Mobilisation				
Objectives	**KPI**	**KPI target (2020–21)**	**Progress against KPIs**	**Status**
1 Stakeholders within, and adjacent to, the fire ant biosecurity zone 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	92% of stakeholders report awareness in surveys by June 2021	The procurement process to obtain market research is underway with a baseline report expected in early 2021 and follow up in June 2021.	●
	b. Percentage of stakeholders aware of the risks posed by fire ants	30% of stakeholders report awareness in surveys by June 2021	As above.	●
	c. Percentage of stakeholders aware of fire ant biosecurity zones	60% stakeholders report awareness in surveys by June 2021	As above.	●
	d. Percentage of stakeholders aware of fire ant self-management options	30% of stakeholders report awareness in surveys by June 2021	As above.	●
2 Stakeholders within the fire ant biosecurity zone support the program and its activities to eradicate fire ants	**a.** Percentage of stakeholders opposing NRIFAEP operations	Less than 1% opposition annually	The program received 13 refusals to treatment which is 0.06% of the 23 792 sites visited in total this quarter.	●
	b. Percentage stakeholder disclosing to be satisfied with NRIFAEP operations	90% stakeholders disclosing to be satisfied with NRIFAEP operations by June 2021	The procurement process to obtain market research is underway with a baseline report expected in early 2021 and follow up in June 2021.	●
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 disclosing that they participate in fire ant self-management actions	20% stakeholders participating in fire ant self-management actions by June 2021	As above.	●

Containment				
Objectives	**KPI**	**KPI target (2020–21)**	**Progress against KPIs**	**Status**
4 To mitigate the spread and establishment of fire	**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 procurement process to obtain market research is underway with a baseline report expected in early 2021 and follow up in June 2021.	●

Objectives		KPI	KPI target (2020–21)	Progress against KPIs	Status
	ants by reducing the relative density and vigour of the fire ant infestation	**b.** Percentage of fire ant infestations that are polygyne	Less than 1% of fire ant infestations are polygyne	A considerable backlog in genetic tests exists, mainly due to an increase in samples in 2020 and difficulty in purchasing genetic laboratory consumables due to COVID-19 demand. In Q2 only 127 (8.03%) were tested for social form. Of these, ~0.87% are polygyne; however, this value is likely over-representing polygyne samples due to the large number of samples still to test and the fact suspect polygyne samples are prioritised ahead of other samples.	●
		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 genetically distinct fire ant sub-populations within South East Queensland is currently 4.	●
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	50% of high-risk stakeholders are aware of movement restrictions/requirements by June 2021	The procurement process to obtain market research is underway with a baseline report expected in early 2021 and follow up in June 2021.	●
		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	• So far this fiscal year 321 audits have been undertaken which is 19% of the 1698 (top 25% riskiest stakeholders) annual planned audit target. • It is highly unlikely that all 25% will be completed by the end of the financial year due to shortfalls in program resources and the broad scope of operators. It is predicted that 50% of the target (849 of 1698 audits) will be achieved.	●
		c. Number of significant detections linked to human-assisted movement	Zero significant detections linked to human-assisted movement	None of the six detections found outside of the Operational Area boundary this quarter were linked to human-assisted movement.	●
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 25% (7136 ha) from 2019-2020 levels (5709 ha) by June 2021	• So far this fiscal year 3220 ha of surveillance was completed, of which 2540 ha is within 5 km of the operational boundary and 680 ha is outside the operational boundary. • Note: Due to a system error data reported in the 1st Quarter report was incorrect. 2220 ha (1578 ha and 642 ha respectively) was completed in total and not 4136 ha (2888 ha and 1248 ha) as reported.	●
		b. Percentage of stakeholders living near and beyond operational boundary who look for and/or treat fire ants themselves	50% stakeholder participation by June 2021	The procurement for market research is underway with a baseline report expected in early 2021 and follow up in June 2021.	●
		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	Post-treatment validation surveillance was conducted on 10 sites near and beyond the operational boundary with no remnant infestation found.	●
7	To mitigate the re-establishment of fire ants in eradication	**a.** Percentage stakeholders living in buffer areas who look for and/or treat fire ants themselves	10% stakeholder participation by June 2023	The procurement for market research is underway with a baseline report expected in early 2021 and follow up in June 2021.	●

Objectives		KPI	KPI target (2020–21)	Progress against KPIs	Status
	and clearance areas from adjoining (within 2 km from; buffer areas) fire ant infested areas	**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	The program is currently ahead of schedule. Treatment in the Western Overlap commenced in September and concluded in November. The Eastern Overlap started in November, as scheduled, and is due to be completed in January 2021. Of the planned 37 091 ha to be completed by 31 December, 37 699 ha (101.64%) has been completed.	
		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	Post-treatment validation surveillance conducted on two sites found no remnant ants.	
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	The program will provide assistance to the Western Australian Government with clearance of their incursion, and communication and engagement. Assistance by the program will depend on the free movement between borders as a result of COVID-19.	

Eradication

Objectives		KPI	KPI target (2020–21)	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	The program received 13 refusals to treatment which is 0.05% of the 23 792 sites visited in total.	
		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	Treatment in Area 2 commenced 1 September. Of the planned 81 851 ha to be treated by 31 December, 84 612 ha (103.37%) was completed.	
		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 (Area 1/WB) within three months of completion of prescribed treatment regime	Area 1/WB monitoring was completed in early 2020 with no fire ants detected following the prescribed treatment regime. Eradication Area 2 monitoring was established but will not be finalised until after June 2021.	
		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 (Area 1/WB)	• The eradication area (A1/WB) consists of 23 950 sites (or properties) of which a sample number of sites is surveyed in line with the clearance surveillance priority map with higher risk zones surveyed first. • From June to December 37 distinct detections were found—representing 1.9% of all sites surveyed. • The program has addressed the risk associated with these detections by creating treatment areas out to 2 km from the riskiest infestations. Seven treatment areas were scheduled to received three rounds of broadcast baiting with an IGR during the 2020–21 treatment season. • All lower risk detections will be treated as per program protocols.	
10	To progressively decrease the fire ant infestation in	Increase in the operational area that has effectively completed a	33% of the 2019–2020 operational area by June 2021	• Treatment continued in Area 2, the Western Overlap and Eastern Overlap areas in Q2.	

Objectives		KPI	KPI target (2020–21)	Progress against KPIs	Status
	South East Queensland through targeted eradication	prescribed treatment regime for fire ant eradication (as in obj 9)		• By June 2021 (following the current treatment season) the total area to have received treatment as a proportion of the total operational area will be 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 surveillance activities while meeting KPIs	**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 10% from 2019-20 costs	The calculation for this KPI is being finalised.	●
		b. Average per hectare cost of the program's fire ant monitoring and surveillance regimes to effectively eradicate fire ants	By June 2023, average per hectare cost of monitoring and surveillance regime is reduced by 10% from 2019-20 costs	As above.	●

Clearance

Objective		KPI	KPI target (2020–21)	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 2021	• Planned clearance surveillance is on track; 2593 ha of the top 10% of riskiest locations was surveyed by 31 December. This is 51.86% of the planned target.	●
		b. Total area searched for the presence/absence of fire ants	Every clearance zone has at least 5% of the area[4] surveyed by June 2021	• As of 31 December, 90 of the 93 clearance zones had a minimum 5% of the planned area surveyed. • One of the unsurveyed zones does not have safe viable habitat to survey and will not be surveyed.	●
		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. Two detections were outside the top 20% riskiest locations this quarter. • The program's response to clearance detections is summarised in the clearance section below.	●
		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	• Six (6) detections were made in the clearance area this quarter. • Treatment will be undertaken to ensure zero fire ants remain from original nests 12 months after the prescribed treatment regime is completed.	●

1. Re Objective 10: The program Work Plan stated 38% instead of 33% and was a calculation error that will be corrected in a future update of the 2020–21 Work Plan. 2. Re Objective 12a: 'Sites' was replaced by 'locations' for this KPI due to a change in terminology made after the 2020–21 Work Plan was completed. It will be corrected in a future update of the Plan. 3. Re Objective 12a Clearance zones are prioritised in line with the Clearance and Proof of Freedom Surveillance Optimisation Framework residual ant risk score based on the history of treatment in the zone. 4. Re Objective 12b: Areas with a viable habitat to survey only.

Summary of planned treatment and surveillance

Planned treatment includes eradication and suppression treatment.

Table 3: Planned treatment program schedule 2020–21 as at 31 December 2020

Task		Month	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Planned Treatment	Planned Season Ha	YTD Ha												
Area 2	159 730	84 612												
Western Overlap	21 804	21 161												
Eastern Overlap	40 060	16 538												
Southern Containment	44 921	0												
High Risk	57 356	19 756												
	323 871	**142 067**												

Planned — On track — Delayed but expected to complete — Risk of not achieving target

Table 4: Planned treatment as of 31 December 2020

Round 1	No. of hectares			
Location	Planned year total	Planned YTD total[2]	YTD actual	% YTD
Area 2	185 689	81 851	84 612	103.37
Western Overlap	21 804	21 804	21 161	97.05
Eastern Overlap	40 060	15 287	16 538	108.18
Southern Containment[1]	44 891	0	0	0
High-Risk [3]	57 356	31 796	19 756	62.13
Total	323 841	150 738	142 067	94.25

1. Scheduled to begin treatment March 2021. 2. The total planned treatment differs to that budgeted because treatment activity is responsive to the changing needs for each week/month of the treatment period. See Finance on p27 for further information. 3. High-risk includes clearance treatment and treatment responding to southern significant detections at Wyaralong Dam, Canungra and Mount Nathan.

See **Appendices 1a** and **b** to view the progress maps.

Table 5: Surveillance program schedule 2020–21 as at 31 December 2020

Task	Planned Season Ha	YTD Ha	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Planned Surveillance														
Clearance - high priority*	5 000	2 594												
Clearance - low priority*	8 250	6 706												
Sentinel	1 570	1 680												
Targeted	2 630	3 903												
Responsive Surveillance														
Public reports / delineation	8 960	10 526												

Planned — On track — Delayed but expected to complete — Risk of not achieving target

*Each clearance zone is assigned a residual fire ant risk score—based on the history of treatment in this zone—and ranked by risk relative to each other. The 10 clearance zones with the highest relative risk are high priority and assigned to receive 125 ha of clearance surveillance, while all other clearance zones are to receive 15 ha of clearance surveillance.

Table 6: Surveillance progress—planned and responsive—2020–21

Surveillance task*	Year to date completed area (Ha)	Planned area (year to date ha)	Year to date sites completed	Planned sites (year)
Sentinel	1 680	1 570	309	265
Clearance	9 300	8 327	1 552	1 560
Targeted	3 903	2 630	1 984	2 864
Responsive	10 526	4 581**	10 507	N/A
Total	**25 409**	**17 107**	**14 352**	**4 689**

*Sentinel surveillance – planned surveillance on sites outside and just inside the operational boundary; Clearance surveillance – planned surveillance on sites within previous eradication treatment areas: Area 1 and Western Boundary; Targeted surveillance – planned 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. FAMS = program's Fire Ant Management System (FAMS). See **Containment** below for further information on surveillance.

The surveillance season commenced in late June 2020 and concluded at the end of August 2020. The program will continue surveillance in the clearance areas for the remainder of the financial year as planned. See **Appendix 2** to view the progress map.

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

Raising stakeholder awareness

Major projects—market research, branding and website

A market research agency was appointed and questionnaire finalised to complete the first phase of **market research** on stakeholder awareness and satisfaction aligned to the program's key performance indicators. Topline research results are expected in early 2021.

A creative agency was appointed to lead the program's **rebrand project**. Creative concepts are due to be presented to the program in mid-January 2021.

A working group, comprised of digital, web and communication experts, was set up to continue work on the program's **campaign website**. This approach will enable the program to host and eventually manage its own website which means greater control and user/stakeholder experience.

Major campaign—eradication treatment

The eradication treatment campaign continued to roll out in Quarter 2, with residents in Area 2 receiving a range of digital communication to complement the printed material they received about fire ant treatment in Quarter 1.

The final two weeks of the geo-targeted social media campaign performed well and capped off a successful eight-week campaign (2 September to 16 October 2021). Close to 14 000 people were reached during this period, nearly 30 per cent of the whole campaign. Throughout the duration of the campaign, the video content was viewed more than 48 952 times (for more than three seconds).

Sentiment of commentary held steady with more than half (55 per cent) positive, 23 per cent neutral and 23 per cent negative. The average negative sentiment across all paid campaigns to date is 22 per cent.

The first phase of the program's online advertising through Newscorp publications was not as successful and click-through rates on the advertisements was low. Following advice from Newscorp, the campaign was tweaked slightly for the next advertising phase to boost advertising impressions.

Face-to-face engagement recommenced in October to inform and educate the community about fire ant management and activities at public events/places. This was the first engagement of this type since the COVID-19 lockdowns began earlier in the year. Six schools were visited with more than 200 students and around 80 parents engaged with fire ant eradication messaging. Three static displays were located in eradication areas with more than 500 people exposed to passive messaging. Staff engagement with close to 300 people at interactive displays also took place at Bunnings West Ipswich (the closest Bunnings to Area 2) and at two community events—the Ipswich Showcase Markets and South Ripley Markets. The unknown potential reach of the static displays could be as much as 5000 people.

With the assistance of Transport and Main Roads, treatment messaging was displayed on highway gantry signs within Area 2 through to 30 November while static displays of treatment information were erected at the Rosewood Community Centre, Lowood library and Laidley Community Centre. Treatment collateral (brochures and flyers) was provided to local businesses and community hubs for distribution.

Major campaign—lifestyle

Encouraging all residents to manage fire ants on their properties is a priority for the program. As such, Quarter 2 meant a lot of work was done to develop a campaign aimed at educating landowners and tenants in non-eradication areas the effect fire ants can have on their lifestyle. This campaign will be run between February and June 2021.

As part of the campaign, a direct mail piece was produced to educate residents of fire ants and their risks, the program, the 10-year Eradication Plan and self-treatment options. In particular, it explained the need for all SEQ residents to play their part in the fight against fire ants. Advertising and promotion through digital and traditional media and engagement with community networks and peak bodes was also developed and submitted to the Queensland Government Advertising and Communication Committee (GACC).

The education piece was delivered to 10 000 householders in Yarrabilba and surrounding suburbs in late December. Further communication material, including signage and print and digital advertising, was also developed to promote community fire ant treatment projects in Yarrabilba, Tamborine Mountain and the Gold Coast.

Detections of importance campaigns

There were a number of fire ant detections found outside the program's operational boundary in Canungra and Mount Nathan in October and November, and a further boundary detection in Benobble.

As per its detections of significance protocol, the program alerted industry and residents in the area of the need to check their properties for fire ants and report any suspect mounds. A two-week social media campaign advising residents in the area of targeted treatment reached 11 028 people and video content viewed more than 6300 times (for more than three seconds).

Sentiment of the commentary was 51 per cent positive, 15 per cent neutral and 34 per cent negative. Negative sentiment on the related social media content was still higher than average. This is likely a reflection of poor pre-emptive communication with local residents about treatment in their suburbs. This will be rectified in the future.

General awareness

From October, the program increased the frequency of its stakeholder newsletter—Fire ant news—from quarterly to monthly and developed an initiative to boost our newsletter subscribers to more than 10 000 people. The publication continued to perform well, with an average of 36 per cent of subscribers opening the newsletter in October, November and December.

In addition to the two major campaigns, program key messaging continued to be released through minor and micro social media campaigns and program updates. Sixty-two (62) social media posts (organic and paid) resulted in 21 403 engagements. Results from these posts showed a shift in sentiment from positive to negative with 67 per cent of the 710 comments on social media posts displayed positive sentiment, 14 per cent neutral and 19 per cent negative. Compared to Q1, there was a shift towards negative/neutral sentiment with negative sentiment increasing almost eight percent to 19.54 per cent this quarter. On Facebook—the program's highest performing platform—almost thirty thousand people (27 578) were reached with fire ant related messaging. Our main webpage daf.qld.gov.au/fireants received 8544 page views during this quarter.

A face-to-face community talk was delivered to the Probus Club in the southern Gold Coast.

Media

Engagement with media outlets continued with a range of proactive stories on program innovations and the impact of wet weather of fire ant reports giving the program some good exposure and 25 media mentions. The program was subject to some negative media on the Gold Coast in Quarter 2 after an opposition MP told a local newspaper recent changes to the fire ant biosecurity zones meant half the Gold Coast was at risk of infestation.

The story the program worked with ABC Landline on in September 2020 also went to air, resulting in fantastic reach and sentiment. It is estimated the ABC story had an equivalent advertising value of $1.36 million and had reach of more than 1.8 million people across ABC's digital, radio and television platforms.

Training

The program delivered Fire Ant Awareness and Fire Ant Treatment Training to 242 stakeholders during Quarter 2. In addition to standard training activities, the program was exploring options to modernise the delivery of training. This would take the form of online, self-driven modules, providing targeted content for both industry groups and the general community. Several options have been considered, including purchasing a stand-alone platform, being hosted by other government agencies and a partnership with TAFE QLD.

While the training package was paused, the program did continue writing and producing a series of training videos to be used as part of its training. Filming for both the residential fire ant treatment and managing hay videos began, with the first group of videos scheduled to be finalised in early 2021.

Internally, the engagement team made trips to each depot to inform field staff about the self-management initiatives, particularly the primary producers' pilot which will be supported by the field teams in the west. Meanwhile, a training package 'engaging with influence' was developed and delivered to field teams to help work with the community better, particularly in treatment areas.

Councils

Engagement with councils has become a central focus, as the program looks to encourage local government to manage fire ant risks of their land. Briefings provided by General Manager and a collection of other program staff took place with operations managers at Redland City Council, Logan City Council councillors and their City Lifestyles Committee and Somerset Regional Council. The first two were focused on addressing self-management and specific enquiries, while Somerset was updated on treatment activities in their region.

Monthly meetings with Gold Coast City Council continued, where the program assisted with its self-management activities and will now focus on the suburbs involved in the upcoming Gold Coast community fire ant treatment blitz. This is an initiative involving both community self-treatment and program treatment of residential properties in Arundel, Parkwood, Pacific Pines and Maudsland.

Building stakeholder support

Industry

The Hay Industry Collaboration Group took place in early December 2020. Nineteen hay producers registered and a summary report was distributed post-meeting, outlining what was discussed and what engagement will occur with the industry. In addition, the program presented to a large group of agriculture stakeholders at a joint Ausveg and Growcom webinar, providing information on the program, fire ant impacts and what the agriculture industry can do to help.

Pre-audit communications were finalised for the turf and earthmoving industries in preparation for the upcoming compliance team's activities. The audits aim to ensure industries are complying with Biosecurity Regulation 2016. In the case of the turf industry, making sure they are aware of the changes to the approved chemical treatment regime for fire ants. The average open rate across the four e-newsletters was 62.25%.

In the building and development space Winten Developments was re-engaged to further assist in commencing self-treatment activities at their Canungra development site. The program also met with stakeholders delivering the Inland Rail project to initiate discussions about potential fire ant risks posed by the large construction project and how mitigation requirement could be written into contractor tenders.

A suite of training videos were scripted, storyboarded with two filmed to provide industry clear advice for mitigating the risk of human-assisted movement of fire ants.

Sharing new knowledge

In collaboration with the National Electric Ant Eradication Program, a paper titled 'Novel reusable canopy trap for sampling arboreal populations of electric ant, *Wasmannia auropunctata* (Hymenoptera: Formicidae)' was published in the journal *Austral Entomology*. This is the first scientific publication for Electric Ants in Australia. The novel canopy trap is being adapted for testing with fire ants.

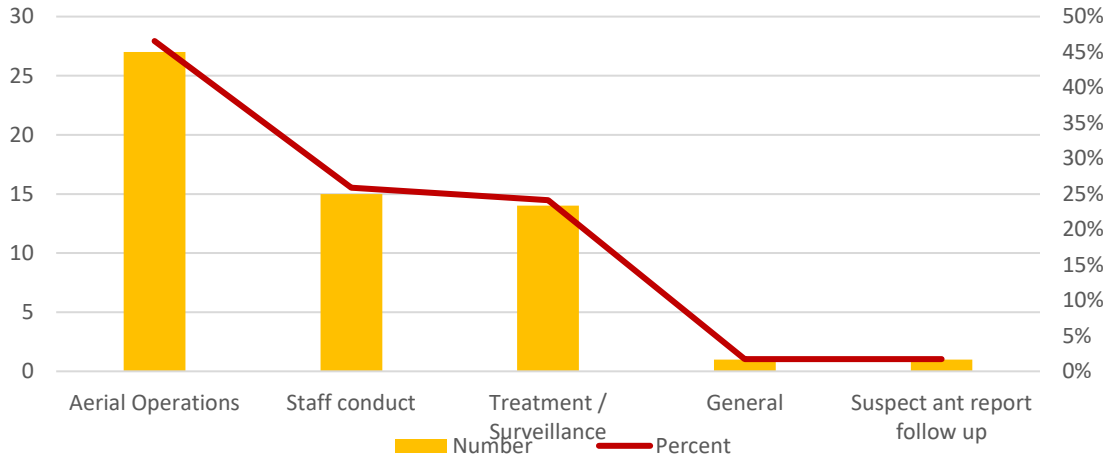
Complaints

In addition to reports of suspect fire ants, the DAF Customer Service Centre received a further 1256 contacts about fire ants this quarter. Where the centre requires further input to respond to a contact, the inquiry or feedback is forwarded to the program. Of the 320 contacts referred to the program, 80 per cent (256) were general enquiries, 18 per cent (58) complaints and 2 per cent (6) compliments.

The majority of complaints were about aerial operations (47%), staff behaviour (26%) and treatment/surveillance (24%). Complaints about aerial operations this quarter are consistent with other quarters e.g. helicopter noise. Staff related complaints mainly related to driving behaviours and perceptions staff are taking long breaks or congregating in public spaces. Driving behaviours are investigated using GPS data to identify staff and manage any issues. The latter issue is due to different teams using the same location for their breaks i.e. similar vehicles and uniforms. At times this can be unavoidable. Three complaints related to the overall efficiency and effectiveness of the program. One of these related to the number of cars being used by the program which is unavoidable due to COVID-19 social distancing restrictions. Treatment complaints included concerns about the 'power of entry' of staff, a necessary action to ensure all relevant properties are treated in line with biosecurity legislation.

The communication and engagement team delivered the first two 'engaging with influence' training sessions to field team leaders. The purpose is to improve the communication skills of our field team staff, where needed, and give them the tools to respond to challenging interactions with community stakeholders.

Figure 1: Complaints—number and percentage in Quarter 2—2020–21



Refusing treatment by the program

Thirteen landowners and residents refused treatment on their property in this quarter. In most cases negotiations resulted in access to the property (see Table 7).

Table 7: Refusing treatment by the program in Quarter 2 2020–21

Month	Reason	Outcome
October	1 site in Mt Forbes is a long-term refusal due to free range chickens	No treatment or surveillance was conducted by the program for this site. Alternative solutions are being investigated.
	1 site in Peak Crossing refused treatment	Three rounds of treatment, averaging 90% each round was conducted on this site by the aerial team.
	1 site in Calvert refused treatment by not responding to contact made	1 round of treatment was conducted on this site, with 64% of the site treated aerially.
	1 site in Rosewood has been a long-term refusal to treatment	Program officers are working with this client to find a suitable day/time to treat.
November	1 site in Mt Walker West refused treatment due to free range chickens	This site was treated, averaging 70%, due to negotiations with the client.
	1 site in Peak Crossing refused treatment on their house block	Round 3 treatment was completed at 100% for this site.
	1 site in Grandchester due to a misunderstanding of messaging	The program is arranging enforced entry for this site, once the weather has cleared.
	1 site in Minden has been a long-term refusal of the program	Enforced entry was arranged with local police attending the property while aerial and ATV treatment took place. Only one round of treatment was required this season due to its location in the Western Overlap.
	1 site in Calvert refused treatment due to free-range chickens	Treatment is yet to be conducted as the property owner is aggressive. Some of this site has unsuitable habitat for ground treatment.
December	1 site in Coolana refused treatment due to free-range chickens	This site was treated 100% with only one round required.
	1 site in Tarampa has refused treatment	Program officers are working with this client to find a suitable day/time to treat.
	1 site in Marburg refused treatment	This site has been treated 100% twice, with two more treatments to be done in rounds 3 and 4.
	1 site in Glenore Grove refused treatment	Both the site owner and their dog were aggressive to crews attempting to treat this 0.644ha site during round 1. For round 2 the site has a new owner who agreed to treatment taking place, 100% of treatment was conducted for round 2 with a further two rounds to be conducted.

Empowering stakeholder support

Self-management initiative

The Canegrowers self-management pilot was evaluated, and report delivered, including a suite of recommendations for the program to consider for future partnerships with the agricultural industry. These lessons have already informed the primary producers' pilot, where a major milestone was reached this quarter with the first farmer registered to undertake treatment activities on their property, to fill gaps in program treatment due to cropping.

The program received buy-in from the Department of Education to deliver self-management advice and training into state schools across South East Queensland. The department was quick to provide advice on how to best reach school business managers and facility operators to have positive impact. Independent Schools Queensland has also flagged interest in getting their schools activated in fire ant management.

This quarter, all 20 sports and recreational facilitates were on-board for a treatment pilot and bait was delivered to each ahead of treatment starting in the new calendar year. Facility staff members received training from the program's operations team on how to correctly apply fire ant bait.

The content for the key communication materials for the lifestyle self-management campaign, including Yarrabilba and Gold Coast pilots was finalised. This included social media, registration fliers, signage, instruction material and newspaper advertisements. The Stage 2 GACC brief was approved with the full submission lodged in December.

Meantime, the procurement of residential bait products to deliver the Yarrabilba and Gold Coast pilots was successful, with the product due first quarter of 2021.

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

While eradication remains the primary focus of the program, containment of the existing infestation in non-eradication areas and preventing further spread remain a high priority. There are primary tools which enable the program to contain the pest until these areas are subject to eradication. These include prioritising detections of importance (DoI) at or near the boundaries, working with high-risk industries to ensure compliance and vigilance to prevent spread through movement of fire ant carriers and suppressing the pest in areas of high-risk to humans and animals. Landowners in South East Queensland are also critical in helping suppress fire ant populations by treating properties or land they own or manage. This reduces the size and scope of the eradication task and degrades the genetic integrity of fire ant colonies.

Boundary containment

The program uses a risk-based approach to surveying for and eradicating fire ants near the infestation boundary. This includes sentinel surveillance in high-risk habitats and targeted surveillance around operational boundary areas to detect new or returning ant infestations. Clearance surveillance is also done using new monitoring sites within planned eradication areas (Areas 1 and the Western Boundary) to detect any residual ants.

Surveillance

The surveillance season commenced in late June 2020 and concluded at the end of August 2020. The program will continue surveillance in the clearance areas for the remainder of the financial year as planned. See **key insights** on p3 to view surveillance data for this quarter and **Appendix 2** to view the progress map.

Through proactive program surveillance and communications to encourage people to check their yards and report suspect fire ants, there was a total of six detections outside of the operational boundary and 11 detections within 5 km inside of the operational boundary (see **detections of importance** on p16 for further information). The program acted immediately to destroy these infestations and ensure there were no further nests near the detections. The program will continue to carry out risk assessments on detections of importance and adapt responses to ensure risk is addressed.

Eradication area protection

Suppression

Suppression treatment continued in the Western Overlap during the Q2 period. Suppression treatment in the Eastern Overlap and newly identified targeted high-risk areas commenced with 94 per cent of the overall planned 150 738 hectares completed.

Table 8: Planned suppression progress up to 31 December 2020

Round 1	No. of hectares			
Location	Planned year total	Planned YTD total[2]	YTD actual	% YTD
Western Overlap	21 804	21 804	21 161	97
Eastern Overlap	40 060	15 287	16 538	108
Southern Containment[1]	44 891	0	0	0
High-Risk[3]	57 356	31 796	19 756	62
Total	323 841	150 738	142 067	94

1. Scheduled to begin treatment from March 2021. 2. The total planned treatment differs to budgeted because treatment activity is responsive to the changing needs for each week/month of the treatment period. See Finance on p27 for further information. 3. High-risk includes Clearance Treatment and Southern Significant Detections at Wyaralong Dam, Canungra, and Mount Nathan.

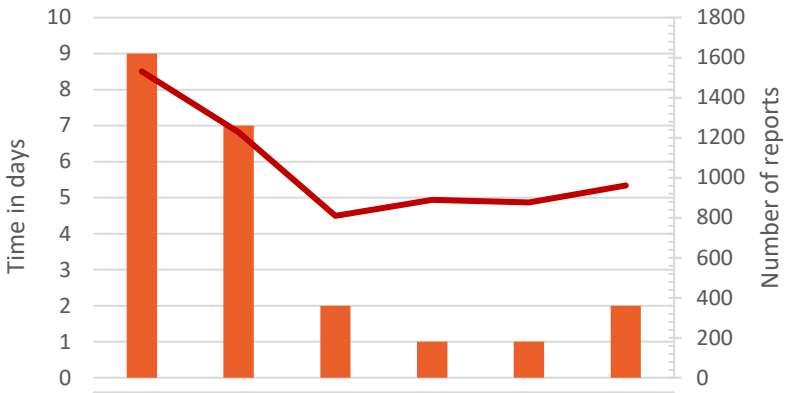
Responsive treatment

Responsive treatment is delivered when the community reports suspect fire ant sightings and they are identified as positive. It is also delivered when positive sightings are found by program field staff during normal 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** on p16 and Appendix 2 outlining areas where responsive treatment occurred).

Community reports of fire ants

There were 2726 public reports of fire ants this quarter with the maximum days to treat reported fire ants between 1–2 days. The number of suspect ant reports for the Quarter 2 in 2019–20 was 1409. The increase in reports does not necessarily indicate that fire ant populations are increasing but due to a number of factors, including increased fire ant activity following significant rainfall; increased time spent at home, and therefore potentially exposed to fire ants in the backyard, due to COVID-19 lockdown; and increased awareness following several significant communication campaigns by the program.

Figure 2: Public reports and maximum days to direct nest injection (DNI) treatment from July–December 2020



	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Max. days to DNI	9	7	2	1	1	2
Total reports	1531	1227	809	889	876	961

Figure 3: Where suspect ants were found in Quarter 2 2020–21

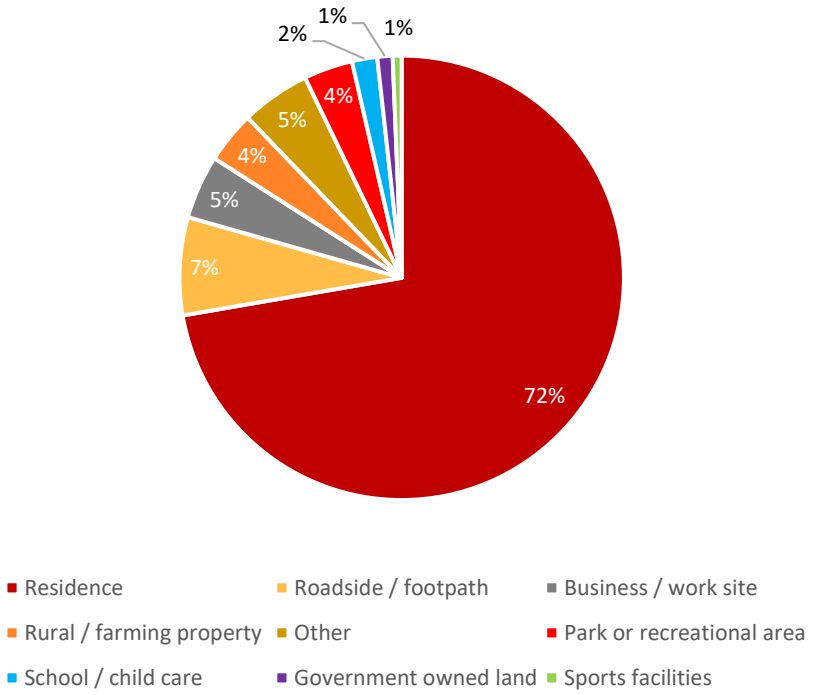


Figure 4: What made people report suspect ants in Quarter 2 2020–21

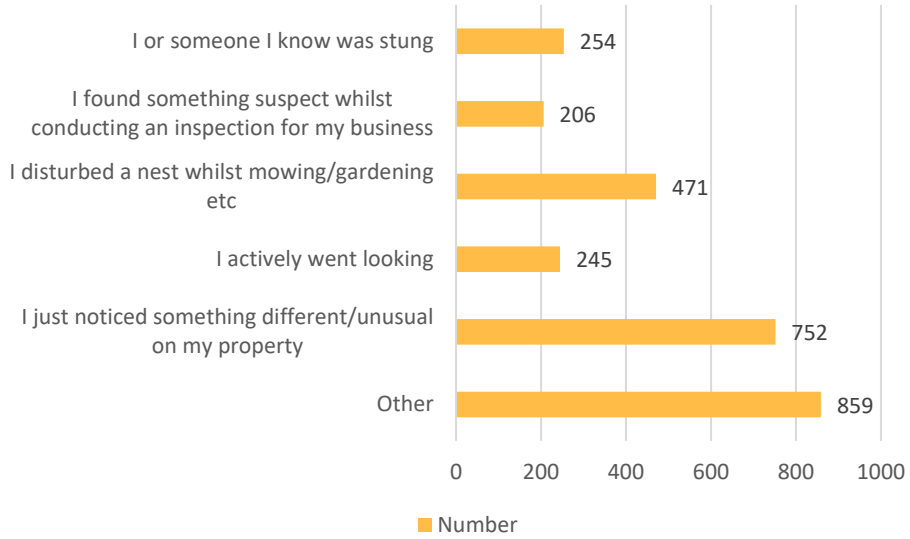
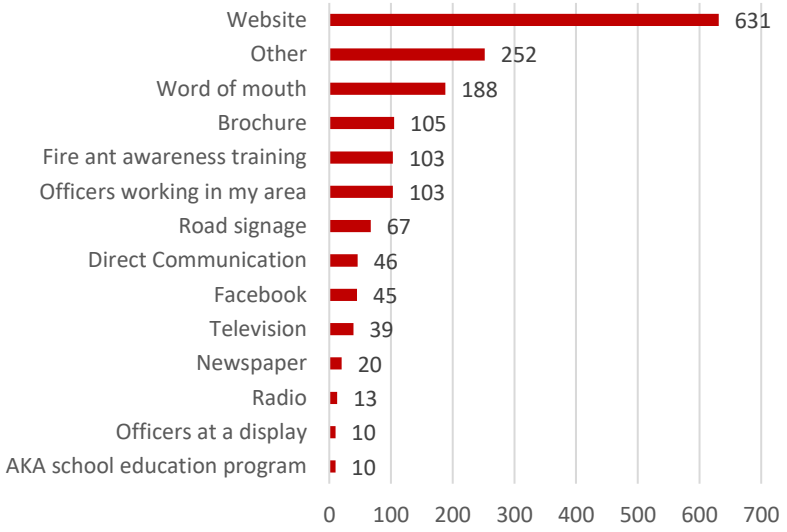


Figure 5: How people reporting suspect ants heard about the program in Quarter 2 2020–21



Detections of importance

Detections of importance pose a heightened risk for the program to achieve its objectives, as well as the overall success of the program. It requires prioritisation and a more extensive response. Detections of importance include detections located outside the Operational Boundary, detections located up to 5 km inside the operational boundary in place at the time of detection and detections located within areas that are currently undergoing clearance and freedom activities. These are a high priority for the program and receive urgent attention.

Eradication treatment activities commenced during this quarter with the focus on Area 2 and targeted treatment areas in Area 1 and Western Boundary. Due to the high number of detections made in the first quarter, surveillance activities continued in the second quarter, although fewer (23 compared to 100 in the previous quarter) detections of importance were found. The program is assessing what risk these detections are to determine what further action is required. The locations of these detections are in Table 9 below and further detail on the circumstances and management of these detections is outlined below and in Appendix 5.

Table 9: Fire ant detections of importance Quarter 2 2020–21

Type*	No.	Location/s
Significant	0	
Outside Boundary	6	Wyaralong (3), Canungra (2) and Benobble (1)
Boundary	11	Guanaba (1), Boyland (3), Wonglepong (1), Mount Nathan (1), Mundoolun (3), Birnam (1) and Undullah (1)
Clearance area	6	Mutdapilly (1), Warrill View (1), Mount Walker (1), Crowley Vale (2) and Wilsons Plains (1)

*Significant = A new detection found outside the program Operational Area boundary. Outside boundary = A detection found outside the program Operational Area boundary that is an extension of a significant detection. Boundary = A new detection found up to 5 km inside the program Operational Area boundary. Clearance area = Former eradication area undergoing surveillance and residue ant search and destroy activities.

Further information on significant and boundary detections is outlined below. Go to **clearance** on p21 to find out more about clearance area detections and see Appendix 5 for additional detail on the circumstances and outcome of all detections of importance.

Significant/outside boundary detections

- Six detections were made beyond the Operational Area boundary during the second quarter in the Scenic Rim Regional Council. While this is a higher number than desired, the program prioritises extended treatment and surveillance actions to ensure the infestation was destroyed
- The program reports each new significant detection to the cost-shared partners and the Queensland Minister for Agricultural Industry Development and Fisheries, however, none of the six detections made this quarter are considered new detections for reporting purposes. They were additional nests found while delineating original significant detections from the previous quarter and are, therefore, reported on and managed as part of the response to the original detections
- 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 South East Queensland population and the fire ant colony's social form (monogyne or polygyne). All of the 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. No direct linkages were found in genetic tracing activities to-date, however further testing is undertaken periodically as more samples come in.

Boundary detections

- There were 11 boundary detections (detections made within 5 km of the Operational Area boundary) during the second quarter in local government areas of Scenic Rim (9) and Gold Coast (2
- The program assessed the risk associated with each detection and responded in accordance with program protocols, as outlined in the significant detection section above
- 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 100 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. Further analysis is underway to determine whether a heightened response (including broad-scale treatment) is required to ensure further spread does not occur, particularly to the south of the program's operational boundary.

Polygyne detections

Genetic analysis of the social form of fire ants is undertaken to determine treatment activities required. Multi-queen colonies (polygynes) have increased risk of spread from human-assisted movement and strengthen the colony by increasing the genetic diversity within the population, compared to single queen colonies (monogynes). As such, one of the KPIs of the program is to maintain ~1% or less polygyne sites within the South East Queensland infestation.

Table 10: Ant samples analysed for social form

Quarter	No. ant samples collected	Proportion polygyne	No. untested
2019-2020 Quarterly average	1 967	0.96%	83 (4%)
1	911	1.67%	314 (34.5%)
2	1 622	0.87%	1 455 (89.7%)

The proportion of sites with polygyne infestation in this quarter remain low and within the target KPI of 1%. Of note, the samples collected in Quarter 1 and the subsequent test values have been updated in the table above to reflect the testing of those samples in recent months. This means that while the proportion of

polygynes was reported in the Quarter 1 report at over 5 per cent the updated value is now far less. This is because any samples suspected of being polygyne in the field (multiple nests within close proximity) are prioritised for testing; therefore, preliminary results can be biased to have a higher polygyne proportion compared to when all samples are tested.

A considerable backlog in genetic tests is still present for both the current and previous quarter, predominantly due to an increase in samples in 2020 and difficulty in purchasing genetic laboratory consumables due to COVID-19 demand. There were discussions on how to reduce this backlog, with the limiting factors being consumable availability and an inability to increase throughput through current laboratory analysing equipment. This laboratory equipment is also highly expensive so cannot be procured in the current financial position. Discussions have continued on ways to 'triage' the samples sent for genetic analysis that provide a representative analysis of the SEQ infestation; however, no suitable resolution has been found as yet.

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** on p10) and targets industries most likely to transfer fire ants, through compliance audits. Changes to fire ant biosecurity zones in May 2020 introduced new suburbs within the zones and meant a number of 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, this group was made aware of the requirements and given two weeks to achieve compliance.

Compliance audits

The *Compliance Scheduled Activities Plan 2020–21* (compliance plan) was developed to ensure 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. These businesses fall into a number of broad industry types. These include landscaping services, hay producers, poultry farms, earthmovers, waste facilities, civil construction, builders and developers and quarries. Based on available information within the program's FAMS database and other on-line business advertising platforms such as Yellow Online, the total number of operators within these industries totals approximately 7000.

The industries selected for this quarter were earthmovers, hay growers and turf farms. Checks of nurseries were also necessary due to a change in market access requirements. Industries were prioritised on factors such as compliance history, the nature of the carriers they typically move, past contact and volume of trade. All of these factors impact the risk of human-assisted spread. A focus was put on businesses new to the zones and subject to Biosecurity Regulation 2016 for the first time. This also included those operating in and around the southern and to the east of the eradication area as well as the program's northern boundary. In total, 195 audits were undertaken during the quarter.

There were no recorded instances of non-compliance across the 100 earthmoving industry audits conducted during this quarter. However, due to the nature of the industry it is likely the audit results may not reflect actual compliance levels. In some instances, it was difficult to obtain records of past movements and some earthmovers claimed they did not move soil from the area in which they were working. Any future audit approach to this industry will focus on investigating risk pathways at active development sites in high-risk development corridors.

There were 35 audits of hay growers. Of these, 13 (38%) were non-compliant, six of these were new to the zones. This indicates non-compliance levels in this industry remain unacceptably high. Most non-compliance arose from the failure of growers to apply chemical treatments when storing hay on the ground. Six biosecurity orders were issued (see Table 12). This also included hay audits in the compliance scheduled activities plan. The key to improving compliance levels in this industry is continued engagement and communication.

Of the 16 turf farms audited, three (19%) were non-compliant due to misapplication of bifenthrin, records either not being kept or missing some details. Two other turf farms were still using chlorpyrifos and were advised to transition to the use of bifenthrin. One of these was issued with a biosecurity order (see Table 12) following the failure to keep proper records showing volume of product applied per hectare or there were two consecutive treatments with a minimum interval of seven days. Their activities will be checked again in Quarter 3. Compliance should be easier to achieve under an amendment to the Australian Pesticides and Veterinary Medicines

Authority permit (APVMA PER14317) made on 21 February 2021 which allows turf to be lifted within two days of treatment. The program will contact all turf farms by the end of March to make them aware of the changes. Although there were some technical issues the industry as a whole is moving towards using bifenthrin. Given the changes to the application of chemical under the amended bifenthrin permit, turf farms should be included in next year's compliance scheduled activities plan.

Of the 32 nurseries audited, 11 (34%) were non-compliant, mainly due to lack of awareness of the movement controls. Non-compliant nurseries were issued advisory notices requiring them to follow the movement controls within 14 days. Ten of the 11 nurseries are now compliant through the use of appropriate chemical product. The program is working with the remaining nursery to implement an alternative approach to applying bifenthrin that will be effective within a large retail setting.

Table 11: High-risk industry audits—numbers compliant versus non-compliant in Quarter 2 2020–21

High-risk industry	No. compliant	No. non-compliant	Percentage non-compliant
Earthmoving	100	Nil	Nil
Hay	21	14	40%
Turf farms	13	3	19%
Nurseries	21	11	34%

Enforcement action

Seven biosecurity orders were issued during the quarter.

Table 12: Biosecurity orders issued due to non-compliance in Quarter 2 2020–21

Type	Issue
Carrier storage	Large amount of hay stored on ground without chemical treatment
Carrier storage	Small amount of hay stored uncovered and on fire ant resistant surface without perimeter treatment
Carrier storage	Small amount of hay not stored in compliance with regulation
Carrier storage	Small amount of hay not stored in compliance with regulation
Carrier storage	Small amount of hay not stored in compliance with regulation
Carrier production	Large amount of hay left in paddock for more than 24 hours after baling
Carrier treatment	Incorrect application of bifenthrin as per APVMA PER14317

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

The planned eradication season began in September, marking an important milestone for the program as it moved from the Lockyer Valley, Scenic Rim and parts of Ipswich (Area 1 and the Western Boundary) east into new parts of greater Ipswich and western Logan (Area 2). Eradication treatment Area 1 and the Western Boundary moved to eradication clearance that involves targeted surveillance and spot treatment over several years, rather than broad-scale treatment across the whole area.

The program is using an alternative model for eradication treatment in Area 2 than what was used in Area 1 and Western Boundary. Area 2 eradication treatment involves four rounds of intensive treatment in one year, instead of two to three rounds for two to three years as applied to Area 1 and Western Boundary. In addition, the area has three distinct treatment areas and different treatment regimes will be used in each. This will identify the most effective way to deliver eradication more quickly. One of the three areas will receive four rounds of insect growth regulator (IGR) bait, which is intended to make the queen infertile and the nest dies out due to starvation. A second area will receive IGR for three rounds initially (targeting the queen), with a direct nest injection (fast-acting bait) used to target worker ants in the fourth round to expedite worker death and nest starvation. A third area will receive IGR initially to make the queen sterile, followed by a fast-acting bait in the second

round to kill the worker ants, and a further two rounds of IGR to maintain the queen's sterility, if she has survived. The three eradication treatment regimes are undertaken monthly, with a review of the efficacy of the various treatments undertaken at the end of the treatment season in June 2021.

Table 13: Planned eradication treatment progress

Round 1	No. of hectares			
Location	Planned year total	Planned YTD total	YTD actual	% YTD
Area 2	185 689	81 851	84 612	103

Table includes daily and weekly adjustments. YTD = year to date.

Table 14: Challenges and solutions to eradication treatment in Quarter 2—2020–21

Challenges	Solutions
Due to unfavourable weather conditions, there were 28 scheduled aerial treatment days lost during Quarter 2. Aerial treatment was planned to occur Monday to Friday.	To help aerial treatment get back on schedule, weekend work was included in aerial treatment activities with actual treatment exceeding the target by 3%.

Further information about eradication treatment is outlined in the **key insights** part of the report. Refusals to allow treatment on properties is outlined on p12 and see p22 for treatment innovations.

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

The 2020–21 year saw the program move to Phase 3 search and clear (clearance) activities in Area 1 and Western Boundary; to locate and destroy any residual ants in these former intensive eradication treatment areas. Intensive eradication treatment will then progress east into parts of greater Ipswich and western Logan (Area 2).

An assessment of the eradication treatment in Area 1 and Western Boundary was undertaken and due to the number of detections it was decided the current surveillance was not enough to declare any single clearance zone clear this quarter. The program has continued with summertime surveillance in Area 1 and Western Boundary. However, before starting this summer surveillance, the program analysed public report data as well as rainfall data to ensure the detection of mature fire ant nests would be possible (i.e. there was sufficient rainfall). An update on the evaluation of current clearance surveillance conducted in Area 1 and Western Boundary was given to the Steering Committee in November 2020, along with further clarification on the process of clearance and freedom (see p22 **clearance and proof of freedom strategy**).

Under the surveillance priority risk map, and following the surveillance of all areas initially identified as the highest priority, further clearance surveillance was focused on areas adjacent to or near previously searched priority areas.

In the third quarter, additional assessment on the summer surveillance results will inform which areas should be prioritised for the 2021–2022 winter clearance surveillance period.

For the current treatment area (Area 2) monitoring sites showed a steady and profound decline in fire ant colonies remaining, providing evidence transitioning to Phase 3 in Area 2 may be possible following this year's treatment season. At the end of the current treatment season (during Quarter 3) Area 2 fire ant monitoring will be assessed and a risk map similar to the one produced in Area 1 will be created in preparation for probable move of Area 2 into Phase 3.

Clearance area surveillance and protection

- Following the decision to continue summer surveillance in Area 1 and Western Boundary, the rate of detections in the clearance areas has declined:
    - the majority (17 of 19) of clearance zones identified as infested in Area 1 and the Western Boundary were found within the first 6132 ha (3.7%) searched
    - between 1 October 2020 and 18 November 2020 there were two new clearance zones identified as infested in Area 1 and the Western Boundary with an additional 2552 ha (1.54%) searched
    - between 18 November 2020 and December 2020, there were zero new fire ant detections in Area 1 and the Western Boundary in the 1109 ha (0.67%) searched
- The targeted treatment areas are receiving three rounds of bait during the 2020–21 treatment season
- The lower risk detections—those with fewer nests and no apparent reproductive viability—each received a minimum of 500 m treatment and surveillance perimeter
- Surveillance in the clearance area will continue into the 2021–22 season until the program is satisfied no residual infestation remains and areas can progress to the next phase of the freedom framework (Phase 4–freedom). This phase involves a cost-optimised volume of surveillance.

Table 15: Challenges and solutions to clearance activities in Quarter 2 2020–21

Challenges	Solutions
Postponing of the Structured Expert Elicitation Program (STEEP) for Clearance and Proof of Freedom Strategy	STEEP was postponed until next year because of difficulties coordinating experts and the number of detections made in Area 1 and the Western Boundary and the program's response to those detections meant h a workshop would be premature.

Clearance and proof of freedom strategy

Following the completion of the first year of clearance surveillance in Area 1 and Western Boundary, modelling was undertaken to demonstrate whether a further year's surveillance was required. Given the number of remnant infestations discovered, the surveillance conducted was not enough (< 50% certainty per clearance zone) to conclude another year's surveillance was not warranted. Modelling a hypothetical scenario of a second year with no additional detections did show an additional year of surveillance would be sufficient (> 50% certainty in local clearance zone eradication) to progress from Phase 3 to Phase 4.

The program has also convened the Proof of Freedom Working Group whose aim is to finalise a unified strategy, with input from all sections. It also needs to account for all the complexities of proof of freedom in the simplest way possible. The working group will help guide the program's freedom strategy upon final approval.

The date for the first STEEP was set for February. This is an important part of the program's quantitative proof of freedom and clearance process. This is a workshop aiming for 6–10 internal fire ant experts who will review relevant data on the eradication effort and known detections. They will also answer a series of questions and they will decide the critical starting point which dictates the amount of surveillance required for Phase 4: Freedom, following the completion of Phase 3: Clearance.

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

Polygyne research and eradication

A pilot project looking into the feasibility of eradicating localised polygyne infestations within a single treatment season was investigated. This would include using different bait treatments and combinations. If successful, this would be faster than the current two to three rounds of IGR baits per year for two to three years. Historically this was essential in eliminating polygyne infestations. Field trials continued across three heavily infested polygyne sites following the first application of baits in May 2020, with further rounds of baits applied to most plots on a fortnightly basis through June–November. For plots still showing signs of ant activity, the last treatments were applied in mid-November and the final assessments of all trial plots completed in late December.

The pilot trial results indicated the most promising alternative baiting regimes were those containing repeated fortnightly applications of fast-acting baits (Advion and Amdro in rotation) and fortnightly Amdro/Distance blends. These baiting regimes were the only ones that achieved eradication at one or more of the sites with current permitted baits. These preliminary results will be adapted and used to further guide targeted polygyne treatments in Area 2 over the remainder of the 2020–21 treatment season.

Remote sensing surveillance project

The Remote Sensing Surveillance Project is critical for efficiently detecting fire ant infestations. The intended use for the technology is in establishing clearance and for targeting treatment in eradication areas. A prototype artificial intelligence algorithm was produced under the project in 2019. Several trial flights were undertaken to collect imagery and the prototype algorithm predictions successfully managed to identify visible fire ant nests under certain conditions. There was, however, lower precision when applied to imagery collected over paddocks with highly disturbed soil.

In 2020, the project focused on collecting additional data to train the algorithm further and increase the ability to detect nests. Between June-September 2020, the project captured ~13 000 ha of imagery and significant quantities of further training data from an additional 12 sites. COVID-19 and Victorian travel restrictions caused some alterations to the planned Remote Sensing Surveillance project, as the vendor's technical staff are based in Melbourne. After discussions with the vendor, one of the technical staff was based in Brisbane for the duration of the project's flights. Fortunately there weren't any major technical issues during this period.

The first successful detection of a previously undetected infestation (~2 ha) occurred in the suburb of Ripley (City of Ipswich). By the end of the surveillance season, the project had successfully detected 17 clusters of previously undetected nests. Despite these successes, the model also exhibited 'noise' associated with misclassifications of environmental features such as Gilgai (small ephemeral water bodies), bare soil and other organic matter. Data was collected on these misclassifications and subsequently fed back into the model to improve its performance with great success.

The fourth and final flight week for the 2020 remote sensing project concluded the last week of September and the associated training data from ground surveillance was finalised. The vendor provided the final predictions to the program in October 2020 and validation of these results continued into November 2020. Results from the final model produced in 2020 showed a recall of 47% for all nests at the training sites. This result indicates the project can detect approximately half the fire ant nests present on average over the variable habitats where training data has been collected. Areas with higher amounts of training data is showing higher recall (up to 81%), which is one of the reasons why we will continue to collect training data in future flights.

Further work will focus on the operational deployment of the technology, aiming to capture data and produce predictions of where fire ant nests are located over 50 000 ha, primarily in the western clearance zones. Further algorithm training data collection is also planned to continue to improve the model.

Effectiveness of treatment testing

In advance of applying broad-scale eradication treatments in Area 2 in the 2020–21 treatment season, extensive surveillance was required to find suitable sites and nests for monitoring the efficacy of these treatments.

This was completed with the following numbers of monitoring nests confirmed across the three eradication treatment strategy areas within Area 2: 322 (northern treatment strategy), 149 (central) and 64 (southern). Despite a significant effort to locate the target number of nests of 150 per treatment strategy, this was not possible in the central and southern sections of Area 2. This was most likely due to the effectiveness of recent bait treatment applied in the 2019-20 treatment season when the area fell within the Western Suppression overlap. To assist in the interpretation of efficacy monitoring data from Area 2, the following additional nests were also confirmed for use in monitoring: 72 in Eastern Overlap area (to collect baseline data for future eradication activities); 79 in untreated areas to the east of Eastern Overlap (to compare untreated control nests).

All monitoring nests were visited on a 4-week schedule and assessed for the level of fire ant activity. By the end of December 2020, preliminary results indicated that approximately 60% of the monitoring nests across all of Area 2 may have already died.

Digital Field Capability Implementation Project

The Stage 2 release of the Forage application to field team tablets is on schedule to be completed in January 2021. The program's field teams now access planned ground treatment (including pre and post-flight aerial buffering) and infestation delineation functionality on the Forage application. Additionally, there were enhancements to the Fire Ant Management System (FAMS) to support job processing and reporting. Forage continues to have a positive impact providing efficiency gains for areas of the program. Stage 3, the final stage, will include functionality to capture sample data in Forage and sync the same to FAMS. It is planned for implementation on 16 April 2021 with the project end date 23 April 2021.

Other treatment innovation

A literature review investigating the biology of the fire ant was presented to the National Exotic Invasive Fire Ant Scientific Advisory Group (SAG) in October, with several members offering support and advice on how to progress in key areas that may benefit the program. The purpose of this review was to identify avenues of research to find new and improved methods of treating fire ants. In particular, SAG supported investigating the use of polyacrylate water crystals and agarose gel beads as alternate carriers for bait products, for situations such as self-management or during drought conditions. Investigations into using polyacrylate water crystals are being developed. It is proposed a liquid nutrient mix is absorbed into the water crystals, along with an active ingredient at a biologically relevant concentration. Early pilot work has shown promising, with ants feeding on the crystals.

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

Risk management

The program has five high risks detailed in Table 17.

Table 16: High-risks to the program in Quarter 2 2020–21

Risk type	Risk description, controls and treatment
Strategic	**Risk description:** 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.
	Risk controls: (1) Contingency planning will ensure appropriate targeted surveillance/treatment is undertaken following a significant climatic event; (2) Pre-planning including infestation assessment, genetic tracing, spatial analysis of spread through flight and flood mapping. (3) Planning forecasting probable infestation spread.
	Treatment: Reprioritisation of planned suppression treatment to limit the risk of spread along water courses. Flooding contingency fund. Flood modelling and responsive planning.
Operational	**Risk description:** Risk to capability: information systems are ineffective at supporting increased scope of national program and demand for timely and accurate performance data. This arises from poor functionality or data integrity due to data entry, programming, configuration errors, viruses or incorrect business logic.
	Risk controls: 1. Resources dedicated to developing the program's existing information systems and how they interface to improve efficiency and accuracy of data entry and reporting. 2. Server performance monitoring. Ability to upgrade if required.

Risk type	Risk description, controls and treatment
	Treatment: 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 description:** Risk to eradication: inability to provide timely work to field teams.
	Risk controls: Sufficient resourcing and communications between operations and planning areas.
	Treatment: (1) Possible digital field solution - Forage to improve. (2) Re-engineer or improve job allocation processes. (3) Monitor progress against schedule. (4) All tasks are underway and on track.
Operational	**Risk description:** Risk to capability: 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.
	Risk controls: 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.
	Treatment: Ongoing refinement and adjustment will meet the needs to consumers and industry sectors. Coordination with high-density suppression treatment will also ensure the self-management projects are as effective as possible.

COVID-19

There has been no reported cases of program staff contracting COVID-19. Changes in routine to protect the health and safety of staff and the community include:

- Up to 50 per cent attendance at Berrinba with numbers at other program sites adjusted depending on the ability to maintain social distancing
- When staff use one vehicle one member will be in the front seat and the other in the back seat on the opposite side of the car with windows down and air conditioning off
- If an operational team member tests positive to COVID-19, the entire team will be directed to self-isolate at home
- Contact with customers will be made by phone, where possible, to avoid human contact
- Staff are provided with hygiene products, including hand sanitiser and alternative solutions where necessary
- Additional weekday cleaning in all commons area including frequent touch points.

Meetings of importance

The Steering Committee held its quarterly meeting on 18 and 24 November 2020 via teleconference. Topics discussed included, the finances and the management of the cash flows against the budget; results of surveillance of the first eradication area; the options for amendments to the 2020-21 Work Plan and the update of the 10-year Eradication Plan to reflect the experience and learnings of the past three years of operation.

The Steering Committee held an extraordinary meeting on 14 December 2020 to discuss the program's 2020–21 Revised Work Plan options and the CSIRO Review of Red Imported Fire Ant Scientific Principles and Controls Report. The report looks at the risks posed by human-assisted movement of fire ants in South East Queensland and beyond. It was published on the program's eHub and stakeholders invited to give feedback.

The National Exotic Invasive Ant Scientific Advisory Group met on 20 October 2020. The primary objectives of the meeting were to discuss the results from Program surveillance in Eradication Area 1 and the Western Boundary and to discuss the results of the final report on spread modelling work submitted by Monash University and the University of Melbourne.

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

Table 17: Staff numbers in 2020–21

Position	Q1	Q2
Permanent	76	85
Temporary	54	41
Contractor—office	42	44
Contractor—field	247	183
Total	419	353

Workplace health and safety

The program received 72 reports related to workplace health and safety during this quarter, an increase compared to the 45 incidents reported in the previous quarter. The increase is put down to the program increasing the number of vehicles utilised due to COVID-19 vehicle protocols. The major cause of injury continues to be falls, trips, and slips (not from a height). Workplace health and safety representatives continue to work across the program to heighten awareness and identify workable solutions.

Table 18: Injuries in 2020–21

Injury classification	Q1	Q2
Repetitive movement and other muscular stress	3	3
Contact or exposure to electricity	0	1
Contact or exposure to heat and cold	1	2
Fall, trip, slip (not from a height)	10	15
Hitting or being hit by an object/s	1	4
Total	15	25

Table 19: Workplace health and safety incidents in 2020–21

Category	Q1	Oct	Nov	Dec	Q2
Hazards	3	0	0	1	1
Near miss	3	1	2	3	6
Property damage	24	0	24	27	51
Totals	30	1	26	31	58

Internal communication

The industry and self-management team visited Laidley and Mutdapilly depots to provide field staff with information about the self-management initiatives delivered by the program–particularly the primary producers' pilot which will be supported by the field teams in the western depots.

A report of the discussions the community engagement team had with field teams in September was also provided to the program's management team with a register of action items developed. Outcomes included the 'engaging with influence' training sessions to support staff interactions with the community.

Internal newsletters for program staff continued to keep staff up-to-date on key activities in the program and responses to COVID-19. Engagement with these is good. The October edition was emailed to 177 staff and opened by 79.10%. More than 22% of this group then clicked on one or more of the links. Hard copies are also distributed to those without email.

Volunteers

Due to the restrictions associated with COVID-19 volunteer activities were suspended.

10. Finance

The 2020–21 initial budget build for the program, including treatment requirements, was $5.5 million above the program fiscal limit. The program is taking an agile approach to budget monitoring in 2020–21 with a view to prioritising treatment areas and utilisation of more efficient methods of delivering treatment and surveillance in order to remain within the fiscal limit. When budgeted for the financial year, the total number of hectares to be treated for the year was distributed evenly across the months during the treatment season. However, actual treatment hectares planned for a month is adjusted weekly/monthly and is responsive to work scheduling, weather and identified priorities. The total planned treatment hectares for the year remains unchanged.

Expenditure to budget

As at 31 December 2020 the program is overspent by $2 million mainly as a result of:

- $251K underspend in Remote Sensing Surveillance (R&D) consists of saving from a Senior Technical Officer Position (6K), a timing difference for training cost of ($5K), timing difference of Contractor RSS Trial placements ($19K), project contingency cost ($104K), ITP discretionary cost ($70K) and aerial cost ($57K).
- $153K underspend in System and Technology innovation due to timing difference on expense for ITP discretionary and application service cost (95K) and replacement of computers ($4k), unused project contingency budget ($32K), underspend on IT application charges ($14k) and telephone and data expense ($23K) $366K underspend in community and stakeholder engagement as a result of timing difference of cost for zone, self-treatment and lifestyle campaigns, cost of acquisition of bait sachets for the Gold Coast self-management campaign amounting to $43K, $28K, 134k and $129K respectively and savings in employee expense $20K due to vacant position on staff maternity leave which replace by contractor. The underspend is offset by overspend in contractor expense $86K.
- $91K underspend in science services and eradication assessment relate to salary recovery of $84K which biosecurity staff was deployed for remote sensing trials project, underspend in project cost ($50K) and contractor expenses ($25K). The underspend is offset by overspend in laboratory consumables and services expense ($34K), plant and equipment maintenance ($17K), collaborator expense ($20K) and employee expense ($16K).
- $57K overspend in Planning and quality assurance consists of overspend in contractor expense $88K and IT maintenance cost ($10K). The overspend is partially offset by an underspend in mapping software subscription costs for ESRI 2020–21 and Near maps annual subscription fees ($36K) as a result of timing differences.
- $2.9M overspend in Operations is mainly contributed by field contractors' expense ($1.8M), aircraft hire $597K and extra vehicle hire ($536K) due to COVID-19 restrictions. Additional contractors were mobilised during the treatment season in order to meet operational requirements. The overspend will be offset with an underspend when teams are reduced towards the end of the treatment season as part of the program's agile budget approach. The overspend is offset by underspend of $207K in baiting costs.
- $88K underspend in strategy policy performance and compliance as results of budgeted cost for an AO5 (policy officer) for the full year with no actual cost in July–December 2020 ($89K), a timing difference for cost for the efficiency audit ($31K), unused travel budget ($8K), timing issue on Steering Committee Chair ($15K). The underspend is offset by overspend in Policy and Compliance contractor ($55K).

Table 20: Expenditure to budget as of 31 December 2020

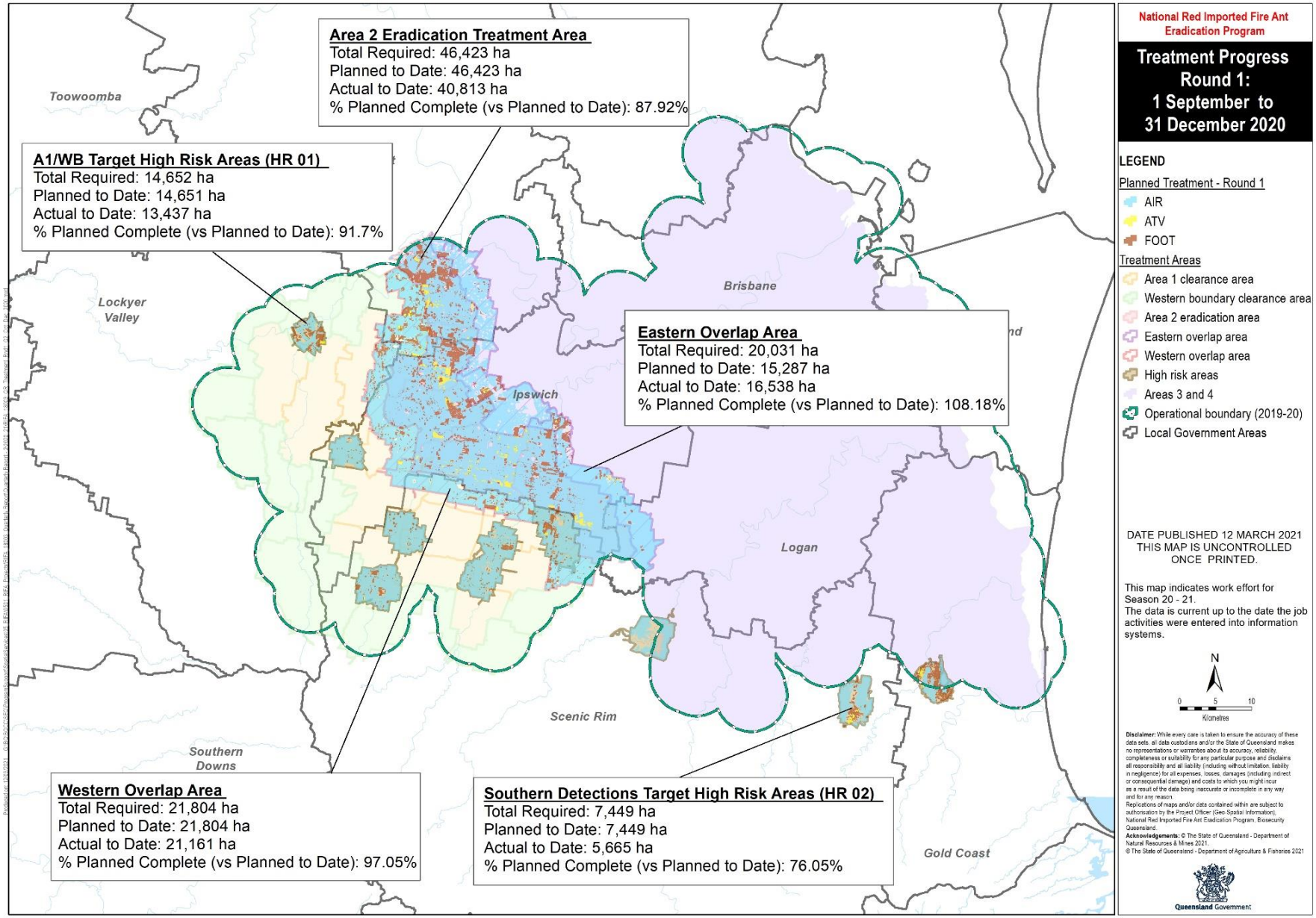
Program area	Requested budget	Current budget	YTD budget	YTD actual	Variance
Program logistics and business support	3 464 063	3 464 063	1,709,931	1,716271	-6,340
Remote sensing surveillance (R&D)	1 593 003	1 592 828	1,233,038	982,141	250,897
Systems and technology innovation	2 128 193	2 128 193	1,181,167	1,028,954	152,213
Community and stakeholder engagement	2 622 417	2 622 417	1,278,875	912,906	365,969
Science services and eradication assessment	3 035 072	3 035 246	1,485,458	1,394,300	91,158
Planning and quality assurance	2 753 752	2 753 752	1,370,308	1,427,454	-57,146
Operations	39 165 284	39 165 284	18,663,232	21,565,614	-2,902,383
Directorate	860 036	860 036	434,652	436,947	-2,295
Self-management	508 562	508 562	254,889	241,354	13,535
Strategic policy performance and compliance	2 363 619	2 363 619	1,240,960	1,152,827	88,133
Total	**58 494 001**	**58 494 000**	**28,852,510**	**30,858,768**	**-2,006,257**

Significant procurement

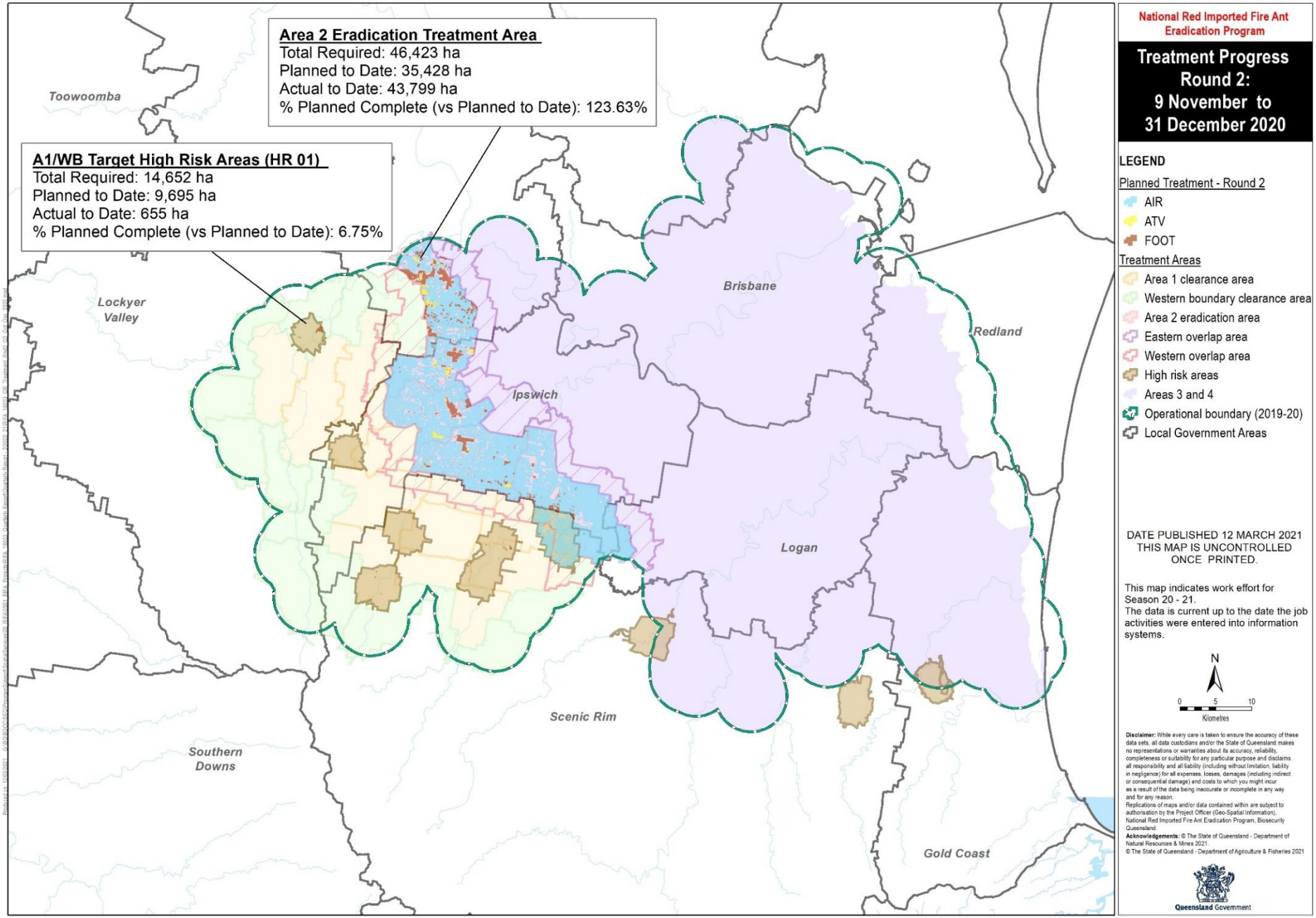
- Fire Ant Key Performance Indicator Research Project (contract value $54,838.30 including GST)
- Lifestyle Campaign (contract value $63,409.50 including GST)
- Extension of Forklift Hire (revised contract value $58,427.60 including GST). The amount is for five forklifts over a period of 2 years.
- Scientific Equipment Service and Support (contract value $72,638.87 including GST)
- Chair National Exotic Invasive Ant Scientific Advisory Group (contract value $29,818.18 including GST)
- Office Based Contingent Workforce - Planning Team (time extension only)
- Review of Fire Ant Movement and Controls (time only extension)
- Detection Dogs (time only extension)
- Cleaning Services and Consumables for NRIFAEP Berrinba (time only extension).

11. Appendices

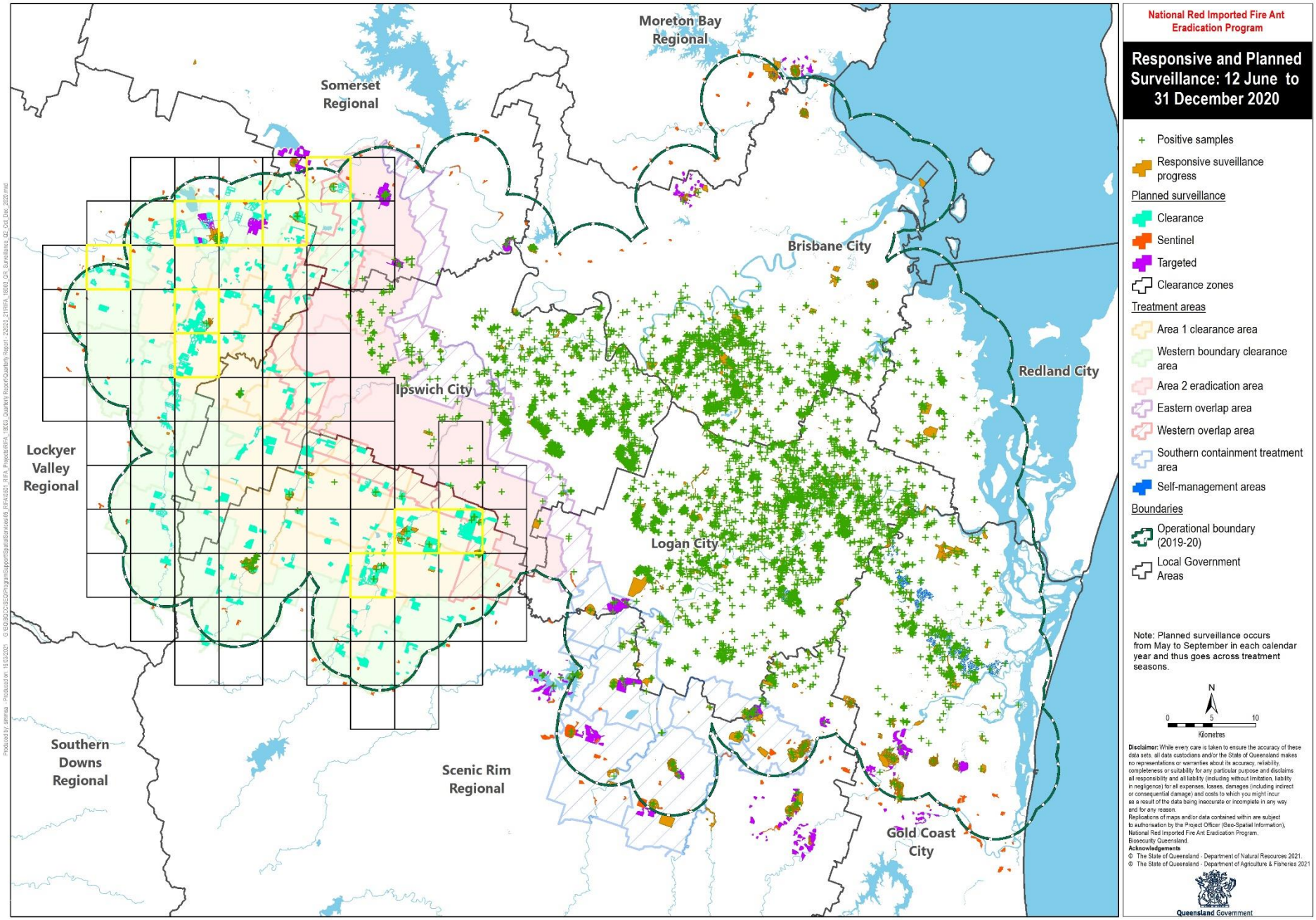
Appendix 1a—Planned treatment progress as of 31 December 2020 (Round 1)



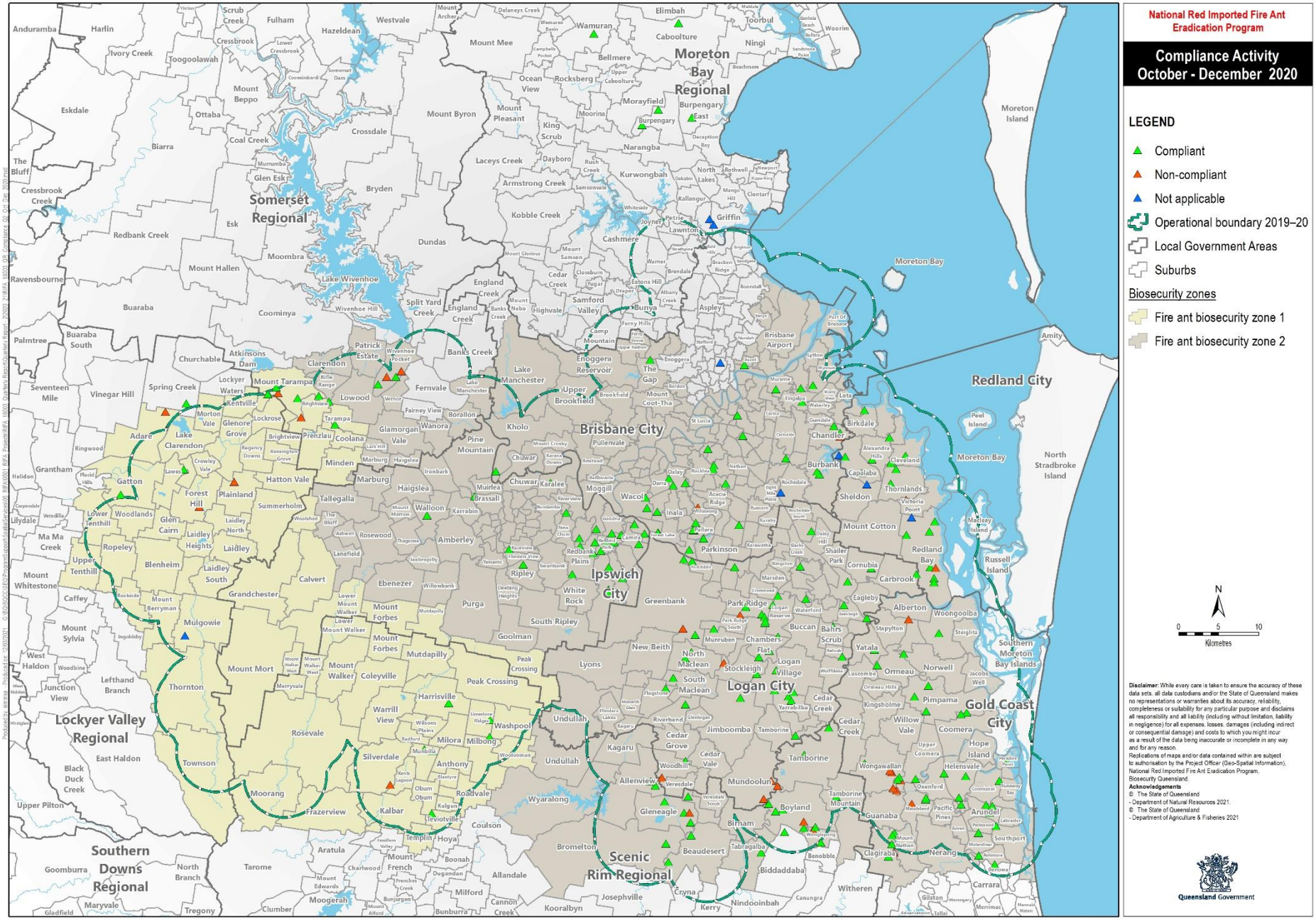
Appendix 1b—Planned treatment progress as of 31 December 2020 (Round 2)



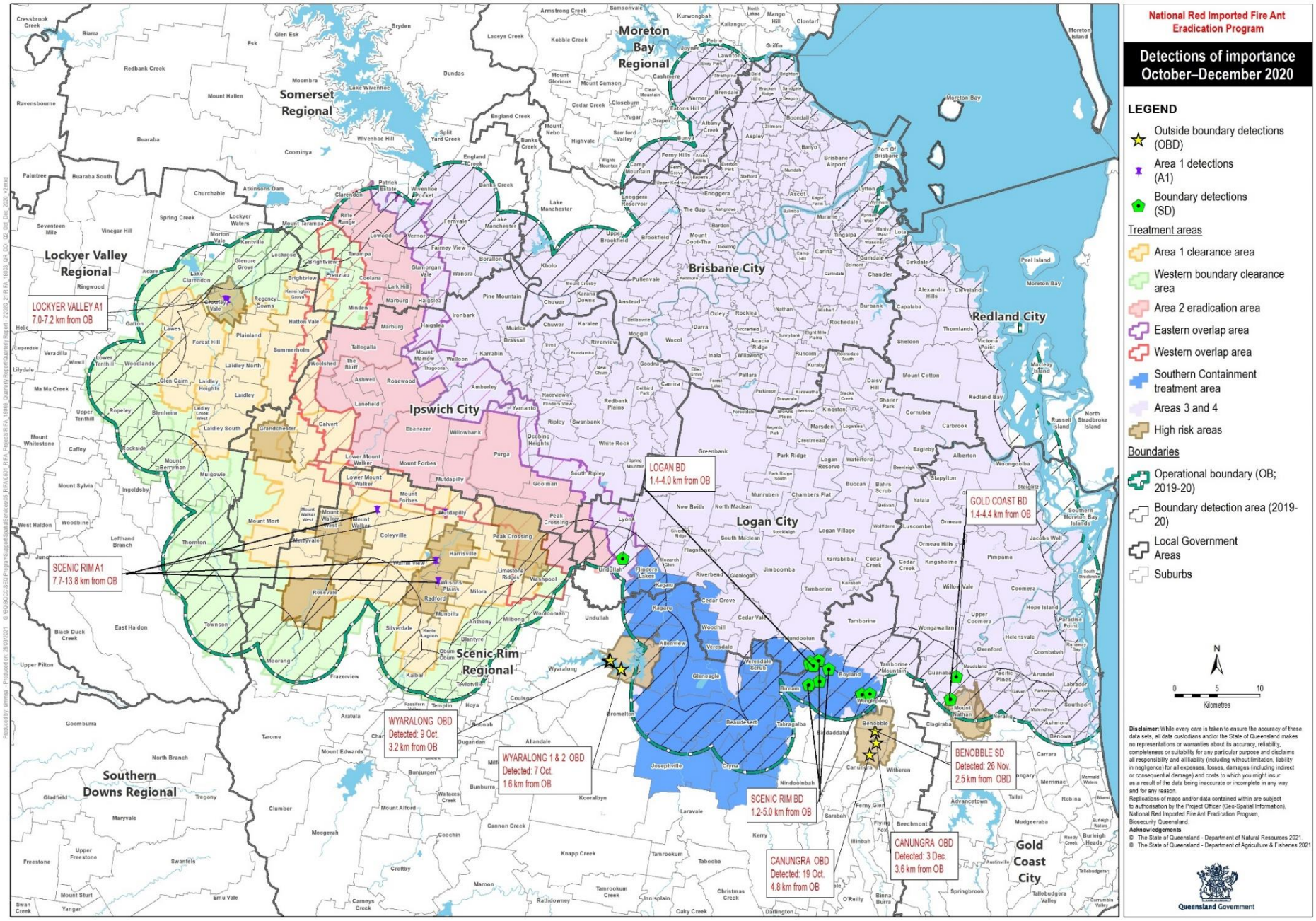
Appendix 2—Responsive and planned surveillance progress as of 31 December 2020



Appendix 3—Compliance activity in Quarter 2 2020–21



Appendix 4—Detections of importance in Quarter 2 2020–21



Appendix 5—Detections of importance circumstances and outcome in Quarter 2 2020–21

Location	Circumstances	Outcome
Significant detections and additional detections outside of the Operational Area boundary		
Canungra and Benobble	• Three detections outside of the Operational Area boundary that are extensions of a significant detection made during the previous quarter • Ants (no nest) detected in a new housing estate where several nests were detected in the previous quarter • Two detections made on semi-rural properties to the north and south of the new housing development, both containing male and female alates and reproductive brood, suggesting they had been in place for at least six months.	• All detections were located within a 2 km targeted treatment area that was planned in response to detections made in the area in the previous quarter • No carrier materials were brought onto or taken off the properties • Genetic testing has not yet identified a source nest • No relationship could be established between the Canungra nests; results indicated samples came from different areas of the South East Queensland infestation, so multiple source populations • With so many unrelated nests in a small area, product movement of infested material is likely. • Further genetic testing on Benobble samples is underway.
Wyaralong	• Three detections outside of the Operational Area boundary that are extensions of a significant detection made during the previous quarter • The nests contained reproductive brood and alates discovered by program officers • Nests appear to have been in place for more than six months.	• Genetic testing revealed a second-generation (grandmother/granddaughter) relationship with nests located on the east bank of the dam in the suburb of Allenview on a heavily infested site, suggesting there is other undetected infestation nearby • Genetic results indicate the Wyaralong samples either flew or rafted from the Allenview infestation • Genetic testing for the Allenview detection returned unexpected results which indicate human-assisted movement • Surveillance on suitable habitat out to 2 km was undertaken, but the terrain has proved impassable in places, so it may not be possible to find all nests in this way • To mitigate the risk, the program planned broadcast baiting out to 2 km from the outermost infestation to be applied during the 2020–21 treatment season.
Boundary		
Scenic Rim	• Five detections made across 3 suburbs: Birnam, Boyland and Wonglepong.	• The detections were made in areas previously infested and can be managed using existing program resources. • Surveillance and treatment out to 500 m was conducted/applied following detection. • One round of broadcast baiting will be applied in the Southern Containment Treatment Area during the 2020–21 treatment season.
Logan City	• Four detections made across two suburbs: Undullah and Mundoolun.	• Fairly manageable risk following program treatment and surveillance protocols. • One round of broadcast baiting will be applied in the Southern Containment Treatment Area during the 2020–21 treatment season.
Gold Coast	• Two detections made across two suburbs: Mount Nathan and Guanaba.	• Manageable risk following program treatment and surveillance protocols. • Broadcast baiting, out to 2 km from the infestation, will be applied in the suburb of Mount Nathan during the 2020–21 treatment season.
Clearance		
Lockyer Valley	• Two detections in the suburb of Crowley Vale.	• Two detections were made on previously infested sites in Crowley Vale, which were included in a targeted treatment area out to 2 km from the nests, to receive three rounds of broadcast baiting in the 2020–21 treatment season.
Scenic Rim	• Four detections across four suburbs: Mutdapilly, Warrill View, Mount Walker and Wilsons Plains.	• Two of the detections across two suburbs were included in targeted treatment area out to 2 km from the nests, to receive three rounds of broadcast baiting in the 2020–21 treatment season. • Two lower risk detections will be responded to in keeping with program protocols.