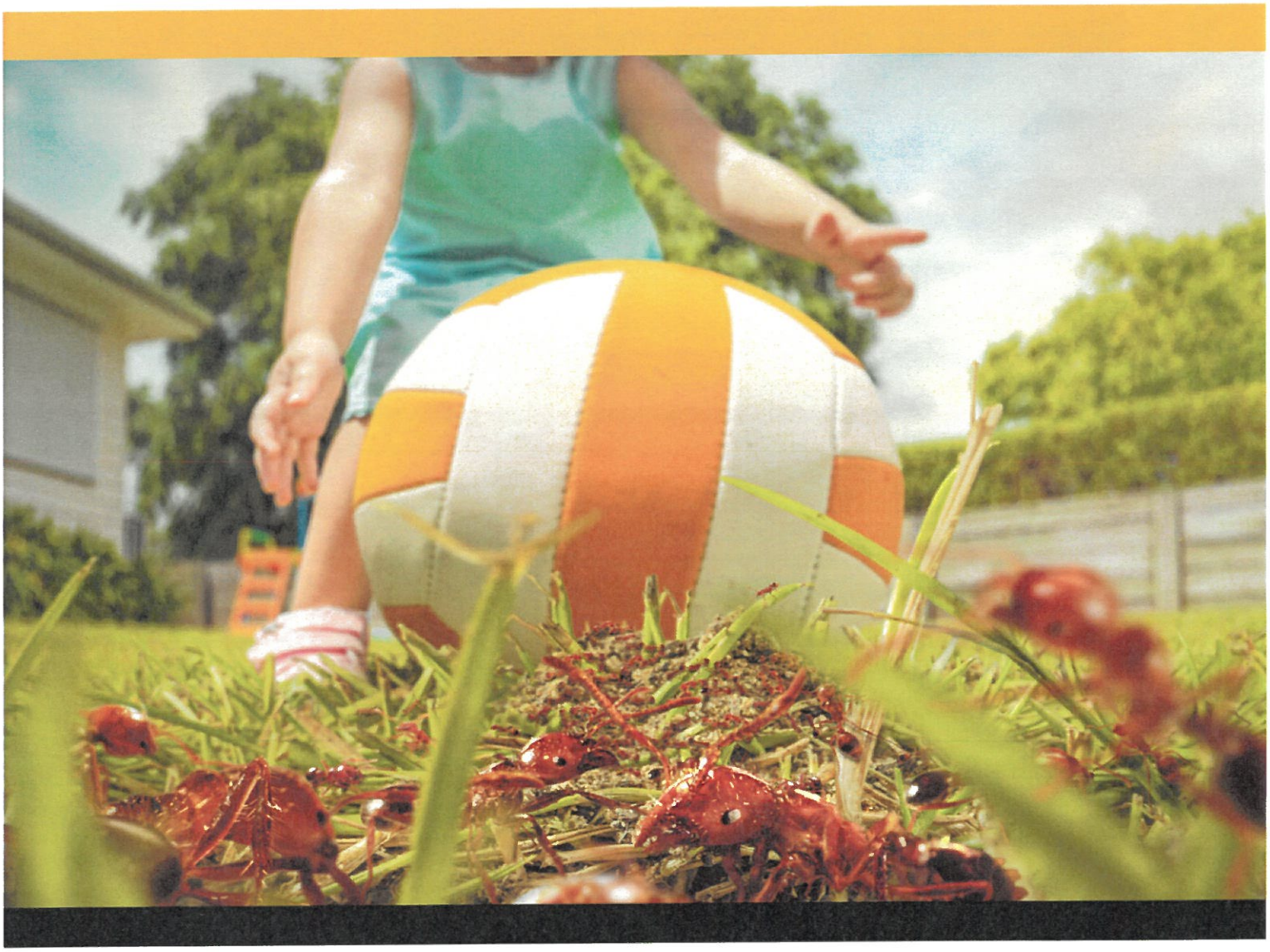
NATIONAL
Fire Ant Eradication
PROGRAM



Response Plan 2023 - 2027

Response to Strategic Review August 2021

OUR VISION

Australia is free from Red Imported Fire Ants by 2032 to protect our ecosystems, industries, economy and way of life.

OUR MISSION

The safe eradication of Red Imported Fire Ants for Australia.

Acknowledgements

This publication has been compiled by the Department of Agriculture and Fisheries (DAF) in support of the National Fire Ant Eradication Program (NFAEP).

The Department of Agriculture and Fisheries proudly acknowledges all First Nations peoples (Aboriginal peoples and Torres Strait Islanders) and the Traditional Owners and Custodians of the country on which we live and work. We acknowledge their continuing connection to land, waters and culture and commit to ongoing reconciliation. We pay our respect to their Elders past, present and emerging.

Acronyms, abbreviations, glossary

RIFA	Red Imported Fire Ants (*Solenopsis invicta*)
NFAEP	National Fire Ant Eradication Program
FAST	Fire Ant Suppression Taskforce
BQ	Biosecurity Queensland
DAF	Department of Agriculture and Fisheries
DAFF	Department of Agriculture, Fisheries and Forestry (Federal Government)
NEBRA	National Environmental Biosecurity Response Agreement
Polygyne	Multiple queen colony with workers from multiple queens and different relatedness
Monogyne	Single queen colony with workers and a queen from the same family unit
IGR	Insect Growth Regulator
Responsive treatment	Fire ant treatment in response to public reports of fire ants using a combination of methods
RSS	Remote sensing surveillance, employs a range of devices and sensors that collect data on subjects from a distance (e.g., aerial, satellite etc)
Multispectral Imagery	Imagery using multiple wavelengths across electromagnetic spectrum including red, green blue, thermal and infrared
AI	Artificial Intelligence
GBO	General Biosecurity Obligation

Summary

National significance

Red Imported Fire Ants (RIFA) impact negatively on Australia's economy, human and animal health, the environment and social amenity. Cost-benefit analyses (CBA) suggest the likely cost of RIFA in Australia, if not eradicated, will exceed an estimated $1.25 billion per year with adverse impacts likely in most sectors of the economy, including many agriculture sectors, the environment as well the Australian outdoor lifestyle. RIFA:

- have the potential to reduce biodiversity of Australian native fauna and flora by endangering 45 per cent of birds, 38 per cent of mammals, 69 per cent of reptiles and 95 per cent of amphibians
- can cause significant public health impacts as they cause painful stings which may result in hypersensitivity, anaphylaxis and death
- can decrease outdoor activity and liveability
- can damage crops, livestock, agricultural equipment, telecommunications and electrical infrastructure.

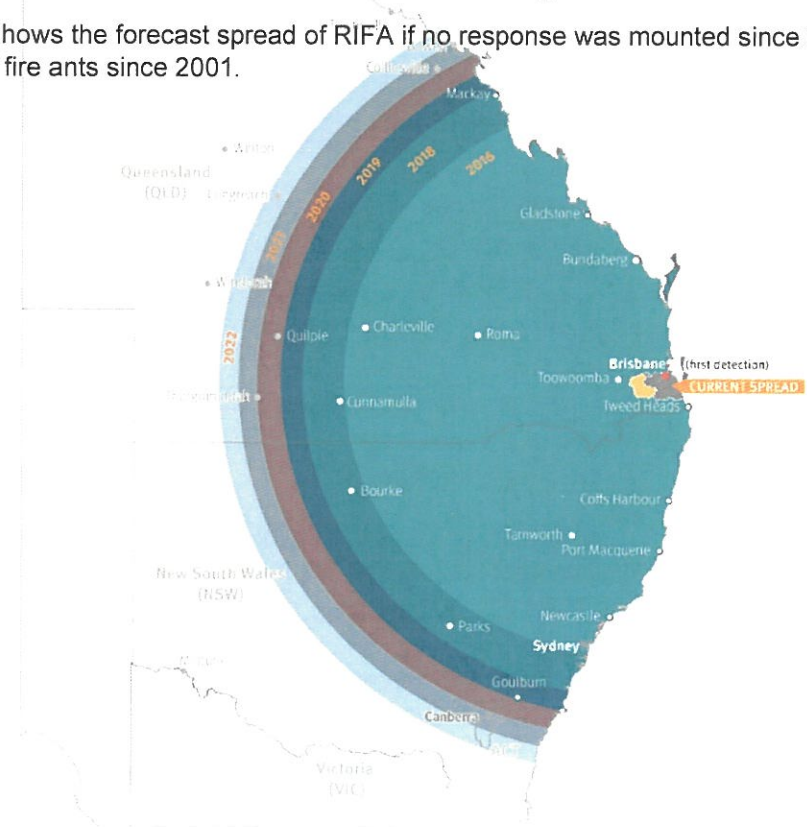
History in Australia and technical feasibility of eradication

Currently, only Queensland has an active infestation of RIFA in Australia, located in South East Queensland. In 2023, RIFA was detected in Mermaid Waters, 11.6 km North of the New South Wales (NSW) border, as a result, surveillance activities under this Response Plan will be required in NSW. The National Fire Ant Eradication Program (NFAEP) will work with the NSW Government to ensure operational activities can occur legally in NSW.

Five RIFA incursions have previously been detected and eradicated in other areas of Queensland, NSW and Victoria. An infestation in Western Australia is undertaking proof of freedom processes.

The Queensland Government has led the eradication of RIFA since 2001 under a nationally cost shared agreement. In the absence of the NFAEP eradication and suppression activities, forecasting indicates that RIFA would have spread to more than 20 per cent of the Australian mainland by now, as illustrated below. Eradication activities have particularly suppressed polygyne infestations which li mits the potential for spread as polygyne
infestations result in much higher densities of RIFA than monogyne infestations.

The illustration shows the forecast spread of RIFA if no response was mounted since 2001 and the actual spread of fire ants since 2001.



In February 2021, the NFAEP Steering Committee commissioned a Strategic Review of the NFAEP by an Independent Review Panel. The independent strategic review of the NFAEP was conducted in 2021 by Dr Helen Scott-Orr, the former Australian Inspector-General of Biosecurity. The review found that RIFA remain eradicable subject to identified changes to the then response strategy and additional funding from the Federal Government, states and territories.

Details of eradication feasibility are provided in Appendix 2, based on the National Biosecurity Response Agreement (NEBRA) criteria, including, the capability to accurately diagnose or identify RIFA, the effectiveness of available control techniques and the level of confidence that all individual fire ants present can be destroyed by the recommended control techniques.

Cost-benefit assessment

Since 2001, there have been four significant and detailed Cost Benefit Analyses (CBA) of the NFAEP with the 2012 and 2014 CBAs estimating the benefit cost ratio of implementation of a 20-year eradication program would be as high as 25:1. The most recent CBA completed by Central Queensland University in 2021, predicted that without the NFAEP by 2035 the natural spread would take RIFA infestation to far north Queensland including the Whitsunday Islands and as far south as the Blue Mountains in NSW, with over $1.25 billion annual cost to the Australian economy. The 2021 CBA estimated after 15 years, households will have the greatest economic impacts at over half a billion dollars, followed by agriculture at almost $400 million.

Course of Action

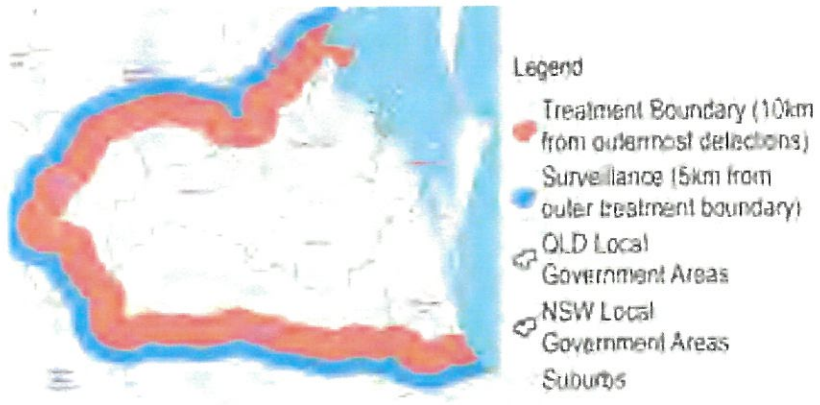
The Response Plan builds on the lessons learnt from past plans and reviews and will expand across the key pillars of eradication treatment, compliance and surveillance.

Treatment

In response to the Strategic Review recommendation, to increase suppression activities within SEQ's urban areas, the Queensland Government formed the Fire Ant Suppression Taskforce (FAST). FAST aims to reduce densities of RIFA by the mobilisation of partners and the community where the current approach of responding to public reports is not providing sufficient suppression. FAST will bring together local, state and federal government departments and agencies, industry and communities to support the eradication effort and reduce RIFA densities ahead of NFAEP broadscale treatment.

Meanwhile, the NFAEP will scale-up treatment in a containment ring preventing further spread west, north and south and a boundary zone will be established around the containment area at 10 kilometres from known detections with broadscale treatment applied to a 10-kilometre band for the first two years of the eradication program as illustrated in the map below.

A treatment buffer or overlap will be created at a distance of three kilometres in the 2025–27 treatment season. This will mitigate the risk of residual re-infestation behind the frontline and enable continual inward movement. Treatment will then progressively move inwards in the following years.



A key enabler for the NFAEP's expansion, and to help gain operational efficiencies, will be the development and deployment of new technology. Treatment schedules will be informed by increasingly accurate climatic and weather modelling and the exploration of bait that can withstand increased precipitation/moisture from rain and dew.

The NFAEP will explore new applications of enhanced bait dispersal, artificial intelligence (AI), biotechnology, behavioural science, and remote sensing through robotic and semi-autonomous systems. Through these investments in enhanced capability and capacity, the NFAEP will intensify and move incrementally inwards as treatment progresses to clearance and proof of freedom stages over time.

Surveillance

Treatment will be followed by two years of intensive surveillance to detect and eradicate any residual infestations. For the first two years of operations, delimiting surveillance will be conducted five kilometres beyond the 10-kilometre treatment area. In the next two years, the initial clearance surveillance will be undertaken in the previously treated eradication band to show that the eradication effort was successful.

The surveillance requirement will progressively increase as treatment progresses inwards and then decrease over time as suburbs receive treatment in two consecutive years.

Compliance

A key finding from the Strategic Review is that the NFAEP must reduce the risk of reinfestation of treated areas either by natural or human-assisted movement, with an increased focus on compliance. Compliance capability will be significantly enhanced with a new intelligence driven and industry-specific operating model that will better target high-risk industries and activities with adjusted criteria informed by non-compliance data.

Monitoring and Evaluation

Rolling evaluations will occur over the course of the execution of the Response Plan with a financial gate review during FY24/25. This will measure whether the NFAEP outcomes have been successful in meeting the defined objectives and if so, result in the release of the next two years (FY25/26-FY26/27) of funding or alternative arrangements such as a transition to management.

A Program Review will take place during FY26/27 to define the continuing national response plan beyond FY26/27 to achieve eradication by 2032.

Risk framework and triggers

Continual risk management and reporting is an integral component of the eradication with the risk management plan and register undergoing continual assessment.

A trigger under the Response Plan will occur when a risk is no longer adequately mitigated, or an immediate risk occurs. In both circumstances, an assessment and or evaluation by the NFAEP of existing mitigating activities will take place. If the resulting outcomes from the evaluation indicate that mitigation is insufficient, a trigger occurs leading to formal reporting and escalation. Major triggers include:

- a significant infestation is detected well outside of the current NFAEP operations area treatment systems which result in reoccurring infestations e.g., insufficient treatment, gaps in treatment, delayed treatment
- disruption to essential supply chain for inputs such as baits, surveillance equipment and services, labour, vehicles, aerial services or information technology hardware
- climatic change/weather events impact on treatment program ability to treat and/or increases potential spreads infestation
- human assisted movement of fire ants leading to re-infestation, and/or spread outside the operational area.

Proof of Freedom

Rolling proof of freedom surveillance is planned to commence once the last intensive planned treatment has occurred in each eradication band. This will begin in the outermost treated areas moving inward and will consist of five years of post-treatment surveillance and residual treatment of any remaining nests. An independently assessed Proof of Freedom Strategy is appended (Appendix 5).

Contents

Background

Globally, RIFA are considered a super-pest. Wherever RIFA invade, they cause long-term public health, agricultural, economic and environmental impacts, including loss of biodiversity. An incursion of RIFA in SEQ was likely present since the early 1990s but was first formally discovered in 2001, and has been under continual eradication effort, over which time the knowledge and capabilities of the NFAEP have steadily grown. This has included the development of world-first methods and technology that have positioned Australia as a leader in the global efforts to manage and eradicate RIFA. The NFAEP is currently a national cost-shared program funded by Australian state and territory governments, and the Federal Government, delivered by the Queensland Department of Agriculture and Fisheries (DAF) on behalf of the Queensland Government, which aims to eradicate RIFA from SEQ. The NFAEP is governed by a National Steering Committee which consists of representatives from the NFAEP's cost-sharing partners, with an independent chair advising the Queensland Government through DAF on RIFA eradication strategies, technical expertise, performance and risk. More information about the NFAEP's history and the National Steering Committee can be found at www.fireants.org.au/home/about-us.

In 2017, a $411.4 million cost-shared 10-year plan was approved by Australian jurisdictions, enabling a subsequent operational effort by the NFAEP to eradicate RIFA from SEQ by 2027, and to demonstrate proof of freedom thereafter. Since 2017, the NFAEP has suppressed RIFA and slowed any known spread out of SEQ by deploying effective eradication treatments in the western eradiation area. Progressing RSS, among other technologies, with advanced multispectral imagery and AI will be a critical factor in the success of the NFAEP during the next phase of eradication. In January 2021, despite substantial progress, it became evident to the National Steering Committee that the NFAEP would not be able to eradicate or contain RIFA within the scope and budget of the 10-Year plan (2017–2027).

The National Steering Committee subsequently commissioned a Strategic Review of the NFAEP. Building on previous evaluations and audits since 2001, the Independent Review Panel examined:

1. program effectiveness in relation to the objectives of the 10-year plan (2017–2027)
2. feasibility and likely achievability in meeting current strategy objectives, in particular the eradication of RIFA
3. alternative strategies for achieving the strategic objectives, in particular the eradication of fire ants.

The Strategic Review Panel presented 27 recommendations to change governance, strategy and operational models to the National Steering Committee. The review found that although the current program was successfully slowing spread of RIFA in SEQ, and eradication may technically still be feasible, changes in program scope, strategy, budget and governance, along with the development and adoption of new technologies was required. The alternative presented to Australia was to learn to "*live with fire ants*", with jurisdictions individually responsible for slowing the spread which would ultimately encompass most of Australia. Given the major impacts of RIFA on everyday life and Australia's agriculture, infrastructure, economy, and environment, the National Steering Committee supported an option to pursue stronger containment, more aggressive suppression and eventual eradication, demanding a more rapid scale-up of effort across a broader operational area to ensure successful containment and eventually eradication.

The Strategic Review outlined that in the long-term, eradication may still be feasible through increased suppression within SEQ's urban areas where the current approach was not resulting in the impact required for eventual eradication. The Strategic Review found that it was no longer feasible for the NFAEP workforce to be solely responsible for the control and eradication of RIFA, and a broader approach with simultaneous mobilisation of partners across the whole operational area is needed. Due to the large and diverse geographic area of infestation in both rural and urban environments, and specific methods needed, the NFAEP has been supplemented by the Queensland Government. The Strategic Review recommended that fiscal and operational responsibility for suppression and compliance activities lie with the Queensland Government rather than through the cost-sharing arrangements with other jurisdictions.

Chaired by the Director-General of DAF, FAST aims to mobilise government (local, state and Commonwealth), community and businesses to increase RIFA suppression activities to control and reduce RIFA densities in support of eradication efforts. This approach will be one coordinated and

collaborative effort between FAST and the NFAEP to minimise risk of the spread of RIFA into areas in the later stages of eradication and protect the overall investment of the NFAEP and reduce costs and future delays of eradication.

In December 2021, the Agriculture Senior Officials' Committee (AGSOC) supported the National Steering Committee recommendation of endorsing the preferred option to pursue eradication and agreed in-principle to bring forward $95 million of existing approved funding. These funds would allow the NFAEP to start scaling up operations whilst the NFAEP prepared the Response Plan to guide program operations and funding over the next four-years from FY23/24 to FY26/27.

National Significance

Unlike most pests that create significant impacts in one area e.g., agriculture, globally RIFA have caused significant economic, social, environmental and health impacts in those countries in which they are endemic. They have human health impacts through painful and on occasion fatal stings, damage critical infrastructure, attack livestock and impact production, damage crops and harvesting equipment and negatively impact building and landscaping projects. RIFA can inhabit most environments and, as a result, impacts are generated across most industries including tourism, agriculture, sport, and recreation.

RIFA are listed as a key threatening process under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth). RIFA have been implicated in causing extinctions of invertebrates in the United States of America (USA). In Australia there is a risk of reducing biodiversity of native fauna and flora and have the potential to endanger many plant and animal species (45 per cent of birds, 38 per cent of mammals, 69 per cent of reptiles and 95 per cent of amphibians.), including iconic species such as the platypus, echidna, spotted tail quoll, southern cassowary, night parrot, saltwater turtles and endangered frogs[1].

Australia's climate is optimal for RIFA and if left untreated, they have the potential to inhabit most of Australia.

Based on RIFA spread in the USA (48 kilometres per year), it is estimated without the NFAEP, RIFA would now infest approximately 100 million hectares in an arc of country from Mackay in the north, west to Longreach and south to Canberra. With human-assisted movement of RIFA representing one of the highest risks for spread, without the biosecurity zones in place, the infestation would likely be far larger.

In the USA, annual costs for impacts and control in infested areas are $US7 billion (Avant 2014). Australian annual cost projections from a 2016 study that used case examples from the USA across several industries, estimate the potential cost of RIFA to the Australian economy would be $1.65 billion per year if fire ants were left unchecked. In 2023, this estimate now likely exceeds $2 billion per year. Some of the annual estimates include:

Cattle industry: In Texas RIFA have reduced cattle industry gross margins by about 10 per cent. Cattle herd size in Australia is currently around 28 million and total losses to the industry from RIFA could total more than $300 million. This impact could be also applied to the Australian sheep industry.

Wheat: The annual value of the wheat crop in Australia is about $2 billion. It has been estimated that the treatment, expenditure and the residual losses in revenue expected from RIFA could reduce gross margins by around 10 per cent or $200 million.

Other Plant crops: RIFA is known to impact more than 50 commercial food crops grown in Australia through loss of crop yield, plant mortality, damage to equipment, increased labour costs and market access, with a cost of $130 million.

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[1] Wylie, Ross & Janssen-May, Sharon. (2016). Red Imported Fire Ant in Australia: What if we lose the war?. Ecological Management & Restoration. 18. 10.1111/emr.12238.

Telecommunications and electrical supply and equipment: RIFA are attracted to electrical utilities, shorting out switching mechanisms and causing corrosion to housing of transformers and other equipment. Road and airport runway lights can also be affected. Costs to the electrical and telecommunication companies in Australia could amount to $508 million+.

Tourism: A very important sector of the Australian economy contributing $122 billion in 2018-19. Around 9.3 million tourists visited Australia in 2019. In the USA, three out of 10 tourists in RIFA infested areas avoided outdoor activities because of RIFA. Based on USA figures, four million tourists visiting Australia could be impacted in the same way and avoid outdoor activities. This is estimated to cost more than $200 million.

Schools: Students are most likely to encounter RIFA in playgrounds or sports fields. In addition to the health and safety of students, RIFA can damage school electrical equipment and other infrastructure. Most costs are associated with treatment of grounds and fields. With 10,584 schools in Australia in 2019, the annual cost could exceed $150 million.

Health: Public health impacts from RIFA are significant when they become established. If RIFA were to infest the whole of Australia, at a conservative estimate of 30 per cent, 8.3 million people would be stung and 83,100 would require medical attention for stings each year. The total cost of medical attention for those Australian households due to stings could be $178 million. In the USA, a 1988 survey of physicians resulted in reports of 83 deaths (32 confirmed) attributed to fatal anaphylactic reactions to RIFA stings.

In the absence of the NFAEP eradication and suppression activities, modelling indicates that RIFA would have spread to more than 20 per cent of the Australian continental landmass by now. The NFAEP has provided a significant return on investment to date and all historical CBA have demonstrated a return on investment of at least 25:1.

Feasibility of Eradication

The assessment of RIFA against the NEBRA technical feasibility criteria has been provided in **Appendix 2.** Eradication is technically feasible because RIFA are distinguishable on physical characteristics and genetic analysis, effective chemical treatments and surveillance options are available, and there is a high level of confidence that the organism is detectable at very low densities.

The NFAEP staff have had direct involvement with all RIFA and other exotic ant incursions since 2001 and contributed to their successful eradications or containment. Considering the difficulty of eradicating or even containing ants, this repeated success demonstrates the capability that has been developed within the NFAEP. This specialised scientific response capability is a national asset that will undoubtedly be needed to combat future ant incursions.

The NFAEP has successfully eradicated five fire ant incursions:

Location	Detected	Source	Eradication
Port of Brisbane	2001	new incursion from U.S.	eradicated 2012
Yarwun (Gladstone)	2006	new incursion from Argentina	eradicated 2010
Port of Gladstone	2013	new incursion from U.S.	eradicated 2016
Port Botany NSW	2014	new incursion from Argentina	eradicated 2016
Brisbane Airport	2015	new incursion from U.S.	eradicated 2019

In addition, a RIFA incursion from China found at Fremantle, Western Australia in 2019 is nearing the 'declaration of freedom' stage. The NFAEP assisted the Western Australian Government with treatment and surveillance expertise. In 2022, the NFAEP's odour detection dog teams assisted the

Western Australian Government with clearance surveillance. A new incursion from the U.S. detected at the Port of Brisbane in 2021 is currently receiving eradication treatment.

Since its inception, the NFAEP has eradicated four post-quarantine detections where RIFA were destroyed prior to establishment. These include Melbourne in 2001, Port of Brisbane in 2004, Lytton Qld in 2009 and Roma Qld in 2011. The Roma detection was intercepted on a shipment of goods enroute to Western Australia.

A further eight RIFA quarantine intercepts have occurred in Darwin in 2007, Melbourne in 2006 and 2015, South Australia in 2009 and 2017, the Port of Brisbane in 2009 and 2014, and in Western Australia in 2011. On all occasions, RIFA were eradicated at the point of entry.

These examples show the depth and efficiency of capability that has been developed within the NFAEP and the ability to successfully apply the scientific and operational principles necessary to successfully eradicate RIFA on multiple occasions. This provides confidence that eradication remains feasible due to the repeated success of previous eradications of incursions.

Cost Benefit Analysis

The economic, agricultural, social and environmental benefits of eradicating RIFA have been widely studied, analysed and publicised. There are four significant and detailed Cost Benefit Analyses (CBA) of the NFAEP with the earlier CBAs (2012, 2014) estimating the benefit cost ratio of implementation of 20-year eradication program would be as high as 25:1.

The most recent CBA, completed in 2021 by the Central Queensland University, predicted that without the NFAEP by 2035 the natural spread would take RIFA infestation to far north Queensland including the Whitsunday Islands and as far south as the Blue Mountains in NSW, with over $1.25 billion annual cost to the Australian economy. With human-assisted movement of RIFA representing one of the highest risks for spread, without the biosecurity zones in place, the infestation would likely be far larger. This figure does not consider the potential non-market losses from RIFA such as the forgone value of outdoor activities and tourism, reduced biodiversity and associated ecosystem services, implications for Australian export and international trade, which could then cause significant negative multiplier effects in regional economies. Further the study concluded that, even with those incomplete potential benefits, the benefit cost ratio of implementation of 15-year eradication program would likely still remain as high as 9:1 at 5 per cent discount rate.

The CBA only forecasts out to 15 years, with RIFA spread at that time of approximately 20 per cent of the total potential spread across Australia. At 15 years, estimated costs avoided are already $1.2 billion per annum. At full spread, estimated in previous CBAs to take up to 80 years, annual costs avoided will be many times this conservative estimate.

The 2021 CBA estimated households will have the greatest economic impacts at over half a billion dollars, followed by agriculture at almost $400 million. It should be noted household economic impacts were given a discount factor of 50 per cent. This is estimated to account for only half of the households who detect fire ants would self-manage and treat for fire ants.

Table 1 - Impact of increasing spread and the cost on different areas at 2035 at a per annum basis

Impact Area	Bears Costs	5km Spread Yr 15 @7%	48km Spread yr 15 @7%
Household	Households	$447,880,224.30	$536,869,066.43
Agriculture	Qld, NSW Business'	$256,163,315.51	$381,130,000.10
Water	Sunwater, NSW Water, NRM Groups, Coucil	$82,942,151.72	$133,813,803.31
Environment	Community	$39,642,845.27	$84,012,204.67
Education	Dept of Education, Private Schools	$34,674,661.61	$39,710,868.38
Parks and Rec Areas	Council's Local Sporting Committees	$11,705,235.69	$57,788,587.55
Industrial	Business' and Coucil	$6,491,657.71	$7,198,735.63
Tourism	Business'	$3,338,354.01	$3,502,646.29
Hospital	Dept of Health	$2,750,864.96	$3,295,295.60
Commerical	Businesses	$2,355,674.21	$2,714,780.59
Health	Dept of Health	$2,339,257.85	$2,404,846.30
Transport	Main Roads & Council	$102,121.69	$106,680.15
	Total	$890,386,364.52	$1,252,547,515.01

Risk Framework and Triggers

Continual risk management and reporting is an integral component of the Response Plan, with the risk management plan and register undergoing continual assessment.

A trigger under the Response Plan will occur when a risk is no longer adequately mitigated, or an immediate risk occurs. In both circumstances, an assessment and or evaluation by the NFAEP of existing mitigating activities will take place. If the resulting outcomes from the evaluation indicate that mitigation is insufficient, a trigger occurs leading to formal reporting by the NFAEP to the National Steering Committee[2].

The National Steering Committee will then assess whether the NFAEP's objectives for the period remains achievable in the current scope. The trigger will be escalated as detailed in the governance arrangements with the intention of deciding to continue the NFAEP and FAST with changes, or to discontinue and transition to a management approach. Major triggers and initial responses are:

Trigger	Mitigation Action
A significant infestation is detected well outside of the current NFAEP operations area.	• Implement and action the serious outbreak protocol. • Genetic tracing to determine infestation origin. • Communications and awareness raising with relevant local governments. Expand the NFAEP operations area. • Increase the capacity of the NFAEP.
Treatment systems which result in reoccurring infestations e.g., • insufficient treatment • gaps in treatment • delayed treatment.	• Investigation and review of new outbreaks including genetic tracing. • Continual review of treatment protocols. • Compliance capability development for new staff members. • Provide specialised training to private pest control technicians, and landscaping businesses, local councils. • Targeted advertising campaigns to encourage community treatment.
Disruption to essential supply chain for inputs such as baits, surveillance equipment and services, labour, vehicles, aerial services or information technology hardware.	• Business continuity included in forward planning and contractual arrangements, including regular environmental scans for alternative suppliers. • Strategic workforce capability and capacity measures and an operational logistics team to manage logistic and supply chain processes. • Procurement resources dedicated to specific critical processes.
Climatic change/weather events impact on treatment program ability to treat and/or increases potential spreads infestation.	• Tactical planning across four years (with a 10-year eradication lens) factors and reduces risk of climatic conditions. • Investigation and analysis of baits and deliveries that maintain efficacy in wet conditions. • River systems of infested areas mapped for flow and flooding, with the majority having a west to east flow.
Human assisted movement of RIFA leading to re-infestation, and/or spread outside the operational area.	• Intelligence and planning based compliance model developed to focus on non-compliant, higher-risk industries and activities. • Communications plan (annual) developed to focus on higher-risk industries, individuals and activities. • Leverage off relationships already established across local government areas.

[2] Under revised governance arrangements, the role of the Steering Committee may be fulfilled by a Consultative Committee. The term 'Steering Committee' is used in the plan but should be interpreted in accordance with governance arrangements approved by agriculture ministers.

Trigger	Mitigation Action
	• Additional movement controls policies developed (includes work with interstate jurisdictions).

Strategic Eradication Objectives

At a strategic level, there are shared objectives across the NFAEP and FAST that align with Option A of the Strategic Review that will enable the ultimate outcome of eradication outlined in the vision.

Innovation

The NFAEP will expand its innovation capacity and capability, seeking to rapidly improve efficiency and effectiveness across operational activities and transformation of the NFAEP over the longer term. This will include ongoing engagement with technology providers and the broader innovation ecosystem, including technology developers and cross-sectoral industries (AgTech, Defence and Mining), equipment, technology and services (METS), through industry-led innovation hubs and clusters, and universities with a focus on capabilities such as AI, remote sensing and Robotic Autonomous Systems (RAS).

This will be supported by dedicated resources to implement improved technology, applied science, procurement processes, treatment, scheduling and dispatch, incorporating findings from the operational review, and the Strategic Review. A key operating principle for the NFAEP is the deployment of innovations as a strategic eradication objective. The need to constantly explore new approaches and technologies to help deliver on the NFAEP will mitigate the risk of the pressures on resources, labour and necessity for confidence in proof of freedom.

Collaboration

Achieving sustainable collaboration across various partners of the NFAEP and FAST is essential. A key focus for FAST is to cultivate relationships in dense urban and complex environments (multi-tenure and multi-responsibility operational situations), establishing a legacy for the NFAEP to continue to activate going forward. Communication, engagement and behavioural science to build constructive relationships, support the design of collaborative models (including for self-treatment), and manage risk of human-assisted movements is critical. The focus of achieving this strategic objective is to concentrate on effective self-treatment and voluntary compliance in high-risk industries and areas using targeted enforcement strategically and only where necessary, such as infringement notices, biosecurity orders and prosecution.

There is also increasing importance for community participation in the eradication effort, where community members will continue to have a key role in reporting RIFA presence and absence, and treating infestations where it is more effective, rapid, and safe to do so. This is a core aspect to both the NFAEP and FAST and will increase in importance as the eradication effort progresses over time.

Expansion

The NFAEP and FAST will expand activities across all operational areas, following Option A of the Strategic Review, to ensure the 2032 vision is achieved. The degree to which treatment and surveillance can be scaled-up will be reliant on resilient supply chains for bait, labour and equipment, efficient and effective procurement processes, and the efficient and effective use of technology. To ensure the NFAEP delivers on planned scale-up, an Organisational Strategy 2023–25 is being developed. The Organisational Strategy aims to increase the capacity and capability of the NFAEP for the delivery of consecutive annual workplans that will more than double the current capability.

Course of Action

This Response Plan represents a significant change in the approach to the eradication of RIFA than that described and implemented in the 10-year Eradication Plan. The new approach and the overall treatment strategy aligns with the Strategic Review – Option A, commissioned and endorsed by the Steering Committee (August 2021). The new approach includes:

- **A greater priority on containment to delimit the infestation:** eradication requires containment. Delays to the previous strategy's implementation resulted in spread beyond what was planned. The first two years of treatment proposed will be drawn 10 kilometres out from known infestation at a point in time close to the start of treatment. By using the most up to date information as well as adopting a 10-kilometre boundary from this point aims to account for any spread that is yet to be detected.

- **Treatment completeness:** A key learning from the past five years is that gaps in treatment impact the treatments eradication effectiveness. A combination of improved stakeholder engagement (pre-engagement communication) and increased compliance resources will address refusals and treatment gaps.

- **Scaled up and transformed:** The size of the NFAEP and FAST, will dwarf previous operational effort in ways which are fundamentally different in delivery and efficiency – including collaborative self-management models, innovation investment into new technologies, AI and data analytics, organisational capacity in terms of workforce, contract and financial management, and a dedicated innovation structure and investment fund.

- **Mitigate the risk posed by continued build-up of infestation**: In areas yet to receive eradication treatment infestation has continued to grow and poses a significant risk to eradication. To mitigate this risk, a coordinated suppression effort will be led by a Queensland Government taskforce (FAST). FAST brings together the responsible and impacted agencies (whether they be local, state or the Federal Government), as well as industry and the community, to achieve coordinated treatment of fire ants within heavily infested areas in SEQ.

- **Self-treatment models**: There is a fundamental shift in how the NFAEP will treat for RIFA in the future. In the past the NFAEP has informed people not to treat for RIFA and report them within 24 hours. The NFAEP would then triage and send teams out to conduct treatment and surveillance activities. The new approach proposes self-management and self-treatment as the preferred method to manage fire ants.

- **Urban Treatment**: Self-management models will be an area of focus in the urban treatment setting where more frequent and accurate reporting (presence and absence) and more ground-based treatment will be required. The focus of operational effort will continue to change as eradication progresses. A benefit to the approach proposed is that methods for urban areas are being trialled and deployed by both FAST and NFAEP. By the gateway review at the end of FY24-25 evidence as to the effectiveness and efficiency of these urban methods will be measured and available.

- **Weather:** Treatment schedules will be informed by increasingly accurate climatic and weather modelling and the exploration of bait that can withstand increased precipitation/moisture from rain and dew. Currently treatment is restricted by temperature e.g., foraging by RIFA occurs when ground surface temperature to two-centimetre depth is greater than 20 degrees. However, some foraging occurs when ground surface temperature is greater than 15 degrees. By using weather and temperature predictions more strategically it is possible for the NFAEP to increase the treatment season in some areas e.g., by the coast where surface temperatures can be greater for longer in the treatment season.

- **Compliance**: Increased focus and scale delivered through a new compliance model, intelligence lead targeting of high-risk activities, and a much larger operational base of staff, focused at rapidly reducing risks associated with human assisted movement

- **FAST**: Introduction of FAST, where the Queensland Government can mobilise and leverage strategic collaborative partnerships with a range of other parties including other government agencies (state and federal), large landowners, and residents that can assist eradication treatments in urban areas

- **Labour**: Staff attraction and retention is critical for the NFAEP to maintain internal capability needed to deliver eradication, including across operations, management and research. Based on the Federal Budget, unemployment rates are expected to increase in outyears as the market loosens.

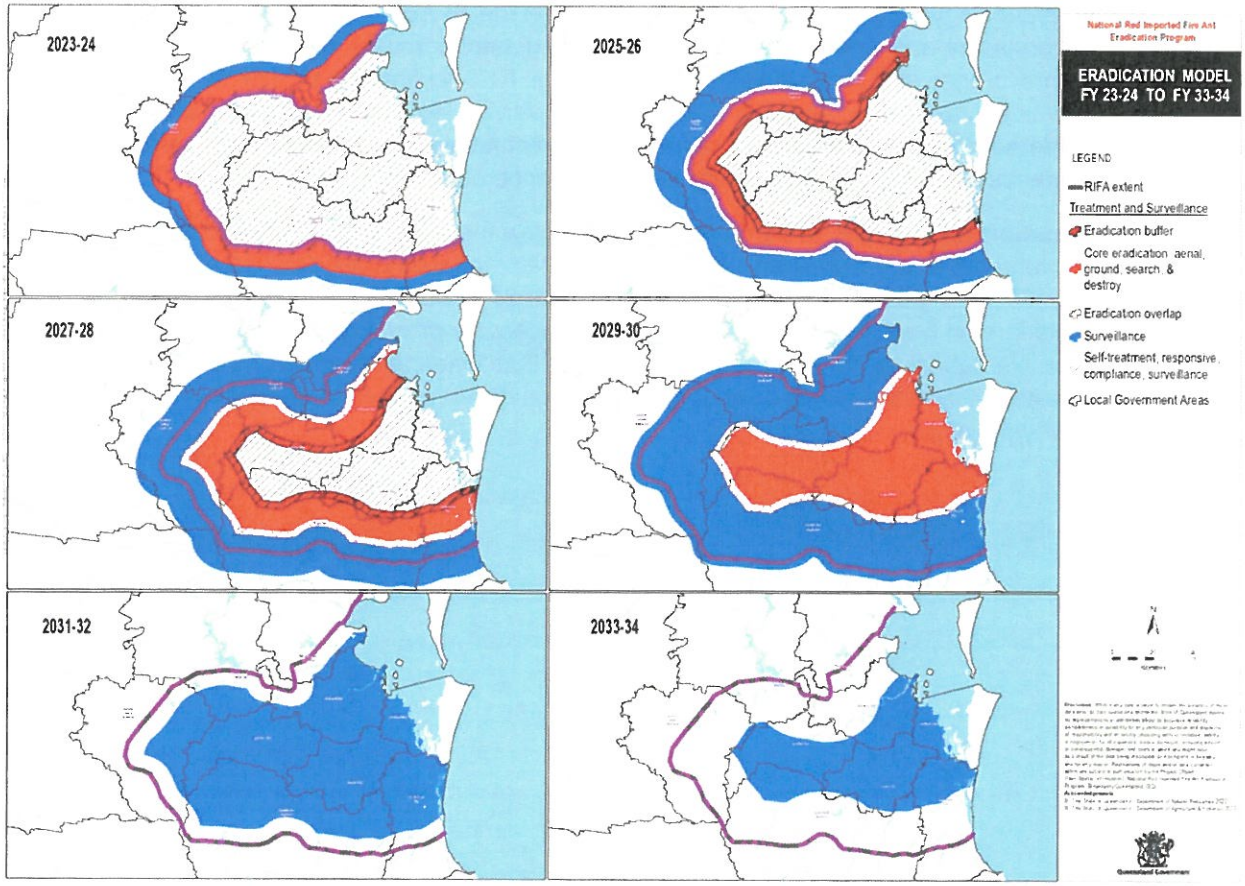
- **Bait**: Market diversification for bait, including manufacturers, types, ingredients and conditions in which they can be used will be explored on an ongoing basis to ensure risks are adequately mitigated. This effort will span research projects, contract management (market forces to reduce prices), industry engagement, and technology procurement.

- **Innovation**: In addition to ongoing investment in developing more effective types of bait, in the first two years of the Response Plan, the NFAEP will invest in the use of drones for bait dispersal and surveillance, the use of environmental DNA (eDNA) to identify infestations or provide evidence for the absence of RIFA and the application of big data analytics, bioinformatics and AI to existing and future data to accelerate data analysis. To date a sole RSS technology pathway and provider was used in the NFAEP. The NFAEP is looking to other providers and innovation pathways, including autonomous and semi-autonomous systems, drones, low orbit satellites, and eDNA (all RSS technology by definition) each presents a different operational envelope and sensitivity. No single technology should be considered a "silver bullet", but rather a range of technologies will provide a range of intelligence gathering to reach the desired confidence outcomes.

- **Regulation review:** The NFAEP continues to review the biosecurity legislation and make improvements where necessary. A particular immediate focus is the development and publication of a guideline under the *Biosecurity Act 2014* which will provide advice to landholders on how to discharge their general biosecurity obligation when they create favourable habitat for RIFA, through for example, land clearing. Recognising the prevalence of infestation in new housing developments, this guideline will be particularly useful for property developers.

Progression of Treatment

Figure 3: A schematic of the treatment (red) and surveillance (blue) as proposed under the Response Plan 2023–27. A detailed treatment map will be produced each year.



Treatment, Surveillance and Self-Management

Table 2: treatment and surveillance overview

Year	Eradication Band 1	Eradication Band 2	Eradication Band 3	Eradication Band 4	Eradication Band 5	Eradication Band 6
2023–24	T*	R + SM	R + SM	R + SM		
2024–25	T*	R + SM	R + SM	R + SM		
2025–26	CS + T	T	R + SM	R + SM		
2026–27	CS + T	T	R + SM	R + SM		
2027–28	S - PoF	CS + T	T	R + SM		
2028–29	S - PoF	CS + T	T	R + SM		
2029–30	S - PoF	S - PoF	CS + T	T		
2030–31		S - PoF	CS + T	T		
2031–32		S - PoF	S - PoF	CS + T	CS + T	
2032–33			S - PoF	CS + T	CS + T	
2033–34			S - PoF	S - PoF	S - PoF	CS + T
2034–35				S - PoF	S - PoF	CS + T
2035–36				S - PoF	S - PoF	S - PoF
2036–37						S - PoF
2037–38						S – PoF

T: Treatment

T*: Preferred treatment if full budget is endorsed for 2023-24 (Appendix 3)

CS + T: Clearance Surveillance and rapid treatment if detections are found

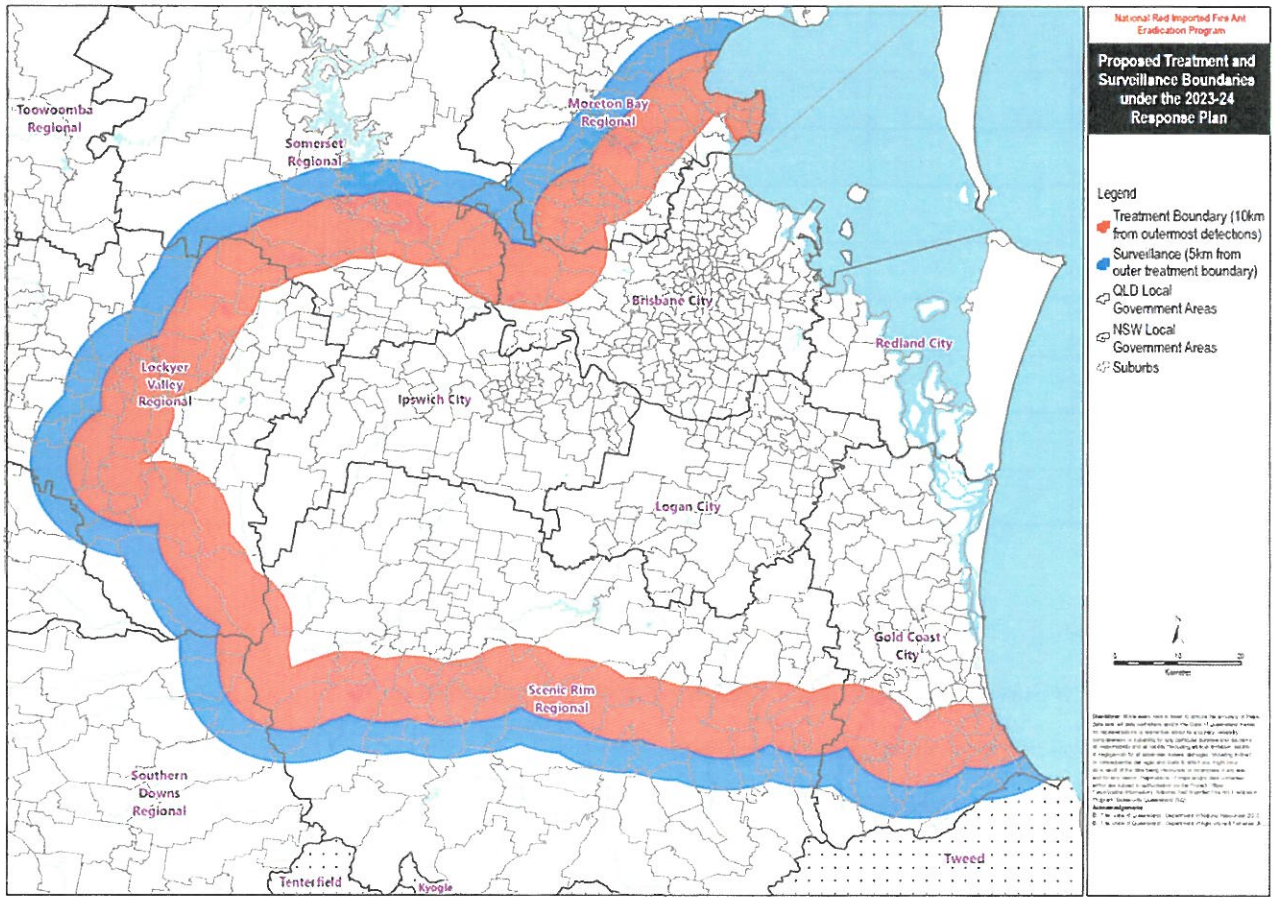
R + SM: Response and self-management treatment

S-PoF: Proof of freedom surveillance

Treatment Plan Overview

The NFAEP will continue to lead the analysis and intelligence creation from all surveillance outcomes. Treatment and surveillance principles under the Response Plan include:

- Treatment and surveillance align to the preferred option from the Strategic Review which recommended a staged approach.
- Treatment and surveillance will remain flexible to allow for new knowledge, intelligence and technology, new RIFA detections, and risk profile changes. This will allow the NFAEP to respond to areas in the region that represent the highest risk.
- Structured innovation investment is required to develop and/or apply new and emerging technologies in the coming years, particularly modern tools of effective surveillance that offer more accuracy and precision in locating fire ants.



Details for each two-year treatment period are provided in **Appendix 3 and a detailed workplan for 2023-24, is provided in Appendix 4**. An overview is provided below.

In 2023-24, the NFAEP will expand treatment in a containment ring preventing further spread west, north and south. Experience built up over the last 20 years provides a comprehensive understanding of RIFA biology and behaviour. Treatment targets outlined in this response plan (i.e., hectares targeted for treatment) between 2023–24 and 2026–27 will be confirmed in the annual program workplans and based on the precise success of treatment and surveillance rounds and the potential spread patterns of any new outbreaks.

Based on current scientific knowledge, to achieve local eradication in a suburb or sub-regional area, treatment of three rounds of IGR bait per year across two consecutive years is required (six rounds total), with no gaps in treatment in any round. Information about bait options used by the program can be found in the feasibility of eradication section, developed by NFAEP Scientific Services business group, in **Appendix 2**.

A boundary zone will be established around the containment area at 10 kilometres from known detections (calculated at commencement). Broadscale treatment will be applied to a 10-kilometre band for the first two years of the Response Plan (2023–24 and 2024–25 - refer to **Figure 3** above). Broadscale treatment comprising 90 per cent aerial delivery and 10 per cent ground delivery will be applied using a total of six rounds of treatment over two consecutive years.

To enable an inward movement between sub-regional areas (eradication bands) without reinfesting a band that has been treated, a treatment buffer or overlap will be created out to a distance of three kilometres in the 2025–27 treatment season. This will mitigate the risk of residual re-infestation behind the frontline and enable continual inward movement.

Treatment will then progressively move inwards in the following years with treatment anticipated to conclude in 2031–32 – refer to **Figure 3** for the proposed treatment progression.

The NFAEP will emergency-prioritise outbreaks outside of the planned treatment area, and rapidly respond to eradicate these infestations. The NFAEP will also continue to detect, treat and accelerate the eradication of polygyne-form infestations across the region. It is anticipated that the response treatment requirement will reduce over time as the FAST community suppression project matures.

Treatment will be followed by two years of intensive surveillance to detect and eradicate any residual infestations, and an additional three years (at least) of background surveillance (clearance) to achieve Proof of Freedom ≥ 0.90. This results in a seven-year eradication, clearance, and proof of freedom horizon per eradication band.

The NFAEP is currently developing treatment and surveillance principles, which have been presented to the National Exotic Invasive Ant Scientific Advisory Group (SAG) and are currently being reviewed in response to feedback from the SAG. These principles will be provided to the National Steering Committee for review once finalised.

Surveillance Plan Overview

For the first two years of operations (2023–24 and 2024–25), delimiting[3] surveillance will be conducted five kilometres beyond the 10-kilometre treatment area. Due to recent detections on the Gold Coast, surveillance activities in the proposed 5km band will encroach into Northern NSW in 2023-24 and 2024-25. The NFAEP wi ll work with the NSW Government to ensure operational activities can occur legally in NSW.

Surveillance in urban areas will continue but will largely be community surveillance based on FAST initiatives, validated by NFAEP at a statistically relevant level to determine confidence and independently verified.

In the next two years (2025–26 and 2026–27), the initial clearance[4] surveillance will be undertaken in the previously treated eradication band. Surveillance calculations have been based on using ground surveillance teams (e.g., ground teams, detection dogs, sentinel sites and traps) to survey 17 per cent of the eradication band (randomly selected). Any new technology and innovative methods resulting from 2023–24 and 2024–

[3] To delineate the extent of infestation

[4] To check the effectiveness of treatment

25 innovation investment, including novel and diversified RSS technologies will only improve the NFAEP ability to survey more ground faster. This will improve the probability of detection and be more cost effective.

The surveillance requirement will progressively increase as treatment progresses inwards and then decrease over time as suburbs receive treatment in two consecutive years. The accumulative surveillance effort that follows from moving progressively to five years of surveillance is outlined in Figure 3.

The three main objectives for surveillance are to:

1. delimit the extent of the infestation
2. clear treated areas to validate eradication after targeted treatment (or locate residual nests for targeted treatment)
3. demonstrate proof of freedom to confirm eradication.

The NFAEP will focus surveillance efforts on the edges of the treatment boundary, and five kilometres out from the treatment band (2023–24 and 2024–25), and in any high-risk polygyne outbreak areas to confirm delimiting of infestations.

Community surveillance and detections will continue in highly infested urban areas. It is expected that community surveillance will accelerate as a result of FAST projects and increased communications. Responsive treatment and community suppression projects lead by FAST will be implemented until the treatment band reaches these urban areas.

Clear Treated Areas Through Search and Eradicate

Surveillance hectare calculations are based on using ground surveillance teams to survey 17 per cent of the eradication band (randomly selected). Any new technology and innovative methods resulting from 2023–24 and 2024–25 innovation investment will only improve NFAEP ability to survey more ground faster, improving the probability of detection and cost effectiveness (e.g. improved and scaled-up RSS, or alternatives such as drones for broadscale surveillance, and exploring new biotechnology using genetic markers (eDNA) to identify infestations or provide evidence for the absence of RIFA at a coarse resolution).

Additionally, community surveillance and intelligence gathering efforts will be explored with FAST to complement the NFAEP-led activities.

Surveillance will focus on both identified risk areas and areas closest to clearance status in the region prioritising locations within five kilometres of the treatment border, or those that pose the biggest risk to re-infestation.

Rolling cell/suburb (five kilometre by five kilometre = 2 500 hectare) clearance will be investigated as the NFAEP progresses to achieve incremental operational movement.

Moving west to east and inwards from the outer boundaries, clearance surveillance will continue after eradication treatment in the region until proof of freedom is achieved.

Demonstrate Proof of Freedom

Rolling proof of freedom surveillance is planned to commence once the last remaining intensive planned treatment has occurred in each eradication band. This will begin in the outermost treated areas moving inward and will consist of five years of post-treatment surveillance and residual treatment of any remaining nests. It is anticipated that improved surveillance technology (e.g. drones and better cameras) will be available to assist or replace current processes.

An initial Proof of Freedom Strategy is provided in Appendix 5. This Strategy has been subjected to an independent review by a consultant external to the DAF.

Remote Surveillance Sensing

The need for accurate and reliable RSS has been highlighted in several of the NFAEP reviews to-date and was recommended by the Strategic Review Panel. Investments in this capability have yet to be fully realised, however it is anticipated that this capability will improve as the technology matures and its use becomes more widespread in other contexts. Effective improvement in this form of surveillance will greatly assist the NFAEP to meet its eradication objective.

The current estimate of the effectiveness of RSS technology used to identify RIFA nests is currently below the expected projections. This prompted a review of the RSS program in 2022 to inform investment decisions in 2023–24 and beyond. Depending on the outcomes of the RSS review, early investment with clear objectives focusing on the development of in-house expertise in RSS capability may be considered.

Compliance Plan Overview

Human-assisted spread poses a significant risk to fire ant containment and achievement of NFAEP's objectives. Both residents and industry move potential fire ant carriers daily (e.g., civil construction, farmers, quarries, nurseries, earthmovers and haulage companies, landscaping suppliers etc.).

The NFAEP will scale up compliance activities across the region by initially increasing the compliance workforce by 31 compliance officers. This level of compliance officers will aim to conduct 12,000 audits (including both desktop and physical audits) annually over six local government areas.

The NFAEP has developed and will introduce a risk-based compliance model for implementation across LGA regions. The model will use intelligence-based targeting of high- risk industries and activities. Compliance activities are carried out on various risk industries, which are ranked based on their compliance performance. Future compliance rates, activities, and target industries are adjusted based on the results which are derived as follows:

- set compliance distribution by group and category (e.g., industry or activity)
- carry out the compliance activity for a period (month)
- measure and rank the compliance results
- calculate capacity distribution adjustment for both group and category (e.g., change or adjust the target industry or activity).

A strengthened compliance program will focus on the following objectives:

- Increased compliance workforce, and assignment of new positions and operational efforts, including through partnerships with DAF and other government agencies (audits, intelligence drive inspections etc.,) aligned to high-risk industries (e.g., waste facilities), new industrial and residential developments, and human assisted movement corridors.
- Adequate staff training for current and new employees to give an understanding of their powers under the *Biosecurity Act 2014* and subordinate legislation.
- Collaboratively promoting voluntary compliance through strategic communications and engagement (outlined in the previous section) to prevent unintended human-assisted spread.
- Expanded risk profiling to identify industries deemed high-risk due to the potential movement of RIFA and RIFA carrier material. This will enable more targeted communications, engagement and education campaigns, rolling audits, and investigations.
- Targeted compliance checks in high-risk areas through assessment of previous compliance history or areas with high-density or polygyne infestations, and use of various surveillance methods that can alert the NFAEP to the creation of potential habitat, carrier movements and other activities.

- Where communications, engagement and education activities do not result in desired impact, maximising deterrence through using formal enforcement options (infringement notices, biosecurity orders and prosecution) and publicising enforcement action taken will be required.
- Creation of a dedicated RIFA reporting hotline.
- Empowering field staff to gather intelligence for targeted compliance.
- Improving the legislation and providing guidance to help individuals and businesses to discharge their General Biosecurity Obligation.

Innovation

The NFAEP will expand its innovation capacity and capability, seeking to rapidly improve efficiency and effectiveness across operational activities and transformation of the NFAEP over the longer term. This will include ongoing engagement with technology providers and the broader innovation ecosystem, including technology developers and cross-sectoral industries (AgTech, Defence and Mining), equipment, technology and services (METS), through industry-led innovation hubs and clusters, and universities with a focus on capabilities such as AI, remote sensing and Robotic Autonomous Systems (RAS).

Based on the findings of the Strategic Review, and experience gained over 20 years of past service delivery, innovation is widely accepted as a key enabler for the NFAEP to achieve eradication, particularly by driving scale-up and increased cost-effectiveness. Significant improvements in efficiency and effectiveness are possible through investment in new technologies and practices that can enhance accuracy and sensitivity of surveillance and expedite eradication objectives.

The development of a structured, rigorous and iterative innovation framework (See Diagram 4 below), and investment options to test and refine, various aspects of the NFAEP's operational capabilities will be essential to realise future scale-up targets and goals, including:

- Develop and adapt an innovation framework and funding model that will enable continual improvement, scale-up and transformation.
- Engage with Queensland's innovation ecosystem and technology class-leaders in specialised industries (aerospace, AI, defence etc) to identify and support high-potential practices, technologies and capabilities (Australian university research groups, Industry-led innovation hubs, DAF's Gatton Smart Farm, Ag Innovation Centre).
- Lead, enable and collaborate globally on research and development to deliver more effective and efficient treatment and surveillance methods.

Key questions that innovation can answer include, "*How might we...*":

- develop baits and explore alternate/fast acting baits, adopt different application methods that are future-proof to supply chain disruption and have wider use across a complex eradication area and increased cost-effectiveness (rural, peri-urban, urban) including new chemistries, biotechnologies, and constituents?
- increase efficiency and effectiveness of scaled-up bait dispersal using combinations of fixed wing, helicopters and drones going forward?
- improve RSS in the most efficient and effective manner to increase the sensitivity and specificity of detections in RIFA surveillance, including drones, robotic and autonomous systems, artificial intelligence, eDNA (building on existing university collaboration), multispectral/hyperspectral imagery, and machine olfaction?

- apply big data analytics, bioinformatics and AI to existing and future data to answer key questions that could help accelerate eradication, including reconstituting all available imaging to provide an open data source option for open innovation possibilities?
- use behavioural science and insights to better inform the ways in which we engage for successful voluntary compliance by industry and the community to reduce human-assisted movements?
- streamline and accelerate RIFA identification, genetic testing and tracing using new technologies, imaging, and artificial intelligence?
- investigate business improvements, including streamlined processes and alternative approaches, across all areas of the NFAEP to make critical efficiency and effectiveness gains based on performance monitoring and evaluations?
- develop novel policy and procurement approaches that accelerate eradication objectives including treatment and surveillance?

A strategic approach will be taken to accelerate innovation and process improvements. This will be established with oversight from the NFAEP governance structure and will feature investment performance monitoring as a key component. Investment to operationalise innovations will be achieved through realising efficiency gains across all NFAEP areas and reallocating resources to the highest priority activities. For example, quarterly progress updates will be reported on RSS progression towards the objective of being able to effectively use and rely on RSS technology for RIFA detections by the end of 23/24. This will culminate in a technology investment choice decision point for deployment in 24/25 onwards. This investment is expected to enable a scale-up to effective area wide surveillance as the Strategic Review recommended.

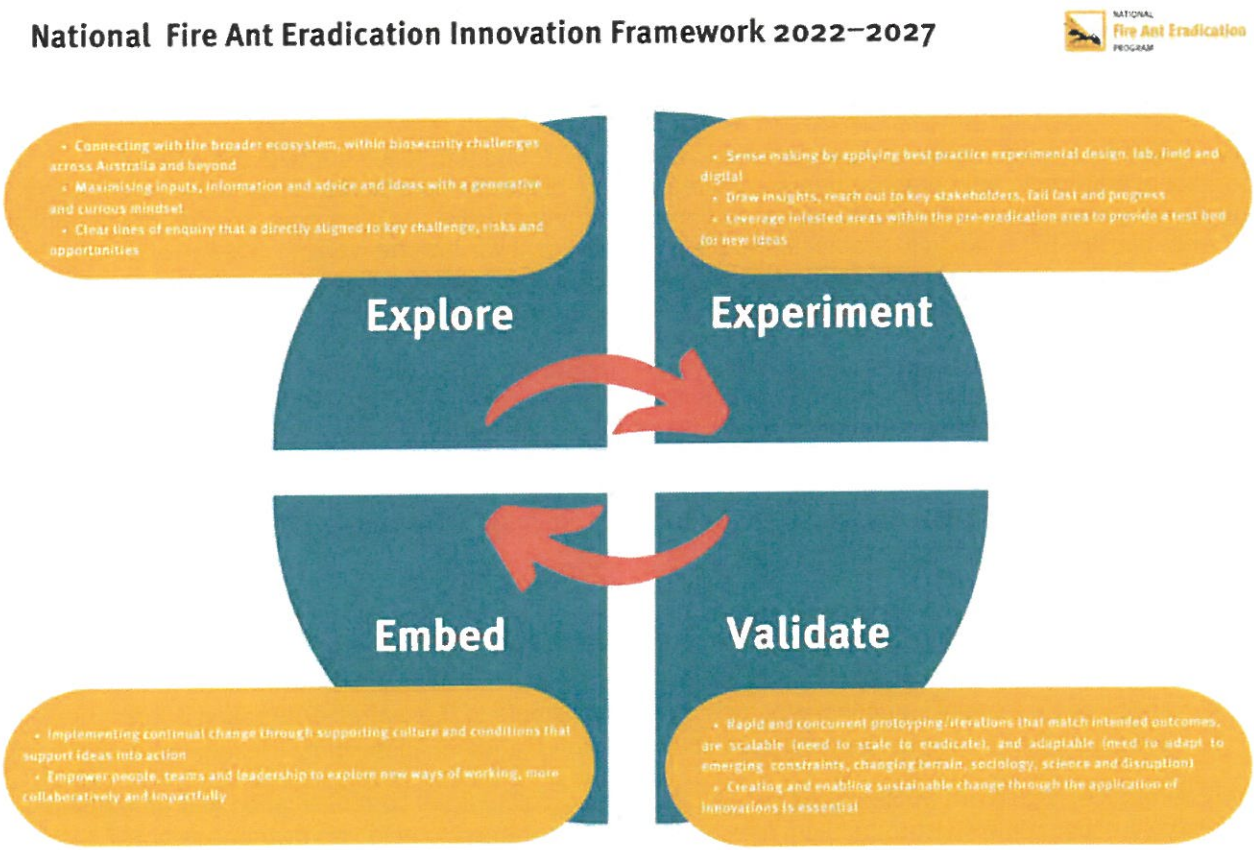


Diagram 4: Strategic Review Innovation Framework

Genetic Testing and Other Laboratory Services

Laboratory resources will be prioritised to the detection of social form (polygyne) nests and more efficient sampling methods. These recommendations were made in recognition of the greater threat posed to the eradication objective by the polygyne form of RIFA, and an acknowledgment of the resource limitations in clearing the current backlog of samples in a timely fashion while still maintaining the full range of genetic testing. This refocusing on the polygyne form of RIFA will mean a reduction in the amount of microsatellite markers needed for fire ant tracing and give confidence in performing cluster analysis.

The two other priority areas for genetic testing are detection of new incursions into Australia and differentiation between reinvasion and colony persistence. These should not be affected by the broader reduction in microsatellite analysis. A sampling framework is being developed for monitoring genetic trends in areas not receiving eradication treatment. A genetic testing service could be offered to governments, industry and the public to aid detection of polygynes. New community-based sampling methods and reporting will be explored by FAST and adapted over time to support or enhance NFAEP sampling methods.

The NFAEP laboratory services are expected to continue in its current ability to supply expert ant identification both within the NFAEP and to external organisations and stakeholders, including identification of other invasive ant specimens (e.g., Quarantine detections). A reference collection of both local ant specimens and known invasive species is required to be maintained to support accurate identification.

Live RIFA colonies are maintained within secure NFAEP facilities. The NFAEP requires the use of these colonies for several purposes, such as to produce odour material for use in detection dog training, live displays of RIFA workers at community events and training, and for use in research activities undertaken by the NFAEP and university partners. In addition to RIFA, the NFAEP has the capacity to house and rear other invasive ant species where required, agreed and approved.

Strategic Communications and Engagement Using Behavioural Insights

New models for communication and engagement will be developed and rolled out over the NFAEP operational area using best practice human-centred design, digital-first principles, behavioural science and data-driven goals. This will build awareness and understanding of RIFA, their impacts, self-treatment options and what the NFAEP is doing to eradicate the pest. Engagement will include working closely with the community and industries who are most at-risk of spreading RIFA (namely those that work with carrier materials such as soil, hay, mulch, manure, quarry products, turf and potted plants).

This work will be essential to mobilising community and industry in SEQ to assist with RIFA eradication. It will involve increasing our presence in the community through advertising and communication, enhancing localised engagement, and strengthening relationships with key industry groups. It will also entail continuing to enhance digital systems to make it easier for stakeholders to contribute to RIFA management.

The goal of the communication and engagement strategy is to drive community and industry action and advocacy, specifically the following objectives:

1. encourage community RIFA surveillance
2. build support among stakeholders for program treatment and surveillance work
3. reduce the likelihood of stakeholders spreading RIFA
4. encourage community and industry members to contribute to the overall eradication effort
5. build the NFAEP's reputation and position it as a world-leader in biosecurity management.

Eradicating RIFA requires a whole-of-community approach. Scaling up of communication and engagement activities will occur in the short-to-medium term with all work designed to heighten awareness of RIFA, their potential impacts, and build motivation among stakeholders to support and contribute to the fight against the pest.

Longer term activities will mature as the NFAEP learns from behavioural insights drawn from market research and stakeholder engagement to better understand the motivation and drivers of residents, businesses, and key industry and community groups.

This will allow the NFAEP to further enhance its strategies to continue influencing behavioral change and moving stakeholders through the Awareness to Action model (Refer Diagram 5, below).

Diagram 5: Communications service flow

Key priority areas

The NFAEP communication and engagement strategies (marketing campaign, industry engagement, stakeholder engagement and digital enhancements), which will run year-round, will be focused in four key priority areas/pillars, each of which will be designed to contribute to the above objectives and NFAEP key performance indicators:

- *Look for and report fire ants*—encourage stakeholders in target areas to check their properties for and report fire ants and provide our teams with access if they need to do the same.
- *Let our fire ant teams in*—build stakeholder support of and reputation of the NFAEP, to help the operation of planned fire ant treatment and surveillance work to help you, and the community eradication fire ants.
- *Don't spread fire ants*—empower stakeholders so they can confidently comply with the fire ant biosecurity zones and associated material movement controls.
- *Treat fire ants yourself*—encourage stakeholders to proactively treat properties they own or manage for fire ants.

Marketing campaign

The NFAEP will continue to deliver a focused mass-media campaign across the entire operational area in SEQ.

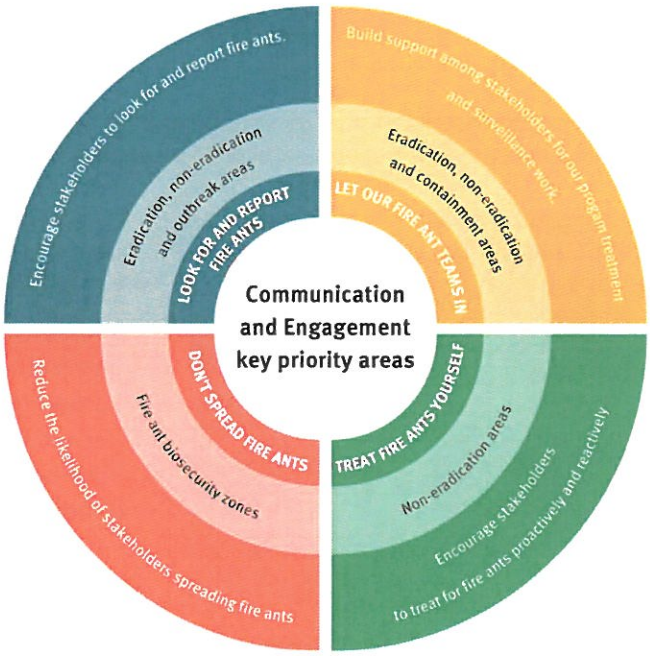


Diagram 6: Communication and engagement key priority areas

The campaign will be in market year-round and seek to persuade public and private landowners and tenants in SEQ, including businesses and all levels of government, to work with the NFAEP to fight RIFA. This includes exploring possibilities through mainstreaming fire ant communications and engagement material with the Rental Tenancy Authority and Real Estate Institute of Queensland. The campaign will pulse at different times throughout the year and includes activities targeting stakeholder groups and different regions across SEQ.

All campaign creative elements and messaging will reinforce the importance of taking action and provide stakeholders with simple and easy-to-follow advice on what they need people to do to help protect Australia from RIFA.

Industry Engagement

Industry members play a key role supporting the NFAEP's overall aim of eradicating RIFA. The NFAEP will continue to focus on strengthening relationships with peak industry bodies and associations, and individual tradespeople to better support eradication activities. This includes:

- building industry support for program eradication work to improve treatment coverage
- raising awareness of the importance of fire ant movement controls to reduce human-assisted spread
- increasing participation in RIFA self-treatment
- encouraging end-to-end coverage in various operational and regulatory documents used within industry circles (e.g., contracting and sub-contracting requirements; worksite specifications etc.).

Building awareness and understanding of the RIFA biosecurity zones across industries that work with materials that can carry RIFA and emphasising the importance of adhering to material movement controls and storage requirements is also critical. This work will include targeted activity with:

- hay producers and other primary producers
- building, development and civil construction operators

- landscaping, nursery and turf businesses
- waste and recycling facilities.

Stakeholder Training

To enable stakeholders to support RIFA eradication and suppression activities, it is important they are equipped with the relevant knowledge and skills to effectively support the NFAEP activities. To enable this, the NFAEP in collaboration with FAST will continue to offer RIFA training for community and industry members, including content that covers RIFA identification, RIFA biosecurity zones and associated movement controls and self-treatment options.

With the increased emphasis on RIFA suppression, the NFAEP anticipates it will see a significant increase in demand for RIFA training. To meet this demand, we will transition to a new stakeholder training model. This will include:

- self-paced online RIFA training for residents, workplaces and pest management technicians
- regular webinar-style online training sessions for large industry and community groups
- train-the-trainer workshops for large organisations with dedicated training officers.

Digital Enhancements

The NFAEP will continue to build digital systems and processes that make it easier for stakeholders to support fire ant suppression and eradication work.

Following the launch of the NFAEP website (*fireants.org.au)* in 2021, a series of digital enhancements have been made to assist and empower others to make informed decisions about fire ant management on properties they own, are tenants of, or manage. Digital enhancement projects will adopt a customer experience (CX) approach and design thinking methodology to ensure the development of tools are fit for purpose.

Indicative NFAEP Budget

Budget details are provided in **Appendix 6** and summarised below.

ACTIVITY	2023–24	2024–25	2025–26	2026–27
Treatment Hectares (Broadscale)	$80,619,827.14	$86,666,314.18	$93,166,287.74	$100,153,759.33
Surveillance Hectares (Target ~17% of total)	$10,000,000.00	$10,750,000.00	$11,556,250.00	$12,422,968.75
Compliance activities (audits, inspections etc)	$4,575,128.46	$4,918,263.10	$5,287,132.83	$5,683,667.79
Business Services	$7,099,682.54	$7,632,158.73	$8,204,570.63	$8,819,913.44
Strategy & Policy	$1,595,814.71	$1,715,500.81	$1,844,163.38	$1,982,475.63
Logistics & Supply Chain	$9,204,293.11	$9,894,615.09	$10,636,711.23	$11,434,464.57

ACTIVITY	2023–24	2024–25	2025–26	2026–27
Scientific Services	$3,949,219.88	$4,245,411.37	$4,563,817.23	$4,906,103.53
Marketing and Media	$8,600,000.00	$9,245,000.00	$9,938,375.00	$10,683,753.13
Information Services	$6,450,000.00	$6,933,750.01	$7,453,781.25	$8,012,814.84
Innovation Investment (see description below)	$1,000,000.00	$1,000,000.00	(see description above)	
Grand Total	$133,093,965.85	$143,001,013.29	$152,651,089.29	$164,099,921.01

Business improvement and financial cost saving measures include:

- fast tracked procurement and diversification of treatment bait options, drones, RSS, and AI platforms
- progress common user infrastructure and cohabitation models with other government partners, to increase supply chain efficiencies
- explore new supply chain and logistics technology and decision support tools to ensure flexibility as the NFAEP scales up
- progress delivery options that would increase cost-effectiveness, including with the pest control industry, grant structures for community groups, better managing efficacy, safety and costs
- expand compliance operations across multiple factors to reduce "backtracking" where human assisted movements disrupt the area-wide eradication of fire ants leading to retreatment costs and slowing progress
- improved contract negotiations based on competition in the market.

The table below represents opportunities for cost savings across the NFAEP. A review point at the end of FY23/24 will be established to track efficiency against the measures above.

Table 3: Opportunity savings table

Opportunity Category	FY23/24	FY24/25	FY25/26	FY26/27	Total
Aerial Treatment	$2.2	$2.2	$2.6	$2.6	$9.6
Surveillance	$1.2	$1.2	$1.2	$1.2	$4.8
Logistics	$0.7	$0.7	$0.7	$0.7	$2.8
Marketing	$1.0	$1.0	$1.0	$1.0	$4.0
Treatment Product	$3.8	$3.8	$4.5	$4.5	$16.6
Combined Opportunity	$8.9	$8.9	$10.0	$10.0	$37.8

NFAEP Cost Sharing Contributions

The NFAEP cost sharing apportionments captured in the Response Plan 2023-2027 were calculated in accordance with the cost sharing formula in the National Environmental Biosecurity Response Agreement. A

state/territory party's share of the combined investment equals the number of people in the potentially affected area in that jurisdiction divided by the total number of people potentially affected in Australia.

Table 4: National Fire Ant Eradication Program Cost Sharing Contributions

Jurisdiction	% of total funding	23–24#	24–25	25–26	26–27	Total
Commonwealth	50.00%	$66.547M	$71.501M	$76.326M	$82.050M	$296.423M
New South Wales	16.02%	$21.322M	$22.909M	$24.455M	$26.289M	$94.974M
Victoria	12.92%	$17.196M	$18.476M	$19.723M	$21.202M	$76.596M
Queensland	10.28%	$13.682M	$14.701M	$15.693M	$16.869M	$60.945M
South Australia	3.56%	$4.738M	$5.091M	$5.434M	$5.842M	$21.105M
Western Australia	5.31%	$7.067M	$7.593M	$8.106M	$8.714M	$31.480M
Tasmania	0.59%	$0.785M	$0.844M	$0.901M	$0.968M	$3.498M
Northern Territory	0.46%	$0.612M	$0.658M	$0.702M	$0.755M	$2.727M
Australian Capital Territory	0.86%	$1.145M	$1.230M	$1.313M	$1.411M	$5.098M
Total	**100%**	**$133.094M**	**$143.001M**	**$152.651M**	**$164.100M**	**$592.846M**

❖ # Total amount before any adjustments to recognise existing contribution under the 10-year plan

Assumptions

- ❖ Representative of Consumer Price Index has been included in draft budget calculations at the request of the National Steering Committee (set at current QLD Treasury value of 7.5 per cent). Note during the execution of the response plan Consumer Price Index will be periodically adjusted and set to reflect actual.
- ❖ Representative of a baseline increase in surveillance costs to account for known methodologies as indicated in the draft Proof of Freedom Strategy.
- ❖ Surveillance calculations have been based on using ground surveillance teams (e.g., ground teams, detection dogs, sentinel sites and traps) to survey 17 per cent of the eradication band (randomly selected).
- ❖ Any new technology and innovative methods resulting from 2023–24 and 2024–25 innovation investment will improve surveillance efficiencies.
- ❖ Workforce includes DAF employees and contingent labour hire.

Success Measures

Rolling evaluations will occur throughout the eradication with a gate review during FY24/25. This will measure whether the NFAEP's outcomes have been successful in meeting the defined objectives and if so, result in the release of the next two years (FY25/26-FY26/27) of funding. A NFAEP review will take place

during FY26/27 to define the continuing national response plan beyond FY26/27 to achieve eradication by 2032. The Monitoring and Evaluation Plan is provided in **Appendix 7.**

Collaboration with FAST

FAST was established in 2022 to partner with a range of stakeholders to build self-management capabilities in the community and mobilise effort outside of the national cost-sharing arrangements. FAST has an approved strategy and budget that included $5 million in late 2021/22, and an additional $32.1million over four years from 2022-2026.

FAST will enhance the eradication effort and compliment the Response Plan by:

- Establishing community suppression programs, including self-responsive treatment, to empower the community to share responsibility for fire ant management and treat their own properties.
- Establishing collaborative self-management agreements with key large landholders including all levels of government as well as private entities. The collaborative agreements aim to reflect the shared values of fire ant self-management including surveillance, suppression, human safety and ultimately eradication.
- Working to identify industries that pose a high risk from human movement of fire ants, and work with these industries to identify effective risk mitigation and self-management strategies.
- Working with the NFAEP and our collaboration partners to develop novel treatment and surveillance strategies for fire ants in urban areas. Particular emphasis will be placed on better use of existing data, behavioural science and stakeholder input to improve broadscale community and industry involvement in RIFA management.

FAST aims to implement pilot programs for community suppression, large landholder collaborations and high-risk industry self-management in 2022/23. A review of these pilots and incorporating emerging priorities from the Response Plan, with an aim to scale up self-management initiatives from 2023/24 to 2025/26.

Considering the national benefit of RIFA eradication, a short period of time to implement significant transformation, and the inefficiencies in duplicative treatment and compliance activities, the Response Plan will retain the primary functions of surveillance, treatment and compliance within the NFAEP. This will be further supplemented by FAST's efforts through engagement, awareness, education and co-ordination of industry, government and community partners across these functions.

The Fire Ant Suppression Taskforce Plan 2022-23 to 2025-26 represents an approach that aligns with the intent of the recommendations and advice of Strategic Review, the operational review, the National Steering Committee and other biosecurity partners.

For details, please refer to the Fire Ant Suppression Taskforce Plan 2022-23 to 2025-26 **Appendix 8.**

Execution, Strategic Risks and Outcome Deliverables

The following table identifies execution and strategic risks for delivering the objectives of the Response Plan and outlines the outcomes, deliverables and timeframes to achieve eradication objectives. The table is supported by the Strategic Risk Register that can be found as **Appendix 9**.

Table 5: Execution and strategic risks and expected outcome deliverables

Strategic Outcome	Issues and challenges to achievement	Mitigations	Deliverables	
			EFY 2024	EFY 2025
Management of ongoing bait costs	Competition for bait international supplier. Sole	Exploration of market diversification options for bait	Tender to market, purchase and trial	Alternative bait manufacturer and bait

Strategic Outcome	Issues and challenges to achievement	Mitigations	Deliverables	
			EFY 2024	EFY 2025
in a constrained market	supplier bait application is restricted by weather and climate	supply (including manufacturers). An open market access procurement process will drive competition in the market to reduce prices and provide NFAEP options for procuring baits from alternative sources. Alternative bait types using different ingredients (sourced domestically) that can be deployed in 'all season' conditions.	alternative baits e.g., more effective, faster acting, and more streamline supply chains to improve efficiencies All weather baits e.g., water resistant. Provide university funding or grant funds to develop an all-weather bait.	supplier. Results of bait trials through innovation fund. Alternative baits to trial in the field.
Market access risk for human resources	Historically low unemployment. Highly Competitive Salary Market Difficulties in retention due to large casual nature of employment and impacts of wet weather stand downs on operational teams Short term contracts causing instability of workforce due to limited life funding assurance over multiple financial years	Deliver strategic workforce capability and capacity measures for functional areas or specialised bodies of work based on highest priority for operational delivery	FTE scale up targets achieved in order to be able to deliver 10km treatment band in FY24/25	Maintain FTE levels to continue to meet workforce requirements.
Eradication band - treatment	Treatment systems which result in reoccurring infestations e.g., insufficient treatment gaps in treatment delayed treatment	A proposed treatment plan is provided in the Response Plan 2023–27. Regular treatment gap meetings to continually address deficiencies with dedicated resources and undertake scientific analysis. Review of new outbreaks including genetic tracing. Provide specialised training to private pest control technicians, or landscaping businesses, local councils. Targeted advertising campaigns to encourage community treatment Regular performance monitoring and evaluation against the treatment and surveillance plan. Work with regulators to ensure chemical permitting conditions are fit for purpose to allow for appropriate treatment protocols.	Based on 5km eradication band: 158 000 (unique hectares)	Based on 5km eradication band: 209 400 (unique hectares), scaling up to include addition urban area
Compliance	Human assisted movement is a major impediment for eradication success There are number of high-risk industries and high-risk activities that trade in fire ant carrier material	Introduction of an intelligence based compliance model. Legislative options for better compliance will be introduced e.g., GBO (General Biosecurity Obligation) guideline leading to code of practice, plus timeframe for implementation – 12 moths	General Biosecurity Obligation Guideline released for industry feedback (2023) Develop and implement General Biosecurity Obligation Code of Practice.	

Strategic Outcome	Issues and challenges to achievement	Mitigations	Deliverables	
			EFY 2024	EFY 2025
	Creation of suitable habitat via land clearing	Offences under a code of practice can be issued penalty infringment notice instead of prosecution under the current GBO regulation Landholders will be held legally responsible to eradicate ants on their land under the code of practice Capability development for new staff members in Biosecurity Act 2014 and powers. Queensland – NSW cross border harmonisation and planning	Incorporated in the regulation by end of 2023.	

List of Appendices

Appendix 1: Chronology of RIFA incursions and eradication effort

Appendix 2: Feasibility of Eradication

Appendix 3: 2023–2027 Response Details

Appendix 4: Workplan 2023-24

Appendix 5: Proof of Freedom Strategy

Appendix 6: Budget Details

Appendix 7: Monitoring and Evaluation Framework

Appendix 8: Fire Ant Suppression Taskforce Plan 2022-23 to 2025-26

Appendix 9: Strategic Risk Register