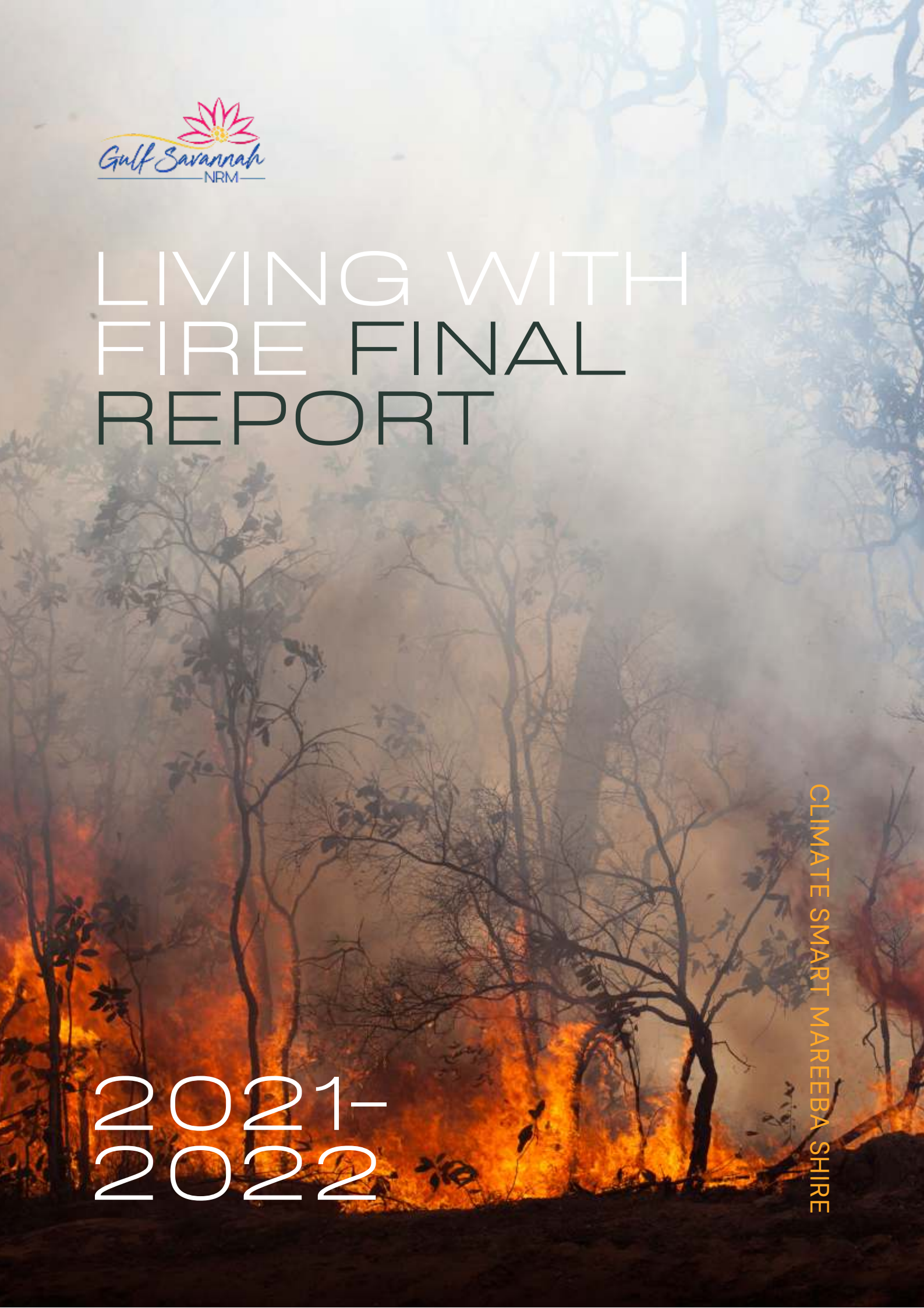
Gulf Savannah NRM

LIVING WITH FIRE FINAL REPORT



2021–2022

CLIMATE SMART MAREEBA SHIRE

Gulf Savannah NRM acknowledges the traditional custodians of the lands on which this project was delivered, and pay our respects to their elders past, present and emerging.

FUNDING

Proudly supported by the Australian Government and Queensland Government. The project was funded under the Queensland Bushfires - Category C - Flexible Funding Grant Program, Round Two, Queensland Bushfires R2 - Community Recovery - Large Grant Application (Service Agreement Number Con_9867). The project ran from May 2021 to April 2022.

Australian Government | Queensland Government

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TABLE OF CONTENTS

ACRONYMS

AWC	Australian Wildlife Conservancy
DNRME	Department of Natural Resources, Mines and Energy
LGA	Local Government Area
MSC	Mareeba Shire Council
NAFI	Northern Australia Fire Information
NRM	Natural Resource Management
QFES	Queensland Fire and Emergency Services
QPWS	Queensland Parks and Wildlife Service
RFS	Rural Fire Service
USL	Unallocated State Land

INTRODUCTION

The 2019 bushfire season was catastrophic, with more than 7 million hectares burnt across Queensland (Queensland Reconstruction Authority, 2022).

Across the Mareeba Local Government Area (LGA), multiple fires - fanned by exceptional weather conditions - impacted properties (including destroying homes), businesses (including orchards) and the environment. Due to the scale of the fires, weather conditions, and inaccessibility of some areas, the event continued for weeks across multiple fire fronts.

In collaboration with the State Recovery Coordinator, state agencies, and local councils, the Queensland Reconstruction Authority developed the Queensland Bushfires State Recovery Plan 2019-2022 to guide recovery of the communities impacted by the bushfires which caused widespread damage across parts of Queensland (including Mareeba Shire) from September through to December 2019.

Gulf Savannah NRM was successful in receiving grant funding via the Queensland Government & Australian government to undertake a project as part of that Strategy. This project was aimed at preparing residents for projected increased frequency and intensity of wild fire, through developing skills and grass-roots solutions to climate change and bushfire preparedness, with a program of local events and strategies.

By distilling down-scaled climate risk profiles of each area with local knowledge, the aim of the project was to provide a detailed picture of fire risk, with fire preparedness and a better understanding of the climate drivers which create the potential for high bush-fire intensity.

This report will provide:

- Background for the region in terms of fire history and future climate influencing fire behaviour
- Overview of activities which were undertaken during this project
- Collation of the major findings; and
- Conclusions and next steps

BACKGROUND FOR REGION

Australia is one of the most flammable nations on earth (Wurster et al., 2021), and fire is a long-term and consistent theme of Australian ecosystems. First Nations peoples have used fire to manage the landscape for thousands of years.

The informed use of fire is one of the most cost-effective tools available to manage large-scale areas to reduce infrastructure and community risks, maintain productivity and biodiversity values (Queensland Department of National Parks, Recreation, Sport and Racing, 2013), and manage woody thickening and invasion by a variety of weeds (such as rubber vine, prickly acacia, and mimosa bush) (Queensland Department of National Parks, Recreation, Sport and Racing, 2013). An appropriate fire regime can manage risks to community values, infrastructure and cultural sites, manipulate pasture composition and modify grazing patterns to the advantage of agricultural production systems.

Conversely an inappropriate fire regime can contribute to woody thickening and significantly reduce grazing opportunities (Roth, Lawson, & Cavanagh, 2002). Unmanaged fires, especially in the late dry season with a significant fuel load (wildfires) can impact huge land areas. These can be a significant risk to life and infrastructure, damage cultural sites, and decimate pastoral and agricultural productivity, sometimes for many years.

2.1 SNAPSHOT OF MAREEBA SHIRE

The Mareeba Shire region covers an area of some 53,502km2. The region has a (2019) total estimated resident population of 22,730 with a very low population density of 0.4 persons/km2. It extends from Kuranda (60km west of Cairns) to some 350km west, and is about 180km from north to south (Figure 2.1). The main commercial and administrative centre is Mareeba (~11,000 residents), with smaller population centres of Kuranda, Koah, Speewah, Biboohra, Mt Molloy, Julatten, Mt Carbine, Mutchilba, Dimbulah, Irvinebank, Watsonville, Almaden and Chillagoe.

22730

Total resident population of Mareeba Shire in 2019

0.4

The number of people per square kilometre

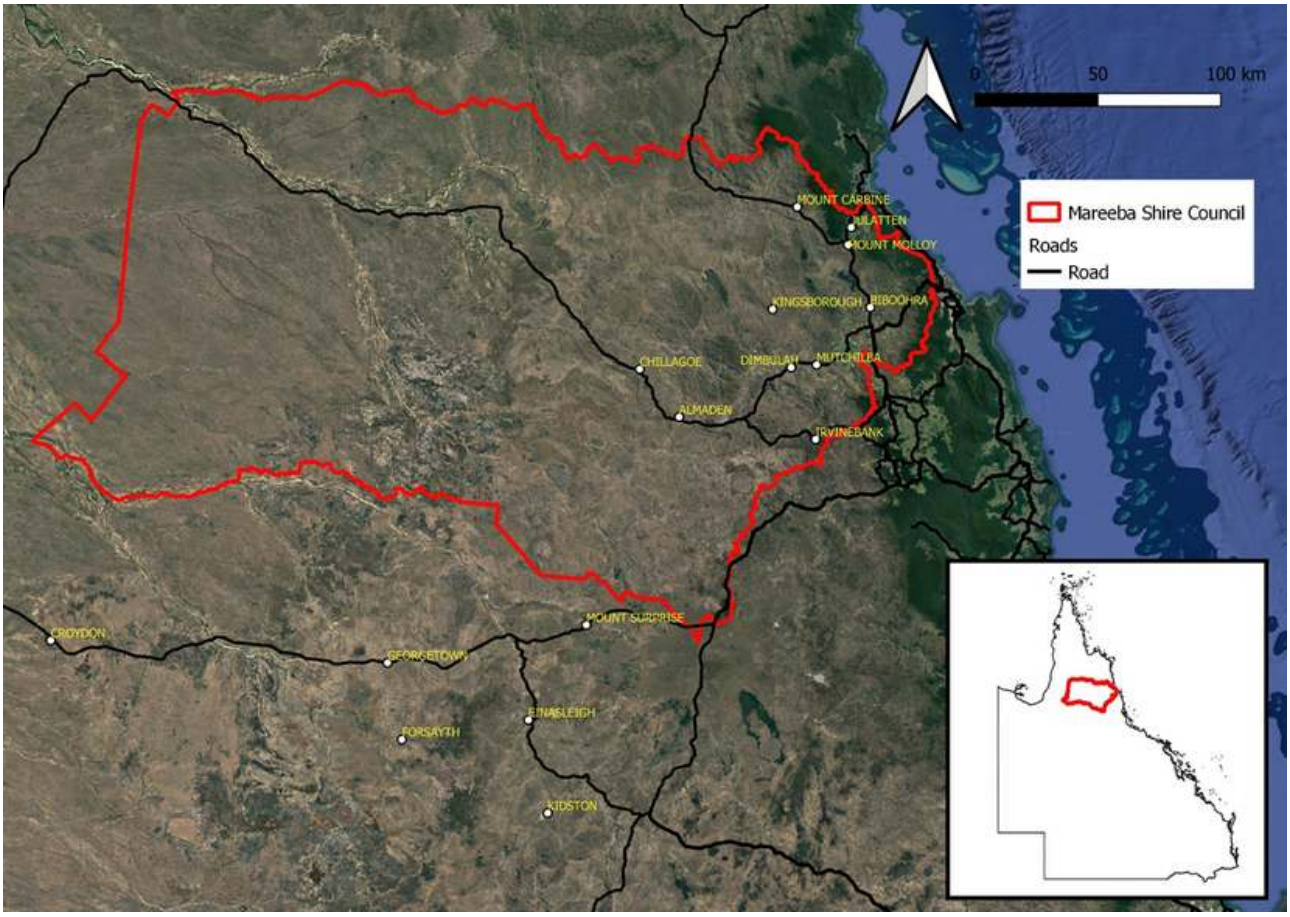


Figure 2.1: Locality Map - Mareeba Local Government Area.

The shire's history and landscape includes a rich Aboriginal heritage with 13% of the shire's population identifying as Indigenous compared with 4% in Queensland, and 12.3% of residents in the Mareeba township identify as Indigenous (ABS 2016 Census).

The majority of the LGA is contained in the Gulf Plains and Einasleigh Uplands, with a small area of the Wet Tropics and Cape York bioregions (IBRA 7 ref) in the east and north respectively.

The climate of the Mareeba Shire is typical of northern Australian savannahs. Temperatures are highest in the Wet Season (Nov-Apr) and lowest in the Dry Season. Temperatures tend to be milder in the east (Mareeba) with the influence of the coast and elevation, and more varied in the west.

The majority of the rainfall occurs in the Wet Season (Nov-Apr, Figure 2.2). Rainfall is highest in the east of the LGA (~1,200mm/yr) but drops quickly as the influence of the South East Trade winds on the coast is blocked by the Great Dividing Range. The western and southern areas of the LGA typically receive 1,000mm/yr or less of rainfall (Figure 2.3).

Evaporation rates vary across the LGA, and often exceed rainfall by a significant margin especially during the Dry Season (Apr-Nov), which relates to vegetation curing and fire risk (Figure 2.4).

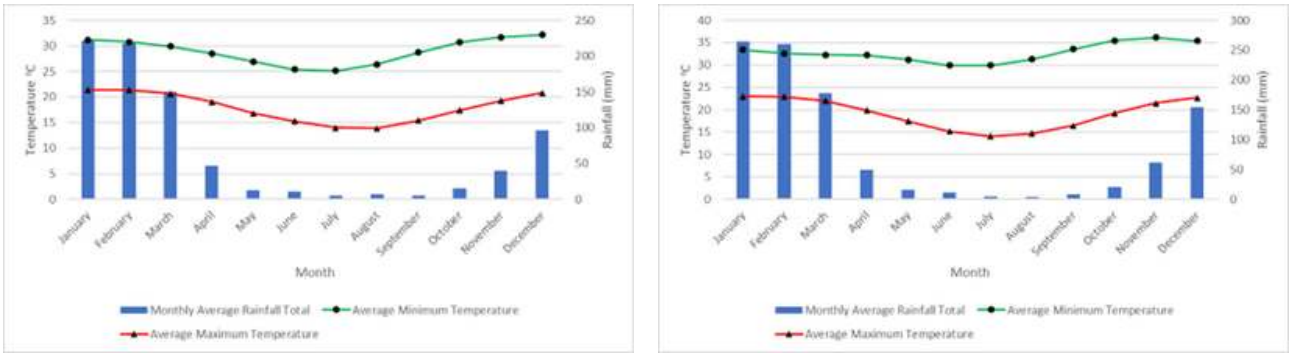


Figure 2.2: Climate Averages for Mareeba Aero (2000-2022) and Palmerville (1895-2022). Note that Palmerville is outside the Mareeba LGA, but in the absence of data for western regions of the LGA, is considered indicative.

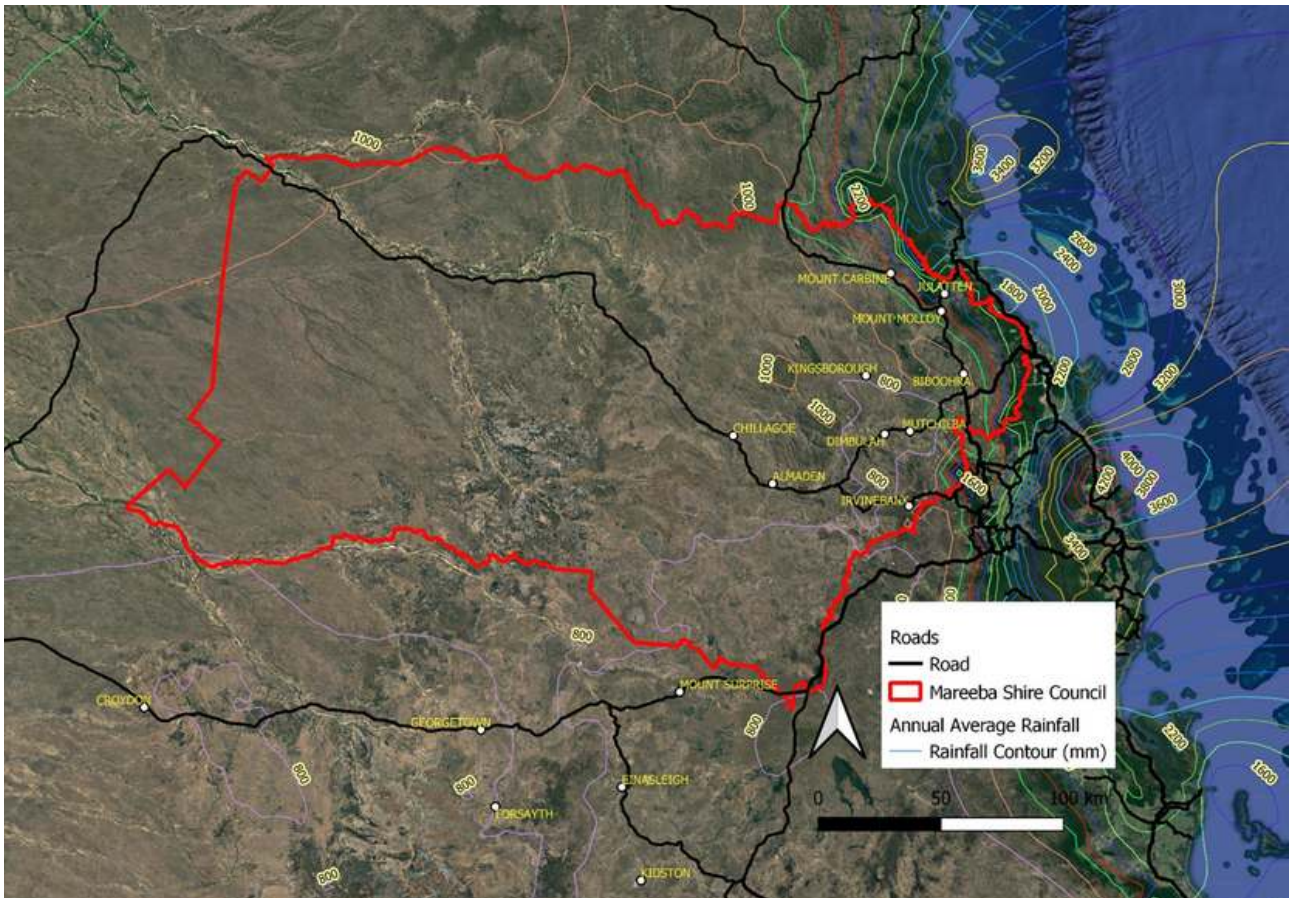


Figure 2.3: Average Annual Rainfall - Mareeba Local Government Area

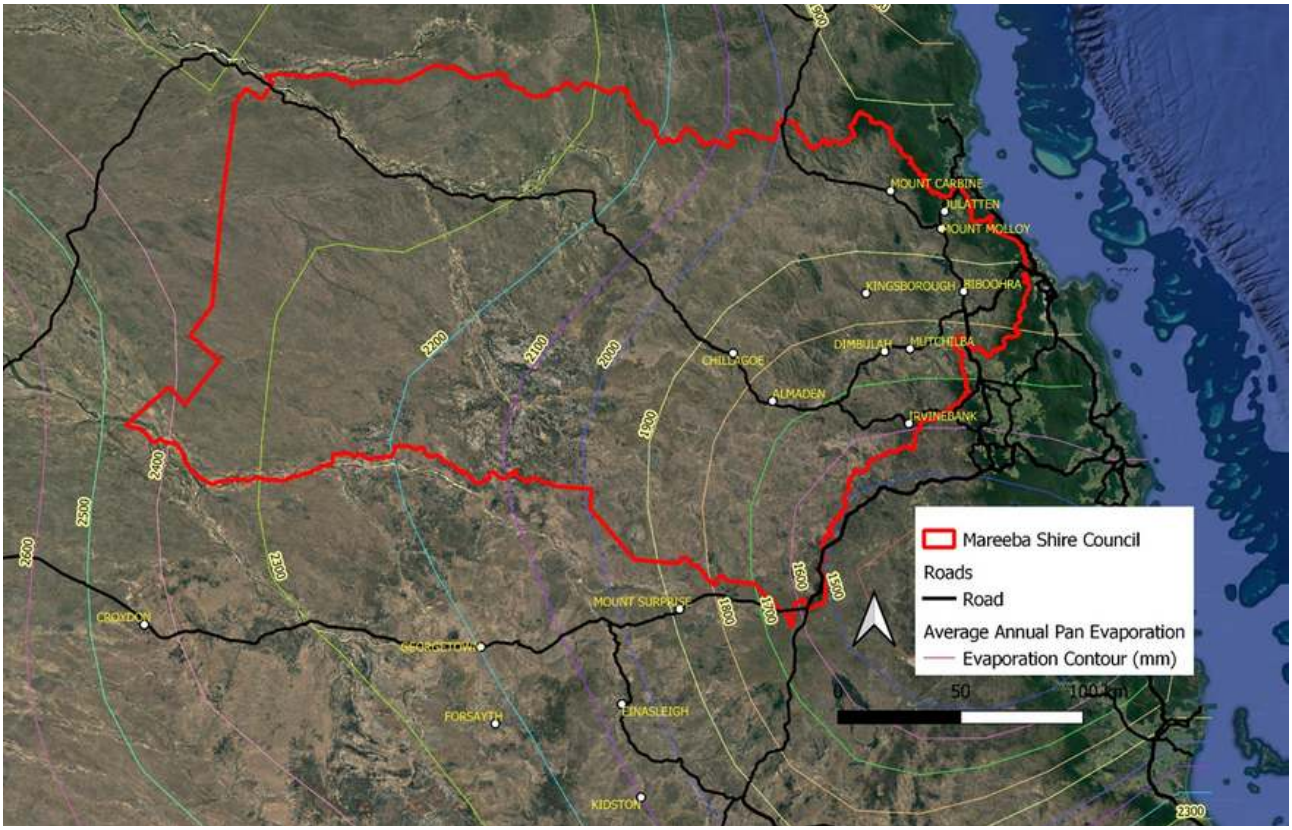


Figure 2.4: Pan Evaporation Rates Across Mareeba Local Government Area

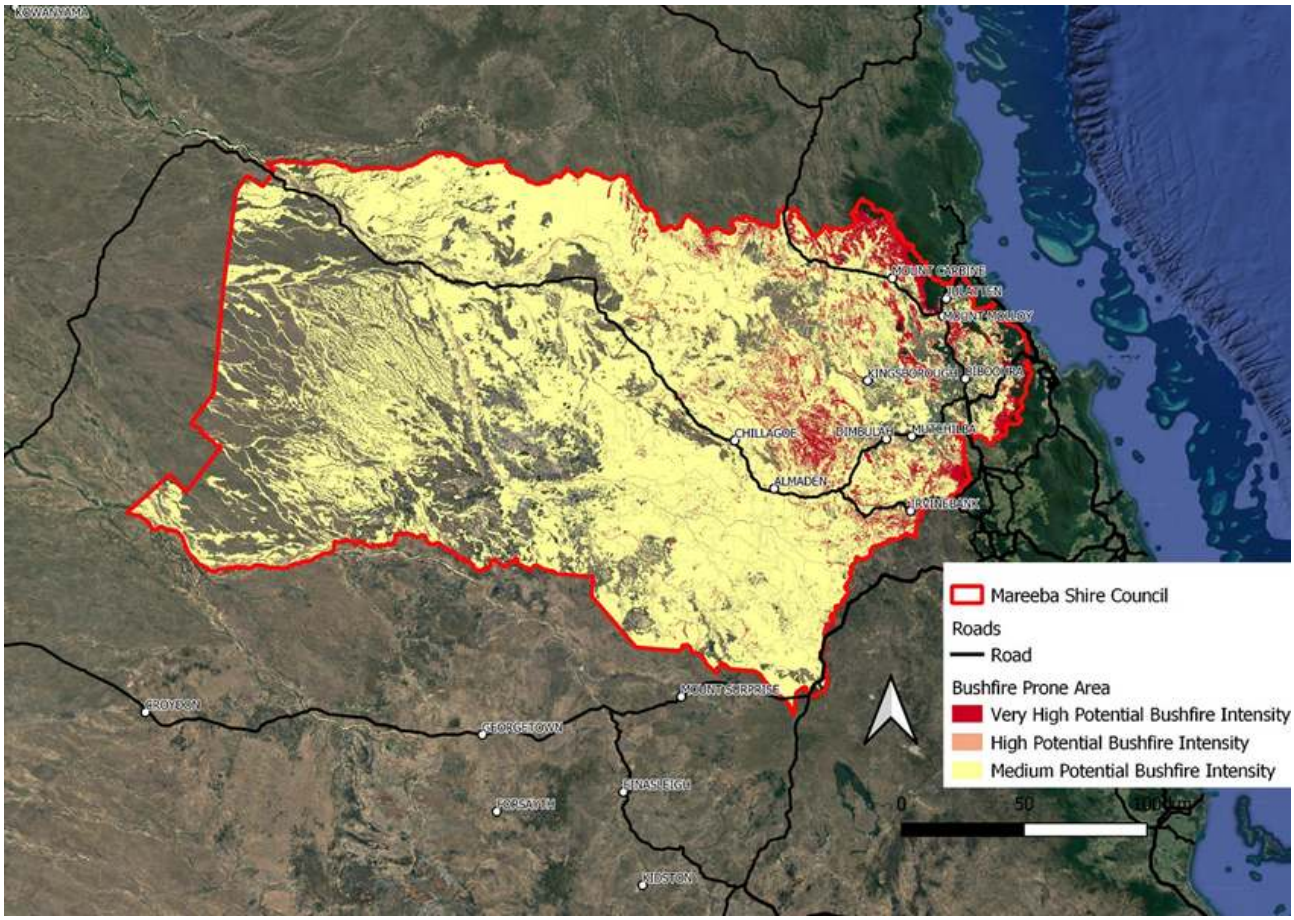


Figure 2.5: Bushfire Intensity Hazard Class for the Mareeba Local Government Area

2.2 FIRE INTENSITY MAPPING

The Bushfire Hazard has been mapped for the Mareeba LGA (Leonard, Newnham, Opie, & Blanchi, 2014). Whilst this body of work relates directly to bushfire hazard for infrastructure (buildings), it provides a useful guide to the general bushfire hazard for the region. This mapping process uses potential fuel loads (from vegetation mapping), slope and fire weather (to 2050) to calculate the bushfire intensity for an area. Local government can then use this information to stipulate conditions on proposed buildings to mitigate bushfire risk.

The results of the mapping for the Mareeba LGA are shown in Figure 2.5. This indicates that significant areas of the eastern portion of the LGA have high or very high bushfire intensity.

2.3 FIRE HISTORY

The Northern Australia Fire Information database (NAFI) provides a valuable insight to fire history across the Mareeba LGA. Fire history across the region is highly variable (Figure 2.6). Some 25% of the Mareeba LGA receives very frequent fires (more than 10 fires in previous 21 years, ~biannual burning), whilst significant areas have a very low fire frequency (27% of total LGA has burnt twice or less in previous 20 years) (see Figure 2.7). This results in a complex mosaic of fire history across the LGA.

Where areas are long unburnt, it is possible that significant fuel loads can exist. In combination with topography of the area, proximity to infrastructure, communities or cultural sites, this can provide a significant hazard. Figure 2.8 shows the years since last burnt across the Mareeba LGA.

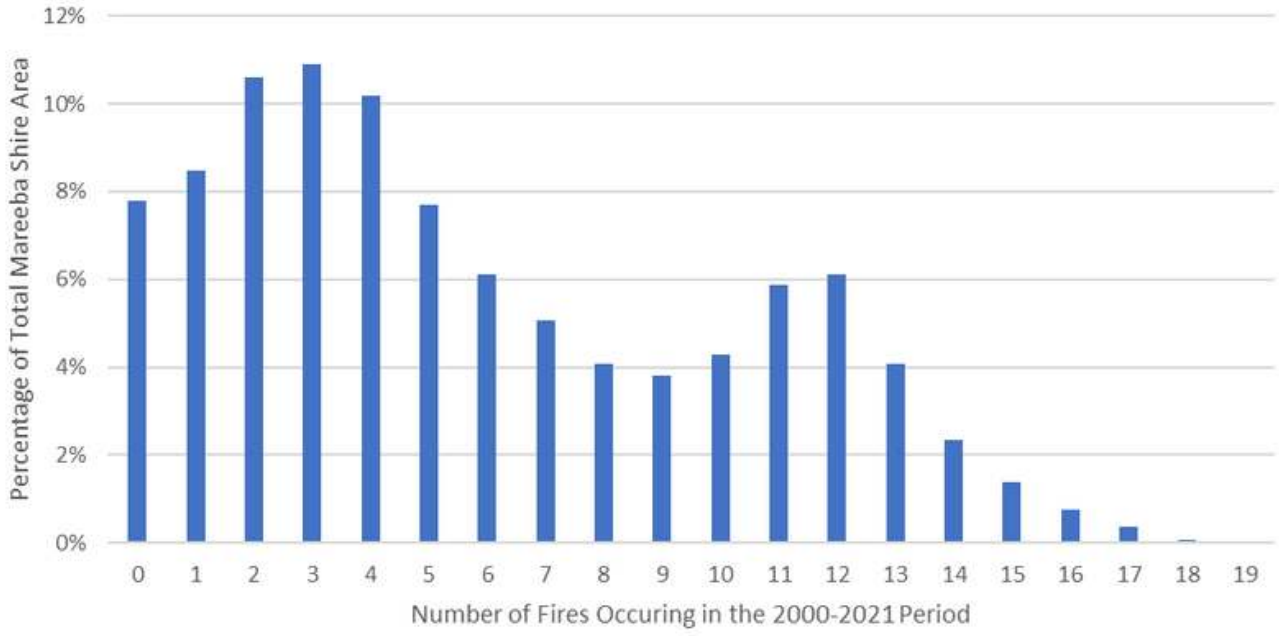


Figure 2.6: Percentage of Mareeba LGA within Fire History Category 2000 – 2021.

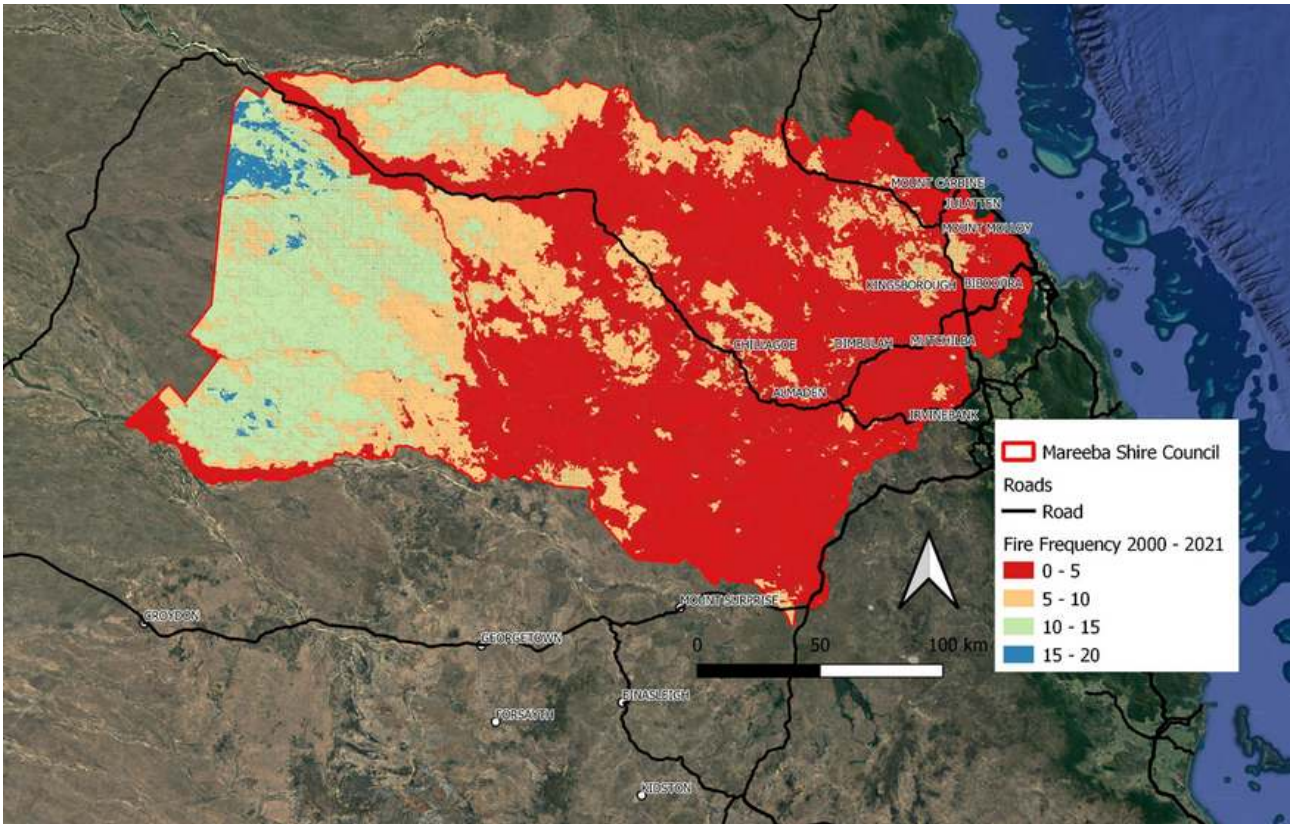


Figure 2.7: Number of Fires Occurring Within the Mareeba Local Government Area Between 2000 and 2021.

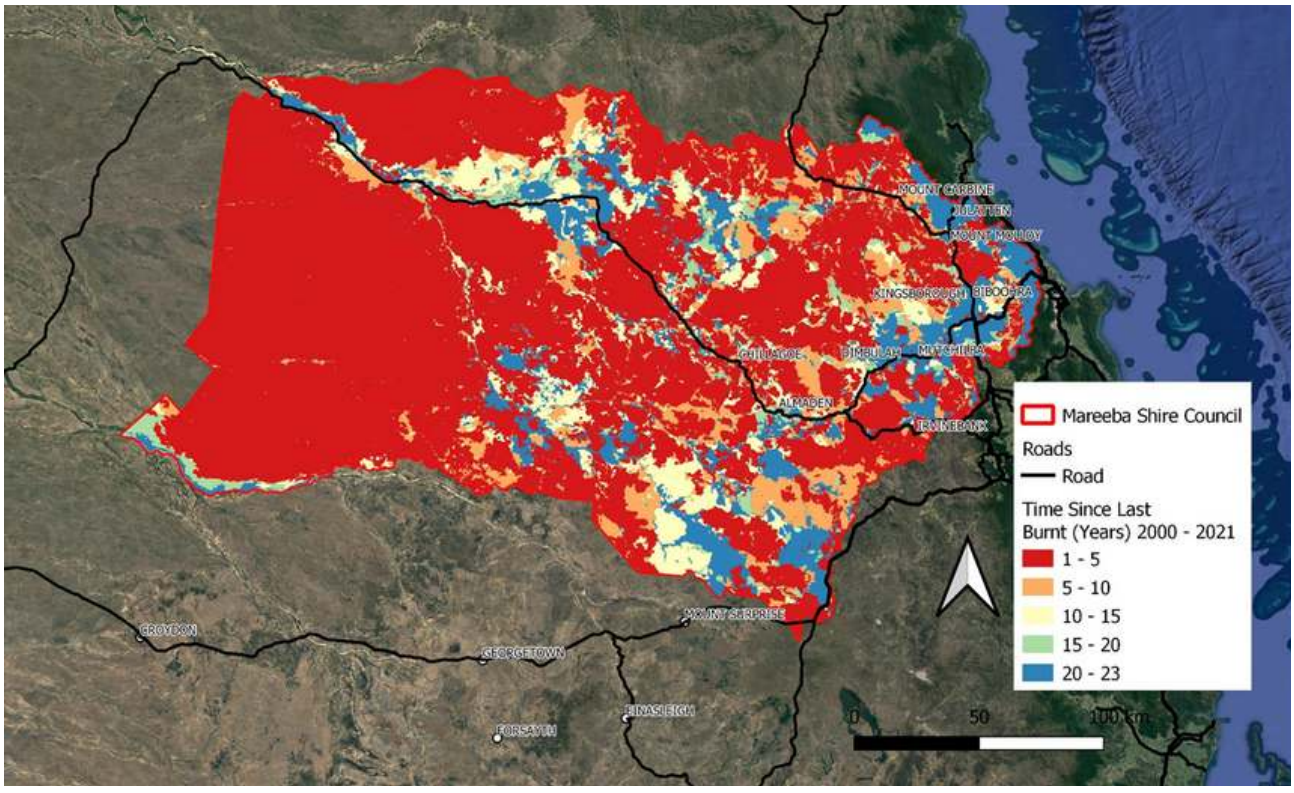


Figure 2.8: Number of Years Since Last Burnt - Mareeba Local Government Area - 2000 to 2021.

2.4 CLIMATE - FUTURE

The general predicted climate future for the Mareeba LGA is for higher temperatures, hotter and more frequent hot days (>35°C), more intense cyclones less frequently and more intense rainfall events (Queensland Department of Environment and Science, 2019).

The overall impact of this future climate on fire behaviour is uncertain and will largely depend on future rainfall (soil moisture, fuel loads). However, when and where fires do occur, the fire behaviour is likely to be more extreme. Extreme climatic events (high temperatures, low humidity and high winds) have the potential to produce intense fires. These conditions are likely to become more frequent in the future with a changing climate.

The principal drivers of fire weather risk are temperature, humidity and wind speed (Leonard, Newnham, Opie, & Blanchi, 2014). With respect to temperature, predictions for the Mareeba LGA are for an approximate 1.7°C increase by 2050 (RCP8.5), and more than double this increase by 2090 (Figure 2.9).

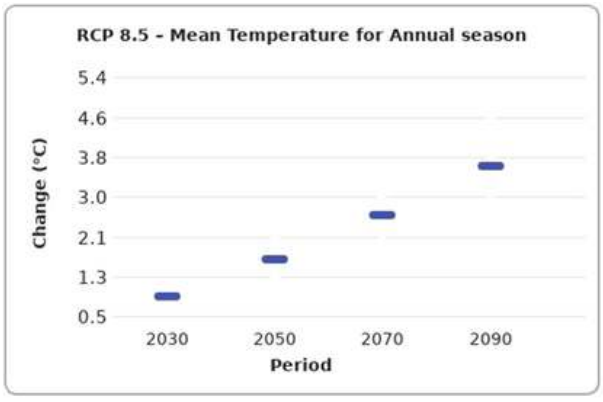
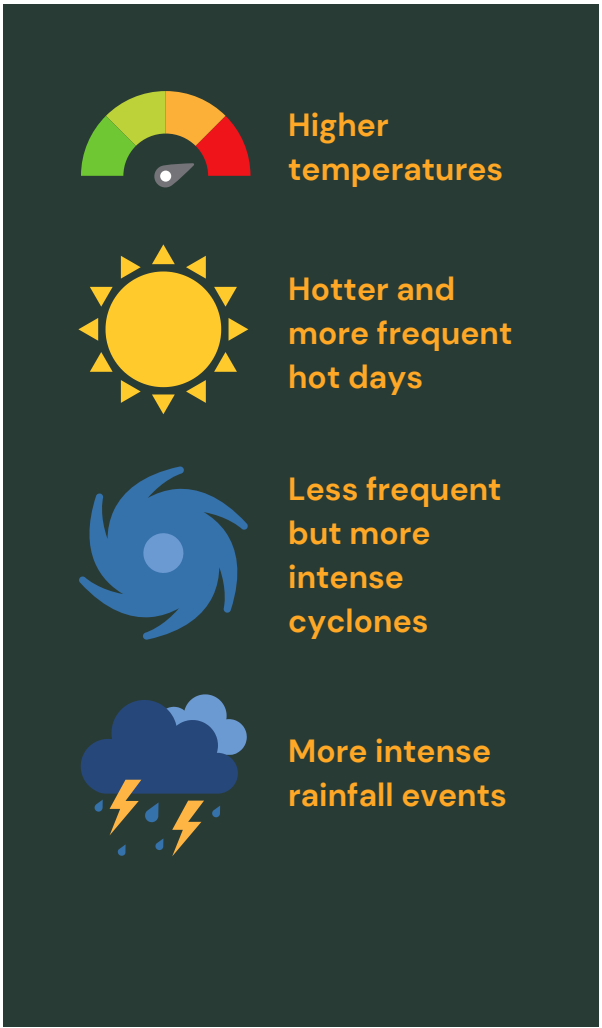


Figure 2.9: Predicted Average Temperature Increase for the Mareeba LGA (RCP 8.5) 2030 to 2090

The trend in temperature increase is less dominant nearer the coast where the proximity to the ocean mitigates the impacts, and more pronounced in the west of the LGA (Figure 2.10).

The increase in average temperature is somewhat misleading however as the number of extreme events will increase more markedly than this small average increase would suggest. The number of hot days (maximum over 35°C) is predicted to increase by 48 additional days per year by 2050, a 130% increase on the 1986 – 2005 average (Figure 2.11). This is also not evenly distributed across the LGA, with the western parts of the LGA experiencing a much more pronounced impact (Figure 2.12).



Coupled with this increase in temperature, models predict a more than 10% increase in evaporation rates by 2050 (Figure 2.13), which will influence the availability of surface water and curing of vegetation, making it more susceptible to burning. Relative humidity will decrease due to the additional water-holding capacity of warmer air, also increasing the fire weather risk (Figure 2.14).

Average annual rainfall across the Mareeba LGA is less clear. The outlook for the whole LGA is for little change (~-3% by 2050) in the average annual rainfall (Figure 2.15). However, the trend is not consistent across the region, with a predicated decrease in the east of the LGA (~5-8%), and possible small increase (~2%) in the west and south (Figure 2.16). The outlook is for similar to current, but more variable, rainfall patterns.

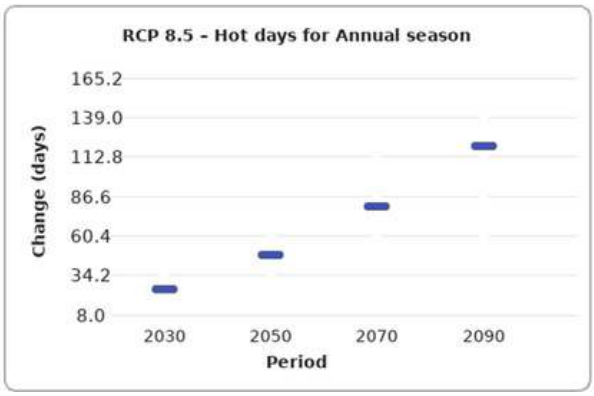


Figure 2.11: Predicted increase in Total Number of Hot Days (>35°C) for the Mareeba LGA (RCP 8.5) 2030 to 2090 Relative to the 1986-2005 Average.

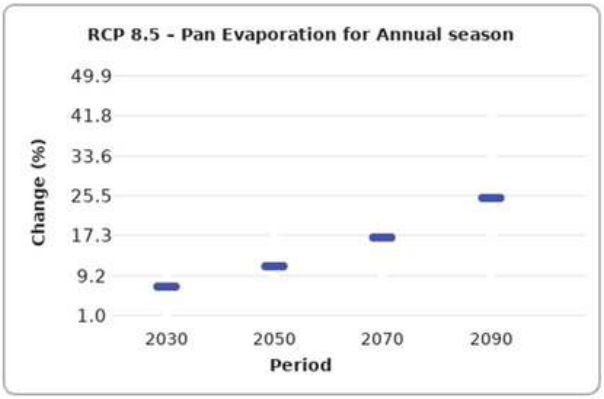


Figure 2.13: Predicted Percentage Increase in Evaporation for the Mareeba LGA (RCP 8.5) 2030 to 2090 Relative to the 1986-2005 Average.

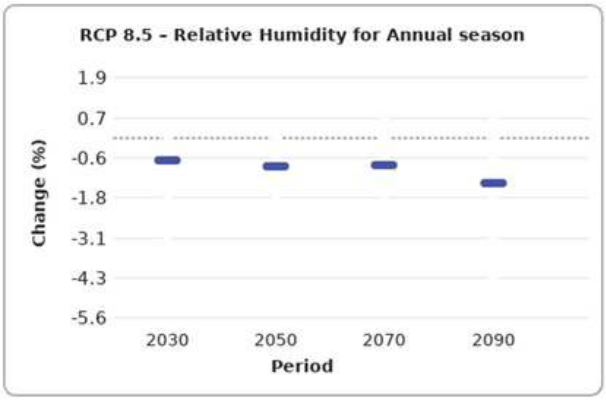


Figure 2.14: Predicted Percentage Decrease in Relative Humidity for the Mareeba LGA (RCP 8.5) 2030 to 2090 Relative to the 1986-2005 Average.

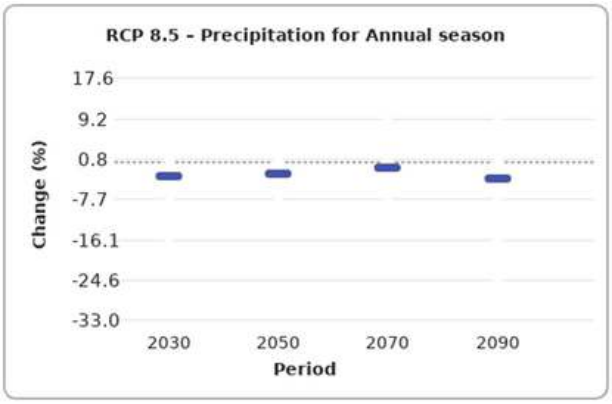


Figure 2.15: Predicted Percentage Decrease in Average Annual Rainfall for the Mareeba LGA (RCP 8.5) 2030 to 2090 Relative to the 1986-2005 Average.

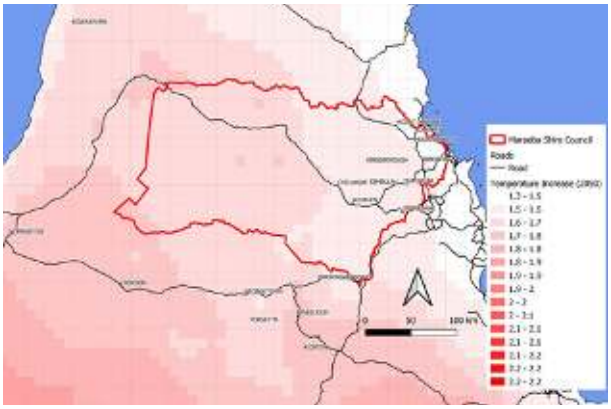


Figure 2.10: Predicted Average Temperature Increase for the Mareeba LGA (RCP 8.5) to 2050.

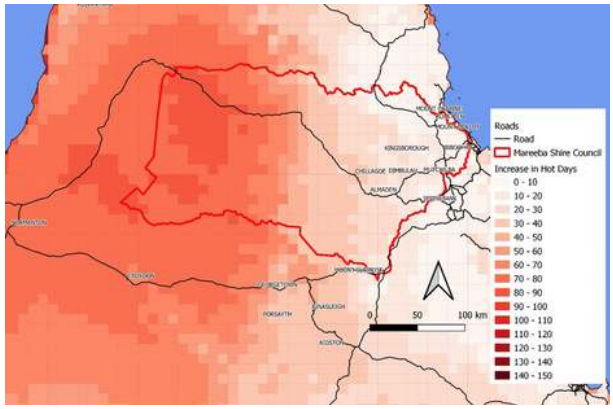


Figure 2.12: Predicted Increase in Number of Hot Days (maximum over 35°C) for the Mareeba LGA (RCP 8.5) to 2050 relative to the 1986-2005 average.

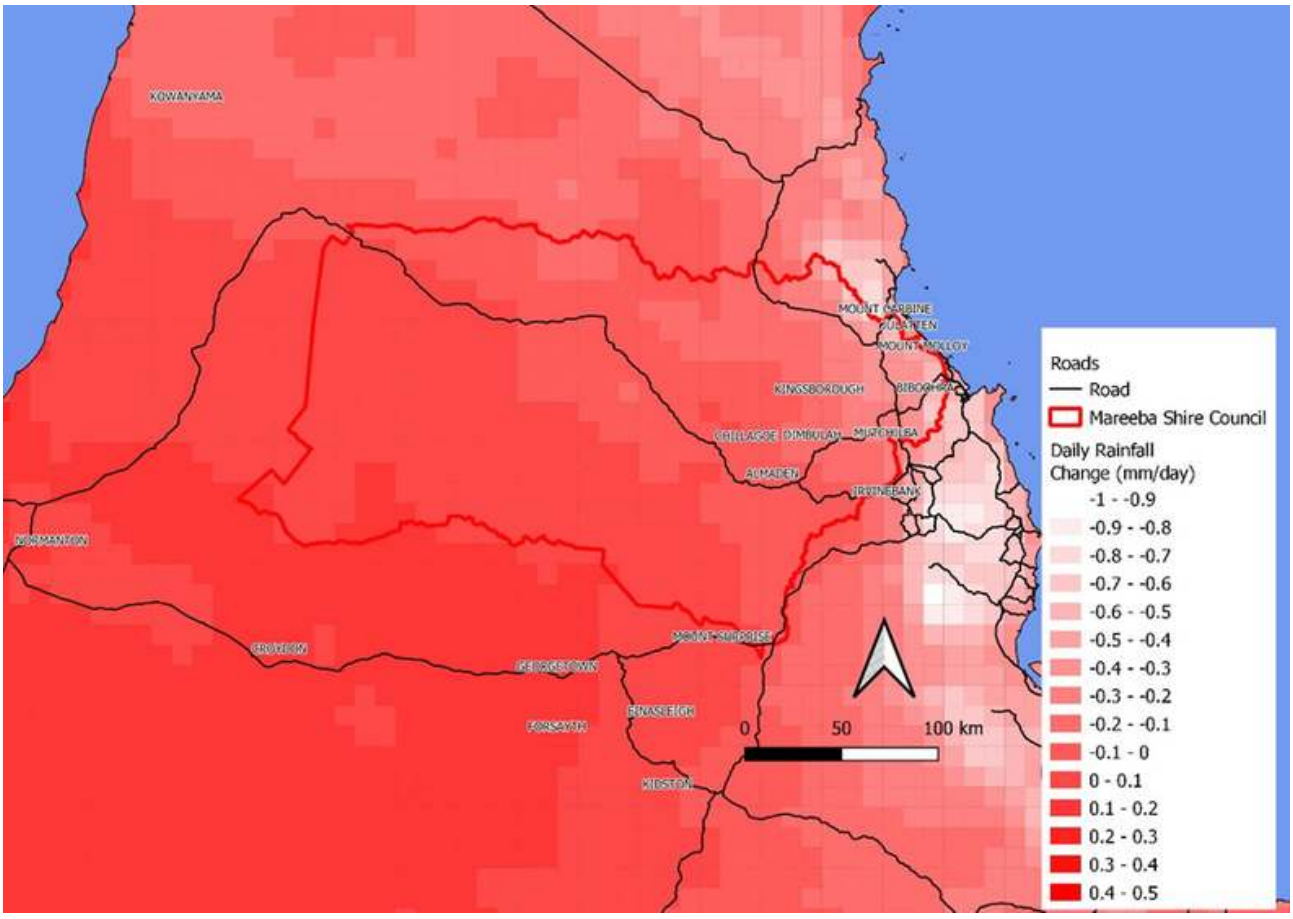


Figure 2.16: Predicted Changes in Daily Rainfall the Mareeba LGA (RCP 8.5) to 2050 relative to the 1986-2005 average.

PROJECT ACTIVITIES

Throughout the project, a number of activities and events were held across the region. These were aimed at connecting with a diverse range of stakeholders and included some non-traditional but engaged fire stakeholders.

Three main categories of events were conducted:

- Information sessions
- Living with Fire community consultations
- Sustainability events/Yarning Circles

A list of the events and activities conducted, including number of participants, is outlined in Table 3.1. The location of the face-to-face events is shown in Figure 3.1.

A number of digital media products were also produced during the project. These were used directly during the engagement events, or as indirect consultation and information tools distributed via Gulf Savannah NRM's online networks (Table 3.2).

Figure 3.1: Location and Type of Face-to-Face Engagements Undertaken as Part of the Project, 2021 – 2022 across the Mareeba Local Government Area.

Table 3.1: Activities conducted within the ClimateSmart Mareeba Project, including Location, Date Conducted and Number of Participants

Event/Activity	Location	Notes	Participants
Living With Fire Community Presentation & Consultation	Mt Molloy (28/8/2021)	Open and selected invitation event aimed at informing participants on existing fire history for their specific area, informing them on fire management of adjacent large land holders (AWC and QPWS).	23
Living With Fire Community Presentation & Consultation	Koah (12/11/2021)	Open and selected invitation event aimed at informing participants on existing fire history for their specific area, informing them on fire management of adjacent large land holders (QPWS) and approach to Traditional burns.	41
Living With Fire Community Presentation & Consultation	Irvinebank (29/3/2022)	Open and selected invitation event aimed at informing participants on existing fire history for their specific area, climate change projections and then multiple interactive sessions aimed at understanding community perceptions and risks.	12
Living With Fire Community Presentation & Consultation	Dimbulah (31/3/2022)	Open and selected invitation event aimed at informing participants on existing fire history for their specific area, climate change projections and then multiple interactive sessions aimed at understanding community perceptions and risks.	15
Living With Fire Community Presentation & Consultation	Chillagoe (5/4/2022)	Open and selected invitation event aimed at informing participants on existing fire history for their specific area, climate change projections and then multiple interactive sessions aimed at understanding community perceptions and risks.	8
Living With Fire Community Presentation & Consultation	Biboohra (7/4/2022)	Open and selected invitation event aimed at informing participants on existing fire history for their specific area, climate change projections and then multiple interactive sessions aimed at understanding community perceptions and risks.	10
Paint, Propagate & Yarn	Mutchilba (12/3/2022)	Workshops based on a sustainability topic with targeted discussions on fire risk and management conducted as part of event.	12
Suds &Yarns	Mt Molloy (26/3/2022)	Workshops based on a sustainability topic with targeted discussions on fire risk and management conducted as part of event.	7
Clean & Yarn	Mareeba (2/4/2022)	Workshops based on a sustainability topic with targeted discussions on fire risk and management conducted as part of event.	11

Table 3.2: Media and Digital Products produced during ClimateSmart Mareeba Project

Item	Notes	Link
Gulf Croaker December 2021 Issue theme: Fire management	Multiple articles in Gulf Croaker (Gulf Savannah NRM's magazine publication with distribution of 400+ across region)	https://gulfsavannahnrm.org/wp-content/uploads/2021/12/GSNRM_DECEMBER_GULF_CROAKER_WEB.pdf
Video: Living with Fire in Koah	Short video outlining collaboration of stakeholders in the Koah area in managing fire on private properties, national park and state forest.	https://www.youtube.com/watch?v=jZ9TtThVsUg
Video: Living with Fire at Brooklyn Wildlife Sanctuary	Short video outlining concepts with living with fire and fire management objectives for AWC's Brooklyn Station, which include enhancing biodiversity outcomes.	https://www.youtube.com/watch?v=wfLG9T972LI
Video: Living with Fire in Irvinebank	Short video outlining fire management experiences in the Irvinebank area, including the relationship between the local RFS and an adjoining cattle station owner, and the use of NAFI as a tool.	https://www.youtube.com/watch?v=hZ6crSCIWh0
Video: Living with Fire in Dimbulah	Short video featuring local farming families' recent experience of wildfire in the Dimbulah area, and subsequent steps they have taken to prevent it.	https://www.youtube.com/watch?v=toTbiD9TLeU
Video: Living with Fire in Mt Molloy	Short video outlining community collaboration for wildfire prevention in the Mt Molloy community, including maintenance of a fire break/ring road around the township.	https://youtu.be/17VnA9zE3GE

MAJOR FINDINGS

In general, there was a thirst for information about fires and fire management across the study area, but a general apathy towards the issue in the broader community. Many people engaged through the study (especially those not associated with the RFS) largely saw fire management as an emergency response, and the responsibility of the Emergency Services. There was a general lack of understanding of fire behaviour and risk management responsibilities, especially among semi-rural landholders.

Participants in the project were impressed with the level of effort and technical understanding the QPWS put into managing fire risk, especially in the vicinity of Mareeba and Chillagoe, recognising the improvements this had resulted in over recent years. However, there was also an acknowledgment that this proactive management was only undertaken on QPWS lands, a small proportion of the total Mareeba Shire.

The community concern that Council's introduction of tip fees would encourage more people to burn off in their backyards came up many times.

The work of the RFS was acknowledged by participants as valuable and an important part of fire management in their communities. However, it was also clear from the RFS participants that generally the groups struggle for membership, and especially have difficulties attracting a younger cohort of members. The RFS also tended to allocate resources on an emergency response basis, and encouraging landholders (especially smaller semi-rural holdings) to undertake fire risk management was difficult and often neglected.

RFS volunteers also raised concerns that the Queensland Department of Resources is under-staffed and under-resourced, and highlighted the risk of losing corporate and local knowledge with reductions in workforce and planning capacity. This has major implications for managing fire on state forest and unallocated state land.

In general, there was minimal understanding of the forecast climate future for the Mareeba Shire, and what the implications for this might be for fire management.

The findings of the project can be collated into common themes. These are outlined in Table 4.1.

The following section provides a summary of the public consultations.

Table 4.1: Summary of themes discovered during Community Engagements

Theme	Opportunity for improvement
Local Coordination	Improvement in the up-skilling of semi-rural property owners, both in terms of their response to fire (emergency) but also understanding of their obligations as land managers. All communities were concerned about complacency, particularly in relation to property maintenance (unmanaged weeds, fuel loads, woody thickening).
	Local coordination of fire management, especially hazard reduction burns across several small holdings.
Education	Education required to make people comfortable to call 000 to report a bushfire or even smoke.
	Education about cultural burn regimes (Indigenous fire management).
	Improvement in knowledge of legal requirements and responsibilities for land holders (regarding permitting, and management of fire and weeds).
	Education on the availability and use of existing online resources to assist land managers, such as NAFI and The Long Paddock.
Fire Management	Improved and location-specific resourcing for local and regional staff and fire response equipment.
	Reintroduction of early burns, particularly farmers in Dimbulah and Biboohra. There is a strong interest in a locally coordinated approach to mitigation.
	Improvement for the fire coordination at the regional and state level.

COMMUNITY WORKSHOPS

5.1 OVERVIEW

In the first half of 2022, Gulf Savannah NRM held four workshops across Mareeba Shire to bring together interested community members to learn about, share and discuss fire management information and the impacts of climate change.

The workshops were held over 2.5 hours (6pm – 8.30pm) in Irvinebank (29 March), Dimbulah (31 March), Chillagoe (5 April) and Biboohra (7 April). Workshop attendance varied in each location. Overall there was representation from Rural Fire Service, landholders, farmers, QFES, QPWS, Traditional Owners and community representatives at the workshops.

Methodology
The purpose of the workshops was to capture local knowledge to form risk area profiles for management and coordination of fire; help create an evidence base for future fire prevention; and to provide an avenue for community to have their say and tell their stories about fire management.

Community Bred was engaged to design, facilitate and provide a summary report on the four workshops.

The workshops commenced with presentations. Gulf Savannah NRM presented on local fire history and climate data, while QFES gave updates on fire permits and vegetation clearing for fire breaks. The workshop then moved on to pose questions about fire, climate and local coordination:

- Tell us about fire risk and fire behaviour?
- What changes in climate have you noticed?
- What is working well for fire management and coordination?
- What could be improved for fire management and coordination?

The workshops wrapped up with discussion on key local activities that could support improved fire management. This report provides an overarching summary of the key issues and findings from the workshops.

5.2 COMMON THEMES

The common themes listed below are drawn from areas of common interest at two or more workshops.

Fire management – coordination

- Local coordination generally works well. Resource sharing is good between neighbouring RFS.
- Participants felt disempowered by not being able to contribute resources and knowledge to local responses.
- Better, and location specific, resourcing is needed for local and regional staff and equipment.
- 000 works well in getting response for fires, however, more locals need to know to use it.
- There was a general dissatisfaction about fire coordination at the regional and state level.

Engagement and communication

- All communities wanted to see more engagement from authorities and decision makers.
- All communities were concerned about lack of volunteers, particularly younger people.
- There are opportunities for increasing knowledge and engagement through local events and networks.
- The same people are undertaking multiple volunteer roles across different organisations in small communities.
- Workshop participants needed to be heard – there was a need to share recent fire stories.

Fire management – mitigation

- Communities wanted to see the reintroduction of early burns, particularly farmers in Dimbulah and Biboohra. There is a strong interest in a locally coordinated approach to mitigation.
- All communities expressed interest in learning about and understanding cultural burn regimes (Indigenous fire management).
- All communities were concerned about complacency, particularly in relation to property maintenance (unmanaged weeds, fuel loads, woody thickening).
- Several participants raised concerns about the introduction of tip fees by the local Council, which will lead to an increase in people burning off their rubbish and increasing fire risk.

Lack of knowledge

- There was some lack of knowledge of legal requirements and responsibilities for land holders (regarding permitting, and management of fire and weeds).
- There was a need for better understanding of land tenure in localities.
- People were sometimes unsure of who to contact, and frequently unaware of online services such as NAFI and The Long Paddock.

5.3 COMMON ISSUES

The themes above were noted from issues that were raised at two or more workshops. The issues are listed below.

- Changed fire regimes, and wildfire, have results in high fuel loads, weeds, and woody thickening
- Arson is a major issue, with very few prosecutions (and consequences) apparent
- There is a need for clearer understanding of land tenure
- Locals felt that DNRME was under resourced – there was general concern that only one person was responsible for a vast area (holding local relationships and local knowledge) and could burn out or leave
- Equipment provided for RFS needs to be suitable to the location (terrain, environment) and consultation should occur with local RFS members to understand the needs – some places are inaccessible to trucks, only accessible by 4WD or by air
- Regional and state coordination are not seeking local knowledge from residents or RFS - particularly during events. Locals feel excluded and that they are not being consulted or heard
- Inertia from local community – around fire preparation and fire risk
- A need to get young people involved and knowledgeable about fire
- Aging population of RFS members
- Changing land use (e.g. from horticulture to grazing, absent land owners, small blocks)
- Lack of understanding of the permit system (need more education, definition of 'neighbour', new people do not understand)
- Rubbish and illegal dumping, introduction of fees and rubbish dumps
- Roadside fires
- Overgrown properties – this often (but not always) related to absent land owners
- Not enough volunteers for RFS, hard to engage volunteers, loss of volunteers due to blue card requirements
- Poor maintenance of tracks – 4WDs, bikes creating new tracks. Plus current fire trails on state unallocated land
- Impacts from tourists, visitors and locals at camping sites not understanding fire risks, not putting camp fires out, leaving rubbish, increasing weed spread
- Spread of grader grass and other weeds from roads and maintenance equipment on state, council and services land
- Large properties, or tracts of land, owned or managed for water, transport or energy not being managed for fire, plus a general concern about the management of unallocated state land (USL).

5.4 PROJECT IDEAS FROM PARTICIPANTS

Through the discussions about coordination, workshop participants came up with ideas for what could improve fire coordination and management. While some common activities would benefit all localities, others were specific to each place, as listed below.

Shire-wide

- New resident pack – shire-wide project tailored to each locality
- Training - using NAFI and other fire scar sites, use of radios, training for young people, training to use equipment, Emergency Services training
- Mapping - water resources and availability and sharing information with local RFS, Coordinate and record who has the water and resources to fit fire location
- Mapping – fire scars, controlled burns
- Establish local fire networks or coordination clusters – coordinated early burns and prevention, and fire-fighting, communication engagement
- Community engagement and demonstration days – teaching community about RFS, fire safety, communications and preparation, encourage volunteering; engaging communities through local events and activities, bringing along 'the yellow truck'
- Volunteer drives
- Advocacy – Gulf Savannah NRM to write to/contact MSC, RFS, QPWS for targeted advocacy
- Staffing – Gulf Savannah allocation of staff (funded role) to support local fire coordination, particularly in an engagement and education role.

Town specific

Irvinebank

- Training on appliances
- Recruitment drive for new (and younger) volunteers
- More education about online resources e.g. NAFI, longpaddock.qld.gov.au

Dimbulah

- Firefighting tree and water contacts - NRM to set up water management team
- Go around to farms to educate (QFES or RFS as it needs to have some authority), agencies working together
- Establish a DNRME and farmer network to do early burns work with QFES and RFS
- Incident management - get farmers property owners to come to the staging area and go to the incident controller with a plan during events

Chillagoe

- Map of controlled burns for local knowledge
- Fire danger rating signage in and out of town (council and RFS)
- Compile and share communication roles and contacts – RFS / QFES
- UHF towers for emergency comes eg TRC
- Install a siren on the hill for alert for fires for town
- Sink more bores to increase access to water
- Understand local demographics better for emergency comms

Biboohra

- Community education about fire management - practical learning with fire, education to:
  - reduce impacts of bush tracks and bikes etc,
  - training to learn about fire and feel fire,
  - working with kids
  - getting people lighting a fire
  - demonstration days
  - certificate in emergency services
  - incorporate traditional knowledge
- Tailored to locality
- Learning / sharing traditional Indigenous knowledge.

Irvinebank workshop

Dimbulah workshop

Chillagoe workshop

Biboohra workshop

5.5 RECOMMENDATIONS FOR CONSIDERATION

While attendance at the workshops varied in each locality, the discussions held and the content extracted was extremely rich and useful. The following recommendations are provided for consideration in future fire management planning and activities undertaken by the communities, Gulf Savannah NRM and QFES. They are grouped by the themes identified at the start of this document, and are not prioritised.

Fire management – coordination

- There is considerable local reliance on the one staff member from DNMRE, and concerns about a lack of resources. Some discussion with DNRME seeking rationale for current resourcing (and conveyed to the communities) may be worthwhile.
- Advocacy, communication and coordination between government agencies and other major land holders is needed. While QPWS and QFES are active in coordination and fire management, water and electric services, wind farms, unallocated state lands, roads and state forests were identified as difficult to engage with for fire management. There is an agency role (QFES, MSC or Gulf Savannah) to improve communication and coordination with all land managers, and provide opportunities for further engagement and communication between these land managers and local communities for improved fire management outcomes.

Fire management – mitigation

- Reintroduction of locally-led and coordinated, and regionally-supported early burns.
- Work with land holders, RFS and Traditional Owners to build capacity for, and implement, early burns and cultural burns to reduce fuel loads, manage weeds and improve fire breaks.
- QFES, in liaison with RFS, police and impacted community members, develop media / promotional campaign about the impacts and consequences of arson.

Lack of knowledge

- There is a desire and need for more information to be delivered locally. Local information workshops, farm visits and communication products (delivered in multiple ways) may be useful in improving local knowledge and engagement in fire management. Topics could include: Understanding fire coordination and incident management , fire behaviour, landholder responsibilities for fire management and weed control, fire permits, messages about fire hazard actions (e.g. use of slashers and welders during fire weather), laws about fire, arson and land ownership/stewardship, traditional fire management and early burning.
- Develop or update site-specific new resident information packs to include local contacts, fire risks and responsibilities and relevant local information. Encourage community ownership of the pack by engaging community members for content and key local information. Seeking funds to pay a local resident/s to develop, distribute and promote the pack.

Engagement and communication

- Further and increased engagement with local Traditional Owners to share fire information and knowledge to increase capacity and improve fire management coordination.
- Many participants in the workshops were unclear about what the workshop was for. Some thought it was to debrief from recent fire events:
  - Promotion of any future workshops should be more specific with a clearly defined purpose (Gulf-Savannah)
  - Community debriefs are necessary after major fire (and other disaster) events, so community members can share experiences, debrief to and hear from decision-makers and services, and have an opportunity to contribute to lessons-learnt meetings (QFES, MSC, RFS).
- There are opportunities for site specific projects in each community. Examples include: volunteer engagement targeting local events and community volunteer 'drives', and QFES working with local farmers to identify and map resources (water , skills and equipment).
- Ensure meeting notes are distributed, and location-specific follow-up is undertaken. Provide localities with support to implement project ideas.

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