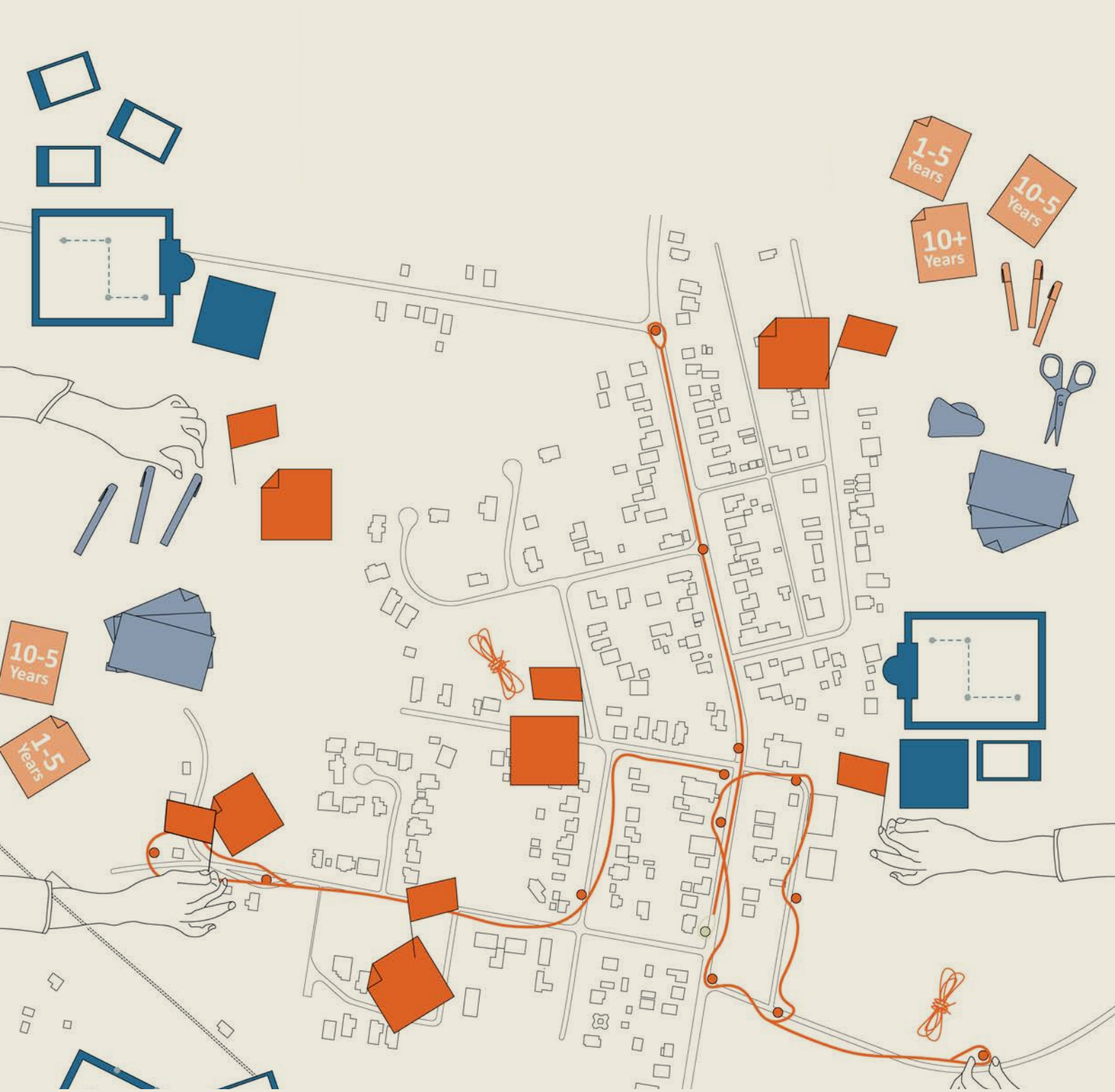


STRATEGIC PLACEMAKING FRAMEWORK FOR CLARENCE VALLEY

Acknowledgment of Country

We wish to acknowledge the Bundjalung, Yaegl and Gumbayngirr people whose lands and waters this project is situated within. We extend this acknowledgment to the people of the Kulin Nation, the Traditional Owners of the place Monash Art Design and Architecture (MADA) is situated. We acknowledge Aboriginal connection to material and creative practice on these lands, spanning over 50,000 years. We pay our respects to Elders, past, present and emerging.

Our Team

The Fire to Flourish Codesign for Placemaking team has collaborated with a diverse group of Master of Architecture (MArch) and Master of Urban Planning and Design students (MUPD), who have collectively co-authored this framework

Fire to Flourish Clarence Valley

Roxanne Smith

Pamela Denise

Cara McLeod

Faye Neil

Local Support

Shakti Mudra (Blicks)

Leonie Pankhurst (Blicks)

Kaya Jongen (Nymboida)

Wesley Fernando (Aboriginal Engagement)

Fire to Flourish Codesign for Placemaking

Professor Mel Dodd

Nikhila Madabhushi

Robert Lees

MUPD Students

Yuk Chun Kwong (Amy Kwong)

Daniel Mersin

Sam Granger

Jason Lee

Yi Ju Yang (Jenny Yang)

Mohanapriya Madurai Jawahar (Mohana MJ)

Kiana Nabighods

John Momis

MArch Students

Lilli James

Chantelle Lappin

Athiqah Ummi Salma

Yee Wen Chuah (Yvonne)

Andrew Gregory

Jessica Hordern

William Cupido

Ashley Ho

Hayden Brown

Huei Sze Yeap (Jocelyn)

Contents

Clarence Valley

FIRE to FLOURISH

MONASH University

MONASH ART DESIGN & ARCHITECTURE

Canoe Centre in Nymbodia

The Challenge

01

(Photo taken by Sam Granger)

1.1 Strategic Placemaking Framework

Purpose

The purpose of this strategic placemaking framework is to understand the challenges and opportunities of various community-led, place-based initiatives, of four localities within Clarence Valley (see figure 1.1b).

Amidst a backdrop of ongoing climate-driven disasters including the devastating effects of the 2019/2020 bushfires, recovery has been a complex process for all who have been affected. Through participatory placemaking processes, diverse people from each locality collaborated with Monash University architecture and urban planning and design students, along with the Fire to Flourish Codesign for Placemaking and Clarence Valley teams, to bring various community-led projects to life.

This framework deep dives into the diverse contexts of the four localities, to unpack the complex day-to-day and disaster preparedness challenges, each community continues to face.

Fire to Flourish

The Clarence Valley is currently part of the Fire to Flourish (F2F) program, a unique initiative that uses a community-led, strengths-based approach to build resilience to disaster across four Local Government Areas (LGA) in New South Wales (NSW) and Victoria. Within this project, four communities in the Clarence Valley; Woombah, Orara Valley, Nymboida and Blicks, are currently bringing diverse community-led placemaking ideas to life. Community Facilitators from each area were selected through a recruitment process where local people (often already working in existing community organisations), applied for these roles. This aspect of the program design was to have a wide representation of paid community leadership from across the Local Government Area (LGA) . This framework serves as a tool to support the communities in the Clarence Valley with the knowledge of moving towards a disaster-resilient future through place-based initaitves. Leading up to the workshops and working with the broader F2F program, local government and key stakeholders, the Codesign for Placemaking research team, planned, advocated and strategised to help bring this project to life. This recent phase of the project has integrated the knowledge of Monash University Urban Planning and Design and Architecture students who co-developed placemaking workshops for the four localities, in August, 2023. Findings from these workshops have informed the subsequent proposals and actions presented across the chapters of this framework.

Participatory Granting

In parallel to this placemaking framework, $600K of Fire to Flourish (F2F) funding will be distributed to each locality through participatory granting ($150K per locality). While the action projects described for each locality won't specifically be funded, further community feedback and preferences elicited by this framework, is designed to influence rather than dictate, the community-led granting process. In December 2023 to January 2024, an exhibition of this framework will feature across the four localities at various public locations. During this exhibition there will be ways for the community to articulate their favourite ideas and why, providing a sound body of knowledge that may assist with subsequent participatory granting in February-March 2024. Each community will determine their own local governance and decision models. Funding decisions will be collectively made by community members and will follow auspice body Northern Rivers Community Foundation's (NRCF) logic model. This process enables communities the experience of taking placemaking from dreams to decision-making to planning and hopefully implementation.

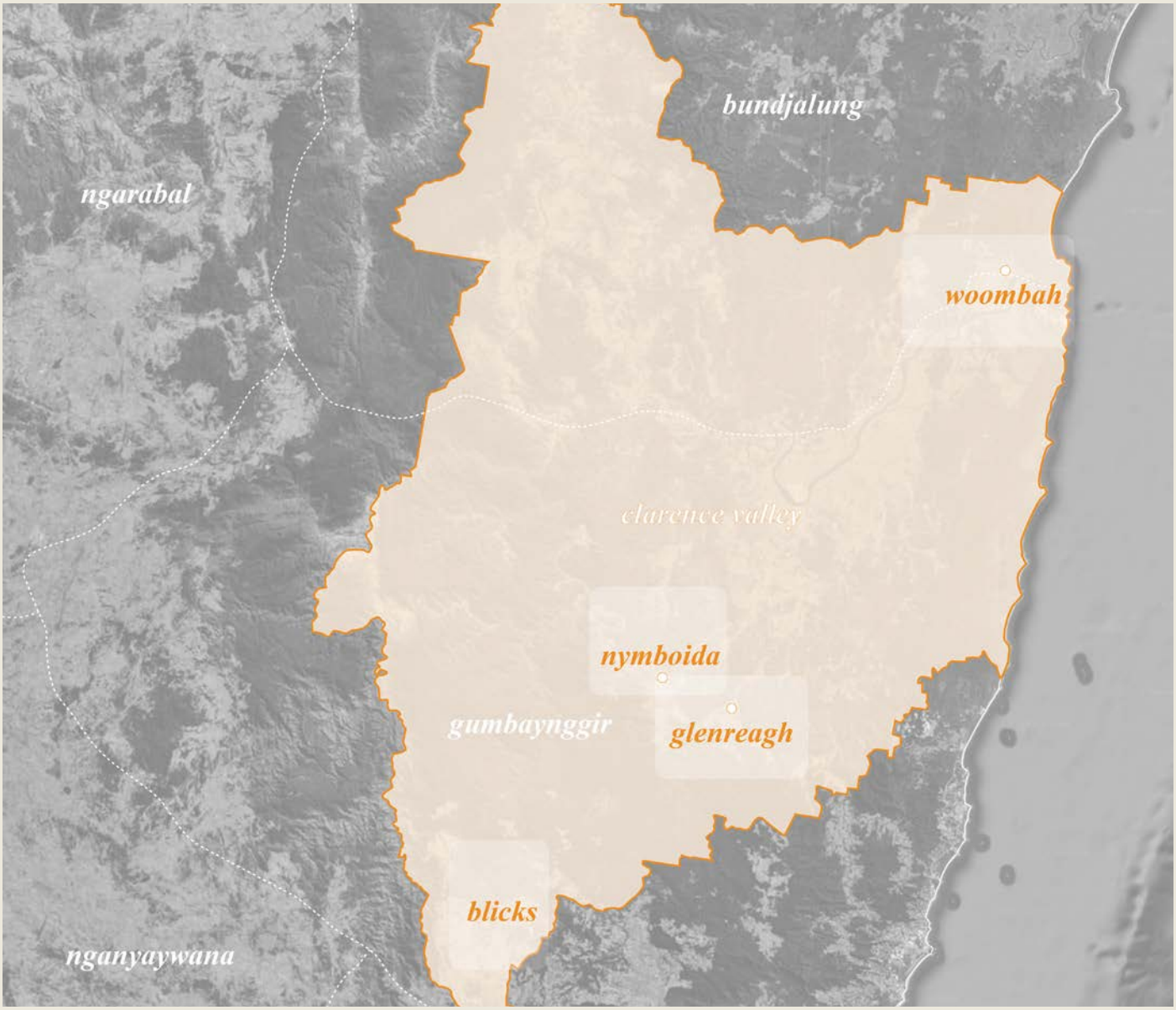


Figure 1.2 *Fire to Flourish Program for Clarence Valley*

Figure 1.1 *Fire to Flourish Annual Reports*

(Extracted from Fire to Flourish Reports)

Key Principles

Foreground Aboriginal Wisdom

Sharing ways of knowing and being with the community and the Program, incorporating holistic caring for Country which is directing activities and research.

Be Community-Led

Communities bring together perspectives and experiences to shape key programs including capability building, participatory granting and impact evaluation. Communities will decide where F2F funding will be directed and will lead the implementation of their funded initiatives with relevant program support.

Address inequalities, enhance inclusion and self-determination

To be inclusive, our work is embedded in the communities, working alongside local people to hear as many unheard voices, where and if it is possible. Fostering self-determination means we have engaged in a learning-by-doing process together with people from each the locality.

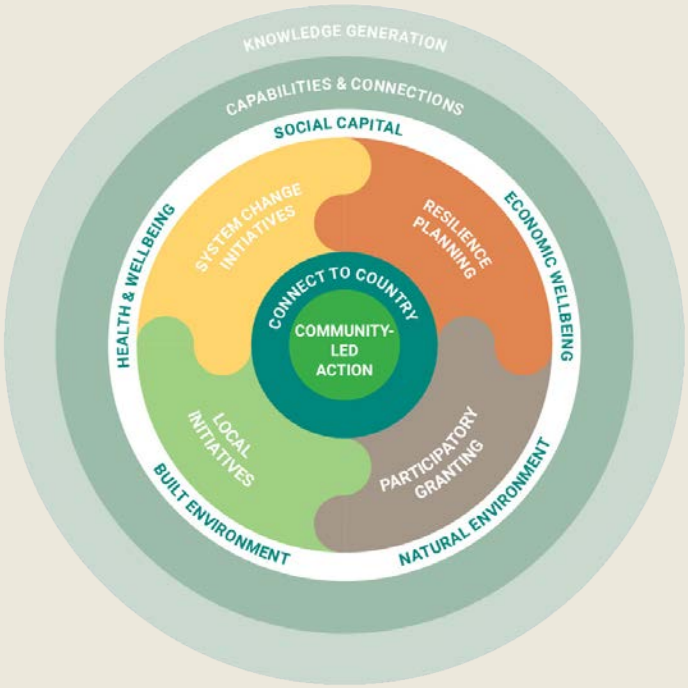
Strengths-based and trauma-informed

It is local people's lived experiences of disaster that ensures the projects that are ideated (and ultimately implemented into the future), will best enhance community recovery and resilience.

Learn, adapt and evolve

With a live process of ongoing developmental evaluations to enable quick cycles of learning, our research and program design will absorb these incremental learnings, to be impactful and relevant.

Figure 1.3 *Fire to Flourish Principles*



(Extracted from Fire to Flourish Report 2021)

Figure 1.4 *Fire to Flourish Community Leads in Clarence Valley*

Clarence Valley Lead
Roxanne Smith

Woombah
Cara Macleod

Nymboida
Pamela Denise

Glenreagh
(in Orara Valley)
Faye Neil

Blicks
Shakti Mudra

(Figure co-created by Daniel Mersin and Amy Kwong)

Guy Fawkes National Park

Disaster Resilience

02

(Photo taken by Daniel Mersin)

2.1 What is Disaster Resilience?

Building Disaster Resilience

Disaster Resilience refers to a place or community that can recover after disasters efficiently and effectively by incorporating adaptive changes in community actions and responses to policy changes with reference to environmental capacity.[1] It is not a linear system, hence building disaster resilience requires social collaboration, environmental sustainability, policy and regulatory support, and diverse paradigms of knowledge.[2]

Socially, it requires reducing a community's vulnerability by strengthening local people's capacity. It should also create an inclusive society and empower communities to participate in decision-making processes, in relation to disaster preparedness, emergency response, recovery, mitigation and adaptation.[3,4] As such, "bottom-up" approaches, led by communities, are the most socially equitable ways of improving disaster resilience, something that is continually evidenced in the literature along with lived experiences.[5]

Environmentally, disaster resilience requires strong ecological management, where humans are one and the same as the natural environment, rather than at the top of the hierarchy.[6] In light of climate change, and the intensification of extreme weather events, disaster resilience has inherent links with sustainability concepts.

Politically, government interventions and planning policy agendas are vital to providing new policy focus to diminish social vulnerability arising from policies that focus on diminishing inequities in justice, fairness, and sustainability.[7] Alongside government efforts to link professionals to communities, local participation of community members to take immediate action is also critical.[8]

Hence an approach that shifts from individual resilience to collective resilience could be achieved through co-designing and co-developing a disaster resilience framework.

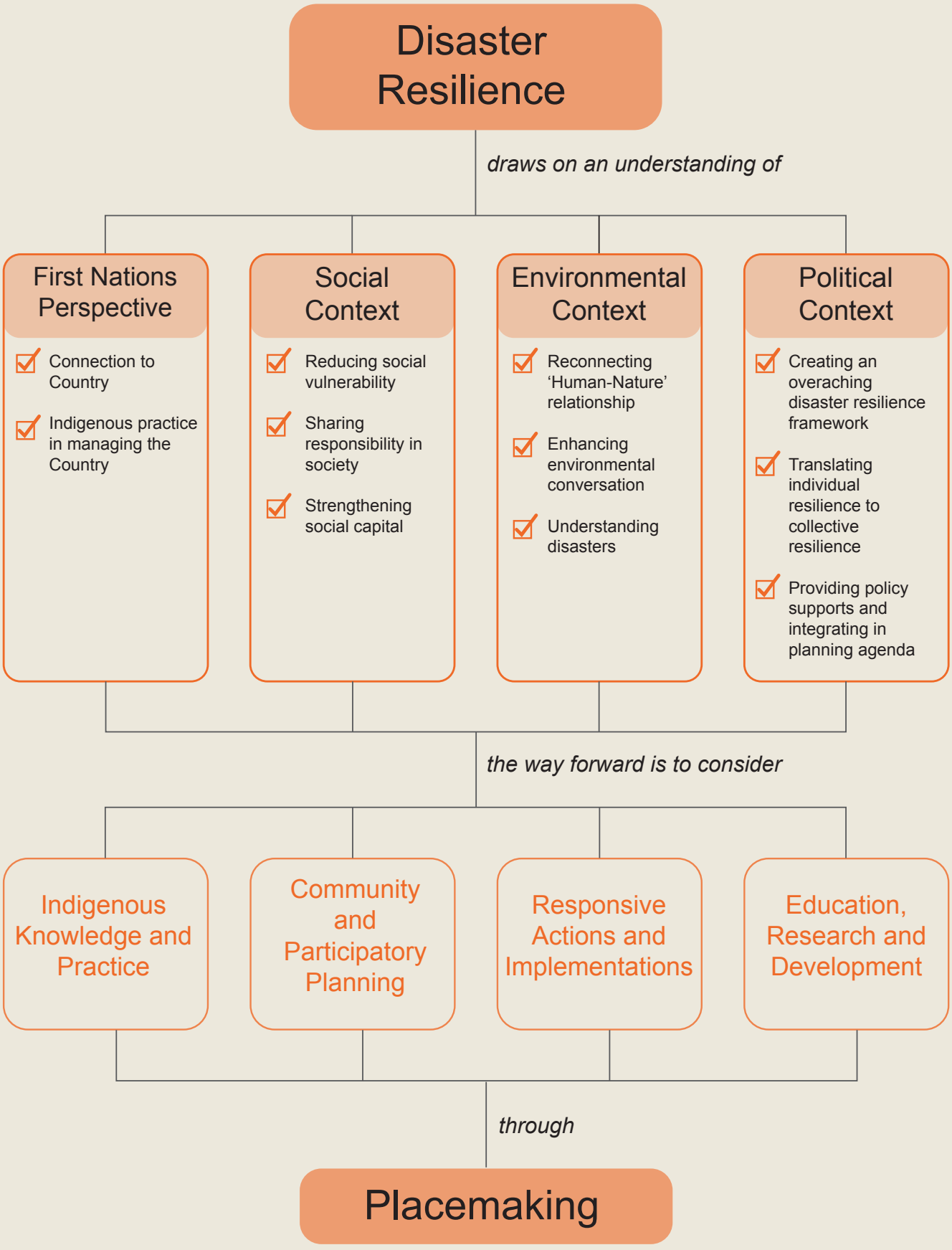
Importantly, Indigenous Knowledge as disaster resilience is unique in its cultural heritage to Australia, where Indigenous communities have long-held experiences managing and caring for Country.[9] By engaging with Country, Indigenous Knowledge should be recognised, honoured and emphasised carefully and respectfully through partnering with Indigenous people.[10] Opportunities for Indigenous people to actively participate and share their voices and experiences is crucial.[11]

Placemaking and Disaster Resilience

The 'placemaking' approach is a novel testing ground to build disaster resilience in communities. The idea initiates local communities to collaborate to reimagine and reinvent public spaces, connecting people and the places they share.[12] Translating this idea to disaster resilience, we advocate the following four strategies to better equip local communities to be disaster resilient:

- Foregrounding Indigenous Knowledge and adopting traditional practises in disaster resilience,
- Upholding community and participatory planning,
- Co-creating and designing responsive actions and implementations, and
- Supporting the community via education, research and development.

Figure 2.1 *Conceptual Framework of Building Disaster Resilience through Placemaking*



(Figure created by Amy Kwong)

Moving Towards Community-Oriented Disaster Resilience

Drawing from the previous section detailing the various ingredients that encompass contemporary disaster resilience and the F2F's principles, there are four primary strategies this framework will introduce, to build more resilient communities in Clarence Valley.

Figure 2.2 *Four Primary Strategies*

(Figure created by Amy Kwong)

Figure 2.3 *Community Placemaking Workshop in Woombah Community Garden*

(Photo taken by Amy Kwong)

Indigenous Knowledge and Practice

(Image Source: https://carbonmarketinstitute.org/projects/west-arnhem-land-fire-abatement-walfa-project/)

A case study in the Northern Territory of Australia called The West Arnhem Land Fire Abatement Project, illustrates the successful integration of Aboriginal knowledge in dealing with bushfire risks.

The Savanna Burning Methodology is developed for fire management to reduce the incidence of wildfires, which introduces customary burning practices.[13] Those practices acknowledged the Aboriginal cultural practices in managing the Country and engaged the Aboriginal ranger groups to lead the practices.[14]

Community and Participatory Planning

(Image Source: https://photo.swcb.gov.tw/PhotoStory/Home/Story?StoryID=84c26de2-8a57-4539-aed2-3700ee74dd48)

A case study in Shang-An Village in Taiwan, called Community-based Disaster Management, demonstrates the significance of engagement processes and training in the community.

With the assistance of different partnership parties, a community-based disaster management organisation was set up and led by community members.[15] The organisation monitors the implementation of the disaster resilience framework.[16] It also provides training courses and scenario exercises for the community with basic skills such as first-aid and search and rescue, allowing hands-on practice in responding to disaster emergency needs.[17]

Figure 2.4 *Case Study Reviews*

Responsive Actions and Implementations

(Image Source: https://content.api.news/v3/images/bin/78177900a2a784bf813957d48c9d12de?width=320)

The case study in Marysville, Victoria gives a sound example of rebuilding the community with the assistance of a co-design 'Marysville & Triangle Urban Design Framework' by the local council, consultancies and architects.[18] One of the projects in the framework introduced a Triangle Trail to connect Marysville and the adjacent towns to enhance the accessibility of towns, especially in emergencies.[19]

The other case study focuses on fire-resistant building designs in Dargan, NSW. The house designs incorporate features such as low-built form, Timbercrete cladding, non-combustible external materials, stainless steel patio screens to separate the window glazing from fire risk and excessive western sun.[20]

Education, Research and Development

(Image Source: https://www.govtech.com/em/disaster/florence-damage-up-to-1950-buildings-in-cumberland-county-nc.html)

A case study in Cumberland County of North Carolina in the United States in context to disaster emergency management, provides clear directions and processes for building disaster resilience and planning for the community.

It shows that disaster management requires working with public sectors such as government departments, support agencies, municipalities, the military, and private sectors such as businesses and industry, as well as local people.[21] As such, a risk management cycle is developed with four critical phases based on diverse paradigms of knowledge from different sectors.[22] The cycle reveals that disaster resilience is a continual learning process where preparedness, adaptation and mitigation activities should be happening at all times.[23]

(Figure created by Amy Kwong)

2.2 Indigenous Knowledge in Environmental Management

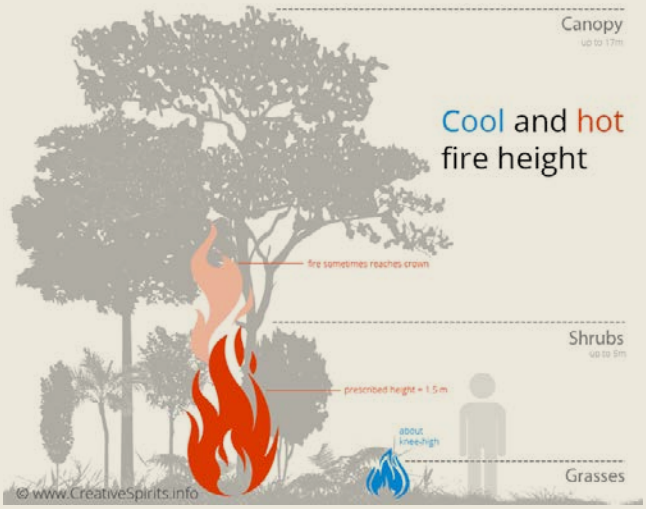
Indigenous environmental management serves a multifaceted purpose, aiming to protect, maintain, heal, and enhance ecologically diverse ecosystems, productive landscapes, and cultural values. It is deeply rooted in traditional knowledge that has guided environmental management for millennia.

Cultural Burning

First Nations people in Australia have a long history of using cultural burning as a traditional land management practice. Cultural burning involves intentionally lighting fires under controlled conditions to reduce the accumulation of dry vegetation and deadwood on the forest floor. This reduces the risk of intense, uncontrollable wildfires because there is less material to burn.[24] By strategically burning areas under controlled conditions during cooler months, First Nations people create firebreaks. These firebreaks can act as barriers during wildfires, slowing down the spread and making it more manageable for both traditional land management and modern firefighting efforts.[25]

Cultural burning supports biodiversity by promoting the growth of different plant species and providing a variety of habitats for animals. This approach ensures that even if a wildfire occurs, it is less likely to devastate the entire ecosystem.[26] It is deeply rooted in the spiritual and cultural practices of First Nations people. It is seen as a way of caring for the land and maintaining the balance between humans and nature.[27]

Figure 2.5 *Concept of Cultural Burning*



(Image Sources: https://www.creativespirits.info/aboriginalculture/land/aboriginal-fire-management)

Figure 2.6 *Cultural Burning*

(Image Sources: https://10deserts.org/tag/fire/)

Travelling Stock Reserves

Travelling Stock Reserves (TSRs) have the potential to provide invaluable support for Indigenous environmental management in several critical ways.

The origin of TSRs are often traced back to Indigenous traditional pathways passed down through generations, embodying profound ecological knowledge. Indigenous communities draw upon this heritage for sustainable land and resource management, including controlled burns and traditional agricultural practices. TSRs also serve as vital habitat corridors, allowing wildlife to move freely and preserving biodiversity. Indigenous environmental managers use these routes to protect culturally significant animal species.[28]

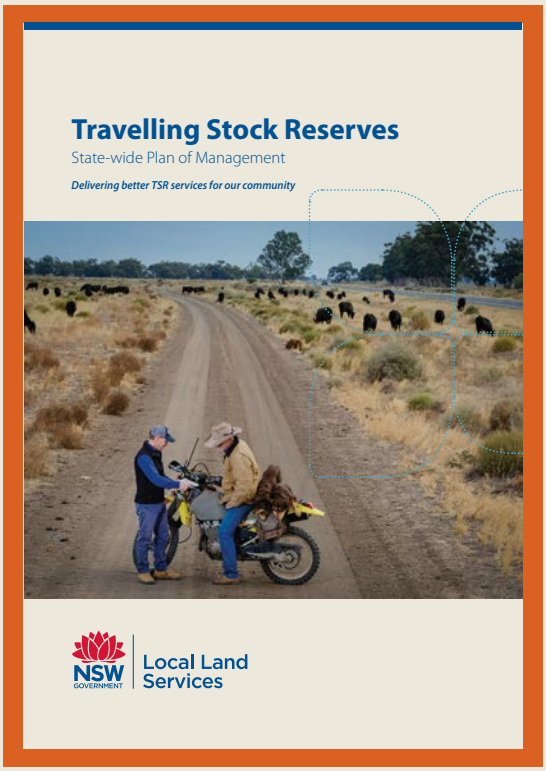
European colonisation saw these routes 'adopted' for the movement of livestock between towns and markets which saw much of the original knowledge of their uses and cultural significance diminished or lost.[29]

TSRs granted access to essential resources, such as water sources and hunting grounds, crucial for Indigenous livelihoods. Indigenous environmental management ensured these resources were used sustainably.[30] Moreover, many TSRs hold cultural significance, often linked to Dreaming tracks and Song Lines. Protection of these culturally significant sites is a priority in Indigenous environmental management.[31]

Additionally, fire management is a crucial aspect. Controlled burns along TSRs maintain plant species, enhance habitat conditions, and reduce the risk of wildfires. Water management, often adjacent to TSRs, ensures clean, accessible water for both people and wildlife.[32]

Finally, the centering of Indigenous voices in TSR management can help to empower their communities to make decisions regarding land use and environmental stewardship.[33] In summary, the management and use of TSRs should help to support Indigenous environmental management by preserving traditional knowledge, biodiversity, resource access, cultural significance, controlled burning, water management, education, conservation, and community engagement. These routes are essential for sustainable land use and cultural heritage preservation.

Figure 2.7 *Travelling Stock Reserves*



(Image Sources: https://www.lls.nsw.gov.au/__data/assets/pdf_file/0005/1200857/Travelling-Stock-Reserves-State-wide-Plan-of-Management.pdf)

How it is used in modern times

In modern times, Indigenous land management has the potential to seamlessly combines ancestral wisdom with technology, including helicopters and satellites.

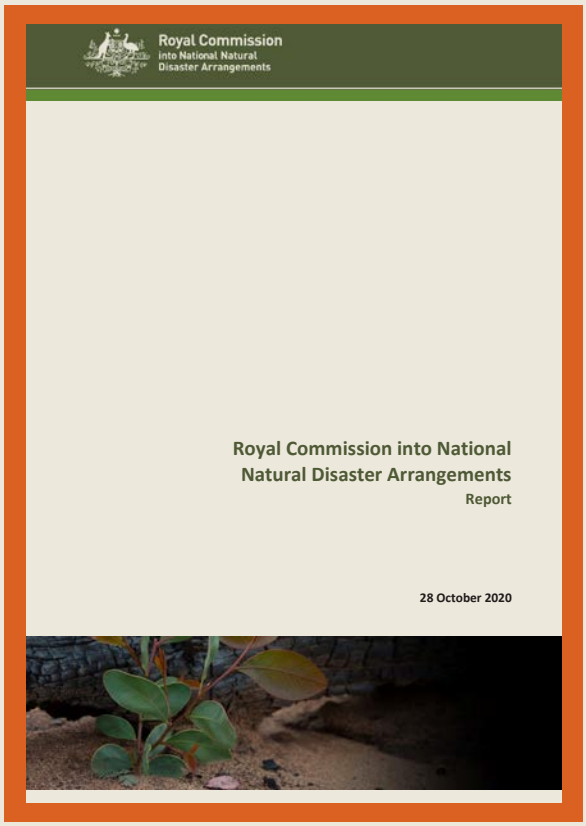
Public attention is shifting towards considering Indigenous fire management practices but current practice still heavily relies on Western methods which have received criticism, particularly in the 2019-2020 bushfires Royal Commission.[34] Growing recognition highlights the effectiveness of Indigenous land and fire management in mitigating bushfire impacts, particularly in northern Australia, where it has successfully reduced fire intensity and extent.[35] However, conditions in the north differ significantly from those in southern Australia.[36]

Despite these variations, there are opportunities to rejuvenate Indigenous land management practices in southern regions. Australian federal, state, and territory governments increasingly support these practices to yield both hazard reduction and environmental benefits while enhancing the resilience of Indigenous communities.

Disclaimer

It is worth also noting that since colonisation these processes have been restricted or prevented and knowledge has often been lost. However there is a movement to revive and restore this knowledge with many examples of joint management of parks between state and Aboriginal corporations. Also these old methods need to be melded with post-settlement hazard reduction methods given how much the landscape has changed since colonisation.

Figure 2.8 *Royal Commission into National Natural Disaster Arrangements*



(Image Sources: https://www.royalcommission.gov.au/natural-disasters#:~:text=Sometimes%20referred%20to%20as%20the,the%20impact%20of%20natural%20disasters.)

Figure 2.9 *Nungera Aboriginal Co-Operative Society in Maclean, Clarence Valley*

(Photo taken by Amy Kwong)

Engagement with Traditional Owners

For the design of this framework, identifying Aboriginal organisations with links to Country and Indigenous Knowledge and wisdom was seen as a high priority as we started to explore placemaking possibilities across the four localities. In the Clarence Valley, as it is across all unceded lands and waters, to speak of place is to speak of Gumbaynggirr, Yaegl and Bundjalung Country, hence Traditional Owner engagement will form a backbone to this framework.

Using local knowledge, the Fire to Flourish Clarence Valley team leader, Wiradjuri/ Ngemba woman Roxanne Smith, whilst not on Country, has lived in the region for many decades as well as held various key positions in Aboriginal organisations and land councils working in the area. Along with her team, Roxanne set about mapping cultural connections in the Clarence Valley with an emphasis on the four focus communities, Nymboida, Blicks (Hernani, Tyringham, and Dundurrabin), Woombah and Glenreagh (Orara Valley).

To commence, an initial desktop survey was taken, pulling data and contact details form Australian Charities and Not-for-profits Commission (ACNC), Office of the Registrar of Indigenous Corporations (ORIC), Native Title office and New South Wales Aboriginal Land Council (NSWALC) to identify and find contacts of relevant Aboriginal groups and organisations.

Simultaneously, both the Fire to Flourish Clarence Valley team and placemaking research team spent time with Elder and Traditional Owner, Aunty Patricia Laurie on Country during May and August 2023. During this time, Aunty Patricia provided detailed background about sites of significance within her Country that we visited together and where she holds cultural authority. She also explained protocols on how we (or don't) inhabit these places, as well as cultural awareness training to foreground our work.

Furthermore, initial connections were made with Aboriginal organisations who had potential to be landowners or have strong caring for Country and knowledge connections. This was an involved process culminating in attendance at the local Aboriginal Interagency meeting where the placemaking projects were explained and input was sought.

All Aboriginal organisations connected with were added to the Clarence Valley contact database and regular newsletters, which included detailed information about the placemaking engagement. In addition to this, a specific email was developed for Aboriginal organisations, inviting input and inclusion.

Outside of the above contact, personalised invitations were forwarded to all Aboriginal organisations to attend planning meetings, or to have one-to-one sessions to explain this project. Dorrigo Local Aboriginal Land Council (LALC), Ngerrie LALC (Grafton) and Birrigan Gargle LALC (Yamba) attended meetings; subsequent meetings were also held with Yaegl LALC (Maclean).

The Blicks placemaking workshops had attendance by Dorrigo LALC and the Woombah placemaking workshops had attendance by Mudyala Aboriginal Corporation. Mudyala facilitated children's activities during the workshops which was an ideal way to incentivise Traditional Owner involvement given a local community organisation led and participated, which created a culturally safer space for sound contributions during the workshops.

Looking to ensure that Indigenous Knowledge and wisdom was honoured and to provide deeper acknowledgement of the connection to Country of local First Nations people, it felt critical to create a more robust level of engagement and input from Traditional Owner groups, Land Councils and Elders. A strategy was developed by Roxanne Smith to engage a dedicated and well respected local person with contacts and past roles across all Nations in the Clarence Valley, to further develop these connections. From October 2023, Aboriginal facilitator Gomeroi/Barkindji man Wesley Fernando was engaged to undertake this role, and has been connecting, in partnership with the placemaking research and F2F Clarence Valley teams, with the following organisations:

- **Yaegl Native Title**
- **Yaegl LALC**
- **Birrigan Gargle LALC**
- **Mudyala Aboriginal Corporation**
- **Yaegl Elders Group**
- **Muurrbay Bundani Aboriginal Corporation**
- **Grafton Ngerrie LALC**
- **Dorrigo LALC**

Across December 2023 to January 2024, a parallel exhibition of the placemaking projects will be installed on site across a selection of the above organisations to seek specific feedback on the placemaking work to date. Again, this feedback will ideally influence attendance by key people from these organisations during the February-March 2024 F2F participatory granting, where projects foregrounding Aboriginal wisdom will be favoured.

Clarence River Mouth Joining the Pacific Ocean

Clarence Valley Context

03

(Photo taken by Amy Kwong)

3.1 Bundjalung, Gumbaynggirr and Yaegl Country

Aboriginal History

Aboriginal occupation of the north coast around Clarence Valley dates back at least 8,500 years. Prior to European contact and colonisation in the 18th century, the Clarence Valley has been home to the Bundjalung, Gumbaynggirr, and Yaegl People.[37]

Countries were largely defined by physical features in the landscape, such as hills, watercourses, and rock outcrops. Bundjalung Country covers the region between the headwaters of the Clarence and Richmond Rivers, inland to Tabulum and Baryulgil.[38] Gumbaynggirr Country includes land bounded by the Nymboida River to the west, extending along the coast to Coffs Harbour and Woolgoolga, and north towards Glenreagh and Grafton. Yaegl Country stretches from the lower Clarence River, Grafton and to the sea, although the Northern boundary has not been precisely defined.

These Aboriginal communities had a diverse and abundant economy. The diet of these communities included a wide range of seafoods found in the Clarence, Orara and Nymboida Rivers. The rivers throughout Clarence Valley and the coastal areas are a resource-rich area and hold significance both culturally and for natural resources such as food.[39]

Colonial Time

The early European settlement in the Richmond and Clarence River districts was primarily driven by timber cutters. Initially, there were reportedly friendly relations between local Aboriginal people and the timber cutters in Bundjalung country.

However, as European settlement expanded, colonial violence arose. The disruption of Aboriginal life intensified with the arrival of European squatters in the 1830s and 1840s. Squatting licences were issued, leading to the occupation of land for pasture, resulting in conflicts over land ownership and resources.[40] The Border Police were established in 1839 to disperse Aboriginal communities who resisted European incursions. Violent incidents occurred, including the killing of squatters, murders at Ramornie Station and Yulgilbar, and the notorious Orara River massacre in 1841, resulting in significant displacement and loss of Aboriginal lives. Aboriginal reserves and settlements were established to separate them from white society.[41] The government aimed to control and suppress Aboriginal cultural practices, as seen in instances such as children at Ulgundahi being forced to attend school lessons and church on Sundays.[42]

This history of colonial assimilation and control should be understood and carefully considered in a respectful manner in any place-based initiative in Clarence Valley.

Figure 3.1 *Gumbaynggirr, Yaegl and Bundjalung Country*

(Figure created by Amy Kwong)

Aboriginal Culture Significance

Efforts have been made towards reconciliation, challenging the prevailing legislative and social limitations that did and still do heavily discriminate, particularly for Aboriginal language revitalization and preserving cultural identity.

The overwhelmingly favoured 1967 referendum sought to eliminate discriminatory references to Aboriginal people in the Australian Constitution.[43] An exhibition at the Grafton Regional Gallery in 2008 showcased Indigenous art from the North Coast, emphasising the role of art in retaining cultural connections. In 2011, a Ministerial Taskforce on Aboriginal Affairs identified the importance of opportunities for Aboriginal people to learn local languages, and access quality education, refinforcing what grassroots communities have been advocating for, for many years.[44]

The disheartening result of the 2023 Indigenous voice to parliament is still raw, exposing that there is still a long way to go in recognising that sovereignty for Indigenous people could change past failures in disaster preparedness as well as other social and cultural issues in Australia. Therefore, it is crucial that cultural awareness is a priority in this framework through to the actions that follow.

Figure 3.2 *Aboriginal Artworks along Pacific Highway*

(Image sources: https://pacifichighway.nsw.gov.au/drive-songlines)

Local Aboriginal Land Council

Figure 3.3

(Map exported by John Momis and Figure created by Amy Kwong)
(Data Source: https://data.nsw.gov.au/data/dataset/1-8b4a0762283b458187c4960e771d8ef2)

Indigenous Ecology

Indigenous communities share a profound bond with their Country, possessing extensive expertise about its environment, ecosystems, waterways and ecology. This insightful comprehension has enabled them to safeguard and preserve vital plant species that play a central role in their way of life. These plants serve multiple purposes for Aboriginal people, including medicinal uses, crafting of weapons, and constructing shelter. Their philosophical understanding of these ecological systems also equips them with the knowledge to effectively manage and respond to natural calamities like drought, bushfires and floods.

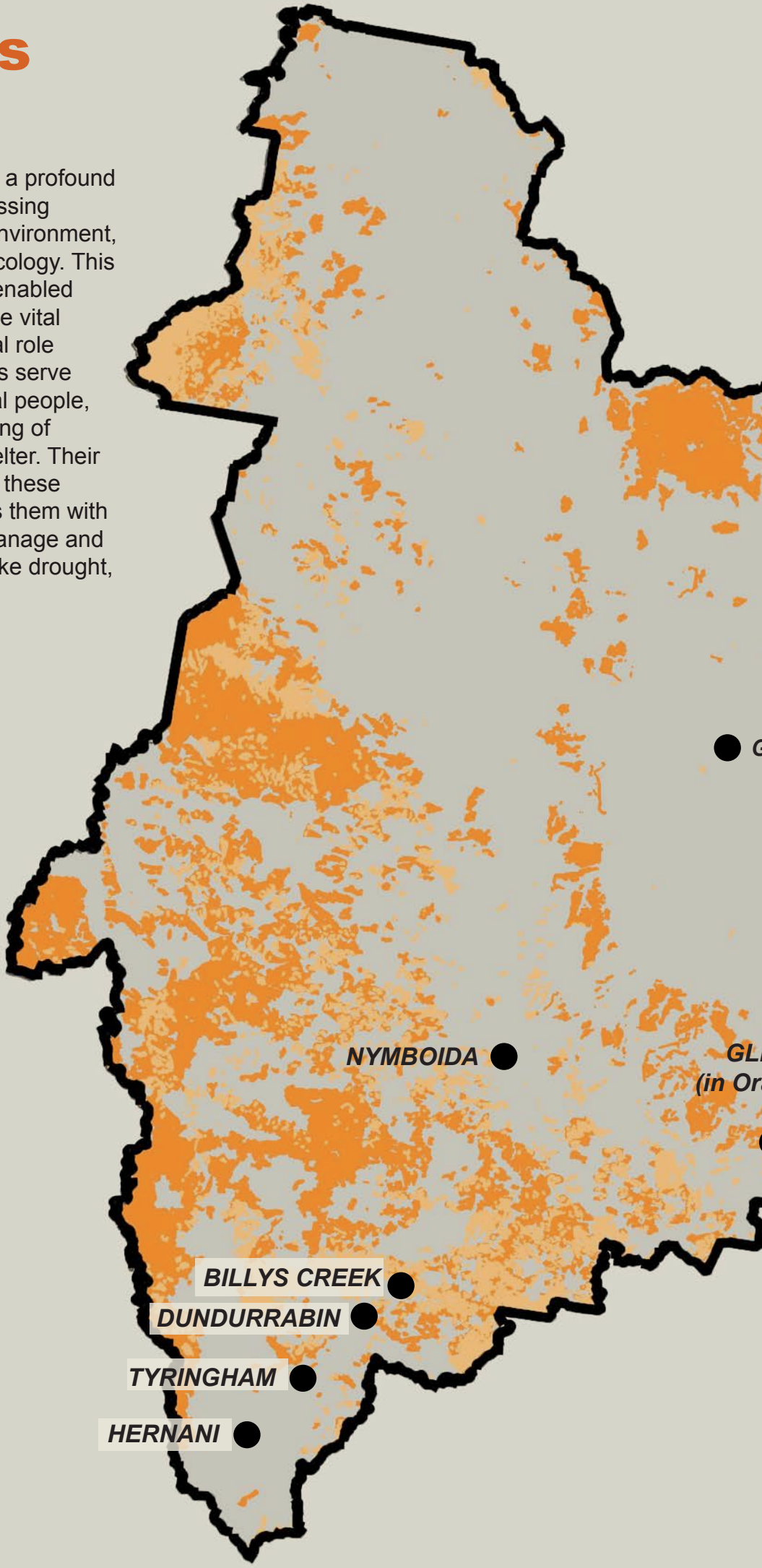
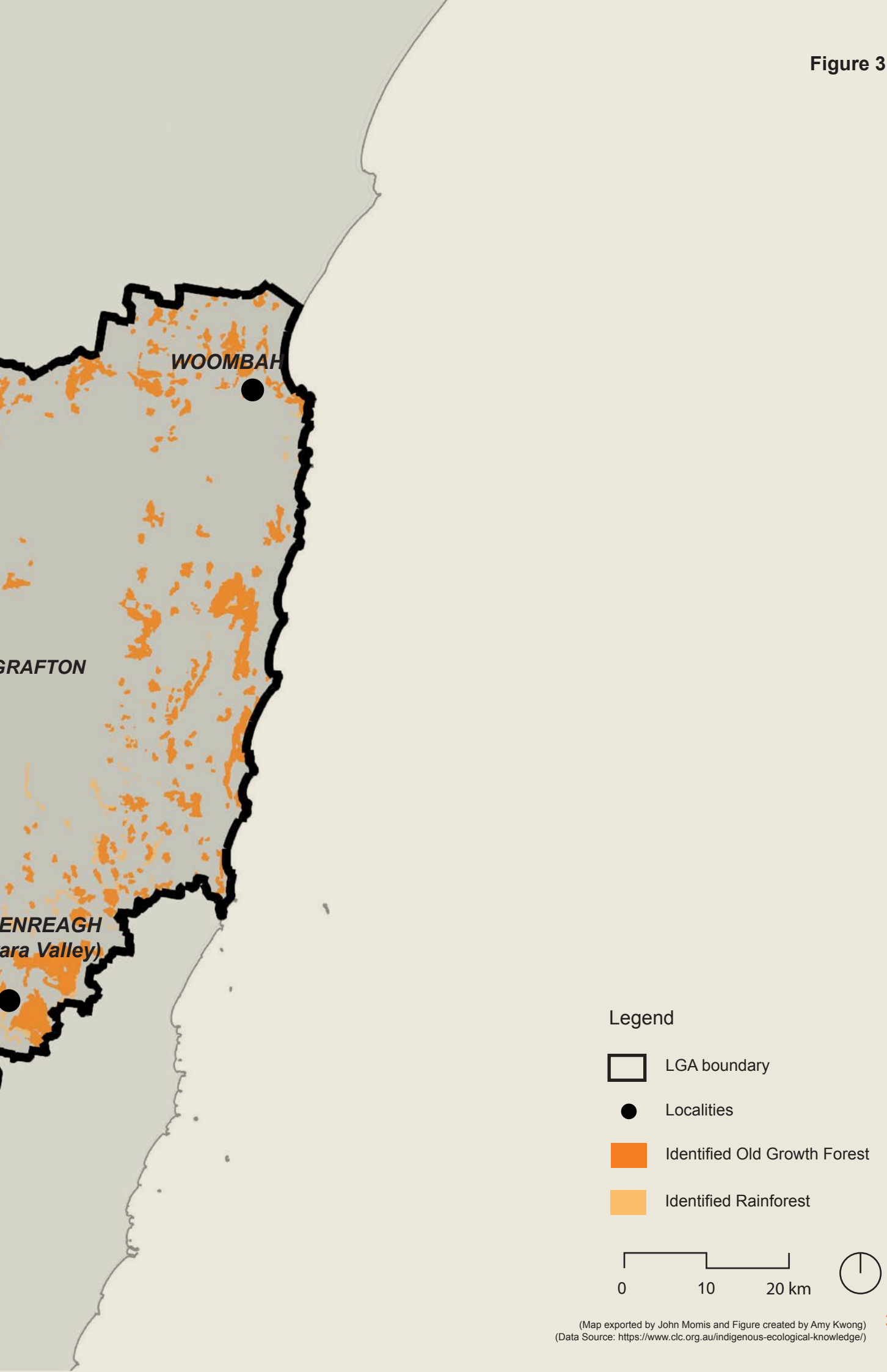


Figure 3.4



(Map exported by John Momis and Figure created by Amy Kwong)
(Data Source: https://www.clc.org.au/indigenous-ecological-knowledge/)

3.2 Spaces and Places

Geographical and Physical Context

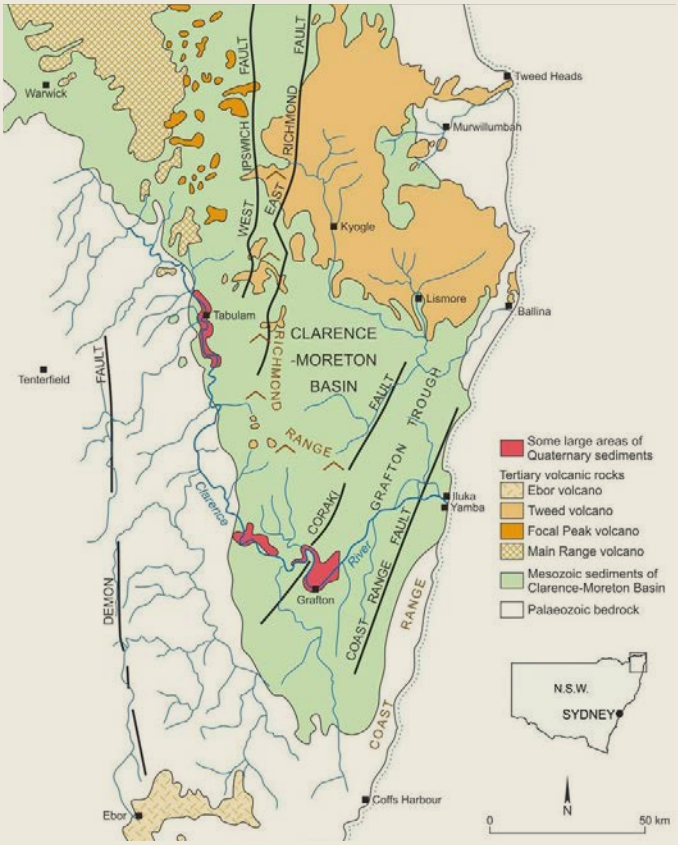
Clarence Valley is situated in the North Coast Region of NSW (Figure 3.6 refers). The majority part of Clarence Valley falls within the Clarence Moreton Basin, extending from the Great Dividing Mountain Range from the west to the coastal landscape to the Pacific Ocean to the east (Figure 3.5 refers). Major waterways, notably the Clarence River, Nymboida River, Blicks River and Orara River, not only nourish fertile floodplains but also serve as vital support for agriculture and farmland in the region (Figure 3.7 refers).

Major roads, including the Pacific Highway, Summerland Highway and Gwydir Highway, serve as the transport corridors linking the towns in Clarence Valley to other developed urban areas, such as Coffs Harbour to the South and Lismore, Ballina and Byron Bay to the North (Figure 3.7 refers). Major inland towns in Clarence Valley include Grafton, the oldest town in Clarence Valley, and Glenreagh, while two towns closer to the coast are Maclean and Yamba (Figure 3.7 refers). Those towns are also having a higher population density in Clarence Valley in 2021.[45]

Ecological Context

Given its geographic location, Clarence Valley holds various natural resources, enveloped by various water courses, state forests and conservation areas (Figure 3.8 refers). There are rainforests and wetlands scattered, and beaches along the Pacific coast, which contain extensive biodiversity and ecological value (Figure 3.9 refers). It is noteworthy that those densely vegetated areas might also be exposed to bushfire risk while the riversides and coastal areas might also suffer from flood risk.

Figure 3.5 *The Clarence-Moreton Basin*



(Image Source: https://www.researchgate.net/figure/Map-of-the-Clarence-River-catchment-area-showing-the-main-drainage-lines-and-key_fig2_293817494)

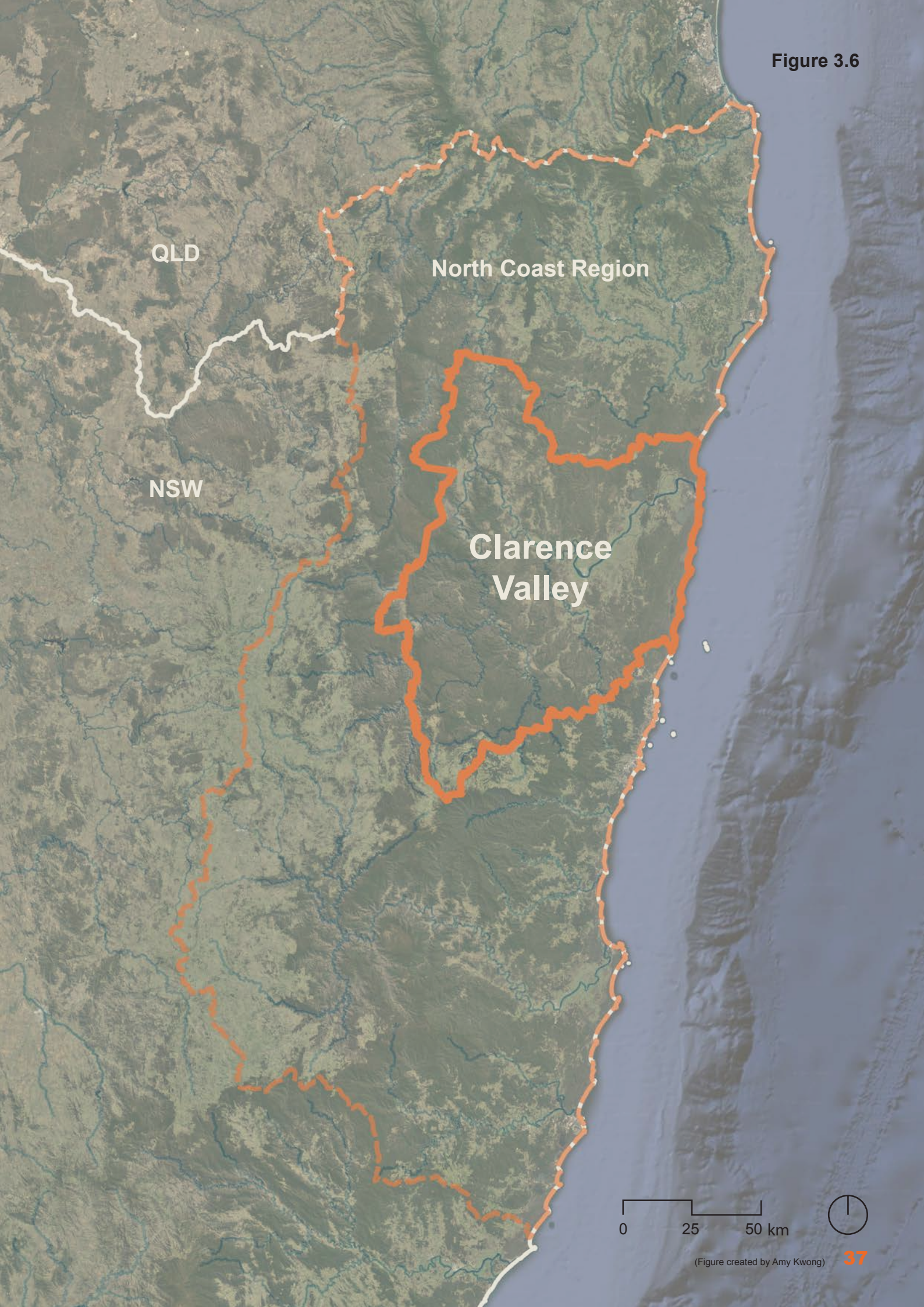


Figure 3.6

(Figure created by Amy Kwong)

Physical Attributes

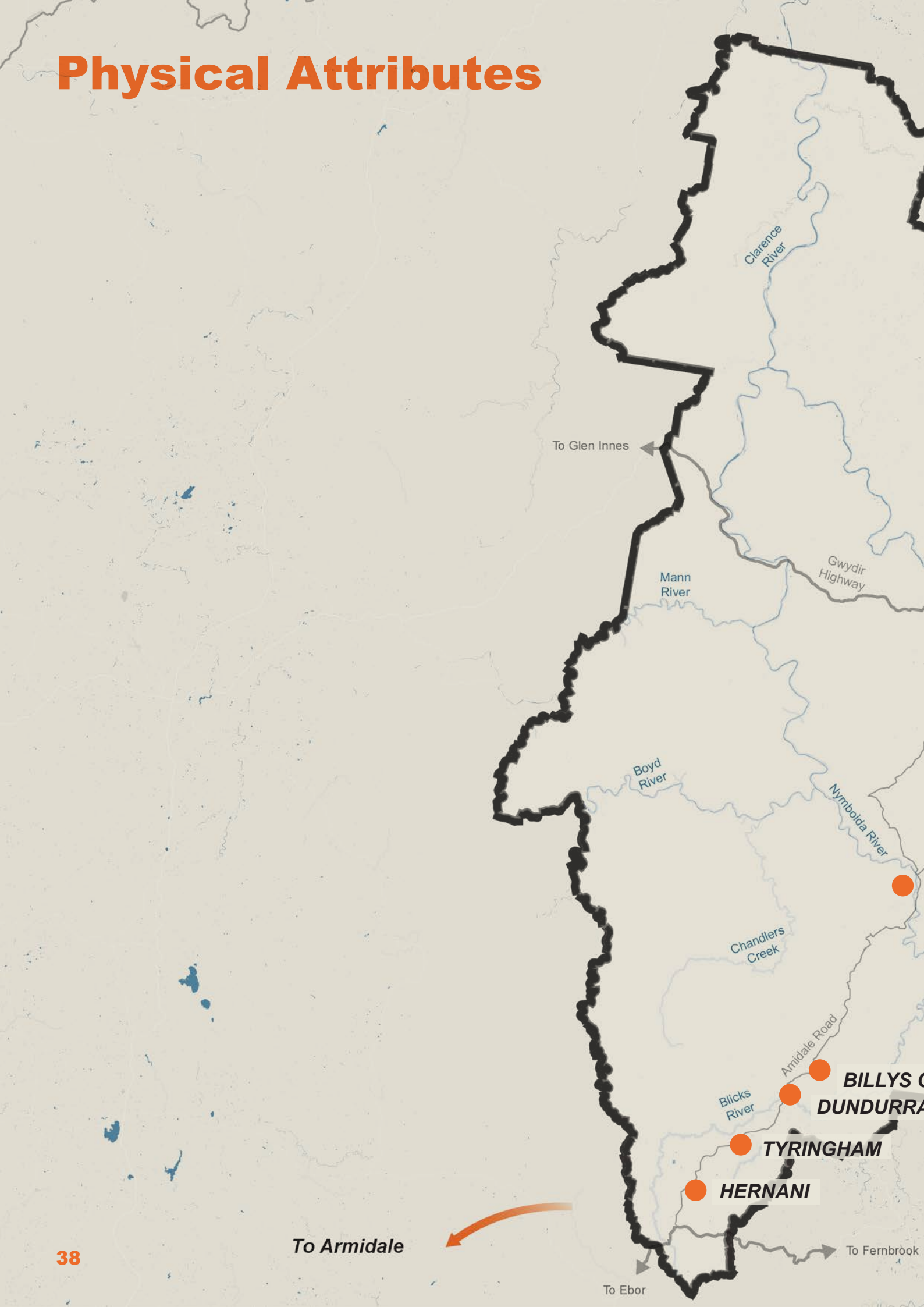
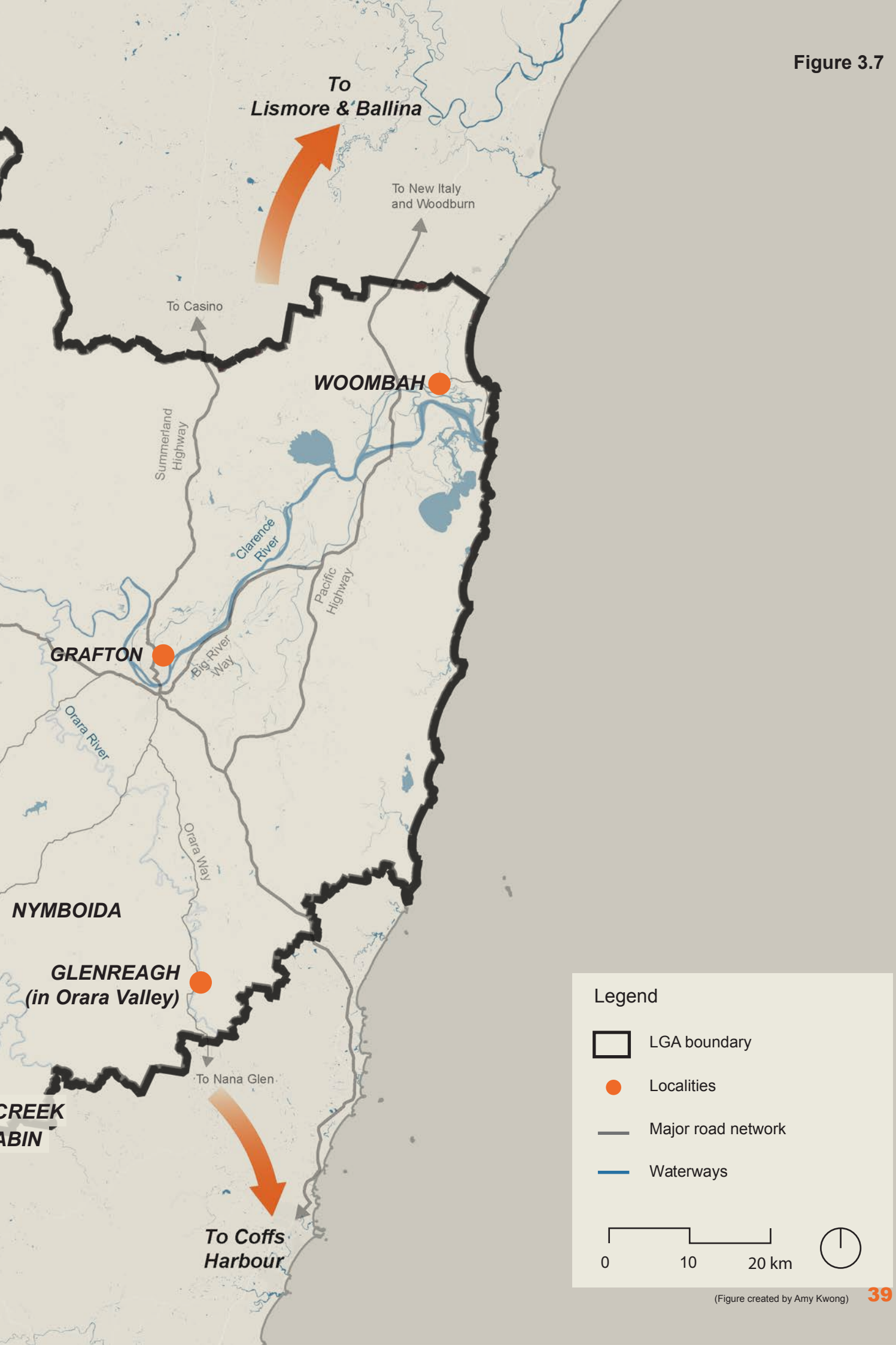


Figure 3.7



(Figure created by Amy Kwong)

Natural Assets

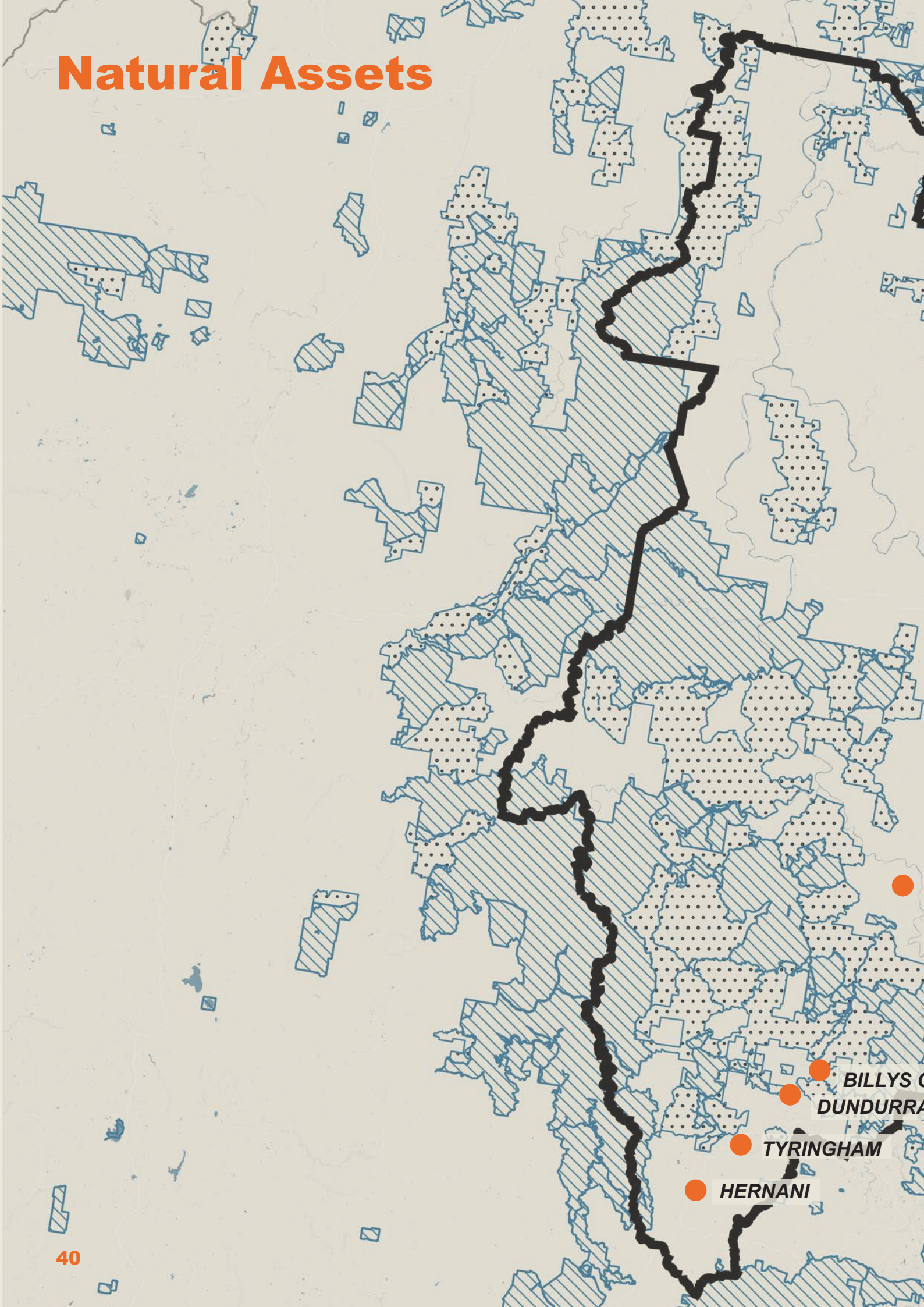
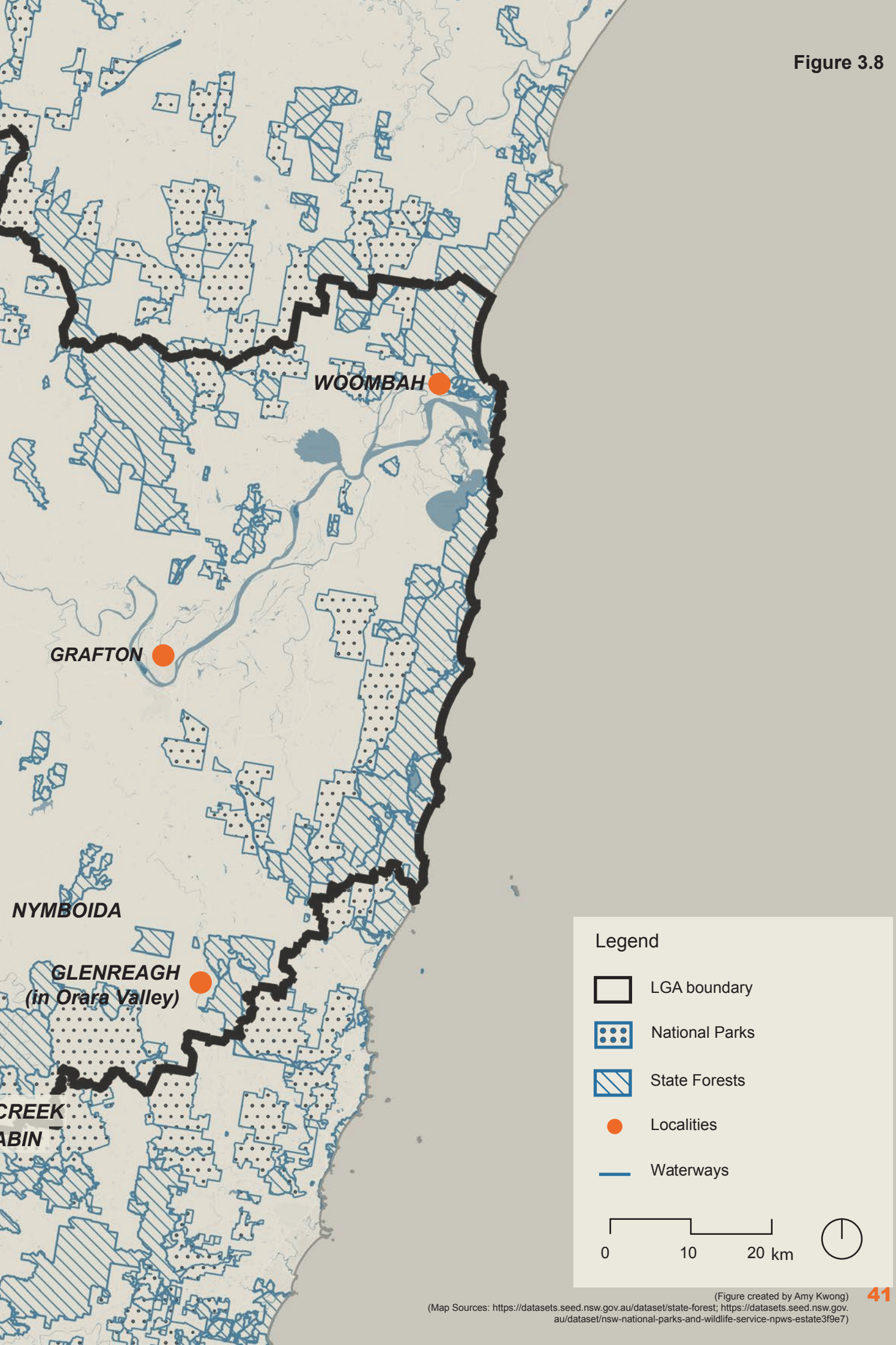


Figure 3.8



(Figure created by Amy Kwong)
(Map Sources: https://datasets.seed.nsw.gov.au/dataset/state-forest; https://datasets.seed.nsw.gov.au/dataset/nsw-national-parks-and-wildlife-service-npws-estate3f9e7)

Biodiversity and Ecology

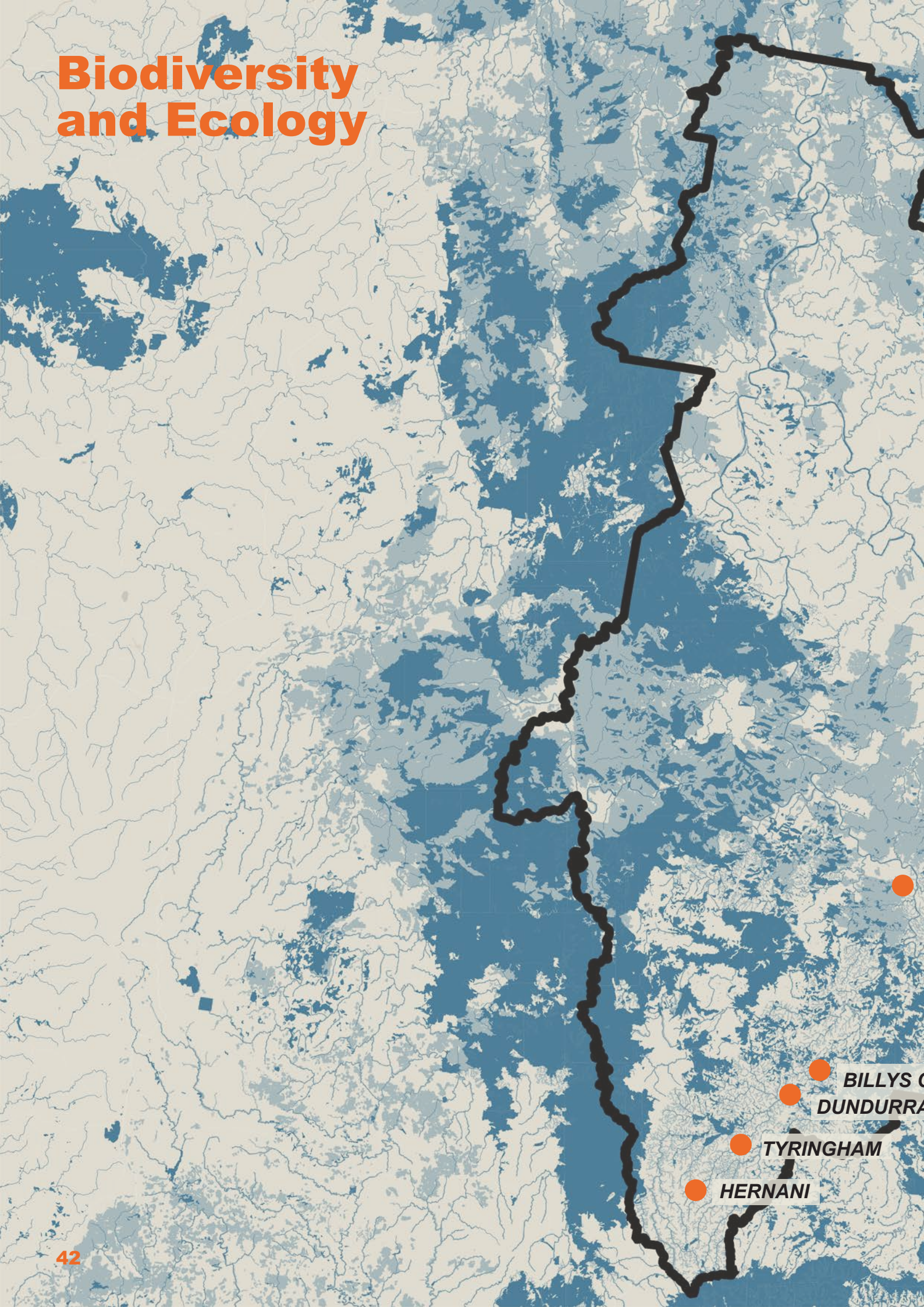
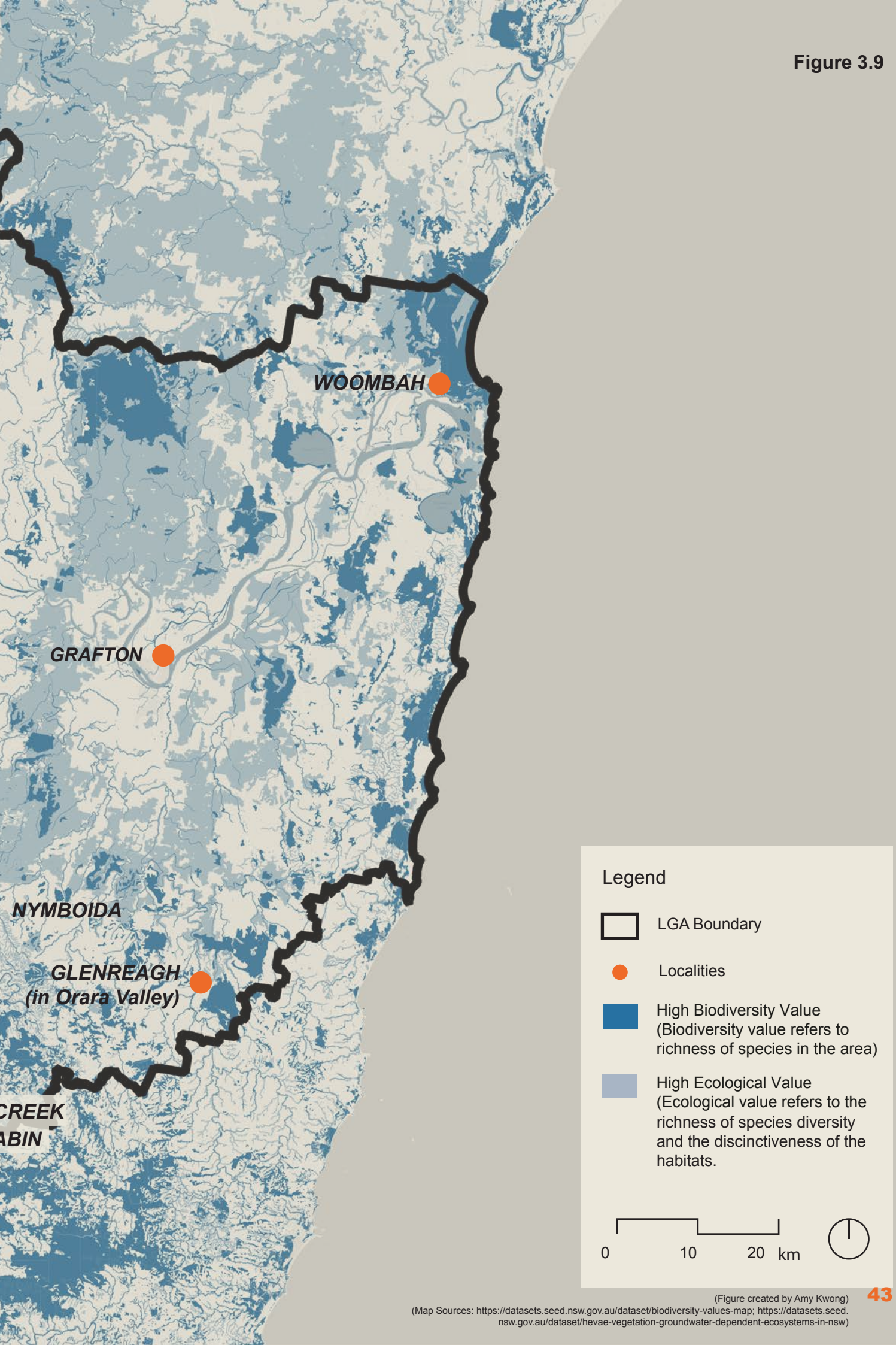


Figure 3.9



(Figure created by Amy Kwong)
(Map Sources: https://datasets.seed.nsw.gov.au/dataset/biodiversity-values-map; https://datasets.seed.nsw.gov.au/dataset/hevae-vegetation-groundwater-dependent-ecosystems-in-nsw)

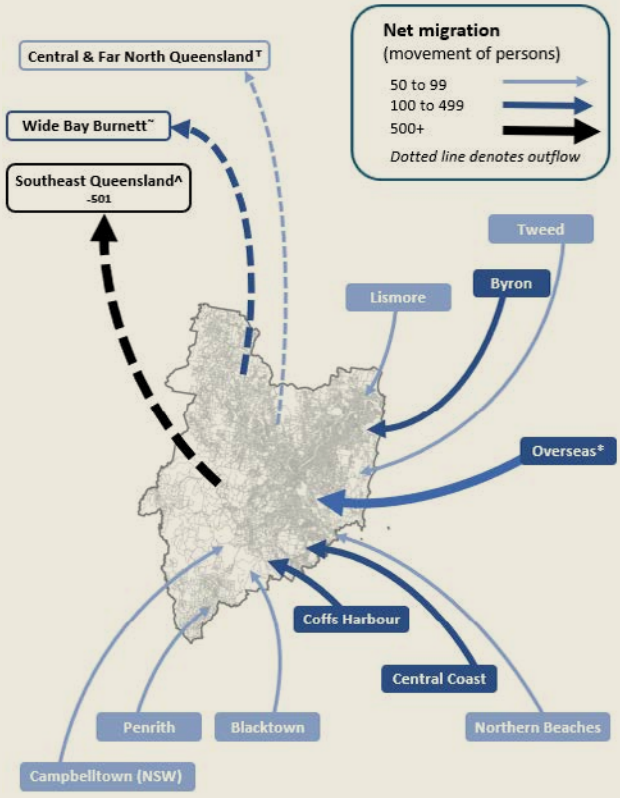
3.3 People and Communities

Facing various disasters and a pandemic, the myriad of communities that make up the larger Clarence Valley area were shown to be deeply resilient, seen in the stories told by community members and the media. This is also revealed in the data collected by the Australian Bureau of Statistic ("ABS").

Population and Migration

Despite the fires, flooding and COVID-19 pandemic, Clarence Valley remained a place of steady growth (Figure 3.10 refers), as levels continued to be comparable to NSW annually, with it expected to welcome another 10,000 community members by 2041.[46]

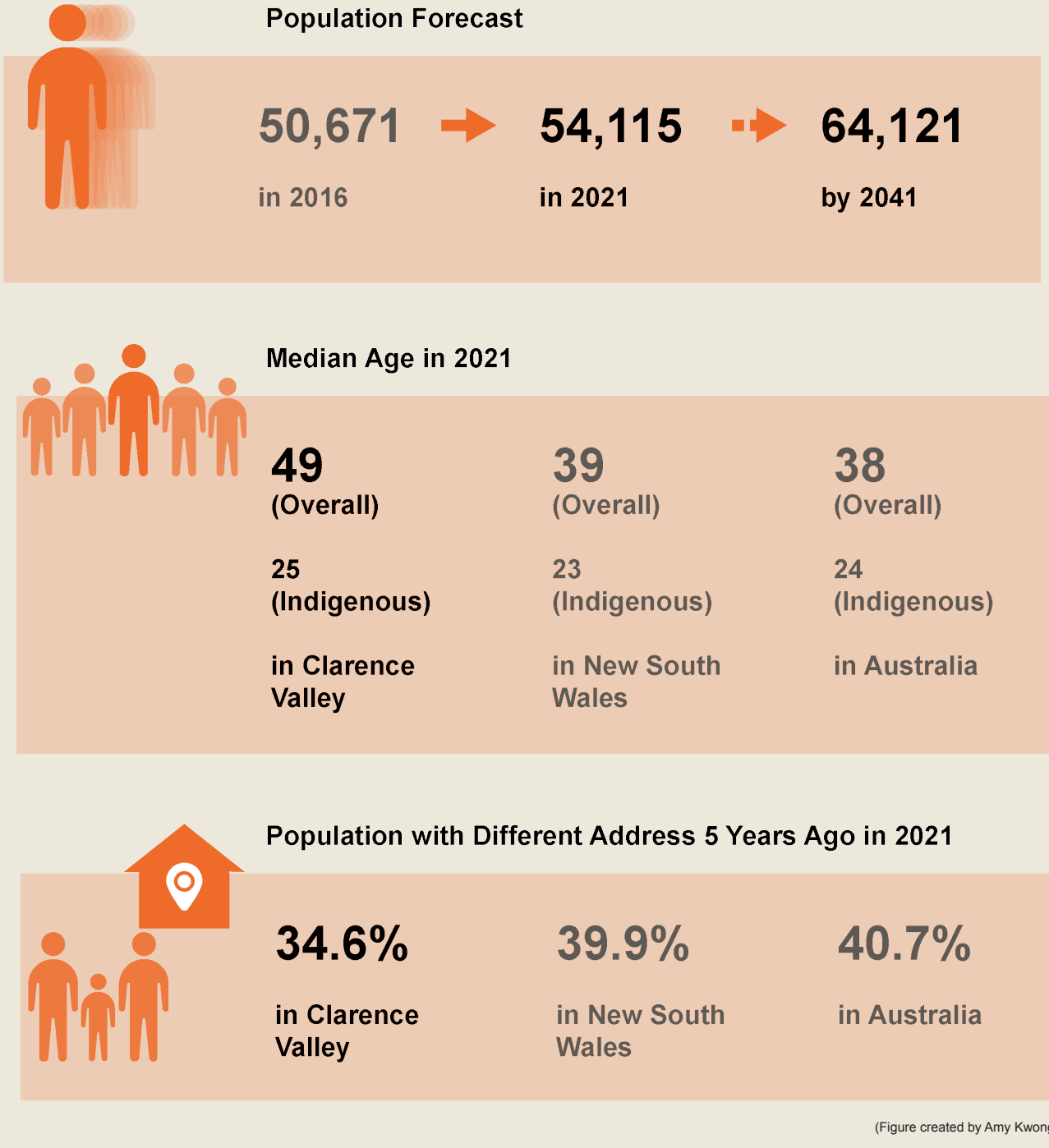
Figure 3.10 *Historical migration flows, Clarence Valley Council, 2016-2021*



(Image Source: https://forecast.id.com.au/clarence-valley/drivers-of-population-change)

Clarence Valley's natural environment and picturesque landscapes are a natural draw for those looking to retire in a peaceful, relaxing place. The community is an ageing one, which could reflect the area's attraction for retirees, with a median age that is much higher than NSW and Australia comparably, with its Indigenous population reflecting this at a less significant level.[47] The importance of ensuring community facilities, disaster plans and accessibility measures are appropriate for an elderly population cannot be understated and will only help to build the Clarence Valley's resilience to disaster. Part of this is implementing changes to allow residents to remain in their current homes and age in place, as moving, particularly in the context of disaster, becomes incredibly difficult with age. This need and desire has been reflected in the migration patterns of the community, with a much higher proportion of the population remaining in place between 2016 and 2021, comparative to NSW and Australia.[48]

Figure 3.11 *ABS 2021 Census - Population*



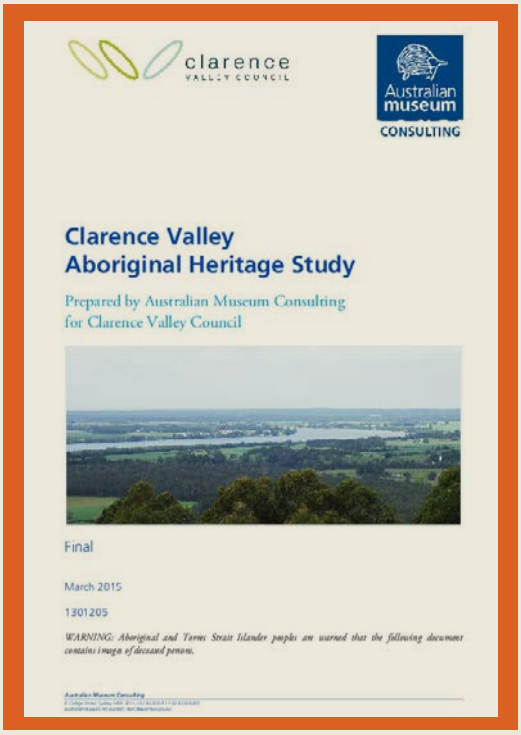
(Figure created by Amy Kwong)

Cultural Identity

Culturally, Clarence Valley's connection to the Bundjalung, Gumbaynggirr and Yaegl nations is ever present, with its Aboriginal population being proportionally much higher than wider NSW's and Australia's which is also reflected more broadly in the comparative proportion of population that holds Indigenous Status.[49]

Whilst the Bundjalung, Gumbaynggirr and Yaegl Country are strongly represented in the community, Clarence Valley otherwise remains a heavily Anglo-Australian place with vast majority of households only speaking English at home, with NSW and Australia comparatively having a much higher percentage of people speaking languages other than English.[50]

Figure 3.12 *Historical migration flows, Clarence Valley Council, 2016-2021*



(Source: https://www.academia.edu/39858143/Clarence_Valley_Aboriginal_Heritage_Study)

Figure 3.13 *2023 Clarence Valley Indigenous Art Award Exhibition in Grafton Regional Gallery*

(Source: https://www.facebook.com/graftonregionalgalleryau/photos)

Figure 3.14 *ABS 2021 Census - Cultural Diversity*

Australian Aboriginal Ancestry in 2021

7.1%	3.2%	2.9%
in Clarence Valley	in New South Wales	in Australia

Population with Indigenous Status in 2021

8.1%	3.4%	3.2%
in Clarence Valley	in New South Wales	in Australia

Population Using English Only At Home in 2021

88.8% (Overall)	67.6% (Overall)	72% (Overall)
85.2% (Indigenous)	93.2% (Indigenous)	84.1% (Indigenous)
in Clarence Valley	in New South Wales	in Australia

(Figure created by Amy Kwong)

Socio-economics and Employment

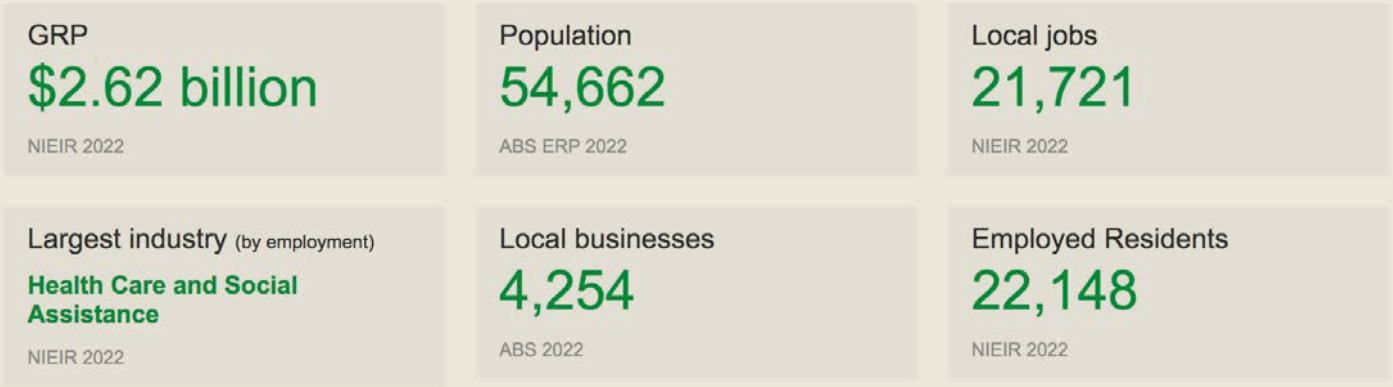
The Clarence Valley has both historically and currently faced significant hardship and disadvantage. Its SEIFA index score reflects this, as the area is placed in the bottom 30% of the country experiencing disadvantage which is more specifically reflected in its high unemployment rate, both overall and amongst Indigenous people, along with its comparatively low weekly income.[51] The Clarence Valley's lower labour force participation rate could explain this; however, its ageing population would also lower the number of people in the workforce.

These factors speak to the strong identity and resilience of the various communities in this region, as disadvantage aggrevates the effects of disaster. To ease the impacts felt by communities in times of disaster it is crucial that community and government efforts are made to boost employment, education, and economic activity for both the wider community and the disproportionately affected Indigenous communities that make up the region.

Note:

The Socio-Economic Indexes for Areas (SEIFA) index is a measure created and used by the Australian Bureau of Statistics to help identify the relative level of disadvantage or advantage. Each area is given a score, with the average score being 1000 and two-thirds of Local Government Areas (LGA) falling between 900 and 1100. The score is determined by a number of factors such as level of unemployment, income, education and housing. An easy way to understand SEIFA is to look at which percentile an area falls within. For example if an LGA was in the 72nd percentile it would indicate that it is more advantaged than 72% of the other LGAs in Australia, whilst more disadvantaged than 28% of them.[52]

Figure 3.15 *Key Statistics of Economic Profile of Clarence Valley*



(Image Source: https://economy.id.com.au/clarence-valley/)

Figure 3.16 *ABS 2021 Census - Socio-Economy*

SEIFA Index (IRSD) in 2021

940	**966.8**	**982**
in Clarence Valley	in North Coast Region	in New South Wales

Population in Labour Force in 2021

46.4%	**58.7%**	**61.1%**
in Clarence Valley	in New South Wales	in Australia

Unemployment Rate in 2021

6.2% (Overall)	**4.9%** (Overall)	**5.1%** (Overall)
13.8% (Indigenous)	9.8% (Indigenous)	12.3% (Indigenous)
in Clarence Valley	in New South Wales	in Australia

Median Household Weekly Income in 2021

$1,123	**$1,829**	**$1,746**
in Clarence Valley	in New South Wales	in Australia

(Figure created by Amy Kwong)

Housing

The high level of disadvantage in Clarence Valley has only been aggravated by the growing housing crisis impacting the entirety of Australia. Whilst homeownership is more common in the region than in NSW and Australia, which might be due to the higher number of retirees and historically cheaper property prices, for the remainder of the population that are renting or living in social housing, the housing crisis has had an immense impact.

For the quarter of the population that rents, a much higher proportion are handing over almost a third of their income to make rent, which in combination with the area's high level of disadvantage means that housing is often unstable, insecure and unaffordable.[53] Ensuring Clarence Valley has secure, affordable, long-term housing as well as a high level of emergency accommodation available for those in need in times of crisis and disaster is a significant challenge in building the region's resilience.

Figure 3.17 *Housing in Clarence Valley*

(Image Source: https://www.clarence.nsw.gov.au/News-articles/HAVE-YOUR-SAY-Clarence-Valley-Housing-Strategy)

Figure 3.18 *ABS 2021 Census - Housing*

Homeownership Rate in 2021

73%	64%	66%
in Clarence Valley	in New South Wales	in Australia

Population in renting in 2021

25.4%	31.8%	30.9%
in Clarence Valley	in New South Wales	in Australia

Median Rent in 2021

$310	$420	$375
in Clarence Valley	in New South Wales	in Australia

Renter Households with Rent Payments Greater Than 30% of Household Income in 2021

43.4%	35.5%	32.2%
in Clarence Valley	in New South Wales	in Australia

(Figure created by Amy Kwong)

3.4 Impacts and Challenges of Disasters

Bushfires

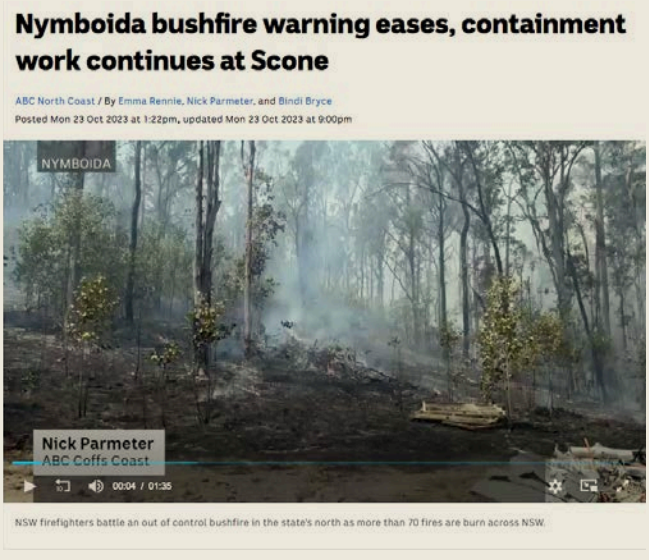
Bushfires have been an enduring and destructive part of the Clarence Valley. Fires stemming from both natural occurrences and human interactions, have played a significant role in shaping the region, often compounding other forms of disadvantage leaving communities in a difficult position to rebuild and recover. Throughout the twentieth century, numerous bushfire events posed threats to property and the environment (Figure 3.21 refers), leading to enhanced fire management strategies. The early twenty-first century of bushfire risk brought heightened awareness due to the significant amounts of community loss and the increasing threat of climate change to the environment. This highlights the importance of preparedness and collaborative efforts to manage and mitigate these events in the Clarence Valley.

The 2019-2020 bushfires in the Clarence Valley had a profound impact on the region (Figure 3.21), resulting in the loss of homes, infrastructure and Country in areas, as well as health issues stemming from poor air quality in towns. It also resulted in significant economic disruption for farmers, notably dairy farmers who saw declines in milk production and livestock loss, and widespread community trauma and psychological distress. This necessitated the deployment of mental health support services and resilience-building efforts to address the far-reaching consequences of the fires on both the physical landscape and the well-being of local residents and emergency responders.

Figure 3.19 *2023 August News Headline of Bushfires in Clarence Valley*

(Image Source: https://www.abc.net.au/news/2023-08-23/rfs-suspects-weekend-bush-fires-northern-nsw-deliberately-lit/102758390)

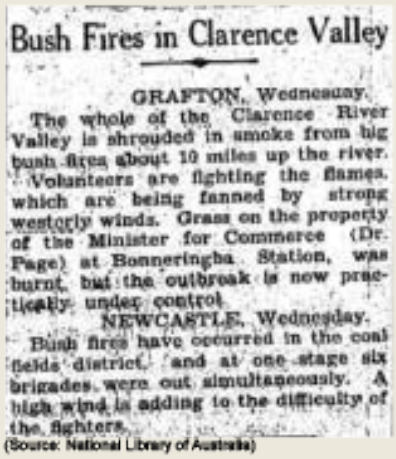
Figure 3.20 *2023 October News Headline of Bushfires in Nymboida*



(Image Source: https://www.abc.net.au/news/2023-08-23/rfs-suspects-weekend-bush-fires-northern-nsw-deliberately-lit/102758390)

Figure 3.21 *Timeline of Bushfire History in Clarence Valley*

1936



Bush Fires in Clarence Valley

GRAFTON, Wednesday.

The whole of the Clarence River Valley is shrouded in smoke from big bush fires about 10 miles up the river. Volunteers are fighting the flames, which are being fanned by strong westerly winds. Grass on the property of the Minister for Commerce (Dr. Page) at Bonneringba Station, was burnt, but the outbreak is now practically under control.

NEWCASTLE, Wednesday.

Bush fires have occurred in the coal fields district, and at one stage six brigades were out simultaneously. A high wind is adding to the difficulty of the fighters.

(Source: National Library of Australia)

1960s

The Clarence Valley and Orara Valley regions witnessed several bushfire incidents that varied in scale, with some posing significant challenges to local communities and necessitating enhanced fire management efforts.

2003-2004

Between 2003 and 2004, the RFS declared localized State of Emergencies somewhere in NSW for 151 consecutive days during the bushfire season

(Source: https://www.rfs.nsw.gov.au/__data/assets/pdf_file/0016/41174/Bushfire-Bulletin-2003-Vol-25-No-1.pdf)

2014-2015

During the 8-day period starting from 1 August, 114 bush and grass fires burned through 9,500 ha (23,000 acres) of Clarence Valley and Kempsey local government areas.

(Source: https://www.abc.net.au/news/2014-01-17/victoria-sa-nsw-bush-fires-continue-to-rage/5206194)

2019-2020

Between July 2019 and January 2020, the fire wiped out 168 houses, 418 outbuildings and over 10,000km of fencing were lost. The fires directly impacted 1500 rural residents, Dundarrabin and Glenreagh were severely hit.

(Source: Dailytelegraph)

(Figure designed by Mohana MJ and reproduced by Jenny)

Fire History 1988 to Oct 2023

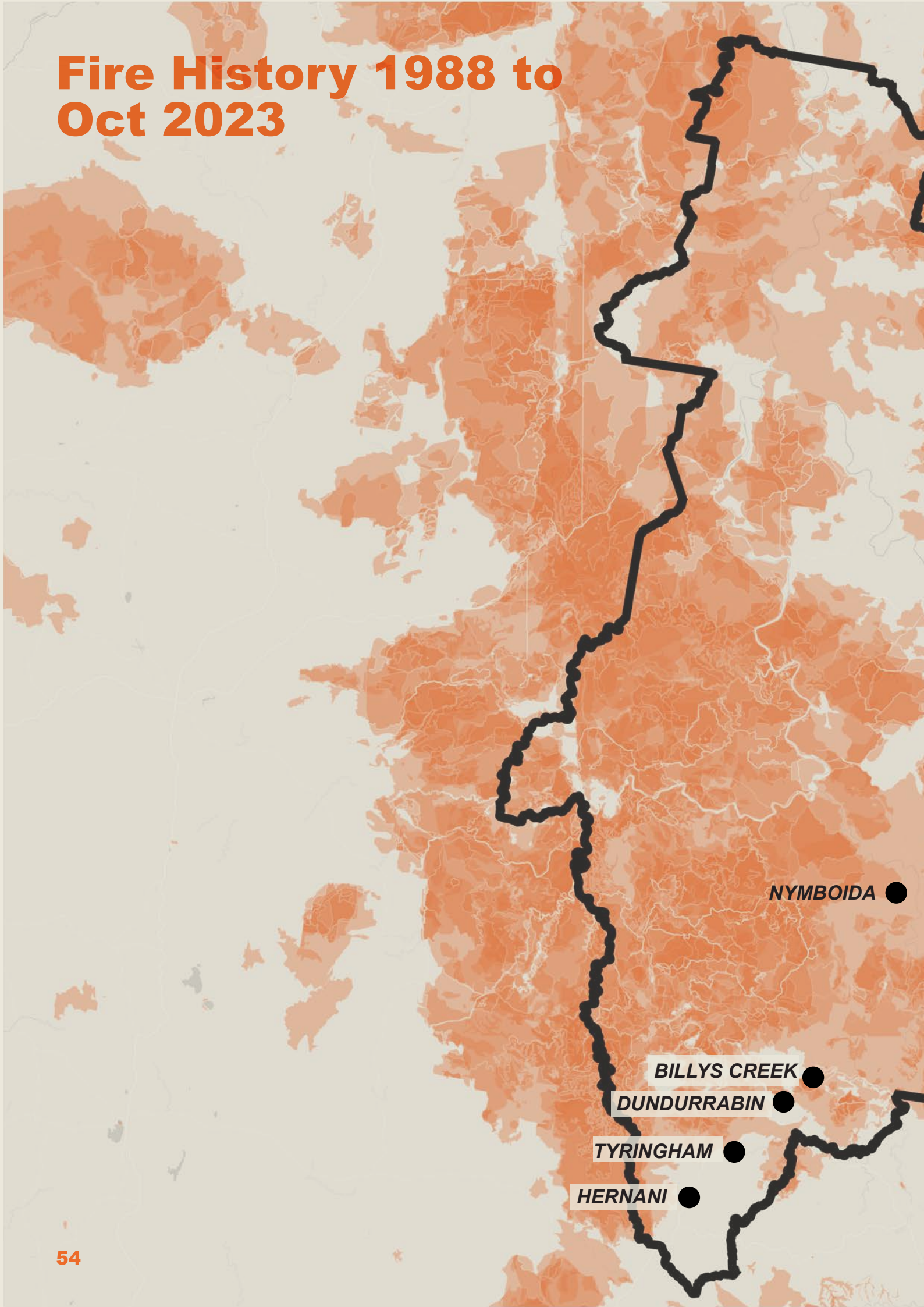
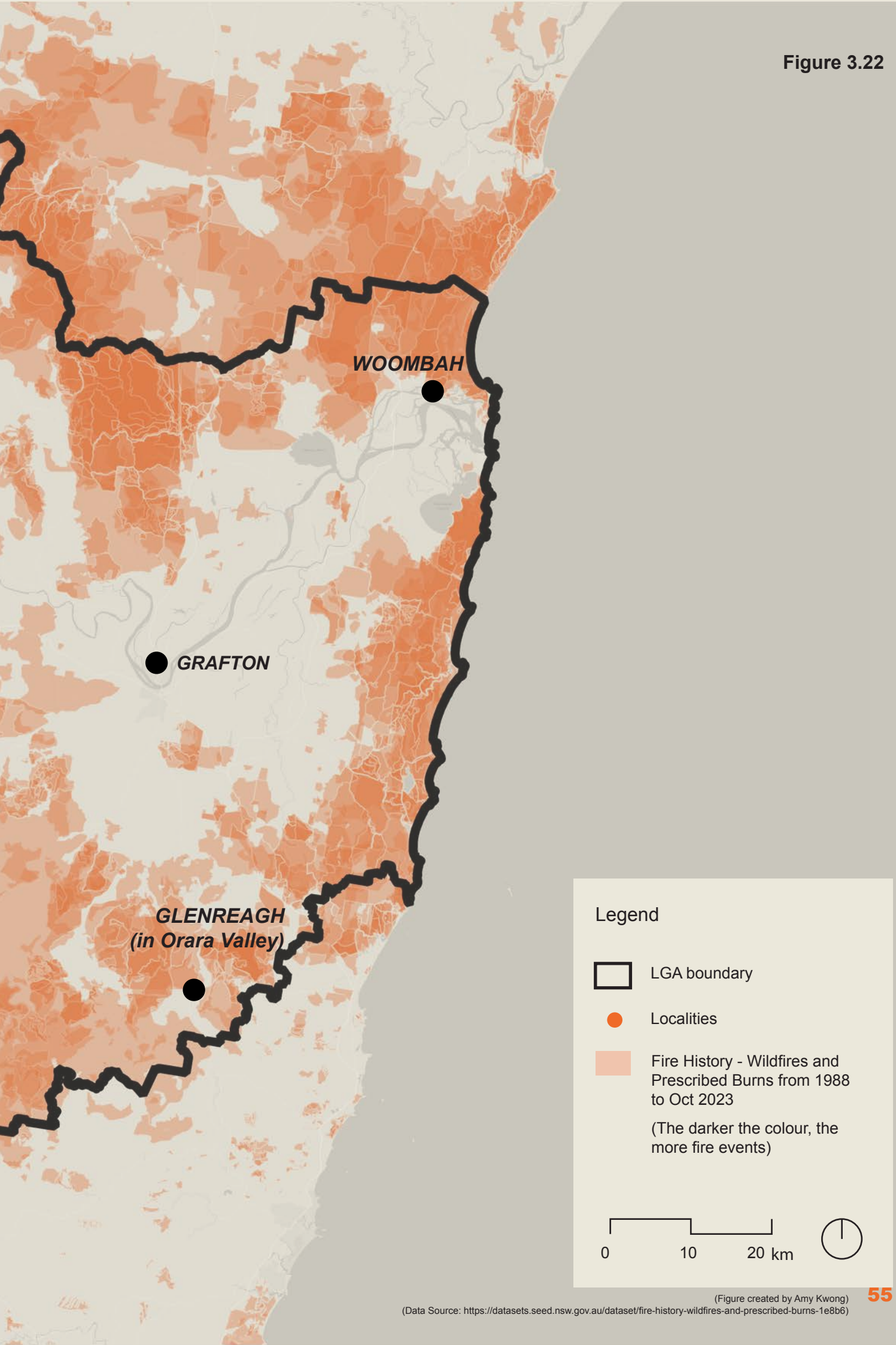


Figure 3.22



(Figure created by Amy Kwong)
(Data Source: https://datasets.seed.nsw.gov.au/dataset/fire-history-wildfires-and-prescribed-burns-1e8b6)

2019/20 Bushfire Extent and Severity

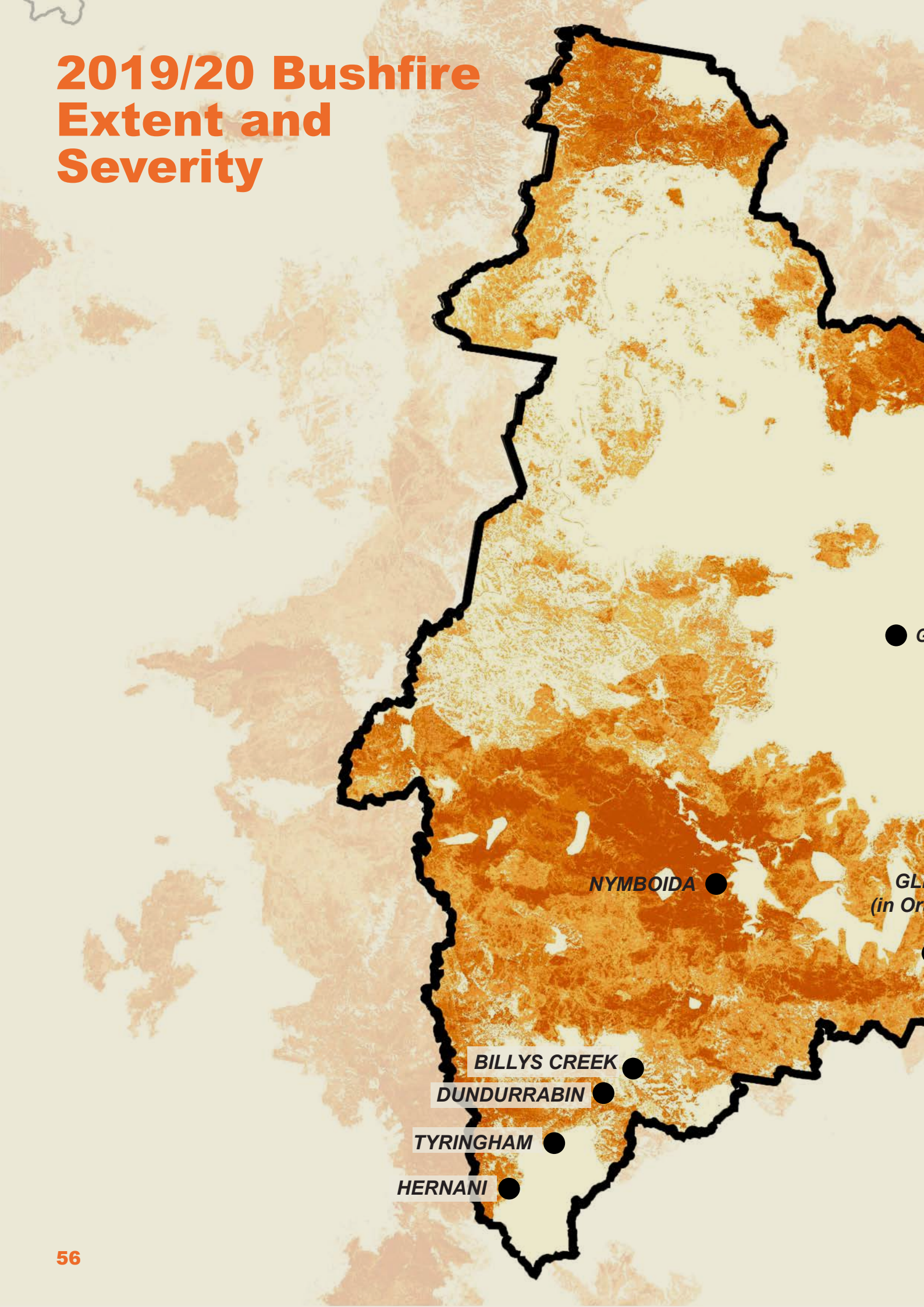
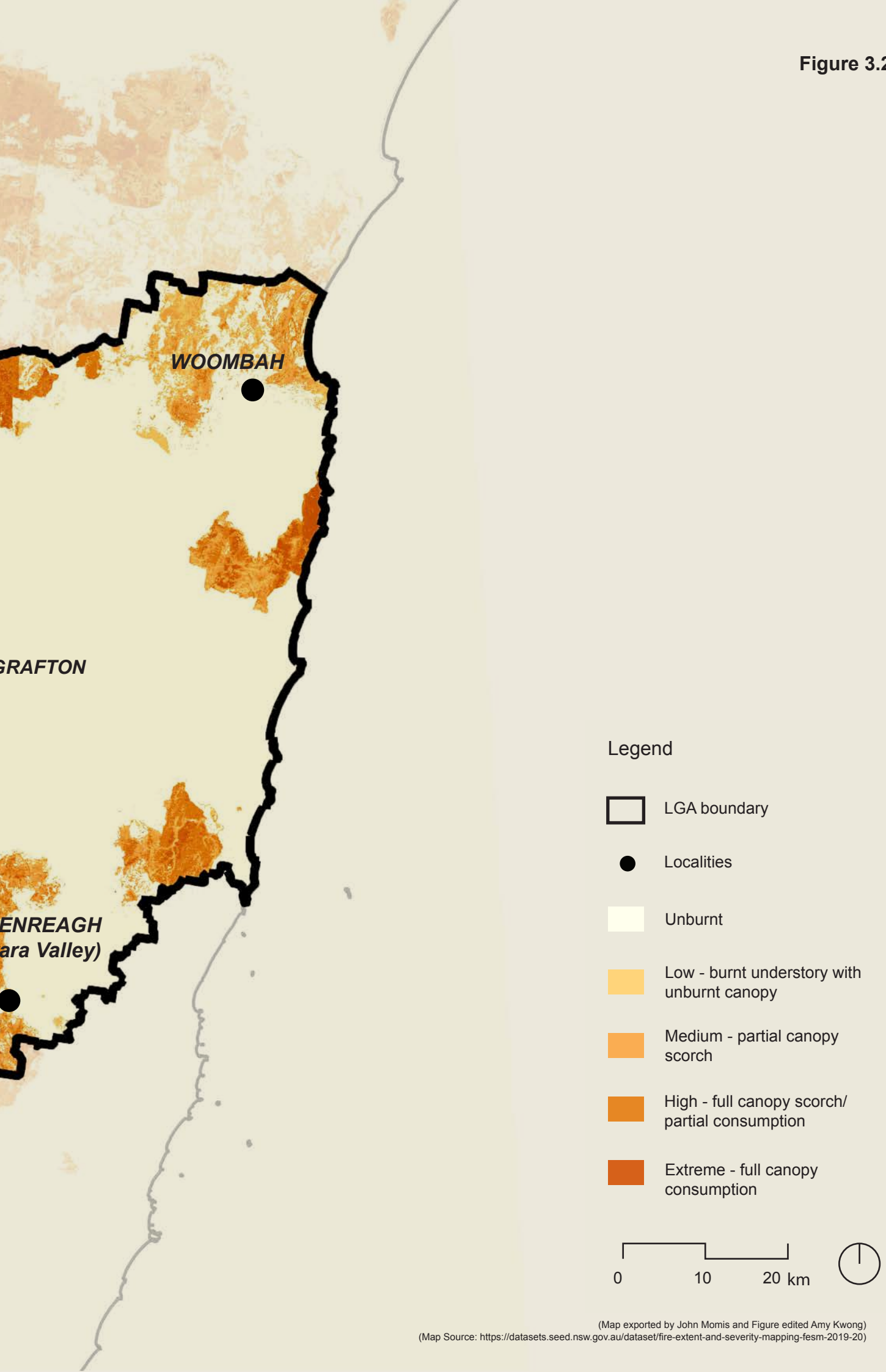


Figure 3.23



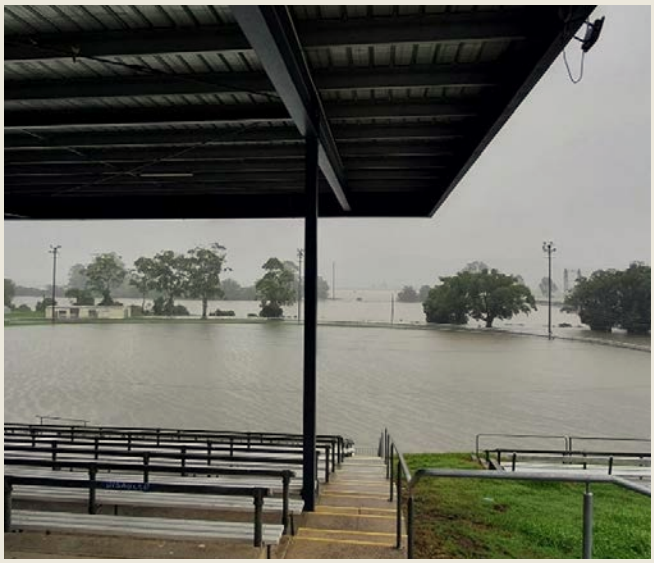
(Map exported by John Momis and Figure edited Amy Kwong)
(Map Source: https://datasets.seed.nsw.gov.au/dataset/fire-extent-and-severity-mapping-fesm-2019-20)

Flooding

Flooding has been a recurrent and impactful natural event in the Clarence Valley. Indigenous communities historically adapted to seasonal flooding, while early European settlers encountered challenges associated with periodic inundation. Notable flood events, including those in 1950, 1974, and 2013, have caused widespread damage, affecting towns, infrastructure, and the local economy. The 2022 Flooding was a catastrophic flood event across NSW and Clarence Valley (Figures 3.24 and 3.25). In response to better flood planning across the area, the Clarence Valley Council has implemented measures such as levees and flood monitoring systems to mitigate impact of flooding, and the community has shown various forms of resilience in supporting one another preparing for, during and after flood events. However, flooding continues to be a significant concern, with potential ecological consequences affecting water quality, riverbanks, and aquatic habitats in the area.

Floods have led to extensive property damage, displacing residents and disrupting transportation as roads and bridges become impassable. The region's agriculture, including dairy farming and crops, has suffered losses, and environmental damage has occurred through riverbank erosion and water quality issues. Health concerns arise due to contaminated floodwaters, while the economic toll includes property insurance claims, infrastructure repair costs, and business losses. Communities face disruptions to daily life, necessitating emergency response and recovery efforts, with discussions on flood mitigation measures often following such events. These impacts are exemplified by past flood events, emphasizing the need for ongoing preparedness and mitigation strategies to safeguard the region and its residents.[54]

Figure 3.24 *2022 Flood in Maclean Showground*



(Image Source: https://clarencevalleynews.com.au/clarence-valley-flood-images-2022/#foo-gallery-271236/i:99)

Figure 3.25 *2022 Flood in Clarence Valley*

(Image Source: https://clarencevalleynews.com.au/clarence-valley-flood-images-2022/#foo-gallery-271236/i:99)

Figure 3.26 *Timeline of Flooding History in Clarence Valley*

1841

(Source: National Library of Australia)

1917

(Source: State Library New South Wales)

1949

(Source: Macleay River Historical)

1950

(Source: abc.net.au)

2009

(Source: abc.net.au)

2013

(Source: ses.nsw.gov.au)

2020

(Source: abc.net.au)

(Figure designed by Mohana MJ and reproduced by Jenny)

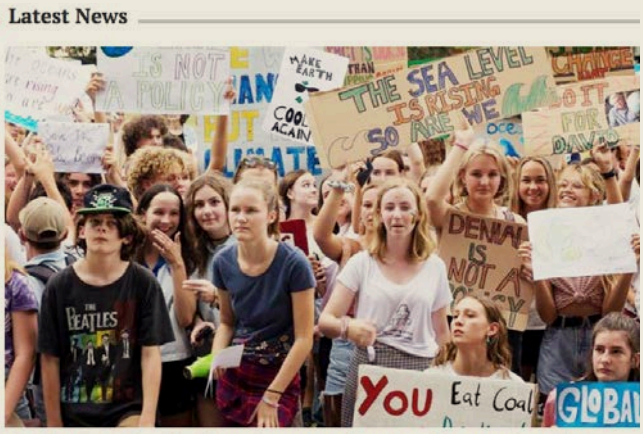
Impacts of Climate Change

The environmental consequences of climate change encompass altered river and precipitation patterns, intensified soil erosion, rising temperatures, and the loss of biodiversity. These changes are observed passively, signifying a shift in the natural flow of water bodies, degradation of arable land, alterations in ecosystems, and disruptions in habitats. Changes in river patterns are noticeable through alterations in river flow, changes in sedimentation, and shifts in aquatic habitats.

One of the most discernible impacts of climate change in Clarence Valley is the rise in temperatures and altered precipitation patterns, leading to both droughts and intense rainfall events, as well as bushfires. These changes are evident through irregular rainfall, increased frequency of heatwaves, and variations in seasonal temperatures. Changes in temperature and precipitation patterns also have affected agricultural practices. Farmers are observing discernible impacts on crop yields, altered growing seasons, and increased challenges in pest management. Climate change-related disasters can inflict extensive damage on infrastructure, including roads, bridges, and buildings, necessitating costly efforts for rebuilding and reinforcing structures to withstand future events. In recent times, youth communities in Clarence Valley have voiced their concerns about the impact of climate change through activism (Figure 3.27 refers).

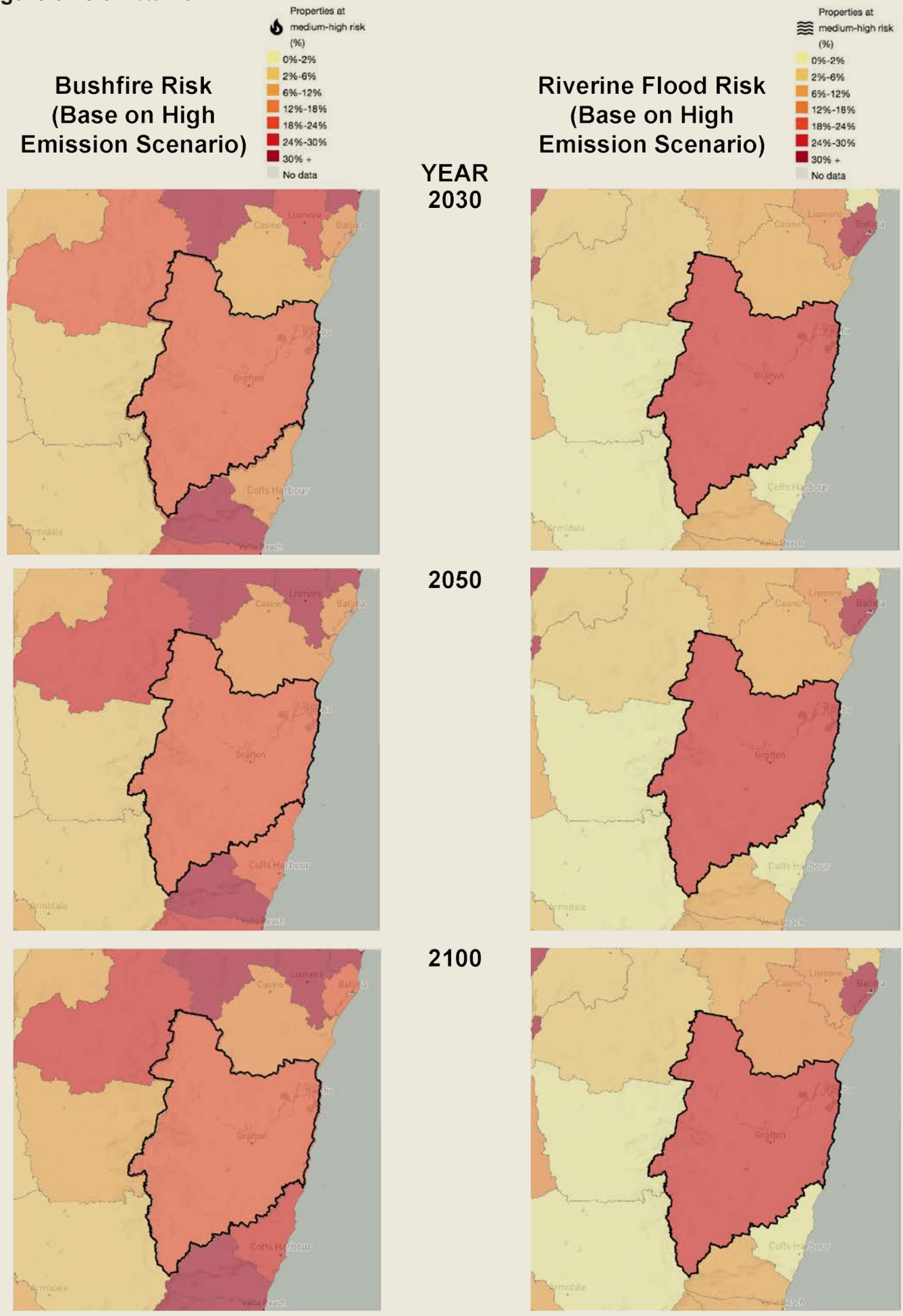
Elevated fire risk occurs during 'fire weather,' characterised by low humidity, high temperatures, and strong winds, leading to an increased likelihood of bushfires. The frequency and duration of hazardous fire weather conditions have risen since the 1950s, particularly in southern Australia. Additionally, the risk of fires has escalated due to heightened lightning activity associated with the growing number of storms.[55] Figure 3.28 shows the climate risk of bushfire and riverine flood based on a high emission scenario.

Figure 3.27 *Students' Voices in Clarence Valley*



(Image Source: https://clarencevalleynews.com.au/students-raise-their-voices-on-climate-change-inaction/)

Figure 3.28 *Climate Risk*



(Figure created Amy Kwong)
(Map Source: https://www.climatecouncil.org.au/resources/climate-risk-map/?utm_source=google&utm_medium=cpc&utm_campaign=DIG-TOF-NSP-AG-CON-Locations-ClimateChange&gad=1&gclid=CjwKCAjw-eKpBhAbEiwAqFL0mryWGKC35JMxosth0Q2ZwRvn7xa_-xvjjL_ZKCHarPQcgIUnpFloTBoCRiMQAvD_BwE)

3.5 Disaster Management

How can 'top-down' meet 'bottom-up'?

Disaster resilience authorities in Australia generally adopt a structured hierarchy from the federal, state and local governments to optimise coordination, response, and management of disaster-related endeavours. This hierarchy aims to promote efficient and well-coordinated disaster responses by defining distinct roles and responsibilities at each governmental and community level. Different levels of government have a collective responsibility for disaster resilience.

However, as discussed in Chapter 2, effective disaster resilience strategies heavily rely on essential collaboration and communication between all government levels, as well as community efforts. This implies that a stronger focus on community-led disaster management should be adopted to achieve strong community-oriented disaster resilience.

Given the experience of the 2019-2020 Bushfires and the 2021-2022 flooding in Clarence Valley, communities were calling for better disaster management (Figure 3.29). For instance, residents living in Yamba and Iluka, near Woombah, were cut off for around six days and had trouble receiving food and essentials during the 2021-2022 flood.[56] This highlighted the need for better community engagement and support for vulnerable people.[57] As such, this framework aims to help facilitate collaboration with the communities, developing a more community-driven disaster management approach and building community-oriented resilience.

Figure 3.29 *Residents urging for better disaster planning and management*

(Image Source: https://clarencevalleynews.com.au/students-raise-their-voices-on-climate-change-inaction/)

Figure 3.30 *From 'Top-down' to 'Bottom-Up'*

(Figure co-designed by Amy Kwong and Jenny Yang)

Governments' Roles and Responsibilities

Federal Government

The Commonwealth Government has two main disaster management institutions: The National Emergency Management Agency and the Australian Institute for Disaster Resilience (AIDR), which provide higher-level strategic direction like protocol, guidebooks, and policies (Figure 3.32).

State Government

NSW Government is the most heavily responsible level, which includes SES, RFS, Police and ambulance organisations, etc (Figure 3.33). Mostly the rescue emergency services and management authorities come from this level based on the emergency management cycle shown in Figure 3.31.

Local Government

At this level, the primary role of the Clarence Valley Council is to implement policies, plans and controls for the LGA. It coordinates with higher authorities and manages disaster response and recovery efforts within the Clarence Valley (Figure 3.33).

Figure 3.31 *NSW Emergency Management*

(Image Source: https://www.emtraining.nsw.gov.au/)

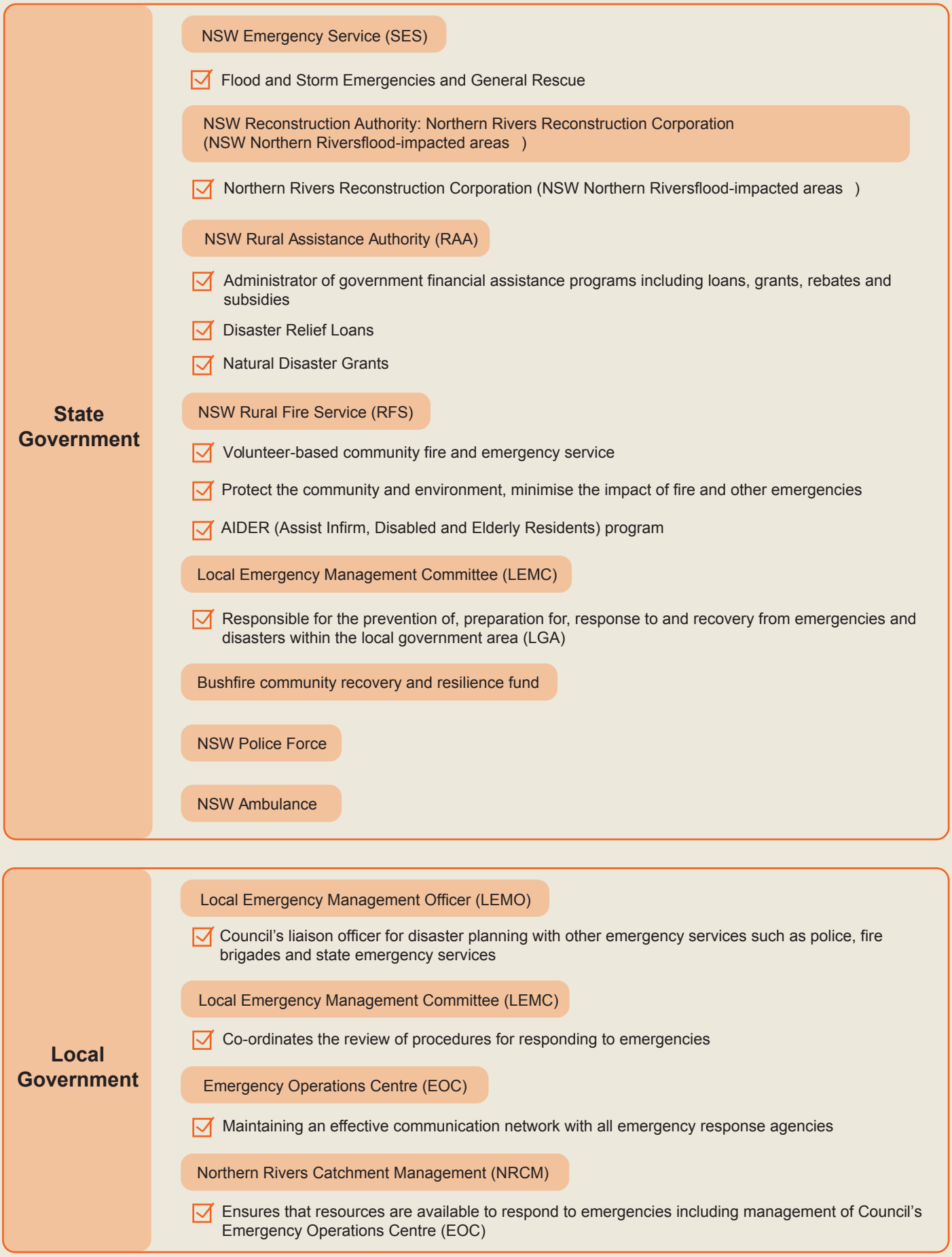
Figure 3.32 *Agencies and Authorities in Federal Level*

Federal Government

- National Emergency Management Agency
  - COVID-19 Interstate (Fire, Emergency and other Essential Services) Deployment Protocol
  - Crisis Appreciation and Strategic Planning Guidebook
- Australian Institute for Disaster Resilience (AIDR)
  - Actively supporting, growing and sustaining a range of networks across sectors and jurisdictions
  - Enabling those with a role in disaster risk reduction and resilience to come together to learn, develop and innovate
  - Collecting, developing, curating and sharing knowledge to educate and promote good practice in disaster risk reduction and resilience
  - Providing a central focus point for national thought leadership on disaster risk reduction and resilience

(Figure created by Jenny Yang)

Figure 3.33 *Agencies and Authorities in State and Local Level*



(Figure created by Jenny Yang)

Community-Oriented Interventions

Community-led Resilience Team (CRT)

A Community-led Resilience Team (CRT) is a group of like-minded people who come together as a community to prepare, support and recover from disasters. CRTs grew out of disaster recovery work in the Tweed area in Northern NSW after widespread flooding from Tropical Cyclone Debbie in 2017. Local Red Cross Emergency Services' volunteers researched impacted areas and listened to first-hand community needs. Volunteers networked with community leaders and held meetings alongside SES, RFS and local Council staff to establish CRTs within several localities in the Tweed Shire. While the model initially focused on floods, it quickly expanded to all types of hazards such as fires and pandemics.

The Resilient Clarence Project was developed by the Clarence Valley Council after the 2019/2020 bushfires. The project collaborated with external organisations to enhance the implementation of programs within specific communities, including The Red Cross, Vinnies, Envite Environment, Clarence Landcare, etc (Figure 3.35). They facilitated workshops and provided training courses, helping communities strengthen connection, collaboration, culture, resilience, personal growth, and healing (Figure 3.34).

Figure 3.34 *Community Event hold by Resilient Clarence in 2022*

(Image Source: https://www.clarence.nsw.gov.au/Projects/Resilient-Clarence)

Figure 3.35 *Community Level Agencies*

Community Based

Resilient Clarence

- ☑ Red Cross (NGO)
- ☑ Envite Environment: Restoring habitat
- ☑ St Vincent De Paul Society (Vinnies)
- ☑ Clarence Landcare: Low income support and poverty/ Housing and homelessness/ Energy efficiency/ First Nations People

*Also supported by LEMC / RFS / SES / NSW Police Force / NSW Ambulance

(Figure created by Jenny Yang)

3.6 Planning Policies and Regulations

Planning Framework

Strategic Planning in Clarence Valley

The Clarence Valley Local Strategic Planning Statement ("LSPS") 2020[58] is the overarching planning document setting the direction of land use planning in the next 20 years in the area. It integrates the North Coast Regional Plan[59] which is prepared by the State government. The LSPS focuses on creating resilient communities, resilient and sustainable growth, diversifying the local economy, protecting and managing the natural environment, and working collaboratively with communities and businesses.

The LSPS recommends several growth strategies in towns such as Grafton, Maclean and Yamba in Clarence Valley, connecting to the broader spatial context of Lismore and Ballina to the northeast and Coffs Harbour to the southeast under the North Coast Regional Plan 2041 (Figure 3.36).

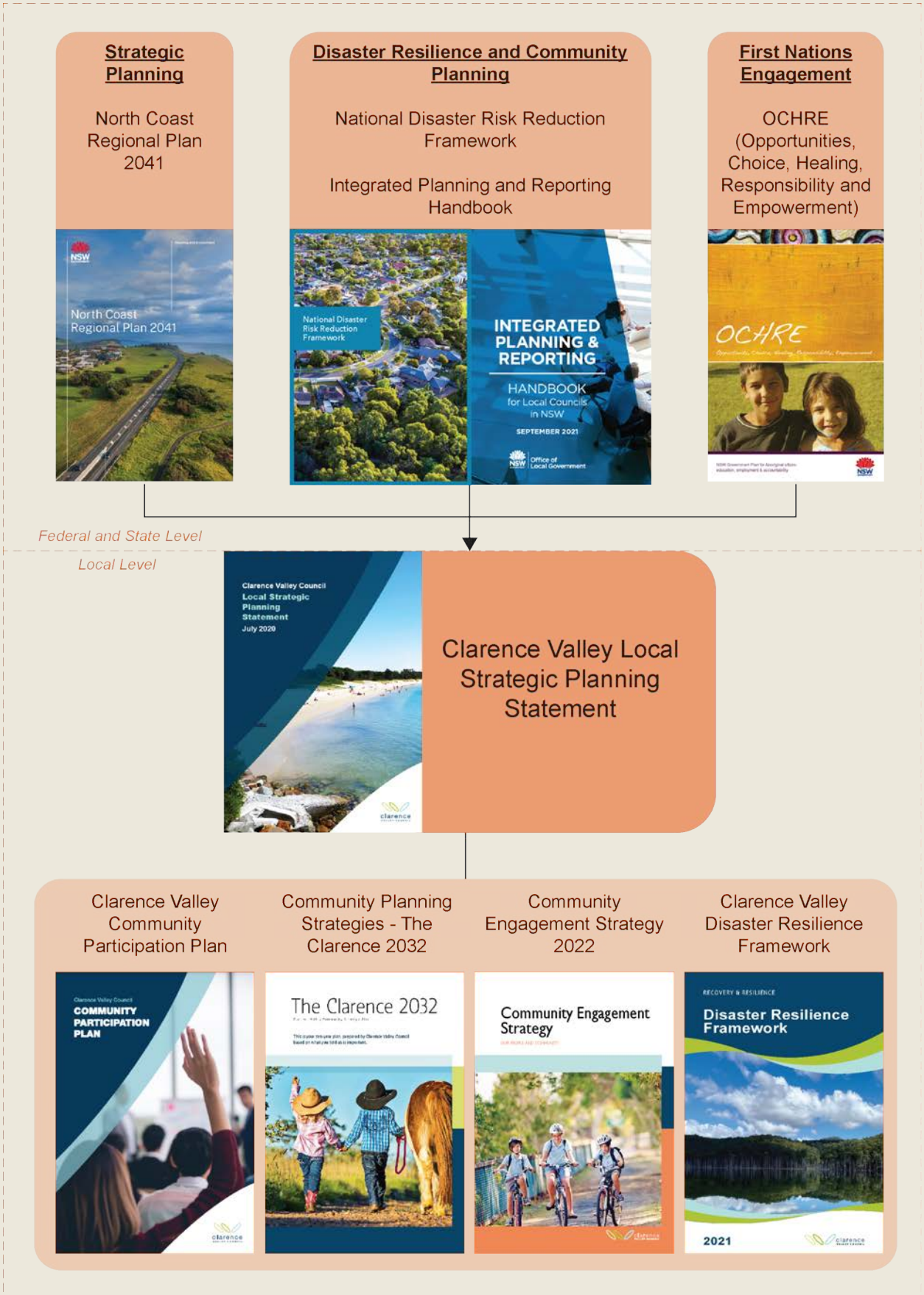
Disaster Resilience

The Clarence Valley Council ("the Council") also prepared a Disaster Resilience Framework[60] based on the United Nations' Sendai Framework[61] for disaster risk reduction, which draws on the National Disaster Risk Reduction Framework.[62] It highlights the importance of all government levels working together and partnering with communities in the Clarence Valley. The community engagement is also backed by the Council's Community Engagement Strategy 2022.[63] The Clarence Valley Community Participation Plan[64] also outlines how and when community feedback on strategic planning is needed, with reference to the Integrated Planning and Reporting Framework by the NSW government. The Council will seek input from the community in developing strategic plans. Where The Act or other legislation requires a specific engagement or notification method, the council will, as a minimum, follow that process. This collaborative strategic placemaking framework supports the voices of Clarence Valley's diverse communities to make informed decisions about their spaces and places.

First Nations Engagement

NSW government's OCHRE (Opportunities, Choice, Healing, Responsibility and Empowerment)[65] focuses on revitalising and promoting First Nations culture and voices. It seeks to empower the communities to direct their own future. Engagement with First Nations communities also plays a key role in the LSPS, which initiates collaborating with First Nations communities and the Local Aboriginal Land Councils on strategic decision-making processes.

Figure 3.36 *Relevant Planning Documents in Disaster Management and Resilience*



(Figure co-created by Daniel Mersin and Amy Kwong)

Strategic Growth

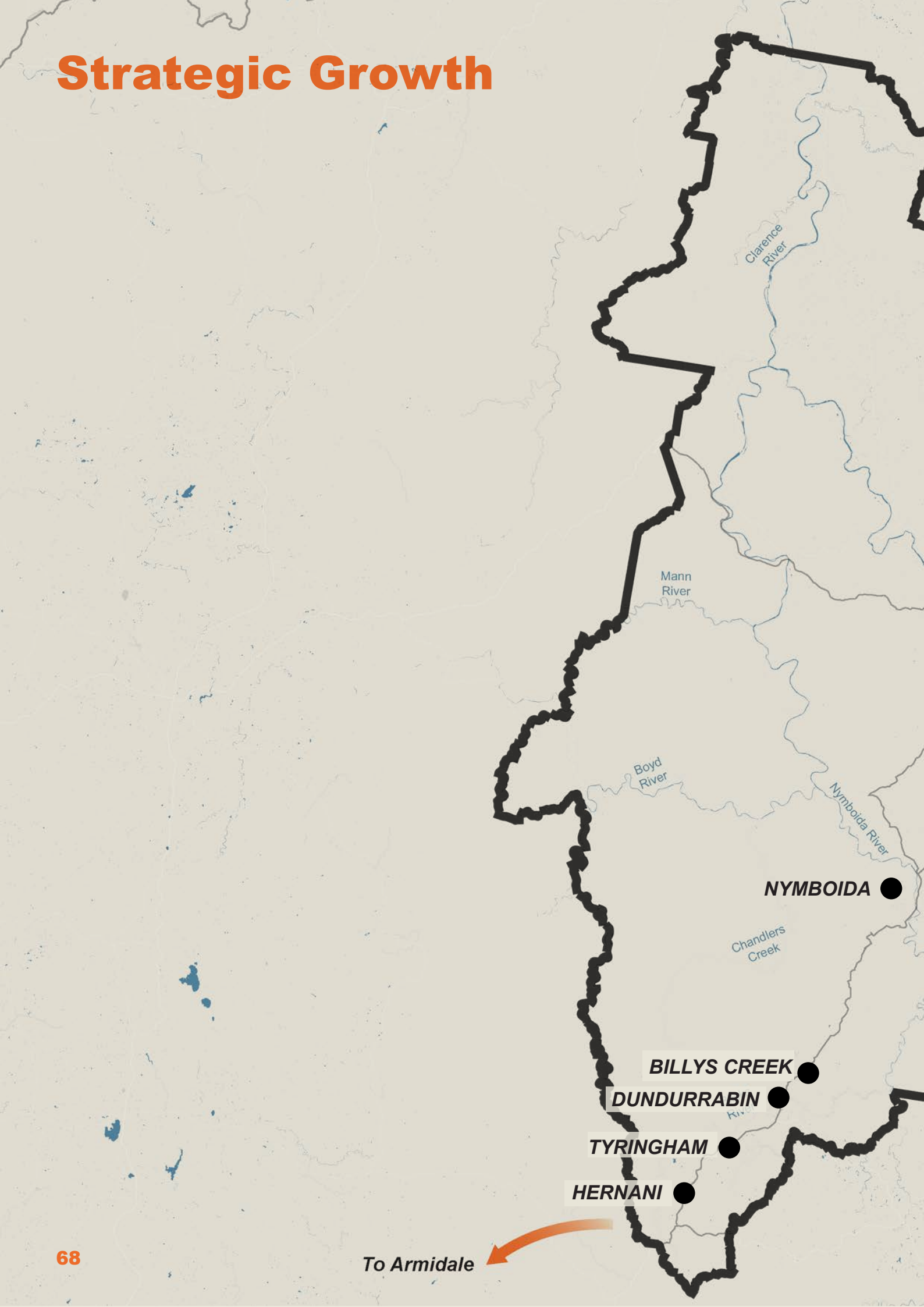


Figure 3.37

(Figure created by Amy Kwong)
(Data Sources: North Coast Regional Plan and Clarence Valley LSPS)

Planning for Disasters

The Environmental Planning and Assessment Act 1979 ("The Act")[66] , is the NSW planning legislation shaping the Clarence Valley Local Environmental Plan 2011 ("The LEP")[67] , which controls the land use provisions and development controls in Clarence Valley. Besides the LEP, there are several existing planning controls in place to help reduce and mitigate the risk of disasters. Areas that are categorised as bush fire prone or flood prone have a number of restrictions placed on any potential changes occurring on the land. Figure 3.39 shows the relevant legislations and regulations in relation to disaster planning.

Bushfire prone land

Bushfire prone land is land that has been identified by local council which can support a bushfire or is subject to bush fire attack. All developments on land that is designated as bushfire prone has a legal obligation to consider bushfire and meet the bushfire protection requirements.[68] The bushfire prone land map splits into 3 different vegetation categories with detailed restrictions. Figure 3.41 shows the extent of bushfire prone land in Clarence Valley.

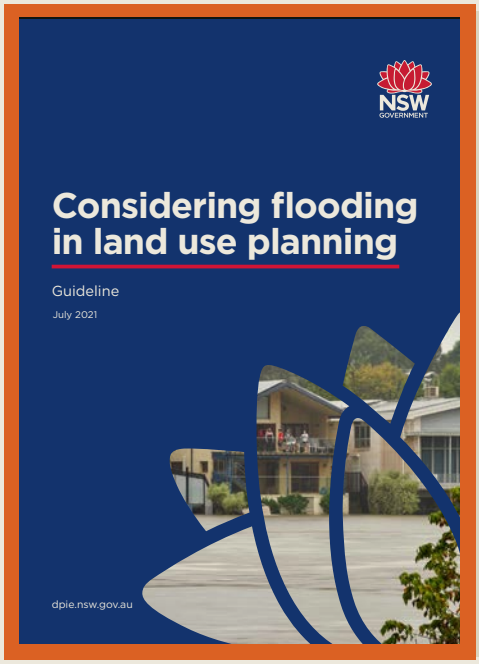
Flood Planning Area

The Flood Planning area based on the Flood Prone Land Package was issued by the NSW government and commenced on 14 July 2021 to consider flooding in land use planning.[69] The planning requirements in Clarence Valley are based upon guidelines from the NSW government that can be found in the Considering Flooding in Land Use Planning Guideline[70] and the Floodplain Development Manual[71]. Figure 3.42 shows the extent of flood planning area in Clarence Valley.

Figure 3.38 *Planning For Bushfire Protection 2019*

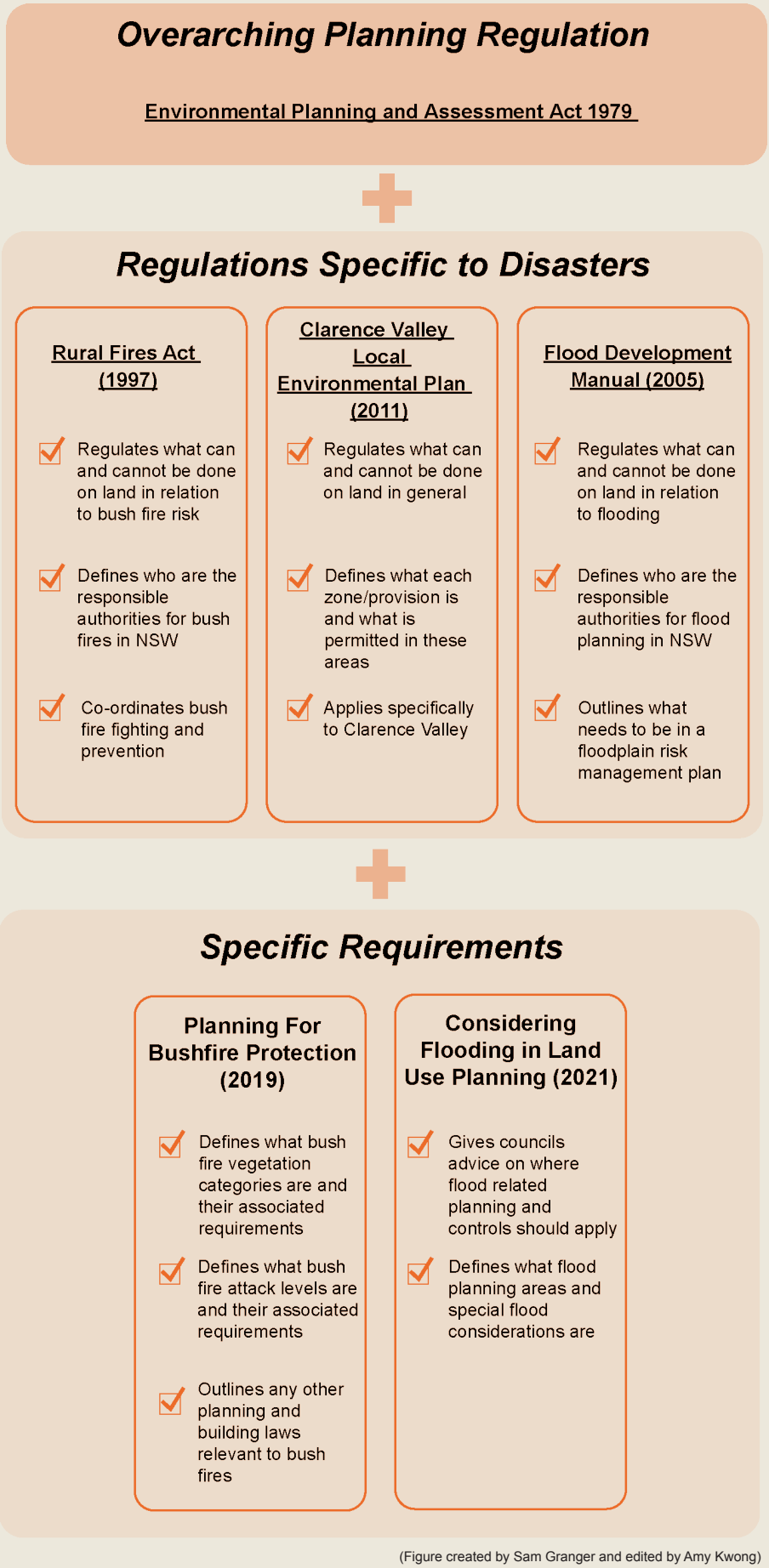
(Source: https://www.rfs.nsw.gov.au/__data/assets/pdf_file/0005/130667/Planning-for-Bush-Fire-Protection-2019.pdf)

Figure 3.39 *Considering Flooding in Land Use Planning 2021*



(Source: https://shared-drupal-s3fs.s3.ap-southeast-2.amazonaws.com/master-test/fapub_pdf/Considering+flooding+in+land+use+planning+guideline+-+July+2021.pdf)

Figure 3.40 *Relevant Legislations and Regulations in Disaster Planning*



(Figure created by Sam Granger and edited by Amy Kwong)

Bushfire Prone Land

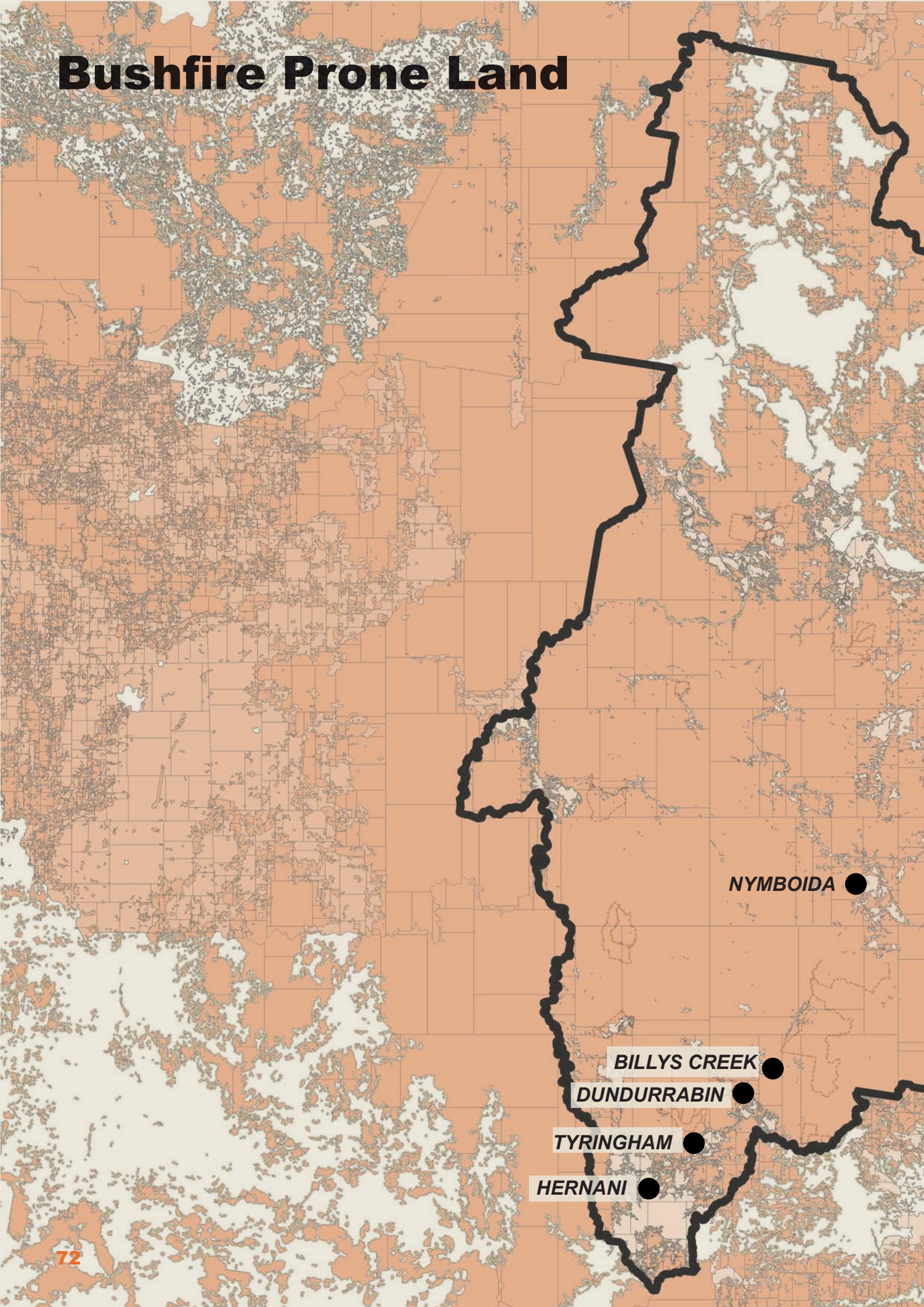
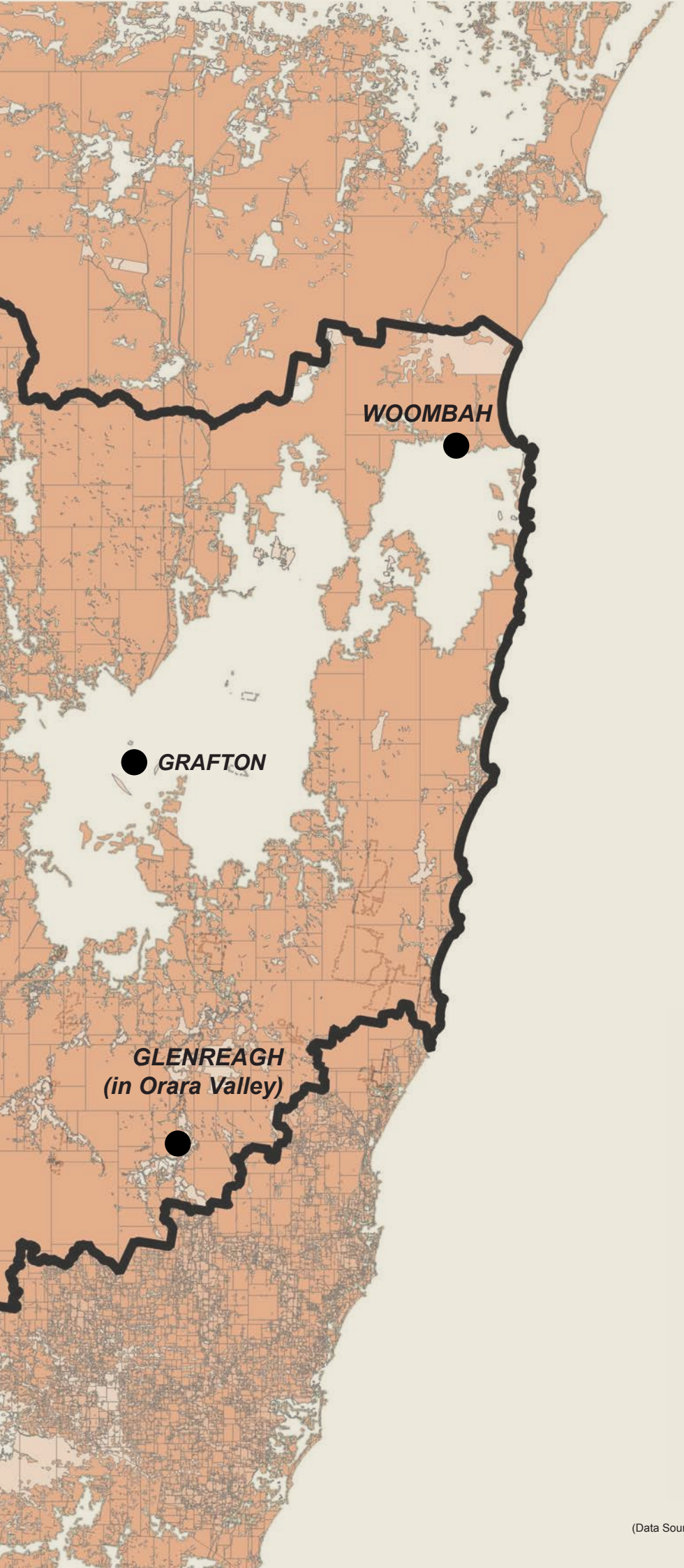


Figure 3.41



Legend

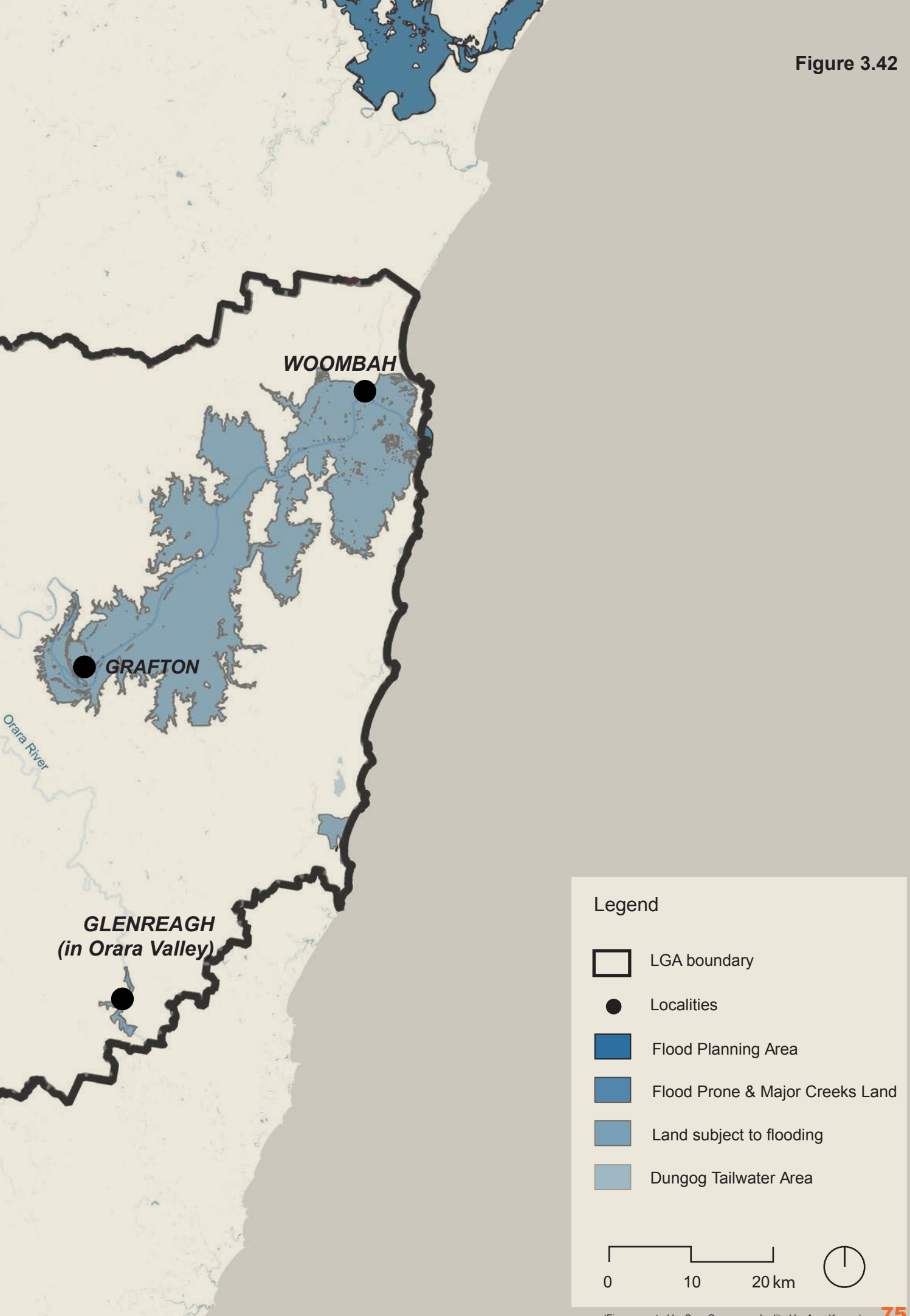
- LGA boundary
- Localities
- Vegetation Buffer
- Vegetation Category 1
- Vegetation Category 2
- Vegetation Category 3

0 10 20 km

(Figure created by Sam Granger and edited by Amy Kwong)
(Data Source: https://data.nsw.gov.au/data/dataset/bush-fire-prone-land)

Flood Planning Area

Figure 3.42



(Figure created by Sam Granger and edited by Amy Kwong)
(Data Source: https://www.planningportal.nsw.gov.au/opendata/dataset/epi-flood)

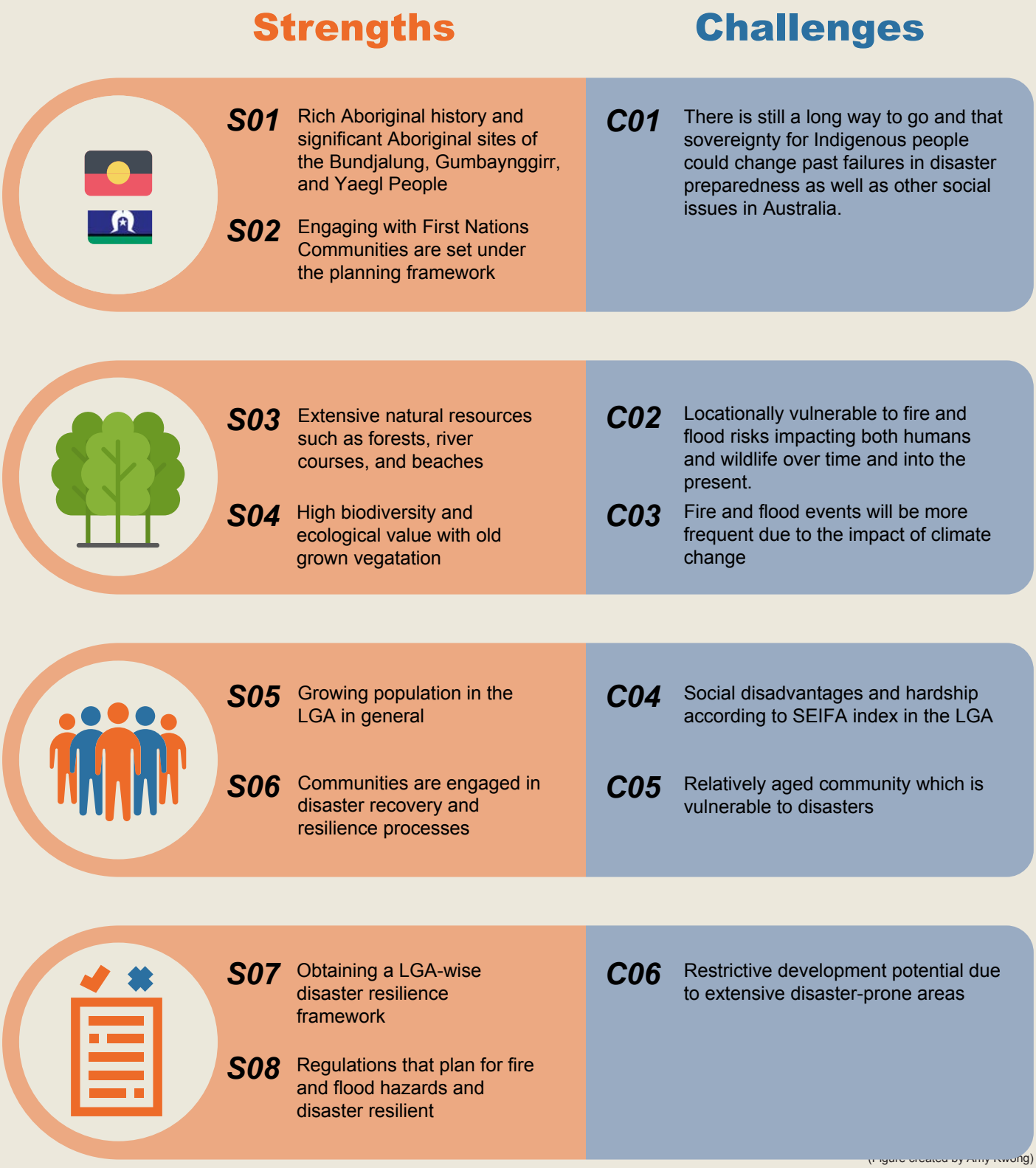
3.7 Key Findings

Drawing on the context from the previous sections, the strengths and challenges of Clarence Valley could be divided into four aspects (Figure 3.43).

- First Nations History and Cultural Heritage
- Environment and Assets
- Community
- Planning Policies and Regulations

This summary highlights what are the key findings and implications in Clarence Valley and how this LGA context be influential to shape the four localities - Woombah, Glenreagh of Orara Valley, Nymboida and Blicks (Hernani, Tyringham, Dundurrabin and Billys Creek) in the following chapters.

Figure 3.43 *Strengths and Challenges for Clarence Valley*



(Figure created by Amy Kwong)

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