

2017

Koala Expert Panel Interim
Report



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1. Executive summary

In late 2015 a Uniquist report entitled '[South East Queensland Koala Population Modelling Study](#)' showed clear statistical evidence for dramatic declines in koala populations in South East Queensland (SEQ). The report showed a decline in densities of around 80% in the Koala Coast and 54% in Pine Rivers between 1996 and 2014, despite current protection measures. In fact, rather than a slowing of the rate of decline there was some evidence to suggest the rate of decline had actually accelerated.

This prompted a review of koala conservation policies by the Queensland Government and the establishment of the Koala Expert Panel (the Panel) to review existing measures and make recommendations about the "most appropriate and realistic actions to reverse the decline in koala population densities and ensure the long-term persistence of koala populations in the wild within SEQ".

This interim report outlines the work of the Panel to date, including the results of the public consultation, the Panel's recommendations on immediate actions proposed by the Queensland Government, reviews of the 2008 Koala Response Strategy that was informed by the Koala Taskforce (the Taskforce) recommendations, estimates of rates of habitat loss, and reviews of the current planning framework and management activities. The report ends with a summary of the key policy and management failures identified by the Panel's work and an outline of the Panel's work plan for the next six months.

The results of the consultation highlighted that loss of koala habitat is considered to be the threat having the greatest impact on koala conservation, and that urban development is the primary cause of habitat loss. The consultation also highlighted that some existing State and Local Government measures for koala conservation are not considered to be working and improvements to these measures, as well as ongoing resources, are required to ensure the long-term persistence of koalas in the wild. Potential solutions suggested were wide ranging, but focused on greater protection of habitat and enforcement, improved mapping and increased efforts to address direct threats.

The immediate actions proposed by the Queensland Government on which the Panel provided recommendations included: (1) a habitat mapping project with the aim of improving koala habitat mapping in SEQ, (2) a revised ongoing monitoring program, and (3) the creation of two koala precincts in SEQ.

The Panel are broadly supportive of the proposed work to address the current inadequacy of publicly available koala habitat mapping in SEQ and the re-evaluation of the Queensland Government's koala monitoring program. However, the Panel provided advice on strategies to improve the approaches to habitat mapping and monitoring.

The Panel also supports the idea of strategically focussing koala conservation activities in specific locations that will ensure the long-term persistence of koalas in those areas. However, the intent, size, locations, scope and regulation/management initiatives that would apply to the proposed precincts are not clear. The Panel also queried the potential location of a precinct at Daisy Hill, given the rapid declines in the koala population at Daisy Hill and the unknown ability to secure populations long-term there. Nonetheless, the Panel supports the concept of spatially focused conservation efforts, but proposed two different types of management area: Koala Conservation Landscapes and Koala Precincts.

Koala Conservation Landscapes would be designed to focus koala conservation efforts in priority areas of sufficiently large size to sustain koala populations at landscape-scales. These areas would contribute to the primary objective of the Panel's recommendations, which is to ensure the long-term persistence of koalas in the wild in SEQ. On the other, hand Koala Precincts would be smaller areas that have an important role to play in contributing to education, tourism and captive breeding programs. These areas may potentially be managed as semi-wild populations, but would not necessarily directly contribute to the long-term persistence of koalas in the wild in SEQ.

The Panel's review of the 2008 Taskforce recommendations revealed a number of issues with both the recommendations and their implementation. Although the proposed actions were, on the whole, sensible responses to the ongoing decline in the koala population, there were a very large number of actions, making it difficult for comprehensive implementation. The actions were also not strategically structured in a way that allowed key priorities to be identified. Ultimately only a small proportion of the actions were implemented.

This implementation focused primarily on the planning legislation and other legislative frameworks that were, at best, only capable of slowing rather than halting ongoing habitat loss. In fact, the Panel's review of the rates of loss of koala habitat since 2008 demonstrate no evidence for even a slowing of the rate of loss of koala habitat, indicating a likely failure to meet the stated objective of no net loss of habitat. While

the 2008 Taskforce recommendations had a focus on habitat clearing, the planning framework is just one component of various impacts to koala conservation, and one failing of the previous approach was its predominant reliance on the planning framework to reduce the decline in population densities.

Taking into account the results of the public consultation and the review of the current legislation and management initiatives, the Panel identified a number of failures that reflect: (1) overarching policy and management issues, (2) planning issues, (3) mapping, monitoring and research issues, and (4) governance issues.

Overarching policy and management issues include: lack of a strategic regional vision; an over-reliance on the planning regulation as the sole solution; inadequate resources for management of existing threats and recovery.

Planning issues include: existing planning and vegetation management legislation is only capable, at best, of slowing habitat loss and impacts on koala populations; the complexity of the regulatory framework; inability of the legislation to address cumulative impacts; the SPRP being too limited in scope; and problematic implementation of the offsets framework.

Mapping, monitoring and research issues include: existing habitat mapping is inadequate and inconsistent; monitoring and evaluation is inadequate; there is lack of understanding of the distribution and dynamics of rural koala populations and their habitat.

Governance issues include: inadequate coordination; limited acknowledgment of variation in institutional arrangements and koala conservation needs across SEQ; regulation, education and extension has failed to modify community and institutional behaviour.

The work of the Panel over the next six months will be to develop potential options for addressing these failures and evaluate the benefits to the koala's long-term persistence in SEQ and the feasibility of each option.

A glossary of terms used in this report is contained in *Appendix 1*

2. Introduction

In late 2015, the Queensland Government received the Uniquist report entitled "[South East Queensland Koala Population Modelling Study](#)". The report concluded that there was clear statistical evidence of a decline in koala population densities of around 80% in the Koala Coast and 54% in Pine Rivers between 1996 and 2014, despite current protection measures. In fact, rather than a slowing of the rate of decline there was some evidence to suggest the rate of decline had actually accelerated.

This report prompted a review of koala programs and initiatives to inform any changes to current strategies.

The first stage of this process occurred on 4th July 2016 with a workshop to consider appropriate and realistic options for koala conservation in SEQ. This workshop included 12 experts from various areas such as conservation science, conservation and land use planning. A small number of staff from the Department of Environment and Heritage Protection (EHP) and the Department of Infrastructure, Local Government and Planning (DILGP) with relevant expertise also participated and/or presented.

Workshop attendees also agreed on the make-up of the Panel of:

- Associate Professor Jonathan Rhodes from the University of Queensland
- Dr Alistair Melzer from the Central Queensland University's Koala Research Centre
- Mr Al Mucci, Director, Dreamworld Wildlife Foundation.

Ms Antra Hood from Minter Ellison subsequently joined the panel to ensure representation in legal aspects of planning and offsets.

The key role of the Panel is to develop recommendations for future strategies to ensure the long-term persistence of koalas in the wild in the State's south east. The Panel will provide the Queensland Government with recommendations on the most appropriate and realistic actions to address the decline in the koala population in this region.

The Queensland Government also secured funding for various immediate actions that would not pre-empt future changes in direction that are implemented based on the Panel's final recommendations. The Queensland Government have requested advice from the Panel on these actions.

In accordance with the Terms of Reference (ToR) (section 3), an interim report is to be provided to the Queensland Government by the end of 2016 that identifies where current policy and management have failed, what the outcomes from a public consultation process have been, and the direction/areas of work for the following six months.

In this interim report we first present that background and context to the Panel's work, followed a description of the approach that the Panel has taken. The results of the public consultation are then presented, followed by:

- The Panel's review of the immediate actions (see ToR),
- The Taskforce recommendations and outcomes, and
- Legislative framework and management initiatives.

At the end of the report, we present a summary of the key reasons for the failure of current policy and management to protect koalas and outline the Panel's work plan for the next six months.

3. Background

Terms of Reference for the Panel

A ToR was developed in consultation between EHP and the Panel to outline the work and purpose of the Panel, respective roles and timeframes. The ToR was approved by the Minister for Environment and Heritage Protection and Minister for National Parks and the Great Barrier Reef on 29th August 2016.

The intent of the Panel's review is specified in the ToR as follows: To provide recommendations to the Queensland Government that will inform a strategy for the protection of the vulnerable koala in SEQ. These recommendations will be included in the final report, due in mid-2017.

The ToR also defined the purpose of the Panel as follows: To provide expert advice on the most appropriate and realistic actions to reverse the decline in koala population sizes and ensure the long-term persistence of koala populations in the wild within SEQ. This will include consideration of:

- Existing approaches to understand where policy and management has failed to deliver on koala protection
- Regulation and planning instruments, and other protection measures
- Management actions required to reduce threats
- Monitoring and research actions such as population surveying, mapping and modelling of habitat, and research into preventable causes of death, and rescue and rehabilitation services
- Policies, such as translocation policies.

The Panel will also provide advice on the design and desirability of the immediate actions proposed by EHP.

An addendum was added to the ToR and was approved in January 2017 that includes timeframes in relation to recommendations on planning instruments. At the time of preparing the original ToR, consultation drafts of the State Planning Policy and *ShapingSEQ* (a revised regional plan for SEQ) had not been released. Subsequently the Panel were asked to provide input into these planning instruments.

The ToR is included in *Appendix 2 Terms of Reference*.

Current status of the koala in SEQ

The koala was listed as vulnerable to extinction across its full range in Queensland under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) in 2012 and under the Queensland *Nature Conservation Act 1992* (NC Act) in 2015.

From 2005 to 2015, the koala was listed under the NC Act as vulnerable in southern areas of the State only. The reclassification of the koala to vulnerable across its entire range was a result of improved knowledge of its status in Queensland and to align with its listing under the EPBC. This, and evidence of continued declines in key peri-urban populations around Brisbane, led to conservation effort being heavily focused on eight coastal local government areas from Noosa to the Gold Coast.

The Uniquist report, has identified that, despite protection measures to date, peri-urban koala populations in the Koala Coast and Pine Rivers areas are not showing any evidence of their rate of decline slowing and it may even be increasing. This decline is related to ongoing habitat loss in SEQ resulting from increasing urbanisation, other threats such as dog attacks and road mortality associated with development, and disease.

Although koalas may be able to withstand some level of low density urban development, the Uniquist report indicates that ongoing urban development and densification is unlikely to be compatible with viable koala populations under current strategies of impact avoidance, mitigation, offsetting and threat management. Despite these insights for peri-urban areas of SEQ, little is currently known about the status of koalas in western and more rural areas of SEQ.

Overview of existing measures and legislation

Over the past 20 years, the Queensland Government has progressively introduced a range of measures with the goal of protecting existing koala populations. These measures have been targeted largely at maintaining the long term quality of koala habitat. Measures have included both regulatory and non-regulatory initiatives.

In Queensland, planning is implemented through State planning instruments that articulate the Queensland Government's position on planning and development related issues and the impacts on biodiversity. In SEQ, development applications must comply with the SEQ Koala Conservation State Planning Regulatory Provision (SPRP), which restricts koala habitat clearing, requires the offsetting the loss of koala habitat, and aims to ensure koala-friendly site design. Queensland's Koala State Planning Policy (SPP) directs local governments to increase protection for koalas through their planning schemes and zonings.

Currently the following instruments are in place:

- **Sustainable Planning Act 2009 (SPA)** – aimed at establishing a system of land use planning, development assessment and related matters that facilitates the achievement of ecological sustainability. Ecological sustainability is defined as being a balance that integrates—
 - the protection of ecological processes and natural systems at local, regional, State, and wider levels
 - economic development and
 - the maintenance of the cultural, economic, physical and social wellbeing of people and communities.
- **SPP** - defines State planning interests, including biodiversity. Local government planning schemes are required to reflect these policies. The government undertakes a State Interest check before local government planning schemes are approved. The SPP biodiversity planning policies require local government planning schemes to avoid, minimise and offset impacts on matters of State environmental significance (MSES), protect corridors and facilitate a net increase in koala bushland habitat in SEQ.
- **SEQ Regional Plan (SEQRP) 2009 – 2031** – relates only to SEQ and contains koala planning policies similar to the SPP. The SEQRP supports the principle that koala populations in the region are enhanced through the protection, management and the achievement of a net gain in bushland koala habitat and through managing conflict with urban development.
- **SPRP** – The SPRP prevails over other planning instruments. The SPRP applies to koala habitat areas considered to be under most threat from urban expansion. This incorporates priority koala assessable development areas which are made up of the Koala Coast and Pine Rivers areas, and the koala assessable development areas, which are made up of areas managed under previous State koala conservation initiatives (Koala Conservation areas, Koala Sustainability areas and Urban Koala areas). A critical aspect of the SPRP is the mapping of these areas, prepared in 2009.
- **Local Government planning schemes** - All local government planning schemes in the Koala Coast and Moreton Bay Regional Council are considered to meet the SPP requirements.
- **Vegetation Management Act 1999, Regional Vegetation Management Code** - applies to regulated vegetation including essential koala habitat that occurs outside of urban areas and operates through the **Sustainable Planning Act**.

Other legislative instruments include:

- **Environmental Offsets Act (2014)/ Environmental Offsets Regulation (2014)** – requires avoidance, minimisation and finally mitigation for development impacts on high quality koala habitat, and accordingly is intended to contribute to the rehabilitation, establishment and protection of koala habitat.

- **Nature Conservation (Koala) Plan 2006 and Management Program 2006 – 2016** promote the continued existence of viable koala populations in the wild, to reduce the decline of koala habitat and promotes future land use and compatible development. The Management Program complements the Koala Conservation Plan by providing policy direction and management approaches to address key threatening processes to koalas.
- **Model local law for the management of dogs** - A model local law for the management of dogs was developed as part of the Koala Response Strategy, (refer to section 7: Review of the Taskforce recommendation and implementation for further details) now incorporated in to the conservation requirements of the Model Local Law No 2 (Animal Management) 2010 template, which has been adopted by local governments in areas where koalas are present, for example Moreton Bay Regional Council, Redlands City Council and Gold Coast City Council.

Other plans, policies and guidelines:

- **Koala-sensitive Design Guidelines** - a guide to koala-sensitive design measures for planning and development activities that provides information for managers, land-use planners, infrastructure providers and development proponents. The guidelines determine and provide: (a) the appropriate measures to help avoid and minimise the impacts of development and land-use planning on koala movement and dispersal, and (b) information on what is needed to meet the requirements of the SPRP in relation to habitat connectivity and koala movement.
- **State Government Supported Community Infrastructure Koala Conservation Policy (CI Policy)** - The CI Policy ensures State government agencies consider koala conservation outcomes in the planning and delivery of government infrastructure which would otherwise not require development assessment or offsets such as roads and school buildings. State agencies are required to provide a net gain in bushland koala habitat in SEQ for unavoidable impacts on higher quality koala habitat.
- **Code of Practice: care of sick, injured, orphaned protected animals in Queensland** - describes the general requirements for the care, rehabilitation and release of protected animals, with special requirements for koalas where relevant. Prescribes conditions for release to the wild and restrictions on translocation as outlined in koala conservation plan.

A number of operational activities are also in place including:

- **Moggill Koala Hospital** – a Queensland Government run koala hospital that treats and rehabilitates sick, injured or orphaned koalas. Additionally statistics are collected from all hospitalised koalas and recorded in the hospitals information system.
- **Daisy Hill Koala Centre** – a Queensland Government run facility that allows the public to see, and learn about koalas.
- **SEQ koala survey and monitoring** – a project to gather baseline data on koala distributions and trends.
- **Spatial modelling and planning for koalas in SEQ** – a current project aimed at identifying conservation values and management options that will enhance the long term viability of koalas in SEQ. The mapping will identify the conservation values and management options that will enhance the long term viability of koalas within SEQ.

Other initiatives that have now been completed or superseded include:

- **Koala Nature Refuges Program** – aimed at legally securing existing koala habitat on private land as well as to plant additional koala habitat. It was active from 2010, with the last of 67 nature refuges declared in 2014.
- **Koala Habitat Program** –
- aimed at purchasing strategically important private land within South East Queensland that could be planted with new koala habitat trees. Funds from koala offsets were used to carry out planting and ongoing maintenance to help achieve the response strategy's objective for a net increase in koala habitat. The acquisition program was active from 2010 – 2015, however revegetation and rehabilitation to restore koala habitat on the purchased properties continues. The koala habitat program aimed at rehabilitation resulted in the purchase of 9 properties costing approx. \$18.1 million and totalling 505 hectares. Currently, 270 of these hectares are being rehabilitated. Since 2014, with the emphasis shifting towards purchasing existing bushland, a further 15 properties were purchased. These additional properties equate to more than 33,900 hectares for a value of about \$15.3 million. These properties were targeted for their quality koala habitat and proximity to the existing protected area estate, both within and outside of the previously targeted SEQ region.
- **Koala retrofit project** - as part of the koala response strategy, the Department of Transport and Main Roads (TMR) implemented a project aimed at saving koalas and other native wildlife from being struck by vehicles along State-controlled roads. Monitoring took place across Brisbane including monitoring through GPS collars, reported sightings and road kills.

- **2008 Koala Taskforce** - The Queensland Government convened a taskforce of koala scientific and welfare experts, the RSPCA, conservation groups, the development industry and local Councils. The group was tasked with looking at further measures to protect the koala in SEQ. Based on the recommendations of the Taskforce, the Koala Response Strategy was released in December 2008 outlining a range of actions to be taken by the Government to halt the decline of SEQ koala populations and achieve a net gain in mature and actively regenerating koala habitat across SEQ by 2020.
- **2008 Koala Response Strategy** – this was developed based on analysis of the Taskforce recommendations and included a range of measures to assist with the long term retention of viable koala populations in SEQ. Some aspects remain in effect.

4. Expert Panel activities

The work of the Panel to date has consisted of three type of activity: fortnightly meetings, a public consultation, and review process. Each of these activities are described below.

Meetings

Fortnightly meetings with EHP and the Panel commenced on 2 August 2016. The purpose of these meetings was to allow the Panel to discuss the Panel's work and to seek clarification and further information from EHP. The meetings were chaired by Jonathan Rhodes (when attending) and minuted by EHP. A number of ad-hoc meetings were also convened by the Panel to work through specific aspects of the tasks identified in the ToR.

Conflicts of interest and media enquiries were a standing item in each meeting and any potential conflicts of interest that arose were discussed and documented. Although some potential or perceived conflicts of interest were raised by panel members, there was no conflict raised that required escalation for further consideration.

Consultation process

Community consultation was conducted between September and November 2016 to help inform the Panel's recommendations that will be included in the final report. Given the large number of groups and individuals with an interest in koala conservation, it was not possible to undertake face-to-face or detailed consultation with all interested parties. Consultation was therefore divided into two components:

- An online survey was conducted to allow a broad range of groups and individuals to have their say about the issues and propose solutions for consideration by the Panel
- Written submissions and/or face-to-face consultation to enable the Panel to capture the views of major stakeholders in koala conservation in SEQ so that a balance of perspectives could be taken into account.

A public online survey was released on 30th September 2016 via the *Have Your Say* website. Invitations to provide written submissions were also sent on 30th September 2016. The closing date for both online surveys and submissions was 21st October 2016.

Where further clarification or information regarding a submission was required, that party was invited to a face-to-face session. All local governments in SEQ were invited to the face-to-face sessions, even if a written submission was not received. Face-to-face consultation was conducted over two days on 14th and 15th November 2016. The purpose of the face-to-face consultation was to seek further information or clarification about the written submission, and to seek details on common issues, such as suggestions for realistic and implementable management options that would deliver the best outcome for koala conservation.

The results of the consultation are detailed in section 5. *Results of the consultation*.

Review process

In addition to the consultation process, an extensive review of existing measures and proposed immediate actions has been undertaken. The review process included workshop days on specific topics and presentations during fortnightly meetings to inform the review process. This approach was to ensure that all relevant information was provided to the Panel and that there was a process to consult relevant stakeholders from government and the private sector on specific issues, to further complement the formal public consultation process. Topics for information sessions included environmental offsets for koalas,

details of the planning system as it relates to koalas, outcomes from Government initiatives and detailed information on current measures to inform recommendations on immediate actions.

The review included:

- Review of the immediate actions proposed by the Queensland Government and outlined in the ToR – to inform the Panel's recommendations on the immediate actions
- Review of the Taskforce recommendations – to establish the efficacy of those recommendations, what was and was not implemented, and which recommendations may be worthwhile of future consideration
- Review and assessment of the loss of koala habitat since 2008 – to establish the loss of koala habitat and the effectiveness of planning policies that purported to provide a net gain.
- Review of planning legislation – to establish if and why policy has failed to deliver koala protection
- Review of management activities – to establish if and why management activities have failed to effectively reverse the decline of the koala.

5. Results of consultation

Below we summarise the key findings of both components of the consultation process. EHP has provided assistance in the preparation of a consultation report that details the results of both components in full, refer to the attached report: *Consultation report on koala management in South East Queensland*.

Online survey

An online survey was open to the general public between 30th September and 21st October 2016. 470 unique responses were received. The vast majority of respondents (92.9%) provided their views on behalf of themselves (as an individual), in contrast to a smaller number of respondents (7.1%) who represented a particular community or conservation group, care and rescue organisation, government sector, academic sector, business sector, peak body or political party. Key results revealed:

Demographic:

- The largest number of respondents were located in the local government areas of Redland City (22%), Moreton Bay (15%), Brisbane City (13%), Gold Coast City (13%), Sunshine Coast (5%), and Logan (4%). Most of the remaining respondents were from other local government areas in SEQ with a small number (3%) based outside the region.

Key concerns of survey respondents included:

- Habitat loss was the single biggest issue causing the greatest public concern, closely followed by concerns with the planning and development framework leading to urban expansion
- Some of the other frequently reported concerns were dogs, cars and roads, disease, safe movement and connectivity, other pest animals, stress, people and human interaction, and legislation.

Key suggestions for improvements by survey respondents included:

- Respondents provided a range of suggestions to address the population decline, which were most frequently associated with the protection of koala habitat (as opposed to other threats)
- The suggestions included, for example, providing greater protection of koala habitat (in general), greater protection and revegetation of habitat corridors, greater protection of habitat under legislation (generally), greater enforcement and compliance with existing regulation, and better protection under local government planning schemes
- Other suggestions which were frequently raised, related to addressing direct threats and other causes for decline. Including for example, better domestic dog control, more effective koala friendly urban design, reducing speed limits and greater traffic control, and an increase in public awareness and education
- Many respondents provided examples related to legislative amendments, including the removal of clearing exemptions under the vegetation management and planning frameworks and raising the conservation status of the koala from 'vulnerable' to 'endangered' under the *NC Act*
- A small number of respondents suggested the introduction of new mechanisms (such as specific-issue legislation i.e. a *Koala Protection Act*), an incentive scheme for revegetation of koala habitat, and a breeding and release program.

When providing their responses for the survey, a small number of respondents (5.1%) were informed by direct evidence such as hospital records, and survey data, with a larger number informed by a general

event or issue they have observed in their local area (13%), such as population decline over the years, or a specific loss of vegetation in their local areas.

Most respondents (76.9%) based their responses on their personal belief or general opinion that the threatening processes they had identified were causing harm (5.1% provided no response).

Written and face-to-face consultation

The written and face-to-face consultation process resulted in 37 stakeholders submitting either a written and/or oral submission. Participants were from conservation groups (16), professional groups (two property development groups, two law firms, and one ecological consultancy), local governments (11), and academic institutions (5).

The written consultation process revealed:

- Issues and recommendations covered a range of topics including planning and development, legislation, offsets, threats, resourcing and mapping.
- Participant responses often varied between groups due to the different special interests represented.

Key concerns of respondents included:

- Across all interest groups, the majority of participants (78%) nominated threatening processes such as habitat loss, dogs, and disease as their greatest concerns.
- Although the existence of a regulatory framework for koala conservation was generally supported, there are still deficiencies, with 75% of participants mentioning a failure of a specific regulatory instrument or issues with the handling of koala conservation matters during the development assessment process.
- Habitat mapping and surveying issues were raised by 63% of participants, with the main concerns being that current mapping is incorrect.
- Participants raised concerns with the environmental offsets framework (59%), including concerns with restrictions that only allow offsets to be in the same local government area where the clearing originated, the cost of implementing offsets, compliance enforcement and monitoring, and lack of a streamlined process between different levels of government.
- Other issues raised included problems with resourcing conservation efforts including a lack of staff and funding (66% of participants), a lack of corridors and safe movement opportunities (25%), and land management issues resulting in poor habitat quality (47%).

Key suggestions for improvements by respondents included:

- Planning and development related changes (84% of participants), such as revising specific regulatory instruments (e.g. closing vegetation clearing loopholes) and applying a regional approach to habitat protection and rehabilitation.
- Revising habitat mapping used for planning purposes was often mentioned by participants (75%). This suggestion was most often mentioned by local governments and koala carer conservation groups.
- Other suggestions included improving support for enforcement of local laws and development conditions (72%), increasing efforts to address direct threats such as dog control (72%), improvements in green infrastructure options such as corridor connections and fauna safe road infrastructure (66%), refining the offsets framework (63%), revising environmental regulations (69%), and improving land management, such as incentivising habitat restoration (47%).

Additional insights from the face-to-face consultation included:

- **The need for a strategic, whole of landscape solution was acknowledged:** Some local governments, property industry groups, and conservation groups stressed the need for strategic solutions, ideally at broad landscape scales.
- **Complexity of the regulatory framework leads to inconsistent outcomes and uncertainty:** Many comments were made about complexity of the regulatory framework, including offsets, with overlap and inconsistency between the various instruments, together with frustrations about the lack of certainty and clarity in the framework.
- **Offsets framework is not working:** Fragmentation of offsets and lack of connectivity between habitat offsets is an ongoing problem. Local governments have a strong desire for koala offsets to be located in the local government areas where the impact has occurred, but some local governments face the problem of no longer having offset areas of any size located in their areas. The lack of resources to follow up on offset compliance was identified by community groups and

local governments as being of particular concern. Several respondents commented strongly that there were few resources to monitor offsets and developer compliance with conditions.

- **Mapping and monitoring needs urgent review:** These were identified as critical for both urban and rural areas. Some local governments identified that the SPRP mapping did not include all or part of their local government area.
- **Koalas in urban areas pose a challenging problem:** It was acknowledged by some stakeholders that ensuring the persistence of many urban koala populations would be challenging. However, many stakeholders were very concerned about 'abandoning' these animals and their habitat in urban areas. Local governments and some other organisations considered that solutions to maintaining viable koala populations in urban areas may potentially be better addressed at the local, rather than regional, level and involve strong community and local government engagement.
- **Local government differences need to be considered:** Very different issues face the local governments which make up SEQ. The local government areas that have less urban development pressure (and hence where there may be greater opportunities for long term koala preservation) have fewer resources for koala management and protection than those local government areas with higher levels of urban development pressure. By contrast, community concern appeared to be higher in the more developed/urbanised areas. There was a desire in some cases for the State to take more of a leadership and resourcing role.
- **Incentives and engagement are important:** Some stakeholders commented on the need for additional incentives to encourage conservation of koala habitat on private land.
- **Traditional custodian input is critical:** Liaison with the traditional custodians of relevant areas of SEQ (for example, North Stradbroke Island) will be an important component of any successful strategy.
- **Coordination is poor:** While there are many strong initiatives in place, sometimes there is a lack of coordination between different organisations and groups, so the whole is less than the sum of its parts. Stakeholders also commented on changes to staffing and corresponding expertise gaps were identified.
- **Timely data sharing is essential:** Many stakeholders commented that data sharing needs to be improved between different stakeholders. In particular, local governments and community groups commented that koala health data is critical to develop proper management strategies but is often not available.
- **Translocation issues need attention:** Various issues about translocation were raised, ranging from concerns about translocation between genetically different or diseased populations (for example, between North Stradbroke Island and the mainland) to more general issues about the role of sterile animals.
- **A strong network of koala hospitals is important:** Integrated and transparent data management and strategic use of koala hospitals needs to contribute to the success of translocation and reintroduction outcomes for koalas in SEQ.

6. Review and recommendations on immediate actions (mapping, monitoring, precincts and research grants)

During 2016, the Queensland Government considered various immediate actions that could be commenced or continued that would not pre-empt future changes in direction, but would allow government to continue activities, such as gathering important data through surveying and modelling.

These immediate actions were funded in the 2016-17 budget and included in the ToR:

- Spatial planning including modelling and mapping koala habitat and corridors in western SEQ
- Creating two koala precincts in Daisy Hill and north of Brisbane
- Ongoing surveying and monitoring of koala populations

Advice was also sought on a proposal for funding for research grants.

Spatial modelling and planning for koalas in southern SEQ

EHP provided to the Panel a project scope for the development of a conceptual model and decision framework using information in relation to koala habitat, koala density and conservation constraints which will be used to identify priority management units and actions.

The Panel agreed on the need to model koala habitat, distributions, threats, constraints and opportunities, but made the following recommendations:

- Form a small expert advisory group to inform the best state-of-the-art approached for modelling koala habitat and distributions
- Develop a more coherent approach to mapping threats, constraints and opportunities

- Delay any decision framework until the policy and decision context that such a tool could inform is more fully developed
- Continue to report to and invite feedback from the Panel to ensure coordination with the Panel's ongoing work.

Recommendations in full are included in *Appendix 3 – Monitoring Plan Recommendations*.

Supported precincts

EHP provided to the Panel an overview of the intent of creating two koala refuges: one in Daisy Hill and a second north of Brisbane. It was proposed that the intent of the precincts would be to provide secure populations of koalas in a near natural setting within the SEQ coastal zone, and maintain the opportunity for both locals and tourists coming to Brisbane and the Gold and Sunshine Coasts to see koalas in a wild setting.

The Panel had a number of concerns about the proposed precincts, including: a lack of detail about the regulatory and management activities that would support viable koala populations in the precincts, how the precincts would complement other strategic initiatives, whether long-term funding would be provided for on-going management, whether the size of the precincts would be sufficiently large to support viable populations at a landscape-scale, the potential inability for Daisy Hill to support a viable koala population in isolation, and uncertainty about the location of the second precinct.

Nonetheless, the Panel believe there is a place for well-defined and strategically placed koala management areas and proposed two types of management area: Koala Conservation Landscapes and Koala Precincts.

The principles for the proposed management areas are as follows:

- Koala Conservation Landscapes would focus koala conservation efforts in priority areas of sufficiently large size to sustain a koala population (e.g., at landscape scales of 1,000s of hectares in size or larger). These management areas would aim to make an important contribution to the long-term persistence of koala populations in the wild in SEQ through focussed efforts on habitat restoration and maintenance, legislative protection, management of threats and monitoring activities
- Koala Precincts would be smaller areas (e.g., 100s of hectares) that have an important role to play in contributing to education, tourism and captive breeding programs and would be managed as semi-wild populations. However, these areas as and in themselves would not necessarily make a direct contribution to the persistence of koalas in the wild in SEQ
- The Panel believes that Koala Conservation Landscapes are the preferred model for focusing koala conservation efforts because of their landscape-scale focus and their direct contribution to the long-term persistence of koalas in the wild in SEQ. However, Koala Precincts may have a role to fulfil other objectives.

Recommendations in full are included in *Appendix 4 – Precincts recommendations*.

Surveying and monitoring

EHP provided an overview of a koala monitoring plan for the Panel's consideration. This overview included options for implementation and delivery of an effective monitoring program and what that monitoring program would deliver. Issues that were to be considered include new technology, capacity for spatial and temporal replication across SEQ and across the koala's range in Queensland, capacity for data analysis and the use of incidental data records and citizen science.

The panel recommended that:

- The general aims and direction of the surveying and monitoring is sound, however it could be more coherently developed.
- A framework was proposed for developing a monitoring program that starts from the principles of why to monitor (e.g., public relations, performance assessment/accounting and understanding causation). These principles provide a starting point from which monitoring objectives and appropriate metrics and monitoring actions could be developed
- A monitoring program should be prepared following this framework.

Recommendations in full are included in *Appendix 5 Habitat Modelling Recommendations*.

Research grants

EHP provided an overview of a proposal to fund projects that deliver research into managing threats and other mitigating processes for koalas in Queensland. The Panel were provided with an outline of the grant scheme and a list of priority areas and were asked to provide feedback on this, but particularly on the priority areas. The initial set of priority areas were developed by the Queensland Government based on the view that they would make an important contribution to koala conservation through practical management options that can be utilised by government (state or local) as either operational managers or policy makers.

The Panel recommended that:

- The assessment criteria should reference impacts on decision making and policy so that funding applications and funded projects make a clear link between the research and the way in which the research can inform and improve decision making
- Further priority areas for translocation and reintroduction, and market-based solutions were recommended.

Recommended Research Priority Areas in full are included in *Appendix 6 Research Priority Recommendations*.

7. Review of the 2008 Taskforce recommendations and implementation

In August 2008 the (then) Minister for Sustainability, Climate Change and Innovation announced that there was a crisis in koala numbers in SEQ, primarily in the urban footprint of the SEQRP. The (then) Premier also announced the formation of a specialised koala taskforce to investigate and report on this issue.

A Koala Response Strategy was then developed based on analysis of the Taskforce report recommendations.

The Taskforce was established in 2008 to consider the evidence showing steep declines in SEQ's koala populations and to recommend actions to stem that decline. The Taskforce was originally structured to represent a broad range of stakeholder perspectives spanning local government, non-government conservation groups, koala research, and animal welfare and rehabilitation organisations.

The Taskforce provided a report to the Government with five recommendations and a list of associated actions for the recommendations' implementation. The recommendations were:

1. As from the date of the Government's response to this taskforce report, it is Queensland Government policy that there will be no net loss of Koala habitat in SEQ. It is Government policy to provide a net gain
2. Acquire funds to achieve Recommendation 1
3. Implement community education and extension
4. Reverse processes that contribute directly to the death and injury of koalas
5. Publicly report on changes in koala numbers and habitat with full data accessibility.

This report formed the basis of the Koala Response Strategy that was approved by Cabinet in December 2008 and re-endorsed in May 2009. The Response Strategy aimed to meet the recommendations, however not all actions suggested by the Taskforce were initiated.

The Taskforce was reconvened twice in 2009, once in 2010, and once in 2011 to discuss specific aspects of the implementation of the strategy and to discuss specific issues, such as translocation.

The Koala Response Strategy elements were all implemented, however outcomes over the long term have not been tracked. Key measures that were implemented include:

- A reviewed SEQRP was launched in July 2009 and included a non-regulatory koala habitat map and a policy for koala conservation aimed at maintaining the viability of all major koala populations across the region by increasing the area of their habitat
- Comprehensive mapping was completed in May 2009 that was used to inform the SEQRP, the SPP and the SPRP
- In May 2010 the SPP 2/10: Koala Conservation in SEQ and the South East Queensland Koala Conservation SPRP were released
- A model local law was developed for use by local government on provisions to regulate dogs in koala habitat areas

- \$43 million was provided for habitat acquisition, resulting in the purchase of seven properties.

The Panel supports the broad thrust of the previous recommendations made by the Taskforce but they have identified a number of problems with the Taskforce recommendations and their implementation. These include:

- In general the actions were not sufficiently strategic in their scope
- There were a very large number of actions, making it difficult for comprehensive implementation
- Some of the recommendations were potentially unrealistic or unachievable given the strong competing government objectives of increasing SEQ's human population
- Ultimately only a small number of the recommended actions were implemented by the Queensland Government
- Strong cross-agency (and inter-governmental) cooperation and high levels of resourcing would have been necessary to implement all the actions and this does not seem to have been achieved.
- The primary focus on habitat loss as an objective, although critical, limited the extent to which the management of non-habitat related threats were also explicitly dealt with in the actions
- Despite the stated objective of no net loss of koala habitat, the vast majority of the actions implemented were only ever likely to result in a slowing of the loss of habitat, rather than halting loss
- The actions that were implemented by the Queensland Government were not implemented at sufficient scale (e.g., the acquisition program only resulted in the acquisition of 85.7 ha of land for restoration, which is small in relation to the rate of clearing – see next section), or with sufficient regulatory protection, to meet the stated objectives of the Taskforce
- A particular omission to the implementation of the Taskforce recommendations was the lack of monitoring and reporting on progress to meeting the taskforce objectives.

Despite these limitations, the Panel's view is that a number of recommendations would be worth revisiting and further consideration of this has been incorporated into the Panel's work plan for the next 6 months to inform the identification of future potential options.

8. Review of trends in clearing of koala habitat

To assess progress towards the stated policy objective of no net loss of koala habitat, a review of clearing of koala habitat across the SEQ planning region since 2008 was undertaken.

To achieve this, first koala habitat in SEQ was defined according to the categories described by the 'SEQ Koala Habitat Values Mapping', released in 2009, with a focus on areas identified as either 'bushland habitat', 'suitable for rehabilitation', or 'other areas of value'. All clearing of woody vegetation that had occurred within these areas of koala habitat was then identified using data obtained by the State-wide Land Cover and Trees Study (SLATS), which detects the clearing of woody vegetation using remote sensing and Landsat imagery.

Clearing was assessed for each of the SLATS reporting periods between the 2008-2009 and 2014-2015 reporting periods. These clearing rates were calculated for the eastern (Brisbane, Moreton Bay, Redlands, Logan, Ipswich, Gold Coast, Sunshine Coast and Noosa) versus western (Lockyer Valley, Somerset and Scenic Rim) local government areas, within the urban footprint versus outside the urban footprint, and for each local government individually.

The percentage loss of woody vegetation in each period was also calculated as a percentage of the total area of each habitat category in 2008 and as a percentage of the total woody vegetation (remnant and regrowth) in each habitat category in 2008. Note that this provides an estimate of the woody vegetation lost in areas mapped as different koala habitat categories, rather than a direct measure of loss of koala habitat. Although this is likely to provide a reasonable estimate of the loss of koala habitat, it was not possible to estimate gains in habitat due to issues with mapping gains in regrowth over time through remote-sensing.

This analysis indicates that approximately 19,000 ha of koala habitat may have been lost within the SEQ Planning Region since 2008 (Tables 3 to 5). This equates to a loss of 4.1% of the woody and regrowth vegetation that was mapped as koala habitat between 2008 and 2015. However, rates of loss were higher in the eastern local government areas (2.6% loss) than in the western local government areas (1.3% loss) and significantly higher within the urban koala habitat (high, medium and low value other) (23.6% loss) than outside the urban footprint mapped as bushland or rehabilitation areas (1.86% loss). Clearing rates were highest in Logan City Council (4.98% loss), Ipswich City Council (4.05% loss), and Moreton Bay Regional Council (3.26% loss). Clearing rates were lowest in Scenic Rim Regional Council (1.09% loss), Noosa Shire Council (1.16% loss), and Sunshine Coast Council/Somerset Regional Council (1.25% loss).

There was little evidence that the rate at which koala habitat has been cleared has declined since 2008 despite existing measures and the introduction of a number of new measures to protect koala habitat (Figures 1 and 2). In fact, over this time period the rate of loss of habitat has tended to increase.

Koala habitat clearing in western local government areas in SEQ 2008-2015

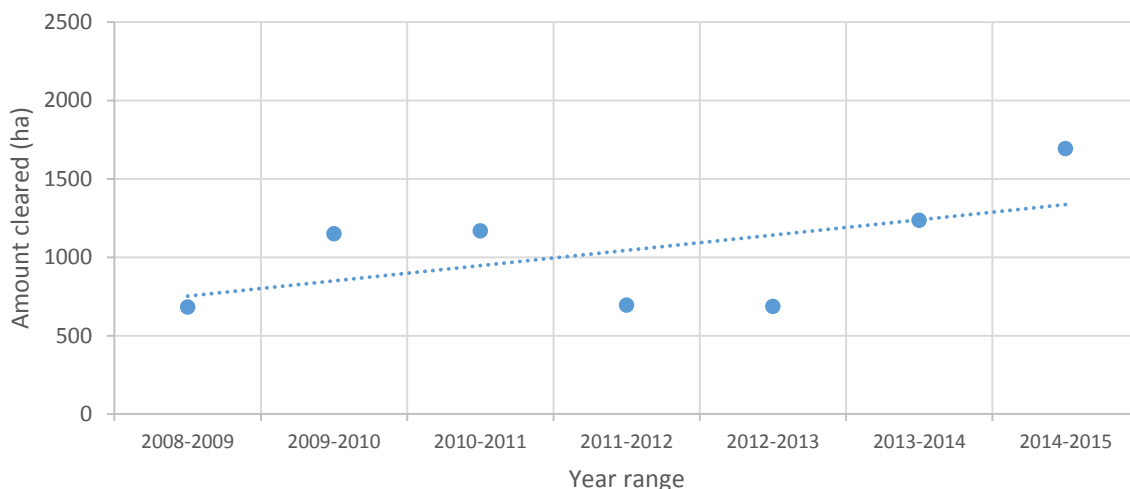


Figure 1 – Koala habitat clearing (in ha) with trend-line for the western local government areas of SEQ from 2008 - 2015. (Source: SLATS)

Koala habitat clearing in eastern local government areas in SEQ 2008-2015

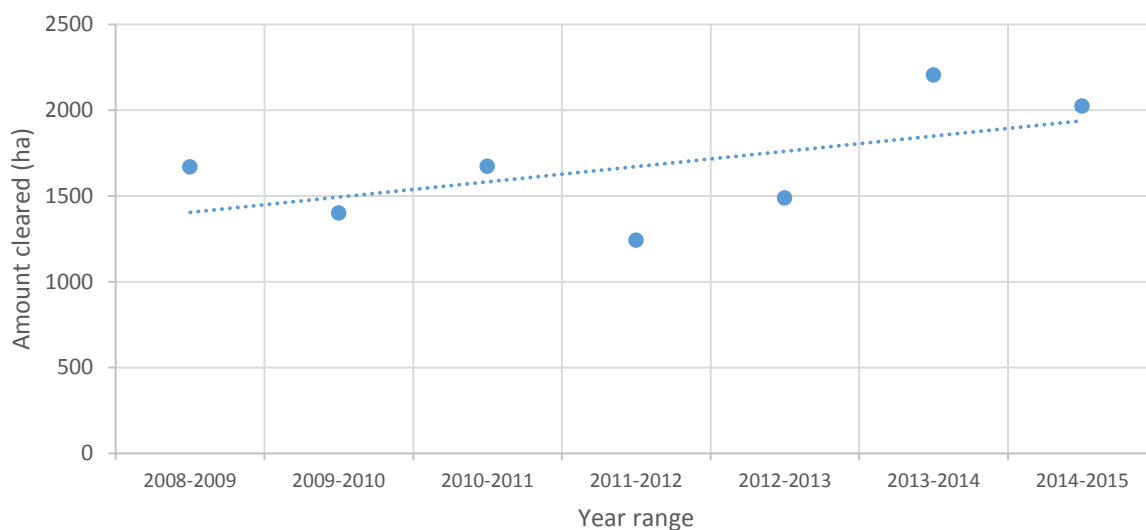


Figure 2 – Koala habitat clearing (in ha) with trendline for the eastern local government areas of SEQ from 2008 - 2015. (Source: SLATS)

- a) Detailed information and maps resulting from this analysis of the clearing of koala habitat since 2008 within each of the applicable habitat values described in the SEQ Koala Habitat Values Mapping for South-East Queensland local government areas are included in

9. Review of planning legislation

Key components of the planning framework

The planning and development framework has been identified as a critical component of Queensland's koala strategy. The current Queensland framework includes these key instruments:

- The planning and vegetation management legislation, currently SPA and VMA.
- A single SPP, which identifies State interests and is used by the State government to assess local government planning instruments, including koala values
- The SEQRP and its regulatory provisions. This instrument has the potential to take a landscape scale or whole-of-region (as appropriate) approach to koala preservation, because it identifies the 'urban footprint', within which urban development is constrained, and additionally has the potential to identify areas of biodiversity significance which are to be protected
- The Koala SPRP (soon to be replaced by provisions in the new Planning Regulation), which together, with mapping undertaken in 2009, establishes a hierarchy of koala habitat areas and parameters that direct development design and assessment requirements for those areas
- The State Development Assessment Provisions (SDAP), which is essentially the policy document used by the chief executive, DILGP, for assessment of development applications under SPA.
- Local government planning schemes, made by local governments and approved by the Queensland Government under SPA, which take very diverse approaches to koala preservation
- The Queensland offsets framework, comprising the *Environmental Offsets Act 2014* and related regulations, policies, guidelines and calculators, which establish a common framework for the calculation and treatment of biodiversity offsets

Key points arising from review

The public consultation and consultation with key government departments (particularly DILGP) provided the primary basis for the Panel's review of the planning legislation. The key points arising from this review included:

- The number and diversity of the instruments which make up the planning framework lead to inconsistency and fragmentation of the planning approach, with koala habitat being called different things, and receiving different treatment, under different legislation
- The current planning framework – with its focus on the facilitation of development – is only capable, at best, of slowing the loss of koala habitat or decline of koala populations
- The planning framework does not sufficiently address cumulative impacts as the core of the assessment process is case-by-case approvals
- Many respondents in the public consultation commented unfavourably on the current mapping used in the regulatory instruments, in particular the SPRP. The mapping has been criticised variously as both under and over representing koala habitat, not covering certain local government areas in SEQ, and with the scale being too coarse. Stakeholders commented that it was hard to change the mapping even when it was clearly wrong. This is clearly a significant issue for local governments, conservation groups, developers, and other stakeholders
- The consultation received many adverse comments about the offsets framework. These included: querying the implementation of the framework (i.e., whether the 'avoid, minimise, mitigate' framework is actually implemented, or whether the offsets framework amounts to permission to destroy habitat), the inability of local governments to offset areas of state significance, the inability to offset outside of the local government area where the impact has occurred, and complaints about the implementation and enforcement of offset conditions and the resources available to do so
- Some of the feedback received in the consultation criticised the current framework specifically in regards to interpretation difficulties, in particular with definitions of the SPRP. Others complained that there are too many exemptions which allowed clearing and that many areas of koala habitat have been omitted from the SPRP as reflected in the Map of Assessable Development Area
- The consultation revealed some unintended outcomes of the current koala framework for example, what could be deemed as an acceptable demonstration of avoidance and mitigation of koala habitat may differ between local government assessment officers
- Local governments are required, through their own planning instruments including codes, overlays and policies, to develop a framework for the assessment of development in koala habitat, and the imposition of development conditions. Some local governments commented that

additional State leadership would be welcome in the respect to ensuring that consistent koala standards were adopted and imposed. For example, additional standard assessment criteria could be developed for the assessment process for proposed developments in areas occupied by koalas, or standard/model conditions for koala sensitive development measures, to be incorporated as conditions of development approvals, could be developed. Naturally, differences between conditions in local government areas would need to be dealt with sensitively in the development of any standard or model instrument.

Alignment of Panel process and SEQRP consultation

Unfortunately, the Panel process does not align perfectly with the current planning instrument review process. The draft SEQ Regional Plan ('Shaping SEQ') has already been released for consultation, as has the SPP as part of the review process of that instrument. So that the Panel's recommendations can be considered as part of this consultation process, the Panel's amended ToR indicate the provision of advice on the SEQRP and the SPP by February 2017, well before the Panel's final report. The Panel has therefore been invited to comment, accordingly, on a planning framework that is already in place, or is in the process of being implemented, rather than being asked to comment more broadly on the suitability in general of this planning framework. The Panel anticipates that broader comments about the suitability of this framework will therefore form part of the Panel's final report, rather than being contained within the specific comments on the existing SEQRP and the SPP frameworks that will be provided in February 2017.

10. Review of management activities

Key management activities

Management activities initiated by the Queensland Government aimed at reducing threats to koalas that are not addressed through the planning framework have consisted of the following:

- The operation of Moggill Koala Hospital and the Daisy Hill Centre that aims to provide resources for managing sick, injured and orphaned koalas and education and engagement
- A code of practice for managing sick, injured and orphaned animals
- The Koala Nature Refuges Program that provided a framework for the voluntarily securing koala habitat on private land. This is no longer active
- The Koala Habitat Program that aimed to secure areas for the protection and restoration of koala habitat through land purchases
- Model Local Law for dog management
- TMR's retrofitting project aimed at monitoring and retrofitting roads to reduce impacts on koalas.

In addition to these measures, there are a range of initiatives implemented by local governments and community groups. Given the large number of these, they are not specifically reviewed here, but the Panel will consider how the Queensland Government may facilitate and/or resource these initiatives in its ongoing work.

Key points arising from the review

The key points arising from the review and consultation feedback on management activities outside of the planning framework are:

- The activities for managing threats outside of the planning framework have generally been limited in scope and scale
- Investment in management activities have focussed predominantly on managing sick, injured and orphaned animals and habitat restoration at the expense of other important threats, such as dog attacks, vehicle collisions and disease
- In general initiatives have focussed on addressing the symptoms, rather than the cause of declines (e.g., managing sick and injured koalas, rather than reducing the threats that result in sick and injured koalas)
- The effectiveness of management activities (e.g., the Model Local Law and the TMR retrofitting project) has not been assessed and is not known
- Coordinating within and between different levels of government is not apparent and a strategic, rather than reactive, approach is lacking

- Management activities have been focussed primarily on the urban footprint with little emphasis on the management of koalas elsewhere in SEQ

11. Identification of where current policy and management have failed

Based on the Panel's assessment of habitat loss, the review of recent policy initiatives, planning regulation and management activities and the community consultation, current policy and management appear to have failed for the following reasons:

Overarching Policy and Management Issues

- **Lack of a strategic regional vision.** Although the SEQRP provides the regional context, it is lacking in detail, and the application of the planning regulation and legislation occurs primarily at the local and property scale.
- **Over-reliance on the planning legislation.** The complex nature of threats to koalas in SEQ means that ensuring their long-term persistence will require a multi-faceted approach. The planning framework clearly provides a key mechanism to reduce the impact of future urban development, but does little to reduce existing threats. There has tended to be an over-reliance on this as a single solution which ignores the importance of other issues such as reducing existing threats in urban areas, land management in rural areas, land clearing outside of the urban footprint, and ensuring resilience to climate change. In general these issues have been under-invested in by the Queensland Government.
- **Resourcing inadequate.** Despite a number of new initiatives by the Queensland Government since 2008 the level of resourcing to reduce existing threats and recovery has been insufficient to implement actions at a sufficient size and scale to ensure the persistence of koala across SEQ (e.g., the acquisitions and habitat restoration activities). This was an issue that received considerable attention in the community consultation.

Planning Issues

- **Existing planning and vegetation management legislation is only capable, at best, of slowing habitat loss and impacts on koala populations.** Habitat loss data indicates that the introduction of legislation and policy initiatives since 2008 has had very little impact in slowing the rate of loss. Legislation is currently designed to facilitate urban development within the urban footprint, including in areas where koalas occur and therefore is not constructed to halt further loss of koala habitat or impacts on koala populations. This is exacerbated by a focus almost exclusively on impacts on koala habitat, rather than impacts on both habitat and populations. This is an issue, because significant impacts can occur on koalas even where no habitat is lost or degraded.
- **Complexity of the regulatory framework.** Inconsistencies and complexity are major issues with implementing planning legislation, due to the complex interaction between a large number of instruments that apply at the local, state and Commonwealth levels. This makes it problematic to consistently apply the legislation and likely results in inferior outcomes for koalas.
- **Inability of the legislation to address cumulative impacts.** The existing legislation (except partially through the South East Queensland Regional Plan (SEQRP)) lacks the ability to deal with cumulative impacts. This arises from case by case assessment and approval processes that generally ignore the cumulative landscape-scale impacts and requirements for koalas. This issue requires a strategic landscape-scale approach that deals explicitly with cumulative impacts.
- **SPRP too limited in scope.** Although the SPRP is one of the major policy instruments to protect koala habitat, it applies to very few areas outside of the Koala Coast and areas of Moreton Bay Regional Council. This severely limits its ability to protect koalas across SEQ.
- **Implementation of the offsets framework is problematic.** The key issues include: issues around the ability of local governments to offset matters of state significance, a lack of resources

for monitoring and enforcement, the inability to offset outside local government areas where the impact occurs, lack of additionality deriving from offset actions, and potential perverse outcomes.

Mapping, Monitoring and Research Issues

- **Habitat mapping inadequate and inconsistent.** Identified issues include a lack of mapping in some areas, the inadequate scale of the mapping, the inability to update and correct the mapping over time, and the inconsistent application of the mapping under the SPRP. Many local governments have also undertaken their own mapping using a range of different approaches and this has led to inconsistency in habitat mapping across SEQ.
- **Monitoring and evaluation inadequate.** Although some monitoring of koala populations has been undertaken and this formed the basis of the Uniquist report, there are a number of issues with the monitoring program. These issues include: the lack of clear monitoring objectives and links to the monitoring activities, the monitoring has not been designed specifically to evaluate progress toward meeting koala recovery objectives, the limited focus on western SEQ koala populations where we have little information at present, and a lack of explicit links between monitoring outcomes and policy development. There has also been almost no evaluation of the success of specific management activities for the conservation of koalas.
- **Lack of understanding of the distribution and dynamics of rural koala populations and their habitat.** Research and monitoring have focussed predominantly on urban koala populations with little focus on rural population in the western part of SEQ.

Governance Issues

Coordination is inadequate. Coordination among different levels of government and other organisations is often limited, leading to inconsistent approaches to management and planning and lack of sharing of information and data.

- **Limited acknowledgment of variation in institutional arrangements and koala conservation needs across SEQ.** SEQ is diverse and different local governments have different levels of resourcing, priorities, local institutional arrangements, regional koala habitat, political /conservation demographics etc. In addition, koalas in different parts of SEQ (e.g., eastern versus western areas) have quite different conservation requirements. Current policy and management responses do not deal adequately with these issues to ensure consistent decision making process and outcomes across different local government areas.
- **Regulation, education and extension has failed to modify community and institutional behaviour.** As a whole, community and institutional behaviour has not changed to accommodate the co-existence of koalas and their habitat within urban and rural living areas – especially in regard to koala friendly development, vehicle speeds, dog control, and broad public demands for the installation/retrofitting of protective infrastructure. This is despite vocal, passionate community advocacy, State and local government education and extension, as well as regulation.

12. Future work plan

The Panel's work plan for the next six months will focus on the activities required to achieve the outcomes stipulated in the ToR for the final report. The Panel is also required to report back to the participants of the July 2016 workshop for input. The ToR require that the final report contains the following:

Recommendations on the most appropriate and realistic actions to reverse the decline in koala population sizes and ensure the long-term persistence of koala populations in the wild within SEQ, including:

- Specific recommendations for koala policy and management in SEQ
- Evaluation of the potential options and risk assessment
- How the recommendations and expected outcomes can be evaluated over time
- Analysis of data compilation and consultation
- Future direction for research, monitoring and evaluation needed to support an adaptive management framework for koala conservation in SEQ
- Outline of direction koala policy should consider more broadly across Queensland

To achieve these aims the panel will undertake the following activities over the next six months.

	Activity	Description	Undertaken by whom	Relevant date
1. Regulatory framework inputs				
	Panel input into planning instruments review	As described above, the Panel has been asked to provide feedback into the planning instruments review and specifically into the SEQRP and SPP. Public consultation closes on 1 March 2017.	Panel	20 February 2017
	Recommendations on offsets framework	The Panel have been asked to provide advice on improvements to the offsets framework	Panel	24 February 2017
2. Evaluation of modelling strategy				
	Evaluate habitat modelling produced by EHP	This will involve an evaluation of habitat mapping being produced by EHP. The Panel will also consider whether peer review would be desirable.	Panel	31 March 2017
3. Identification of potential options				
	Best practice review of conservation approaches for the successful recovery of threatened species	The Panel considers it imperative that the Queensland Government strategy for koalas is informed by comparison against successful strategies adopted overseas and in other places in Australia.	EHP	31 January 2017
	Consolidation and clarification of potential options arising from the Panel, the community consultation, and reconsidered 2008 Taskforce actions	The Panel will use the work done to date (including the consultation and further consultation where necessary) to inform a list of potential options to consider.	Panel	31 January 2017
	Finalise list of potential options	The Panel will finalise and detail a list of potential options from those identified in step 5.	Panel	28 February 2017
4. Evaluation of options				
	Literature review of work done on SEQ koalas	This will be a review of the literature on SEQ koalas that will inform the evaluation of options	EHP	10 February 2017
	Preparation for expert elicitation process	Expert elicitation will be used to evaluate each potential option in terms of the benefits to koalas and risk of failure/likelihood of success. This step will include the set-up of the elicited questions and identification of experts. A DEHP resource to run the expert elicitation process will need to be identified as soon as possible.	Panel and EHP	1 January – 15 March 2017
	Conduct expert elicitation and complete evaluation of options	This step will involve running an expert elicitation process with a pre-elicitation step followed by a 1-day workshop.	Panel and EHP	Week commencing 27 March 2017; report to be prepared by EHP by 21 April 2017
5. Finalisation of report				
	Prepare first draft of final report, containing specific objectives and potential options for implementation			31 May 2017
	Seek input from July 2016 workshop participants	This will be a 1-day workshop where the findings of the Panel and the evaluation of options will be presented and feedback sought from the July 2016 workshop participants.		6 June 2017
	Delivery of final report			30 June 2017
6. Additional activities				
	Obtain further technical information from stakeholders	As part of the Panel's fortnightly meetings, organise input from identified relevant stakeholders.	EHP	Ongoing

13. Appendices

Appendix 1 Glossary

CI Policy: State Government Supported Infrastructure Koala Conservation Policy

DILGP: Department of Infrastructure, Local Government and Planning

EHP: the Department of Environment and Heritage Protection

EPBC: Environment Protection and Biodiversity Conservation Act 1999

LGA: Local Government Area

NC Act: Nature Conservation Act

The Panel: The Koala Expert Panel

SEQ: South East Queensland

SEQRP: SEQ Regional Plan

SLATS: State-wide Land Cover and Trees Study

SPA: Sustainable Planning Act

SPP: State Planning Policy

SPRP: State Planning Regulatory Provision

The Taskforce: The Koala Taskforce

TMR: Department of Transport and Main Roads

ToR: Terms of Reference

Terms of Reference Koala Expert Panel

Intent

To provide recommendations to the Queensland Government that will inform a strategy for the protection of the vulnerable koala in south east Queensland.

Purpose of the Koala Expert Panel

To provide expert advice on the most appropriate and realistic actions to reverse the decline in koala population sizes and ensure the long-term persistence of koala populations in the wild within south east Queensland¹. This will include consideration of:

- Existing approaches to understand where policy and management has failed to deliver on koala protection.
- Regulation and planning instruments, and other protection measures.
- Management actions required to reduce threats.
- Monitoring and research actions such as population surveying, mapping and modelling of habitat, and research into preventable causes of death, and rescue and rehabilitation services.
- Policies, such as translocation policies.

The panel will also provide advice on the design and desirability of the immediate actions proposed by the Department of Environment and Heritage Protection (EHP).

Expected commitment from the panel

It is expected that the panel will:

- Review the success, or otherwise, of existing approaches to koala management.
- Provide feedback on the immediate actions proposed by EHP such as surveying and monitoring and the establishment of two supported koala precincts in coastal South East Queensland. Details are included in attachment 1.
- Provide direction to EHP on the collation of existing research to inform recommendations.
- Liaise with other experts to inform the recommendations.
- Oversee, and undertake as appropriate, consultation with key stakeholders including local governments, conservation groups and industry to inform recommendations.
- Report back to the participants of the 4 July workshop for input.
- Meet fortnightly and provide updates to EHP at these meetings. The purpose of these meetings will be to ensure regular communication among panel members and that deliverables align with EHP requirements.
- Oversee the preparation of and approval of the draft and final reports.

Timeframes

Deliverable	Timeframe (from date of finalising ToR) ²
Provide feedback on immediate actions	1 month
Conduct consultation	3 months
Overview of consultation results (prepared by EHP and endorsed by the panel)	4 months
Reconvene the 4 July workshop (if necessary)	4 months
Interim report	4 months
Final report	12 months

Deliverables

¹ Here “south east Queensland” refers to the region represented by the South East Queensland Regional Plan and includes the following local government areas:

Brisbane City Council City of Gold Coast Council Ipswich City Council Lockyer Valley Regional Council Logan City Council Moreton Bay Regional Council Noosa Shire Council Redland City Council Scenic Rim Council Somerset Regional Council

Sunshine Coast Council Toowoomba Regional Council (part only).

² The ToR was finalised on 29 August 2016

- Fortnightly updates on progress, including the ability for EHP to provide feedback to ensure the final deliverables meet requirements.
- Interim report.
- Final report.

The interim report should contain:

Identification of where current policy and management have failed, outcomes from the consultation, and direction/areas of work for the following 6 months.

The final report should contain:

Recommendations on the most appropriate and realistic actions to reverse the decline in koala population sizes and ensure the long-term persistence of koala populations in the wild within south east Queensland, including:

- Specific recommendations for koala policy and management in south east Queensland.
- Evaluation of the potential options and risk assessment.
- How the recommendations and expected outcomes can be evaluated over time.
- Analysis of data compilation and consultation.
- Future direction for research, monitoring and evaluation needed to support an adaptive management framework for koala conservation in south east Queensland.
- Outline of direction koala policy should consider more broadly across Queensland.

Membership

The membership of the group is:

Chair:

- Dr Jonathan Rhodes, Associate Professor, Centre for Biodiversity and Conservation Science and the School of Geography, Planning and Environmental Management, The University of Queensland

Panel Members:

- Dr Alistair Melzer, Koala Research Centre of Central Queensland, Central Queensland University
- Mr Al Mucci, General Manager/Director, Dreamworld Wildlife Foundation
- Ms Antra Hood, Lawyer, Minter Ellison

Role of the Chair

- Primary contact and liaison between the Panel and EHP;
- Primary contact for media enquiries, with support from EHP;
- Convenor, facilitator and spokesperson for the panel;
- Organise the distribution of work to the panel, including utilising appropriate expertise and experience for particular components and consultation; and
- Resolve any conflicts of opinion.

Roles and responsibilities

The panel will commit to:

- Providing evidence-based and unbiased advice;
- Making timely decisions and provision of advice; and
- Notifying the Secretariat, as soon as practical, if any matter arises which may be deemed to affect membership.

The Department of Environment and Heritage Protection will:

- Provide secretariat support;
- Provide supporting information, such as access to data;
- Provide contact details and support for consultation, including liaison and organising meetings as required and assisting in the preparation of questions that will inform the consultation process;
- Provide a summary of consultation results that can be used by the panel for analysis;
- Reconvene participants from the 4 July workshop, if necessary;
- Collate and summarise existing research, to address specific components as identified by the panel;
- Provide support for drafting reports; and
- Collate discussions and prepare recommendations for approval by Government.

Other matters

Amendment, modification or variation

This Terms of Reference may be amended, varied or modified in writing after consultation and agreement by the panel members.

Communication Protocols

Responses to media and other information requests will be the responsibility of the chair.

Confidentiality

Members are to maintain confidentiality on the content of discussions for the duration of the term.

Conflicts of interest

Committee members will be required to declare conflicts of interest. It is recognised that members are involved in various projects on koala conservation, conflicts of interest would only need to be declared in the member is likely to gain financial advantage from their membership.

Remuneration

The Queensland Government will pay for all out of pocket expenses, including travel and accommodation.

Term

The group will initially be convened for 12 months.

Immediate Actions

- Survey program overview
- Under the oversight of the Koala Expert Panel, Dr Julia Playford (EHP) will develop a methodology for the on-going survey and monitoring of koala populations using expert knowledge. This will include a clear articulation of what the monitoring and survey is expected to achieve to allow for the on-going assessment of koala population trends.
- Issues to be considered include new technology, capacity for spatial and temporal replication across south east Queensland and across the range of koalas in Queensland, capacity for data analysis and the use of incidental data records and citizen science.
- Create two supported refuges within the SEQ urban footprint

It is proposed to develop two supported urban refuges; one in Daisy Hill and a second north of Brisbane; to invest focused effort on the survival of the koalas and their habitat within these refuges.

The focused effort would include management activities for the resident koalas and habitat consisting of:

- implementing threat mitigation measures, such as strategic exclusion fencing, wild dog baiting, vaccination against disease and habitat restoration and enhancement.
- actively managing the koala populations in each refuge by enabling translocation of mature and juvenile koalas, annual surveys and monitoring and associated data capture, and conducting regular health checks and population management and genetic diversity.

The establishment of the refuges will provide secure populations of koalas in a near natural setting within the SEQ Coastal zone, and maintain the opportunity for tourists coming to Brisbane and the Gold and Sunshine Coasts and locals to see koalas in the wild.

The Moggill Koala Hospital will continue to play a key role in the establishment and ongoing management of the supported urban refuges. Vets at the Hospital will oversee regular health checks and administer vaccinations. The Hospital will also receive koalas that have been, or are in need of, rehabilitation where their release to the site of capture would put the koala at further risk. A vaccine against Chlamydia would be administered to all new and existing koalas within the urban refuge and on an annual basis.

- Spatial planning including modelling and mapping koala habitat and corridors in western SEQ

As part of the previous responses to koala protection, detailed mapping of koala habitat has been undertaken in the eastern local government areas of SEQ. The western Local Government areas of Scenic Rim, Somerset and Lockyer have koala habitat mapping showing suitable habitat. This mapping and modelling work will be undertaken at the scale of 1:25,000 identifying potentially suitable habitat and areas to five hectares.

As part of this work, strategic corridors and blocks of land that require protection and areas suitable for rehabilitation will be identified. This work will require a small team comprising a fauna ecologist, a GIS analyst and a project coordinator. In-kind support will be provided by the Department, including a fauna ecologist, a project manager, and additional GIS support. The cost for the spatial planning is \$0.337M over 12 months, and will be completed by June 2017.

Addendum to the Terms of Reference December 2016

The previously stated purpose of the Koala Expert Panel is to provide expert advice on the most appropriate and realistic actions to reverse the decline in koala population sizes and ensure the long-term persistence of koala populations in the wild within south east Queensland. This includes consideration of regulation and planning instruments.

This addendum details the role of the panel and timeframes in relation to planning instruments. Consultation drafts were released in late 2016 for the State Planning Policy (SPP) and *ShapingSEQ* (a revised regional plan for SEQ) These draft documents state that an expert panel has been established and will provide recommendations that will inform the final versions. The role of the panel is described below:

Role of the panel

Item number	Deliverable	Due Date
1. SPP State interest - biodiversity	<ul style="list-style-type: none"> • Recommendation on what the policy should achieve, in relation to koala conservation • Discussion and justification on the recommendation(s) 	20 February 2017
2. ShapingSEQ Goal 4 - sustain	<ul style="list-style-type: none"> • Recommendation on what the regional plan should achieve, in relation to koala conservation • Discussion and justification on the recommendation(s) 	20 February 2017
3. Habitat mapping	<ul style="list-style-type: none"> • Advice regarding the adequacy of the new koala habitat mapping for land use planning and development assessment at the SEQ regional and local scale. • Discussion and justification 	31 March 2017
4. Offsets framework	<ul style="list-style-type: none"> • Recommendations on improvements to the Queensland offsets framework to ensure that local councils and state decision makers can apply the offsets framework in their development approvals. • Discussion and justification on the recommendation(s) 	24 February 2017

Role of EHP

EHP will:

- Review the panel's recommendations and request clarification (if required)
- Obtain Ministerial decisions on the panel's recommendations
- Negotiate with the Department of Infrastructure, Local Government and Planning to ensure the panel's recommendations are correctly reflected, where appropriate, in the SPP and *ShapingSEQ* (items 1-2)
- Facilitate targeted consultation in April 2017, in relation to the panel's recommendations and EHP's new koala habitat mapping.

Out of scope

Recommendations are not required on specific elements of the consultation drafts listed below:

- State Development Assessment Provisions
- Planning Regulation 2017

Koala Expert Panel – Recommendations on Koala Monitoring Plan

9th October 2016

Background

The Expert Panel has been asked to provide recommendations on the koala monitoring plan being developed by the Department of Environment and Heritage Protection (DEHP). The panel has been provided with an outline of the monitoring plan and also attended a workshop on 31st August 2016 where monitoring was discussed with DEHP. Below we first review the monitoring plan that was provided to the panel and then provide specific recommendations.

Review

The monitoring plan outlines that long-term monitoring is required to support effective koala conservation activities and that the monitoring program should address the following aims:

1. Provide data and information to support effective decision making
2. Determine the effectiveness of the policy and management actions implemented as a result of the recommendations of the expert panel
3. Validate koala habitat models
4. Provide an assessment of the major threats to koala populations
5. Provide information on emerging issues
6. Inform the review of management actions
7. Establish causal links between actions, drivers and ecosystem outcomes in order to attribute relative importance and evaluate the effectiveness of the plan

The panel agrees that the monitoring program needs to be long-term (at least 20-25 years; roughly three koala generations) and that it should have ongoing funding to achieve this. There is very good evidence that the benefits of monitoring are significantly higher when conducted over the long-term compared to short-term monitoring (particularly for a long-lived species such as the koala). However, the framework within which the monitoring aims have been developed is not clear and therefore the rationale for each activity is not well justified. There are a large number of different aims listed, but how they each contribute to the overarching monitoring aims is not well articulated. Further, it is not clear if these aims are achievable with the resources available, or whether some prioritisation would occur. The potential questions and monitoring of threats are also listed, but it is also not clear how these relate to the overarching aims and complement the other monitored variables.

Recommendations

Based on our review and understanding of the purpose of the monitoring plan, the panel believes that the general direction that the plan is taking is sensible. However, below we propose a framework within which the monitoring plan could be more coherently developed. The framework the panel proposes starts from the principle that monitoring is generally conducted for three main purposes:

1. Public relations (keeping the general public informed and/or engaged)
2. Performance assessment/accounting (assessing performance against pre-defined benchmarks or targets)
3. Understanding causation (revealing the drivers of change and the effectiveness of management/policy)

These provide three overarching purposes for monitoring, all of which the panel believe are relevant for monitoring koalas in SEQ. Note that the *understanding causation* purpose will overlap with the research program, but indicates that some research questions could also be addressed through the monitoring program, thus explicitly linking the monitoring and research programs. The above overarching purposes provide a starting point from which **monitoring objectives** (and targets), appropriate **metrics** that represent the objectives, and monitoring **activities** that achieve the objectives could be developed (see Table 1 below for an example). The monitoring objectives represent the specific monitoring aims and the metrics indicate the specific measures that will be used to assess progress towards the aims. Finally, the monitoring activities represent the monitoring actions that will be conducted to measure the metrics. This,

therefore, provides a hierarchical framework that allows monitoring activities to be explicitly identified through the identification of linked pathways from the purposes of monitoring, to objectives, to metrics (Table 1). If the resources available end up being insufficient to undertake all activities identified under such a framework, it is quite feasible to subsequently undertake a prioritisation of activities. The panel recommends that the monitoring team apply a framework such as this in designing the koala monitoring program. The monitoring team should liaise with the panel for further input and review during the process of developing the framework and monitoring plan.

Table 1. Example application of the proposed framework. **Note that this is purely indicative of how the framework could be applied using a few examples, rather than being prescriptive of what the monitoring program should look like.**

Purpose	Objectives	Metrics	Activities
Public Relations	Communication of koala population trends	Abundance/density trends (Note: the panel does not consider there is any merit in attempting to estimate total population numbers)	Surveys of koala abundance at sentinel sites
		Distribution trends	Surveys of koala presence/absence stratified across SEQ (amenable to citizen science involvement)
		Report card	Simple report card of koala trends
Performance Assessment	Koala populations not declining	Abundance trends	Surveys of koala abundance at sentinel sites
		Distribution trends	Surveys of koala presence/absence stratified across SEQ
	No net loss of habitat	Changes in habitat area over time	Remote sensing and modelling of habitat
		Changes in urban development over time	Remote sensing of urban development
	Performance of habitat modelling is better than X	Accuracy measure of habitat model	Surveys of koala distribution and habitat to validate habitat model
Increasing breeding rates	Number of females with young	Counts of back young at chosen sites	
Understanding Causation	The effect of road fencing on koalas	Quantitative measure of road fencing on koala abundance/trends	Experimental survey design to monitor koalas under alternative treatments
	The performance of offsets for koala conservation	Quantitative measure of the effect of offsets for protecting koala habitat	Tracking of offsets and koala habitat over time and modelling of impact
	The impact of climate change on koala habitat	Relationship between climate change and habitat resilience	Measurement of vegetation condition at sites over time and through remote sensing, tracking of climate and water availability.

Koala Expert Panel – Recommendations on Precincts 28th November 2016

Background

The expert panel has been asked to provide recommendations on the proposal for establishing two koala precincts in SEQ. To assist with this recommendation, the panel has been provided with a document outlining the intent of the precincts (dated August 2016). This document describes the aim of the koala precincts to be to:

“...provide secure populations of koalas in a near natural setting within the SEQ Coastal zone, and maintain the opportunity for both locals and tourists coming to Brisbane and the Gold and Sunshine Coasts to see koalas in a wild setting.”

Below we firstly review the background document concerning the proposed koala precincts, secondly we provide a proposal to define two types of koala management area with different aims, and finally we provide a set of specific recommendations.

Review

Based on the information provided to the panel, it is proposed that there will be two koala precincts established in SEQ: one at Daisy Hill and one north of Brisbane (location yet to be determined). Within these precincts a range of threat mitigation measures would be applied (including strategic exclusion fencing, wild dog baiting, vaccination against disease and habitat restoration and enhancement), active management would be adopted (including translocation, health checks, genetic management), and monitoring would be conducted. Four years of initial funding has been secured to provide for these activities.

Although the information provided to the panel provide a broad outline of the precincts, a number of aspects of the intent and operation of the precincts is unclear, including:

1. Whether the primary purpose of the koala precincts is to contribute to the conservation of koalas in the wild, or to develop “free range zoos” with primarily an educational and tourism role, or both.
2. How big the precincts would be.
3. The location of the second precinct and other relevant location details, including whether the precincts would be located on public or private lands, and if the latter, how the precincts would aim to manage threats (including threats from development) on private land.
4. Whether the precincts would be fenced or not.
5. How the strong focus on translocation would achieve the purposes of the precincts.
6. How the precincts would complement other strategic activities that will be undertaken in SEQ, including what other activities would have reduced funding in order to fund management of the precincts.
7. Whether long-term funding would be provided for the management of the precincts.
8. Whether the precincts are intended to be predominantly a government funded and developed initiative, or whether there is scope for integration/coordination with the activities and resources (both financial and other) of other stakeholders.

Koala Management Areas

Currently, insufficient information has been provided about the exact nature and details of the proposed precincts to make a fully informed assessment. However, the panel believes that there is a place for well-defined koala management areas that focus koala management efforts. We conceptualise two potential types of koala management area. The first type we refer to as “**Koala Conservation Landscapes**”. These are broad landscapes that have the primary aim of contributing significantly to the long-term persistence of koalas in the wild in SEQ. The second type we refer to as “**Koala Precincts**”. These are smaller areas that have the primary aim of enhancing education, tourism and captive breeding programs, but do not, in and of themselves, contribute substantially to the long-term persistence of koalas in the wild. We discuss each of these in turn below.

Koala Conservation Landscapes

The aim of Koala Conservation Landscapes is to focus koala conservation efforts to significantly contribute to the long-term persistence of koala populations in the wild in SEQ. We recommend that they address the following principles:

- Koala Conservation Landscapes should be developed as an integrated component of a broader strategic plan to “reverse the decline in koala population sizes and ensure the long-term persistence of koala populations in the wild within south east Queensland”, and complement other measures to protect koalas in SEQ. For example, it would be critical to ensure that Koala Conservation Landscapes receive appropriate treatment under the planning framework, including the SEQ Regional Plan and local government planning schemes.
- Koala Conservation Landscapes should be developed at landscape scales (e.g., 1,000s of hectares in size) that are sufficient large to allow for the long-term persistence of a koala population within them. Note that Koala Conservation Landscapes could contain rural and urban land-uses, but that the mix of land-uses and the conservation measures applied must be capable of ensuring the long-term persistence of koalas.
- Within Koala Conservation Landscapes there should be focused long-term effort on ensuring the survival and recovery of the koala in the wild and maintenance of habitat that includes legislative, management and monitoring activities.
- Koala Conservation Landscape legislative, management, and monitoring intent should address:
 - The conservation of an SEQ koala population in the wild
 - The application and demonstration of best-practice landscape management for SEQ koala populations, including the reduction of threats
 - The implementation of well-funded and evidence-based mechanisms to achieve the long-term persistence of the koala population
 - Be supported by a robust monitoring and evaluation program that is explicitly designed to quantify performance and inform future management activities
 - Encourage collaboration across different levels of government and other stakeholders and provide a model for the coordination of koala conservation efforts
 - Provide outreach/extension for regional landholders and the broader community through stakeholder engagement
 - Raise awareness and education for Australians and international visitors
- Koala Conservation Landscapes should be located in areas that will provide the greatest chance of success for the long-term survival of koalas in the wild and ideally in areas that have high resilience to drought and heatwave to account for developing climate change factors. The DEHP's current mapping project will be critical to assist in determining suitable locations.
- The provision of boundary fences in Koala Conservation Landscapes should only be applied where it is necessary to separate koalas from significant threatening processes. Otherwise, koalas should be free to emigrate from or immigrate to Koala Conservation Landscapes.

Koala Precincts

The aim of Koala Precincts would be to contribute to education, tourism, and captive breeding programs. These would be much smaller than Koala Conservation Landscapes and be managed essentially as “free-range zoos”. As such they would not contribute directly to achieving the long-term persistence of koalas in the wild in SEQ. We recommend that Koala Precincts address the following principles:

- Koala Precincts would be small areas (100s of hectares in size) that would be managed essentially as free-range zoos.
- Koala Precincts should be managed intensively to reduce threats and improve koala health within them.
- Koala Precincts may need to be fenced to separate koalas from threats outside of the Precincts and/or to prevent immigration and emigration, but it is important to ensure this does not have impacts on dispersal linkages and habitat for existing resident koalas.
- Koala Precincts should be integrated into the koala hospital program and associated captive breeding and translocation strategies where appropriate.
- Koala Precincts should provide facilities and programs to enhance education, tourism experiences and outreach to the community.
- Potential impacts on other species should be carefully considered and avoided.

Recommendations

The panel make the following specific recommendations:

- Any policy to define koala management areas should focus on the establishment of Koala Conservation Landscapes rather than Koala Precincts (as defined above). This is because the establishment of Koala Conservation Landscapes will contribute directly to the long-term persistence of the koala in SEQ, which Koala Precincts are unlikely to do.
- Decisions about where to locate Koala Conservation Landscapes and the activities to be undertaken within them should only be taken following a full assessment of the benefits (in term of the long-term persistence of koalas) and costs of each alternative. This should take into account the results of the DEHP's mapping project which is currently underway.
- An assessment of potential sites for designation as Koala Conservation Landscapes should not be confined to the two current proposed sites. It is recommended that other potential sites also be considered in order to achieve broad-based koala conservation across SEQ, based on land tenure, amount and quality of suitable habitat, current koala population, fragmentation levels, resilience to climate change effects.
- This assessment should include a re-assessment of the proposal to locate a koala management area at Daisy Hill. Daisy Hill Regional Park, Venman Bushland National Park and Neville Lawrie Reserve adjoin each other and protect over 1,170 ha of bushland and form part of the Koala Bushland Coordinated Conservation Area. The sites are recognised for their significant cultural and natural resource values with "remnant open forest and woodlands that supported several hundred koalas" (*Nature Conservation (Protected Areas) Amendment Regulation (No. 4) 1996*). Based on DEHP's koala surveys, in 1997 – 1999 it was estimated there were likely more than 400 koalas on three sites in Daisy Hill Regional Park, Venman Bushland National Park and Neville Lawrie Reserve, but by 2013 there were estimated to be fewer than 100 koalas. Further, koala habitat in the Koala Bushland Coordinated Conservation Area is generally of low quality compared to habitat on more alluvial soils, and koala densities are likely to have always been naturally low. The ongoing decline in koala numbers may be due to low birth rates that are insufficient to compensate for mortality and a decline in immigration into the area as surrounding populations have declined (Harriet Preece, pers. comm.). Given these rapid declines, the ability of the Koala Bushland Coordinated Conservation Area to serve as a Koala Conservation Landscape depends critically on the ability to identify and implement effective strategies for reversing the decline in the population and ensure long-term persistence. This is currently unknown and should to be assessed prior to making a decision.
- Decisions about Koala Conservation Landscapes should be developed in collaboration with relevant stakeholders and local governments.

Koala Expert Panel – Recommendations on Koala Habitat Modelling

9th October 2016

Background

The expert panel has been asked to provide recommendations on the koala habitat modelling being undertaken by the Department of Environment and Heritage Protection (DEHP). The panel has been provided with: (1) a copy of the project outline (dated 12th August 2016), and (2) a scoping project report (dated 12th August 2016). The expert panel also attended a workshop with the modelling team on 31st August 2016 where the project scope was presented and discussed. The aims of the project (as outlined in the project scoping document) is:

- Collating literature and data for habitat suitability for koalas
- Evaluating habitat suitability based on different spatial layers such as foliage projective cover (FPC), soil quality, elevation (DEM data) etc in ArcGIS
- Conducting a competing landuse analysis or a structured decision making process (such as threats, mitigation actions, costs and feasibility) through the decision framework
- Engagement with internal and external stakeholders
- Refinement of the method developed in the scoping project based on input from the Expert Panel
- Applying the methodology developed in the scoping project to all areas of SEQ regional plan area.
- Identifying areas for field surveys to evaluate and validate the results

Below we first review the project scope and then provide specific recommendations.

Review

Based on the information provided to the panel it is understood that the ultimate aim of the project is to develop a decision framework for koala conservation. However, one of the initial aims is to map: koala habitat and distributions, threats, constraints and opportunities. Therefore, we first review each of these components, followed by a review of the decision framework.

Koala Habitat and Distributions

The project scope outlines the variables and data that could be used to model koala habitat and distributions. There has been an ongoing discussion between the panel and the project team about these variables and these seem reasonable and a number of suggestions have been taken on board. However, the methods that will be used to translate these variables into models of koala habitat and distribution do not appear to have been developed yet. Further, the conceptual distinction between habitat distributions and koala distributions is not clearly defined in a way that can inform the modelling process. Finally, it was not clear to the panel to what extent the proposed approach to the modelling explicitly addresses the key limitations of the GHD mapping that currently underpins Koala SPRP (these limitations include issues related to the coarse scale and simplicity of the model).

Threats

The proposed mapping of constraints appears reasonable, but where the data may come from, and what the potential biases in those data are is not clear. Also, it is not clear whether threats would need to be modelled, or whether complete coverage of data is available.

Constraints

The proposed approach to modelling constraints primarily revolves around land tenure. This appears sensible, but the panel notes that the implications of these land tenures for constraining koala management activities will be action specific. It is not clear how the land tenures will be translated into measures of constraint for different actions.

Opportunities

It appears that the term “opportunities” is used to refer to opportunities for koala rehabilitation (including habitat restoration). However, this is not completely clear and the approach to be used for mapping these opportunities is not obvious. As for constraints, opportunities will also be action specific.

Decision Framework

It is not clear what policy or decision process the decision framework will inform. This is critical to define and develop before an appropriate decision framework can be developed.

Recommendations

The Panel agrees on the need to model koala habitat, distributions, threats, constraints and opportunities. This could be used to inform the prioritisation of management activities and underpin legislation such as the koala SPRP. The habitat model could also inform the development of the monitoring program. However, a number of aspects of the modelling process is still unclear, as outlined above. Further, although a decision framework may be desirable, without a link to a specific policy or planning process, its purpose is unclear. Given this context, the expert panel make the following four recommendations:

- 1) Form a small expert advisory group to inform on the best state-of-the-art approaches for modelling koala habitat and distributions given the data available. The aim of this advisory group would be to provide advice on the best way forward to translate the spatial variables that have been identified into models of koala habitat and distribution. In doing so, advice should be provided on how to address the limitations of the GHD mapping. This group could contain members of the expert panel, but could also include experts in species' habitat modelling outside of the panel.
- 2) Develop a more coherent approach to mapping threats, constraints and opportunities.
- 3) Delay the decision framework until the policy, and the decision context that such a tool could inform is more fully developed. Then reconsider at this point.
- 4) Report on progress and invite feedback from the expert panel on a monthly basis. This will ensure that the other work of the panel is coordinated with the work being undertaken to map koala habitat and distributions.

Appendix 6 Research Priority Recommendations

Koala Expert Panel – Recommendation on Research Priorities

Research priority and key outcome	Description
<p>Threats Outcome: Decision-makers have information about the effective treatment of threats and/or how treatments can be practically applied</p>	<p>Research that develops understanding of complex interactions amongst threats, and identifies effective, on-ground management strategies for mitigation of preventable threats to Queensland's koalas</p>
<p>Community engagement Outcome: Creation of effective partnerships amongst stakeholders and human behaviour change to achieve improved koala conservation outcomes</p>	<p>Research into how to create partnerships that are effective for koala conservation, and how to modify human behaviour to address threats to koalas in both rural and urban communities</p>
<p>Monitoring and survey techniques Outcome: Improved survey and monitoring techniques</p>	<p>Research into effective monitoring techniques that will deliver information to support koala conservation activities, including advances in technology and improved survey design processes, for use by stakeholders</p>
<p>Habitat dynamics Outcome: Better management of habitat, for the long term sustainability of koalas</p>	<p>Research into the dynamics of koala habitat and identification of appropriate management interventions</p>
<p>Translocation & reintroduction Outcome: Informed regional translocation/reintroduction policies, taking into account genetics, welfare issues, and population dynamics</p>	<p>Research to define the limits/boundaries to translocation that take account of genetic variation and regional phenotypic adaptation, issues of welfare and impact on the dynamics of the receiving population</p>
<p>Market-based solutions Outcome: Implementation of landscape-scale effective market-based strategies for koala conservation outside of protected areas</p>	<p>Research into the effectiveness of and most appropriate market-based instruments (e.g. incentive payments, offsets, carbon farming and other ERF strategies, etc.) for koala conservation on land outside of protected areas</p>

Table 1. Koala habitat values SEQ-East LGAs

Eastern LGAs (Ipswich, Logan, Brisbane, Moreton, Gold Coast, Redland, Sunshine Coast, Noosa)	Total area of each value (2008) *GHD mapping (in hectares)	Total area of each value that was remnant (2009) (in hectares)	Total area of each value that was regrowth (2006) (in hectares)	Total woody vegetation (remnant and regrowth) (in hectares)	Area cleared 2008-2015 (in hectares)	% of loss (total woody vegetation minus area cleared) (in hectares)
Bushland HV	41,287	26,576	10,725	37,301	1,176	3.15%
Bushland MV	163,553	122,110	28,948	151,058	3,406	2.25%
Bushland LV	141,310	112,149	19,895	132,044	1,311	0.99%
Rehab (HV)	18,721	1,378	7,466	8,844	1,047	11.84%
Rehab (MV)	107,463	9,835	29,660	39,495	1,636	4.14%
Rehab (LV)	242,470	17,558	64,412	81,970	2,955	3.60%
Other (HV)	3,870	60	20.2	80.2	18	22.44%
Other (MV)	6,593	70.3	22.7	93	30	32.26%
Other (LV)	20,654	340	142	482	114	23.65%
Total	745,925	290,078	161,281	451,359	11,693	2.59%

Table 2. Koala Habitat Values SEQ-West LGAs

Western LGAs (Lockyer, Scenic Rim, Somerset)	Total area of each value (2008) *GHD mapping (in hectares)	Total area of each value that was remnant (2009) (in hectares)	Total area of each value that was regrowth (2006) (in hectares)	Total woody vegetation (remnant + regrowth) (in hectares)	Area cleared 2008-2015 (in hectares)	% of loss (total woody vegetation minus area cleared)
Bushland (Bushland)	362,061	279,896	67,089	346,985	3,072	0.89%
Rehab (Cleared)	733,694	64,595	154,124	218,719	4,266	1.95%
Other (Urban)	3,244	22	30	52	5	9.62%
Total	1,099,000	344,513	221,243	565,756	7,343	1.30%

Explanation of Table 1 and 2. Column 1 (Eastern LGAs/Western LGAs) lists the mapped koala habitat values contained within each local government area. Column 2 provides the total area for each of the mapped koala habitat values. Column 3 provides the total area of remnant vegetation that was detected within each area of mapped koala habitat value in 2009. Column 4 provides the total area of regrowth vegetation that was detected within each of the mapped koala habitat values in 2006. Column 5 provides the sum of column 3 and 4 as the total area of regrowth and remnant vegetation. Column 6 provides the total area of woody vegetation that was detected as being cleared between the 2008-2009 and 2014-2015 State Wide Landcover and Trees Survey periods. Column 7 provides the percentage of loss of woody vegetation (remnant and regrowth) within each of the koala habitat values.

Table 3. Koala Habitat Values in the Urban Area (All SEQ)

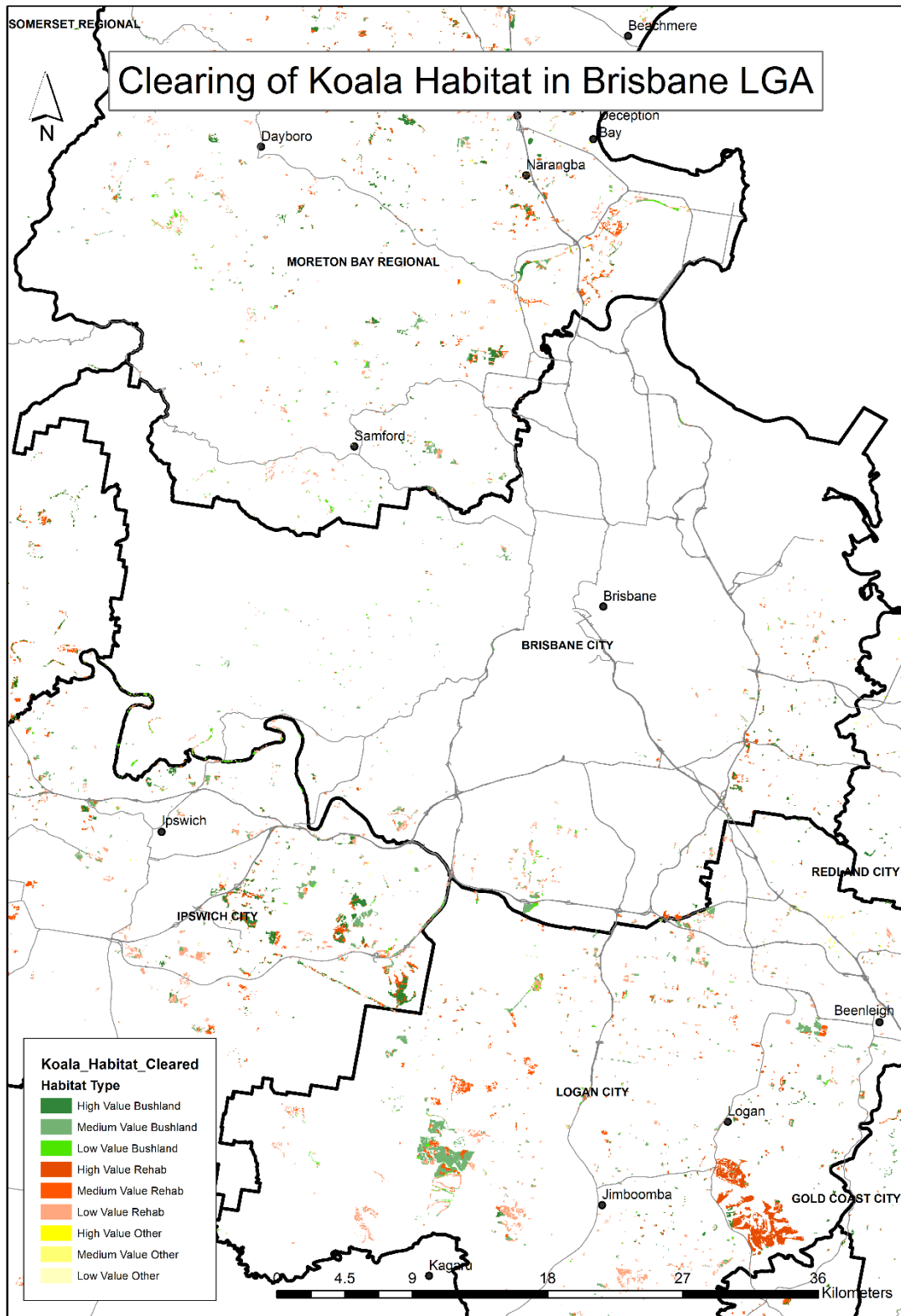
Habitat Value (All SEQ)	Total area of each value (2008) *GHD mapping (in hectares)	Total area of each value that was remnant (2009) (in hectares)	Total area of each value that was regrowth (2006) (in hectares)	Total woody vegetation (remnant + regrowth) (in hectares)	Area cleared 2008-2015 (in hectares)	% of loss (total woody vegetation minus area cleared) (ha)
Bushland (Bushland)	38,144	21,271	7,316	28,587	2,941	10.29%
Rehab (Cleared)	97,577	5,015	14,933	19,948	2,910	14.59%
Other (Urban)	31,697	418	238	656	160	24.39%
Total	167,418	26,704	22,487	49,191	6,011	12.22%

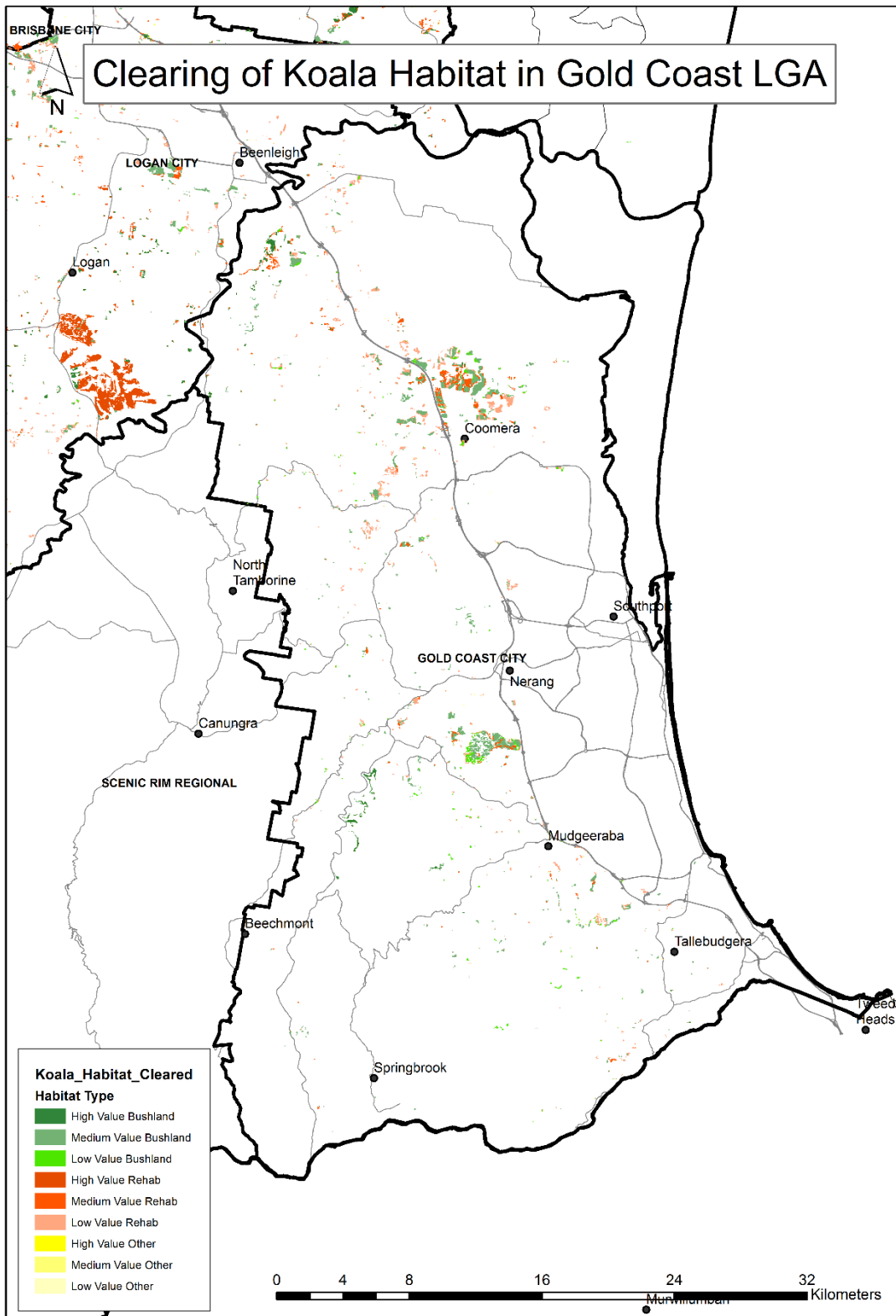
Table 4. Koala Habitat Values in the Regional Landscape and Rural Production Area (All SEQ)

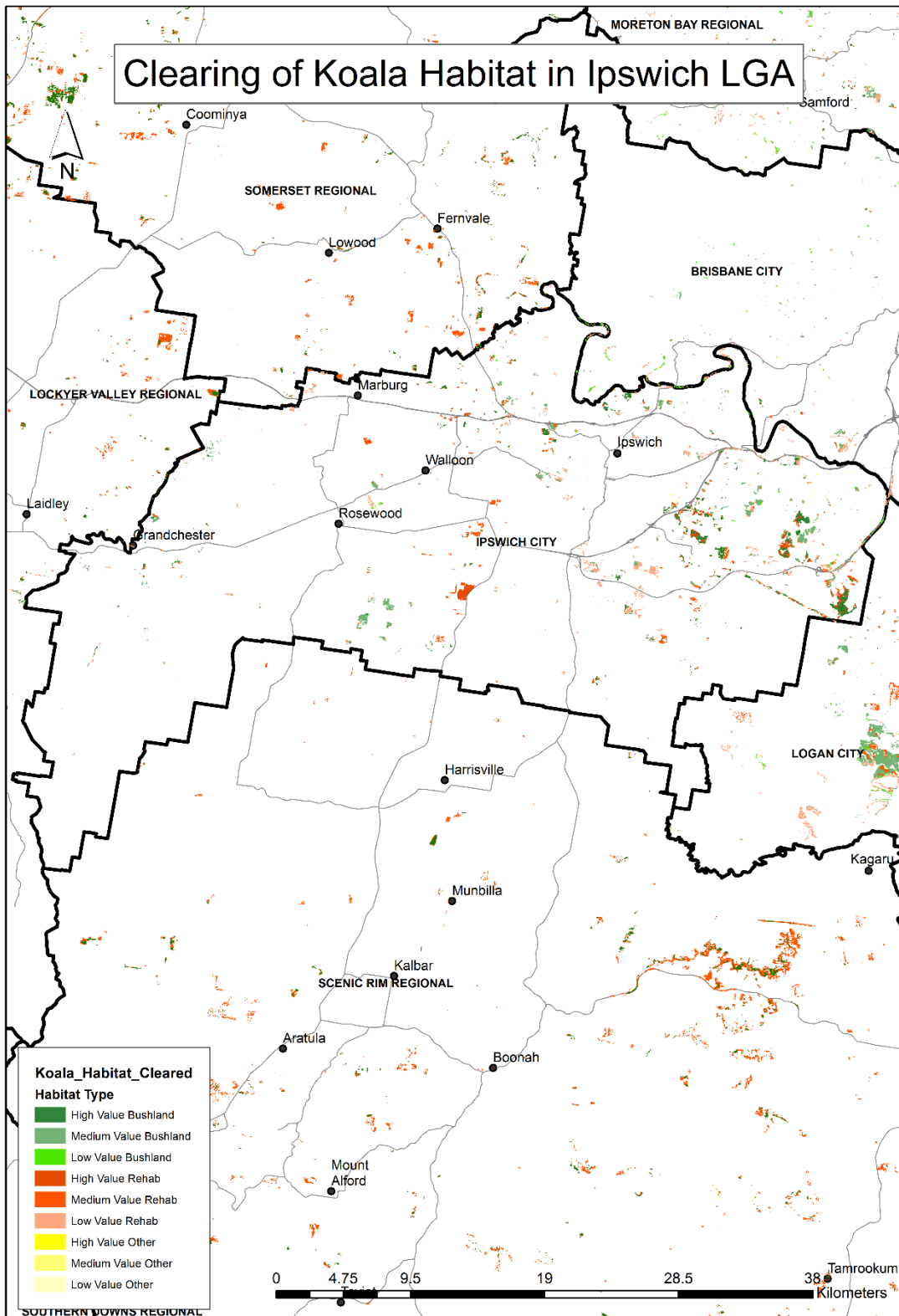
Habitat Value (All SEQ)	Total area of each value (2008) *GHD mapping (in hectares)	Total area of each value that was remnant (2009) (in hectares)	Total area of each value that was regrowth (2006) (in hectares)	Total woody vegetation (remnant + regrowth) (in hectares)	Area cleared 2008-2015 (in hectares)	% of loss (total woody vegetation minus area cleared) (ha)
Bushland (Bushland)	661,167	764,242	111,400	875,642	5,750	0.66%
Rehab (Cleared)	984,543	89,264	278,688	367,952	6,641	1.80%
Other (Urban)	1,759	82	63	145	4	2.76%
Total	1,647,469	853,588	390,151	1,243,739	12,395	1.00%

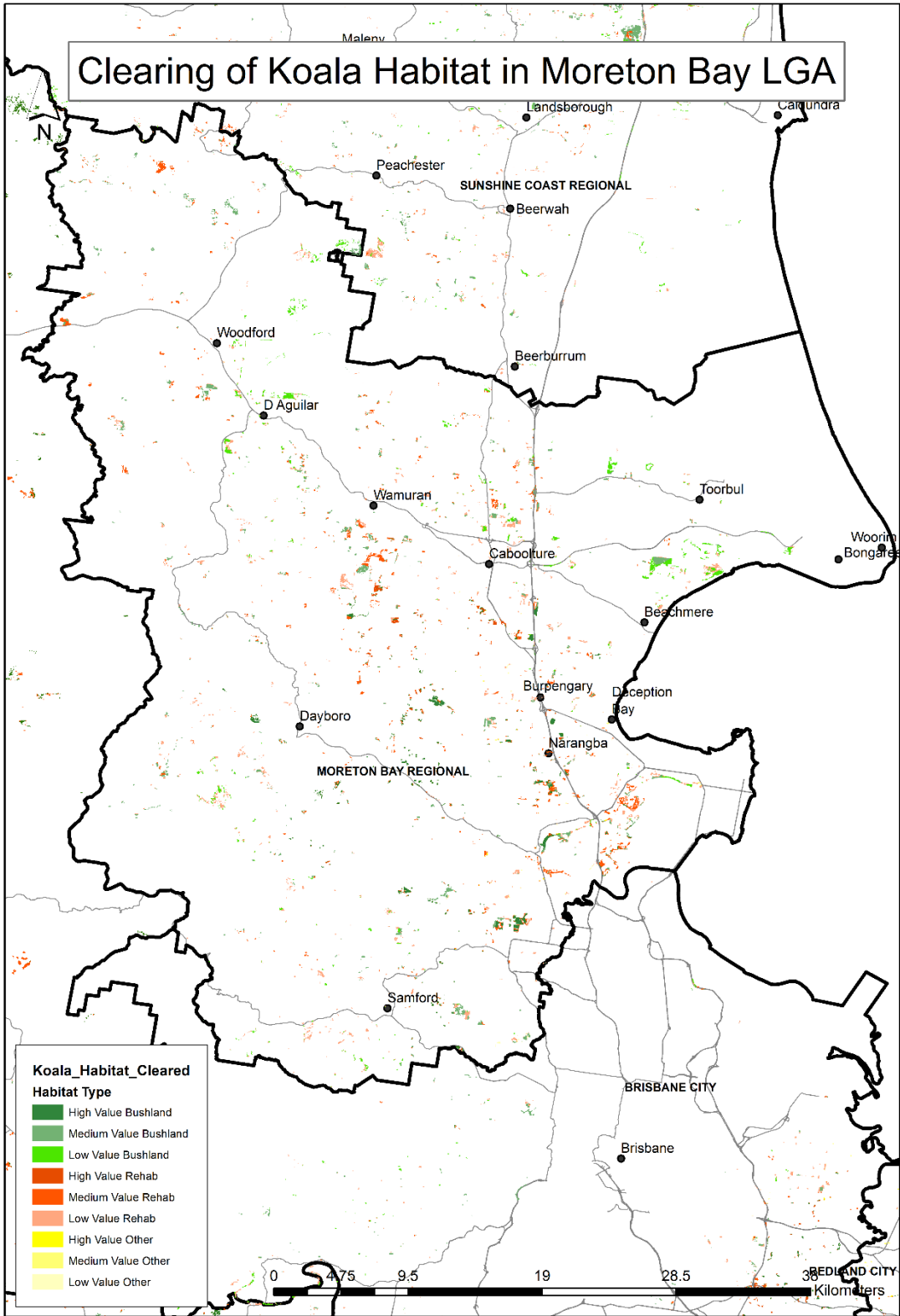
Table 5. Koala Habitat Values in the Rural Living Area (All SEQ)

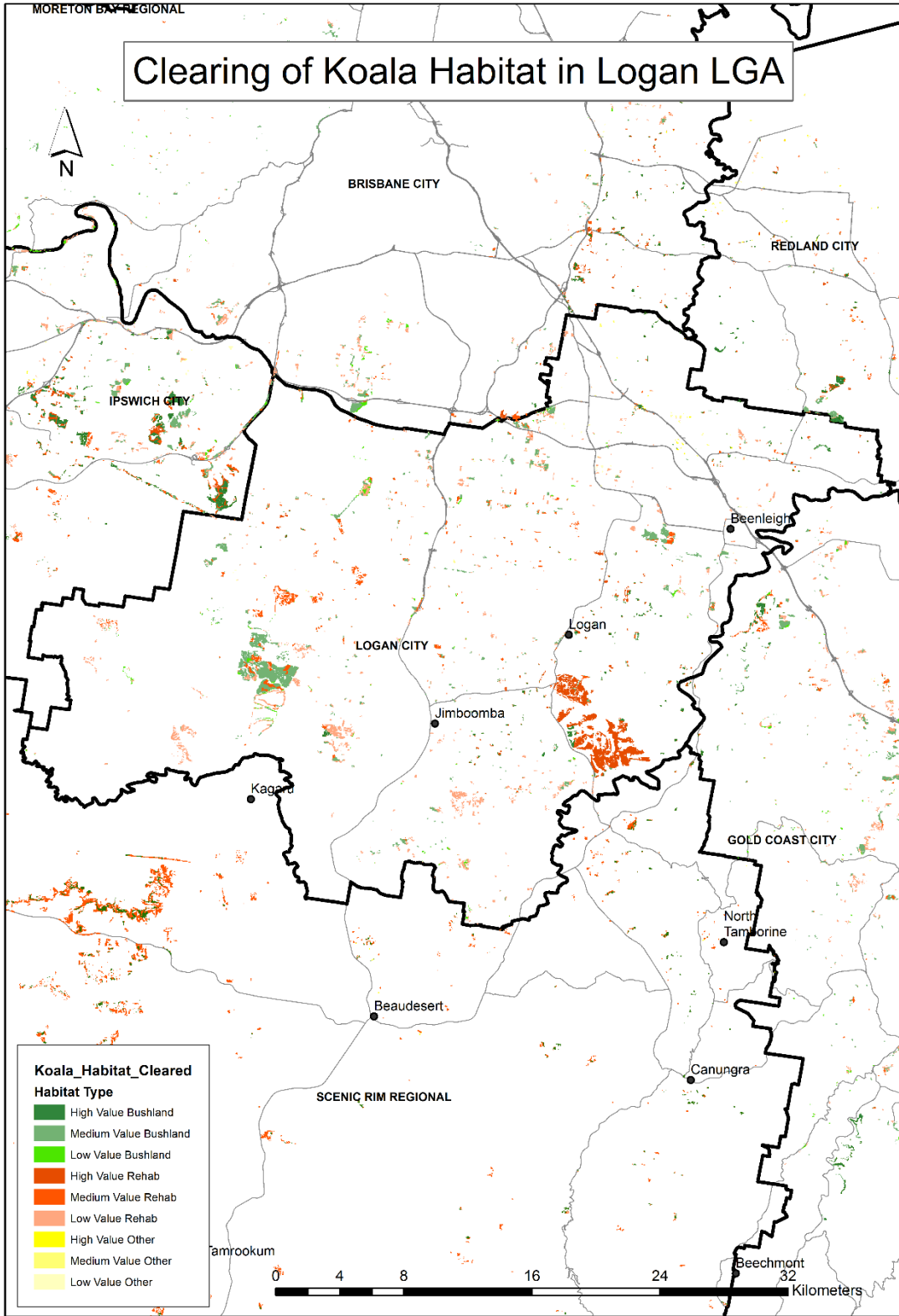
Habitat Value (All SEQ)	Total area of each value (2008) *GHD mapping (in hectares)	Total area of each value that was remnant (2009) (in hectares)	Total area of each value that was regrowth (2006) (in hectares)	Total woody vegetation (remnant + regrowth) (in hectares)	Area cleared 2008-2015 (in hectares)	% of loss (total woody vegetation minus area cleared) (ha)
Bushland (Bushland)	8,888	4,159	3,412	7,571	274	3.62%
Rehab (Cleared)	20,225	852	7,922	8,774	313	3.57%
Other (Urban)	905	36	13	49	3	6.12%
Total	30,018	5,047	11,347	16,394	590	3.60%

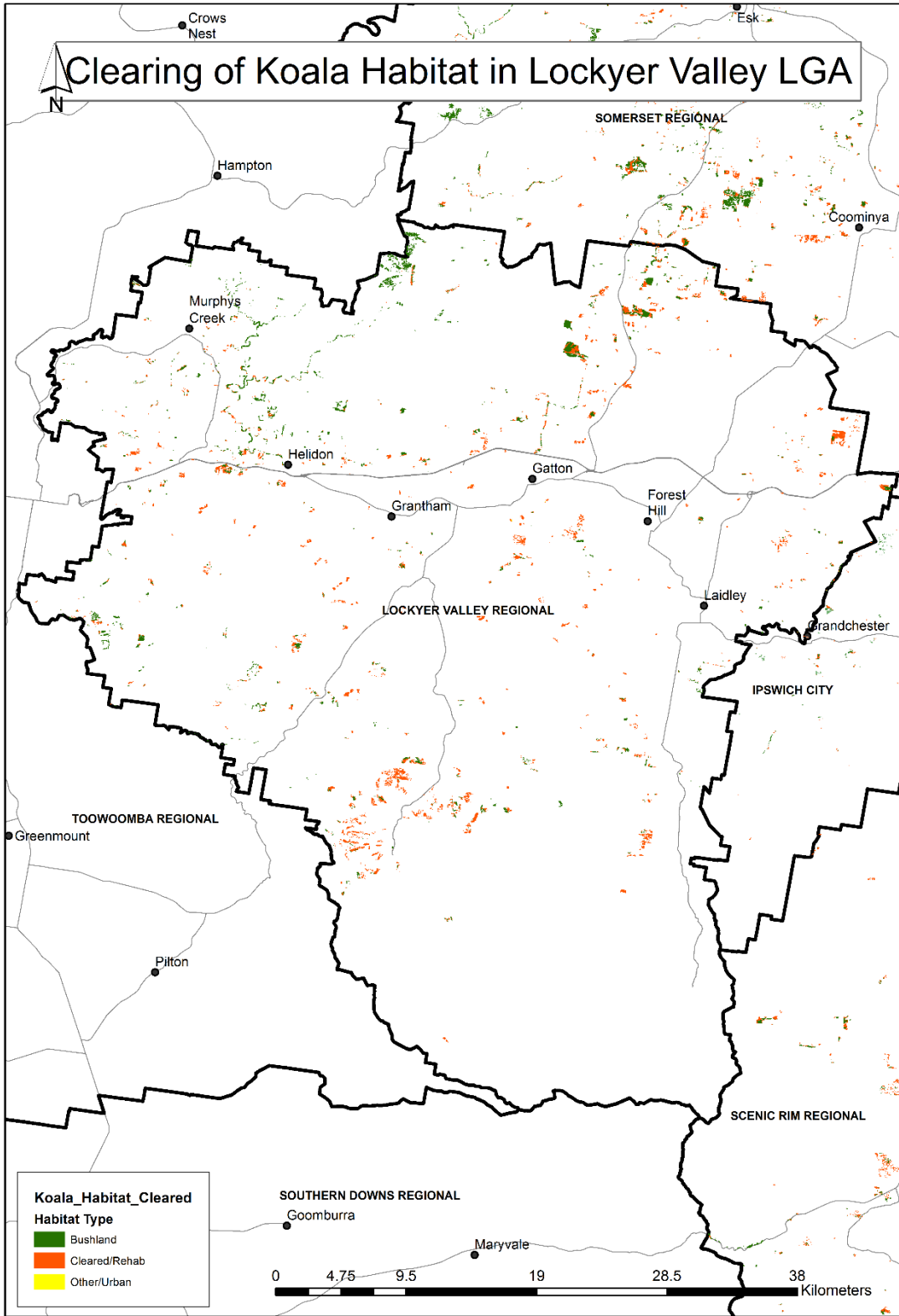




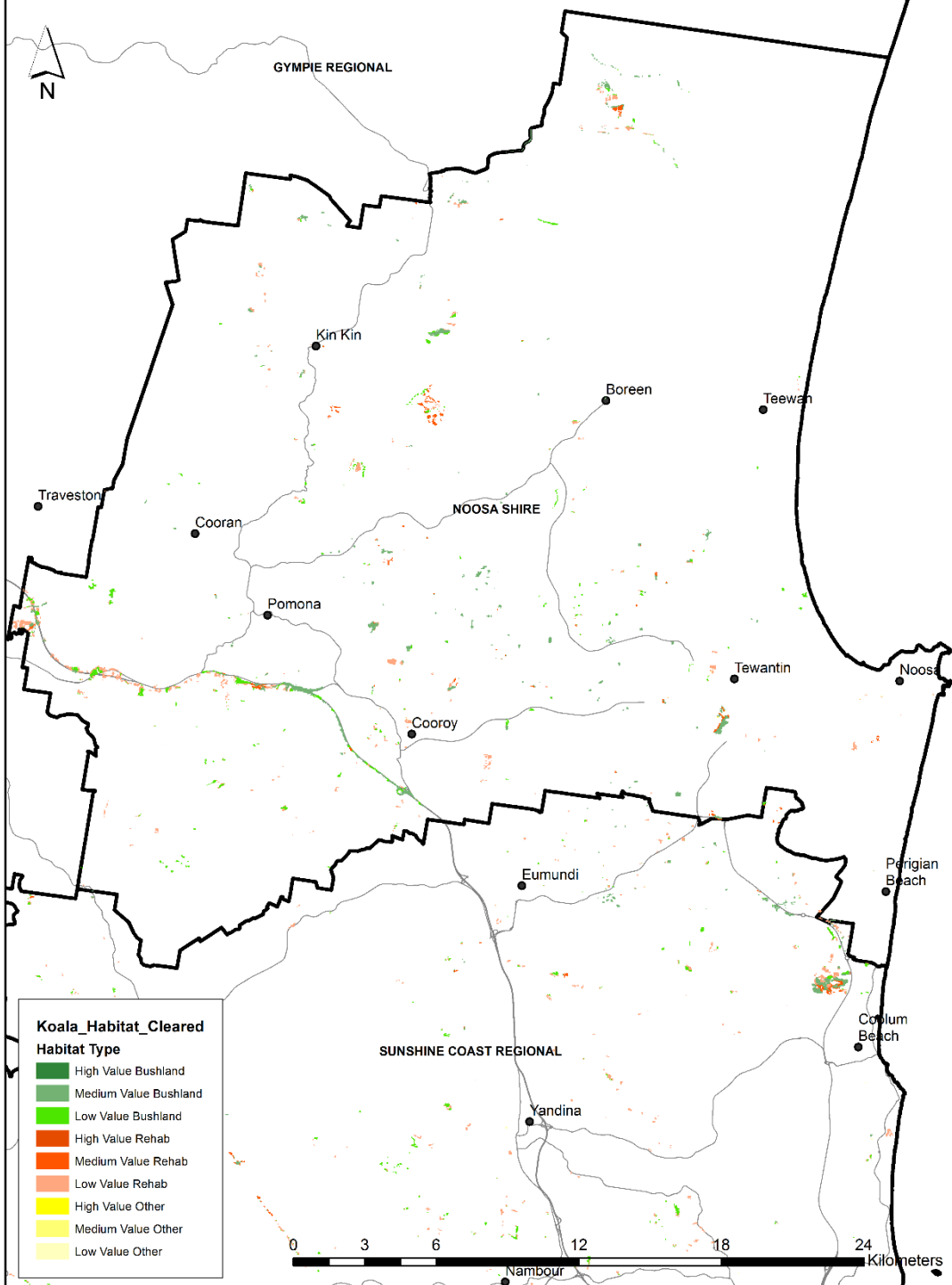


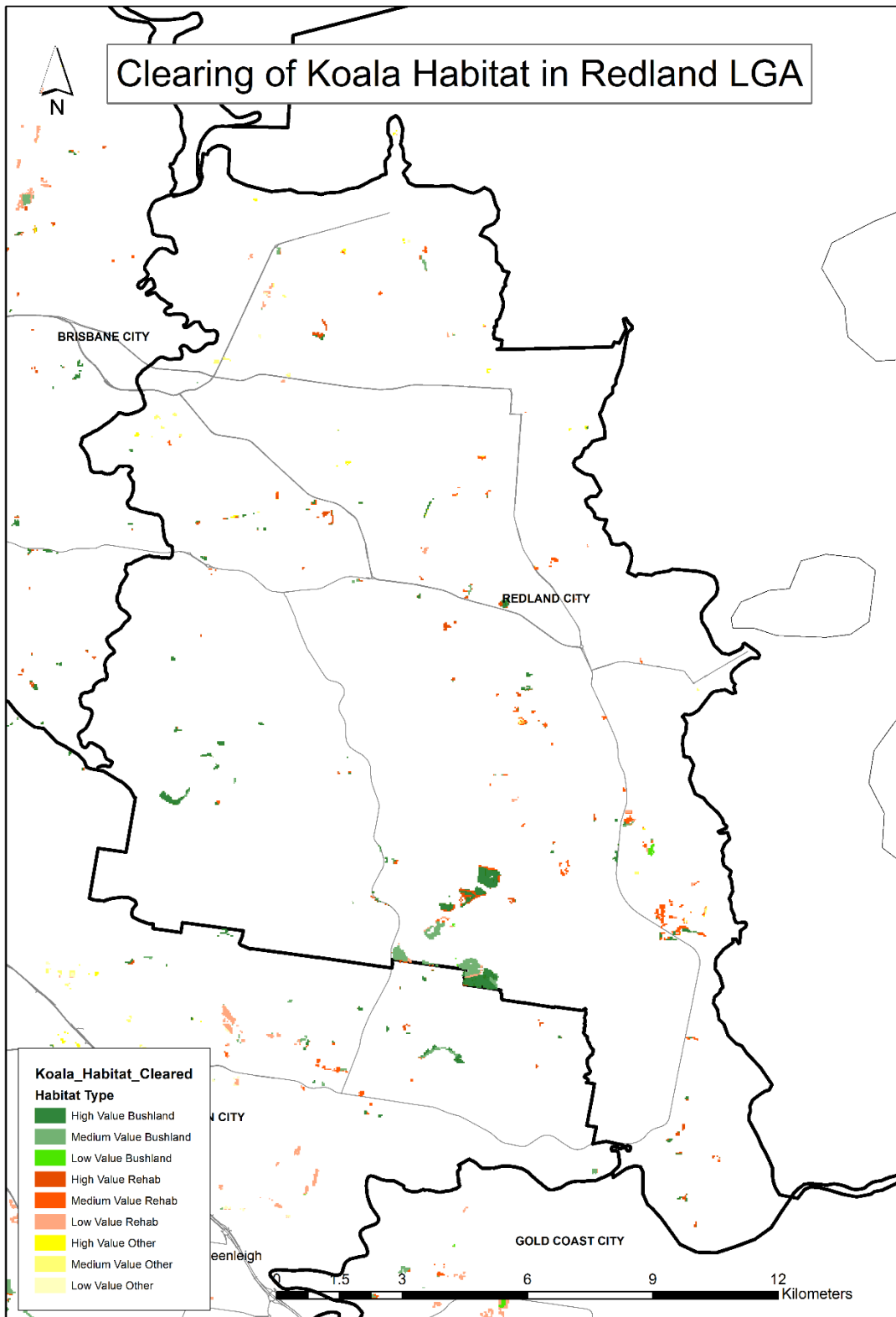


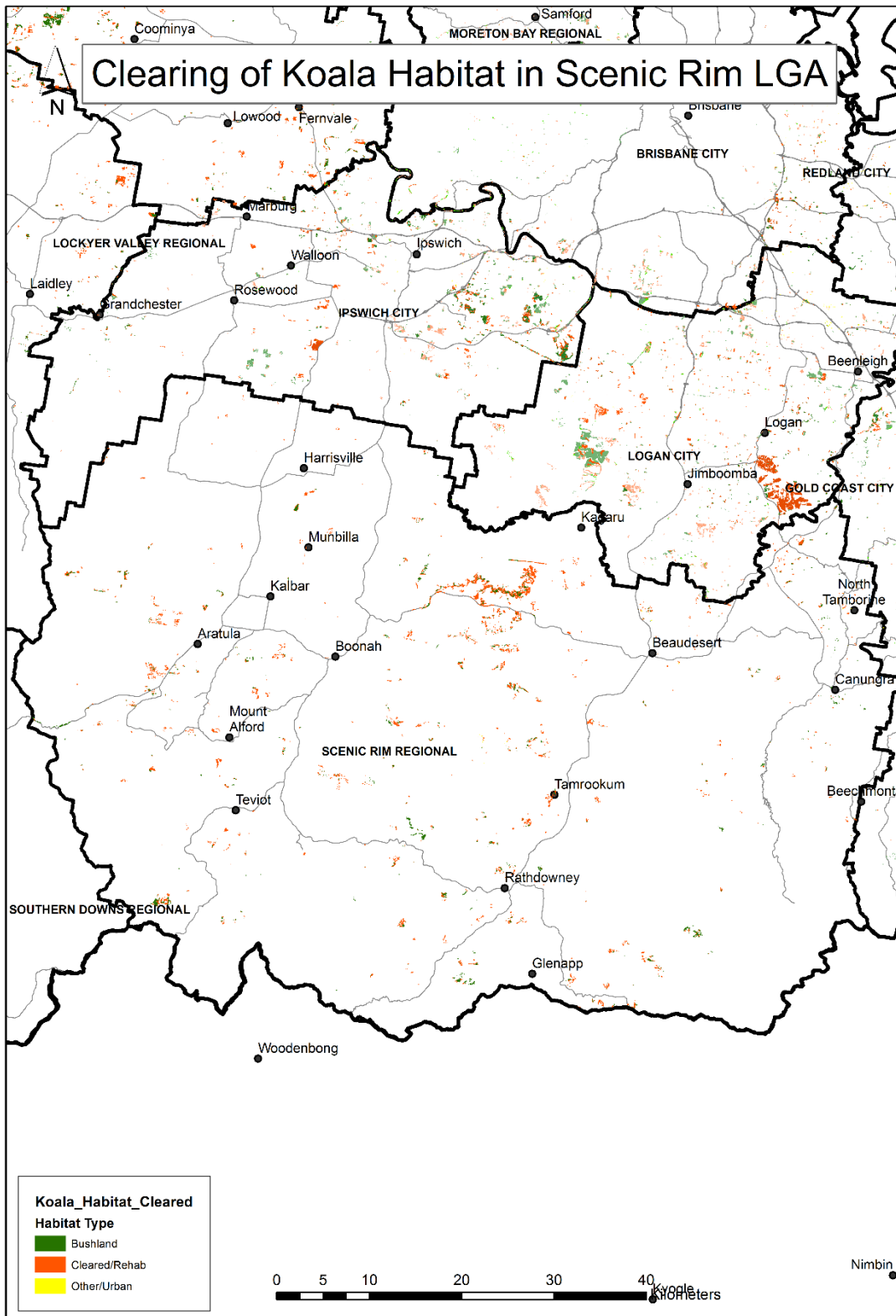


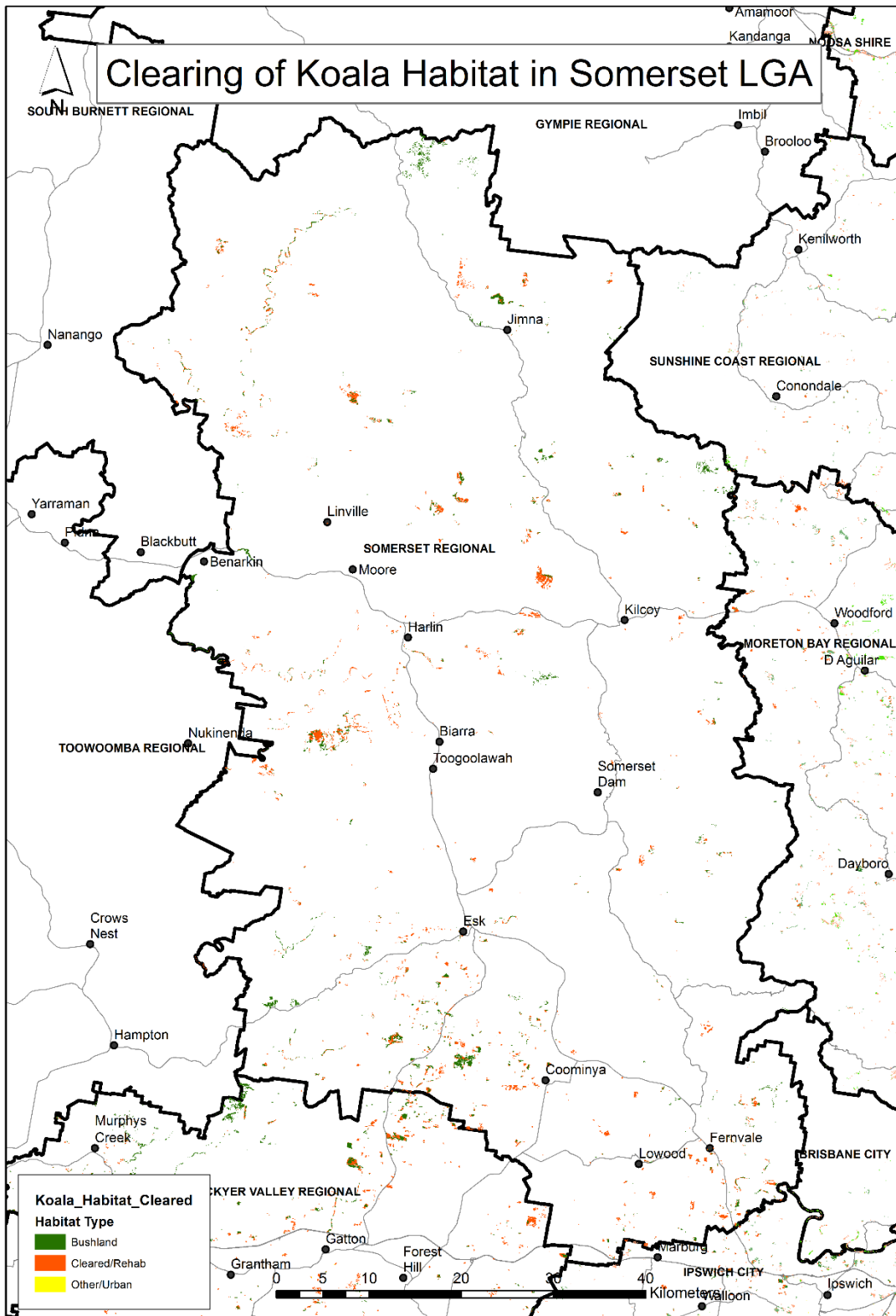


Clearing of Koala Habitat in Noosa LGA









Clearing of Koala Habitat in Sunshine Coast LGA

