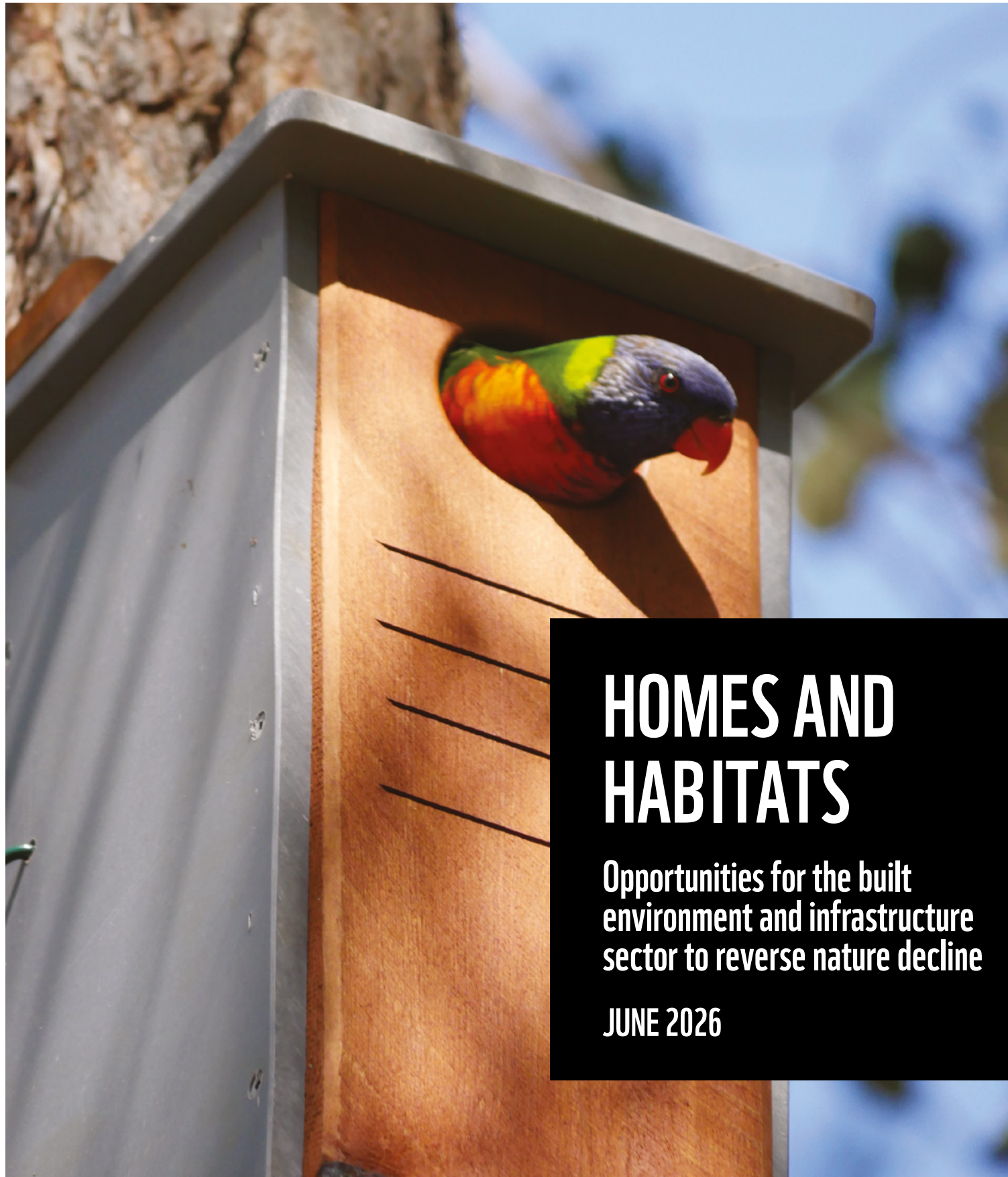




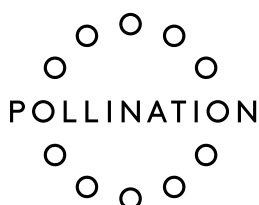
HOMES AND HABITATS

Opportunities for the built environment and infrastructure sector to reverse nature decline

JUNE 2026



AUSTRALIA



NATURE & CLIMATE

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CONTENTS

EXECUTIVE SUMMARY	4
1. THE BUILT ENVIRONMENT AND INFRASTRUCTURE SECTOR IS AT A TURNING POINT	8
1.1 This paper provides practical, high-integrity opportunities for action	10
2. WHAT WE DID	11
2.1 Identifying exempt areas for clearing in South East Queensland	12
2.2 Identifying irreplaceable habitat features	12
2.3 Identifying actions and opportunities	12
3. WHAT WE FOUND	13
3.1 The built environment and infrastructure land uses are responsible for extensive clearing	13
3.2 Built environment and infrastructure land uses are directly responsible for significant decline of ecosystems, including threatened ecosystems	15
3.3 Many of the ecosystems being cleared are unlikely to be restored	17
3.4 Almost 40% of places where urban exemptions apply in South East Queensland contain irreplaceable habitat features	18
3.5 Some ecosystems to which exemptions apply are unlikely to achieve '30% restored and protected'	19
3.6 Greater data would yield greater insight	19
4. THE BENEFITS OF ACTION	20
5. WHAT WE CAN WE DO ABOUT IT	23
5.1 What we can do together	24
5.2 How we can contribute to halting and reversing nature loss, and driving nature positive outcomes	25
5.3 Recommended actions for further investigation	26
5.4 Research	27
APPENDIX A. GLOSSARY OF KEY TERMS	28
APPENDIX B. DETAILED FINDINGS	30
APPENDIX C. ACTIONS	32
AUTHORS AND ACKNOWLEDGEMENTS	34

EXECUTIVE SUMMARY

Australia's natural systems are under increasing pressure, and the built environment and infrastructure sector has a major role to play in shaping a nature-positive future. Land use for built environment and infrastructure development is closely linked to vegetation clearing, ecosystem conversion, biodiversity loss, materials demand, infrastructure delivery and urban growth. At the same time, all development depends on healthy natural systems for climate resilience, resource security, liveability, and long-term community health and wellbeing.



Momentum is building toward biodiversity net gain and contributions to a nature-positive world, aligned with Australia's commitments under the Kunming–Montreal Global Biodiversity Framework (GBF). In parallel, reforms to the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and emerging financial disclosure expectations are increasing scrutiny of land use impacts on nature. This paper supports previous findings that a strong policy and legislative foundation already exists but requires more consistent enforcement. It highlights an opportunity to leverage the new national environmental standards to strengthen ecosystem protection and restoration outcomes.

This paper provides practical, high-integrity recommendations for transformative action by industry, government and advocacy to reverse nature decline from built environment and infrastructure land uses, while explicitly supporting Australia's affordable housing challenge.

It addresses a key evidence gap: outside agriculture, the contribution of different land uses to ecosystem decline is rarely quantified. Using Queensland as a pilot case study, reflecting its globally significant biodiversity and rapid growth, this paper estimates the clearing footprint of built environment and infrastructure land uses, identifies affected ecosystems, and explores future pressures in South East Queensland.



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Analysis shows that these land uses have interacted with a large share of Queensland's ecosystems. Development linked to buildings and infrastructure has affected around 78% of the state's land and freshwater ecosystem types, covering approximately 1.2 million hectares. While this represents about 1% of total statewide vegetation clearing, impacts are highly concentrated and disproportionately damaging. While representing a small share of total clearing, these impacts occur in high-value, high-pressure locations, amplifying infrastructure costs, climate risk exposure and long-term economic liabilities. Development has directly contributed to the serious decline of 106 ecosystem types, many already classified as Endangered or Of Concern, meaning these ecosystems have already experienced significant vegetation loss, including two that have been entirely replaced.

Notably, urban and rural residential, and reservoirs/dams ranked highest among land uses for both total area cleared and the number of ecosystem types affected. These findings highlight a major opportunity to align much-needed housing, infrastructure and urban development with national and global biodiversity commitments. Protecting and restoring biodiversity can support housing affordability and liveability by reducing long-term system costs (e.g.,

fragmented developments that result in public infrastructure duplication, climate exposure), improving community outcomes, and delivering economic, health, climate resilience and environmental benefits.

Delivering nature-positive development at scale will require governments to align housing and infrastructure policy with long-term fiscal and productivity outcomes, including mandating avoidance of high-value ecosystems, directing growth toward existing urban areas, and enforcing transparent standards that reduce future infrastructure, disaster recovery, and insurance costs while supporting resilient liveable communities.

The GBF commits countries to conserve at least 30% of terrestrial, inland water, coastal and marine areas by 2030, and ensure at least 30% of degraded ecosystems are under effective restoration by 2030. This threshold recognises that the risk to ecosystem function increases sharply where ecosystems fall below 30% of their current extent. Of the ecosystems affected by built environment, infrastructure and resource land uses (resources included as a proxy for supply chain), 85% currently have less than 30% of their remaining extent formally protected. This presents a significant opportunity to prioritise retention, protection and strategic restoration where impacts and benefits are greatest.



**DEVELOPMENT
HAS DIRECTLY
CONTRIBUTED TO THE
SERIOUS DECLINE OF
106 ECOSYSTEM
TYPES**



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In some cases, ecosystems are already so modified that recovery to a 30% threshold may be slow or unfeasible. Avoiding further loss is therefore typically more cost-effective than restoration, which is often uncertain, delayed and more expensive (Ward et al. 2025). In South East Queensland, more than 20,000 hectares are at risk of development due to planning exemptions, including areas with irreplaceable habitat features such as old-growth forests and critical shorebird habitat. Building avoidance into early planning frameworks and decisions would therefore help reduce the risk of permanent biodiversity loss, lower future restoration and offset liabilities, and support more credible pathways toward nature-positive development.

These findings are translated into actions developed through cross-sector workshops (industry bodies, Queensland Government, WWF-Australia, consultants and academia), with a focus on enabling sustainable housing development. The paper identifies four themes for collective action: collaborate, enable, educate and steward (including stronger partnerships with Traditional Owners), and four priority levers:

1. Robust application of the mitigation hierarchy, including preference for 'avoid' and 'no-go' protections for irreplaceable habitat features;
2. 'Density done well' to reduce sprawl and prioritise development in disturbed areas;
3. Mainstreaming nature-based design through planning, procurement and sustainability rating schemes; and
4. Stronger commitments, transparency, monitoring and reporting aligned with emerging financial disclosure expectations.

Together, these actions aim to catalyse development that delivers both critical housing and thriving ecosystems and communities.



AUSTRALIA IS IN AN AFFORDABLE HOUSING CRISIS

This paper embeds Australia's affordable housing crisis as a principal consideration in considering tangible, transformative actions to reduce biodiversity decline.

Housing affordability and biodiversity protection are often framed as competing priorities, but this is a false choice. Poorly planned urban expansion that clears ecosystems can increase long-term housing costs by driving fragmented development that result in public infrastructure duplication, increasing exposure to climate risks such as flooding and extreme heat, and locking households into higher transport and insurance costs.

In contrast, well-located, higher-density and nature-positive development, supported by green infrastructure and climate resilient urban design, can reduce total system costs while delivering more affordable, liveable communities. Embedding avoidance of ecosystems, prioritising infill and density over sprawl, and investing in nature-based solutions should therefore be seen as part of the solution to Australia's housing affordability challenge, not a barrier to it.

We therefore acknowledge the tension between urban expansion and environmental protection and maintain that nature is essential to create communities where people thrive. This paper seeks to identify transformative actions that support biodiversity as well as housing and critical infrastructure development. It notes that action from industry, all levels of government, and advocacy will be vital to reverse biodiversity decline, and capitalise on the benefits that ecosystems provide within our urban environments.

1. THE BUILT ENVIRONMENT AND INFRASTRUCTURE SECTOR IS AT A TURNING POINT

In Australia, as throughout the world, nature is in decline (Williams et al. 2020¹). Built environment, infrastructure related land uses are a driver of this nature loss through extensive clearing of ecosystems and associated species habitats.



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Critically, the built environment and infrastructure land uses also rely on nature for materials and resources, as well as climate stability for uninterrupted construction and operation of assets. Likewise, a well-functioning natural system is integral to the wellbeing of people that occupy the buildings and use the assets developed by this sector.

To address the ongoing decline of nature, there is growing momentum toward 'biodiversity net gain' and 'nature-positive' approaches. In Australia, the recently passed *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Reform increases compliance requirements. The Reform legislates greater action on nature, including a requirement to more robustly apply the mitigation hierarchy (e.g. avoid, minimise, mitigate), provides greater protections for irreplaceable habitat, and increases offset requirements from achieving 'no net loss' to delivering a net gain for biodiversity. At the State level, Queensland's Biodiversity Conservation Strategy seeks to ensure, "nature is actively supported to thrive in Queensland".

¹ Williams B, Venter O, Allan J, Ward, M. 2020, Change in Terrestrial Human Footprint Drives Continued Loss Of Intact Ecosystems, *One Earth*, 3, 371-382. [https://www.cell.com/one-earth/fulltext/S2590-3322\(20\)30418-8](https://www.cell.com/one-earth/fulltext/S2590-3322(20)30418-8)



Global frameworks and standards are aligning around the Global Goal for Nature, which seeks to halt and reverse biodiversity loss by 2030 and support full recovery by 2050. This goal is closely aligned with the Kunming–Montreal Global Biodiversity Framework (GBF), which Australia has adopted as a Party to the Convention on Biological Diversity (CBD). The GBF commits countries to halt human-induced species extinctions, conserve at least 30% of terrestrial, inland water, coastal and marine areas by 2030, and ensure at least 30% of degraded terrestrial, inland water, coastal and marine ecosystems are under effective restoration by 2030. These targets are ecologically important because protected, connected and restored ecosystems are more likely to retain viable species populations, support species movement and gene flow, maintain ecological processes such as pollination, recruitment and nutrient cycling, and sustain ecosystem functions and services. While 30% should be understood as a global minimum rather than a universal ecological threshold, landscape ecology studies show that biodiversity loss and fragmentation effects often intensify when ecosystems fall below roughly 30–50% of their former extent (Simmonds et al. 2019; Maron et al. 2012).

Nature-related financial disclosure frameworks are increasingly influencing capital allocation, creating transition risks for assets and developments that do not adequately manage biodiversity impacts. The International Sustainability Standards Board (ISSB) sustainability reporting and related global reporting standards (e.g., ASRS, GRI, CSRD), supported by initiatives like the Taskforce on Nature-related Financial Disclosures (TNFD), is driving corporate accountability and financial disclosure on nature. This will increase as these standards become mandatory. The built environment and infrastructure sector in Australia, acting on these cues, has started to integrate nature into its voluntary sustainability rating schemes.

- The Green Building Council of Australia (GBCA) has released a comprehensive Nature Positive Roadmap to guide the built environment toward biodiversity net gain and alignment with global frameworks.
- The Infrastructure Sustainability Council (ISC) has embedded ecology, land and nature-related outcomes within the IS Rating Scheme and supporting industry capability through training and tools while employing rigorous, evidence-based approaches to identifying and

managing ecological impacts and opportunities, and strengthening the monitoring and reporting of Infrastructure Project outcomes.

- Australian Sustainable Built Environment Council (ASBEC) is providing cross-sector policy leadership through research and advocacy on embodied carbon, circularity and regulatory reform that underpin nature-positive outcomes; and
- The Materials and Embodied Carbon Leaders' Alliance (MECLA) is actively engaging the supply chain by providing industry-led guidance, facilitating knowledge exchange, and sharing practical tools, such as the Nature Design Guide, to minimise embodied carbon and material-related impacts on the environment.

The direction of travel on nature action is clear and accelerating. In the next 12–24 months, the reformed EPBC Act will be embedded and enforced, nature-related reporting requirements will come into sharper focus, and industry leaders will take decisive steps, all while ongoing nature decline will continue to negatively affect operations and profitability. Action from industry, all levels of government, and advocacy will be vital to reverse nature decline and support communities that thrive, not just survive.



1.1 THIS PAPER PROVIDES PRACTICAL, HIGH-INTEGRITY OPPORTUNITIES FOR ACTION

While the decline of Australia's biodiversity and natural systems is well known, outside of agricultural land uses, a detailed account of the specific contribution of this decline by different land uses has not been well documented.

The Australia State of Environment Report (2021) identifies urban development and population growth as a key pressure on biodiversity due to vegetation clearing, and the main pressure in urban areas. However, the extent of vegetation clearing attributable to built environment and infrastructure land uses has yet to be quantified.

To begin to quantify vegetation clearing attributable to built environment and infrastructure land uses, we have considered Queensland as a pilot.

Queensland is both a globally significant biodiversity hotspot and is undergoing significant urban expansion (DSDIP, 2026²). South East Queensland is due to host the Olympic and Paralympic Games in 2032 and has a growing population, outpacing the national average (Queensland Government, 2025³). Built environment and infrastructure land uses will play a critical role in providing affordable housing and essential infrastructure for the growing population in this region.

This regional expansion, combined with increasingly severe weather and climate, will put further pressure on Queensland's natural environment at a time when well-functioning ecosystems are most needed to support the climate resilience of physical assets and the people who rely on them.

At a time when Australia is balancing a climate crisis, a biodiversity extinction crisis and an affordable housing crisis, this paper, supported by academic research by Griffith University, seeks to fill the current gaps in understanding vegetation clearing due to built environment and infrastructure land uses. It does this by identifying trends in vegetation loss and affected ecosystems as well as illuminating practical actions and opportunities for industry, government and advocacy that will support protection and restoration of extensively cleared ecosystems such that further development supports towns, communities and natural environments that thrive, not just survive.

² Department of State Development, Infrastructure and Planning (DSDIP), 2026, 'Population Growth in Queensland'. <https://www.statedevelopment.qld.gov.au/news-and-events/people-power-how-were-planning-for-queenslands-future-population-today>

³ Queensland Government, 2025, Brisbane 2032 Olympic and Paralympic Games. <https://seqmayors.qld.gov.au/brisbane-2032-olympic-and-paralympic-games/#:-:text=brisbane%202032%20olympic%20and%20paralympic,work%20to%20secure%20the%20games>.



2. WHAT WE DID

A regional ecosystem (RE) is a vegetation community within a specific bioregion that is consistently associated with a particular combination of geology, landform, and soil. REs, used extensively in Queensland for planning and mapping, are classified by their conservation and biodiversity status (e.g., Endangered, Of Concern, or No Concern at Present/Least Concern – see *Appendix Glossary of Key Terms*).

To quantify native vegetation loss attributed to different land use pressures in Queensland, the researchers from Griffith University and Pollination and contributing authors intersected the 2017 land use dataset (Queensland Government, 2023) with a pre-clearing regional ecosystems dataset to assess impacts on each ecosystem. The pre-clearing regional ecosystems dataset includes modelled estimates of pre-European ecosystem distribution across Queensland, derived from the Regional Ecosystem Description Database (REDD) (Queensland Herbarium, 2024). For wetland ecosystems, we used the Wetland data - version 7 mapping of water bodies and wetland regional ecosystems due to it being a more refined dataset (Queensland Government, 2025). The land use dataset includes 191 different categories that broadly fit into the primary levels of the Australian Land use and Management (ALUM) Classification, namely Conservation and Natural Environments, Production from Relatively Natural Environments, Production from Dryland Agriculture and Plantations, Production from Irrigated Agriculture and Plantations, Intensive Uses, and Water. To analyse the impact of the built environment and infrastructure land uses, we focused on 34 relevant land uses, broadly categorised into built environment, infrastructure, and resources (resources included to capture supply chain for the built environmental and infrastructure land uses; see Ward et al. 2026 for more details).

We applied a 30% threshold when considering ecosystem restoration potential. The Kunming–Montreal Global Biodiversity Framework (GBF) commits countries to conserve at least 30% of important biodiverse land and waters. Ecologically, the 30–50% threshold is also meaningful: habitat-threshold studies commonly identify heightened risks to species persistence and ecosystem function when ecosystem extent falls below roughly 30–50% of its former extent. Although thresholds vary by ecosystem, species and landscape context, meaning a higher retention target is a more precautionary benchmark for maintaining functioning landscapes (Simmonds et al. 2019⁴; Maron et al. 2012⁵).

We analysed the potential for further clearing per ecosystem by classifying all 191 land use categories into five conditions and potential management categories: 1) Already protected from clearing, 2) Could be protected, 3) Degraded with potential for passive restoration and protection, 4) Degraded with potential for active restoration and protection, or 5) Cleared, and unlikely to be restored and protected for conservation. For areas to be classified as ‘Already protected from clearing’, they must have been identified as a protected area under the *Nature Conservation Act 1992* (e.g., National Park of various types, Regional Park, Forest Reserve (Queensland Government, 2025)).

4 <https://besjournals.onlinelibrary.wiley.com/doi/10.1111/1365-2664.13320>

5 <http://onlinelibrary.wiley.com/doi/full/10.1111/j.1466-8238.2011.00706.x>

2.1 IDENTIFYING EXEMPT AREAS FOR CLEARING IN SOUTH EAST QUEENSLAND

The vegetation management framework in Queensland allows for approximately 111 exemptions based on the purpose of the proposed clearing and the relevant land tenure. To illustrate future pressure from the built environment and infrastructure land uses specifically on ecosystems, we attempted to map two exemptions that apply under the vegetation management framework to streamline urban development: being ‘urban purpose in an urban area’ and ‘Priority Development Area’.

We focused on these two exemptions because a) it is possible to map where these exemptions may apply based on existing datasets and b) it is likely that the majority of other infrastructure development in Queensland would require an assessment under relevant legislation (depending on the purpose - e.g. a development approval under the *Planning Act 2016* or an environmental authority under the *Environmental Protection Act 1994*) and thus be subject to a more stringent application process. However, we acknowledge that most assessments lead to an approval, and thus, negative impacts to ecosystems are still accruing, even outside of clearing that occurs under exemptions.

To identify these areas, we first extracted all areas that could be further developed (i.e., areas identified above as 2) Could be protected, 3) Degraded with potential for passive restoration and protection, or 4) Degraded with potential for active restoration and protection) and intersected these with areas exempt from the two mappable exemptions. The first exemption is if the area is cleared for an ‘urban purpose in an urban area’. Here, we used the southeast Queensland planning scheme layer called the ‘Regional land use categories - South East Queensland Regional Plan 2017 – Shaping SEQ’ and extracted ‘urban areas’. The second exemption we focused on was clearing in a ‘Priority Development Area’. Here, we extracted all areas identified in the dataset ‘Priority development areas - economic development Queensland’ (Queensland Government, 2023).



2.2 IDENTIFYING IRREPLACABLE HABITAT FEATURES

To identify areas that should be avoided for further development and protected in perpetuity, we extracted areas identified as ‘Intact and could be protected’, ‘Degraded with potential for passive restoration and protection’, or ‘Degraded with potential for active restoration and protection’. We then intersected these with areas that are considered irreplaceable. Irreplaceable habitat features are defined as areas that cannot be replaced or recreated within an ecologically relevant timeframe (Maron et al. 2025). Here, we used existing irreplaceability mapping for South East Queensland (Ward et al. 2025) and overlaid it with areas in South East Queensland where our two urban exemptions may apply.

2.3 IDENTIFYING ACTIONS AND OPPORTUNITIES

To identify tangible actions to reverse nature decline, balancing the critical need for affordable housing in Queensland, we brought together cross-sector participants from industry (ISC, GBCA, ASBEC, MECLA), the Queensland Government, not-for-profit (WWF-Australia), consultants (Pollination; Nature & Climate) and academia (Griffith University). Through a series of workshops, participants first reviewed the research findings, then identified and prioritised actions and opportunities for transformative change.



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3. WHAT WE FOUND

Through this research, the authors found:

- Built environment and infrastructure land uses are responsible for extensive clearing of ecosystems, with the highest extent of vegetation clearing attributable to rural residential without agriculture, urban residential, and reservoir /dam urban pressures.
- Built environment and infrastructure land uses are directly responsible for a significant reduction of ecosystems, including threatened ecosystems with Endangered and Of Concern conservation statuses.
- Many of the ecosystems being cleared by built environment and infrastructure land uses cannot be easily restored, in that they require active restoration (which is often expensive)
- Almost 40% of places where urban exemptions apply contain irreplaceable habitat features (such as old-growth forests or mudflats for shorebirds)
- Some ecosystems to which exemptions apply are unlikely to achieve a '30% pre-European extent (which is required if we are to protect 30% all ecosystems)

Results and these findings are elaborated further below and expanded in the Appendix (Detailed Findings) .

3.1 THE BUILT ENVIRONMENT AND INFRASTRUCTURE LAND USES ARE RESPONSIBLE FOR EXTENSIVE CLEARING

Built environment and infrastructure land uses have affected 78% (1,095) of Queensland's terrestrial and freshwater ecosystem types.

We identified that there are 1,404 unique terrestrial and freshwater ecosystems across Queensland (we excluded estuaries and marine ecosystems as the land use layer does not spatially capture urban pressures relating to the areas where these ecosystems are present). In total, impacts from built environment, infrastructure and resources land use was 1.25 million ha and spread across 1,095 (78%) of these ecosystems within Queensland, with the most attributable to the Built Environment (including categories such as urban residential, commercial service, and public services; 794,000ha), followed by Infrastructure (including categories such as reservoirs, roads, and railways; 412,000ha), and Resources (mining; 198,000ha; Fig 1). When we analysed the amount of area offset under the 'Legally secured offset area - offset register - Queensland' and the 'Legally secured offset area - vegetation offsets - Queensland', we found that approximately 20,000 ha have been offset. However, we note that many areas may have been lost before offset legislation requirements and thus not captured, may have been exempt from offsets, were offset under the EPBC Act, or there may have been delays between clearing and offset delivery.

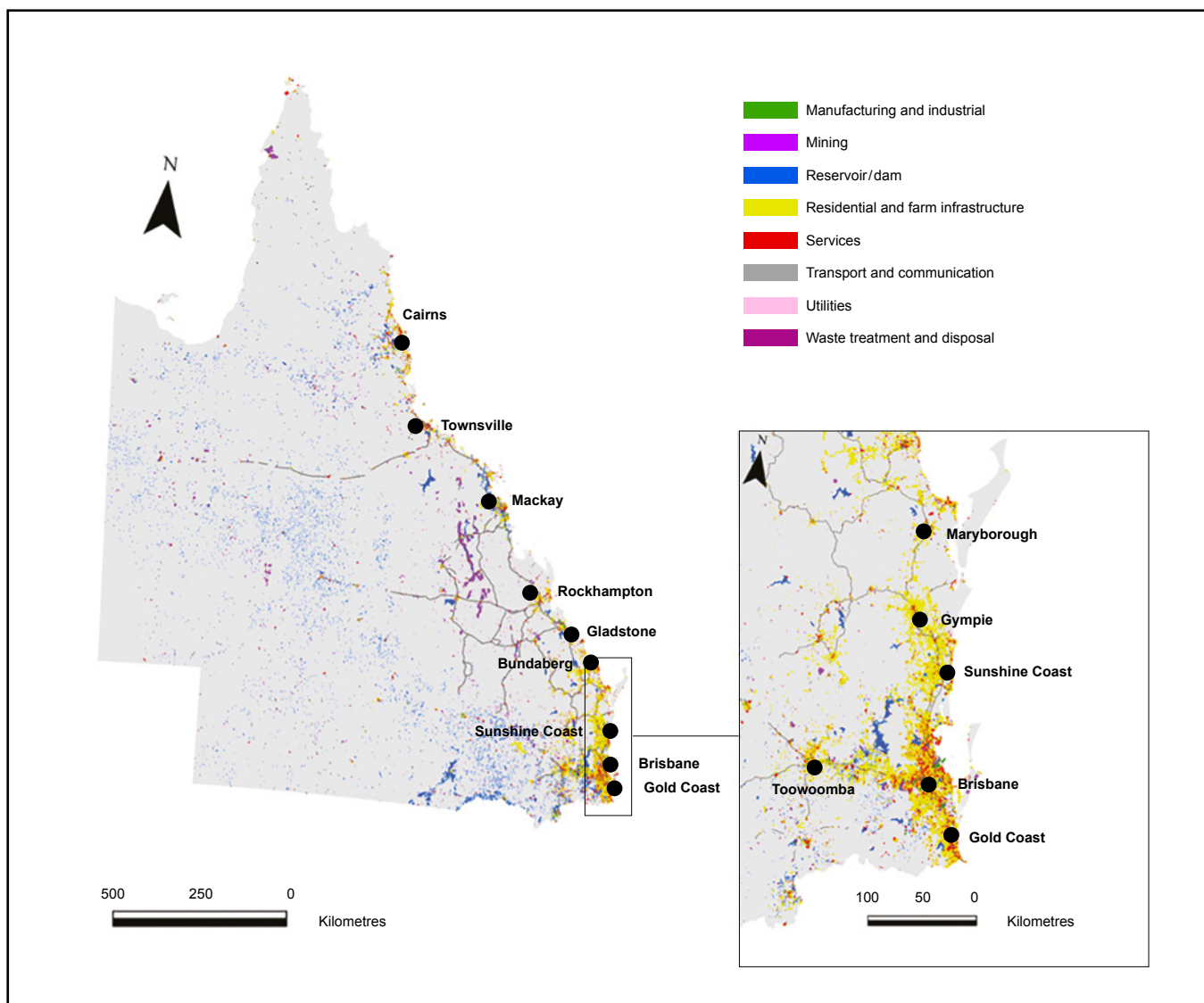


Figure. 1. Map of vegetation clearing due to broad urban pressures across Queensland in 2017, coloured by built environment, infrastructure and resources categories.

Comparing land uses, infrastructure cleared a wider range of ecosystems (975), but the built environment cleared a greater total area (794,569ha) of ecosystems, and resources cleared both a lower range (606) and total area (198,491ha) of ecosystems. When analysing the individual urban pressures across all land uses, we found that the urban pressures that affected most ecosystems were Reservoirs/dams (707 REs), Recreation and culture (596 REs), and Rural residential without agriculture (572 REs).

For the individual urban pressures from all land uses, Rural residential without agriculture (393,855ha), Urban residential (160,968ha), and Reservoir/dam (131,814ha) cleared the largest area. The individual built environment urban pressures that affected the most area included Rural residential without agriculture (393,855ha), Urban residential (160,968ha), and Recreation and Culture (85,949ha). The individual infrastructure urban pressures that affected the largest area included Reservoir/dam (131,814ha) and Reservoir (98,567ha). The individual resources that urban pressures affected the most included Mines (75,734ha) and Mining (72,251ha).

3.2 BUILT ENVIRONMENT AND INFRASTRUCTURE LAND USES ARE DIRECTLY RESPONSIBLE FOR SIGNIFICANT DECLINE OF ECOSYSTEMS, INCLUDING THREATENED ECOSYSTEMS

While built environment, infrastructure and resources land uses were responsible for clearing approximately 1% of Queensland, these land uses were directly responsible for the significant decline of 106 ecosystems (Table 1). While representing a small share of total clearing, these impacts occur in high-value, high-pressure locations, amplifying infrastructure costs, climate risk exposure, and long-term economic liabilities.

By 2017, two ecosystems had been completely lost and converted to the built environment land uses:

- Ecosystem 12.8.27 – a 20 ha grassland ecosystem dominated by *Dichanthium spp.* and *Themeda triandra* on igneous rocks was classified entirely as Urban residential.
- Ecosystem 12.9-10.10 (23 ha), originally dominated by *Melaleuca nodosa* in a low open forest on sedimentary rocks, has been completely lost and converted to Urban residential, and Recreation and culture.
- Nine Endangered and Of Concern ecosystems had more than 50% of their area converted to built environment, infrastructure and resources land uses (Endangered ecosystems have <10% of the original extent remaining, while Of Concern ecosystems have 10-30% remaining. This means that these identified ecosystems have also been affected by other land uses not considered in this research).
- 16 ecosystems (including 13 Endangered or Of Concern ecosystems) had 30–50% of their extent converted to built environment, infrastructure and resources land uses.
- A further 79 ecosystems (including 60 Endangered or Of Concern ecosystems) had 10–30% of their area converted to infrastructure.



9 ENDANGERED
AND OF CONCERN
ECOSYSTEMS HAD
OVER 50%
OF THEIR AREA
CONVERTED TO
BUILT ENVIRONMENT,
INFRASTRUCTURE AND
RESOURCES LAND USES



Table 1. Showcasing the full list of the built environment, infrastructure and resources land uses, and the extent of vegetation clearance (ha) and number of ecosystems affected.

Pressure	Hectares	No. of ecosystems
Built environment	715,970	785
• Rural residential without agriculture	393,856	572
• Urban residential	160,968	459
• Recreation and culture	85,949	596
• Manufacturing and industrial	21,525	343
• Public services	19,291	432
• Commercial services	15,902	407
• Major industrial complex	3,442	56
• Remote communities	2,918	175
• Waste treatment and disposal	2,511	198
• Defence facilities - urban	1,806	71
• Services	1,731	85
• Research facilities	1,512	49
• Landfill	1,326	126
• Food processing factory	967	58
• Abattoirs	800	35
• Solid garbage	795	104
• Sawmill	491	53
• General purpose factory	91	18
• Abandoned manufacturing and industrial	88	12
Infrastructure	334,835	975
• Reservoir/dam	131,814	707
• Reservoir	98,567	187
• Roads	45,718	290
• Transport and communication	23,189	242
• Airports/aerodromes	21,281	454
• Railways	4,700	143
• Gas treatment, storage and transmission	3,829	57
• Electricity substations and transmission	1,687	170
• Fuel powered electricity generation	1,120	40
• Water extraction and transmission	1,098	197
• Navigation and communication	937	138
• Ports and water transport	727	55
• Utilities	155	37
• Hydro electricity generation	7	6
• Solar electricity generation	7	2
• Wind electricity generation	1	3
Resources	198,491	606
• Mines	75,734	149
• Mining	72,251	334
• Quarries	23,013	451
• Extractive industry not in use	20,164	148
• Tailings	7,329	89
Grand Total	1,249,295	1,095

3.3 MANY OF THE ECOSYSTEMS BEING CLEARED ARE UNLIKELY TO BE RESTORED

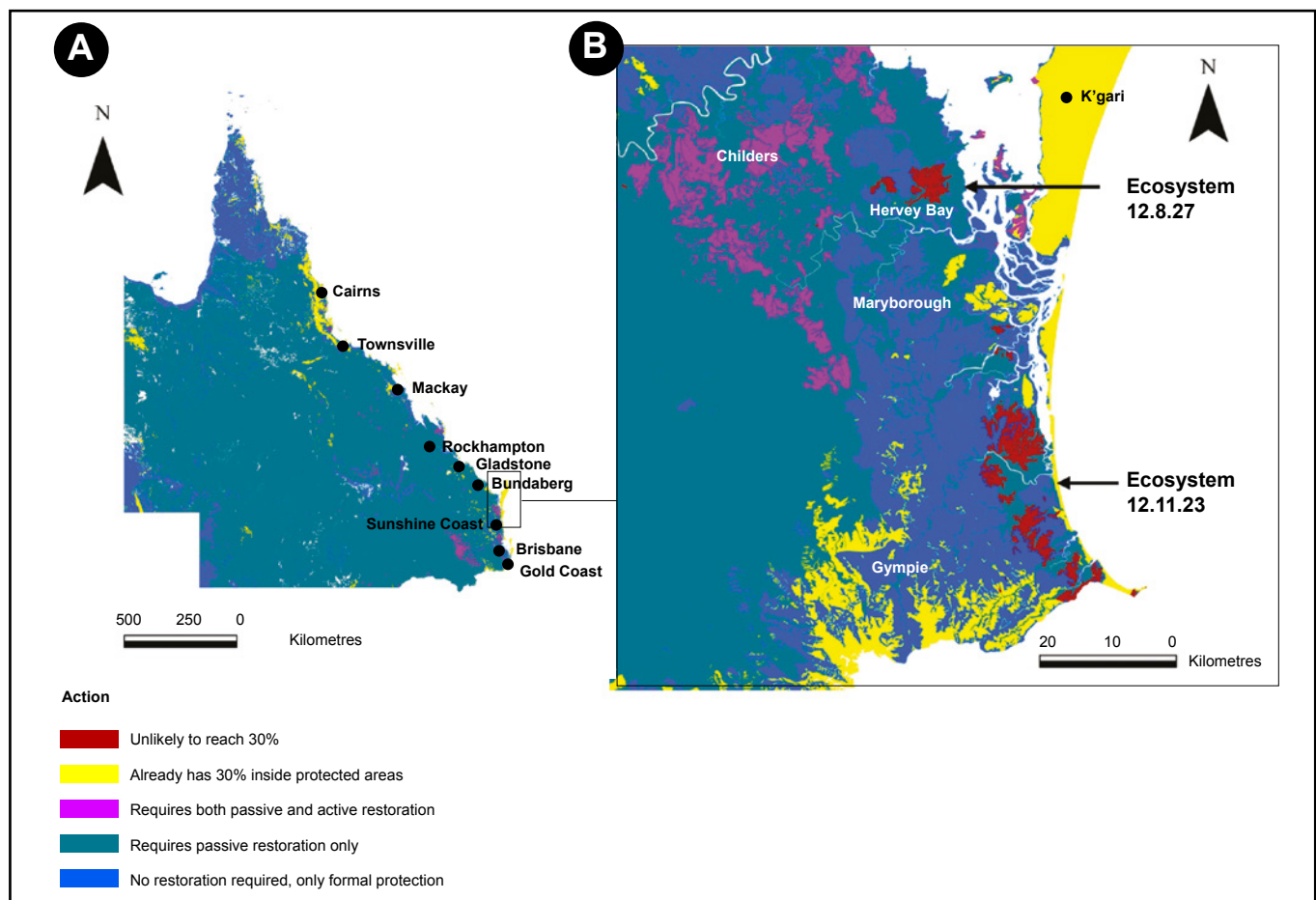
Australia has adopted the GBF and has set national targets to support its implementation. One of these targets is to 'protect 30% of all ecosystems'. To attain this goal, we must ensure that all ecosystems have 30% of their original extent remaining to protect and manage them for other threats such as inappropriate fire regimes, invasive species, and disease. As per the guidance associated with this target, this would include representation across all ecosystem types and within key areas for biodiversity. Therefore, when >70% of any ecosystem is 'Unlikely to be restored and protected for conservation' this potentially threatens attainment of, or alignment with, this goal. While we may still be able to restore, manage and protect 30% of most ecosystems, some ecosystems that have high proportions of vegetation cleared due to built environment, infrastructure and resources pressures, are highly unlikely to be restored to the 30% threshold.

We found that of the 1,095 ecosystems impacted by built environment, infrastructure and resources, 932 (85%) have <30% protection:

- 25% (or 224 ecosystems) of which could meet the 30% protection target with no restoration, meaning they could be secured through protection alone, without additional restoration expenditure, allowing limited public funds to be prioritised where recovery is still feasible and cost-effective.
- 704 ecosystems will require either active (13 ecosystems) or passive (691 ecosystems) restoration (Fig. 2).
- Three ecosystems (two of which are in SEQ) will never reach the 30% intact and protection target, as they have >70% in the category of 'Unlikely to be restored and protected for conservation'. For example, ecosystem 12.8.27 (a grassland) has been completely lost and converted to urban residential use (Fig. 2).

Where ecosystems fall below recovery thresholds, restoration costs increase significantly and success becomes uncertain, creating escalating liabilities and reducing the cost-effectiveness of policy interventions.

Figure. 2. A) Map of 704 ecosystems, with red highlighting ecosystems that require active restoration and blue highlighting ecosystems that require passive restoration. B) Map of two ecosystems in SEQ that will never reach the >30% intact and protected.



3.4 ALMOST 40% OF PLACES WHERE URBAN EXEMPTIONS APPLY IN SOUTH EAST QUEENSLAND CONTAIN IRREPLACEABLE HABITAT FEATURES

In South East Queensland, we found that 20,273ha are currently at risk of development (identified as either 'Intact and requiring protection', 'Degraded with potential for active restoration and protection', or 'Degraded with potential for passive restoration and protection') and may be exempt under the 'urban purpose' or 'Priority Development Area' exemptions under Queensland's vegetation management framework (Fig. 3).

This means that if an ecosystem were to be cleared for urban development (e.g., school, sporting or housing in an urban area), it may not require a stringent approval process ecological compensation, such as an offset.

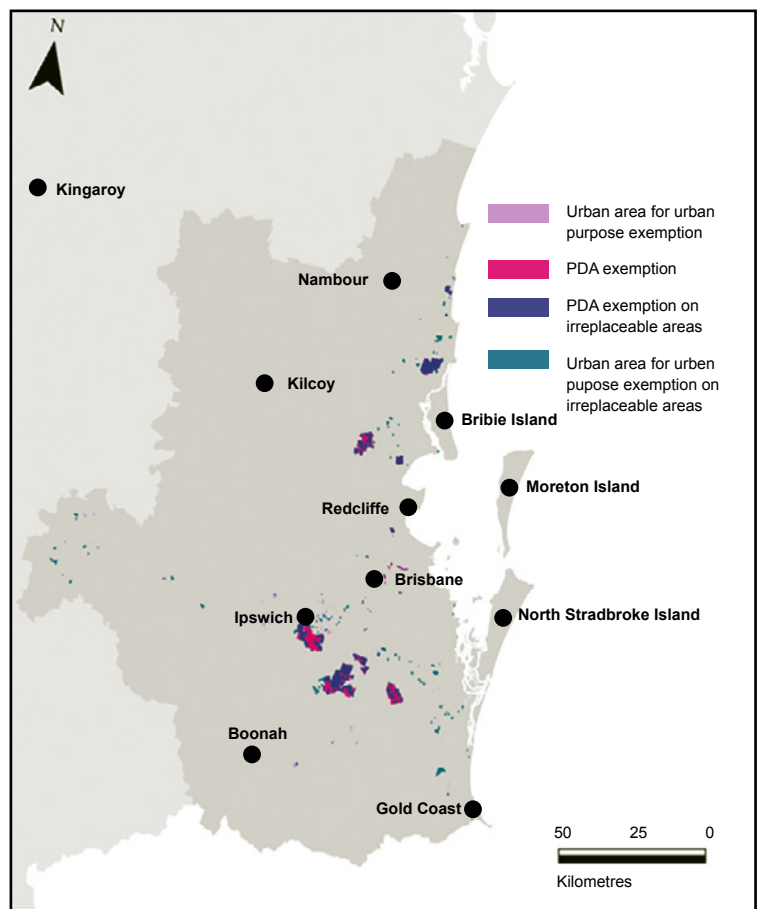
These exemptions may present a policy risk where development decisions may generate significant long-term public costs through loss of natural infrastructure, increased disaster exposure, and higher future restoration and offset liabilities.

Of this 20,273ha, 7,652ha (38%) is mapped as an irreplaceable habitat feature. Most of the 20,273ha is exempt under the 'Priority Development Area' exemption (18,669ha), while 2,343ha is exempt under the 'urban area for urban purpose' exemption.

62 ecosystems could be affected by these exemptions if enacted.


**20,273
HECTARES**
**IN SOUTH-EAST QLD ARE
CURRENTLY AT RISK OF
DEVELOPMENT**

Figure. 3). Map of exemptions in SEQ for urban area for an urban purpose (purple) and Priority Development Areas (PDA) (pink). Dark blue areas are those under a PDA and identified as an irreplaceable habitat feature, and green areas are those under an urban area for urban purpose and identified as an irreplaceable habitat feature.





3.5 SOME ECOSYSTEMS TO WHICH EXEMPTIONS APPLY ARE UNLIKELY TO ACHIEVE ‘30% RESTORED AND PROTECTED’

We found that three ecosystems already have >70% of its pre-clearing extent now identified as ‘Unlikely to be restored and protected for conservation’ (i.e. RE 12.11.23 which is dominated by *Eucalyptus pilularis* in open forest on coastal metamorphics and interbedded volcanics).

When we assessed the extent of areas at risk of further exempt clearing, we found one additional ecosystem which is likely to surpass the 70% threshold and therefore ‘Unlikely to be restored and protected for conservation’ (i.e. RE12.9-10.12, which is mixed woodland containing *Corymbia intermedia*, *Angophora leiocarpa* and at least the presence of *Eucalyptus seeana* on sedimentary rocks).

Of the 62 ecosystems that are impacted by these exemptions, six are not represented in Queensland’s protected areas estate under the *Nature Conservation Act 1992*.

3.6 GREATER DATA WOULD YIELD GREATER INSIGHT

While this research has yielded insights into vegetation loss in Queensland from the built environment, infrastructure and resources land uses, there are some limitations:

- Queensland’s vegetation land use datasets (Queensland Government, 2023) are only updated every ~10 years. This analysis was constrained by the most recent available dataset, which dates to 2017; as a result, there has likely been more clearing attributed to urban pressures than is reported here, with possible implications for present-day vegetation extent and conservation status.
- Forecasting vegetation loss based on current exemptions is not possible with existing spatial information. The absence of a single consolidated geospatial layer defining the urban footprint makes it difficult to forecast future clearing risk and to identify where additional vegetation loss may still occur.
- Commonwealth and state offset registers are not linked, so it is therefore not currently possible to determine what proportion of this vegetation is already subject to offset obligations, including under the EPBC Act.

While these limitations do not materially alter the overall findings of the study, they do highlight important gaps in data and governance that warrant future attention and action.

4. THE BENEFITS OF ACTION



**NATURE-POSITIVE
DEVELOPMENT
SUPPORTED BY
NATURE-BASED
SOLUTIONS AND
RESILIENT
URBAN DESIGN
CAN REDUCE TOTAL
SYSTEM COSTS**

Housing affordability and nature protection are often framed as competing priorities, but this is a false choice. Poorly planned urban expansion that clears ecosystems can increase long-term housing costs through fragmented development separated from existing services, which drives duplication of public infrastructure and services (e.g., roads, water, power), increasing exposure to climate risks such as flooding and heat, and locking households into higher transport and insurance costs. In contrast, well-located, higher-density and nature-positive development, supported by nature-based solutions and resilient urban design, can reduce total system costs, while delivering more affordable, liveable communities.

Embedding avoidance of clearing threatened ecosystems, prioritising infill and density over sprawl, and investing in nature-based solutions should therefore be seen as part of the solution to Australia's housing affordability challenge, not a barrier to it. These benefits demonstrate that protecting and restoring nature is not only an environmental imperative, but a core driver of economic productivity, asset value, and long-term fiscal sustainability.

Increasingly, evidence from across Australia and the world illustrates that nature generates tangible and measurable economic, social, cultural and biodiversity value. Examples of benefits from the protection and enhancement of nature are provided below.

Economy	The entire Australian economy is dependent on nature, with nearly half (49.3% of GDP or \$892 billion) moderately to highly dependent on nature's ecosystem services ⁶ . In Australia, Cyan Ventures analysis estimates that there will be 1.6 million direct jobs related to nature by 2035 ⁶ .
Property value	Proximity to nature can increase residential property values by up to 28% and generate economic returns for adjacent communities ⁷ .
Culture and community	A review by Social Ventures Australia for the Department of the Prime Minister and Cabinet reports a social return on investment of up to \$3.40 per every \$1 spent for Indigenous Protected Areas, with higher returns where Indigenous ranger employment is present. ⁸

⁶ https://cdn.prod.website-files.com/696821837f978f01d3b07031/69c466688518797bd17a853e_260310-ALCA-Case-for-Nature-phase-1- FINAL_WEB.pdf

⁷ <https://www.abs.gov.au/statistics/environment/environmental-accounts/national-ocean-account-experimental-estimates/aug-2022>

⁸ <https://www.socialventures.org.au/about/publications/consolidated-report-on-indigenous-protected-areas/>

Human health and wellbeing	Adults in Australia living in neighbourhoods with at least 30% tree canopy cover are 31% less likely to experience psychological distress, and have lower rates of poor health, anxiety and depression than those living in areas with low canopy cover.⁹ <i>Darwin's 2030 Greening Darwin Strategy</i> which includes actions to increase tree canopy coverage across heat-vulnerable and cyclone-prone areas, identifies that for every \$1 spent, the local community will receive between \$1.1 and \$3.1 in benefits, of which: • 94% will be due to reduced fatality and healthcare costs • 2% will be due to improved amenity and recreational benefits • 4% will be due to additional ecosystem services (carbon sequestration, avoided energy costs and reduced air pollution).¹⁰
Adaptation	CSIRO identifies that every \$1 government invests in climate adaptation or disaster risk reduction saves between \$2 and \$11 in recovery ¹¹ . Protecting and restoring our existing natural defences provides our most cost-effective adaptation response ¹² .
Coastal resilience	In Australia, coastal wetlands are estimated to reduce wave energy by 37-71%, protecting \$2.7 billion in property value across south-eastern Australia, and preventing the relocation of over 1 million people nationally¹³. In Australia in 2021, mangroves alone provided coastal protection for 175,000 people, protecting A\$57 million in property value; and saltmarsh alone protected 566 dwellings valued at \$8 million.¹⁴
Carbon sequestration	In 2021, the carbon stored by selected Australian ecosystems was valued at \$43.2billion ¹⁵ .
Flooding	The Bremer River Catchment Study by Ipswich City Council identified the use of nature-based solutions and a 'spongy catchment' could result in a 79% reduction in flood depths in key urban areas (during a 2.4% AEP flood event, similar to that experienced in 2022) while also improving water quality and river health, and generating afforestation carbon credits worth \$226 million. ¹⁶
Urban heat mitigation	Retaining existing trees and planting additional trees is one of the most effective strategies to mitigate urban heat island effect. A study in Sydney, identified that tree shade, on average, reduced temperatures 20°C.¹⁷ Similar findings have been demonstrated in Barangaroo with Australia's first bio-solar green roof demonstrating surface temperature reductions of up to 20°C, improving solar energy output by 3.6%, increasing biodiversity and reducing stormwater flows.¹⁸
Fire protection	Green fire breaks (i.e. strategically placed plantings of low-flammability vegetation) have been demonstrated to reduce impacts during wildfire events in the United States, New Zealand and Europe. A small-scale study in Australia identified that green fire breaks provide biodiversity and carbon benefits without increasing fire risk, and in some cases reducing risk to people and property ¹⁹ .
Water quality and security	Water is a critical natural resource. In Australia in 2021, 10.4 million megalitres of surface water was provided for drinking and use valued at \$1.4 billion.²⁰ Constructed wetlands and vegetated drains for farm runoff support conservation of the Great Barrier Reef and Moreton Bay catchments. A study of treatment wetlands in Queensland identified ~44% reductions in dissolved inorganic nitrogen and 20–72% reductions in total nitrogen, materially improving downstream water quality.²¹
Species conservation	The cost of avoiding impacts to halt extinction is more cost effective than species recovery. The estimated costs to halt extinctions for 99 priority species is ~\$15.6 billion/year for 30 years. Moving priority species down one threat category would cost ~\$103.7 billion/year, and to remove from the threatened species list entirely is estimated as ~AUD157.7 billion/year. ²²

9 <https://pmc.ncbi.nlm.nih.gov/articles/PMC6661720/>

10 https://www.darwin.nt.gov.au/sites/default/files/publications/attachments/1091987_CoD_GreeningDarwinStrategy_WEB.pdf

11 <https://www.csiro.au/en/news/all/articles/2021/november/future-disaster-resilience>

12 <https://www.csiro.au/en/news/all/articles/2021/november/future-disaster-resilience>

13 <https://www.natureaustralia.org.au/what-we-do/our-priorities/oceans/ocean-stories/mapping-ocean-wealth/>

14 <https://www.abs.gov.au/statistics/environment/environmental-accounts/national-ocean-account-experimental-estimates/aug-2022>

15 <https://www.abs.gov.au/media-centre/media-releases/first-ever-measure-value-our-ecosystems>

16 <https://iced.s.anu.edu.au/research/research-stories/nature-based-solutions-flood-mitigation-australia-national-guidelines>

17 <https://www.mdpi.com/1999-4907/11/11/1141>

18 [https://opus.lib.uts.edu.au/bitstream/10453/150142/2/City of Sydney Final Report EPI R3 2019200005.pdf](https://opus.lib.uts.edu.au/bitstream/10453/150142/2/City%20of%20Sydney%20Final%20Report%20EPI%20R3%202019200005.pdf)

19 <https://www.sciencedirect.com/science/article/pii/S0301479724021698>

20 <https://www.abs.gov.au/statistics/environment/environmental-accounts/national-ecosystem-accounts-experimental-estimates/2020-21>

21 https://reefcatchments.com.au/files/2021/06/Kavechei2021_cost-effectiveness-treatment-wetlands-N-removal.pdf

22 <https://research.monash.edu/en/publications/the-estimated-cost-of-preventing-extinction-and-progressing-recov/>





5. WHAT WE CAN WE DO ABOUT IT

To identify tangible actions to reverse nature decline, balancing the critical need for affordable housing in Queensland, we brought together cross-sector participants from industry (ISC, GBCA, ASBEC, MECLA), the Queensland Government, not-for-profit (WWF-Australia), consultants (Pollination; Nature and Climate) and academia (Griffith University).

Through a series of workshops, participants first reviewed the research findings, then identified and prioritised actions and opportunities for transformative change.

As identified in the ‘what we found’ section above, this research identified that built environment and infrastructure (and associated resources) land uses are:

- Responsible for extensive clearing.
- Directly responsible for significant decline of ecosystems, including threatened ecosystems.
- Clearing many ecosystems that cannot easily be restored.
- Able to apply to clear vegetation under urban exemptions, of which:
 - 40% of the places where urban exemptions apply contain irreplaceable habitat features, and
 - Some ecosystems to which exemptions apply have >70% of their pre-clearing extent now identified as ‘Unlikely to be restored and protected for conservation’.

The research tells us that vegetation is being indiscriminately cleared, fragile ecosystems are being degraded, and irreplaceable habitat features are being destroyed. This signals that Australia’s commitment to ‘protect 30% of all ecosystems’ GBF target, is being compromised.

And despite this, we are still in an affordable housing crisis.

The current way of planning and managing housing and infrastructure development is not serving either people or the environment well, and transformative change is needed to deliver outcomes that benefit both. There is a risk that current development patterns reflect a misallocation of resources, with short-term land use decisions potentially driving higher long-term costs for governments, households and insurers.

Authors’ and participants’ lived experience in property and infrastructure development reflect this too. We know the legislated mitigation hierarchy (avoid, minimise and mitigate, then offset) is rarely applied or enforced. Offsets are not working as a disincentive. Instead, clearing continues in ways that erode the ecosystems that underpin our economy, wellbeing and climate resilience, while increasing people’s exposure to climate impacts, disasters and liveability risks.

Over the course of the research and the workshops, actions outside the scope of this research, but likely necessary for broader transformative change, were also identified. These are summarised in the ‘recommended actions for further investigation’ section.

5.1 WHAT WE CAN DO TOGETHER

Participants identified four themes for industry-wide, cross-sector collaboration: Collaborate, educate, enable and steward. These are described further below.

While the actions identified below were considered in the context of the findings from the Queensland/South East Queensland Pilot, they are also applicable across Australia and will require action and collaboration across all levels of government, industry and advocacy to fully embed.

5.1.1 Collaborate

Transformative change that enables sustainable development, meets the critical need for affordable housing in Queensland, and reverses nature decline cannot be achieved without all relevant sectors working together. Collaboration with developers, planners and other peak bodies (including those outside of the ISC and GBCA) is needed to build understanding, trust and motivation, and support shared problem-solving. Ultimately, the goal is to support better nature outcomes through aligned leadership and advocacy that balances environmental and development needs. Partners should include peak bodies (e.g. ISC, GBCA, Master Builders Association, Housing Industry Association, Planning Institute of Australia), developers, constructors and housing volume builders.

5.1.2 Educate

A key barrier to reversing nature loss and driving nature-positive outcomes is lack of education and awareness. Participants identified a need to support industry-wide education, knowledge sharing, and capacity uplift, through the development of training, guides and tools on topics such as:

- Why nature is important, including building the business case for nature protection by articulating how the economy, the built environment and infrastructure rely on nature, the value of ecosystem protection and services they deliver, and the economic costs of vegetation clearance.
- Illuminating the findings of this research, including the impacts of the built environment and infrastructure land uses on ecosystem loss.
- The value of nature-based solutions in the built environment and infrastructure design.
- Awareness raising on existing frameworks, data and tools that are available to track impact (positive and negative), to support measuring and reporting on nature impacts and achievements.

5.1.3 Enable

Research, tools, standards, methodologies and guidelines are necessary to mainstream and enable development that protects and restores nature on the way to being nature-positive. Participants identified a need for the following:

- A methodology for cost-benefit analysis, and return-on-investment calculations to value both the true costs of nature loss, and the value of nature-based design. This should include quantification of the financial value of co-benefits provided by nature-based solutions.
- Best practice development principles (which should include integration of nature-based and Indigenous design).
- Develop or adopt a nationally consistent land use-specific, science-based framework for assessing biodiversity condition, baseline values, and biodiversity net gain potential, aligned with emerging TNFD metrics and global best practice.
- Development of a built environment and infrastructure land use-specific methodology for the Australian Nature Repair Market, drawing on this research and using Queensland as a test case, that could be rolled out more broadly and thereby enabling high-integrity offsite net gain, aligned to regional land use impacts.
- Work with the finance sector and across government to support the development of incentives to drive development that protects and restores nature (see also section 5.3.1).

5.1.4 Steward

To support self-determination, equitable sharing of benefits, and integration of traditional ecological expertise, partnership with Traditional Owners (TOs) and spending in Indigenous-owned businesses is required to be embedded across all actions identified in this paper. Some specific actions participants identified included the need to:

- Work in partnership with TOs and community groups to embed Indigenous-led conservation and stewardship, including integration of Aboriginal and Torres Strait Islander expertise and cultural practices in nature repair activities.
- Integrate cultural indicators and traditional ecological expertise to track habitat condition, species movement and ecosystem function, identify culturally significant species, and support our understanding of the compounding value of nature when viewed through a cultural context. Beyond collaboration and education, industry, government and advocacy will also need to maintain an ongoing role in the stewardship of nature.

5.2 HOW WE CAN CONTRIBUTE TO HALTING AND REVERSING NATURE LOSS, AND DRIVING NATURE POSITIVE OUTCOMES

Four areas of action were identified that can be applied across industry, all levels of government and advocacy to address the findings of this research, while considering the need for critical housing.

1. The mitigation hierarchy
2. Density done well
3. Nature-positive design
4. Commitments, transparency, monitoring, verification and reporting.

While these areas of action were considered in the context of the findings from the Queensland/South East Queensland Pilot, they are also applicable across Australia and will require action and collaboration across all levels of government, industry and advocacy to fully embed.

5.2.1 The mitigation hierarchy

The legislated mitigation hierarchy (avoid, minimise and mitigate, offset) is rarely applied or enforced. Instead, offsets are not acting as a disincentive, and they are often used without considering other options or seeking to avoid, minimise or mitigate impacts to threatened ecosystems. This means we are simply not exploring how we can develop more sustainably. Participants identified the crucial need for the robust application of the mitigation hierarchy to support development that reduces nature decline. Key actions identified included:

- **Industry:** Avoid clearing of intact (remnant) ecosystems identified in this research in the Appendix; prioritise existing disturbed areas for development and avoid irreplaceable habitat features; Avoid clearing ecosystems, with increased priority given to Endangered and Of Concern ecosystems, and ecosystems that have already been cleared >70% of their pre-clearing extent; Embed exclusion criteria for identified ecosystems in the Appendix into voluntary sustainability ratings schemes such as Green Star Buildings (GBCA), Green Star Communities (GBCA), IS Rating Scheme (ISC), Living Building Challenge (Living Future).
- **Government:**
 - *Planning:* undertake effective land use planning to provide certainty for all stakeholders on areas necessary for conservation and areas more suitable for development; for example, identification of 'go' and 'no go' areas for development in regional plans and planning schemes to protect ecosystems including e.g. ecosystems that contain irreplaceable habitat features, threatened ecosystems, and ecosystems that cannot be restored to >30% of pre-clearing extent; exclude these same areas from the urban footprint and Priority Development Areas.

- *Regulation:* all levels of government can apply regulation and compliance in a manner that ensures effective application of the mitigation hierarchy; including avoiding the clearing of ecosystems, Endangered and Of Concern ecosystems, and ecosystems that have already been cleared >70% of their pre-clearing extent, ecosystems that contain irreplaceable habitat features; and monitoring and enforcing approved clearing footprints; and monitoring offset performance. Mapping of irreplaceable habitat features to support enforcement of the reformed EPBC Act, and enforcement through the National Environmental Standards, presents a live opportunity to support these recommendations.
- **Advocacy:** Work with all tiers of government and developers to advocate for stronger laws for urban development (particularly in the peri-urban areas and large infrastructure projects like reservoirs and roads), tighter urban growth boundaries, policies that support nature-based design, ecosystem protection and regeneration; advocate for the development of building standards to protect nature and cultural heritage and assets by establishing an independent regulator. Failure to apply the mitigation hierarchy leads to suboptimal investment decisions, where avoidable impacts are instead managed through more costly and less effective measures, such as offsets and restoration, which are not working as intended.

These actions are further expanded in the Appendix.

5.2.2 Density done well

Presently, development in Queensland tends to sprawl outwards as opposed to being concentrated more densely. As a result, we are clearing a broad range of ecosystems for housing, industrial, commercial, recreational, road, and water supply across a broad area. These same ecosystems provide vital services for people and nature, such as climate resilience, carbon sequestration, clean water, biodiversity, cultural connection, and habitat. Without these ecosystem services that underpin our economy, wellbeing and resilience, we are potentially putting the very people we are developing homes and infrastructure for at future risk.

Participants identified that we need density done well. This means being deliberate in where we plan for development, and supporting this with the protection and restoration of natural systems needed to support thriving, liveable communities, and avoiding high-risk areas under climate change, e.g. areas subject to floods, fire, and drought. Key actions identified included:

- **Industry:** Prioritising density over sprawl, utilising opportunities to build higher and more densely in already developed and disturbed areas.
- **Government:** Promoting and incentivising increased urban density (e.g. 'tall over sprawl' strategy, Brisbane City Council) through laws and regulations, including considering tax and financial levers; grants, density bonuses, or integrated infrastructure funding; factoring in national and state nature targets in strategic planning for development; and greater incentives for avoidance of nature loss and inclusion of nature restoration for developments allowed under exceptions.

- **Advocacy:** Working with all tiers of government and developers to advance policies and incentives that support higher-density development in existing cleared urban areas, including tax reform. Well-located, higher-density development improves infrastructure efficiency, reduces per-capita service delivery costs, and supports more productive, connected labour markets. A better understanding of these economic drivers should be a priority.

These actions are further expanded in the Appendix.

5.2.3 Nature-based design integration

Nature-based design leverages the benefits of nature-based solutions in place of or alongside grey ‘engineered’ solutions, for example, green roofs and walls for urban cooling, green-blue (integrating nature vegetation with water management systems) streetscapes, bioretention systems, and habitat creation in public green spaces to support stormwater management. While nature-based design is a significant lever to support onsite climate resilience, human health and wellbeing, improved water quality, amenity, and habitat, it has not yet been mainstreamed across the built environment and infrastructure development. Participants identified the following key actions:

- **Industry:** Incorporate onsite nature-based design and ecosystem restoration, and measure through onsite biodiversity absolute net gain targets for developments.
- **Government:** Embed nature-based design and investment requirements and biodiversity net gain as a weighted criterion in government tenders, and embed in contracts, including mandating sustainability rating schemes; and make ‘green factor tools’, like those mandated in Brisbane and Melbourne, standard.
- **Advocacy:** Support education and capability uplift through research that fleshes out the loss of nature as an economic and security cost. Building the business case for why protecting and restoring nature is important and how much Queensland’s economy relies on nature, including within the built environment and infrastructure sector; advocate for biodiversity net gain in building and infrastructure development. Nature-based design can protect expensive grey infrastructure, reduce reliance on engineered infrastructure, lower capital and maintenance costs, while improving asset resilience and performance, and further economic analysis would be worth considering.

These actions are further expanded in the Appendix.

5.2.4 Commitments, transparency, monitoring, verification and reporting

The making of commitments and increased transparency through monitoring, verification and reporting are essential underpinnings for sustainable development and nature-positive outcomes. Participants identified the following key actions:

- **Industry:** Make a nature-positive commitment including commitment to end vegetation clearance and conversion of land (including of ecosystems identified in this research); set nature targets; undertake environmental assessments on all developments (even when exemptions may apply), and adopt high-integrity, third party frameworks for accountability; shift from compliance-based reporting to measuring ecological outcomes over time aligned with TNFD and Nature Positive Initiative (NPI) State of Nature metrics.
- **Government:** Establish a clear biodiversity baseline (for example, through Environment Information Australia) that enables jurisdictions to track and demonstrate changes to nature over time and allow for adjustments to related policies or programs; report progress against indicators (e.g. improved State of the Environment reporting); require transparent reporting on offsets and nature repair investments, including integrity measures, outcomes, and accountability.
- **Advocacy:** Support development of a national biodiversity evaluation metric to provide a consistent, credible basis for measuring biodiversity impacts and improvements across planning, procurement, investment and reporting; advocate for open-source data so advocacy groups can play a role in monitoring that offsets have resulted in an absolute net gain for all species and ecosystems; complete research and reporting to monitor progress against the targets set out in the Queensland Government’s nature and biodiversity strategies and performance frameworks; advocate to ensure biodiversity is accurately valued in government-built environment and infrastructure project cost-benefit analyses. Improving transparency and standardised reporting on nature impacts will reduce information asymmetry, enabling more efficient capital allocation and better risk pricing across the economy.

These actions are further expanded in the Appendix.

5.3 RECOMMENDED ACTIONS FOR FURTHER INVESTIGATION

While not within the scope of the current research or paper, numerous additional areas for action were identified for further development to support transition of the built environment and infrastructure land uses towards supporting nature-positive outcomes. These are summarised below and detailed further in the Appendix.

5.3.1 Collaboration with the finance sector

While finance levers and representation from the finance sector were not within the scope of the research, participants identified the significant influence of this sector in supporting the transformation of the built environment and infrastructure land uses to transition towards a nature-positive future. Specifically, participants identified the need to work with the finance sector to establish pathways and taxonomies that incentivise nature protection and restoration, nature-based design, and disincentivise nature degradation and vegetation clearance.

Actions suggested for further investigation included:

- Supporting the finance sector to identify and prioritise investment and lending in buildings and assets that avoid clearing vegetation and contribute to nature-positive outcomes, e.g. through integration of the ‘industry’ recommendations in this paper.
- Support the sector through co-development of sector-specific lending, risk screening and investment criteria; and
- Exploration of project development opportunities for sector-relevant nature-related products. The insurance industry in particular was identified as a potential key partner in valuing nature-based solutions, including green infrastructure and design interventions that support enhanced climate resilience, and disaster reduction, as well as nature.

5.3.2 Environmental markets and collective-investment actions

While voluntary environmental markets were not within the scope of this research, participants identified the necessary role of voluntary action, and in particular, landscape-scale restoration for reversing nature decline and supporting nature-positive outcomes. Participants identified the need to ensure the use of nature markets by the built environment and infrastructure land uses are only high-integrity to ensure that investments deliver real, measurable outcomes, and prioritise the restoration of ‘at risk’ ecosystems (such as those identified in this research).

5.3.3 Materials and supply chain impacts

This research focused on direct vegetation clearing from built environment and infrastructure land uses, with the resources land use included as a coarse proxy for supply chain impacts. Given the diversity of materials used in the built environment and infrastructure land uses, 95% of nature impacts are associated with supply chain activity, compared with 5% of onsite nature impacts (WBCSD, 2023)²³. The actual impact of the supply chain (including vegetation clearing) is therefore likely to have a significant impact on the overall environmental footprint of a project. Participants identified the need for action within materials supply chains to support nature-positive outcomes, including the phasing out of high nature-risk materials, embedding nature impact criteria in procurement, setting material-specific targets, and improving supply chain transparency and traceability (noting this is also detailed in GBCA’s nature roadmap). Addressing supply chain impacts represents the largest opportunity to reduce the sector’s total environmental footprint, with implications for jobs, trade competitiveness, procurement standards, and industrial policy.

5.4 RESEARCH

This research focused on direct vegetation clearing from the built environment, infrastructure and resources land uses to identify the sector’s contribution to ecosystem loss in Queensland. Improved data availability is critical to support

efficient policy design, reduce regulatory uncertainty, and enable better targeting of public and private investment. Through this research, a number of additional priority research steps were identified and include:

- This research used the most current ‘clearing by land use’ dataset available, which was dated to 2017. As a result and given the increased development in the region since this date, it is likely that the actual levels of ecosystem clearing are higher than identified by this report. A repeat of this research methodology using 2026 data is recommended to more accurately understand the current picture, including changes from 2017 to now.
- This research used the most current ‘clearing by land use’ dataset available, which was dated to 2017. As a result, and given the increased development in the region since this date, it is likely that the actual levels of ecosystem clearing are higher than identified by this report. A repeat of this research methodology using 2026 data is recommended to more accurately understand the current picture, including changes from 2017 to now.
- This research set out with the initial intent to confirm which ecosystems were being impacted but not offset. We could not identify which areas subject to vegetation clearing had already been offset by either state or Commonwealth offset requirements, as state and federal offset registers are not linked, restricting the ability for this kind of spatial analysis. An essential next phase of research is to investigate the effectiveness of Commonwealth and state offset requirements, to identify ecosystems which may be ‘falling through the cracks’ (e.g. through many small impacts which may not trigger ‘significant residual impacts’ and therefore not be offset or otherwise be subject to other exemptions.).
- This research intended to try and ‘forecast future risk’ because of urban exemptions. While this was able to be achieved at a very high level, the analysis was limited by the fact that many urban-related exemptions apply to the ‘urban’ zoning, which is contained within individual planning schemes and not aggregated spatially. Being able to forecast loss is likely to be essential to properly understand the impact of planning decisions on ecosystems, and to support the attainment of Australia’s nature commitments. Future stages of research should seek to understand how much additional vegetation and which ecosystems in the landscape are ‘at risk’ from potential future clearing based both on past clearing, as well as the many additional exemptions not considered in this report.
- The review of ‘irreplaceable’ habitat features was only completed for South-east Queensland. Expansion of this piece beyond SEQ to Queensland would further illuminate patterns in the loss of irreplaceable habitat features attributed to the built environment and infrastructure land uses. Broader analysis to determine irreplaceable habitat features across Australia is also critical for enforcement of the reformed EPBC Act.

²³ <https://www.wbcsd.org/news/exploring-nature-positive-buildings/>

APPENDIX A. GLOSSARY OF KEY TERMS

Term	Definition
Australian Nature Repair Market	The Australian market mechanism for nature repair credits.
Avoidance	The first step in the mitigation hierarchy: preventing impacts by changing location/design/need.
Baseline (biodiversity) / Statewide fixed biodiversity baseline	Reference condition/extent against which loss and gain are measured / proposed consistent statewide reference baseline for measuring 'no further loss' and improvement.
Biodiversity	Biodiversity, short for biological diversity, is the variety of all living things on Earth, including plants, animals, microorganisms, and the ecosystems they form. It covers genetic differences within species, the variety of species themselves and the variety of ecosystems (such as forests, oceans, and wetlands)
Biodiversity net gain (BNG)	Outcomes where biodiversity is measurably improved in condition / extent / connectivity after a project than before, relative to a baseline.
Bioregion	Broad geographical ecological region used in Qld regional ecosystem classification (e.g. Southeast Queensland, Brigalow Belt, Central Queensland Coast, Wet Tropics etc.).
Clearing / Vegetation Clearing	Removal of native vegetation.
Condition (ecosystem/ biodiversity)	Quality/health of an ecosystem (composition, structure, function) used in baseline, and in assessing net gain.
Counterfactual	Scenario of what would have happened without the intervention (used for integrity claims).
Conversion	Change from ecosystems to other land uses.
Ecosystem / Regional Ecosystem (RE)	Vegetation community within a specific bioregion consistently associated with geology, landform, and soil (as described in the report).
Ecosystem services	Benefits people obtain from ecosystems (e.g., natural resources, water filtration, cooling, flood mitigation, food, clean air, culture, recreation etc.).
Exemptions	Circumstances under which clearing can occur without the requirement to obtain usual approvals under Qld's environment legislation.
Global Goal for Nature	Goal to halt loss by 2030; full recovery by 2050.
Reporting Standards (global)	Standards for reporting financial risk, including nature-related financial risk, including the Australian Sustainability Reporting Standards (ASRS), Global Reporting Initiative (GRI), International Sustainability Standards Board (ISSB), and EU Corporate Sustainability Reporting Directive (CSRD) including the Taskforce on Nature Related Financial Disclosure (TNFD).
Green Star Buildings / Green Star Communities	GBCA's sustainability rating tools.
Green factor tools	Planning/design tools that set minimum green/vegetation/permeable area (e.g., as in Brisbane and Melbourne).
Habitat	The natural environment where a plant, animal, or other organism lives, finds food, and reproduces.
High-integrity	Refer to a quality standard (e.g., robust evidence, additionality, monitoring/verification, avoidance-first).
Indigenous design	Integration of Aboriginal and Torres Strait Islander Knowledge, priorities, and cultural values into design.
Irreplaceable habitat features	Habitats/areas/features that cannot be replaced or recreated within an ecologically relevant timeframe (e.g. tree hollows for glossy black cockatoos to breed within).
IS Rating Scheme	Infrastructure Sustainability Council's sustainability rating tool for infrastructure developments.
Kunming–Montreal Global Biodiversity Framework (GBF)	Global biodiversity framework adopted under CBD includes targets to be adopted by countries to reverse nature decline, including protecting and restoring 30% of land, freshwater and seas.
Living Future	The International Living Future Institute (Living Future) certifies 'regenerative' building projects around the world that demonstrate nature stewardship (e.g. living building challenge, zero energy, zero carbon, biophilic design, sustainable materials etc.).

Term	Definition
Mitigation hierarchy	Sequence to manage impacts (avoid, minimise, mitigate/restore, then offset residual impacts).
Nature	The natural world collectively, including the realms of nature (air, soil, freshwater, and oceans) as well as the biodiversity these systems support (i.e. plants, animals, fungi).
Nature-based design / solutions / infrastructure	Actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits.
Nature-positive	Halting and reversing nature loss from a fixed baseline, resulting in absolute net gain and recovery over time.
Natural capital	Stock of natural assets (e.g., ecosystems) that provide flows of ecosystem services.
No-go areas / Redline boundaries	Areas designated for avoidance where development/clearing/degradation/fragmentation is excluded.
No net loss	Policy outcome where losses are balanced by gains so there is no overall decline, therefore maintaining the current baseline (which could be a declining baseline).
Offset	Actions intended to compensate for 'residual' impacts to ecosystems after avoidance/minimisation/mitigation.
Offset register	Register(s) used to record legally secured offset areas (state and/or Commonwealth).
Old-growth forest	Forest that has been retained for long periods of time and often contain high ecological value.
Pre-clearing / pre-European ecosystem distribution	Modelled ecosystem extent prior to clearing; often used in Queensland as the measure of original condition, used in this report as reference for % remaining.
Priority Development Area (PDA)	Priority Development Areas are parcels of land in Queensland declared under the <i>Economic Development Act 2012</i> to facilitate accelerated development for economic or community purposes. Once declared, a PDA is subject to a dedicated planning framework, beginning with an interim land use plan and later a development scheme, which changes how the ordinary Queensland planning system and local government planning instruments apply within that area. PDAs are generally used for larger or more complex sites where the State seeks to coordinate land use planning, infrastructure delivery and development assessment to support outcomes such as housing, employment, urban renewal, major infrastructure or community facilities.
Protected area / Protected areas estate	Land/waters set aside for conservation under the <i>Queensland Vegetation Management Act</i> ; and the network / portfolio of protected areas in a jurisdiction.
Restoration (active)	Assisted recovery requiring intervention (e.g., planting, earthworks, weed control).
Restoration (passive)	Recovery largely through removing pressures (e.g., cattle grazing, weeds, or invasive herbivores) and allowing natural regeneration.
Taxonomies (financial)	Classification systems for sustainable activities/investments
Threat status (Endangered / Of Concern / No Concern at Present)	Queensland RE conservation status categories used for planning/mapping. Endangered: less than 10% of its pre-clearing extent remains, or if 10–30% of its pre-clearing extent remains and the remaining remnant vegetation is less than 10,000 ha. Of concern: 10–30% of its pre-clearing extent remains across the bioregion, or if more than 30% remains but the total remnant extent is less than 10,000 ha. No concern: more than 30% of its pre-clearing extent remains across the bioregion and the remaining remnant area is greater than 10,000 ha.
Threatened ecosystem	Ecosystems which are considered threatened (e.g., Endangered/Of Concern) per the Qld RE framework.
Urban footprint	Mapped extent intended for urban development; usually contained within local council local planning schemes.
Verification (also monitoring, verification and reporting)	Independent checking of data and claims to ensure objectives are being met.

APPENDIX B. DETAILED FINDINGS

Ecosystem	Vegetation Description	Built Environment		Infrastructure		Resources		Total		Bvg	Threat Status
		Area (Ha) impacted	% impacted	Area (Ha) impacted	% impacted	Area (Ha) impacted	% impacted	Area (Ha) impacted	% impacted		
12.8.27	Tussock Grassland	19	100					19	100	30b	E
12.9-10.10	Low Open Forest	12	100					12	100	21b	E
12.11.23	Open Forest	7,113	72	275	3	72	1	7,460	76	8b	E
12.11.25	Woodland	9,772	59	119	1	102	1	9,993	60	10b	OC
12.11.27	Woodland	4,635	52	181	2	48	1	4,863	55	9g	E
12.9-10.12	Woodland	6,391	51	183	1			6,573	52	9g	E
12.9-10.22	Sedgeland	230	50	4	1			233	51	34f	OC
12.11.24	Woodland	13,306	47	677	2	202	1	14,186	50	9g	NC
12.5.3	Woodland	26,937	47	1,204	2	145	0	28,286	49	9g	E
7.3.37	Closed Forest	18	1	617	45			635	47	2d	E
12.11.28	Woodland	47	43	3	3			51	46	9h	E
8.2.9	Tussock Grassland	264	43	5	1			269	44	32a	E
12.9-10.26	Open Forest	176	39	16	4			192	42	12a	OC
8.2.13	Open Forest	775	39	12	1	1	0	788	40	9e	E
12.9-10.14	Tall Open Forest	10,209	38	388	1	13	0	10,610	40	8b	NC
12.3.16	Closed Forest	4,152	27	1,734	11	81	1	5,966	39	4b	E
12.3.20	Open Forest	5,517	32	707	4	86	0	6,309	36	22a	E
12.5.2	Open Forest	13,457	32	731	2	25	0	14,214	34	9g	E
8.12.26	Open Forest	1,283	32	9	0	10	0	1,302	33	9c	E
12.9-10.1	Tall Open Forest	3,258	31	178	2	14	0	3,449	33	8a	OC
12.9-10.4	Woodland	17,815	31	507	1	24	0	18,346	32	9g	NC
11.2.1	Woodland	123	30	4	1			126	30	28b	OC
12.3.2	Tall Open Forest	4,915	28	373	2	29	0	5,316	30	8a	OC
12.3.6	Open Forest	7,438	25	724	2	98	0	8,261	28	22a	NC
7.3.44	Open Forest	661	27	17	1	3	0	681	28	9b	E
12.11.5	Open Forest	21,848	25	681	1	357	0	22,885	26	10b	NC
12.3.19	Open Forest	686	22	42	1	52	2	780	25	13d	E
12.8.8	Tall Open Forest	3,479	25	33	0	0	0	3,512	25	8a	OC
12.2.13	Open Heath	67	24			1	1	68	25	29a	E
12.9-10.17	Open Forest	14,273	23	436	1	212	0	14,921	24	9a	NC
12.3.11	Open Forest	34,317	21	4,108	2	305	0	38,730	23	16c	OC
8.12.27	Open Forest	2,677	21	173	1	93	1	2,943	23	9c	E
8.3.11	Open Forest	403	17	137	6	2	0	542	22	22b	E
12.11.26	Woodland	37	22					37	22	9h	OC
13.3.5	Open Forest	4	0	699	22			703	22	16a	E
12.3.1	Closed Forest	2,273	19	202	2	107	1	2,582	21	4b	E
7.2.8	Open Forest	430	19	37	2			467	21	22b	E
12.3.8	Sedgeland	337	5	1,183	16	10	0	1,531	20	34c	OC
12.12.14	Open Forest	1,125	19	47	1			1,173	20	9g	OC
12.3.5	Open Forest	6,915	17	926	2	171	0	8,012	19	22a	NC
7.3.13	Open Forest	189	19	2	0			190	19	14c	E
12.11.16	Open Forest	3,233	19	1	0	2	0	3,236	19	8b	E
12.5.6	Open Forest	6,937	19	166	0	7	0	7,110	19	9a	E

Ecosystem	Vegetation Description	Built Environment		Infrastructure		Resources		Total		Bvg	Threat Status
		Area (Ha) impacted	% impacted	Area (Ha) impacted	% impacted	Area (Ha) impacted	% impacted	Area (Ha) impacted	% impacted		
12.12.19	Tussock Grassland	279	18	1	0	8	1	287	19	29a	OC
7.2.3	Woodland	2,034	17	171	1	2	0	2,207	19	9e	OC
7.3.6	Open Forest	451	18	10	0			461	19	22b	E
12.2.5	Open Forest	2,821	17	164	1	49	0	3,033	18	9f	OC
12.9-10.27	Open Forest	643	12	56	1	209	4	908	17	10b	E
12.8.3	Closed Forest	4,886	17	44	0	7	0	4,937	17	2a	NC
7.2.7	Open Forest	231	16	17	1			248	17	28a	E
7.3.42	Open Forest	17	17					17	17	8a	E
12.1.1	Woodland	742	14	89	2	8	0	839	16	28a	OC
7.2.1	Closed Forest	475	16	1	0			476	16	3a	E
12.2.2	Closed Forest	601	15	7	0			609	15	3a	E
8.2.6	Open Forest	1,064	15	16	0			1,081	15	9e	OC
7.2.2	Closed Forest	91	13	11	2			102	14	3a	E
11.3.12	Woodland	3,497	9	1,958	5	267	1	5,722	14	21a	NC
12.2.12	Closed Heath	1,378	10	393	3	2	0	1,774	13	29a	NC
12.9-10.11	Low Open Forest	231	10	51	2	36	2	318	13	21b	E
7.3.38	Closed Forest	6	3	22	10			29	13	5c	OC
12.12.2	Tall Open Forest	3,730	12	252	1	76	0	4,058	13	8b	NC
7.8.10	Woodland	599	12	12	0			611	13	9d	OC
12.9-10.29	Tall Open Forest	261	12			3	0	264	12	8a	OC
12.3.18	Low Open Forest	123	8	21	1	53	3	197	12	21b	E
12.11.3	Open Forest	16,248	11	773	1	270	0	17,291	12	9a	NC
13.3.1	Woodland	459	7	214	3	107	2	779	12	15b	E
12.3.17	Closed Forest	526	4	864	7	3	0	1,393	12	4b	E
8.2.2	Closed Forest	260	11	5	0			265	12	3a	E
8.2.1	Low Woodland	82	12					82	12	28a	OC
12.9-10.2	Open Forest	26,302	10	2,360	1	1,179	0	29,840	12	10b	NC
11.3.15	Open Woodland	50	0	11,080	11			11,130	11	16c	OC
12.5.7	Open Forest	5,905	11	204	0	64	0	6,173	11	10b	NC
12.11.18	Woodland	4,918	9	1,268	2	157	0	6,343	11	13d	NC
7.2.5	Closed Forest	65	11	0	0			65	11	3a	OC
12.2.7	Open Forest	3,095	10	197	1	48	0	3,340	11	22a	NC
11.2.2	Low Woodland	307	10	27	1	1	0	335	11	28a	OC
12.2.11	Woodland	2,790	10	53	0	183	1	3,026	11	9f	NC
12.3.14	Low Woodland	1,163	9	265	2	13	0	1,442	11	29a	OC
12.3.3	Woodland	21,391	5	18,310	5	599	0	40,300	10	16c	E
12.12.3	Open Forest	2,802	10	50	0	39	0	2,891	10	10b	NC
12.9-10.7	Woodland	20,380	8	3,318	1	530	0	24,228	10	13c	OC
3.2.28	Closed Forest	54	7	19	3			73	10	3a	E
3.8.5	Closed Forest	30	6	18	4			49	10	2d	OC
12.11.2	Tall Open Forest	1,419	10	2	0	3	0	1,424	10	8a	NC
12.11.9	Open Forest	929	9	15	0	17	0	961	10	9g	OC

APPENDIX C. ACTIONS

C1.1 Actions for industry, government and advocacy

Action	Industry	Government	Advocacy
Density done well	Prioritise density over sprawl, building higher and more densely in existing disturbed areas	- Promote and incentivise urban density through laws and regulations to encourage urban density and reduce sprawl – including considering tax and financial levers. - Use grants, density bonuses, or integrated infrastructure funding to legally reward verified net gain outcomes by government, setting the rules and incentives in law or policy. - Factor in national/state restoration targets, threatened ecosystems, in strategic planning to balance nature and housing. - For developments allowed under exceptions, incentivise developers for compensation and avoidance through: - Environmental offsets - Biodiversity markets (emerging) - Nature-based carbon credits for example, GBCA standard to meet the GreenStar framework	- Work with all tiers of government and developers to develop policies/incentives that focus new development in existing cleared urban areas. - Advocate for higher density development rather than urban sprawl or green fields development. - Advocate for nature and biodiversity in the built environment in tax reform.
Nature positive design	Incorporate onsite nature-positive design through onsite biodiversity net gain targets, habitat restoration, and nature-based solutions.	- Embed nature-based design and investment requirements and biodiversity net gain, a weighted criteria in government RFPS, and embed in contracts, including mandating sustainability rating certifications (e.g. Green Star and IS) for all government funded buildings and infrastructure projects. - Make green factor tools standard.	- Advocate for development BNG. - Support education and capability uplift through research that fleshes out the loss of habitat as an economic and security cost. Building the business case for why protecting nature is important and how much Qld's economy relies on nature, incl within the built environment and infrastructure.
Mitigation hierarchy: Avoid and Reduce, Restore and regenerate, Transform	- Avoid clearing of intact (remnant) ecosystems; prioritise existing disturbed areas for development and avoid irreplaceable habitat features. - Embed exclusion criteria into voluntary ratings schemes such as Green Star, IS, Living Futures. For example, a building cannot be green star if it resulted in the removal of irreplaceable habitat features.	- Stricter regulation to disallow clearing of threatened ecosystems which cannot be restored to >30%, and irreplaceable habitat features. - Enforce the application of the mitigation hierarchy; monitor clearing and degradation, and offsets: enforce approved clearing footprint and monitor and enforce offset/restoration requirements. - Regional planning and planning schemes to identify 'no-go' areas for development where there are high-value ecosystems for example, E, OC, areas with ecosystems where more than 70% has been cleared. - Urban footprint and priority development areas to exclude development in areas of high ecosystems of value. And avoid high-value ecosystems (e.g. Endangered, Of Concern, areas with ecosystems where more than 70% has been cleared) in urban footprint.	- Work with all tiers of government and developers to advocate for stronger laws for urban development, particularly in the peri-urban areas and large infrastructure projects, like reservoirs. - Tight urban growth boundaries. - Policies that support regeneration and repair including government incentives and resources. - Building standards to protect nature and cultural heritage and assets by establishing an independent regulator. - Reclassify threat status of different habitats from the research findings seems to indicate that threat status lags from clearing/degradation.

Action	Industry	Government	Advocacy
Commitments, transparency, monitoring, verification and reporting	• Commit to making a nature-positive commitment; commit to end deforestation and vegetation clearance; set nature targets; commit to adopting high-integrity, third party frameworks for accountability. • Reporting: Shift from compliance-based reporting to measuring ecological outcomes over time. Align with TNFD and NPI State of Nature metrics.	• Establish a clear, statewide biodiversity baseline that defines high value biodiversity and enables Queensland to demonstrate no further loss and measurable improvement over time, supporting transparent decision making and nature-positive development. Track whether commitments to halt and reverse biodiversity loss are being met; report against indicators; adjust policy and investment where outcomes are not improving. • Require transparency on the use of offset, net gain and restoration funds: detailing integrity, how contributions are allocated, what verified ecological gains are delivered, and how long-term stewardship and accountability are ensured.	• Support development of a national nature evaluation metric to provide a consistent, credible basis for measuring biodiversity impacts and improvements across planning, procurement, investment and reporting. • Data is open source so advocacy groups can check that like-for-like offsets have resulted in an absolute net gain for all impacted species and ecosystems. • Research and reporting to monitor progress against the targets set out in government's nature and biodiversity strategies and performance frameworks. • Advocate for reform: Advocate to ensure biodiversity is accurately valued in government-built environment and infrastructure project cost-benefit analyses.





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C1.2 Recommended Future Actions

Category	Actions
Collaboration with finance sector	Work with the finance sector to establish pathways that incentivise nature protection and restoration and disincentivise the degradation. - Engage financial institutions to understand how the intersection between funding and the built environment can be used to instigate systematic change. - Drive investments towards certified sustainable buildings and assets. Buildings with Green Star 5–6-star rating and infrastructure investment with an excellent IS rating scheme. - Develop nature-risk and impact screening criteria in property and infrastructure investment and lending. Banks to assess capital ratio requirements for funding developments of a clear nature to prevent ‘financed deforestation’. - Define eligible investment types and outcomes to clarify what qualifies as “nature investment,” including restoration, land management, species recovery, and co-benefit initiatives, such as carbon + biodiversity. - Support the development of nature-positive insurance products: Consider different types of insurance products to assist nature stewardship, including parametric insurance. - Developing frameworks to enable more building and development in future-proof areas where climate risks are less intensive. - Support high-integrity standards to drive consistency in decision making using Greenstar or ISC standards endorsed by Fis to support applying discount or penalty interest rates for proponents who can demonstrate nature-positive design elements, by valuing insurance premiums based on the level of nature-risk of insured. - Green Bond opportunities for investment - landscape scale opportunities. - Nature-labelled finance: Green Bank loans include expectations not just on energy efficiency, solar, battery, etc., for carbon reductions, but also include interest rate benefits for nature restoration and transformation. - Commitment of lenders to only funding nature-positive development.
Environmental markets and collective-investment actions	Ensure the use of nature markets is high-integrity, as defined by no leakage, counterfactual reporting, additionality if offsetting, open data released for public scrutiny; Support the development of high-integrity biodiversity credits, metrics, and registries to ensure that investments deliver real, measurable outcomes. - Prioritise ‘at risk’ ecosystems in environmental market investment and development: Focus effort on restoring communities at risk in the landscape by aligning offsets/restoration with those BVGs and REs, detailed as most impacted by the research. - Support and incentivise landscape-scale restoration through environmental markets and increase opportunities for participation. Legal incentives can be built into planning, procurement and finance frameworks to reward verified net gain outcomes to create a level playing field; and Commission green infrastructure and nature-based solutions.
Materials and supply chain impact	Materials and supply chain networks have a significant impact on the overall footprint of a project; as such, structural changes are suggested: - Phase out high nature-risk materials: Restrict or de-prioritise materials with high biodiversity or pollution risk – unless verifiably low-impact or third-party certified. - Embed nature impact criteria in procurement: Update specifications and contracts to prioritise low-impact and responsibly sourced products, especially in public and institutional projects. - Set material-specific targets: Set material-specific targets and trajectories that reflect whole-of-life impacts and avoid trade-offs between carbon and nature outcomes. As measured through a small number of outcome-level indicators such as clearing avoided, hectares restored, approvals time reduced and investment mobilised. - Improve supply chain transparency and traceability by requiring suppliers to disclose material origin, production nature impacts, and compliance with environmental and human rights standards – using tools such as Environmental Product Declarations, Forest Stewardship Council, Programme for the Endorsement of Forest Certification or digital product passports.

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