Analysis of vegetation clearing in New South Wales 2010 - 2023

Implications for biodiversity

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Acknowledgement of Country

The Wentworth Group of Concerned Scientists acknowledges and celebrates the Aboriginal and Torres Strait Islander people on whose traditional lands and waters we live and work. We recognise their continuing connection to land, waters and culture. We pay our respect to their elders past and present.

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Executive Summary

Native vegetation clearing and protection in NSW are regulated under State and Commonwealth legislation, including the *Biodiversity Conservation Act 2016* (NSW) *('*BC Act*')*, the *Local Land Services Act 2013* (NSW) ('LLS Act'), the *Environmental Planning and Assessment Act 1979 (NSW)* and the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) ('EPBC Act'). An independent statutory review of the BC Act published in 2023 found the Act is "not meeting its primary purpose of maintaining a healthy, productive and resilient environment, and is never likely to do so" (Henry et al., 2023). The review also identified significant data deficiencies, limiting capacity to assess whether the BC Act is achieving its intended outcomes (Henry et al., 2023).

In 2024, the NSW Government responded to the review with a 'Plan for Nature' outlining a way forward for realising the ambition to 'protect, restore and improve biodiversity in NSW' and 'leave nature better off than we found it' (NSW Government, 2024). If these goals are to be realised, understanding the nature and impacts of threats to biodiversity values is paramount. Successive NSW State of the Environment Reports have identified land clearing as a major threat to native vegetation and biodiversity, with serious implications for the health of landscapes and river systems (EPA 2024). An evidence-based approach to understanding and addressing the issue in context is a priority.

Since 2006, vegetation extent, loss, and condition have been monitored in NSW by the NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW) through the Statewide Landcover and Tree Study (SLATS), which uses satellite imagery since 1988 to produce increasingly detailed and timely clearing datasets. However, despite advances in remote sensing and monitoring capability, substantial gaps remain in how vegetation clearing is reported and interpreted, and the implications of clearing for biodiversity.

Critically, there is no annual, state-wide reporting of the impacts of clearing on threatened species, threatened ecological communities, or ecosystems, with many important biodiversity and cultural values not mapped or under-represented in existing mapping. For example, most high-value biodiversity mapped encompasses less than 1% of mainland NSW. This constrains assessment of risks to high-value biodiversity and prioritisation of effective conservation responses, undermining NSW's commitment to being on a pathway to nature-positive outcomes (NSW Government, 2024).

This report seeks to address these gaps by quantifying the extent and impacts of vegetation clearing in NSW on key biodiversity values recognised in legislation, including threatened species and communities, high biodiversity values, and riparian ecosystems.

We analysed SLATS clearing data between 2010 and 2023 and available ecological and biodiversity data to identify the extent of and trends in vegetation clearing across areas likely to contain biodiversity values, including Commonwealth-listed threatened species and communities, riparian areas, and areas defined in state biodiversity legislation with high biodiversity value that are particularly sensitive to impacts from development.

This analysis identified clearing of areas likely to contain vulnerable or high value biodiversity, including those recognised in State and Commonwealth legislation. Even relatively small losses affect threatened or vulnerable species and ecological communities, increasing risk to species extinction and ecosystem collapse.

Between 2010 and 2023, there was 677,500 ha of combined woody and non-woody clearing and re-clearing (average of 26,900 ha/year for woody vegetation and 60,312 ha/year for non-woody vegetation) across NSW.

Our analysis identified that:

1. *High biodiversity land was likely cleared.* High biodiversity values identified by NSW Government under the BC Act extend across only 0.56% of mainland NSW. Across this area, 13,880 hectares of vegetation clearing occurred in the 8-year period between 2016 and 2023.
2. *Threatened and migratory species habitat was likely cleared.* Land clearing occurred across areas likely to contain Commonwealth-listed threatened species and communities, with 80% of nationally-listed species in NSW potentially affected by clearing. Clearing of vegetation occurred across up to 15% of the mapped distribution of 26 threatened ecological communities. Vegetation clearing also occurred across the distribution of at least 12 threatened species, including the critically endangered grassland earless dragon (2.3% of mapped distribution) and the red-lored whistler, a bird listed as vulnerable under the EPBC Act (2.3% of mapped distribution).
3. *Riparian habitat was cleared*. About 33,682 ha of riparian areas in NSW over the study area were cleared, with potential impacts on water quality and freshwater biodiversity, undermining decades of investment in river restoration and catchment management.

These results raise serious concerns about the effectiveness of our legal and policy framework in preventing threats to high biodiversity values. The current NSW legislative and policy framework recognises biodiversity values but falls short of providing effective protection.

The NSW Government's Plan for Nature (NSW Government 2024) presents a critical opportunity to take a holistic approach to protect and restore biodiversity in NSW. Reform should focus on four areas:

1. Enable protection and restoration of important or at-risk biodiversity at scale (e.g. ecosystems) by implementing a Land Stewardship Package that supports landholders and Aboriginal rangers to maintain, restore, and enhance biodiversity across the landscape.
2. Safeguard NSW's irreplaceable biodiversity and cultural values through targeted law reform that strengthens protections for high-risk and irreplaceable ecosystems, while providing certainty and flexibility for landholders.
3. Rebuild public trust in government by designing and delivering reforms in partnership with regional communities and Aboriginal nations, strengthening their role in identifying, protecting, and enhancing biodiversity values and cultural landscapes.

4. Improve transparency and accountability by establishing a legislated, state-wide, publicly accessible spatial platform that integrates existing monitoring data (including SLATS) to identify natural and cultural ecological values, track changes in their extent and condition, and regular mandated reporting progress towards reform objectives.

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1. Introduction

Australia is globally recognised for its biodiversity, supporting exceptionally high levels of endemism that reflect more than 50 million years of evolutionary isolation (CSIRO, 2014). Many (87% - 93%) of Australia's terrestrial mammal and flowering plant species respectively are found nowhere else on Earth (Chapman, 2009). Despite this, Australia has one of the highest rates of biodiversity decline among Organisation for Economic Co-operation and Development (OECD) countries (Cresswell, et al., 2021), with conservation efforts to date failing to halt ongoing species loss and ecosystem degradation (NSW EPA, 2024).

Land clearing is a key threat driving biodiversity decline and one of the major threats to threatened wildlife in Australia (Kearney, et al., 2019; Ward, et al., 2021). Land clearing drives habitat loss and fragmentation, indirectly increasing biodiversity exposure to heat, wind, invasive species, fire and other disturbances, degrading habitat quality, disrupting ecosystem function and simplifying ecosystem structure, with cascading impacts on food webs and species interactions and viability (Doherty, et al., 2015; Reside, et al., 2017; Tilman, et al., 2001). Clearing accelerates soil erosion, stripping topsoil, seed banks, and microhabitats critical for plant regeneration, invertebrates, and ground-dwelling species, and increases sedimentation and nutrient runoff into waterways that degrades aquatic habitats (Bartley, et al., 2014; Scott, 2001; Siriwardena, et al., 2005). Clearing-induced changes to water infiltration, runoff and other hydrological processes contributes to dryland and stream salinity, reducing soil fertility and results in the loss of salt-sensitive plant communities and dependent fauna (Bunn, et al., 1999; Walker, et al., 1993).

New South Wales (NSW), Australia's most populous state, experiencing extensive native vegetation loss since European colonisation, with more than half (29 million ha) of pre-1750 (pre-European colonization of Australia) native forest and woodland vegetation lost (Ward, et al., 2024). Of the remaining 25 million ha, 9 million ha is degraded (Ward, et al., 2024). More than 50 million mammals, birds and reptiles are estimated to be killed each year due to land clearing in Queensland and New South Wales (Finn and Stephens, 2017). Conservation efforts are failing to halt ongoing species loss (NSW EPA, 2024). Without effective management, only half of NSW's threatened species are likely to persist for the next 100 years; an additional 18 species were listed as threatened between 2020 and 2024 (NSW EPA, 2024).

NSW legislation

Native vegetation clearing and protection in NSW are governed by a complex interaction of State and Commonwealth legislation. The NSW Parliament enacted major native vegetation reforms in 2016, repealing the *Native Vegetation Act 2003* (NSW) and replacing it with the *Biodiversity Conservation Act 2016* (NSW) (BC Act). The NSW Parliament also agreed to establish the Biodiversity Conservation Trust to support landholder participation in private land conservation. At the same time, the *Local Land Services Act 2013* (NSW) was amended to include new native vegetation management provisions, including code-based clearing and provisions to allow certain clearing without specific approval to provide landholders with more land management choice

(Local Land Services, 2026). These reforms reshaped regulatory controls on vegetation clearing on rural land by shifting from precaution and public oversight and toward landholder discretion.

Monitoring of vegetation extent and change

Since 2006, vegetation extent, loss, and condition in NSW have been monitored through the NSW DCCEEW Statewide Landcover and Tree Study (SLATS), which uses satellite imagery since 1988, machine learning algorithms and expertise to produce increasingly detailed and timely clearing datasets (NSW Environment and Heritage, 2025b). SLATS data now underpin annual reporting on vegetation management, regulatory compliance activities, and NSW State of the Environment Reporting (NSW EPA, 2024). However, despite advances in remote sensing and monitoring capability, substantial gaps remain in how vegetation clearing is reported, interpreted, and linked to biodiversity outcomes (Henry et al., 2023). Critically, there is no annual, state-wide reporting on the impacts of clearing on threatened or other species, ecological communities, or ecosystems, limiting the government's capacity to assess risks to high-value biodiversity and threatened ecosystems from vegetation loss or to prioritise effective conservation responses.

We quantified the extent and potential impacts of vegetation clearing on Commonwealth-listed threatened species and communities, riparian areas, and high biodiversity values defined in state biodiversity legislation that are particularly sensitive to impacts from development. The study demonstrates the value of spatial information to better understand land clearing threats to biodiversity and to guide effective policy responses.

2. Method

We first assessed the extent of vegetation cleared using available data from the NSW Government's SLATS program (Appendix A Tables 1 and 2). The SLATS program aims to map the location and extent of vegetation clearing each year across NSW for both woody vegetation (defined as species that produce wood as their primary structural tissue; typically trees, shrubs or woody vines (lianas), usually perennial; available from 2010 to 2023), and non-woody vegetation (defined as grasses, small shrubs and groundcovers; available from 2018 to 2022) (Appendix A Table 1) (NSW Environment and Heritage, 2025c). We excluded from this analysis vegetation lost due to natural events as identified in the SLATS dataset (i.e. fire) and clearing for plantation forestry.

Next, spatial data for four high biodiversity values were intersected with the SLATS clearing data:

1) *High biodiversity values identified in NSW legislation and mapped in the NSW Biodiversity Values Map (BVM)*

The NSW Government identifies "land with high biodiversity values that is particularly sensitive to impacts from development and clearing", consisting of eleven land types and biodiversity values specified in Part 7 of the Biodiversity Conservation Regulation 2017 (NSW) (Appendix A Table 2) (NSW DCCEEW, 2025a; NSW Environment and Heritage, 2025a). These values are mapped in the BVM, a legislated gateway into the Biodiversity Offsets Scheme which "provides a mechanism to avoid, minimise and offset the impacts of development and some types of clearing on biodiversity" (NSW Environment and Heritage, 202d). In March 2025 the BVM covered 4,495,356

ha (0.56%) of mainland NSW. We excluded existing National Parks and other private protected land which reduced the BVM area to 2,652,256 ha (0.31% of mainland NSW). The BVM came into effect after the 2016 reform of the BC Act, so this component of our analysis focused on clearing during the period 2016 to 2023.

2) Threatened and migratory species

We used a national dataset of Species of National Environmental Significance (hereafter threatened species) (Appendix A Table 2), plants and animals species recognised as Matters of National Environmental Significance under the *Environmental Protections and Biodiversity Conservation Act 1999* (EPBC Act), which are nationally listed as vulnerable, endangered or critically endangered, or classified as migratory (Commonwealth DCCEEW, 2025d). Spatial data for threatened species were supplied as polygons that delineated where a species is 'likely to occur' (including 'known to occur') or 'may occur.' For this analysis, only 'likely to occur' threatened species distributions in NSW were used (Commonwealth DCCEEW, 2025c). For this analysis, we conservatively only used 'likely to occur' threatened and migratory species distributions in NSW (Commonwealth DCCEEW, 2025c). The methods used to map all the 'likely to occur' distributions are inconsistent, with some species maps reflecting minimum convex polygons, while others are buffered occurrence points, Species Distribution Models, or existing maps refined by experts. As of March 2025, there were 747 Commonwealth-listed threatened species in NSW, along with an additional 116 migratory species (Commonwealth DCCEEW, 2025d; Commonwealth DCCEEW, 2025b). Of those, 140 species were listed as critically endangered, 284 as endangered and 284 as vulnerable (Commonwealth DCCEEW, 2025d). To estimate vegetation clearing across the mapped likely distribution of each threatened species, we intersected the threatened species 'likely to occur' distribution dataset with the SLATS woody and non-woody clearing data to estimate total vegetation extent cleared for each threatened species by SLATS landcover class (Appendix A Table 2). We note that this mapped area (based primarily on modelling) may or may not be actual habitat for a particular species but this vegetation clearing represents areas where there is a risk these species were negatively affected and further investigation is warranted.

3) Threatened communities

We used a national dataset of Ecological Communities of National Environmental Significance (Appendix A Table 2) (hereafter threatened ecological communities 'TECs') which are ecological communities listed as vulnerable, endangered, or critically endangered under the EPBC Act (Commonwealth DCCEEW, 2025d). The TECs database contained two indicative distributions of ecological communities, including where they 'may occur' and where they were 'likely to occur'. For this analysis we conservatively used only 'likely to occur' distributions in NSW. As of March 2025, there were 53 Commonwealth-listed TECs 'likely to occur' in NSW (Commonwealth DCCEEW, 2025a). To estimate vegetation clearing across each TEC, we intersected the TEC dataset (Commonwealth DCCEEW, 2025a) with the woody and non-woody clearing data and calculated total vegetation extent cleared by SLATS landcover class.

4) *Riparian values*

Healthy riparian vegetation along rivers, streams, creeks, gullies and wetlands provide ecosystem services by supporting biodiversity, ecosystem processes, improving water quality (including for

drinking), stabilising channel banks and reducing erosion (Bunn, et al., 1999; Dosskey, et al., 2010). We defined 'riparian areas' as the area within 100m of a major river, 50m of a minor river, or 200m from the edge of a lake, using a continental riparian corridor layer derived from Geoscience Australia watercourse data (Capon et al., 2025) (Appendix 1 Table 2). This definition reflects the minimum buffers necessary to support riparian zones to perform important ecosystem functions including improving water quality, reducing erosion, and increasing in-stream biodiversity (Hansen et al., 2010). We also analysed clearing across NSW's 'vulnerable riparian lands', a subset of the statutory Native Vegetation Regulatory Map Category 2 Vulnerable Regulated Land established "to regulate the destruction of trees on land susceptible to erosion or land that is otherwise environmentally sensitive" (Appendix 1 Table 2) (NSW DCCEEW, 2025c). In this category, vulnerable riparian areas were defined as the area within 20m of streams, lakes and water bodies and 10m of minor streams (NSW DCCEEW 2026). To estimate clearing across riparian areas and NSW's 'vulnerable riparian lands,' we intersected each area with the woody and non-woody clearing data and calculated total extent of riparian clearing by SLATS landcover class.

3. Results

Between 2010 and 2023, approximately 677,500 ha of woody and non-woody vegetation was cleared or re-cleared across NSW (Figure 1). For woody vegetation, this equated to an average annual rate of 26,900ha/year, (min = 13,402ha in 2010, max = 43,875ha in 2017) and for non-woody vegetation, this equated to an average annual rate of 60,312 ha/year (min = 29,941ha in 2022, max = 74,447ha in 2020).

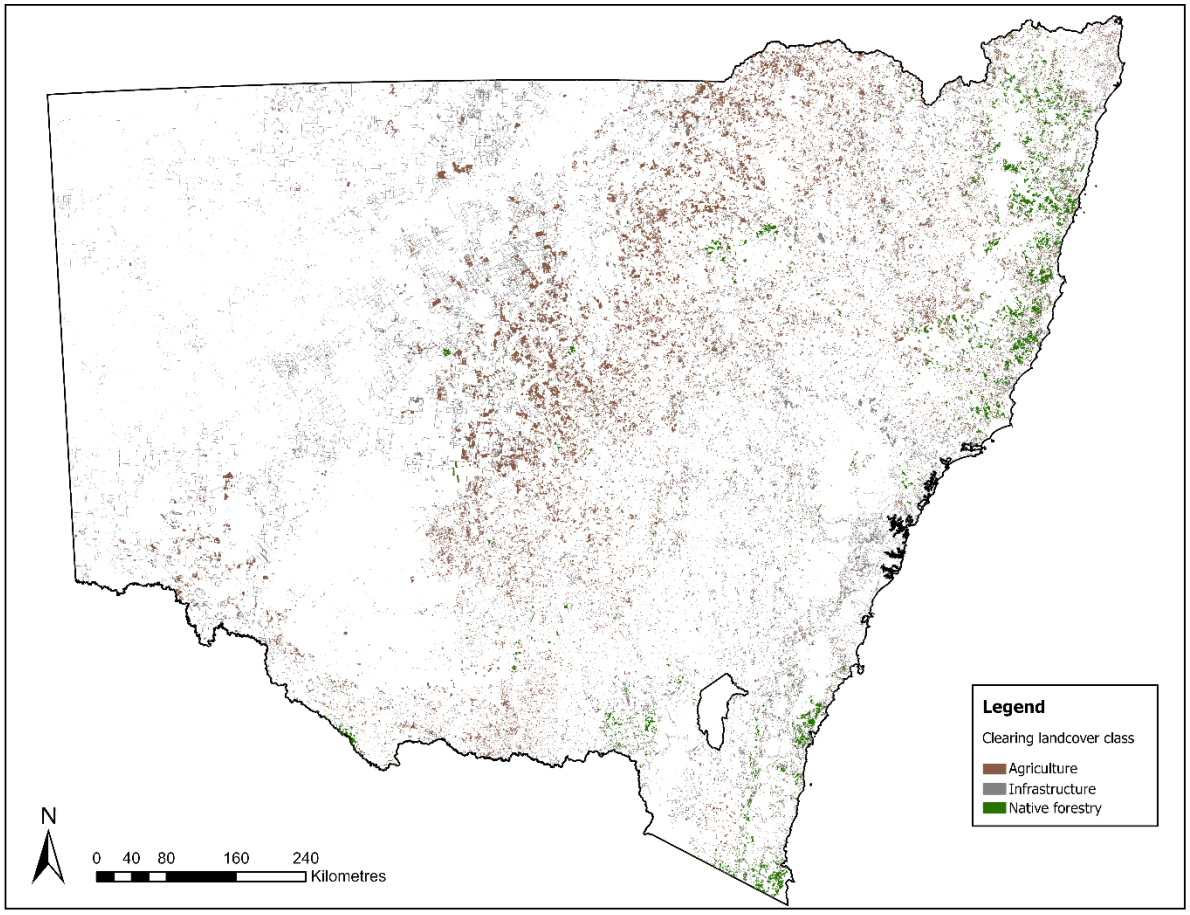

Figure 1. Map of NSW showing woody vegetation cleared between 2010 and 2023 and non-woody vegetation cleared between 2018 and 2022 for agriculture (brown), infrastructure (grey), native forestry (green), based on analysis of land clearing identified by the NSW Government SLATS program.

Biodiversity Values Map (BVM)

In areas identified under Part 7 of the Biodiversity Conservation Regulation 2017 (NSW) as having high biodiversity values, mapped in the BVM, 13,880 ha, (0.52% of the total extent of the BVM) of woody and non-woody vegetation was cleared between 2016 and 2023 (Table 1). Most of the clearing in the BVM occurred in areas identified as 'threatened species or threatened ecological communities identified as having potential for serious and irreversible impacts' (55%), and 'biodiverse riparian areas' (30%), with 8% of BVM-linked clearing occurring in identified old growth rainforest (Table 1; Figure 2).

Table 1. Clearing of vegetation between 2016 and 2023 (woody) and 2018 and 2022 (non-woody) across unprotected areas of the Biodiversity Values Map, by BVM Category, based on analysis of land clearing identified by the NSW Government SLATS program.

BVM Category	Extent woody and non-woody clearing (ha)	Proportion of BVM category that was cleared (%)	Proportion of total clearing (%)
Biodiverse riparian land	4,216	0.31	30
Coastal littoral rainforest (*Coastal Management Act 2018*)	<1	0.003	<1
Coastal wetlands (*Coastal Management Act 2018*)	121	0.10	<1
Core habitat within an approved Koala Plan of Management	139	0.63	1
Identified old growth forest	1,238	0.13	9
Identified rainforest	429	0.09	3
Land identified as of biodiversity value by the Environment Agency Head	83	0.47	<1
Threatened species or communities at risk of serious and irreversible impacts	7,653	0.69	55
Total	13,880	0.31	

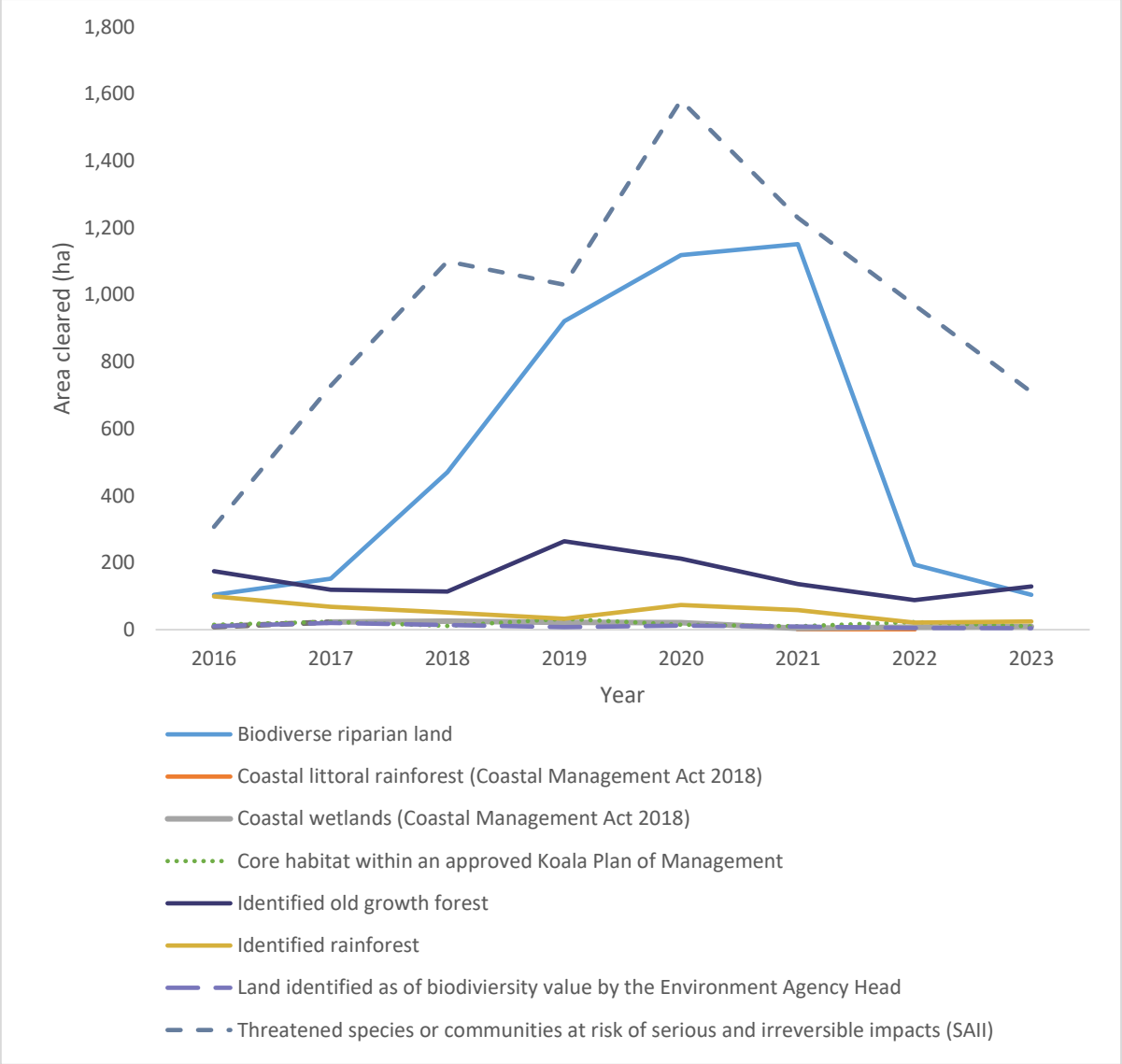

Figure 2. Trends in the extent of clearing of woody and non-woody vegetation for each Biodiversity Values Map category from 2016 to 2023, based on analysis of land clearing identified by the NSW Government SLATS program.

Threatened and migratory species

Clearing between 2010 and 2023 was recorded in mapped areas of 709 threatened or migratory species (80% of the EPBC-listed species in NSW). For 12 threatened species, vegetation was cleared across more than 5% of these mapped areas (Appendix B Table 1). In that period, 2.3% of the vegetation across the mapped likely distribution of two threatened plant species was cleared; the critically endangered grassland earless dragon (*Tympanocryptis lineata*) and vulnerable red-lored whistler (*Pachycephala rufogularis*) (Appendix 2 Table 1). Vegetation across the mapped likely distributions of the critically endangered Wyong midge orchid (*Corunastylis sp.* Charmhaven, 2.7% of vegetation across the likely distribution), Tuncurry midge orchid (*Corunastylis litoralis*, 1.9%), *Fontainea sp.* (Coffs Harbour, 1.45%) and Camden white gum (*Eucalyptus benthamii*, 1.4%) was also cleared over the period (Appendix B, Table 1).

Threatened ecological communities (TECs)

Vegetation clearing between 2010 and 2023 was recorded across areas where 51 TECs in NSW were likely to occur (96% of the TECs in NSW). For 26 TECs, vegetation was cleared across between 1% and 15% of vegetation of their mapped areas, including vegetation clearing across 13 critically endangered and 13 endangered TEC mapped areas (Appendix B Table 2). The critically endangered Warkworth Sands Woodland of the Hunter Valley (14.2%); Central Hunter Valley eucalypt forest and woodland (5.4%); and the NSW distribution of Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest (5%) were associated with vegetation clearing across the largest proportion of mapped areas likely to contain the TECs (Appendix B Table 2).

Riparian areas

Between 2010 and 2023, about 0.6% (33,682 ha) of riparian areas within 100m of a major river, 50m of a minor river or 200m from the edge of a lake (see Capon et. al, 2025) were cleared, including 17,878 ha of woody vegetation (2010 and 2023) and 15,804 ha of non-woody vegetation (2018 and 2022) (Figure 3). By comparison, in the same period, 4,862 ha of 'vulnerable riparian land' was cleared. Approximately 58% of total vulnerable riparian clearing (3,245 ha) occurred in three years from 2019 to 2021 (Figure 4).

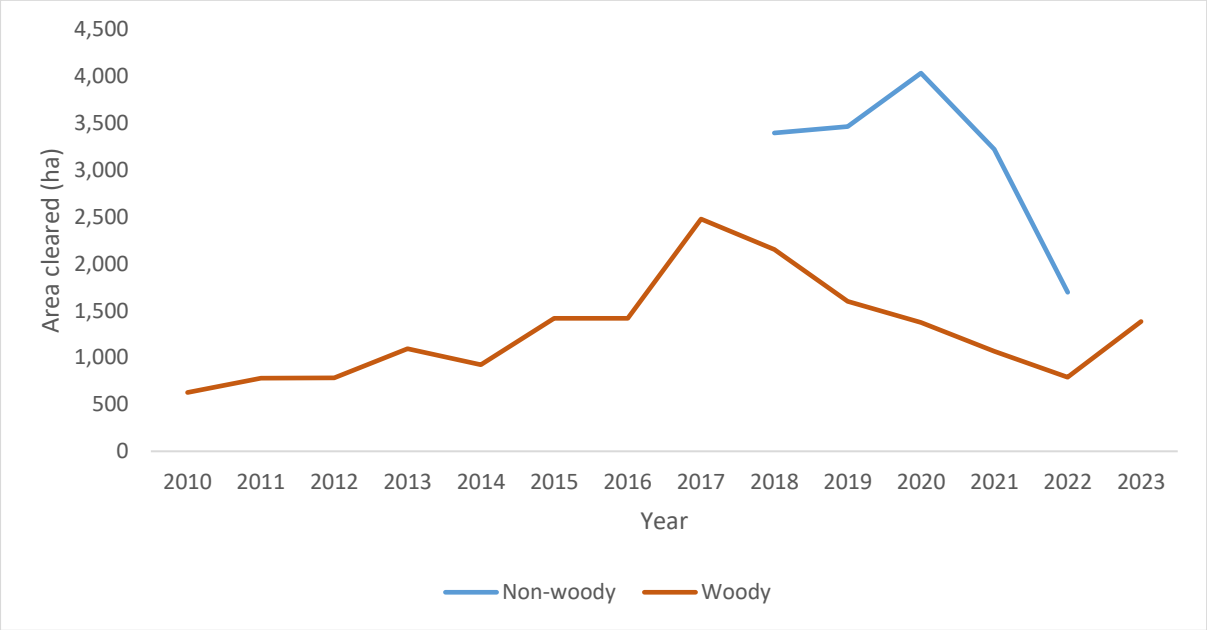

Figure 3. Trend in total woody and non-woody clearing that occurred within 100m of a major river, 50m of a minor river, or 200m of a lake between 2010 and 2023.

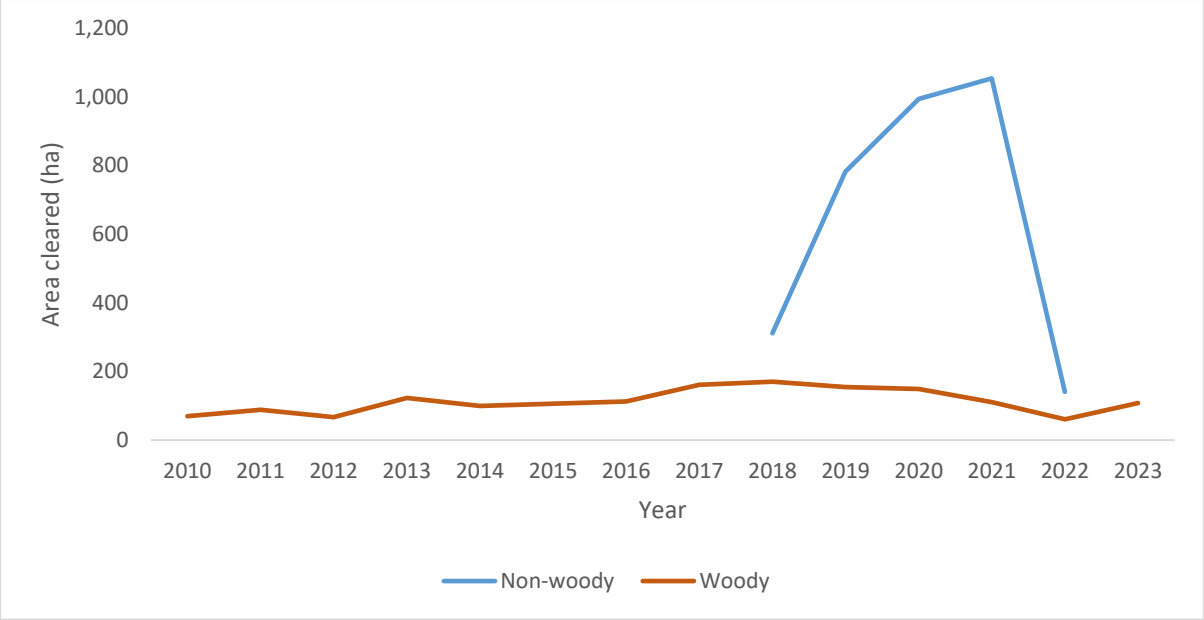

Figure 4. Trend in total woody and non-woody clearing that occurred on 'vulnerable riparian land', 20m of streams, lakes and water bodies and 10m of minor streams between 2010 and 2023 (NSW DCCEEW 2026).

4. Discussion

A large body of scientific evidence documents a key threat driving biodiversity decline across Australia is land clearing, exacerbated by climate change and other drivers (Kearney, et al., 2019; Ward, et al., 2021). This report demonstrates in NSW land clearing is continuing to occur in high value biodiversity areas, despite State and Commonwealth legislation in place recognising their importance. These results suggest that current regulatory settings are not adequate to protect and restore these important natural assets and underscores the need for reform.

Clearing across mapped biodiversity priority areas highlights governance gaps

Clearing across areas identified on the Biodiversity Values Map (BVM) underscores a critical disconnect between biodiversity mapping and on-ground regulatory outcomes. The primary purpose of designating land as having "high biodiversity value" under NSW legislation is to recognise and clearly identify areas that are particularly sensitive to disturbance and to trigger a higher level of regulatory scrutiny, avoidance requirements, and mitigation thresholds during land-use decision-making. In principle, inclusion on the BVM is intended to signal that these landscapes contain significant ecological features that warrant stronger safeguards than the broader landscape. Although the total area cleared across the BVM represented a small proportion of the mapped area, the nature of the affected categories, including threatened species habitat with potential for serious and irreversible impacts, and biodiverse riparian areas indicated that clearing occurred where protections were supposed to be in place.

More broadly, most high-value biodiversity remains outside the BVM, as the map encompasses less than 1% of mainland NSW. This highlights the urgent need to expand, update, and improve biodiversity value mapping, specifically those high biodiversity values which remain under-represented or unmapped in the BVM. In particular, concerns have been raised that the BVM is

incomplete, does not currently capture all land that contains at-risk ecological communities or sufficient area to reduce or halt gradual loss of critically endangered vegetation and species (Portfolio Committee No.7 – Planning and Environment, 2022).

Pervasive impacts on threatened species and ecological communities

Clearing occurred across the mapped distributions of 80% of EPBC-listed species in NSW, with vegetation cleared across more than five percent of the likely mapped distributions of 12 threatened species. For range-restricted and endemic plants and animals such as the grassland earless dragon, even relatively small losses substantially increase extinction risk (Ward et al., 2025). Our analysis contributes to the body of evidence highlighting the failure of the EPBC Act to protect matters of national environmental significance (Ward et al., 2019; Samuel, 2021). With recent reforms to the EBPC Act, periodic assessment is crucial to determine whether the amended laws will be effective in protecting nationally significant species and communities.

Vegetation clearing across up to 14% of the likely distribution of some threatened ecological communities, particularly those endemic to the Hunter Valley and Cumberland Plain, reflects the compounded impacts of infrastructure expansion in regions experiencing mining expansion and rapid population growth. Such incremental clearing decisions can collectively erode the biodiversity viability of already imperilled systems, even where individual actions may appear small or permissible in isolation.

Clearing of riparian vegetation risks waterway degradation

Clearing in riparian areas was concerning because riparian vegetation provides critical ecosystem processes and services, including bank stabilisation, water quality regulation, thermal buffering, and habitat connectivity. Clearing of vegetation in 33,682 ha in NSW over the study period undermines decades of investment in river restoration and catchment management. These findings align with national and global evidence that riparian areas remain vulnerable ecosystems to degradation and cumulative land-use pressures, despite their high conservation value (Capon et al., 2013; Riis et al., 2020; Lovett & Price, 2007).

Data limitations and future directions

While this analysis drew on the best available datasets, several limitations warrant consideration. Differences in spatial resolution, temporal coverage, and verification status across datasets introduced uncertainty, particularly for vegetation type classification and non-woody clearing on exempt land. However, these limitations are unlikely to have altered overarching results that clearing was extensive, widespread, and poorly aligned with national and international biodiversity conservation objectives.

Interpretation of clearing across threatened species mapped areas requires caution due to limitations associated with the threatened species 'likely to occur' spatial dataset. These layers are derived using a range of methods including minimum convex polygons, buffered occurrence records, species distribution models, and expert-refined maps, and therefore do not consistently represent verified occupied habitat or area of occupancy. In many cases, mapped "likely" distributions more closely approximate extent of occurrence or potential habitat envelopes that include large areas of unsuitable habitat. Consequently, estimates of the proportion of mapped

area cleared should not be interpreted as direct measures of habitat loss or species decline. Clearing intersecting mapped areas may overestimate impacts where species are absent from cleared locations but may also underestimate risk where highly restricted species occupy only small portions of the mapped extent and clearing disproportionately affects those locations.

Examples from range-restricted plants illustrate these challenges. *Astrotricha sp.* Howe Range is known from three highly localised populations, yet the mapped "likely" distribution covers a much larger area; although clearing detected across this mapped extent appears substantial, the actual occupied habitat is far smaller, and proportional impacts may be either over- or under-estimated depending on where clearing occurred relative to known populations. Similarly, *Acacia constablei* occurs in a small number of restricted populations, including sites within protected areas, and recent listing assessments suggest that clearing is not currently a primary threat, highlighting that mapped overlap with clearing does not necessarily indicate habitat loss. In contrast, *Pomaderris reperta* has several small populations adjacent to cleared land, meaning that clearing across mapped areas may plausibly represent increased risk, but the magnitude of habitat loss remains uncertain due to the coarse spatial representation of its distribution.

A further limitation is that clearing of a vegetation type within a species' mapped areas does not necessarily equate to loss of suitable habitat, as species may not depend on the specific vegetation removed or may persist where actual habitat remains intact. Taken together, these uncertainties mean that our analyses should be interpreted conservatively as identifying areas where there is a risk that threatened or migratory species may have been negatively affected by clearing, rather than quantifying definitive habitat loss or population impacts. Future analyses would benefit from integrating finer-scale habitat mapping, expert-validated occupancy data, and ecological dependency filters (e.g., restricting analyses to species reliant on woody vegetation) to better constrain estimates of biodiversity risk associated with vegetation clearing. In addition, future work should prioritise the integration of annual threatened species impact reporting into state monitoring frameworks, improved detection and attribution of non-woody clearing, and stronger alignment between state and Commonwealth approval systems. Without these reforms, ongoing vegetation loss will continue to erode the ecological foundations on which NSW's biodiversity, climate resilience, and natural capital depend.

5. Implications for Plan for Nature reforms in NSW

The NSW Government's recent Plan for Nature seeks to put NSW on a pathway to nature-positive reform, presenting a critical opportunity to address key drivers of biodiversity loss identified in this study. The desired outcome of nature positive is to halt nature loss by 2030, relative to a 2020 baseline, and recover nature by 2050. The findings of this report emphasise the need for reform to address the issues raised, namely:

- NSW's current environmental laws are allowing clearing of the most vulnerable areas of biodiversity, namely that of threatened species and ecological communities, irreplaceable ecosystems, and riparian habitat. Although individual clearing events may appear small or insignificant, this analysis points to their cumulative impact that could push already

threatened species closer to extinction. They are also contributing to loss of more common species and ecosystem services.

- No routine, statewide reporting on how clearing affects high value biodiversity, and with many important biodiversity and cultural values, limits NSW's ability to understand and track impact to biodiversity and undermines NSW's commitment to being on a pathway to nature-positive reform.

6. Recommendations

The Wentworth Group will soon be releasing a 'Blueprint for a healthy Country and thriving regions: Unlocking new opportunities for healthy and productive landscapes in NSW,' (the Blueprint) which outlines detailed recommendations to build on the opportunities presented by the NSW Plan for Nature and to achieve the ambition raised by the statutory review of the BC Act 2016 published in 2023.

To protect and restore areas of high biodiversity and cultural value in the long term, the Blueprint demonstrates that reforms will only be successful if we work directly with the local land managers, regional communities and Aboriginal nations, who are responsible for caring for their lands, and who understand the interconnectedness of the NSW landscape and live and breathe its extremes of prosperity and failure. By working alongside them, we can design more effective and lasting reforms that encourage more people to value, protect, and restore nature, by choice.

Our Blueprint shows how NSW can address issues identified in this study through an integrated package of measures:

1. Enable protection and restoration of important or at-risk biodiversity at scale by implementing a Land Stewardship Package that supports landholders and Aboriginal rangers to maintain, restore, and enhance biodiversity across the landscape.
2. Safeguard NSW's irreplaceable biodiversity and cultural values through targeted law reform that strengthens protections for high-risk and irreplaceable ecosystems, while providing certainty and flexibility for landholders.
3. Rebuild public trust in government by designing and delivering reforms in partnership with regional communities and Aboriginal nations, strengthening their role in identifying, protecting, and enhancing biodiversity values and cultural landscapes.
4. Improve transparency and accountability by establishing a legislated, state-wide, publicly accessible spatial platform that integrates existing monitoring data (including SLATS) to identify natural and cultural ecological values, track changes in their extent and condition, and report progress towards reform objectives.

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Appendix A

Table 1. Publicly reported data by the NSW Department of Climate Change, Energy and Water (DCCEEW) SLATS program in 2025 (NSW Environment and Heritage, 2025b; NSW Environment and Heritage, 2025c).

Variable	Categories

What type of vegetation was cleared?[1]	• Woody vegetation, defined as vegetation
	  ○ producing wood as its primary structural tissue
	  ○ typically trees, shrubs or woody vines (lianas)
	  ○ usually perennial
	• Non-woody vegetation[2], defined as
	  ○ grasses, small shrubs and groundcover

For what purpose (landcover class) was vegetation cleared?	• Agriculture (such as clearing for grazing, cropping or horticulture) • Infrastructure (such as residential, commercial, mining, public infrastructure, fences, and farm infrastructure) • Native forestry (such harvesting, establishment, thinning, forestry infrastructure) • Plantation forestry (such harvesting, establishment, thinning, forestry infrastructure) • Forestry (forestry is reported as a single category for non-woody vegetation) • Natural processes (such as fire, landslide, storm, dieback), excluded from this report
Under what authorising Act did clearing occur?	• Local Land Services Act 2016 • Native Vegetation Act 2003 • Other Acts • Presumed Allowable • Unallocated
Under which authorisation Code in the LLS Act did clearing occur?	• Invasive native species Part 2:1, Part 2:2 • Pasture expansion Part 3:1, Part 3:2, Part 3.3 • Continuing Use Part 4:1, Part 4:2, Part 4:3 • Equity Part 5:1, Part 5:2, Part 5:3, Part 5:4 • Farm Plan Part 6:1, Part 6:2 • Private native forestry
Under which categories of the Native Vegetation Regulatory Map did clearing occur?	• Category 1 Exempt land • Regulated land • Category 2 Sensitive land • Category 2 Vulnerable land • Category 2 Sensitive and Vulnerable land • Excluded land
Where did clearing occur?	• Statewide • Local Land Services region • Local Government Area

[1]A combination of automated and manual mapping techniques was used to detect both woody and non-woody native vegetation loss.

[2]Analysis of non-woody vegetation commenced in 2018 and is "only monitored, [and reported] in undisturbed grasslands – that is, where repeated disturbance or clearing has not been detected since 1990. State forests and national parks are excluded from the analysis" (NSW Environment and Heritage, 2025a) However, State-wide non-woody clearing data were used in these analyses.

Table 2. Datasets used in high biodiversity value analyses.

Dataset	Acronym	Owner	Use in analysis
State-wide Landcover and Trees Survey 2010-2023[1]	SLATS	NSW DCCEEW, provided	• Clearing was categorised by landcover class (agriculture, infrastructure, native and plantation forestry) • 14 rasters for woody clearing; • 5 rasters for non-woody clearing • Clipped to NSW. • Non-woody rasters included State-wide loss, while the NSW SLATS reported figures were derived using net clearing which excluded non-woody loss on Category 1 Excluded Land under the NVRM. As such, figures for non-woody clearing were larger than those reported by NSW DCCEEW.
Biodiversity Values Map (BVM), March 2025[2]	BVM	NSW DCCEEW, provided	One NSW vector file.
Species of National Environmental Significance[3]	SNES	Commonwealth DCCEEW, FED	One National vector file, filtered by the presence category to 'likely to occur' and clipped to NSW.
Ecological Communities of National Environmental Significance[4]	ECNES	Commonwealth DCCEEW, FED	One National vector file, filtered by the presence category to 'likely to occur' and clipped to NSW.
National Riparian corridors[5]		Capon et al., 2025, provided	One National vector file, clipped to NSW geodatabase.
NSW Vulnerable Riparian Corridors[6]		NSW DCCEEW, provided	One state-wide vector file.

[1]Provided by under a data sharing agreement. State of New South Wales Department of Climate Change, Energy, the Environment and Water 2025, State of NSW.

[2]Accessed via the Central resource for sharing and enabling environmental data in NSW (SEED). Available: https://datasets.seed.nsw.gov.au/dataset/biodiversity-values-map

[3]Accessed via Commonwealth DCCEEW Find Environmental Data. Available: https://fed.dcceew.gov.au/datasets/9d313bb078b9421ebebc835b3a69c470/about

[4]Accessed via Commonwealth DCCEEW Find Environmental Data. Available: https://fed.dcceew.gov.au/datasets/3ce27fab85194f468bcfb106e5be15ee/about

[5]Provided by Capon, S.J., Steinfeld, C.M., Pittock, J., Moggridge, B.J., Ward, A., Baumgartner, L.J., Sheldon, F., Ward, M. & Medaris, D.L. (2025). Repairing Australia's inland river and groundwater systems: nine priority actions benefits and the finance gap.

[6]Provided by under a data sharing agreement. State of New South Wales Department of Climate Change, Energy, the Environment and Water 2025, State of NSW.

Appendix B

Table 1. Threatened and migratory species and their extinction risk (status, EPBC Act) ranked by proportion of vegetation cleared across their mapped likely distribution (>2% across NSW) between 2010 and 2023 as a result of both woody and non-woody clearing. We note that this mapped area (based primarily on modelling) may or may not be actual habitat for a particular species but this vegetation clearing represents areas where there is a risk these species were negatively affected and further investigation for each species is warranted.

Threatened and migratory species	Common name	Status	Mapped likely distribution of species (ha)	Total clearing across mapped likely distribution (ha)	Clearing as a percentage of mapped likely NSW distribution (%)
Acacia constablei	Narrabarba Wattle	Critically endangered	15,025	2,475	16.5
Pomaderris reperta	Denman Pomaderris	Critically endangered	7,712	1,102	14.3
Astrotricha sp. Howe Range (D.E.Albrecht 1054)	Long-leaf Star-hair	Critically endangered	14,623	1,585	10.8
Prasophyllum spicatum	Dense Leek-orchid	Vulnerable	9,425	831	8.8
Pterostylis chlorogramma	Green-striped Greenhood	Vulnerable	2,064	158	7.6
Asterolasia beckersii	Dungowan Starbush	Critically endangered	7,054	487	6.9
Lissolepis coventryi	Swamp Skink, Eastern Mourning Skink	Endangered	39,013	2,631	6.7
Persoonia pauciflora	North Rothbury Persoonia	Critically endangered	5,502	355	6.5
Lasiopetalum longistamineum		Endangered	3,231	208	6.4
Pterostylis cheraphila	Floodplain Rustyhood	Vulnerable	11,916	755	6.3
Hakea archaeoides		Endangered	5,996	379	6.3
Thelymitra matthewsii	Spiral Sun-orchid	Endangered	73,014	3,928	5.4
Hibbertia puberula subsp. glabrescens		Endangered	921	43	4.7
Pultenaea parviflora		Endangered	66,402	2,715	4.1
Senecio behrianus	Stiff Groundsel, Behr's Groundsel	Endangered	4,310	168	3.9
Genoplesium vernale	East Lynne Midge-orchid	Vulnerable	164,216	6,353	3.9
Zieria obcordata	Granite Zieria	Endangered	3,614	135	3.7

Threatened and migratory species	Common name	Status	Mapped likely distribution of species (ha)	Total clearing across mapped likely distribution (ha)	Clearing as a percentage of mapped likely NSW distribution (%)
Pelargonium sp. Striatellum (G.W.Carr 10345)	Omeo Stork's-bill	Endangered	10,372	376	3.6
Zieria prostrata	Headland Zieria	Endangered	1,723	62	3.6
Acacia courtii	Three Brothers Wattle, Brother Wattle, Northern Brother Wattle	Endangered	15,227	548	3.6
Genoplesium plumosum	Plumed Midge-orchid, Tallong Midge Orchid	Endangered	2,537	91	3.6
Eucalyptus sp. Cattai (Gregson s.n., 28 Aug 1954)		Endangered	17,665	610	3.5
Potorous longipes	Long-footed Potoroo	Endangered	32,106	1,076	3.4
Philotheca papillata		Endangered	428	14	3.2
Zieria adenophora	Araluen Zieria	Critically endangered	1,106	35	3.1
Bertya sp. Clouds Creek (M.Fatemi 4)		Endangered	14,586	453	3.1
Boronia umbellata	Orara Boronia	Vulnerable	35,176	1,042	3.0
Potorous tridactylus trisulcatus	Long-nosed Potoroo (southern mainland)	Vulnerable	545,539	15,992	2.9
Pimelea spicata	Spiked Rice-flower	Endangered	191,733	5,609	2.9
Caladenia tessellata	Thick-lipped Spider-orchid, Daddy Long-legs	Vulnerable	635,021	18,481	2.9
Bertya opponens		Endangered	59,591	1,694	2.8
Solanum sulphureum		Endangered	24,410	687	2.8
Micromyrtus minutiflora		Endangered	24,636	665	2.7
Samadera sp. Moonee Creek (J.King s.n. Nov. 1949)		Endangered	115,341	3,100	2.7
Corunastylis sp. Charmhaven (NSW 896673)	Wyong Midge Orchid 2	Critically endangered	31,274	839	2.7

Threatened and migratory species	Common name	Status	Mapped likely distribution of species (ha)	Total clearing across mapped likely distribution (ha)	Clearing as a percentage of mapped likely NSW distribution (%)
Euastacus gamilaroi	Gamilaroi Crayfish, Gamilaroi Spiny Crayfish, Hanging Rock Crayfish	Endangered	22,107	588	2.7
Caladenia amnicola		Endangered	10,653	283	2.7
Delma vescolineata	Hunter Valley Delma	Endangered	197,529	5,145	2.6
Euastacus bidawalus	Bidhawal Crayfish, Bidawal Crayfish, East Gippsland Spiny Crayfish	Endangered	64,996	1,664	2.6
Acacia lanigera var. gracilipes		Endangered	5,414	138	2.6
Philotheca obovatifolia	Mountain Wax-flower	Vulnerable	58,845	1,475	2.5
Corunastylis insignis	Wyong Midge Orchid 1, Variable Midge Orchid 1	Critically endangered	39,898	961	2.4
Prasophyllum sp. Wybong (C.Phelps ORG 5269)	a leek-orchid	Critically endangered	177,807	4,280	2.4
Olearia flocktoniae	Dorrigo Daisy-bush	Endangered	101,171	2,414	2.4
Westringia davidii		Endangered	8,218	196	2.4
Tympanocryptis lineata	Canberra Grassland Earless Dragon, Lined Earless Dragon	Critically endangered	751	18	2.3
Lobelia claviflora		Endangered	13,117	302	2.3
Pachycephala rufogularis	Red-lored Whistler	Vulnerable	518,047	11,804	2.3
Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern)	Endangered	812,095	18,444	2.3
Melichrus sp. Newfoundland State Forest (P.Gilmour 7852)	Hairy Melichrus	Endangered	114,344	2,531	2.2
Kardomia silvestris	Woodland Babingtonia	Endangered	145,038	3,194	2.2
Parsonsia dorrigoensis	Milky Silkpod	Endangered	615,203	13,517	2.2

Threatened and migratory species	Common name	Status	Mapped likely distribution of species (ha)	Total clearing across mapped likely distribution (ha)	Clearing as a percentage of mapped likely NSW distribution (%)
Callitris oblonga subsp. corangensis	Corang Pine	Critically endangered	3,534	77	2.2
Pultenaea elusa	Elusive Bush-pea	Endangered	5,076	111	2.2
Acacia meiantha		Endangered	5,983	131	2.2
Angophora inopina	Charmhaven Apple	Vulnerable	104,584	2,266	2.2
Acacia curranii	Curly-bark Wattle	Vulnerable	762,674	16,448	2.2
Allocasuarina glareicola		Endangered	77,251	1,642	2.1
Persoonia nutans	Nodding Geebung	Endangered	42,441	887	2.1
Androcalva rosea	Sandy Hollow Commersonia	Endangered	40,807	852	2.1
Leionema ralstonii		Endangered	16,931	348	2.1
Pommerhelix duralensis	Dural Land Snail	Endangered	59,600	1,221	2.0
Genoplesium rhyoliticum	Pambula Midge-orchid	Endangered	15,151	309	2.0
Eucalyptus aquatica	Mountain Swamp Gum, Broad-leaved Sallee, Broad-leaved Sally	Critically endangered	2,743	55	2.0
Litoria aurea	Green and Golden Bell Frog	Vulnerable	1,057,354	20,739	2.0
Heleioporus australiacus flavopunctatus	Southern Owl Frog, Southern Giant Burrowing Frog	Endangered	836,717	16,312	1.9
Asperula asthenes	Trailing Woodruff	Vulnerable	216,426	4,193	1.9
Corunastylis littoralis	Tuncurry Midge Orchid	Critically endangered	45,758	853	1.9
Litoria watsoni	Southern Heath Frog, Watson's Tree Frog	Endangered	902,516	16,734	1.9
Boronia deanei subsp. deanei		Endangered	25,837	474	1.8
Marsdenia longiloba	Clear Milkvine	Vulnerable	1,016,145	18,595	1.8
Melaleuca biconvexa	Biconvex Paperbark	Vulnerable	107,066	1,930	1.8
Eucalyptus tetrapleura	Square-fruited Ironbark	Vulnerable	257,905	4,588	1.8
Eucalyptus kartzoffiana	Araluen Gum	Vulnerable	7,735	137	1.8
Angophora robur	Sandstone Rough-barked Apple	Vulnerable	176,745	3,125	1.8

Threatened and migratory species	Common name	Status	Mapped likely distribution of species (ha)	Total clearing across mapped likely distribution (ha)	Clearing as a percentage of mapped likely NSW distribution (%)
Persoonia hindii		Endangered	34,702	612	1.8
Ozothamnus tesselatus		Endangered	297,188	5,195	1.7
Eucalyptus parvula	Small-leaved Gum	Vulnerable	140,704	2,454	1.7
Saltuarius moritzi	New England Leaf-tailed Gecko, Moritz's Leaf-tailed Gecko	Endangered	1,728,136	30,119	1.7
Euastacus simplex	Simple Crayfish, Small Mountain Crayfish	Endangered	51,587	895	1.7
Triplarina imbricata		Endangered	78,488	1,357	1.7
Banksia vincentia		Endangered	2,576	44	1.7
Anomalopus mackayi	Five-clawed Worm-skink, Long-legged Worm-skink	Vulnerable	2,275,296	39,020	1.7
Mordacia praecox	Non-parasitic Lamprey, Precocious Lamprey	Endangered	533,914	9,141	1.7
Grevillea parviflora subsp. parviflora	Small-flower Grevillea	Vulnerable	285,722	4,847	1.7
Pomaderris parrisiae	Parris' Pomaderris	Vulnerable	522,307	8,788	1.7
Hemiaspis damelii	Grey Snake	Endangered	10,738,486	180,080	1.7
Lepidium aschersonii	Spiny Peppercress	Vulnerable	670,497	11,243	1.7
Kardomia prominens		Endangered	27,616	461	1.7
Cryptostylis hunteriana	Leafless Tongue-orchid	Vulnerable	2,766,419	45,542	1.6
Grevillea quadricauda		Endangered	50,690	817	1.6
Acacia pubescens	Downy Wattle, Hairy Stemmed Wattle	Vulnerable	211,915	3,385	1.6
Thelymitra adorata	Wyong Sun Orchid	Critically endangered	69,426	1,097	1.6
Prostanthera junonis	Somersby Mintbush	Endangered	14,858	234	1.6
Tympanocryptis osbornei	Monaro Grassland Earless Dragon	Endangered	327,920	5,139	1.6
Dasyornis brachypterus	Eastern Bristlebird	Endangered	899,758	14,089	1.6

Threatened and migratory species	Common name	Status	Mapped likely distribution of species (ha)	Total clearing across mapped likely distribution (ha)	Clearing as a percentage of mapped likely NSW distribution (%)
Callitris oblonga	Pygmy Cypress-pine, Pigmy Cypress-pine, Dwarf Cypress-pine	Vulnerable	18,511	290	1.6
Banksia paludosa subsp. astrolux	a banksia	Critically endangered	3,570	56	1.6
Corynocarpus rupestris subsp. rupestris	Glenugie Karaka	Vulnerable	11,534	180	1.6
Euastacus spinichelatus	Small Crayfish	Endangered	31,413	491	1.6
Chiloglottis anaticeps	Duck's-head Wasp-orchid	Endangered	180,073	2,814	1.6
Rhodomyrtus psidioides	Native Guava	Critically endangered	2,645,968	41,156	1.6
Correa baeuerlenii	Chef's Cap	Vulnerable	131,971	2,048	1.6
Eucalyptus scopulorum		Endangered	5,272	81	1.5
Tetratheca juncea	Black-eyed Susan	Vulnerable	412,194	6,267	1.5
Eucalyptus recurva	Mongarlowe Mallee	Critically endangered	4,845	73	1.5
Westringia kydrensis		Endangered	4,269	64	1.5
Mixophyes iteratus	Giant Barred Frog, Southern Barred Frog	Vulnerable	3,158,699	47,233	1.5
Tylophora woollsii		Endangered	2,155,952	32,183	1.5
Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover	Vulnerable	904,598	13,479	1.5
Allocasuarina simulans	Nabiac Casuarina	Vulnerable	10,084	150	1.5
Zieria formosa	Shapely Zieria	Endangered	198	3	1.5
Pterostylis saxicola	Sydney Plains Greenhood	Endangered	288,064	4,224	1.5
Lampropholis elongata	Long Sunskink	Critically endangered	9,909	144	1.5
Cuculus optatus	Oriental Cuckoo, Horsfield's Cuckoo	Migratory	165,062	2,399	1.5
Fontainea sp. Coffs Harbour (A.S.Benwell 341, NSW1102027)		Endangered	6,174	90	1.5

Threatened and migratory species	Common name	Status	Mapped likely distribution of species (ha)	Total clearing across mapped likely distribution (ha)	Clearing as a percentage of mapped likely NSW distribution (%)
Caladenia atroclavia	Black-clubbed Spider-orchid	Endangered	33,441	484	1.4
Galaxias terenasus	Roundsnout Galaxias	Endangered	297,911	4,294	1.4
Asterolasia buxifolia		Endangered	309	4	1.4
Acronychia littoralis	Scented Acronychia	Endangered	361,544	5,199	1.4
Prasophyllum innubum	Brandy Marys Leek-orchid	Critically endangered	110,447	1,584	1.4
Prasophyllum keltonii	Kelton's Leek-orchid	Critically endangered	110,447	1,584	1.4
Melichrus gibberagee	Narrow-leaf Melichrus	Critically endangered	2,698	39	1.4
Eucalyptus benthamii	Camden White Gum, Nepean River Gum	Critically endangered	28,951	413	1.4
Eucalyptus parramattensis subsp. decadens	Earp's Gum, Earp's Dirty Gum	Vulnerable	68,579	977	1.4
Litoria daviesae	Davies' Tree Frog	Vulnerable	522,812	7,411	1.4
Macrozamia johnsonii		Endangered	96,531	1,366	1.4
Potorous tridactylus tridactylus	Long-nosed Potoroo (northern)	Vulnerable	3,893,435	54,565	1.4
Philoria sphagnicola	Sphagnum Frog	Vulnerable	663,962	9,293	1.4
Persicaria elatior	Knotweed, Tall Knotweed	Vulnerable	797,126	11,152	1.4
Argynnis hyperbius inconstans	Australian Fritillary	Critically endangered	131,716	1,840	1.4
Phaius australis	Lesser Swamp-orchid	Endangered	768,870	10,693	1.4
Diuris praecox	Newcastle Doubletail	Vulnerable	282,100	3,886	1.4
Persoonia glaucescens	Mittagong Geebung	Vulnerable	51,667	707	1.4
Pterostylis metcalfei	Metcalfe's Greenhood	Endangered	95,932	1,311	1.4
Macrozamia cranei		Endangered	10,596	144	1.4
Leipoa ocellata	Malleefowl	Vulnerable	11,245,770	152,145	1.4
Hibbertia marginata		Endangered	138,934	1,872	1.3
Euastacus polysetosus	Many-bristled Crayfish	Endangered	26,288	354	1.3

Threatened and migratory species	Common name	Status	Mapped likely distribution of species (ha)	Total clearing across mapped likely distribution (ha)	Clearing as a percentage of mapped likely NSW distribution (%)
Philoria pughi	Pugh's Sphagnum Frog	Endangered	16,092	216	1.3
Almaleea cambagei	Torrington Pea	Endangered	59,373	792	1.3
Myuchelys belli	Western Sawshelled Turtle	Endangered	993,697	13,219	1.3
Diuris pedunculata	Small Snake Orchid, Two-leaved Golden Moths, Golden Moths, Cowslip Orchid, Snake Orchid	Endangered	435,919	5,778	1.3
Haloragis exalata subsp. exalata	Wingless Raspwort, Square Raspwort	Vulnerable	346,899	4,571	1.3
Monarcha trivirgatus	Spectacled Monarch	Migratory	4,380,424	57,443	1.3
Furina dunmalli	Dunmall's Snake	Vulnerable	236,520	3,098	1.3
Arthraxon hispidus	Hairy-joint Grass	Vulnerable	4,878,577	63,730	1.3
Eucalyptus rubida subsp. barbigerorum	Blackbutt Candlebark	Vulnerable	214,854	2,797	1.3
Swainsona pyrophila	Yellow Swainson-pea	Vulnerable	951,607	12,356	1.3
Acacia bynoeana	Bynoe's Wattle, Tiny Wattle	Vulnerable	371,499	4,816	1.3
Androcalva procumbens		Endangered	1,502,056	19,437	1.3
Cadellia pentastylis	Ooline	Vulnerable	3,232,583	41,768	1.3
Euastacus clarkae	Ellen Clark's Crayfish, Clark's Crayfish	Endangered	17,641	228	1.3
Grevillea masonii		Endangered	10,356	133	1.3
Pimelea venosa		Endangered	5,724	73	1.3
Mixophyes balbus	Stuttering Frog, Southern Barred Frog (in Victoria)	Vulnerable	2,636,960	33,774	1.3
Eucalyptus glaucina	Slaty Red Gum	Vulnerable	1,387,841	17,522	1.3
Pseudomys pilligaensis	Pilliga Mouse, Poolkoo	Vulnerable	587,858	7,379	1.3
Gallinago hardwickii	Latham's Snipe, Japanese Snipe	Vulnerable	11,226,705	140,330	1.2

Threatened and migratory species	Common name	Status	Mapped likely distribution of species (ha)	Total clearing across mapped likely distribution (ha)	Clearing as a percentage of mapped likely NSW distribution (%)
Eucalyptus nicholii	Narrow-leaved Peppermint, Narrow-leaved Black Peppermint	Vulnerable	2,567,104	31,997	1.2
Tylophora linearis		Endangered	1,751,295	21,814	1.2
Macadamia tetraphylla	Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut	Vulnerable	925,172	11,455	1.2
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	Vulnerable	27,073,910	334,207	1.2
Commersonia prostrata	Dwarf Kerrawang	Endangered	234,130	2,885	1.2
Polytelis swainsonii	Superb Parrot	Vulnerable	24,023,080	295,457	1.2
Lathamus discolor	Swift Parrot	Critically endangered	8,063,170	98,180	1.2
Prasophyllum bagoense	Bago Leek-orchid	Critically endangered	150,654	1,833	1.2
Persoonia bargoensis	Bargo Geebung	Endangered	47,124	572	1.2
Euphrasia arguta		Endangered	1,422,685	17,108	1.2
Pomaderris delicata		Endangered	97,775	1,173	1.2
Geophaps scripta scripta	Squatter Pigeon (southern)	Vulnerable	282,960	3,373	1.2
Callistemon pungens		Endangered	1,901,192	22,639	1.2
Galaxias brevissimus	Short-tail Galaxias	Critically endangered	13,676	163	1.2
Monarcha melanopsis	Black-faced Monarch	Migratory	10,047,007	119,472	1.2
Prostanthera askania	Tranquillity Mintbush, Tranquility Mintbush	Endangered	6,084	72	1.2
Litoria subglandulosa	New England Tree Frog, Glandular Frog	Vulnerable	1,100,409	13,045	1.2
Dichanthium setosum	bluegrass	Vulnerable	12,163,441	143,543	1.2
Homoranthus lunatus		Endangered	93,690	1,105	1.2

Threatened and migratory species	Common name	Status	Mapped likely distribution of species (ha)	Total clearing across mapped likely distribution (ha)	Clearing as a percentage of mapped likely NSW distribution (%)
Cynanchum elegans	White-flowered Wax Plant	Endangered	5,447,956	63,955	1.2
Swainsona plagiotropis	Red Darling-pea, Red Swainson-pea	Vulnerable	402,376	4,714	1.2
Thalassarche sp. nov.	Pacific Albatross	Migratory	8,273	97	1.2
Thalassarche bulleri platei	Northern Buller's Albatross, Pacific Albatross	Vulnerable	8,273	97	1.2
Thalassarche bulleri	Buller's Albatross, Pacific Albatross	Vulnerable	8,273	97	1.2
Homoranthus elusus		Endangered	216	3	1.2
Petauroides volans	Greater Glider (southern and central)	Endangered	9,610,531	111,445	1.2
Bossiaea oligosperma		Endangered	27,686	320	1.2
Nyctophilus corbeni	Corben's Long-eared Bat, South-eastern Long-eared Bat	Vulnerable	26,083,786	300,777	1.2
Sannantha whitei		Endangered	859	10	1.2
Diuris flavescens	Pale Yellow Doubletail, Wingham Doubletail	Critically endangered	20,950	240	1.1
Homoranthus prolixus		Endangered	208,246	2,379	1.1
Rostratula benghalensis (sensu lato)	Painted Snipe	Migratory	47,601,236	543,438	1.1
Rostratula australis	Australian Painted Snipe	Endangered	47,601,240	543,438	1.1
Myriophyllum porcatum	Ridged Water-milfoil	Vulnerable	32,209	366	1.1
Saltuarius wyberba	Granite Leaf-tailed Gecko	Endangered	530,718	5,993	1.1
Paspalidium grandispiculatum	a grass	Vulnerable	8,646	97	1.1
Motacilla flava	Yellow Wagtail	Migratory	729,816	8,205	1.1
Pseudomys fumeus	Smoky Mouse, Konoom	Endangered	759,710	8,518	1.1
Notamacropus parma	Parma Wallaby	Vulnerable	2,942,428	32,956	1.1

Threatened and migratory species	Common name	Status	Mapped likely distribution of species (ha)	Total clearing across mapped likely distribution (ha)	Clearing as a percentage of mapped likely NSW distribution (%)
Phascolarctos cinereus	Koala	Endangered	34,387,080	385,018	1.1
Tringa nebularia	Common Greenshank, Greenshank	Endangered	2,117,184	23,651	1.1
Rhodamnia rubescens	Scrub Turpentine, Brown Malletwood	Critically endangered	6,623,288	73,890	1.1
Syzygium paniculatum	Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry	Vulnerable	1,407,264	15,695	1.1
Zieria lasiocaulis	Willi Willi Zieria	Endangered	64,625	715	1.1
Eucalyptus mckieana	McKie's Stringybark	Vulnerable	720,986	7,970	1.1
Phyllota humifusa	Dwarf Phyllota	Vulnerable	19,823	218	1.1
Selaginella andrewsii	Tallebudgera spikemoss	Vulnerable	9,442	104	1.1
Uperoleia mahonyi	Mahony's Toadlet	Endangered	37,004	405	1.1
Botaurus poiciloptilus	Australasian Bittern	Endangered	8,750,681	95,495	1.1
Eulamprus leuraensis	Blue Mountains Water Skink	Endangered	53,885	587	1.1
Eidothea hardeniana	Nightcap Oak	Critically endangered	2,505	27	1.1
Litoria castanea	Yellow-spotted Tree Frog, Yellow-spotted Bell Frog	Critically endangered	2,080,652	22,594	1.1
Saltuarius kateae	Kate's Leaf-tail Gecko	Endangered	54,413	591	1.1
Macrozamia occidua		Endangered	14,555	158	1.1
Dodonaea procumbens	Trailing Hop-bush	Vulnerable	789,565	8,540	1.1
Xerochrysum palustre	Swamp Everlasting, Swamp Paper Daisy	Vulnerable	1,084,644	11,724	1.1
Petaurus australis australis	Yellow-bellied Glider (south-eastern)	Vulnerable	14,699,898	158,765	1.1
Grantiella picta	Painted Honeyeater	Vulnerable	51,406,856	554,034	1.1

Threatened and migratory species	Common name	Status	Mapped likely distribution of species (ha)	Total clearing across mapped likely distribution (ha)	Clearing as a percentage of mapped likely NSW distribution (%)
Caladenia attenuata	Duramana Fingers	Critically endangered	2,278	25	1.1
Pseudomys oralis	Hastings River Mouse, Koontoo	Endangered	1,099,527	11,827	1.1
Stagonopleura guttata	Diamond Firetail	Vulnerable	43,619,948	468,122	1.1
Nannoperca oxleyana	Oxleyan Pygmy Perch	Endangered	134,340	1,437	1.1
Zieria ingramii	Ingram's Zieria, Keith's Zieria	Endangered	159,212	1,699	1.1
Rhizanthella slateri	Eastern Underground Orchid	Endangered	184,708	1,956	1.1
Pseudomys novaehollandiae	New Holland Mouse, Pookila	Vulnerable	4,867,694	51,213	1.1
Diuris eborensis		Endangered	1,127,618	11,771	1.0
Dasyurus maculatus maculatus (SE mainland population)	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)	Endangered	20,118,424	209,679	1.0
Pultenaea parrisiae		Endangered	26,314	274	1.0
Ardea ibis	Cattle Egret	Migratory	39,502	411	1.0
Calotis glandulosa	Mauve Burr-daisy	Vulnerable	800,005	8,323	1.0
Prostanthera palustris	Swamp Mint-bush	Critically endangered	31,311	325	1.0
Zieria citriodora	Lemon-scented Zieria	Vulnerable	20,483	210	1.0
Acacia pycnostachya	Bolivia Wattle	Vulnerable	33,820	345	1.0
Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	13,670,890	139,314	1.0
Haliaeetus leucogaster	White-bellied Sea-Eagle	Migratory	35,346,172	360,157	1.0
Pterostylis gibbosa	Illawarra Greenhood, Rufa Greenhood, Pouched Greenhood	Endangered	220,809	2,242	1.0
Pandion haliaetus	Osprey	Migratory	1,369,378	13,771	1.0
Uvidicolus sphyrurus	Border Thick-tailed Gecko, Granite Belt Thick-tailed Gecko	Vulnerable	2,839,630	28,440	1.0
Haloragis exalata subsp. velutina	Tall Velvet Sea-berry	Vulnerable	1,558,364	15,607	1.0

Threatened and migratory species	Common name	Status	Mapped likely distribution of species (ha)	Total clearing across mapped likely distribution (ha)	Clearing as a percentage of mapped likely NSW distribution (%)
Chalinolobus dwyeri	Large-eared Pied Bat, Large Pied Bat	Endangered	11,246,989	112,260	1.0
Melanodryas cucullata cucullata	South-eastern Hooded Robin, Hooded Robin (south-eastern)	Endangered	37,707,252	373,921	1.0

Table 2. Threatened ecological communities and their extinction risk (status, EPBC Act) ranked by proportion of vegetation clearing across their mapped likely distribution (>1% across NSW) between 2010 and 2023 as a result of both woody and non-woody clearing. We note that this mapped area (based primarily on modelling) may or may not be actual threatened ecological communities but this vegetation clearing represents areas where there is a risk these communities were negatively affected and further investigation for each community is warranted.

Threatened ecological community	Status	Vegetation cleared across mapped likely distribution (ha)	Vegetation cleared as a proportion of mapped likely distribution (%)
Warkworth Sands Woodland of the Hunter Valley	Critically Endangered	266	14.2
Central Hunter Valley eucalypt forest and woodland	Critically Endangered	3,373	5.4
Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest	Critically Endangered	1,429	5.0
Elderslie Banksia Scrub Forest in the Sydney Basin Bioregion	Critically Endangered	22	3.5
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	Endangered	111	2.7
Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion	Critically Endangered	64	2.7
Kurri sand swamp woodland of the Sydney Basin bioregion	Endangered	718	2.3
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	180,704	2.0
New England Peppermint (Eucalyptus nova-anglica) Grassy Woodlands	Critically Endangered	669	2.0
Shale Sandstone Transition Forest of the Sydney Basin Bioregion	Critically Endangered	377	1.7
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	52,129	1.7
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	73,259	1.7
Weeping Myall Woodlands	Endangered	19,253	1.6
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	8,997	1.6
Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion	Endangered	84	1.6
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	Endangered	18,048	1.6
Western Sydney Dry Rainforest and Moist Woodland on Shale	Critically Endangered	82	1.6
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	49,940	1.5

Threatened ecological community	Status	Vegetation cleared across mapped likely distribution (ha)	Vegetation cleared as a proportion of mapped likely distribution (%)
Illawarra and south coast lowland forest and woodland ecological community	Critically Endangered	161	1.5
Natural Grasslands of the Murray Valley Plains	Critically Endangered	2,463	1.4
Araluen Scarp Grassy Forest	Endangered	757	1.4
Mount Kaputar land snail and slug community	Endangered	1,304	1.4
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	341	1.3
Turpentine-Ironbark Forest of the Sydney Basin Bioregion	Critically Endangered	80	1.2
Lowland Grassy Woodland in the South East Corner Bioregion	Critically Endangered	378	1.2
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	854	1.2