

Australia's Threatened Species Index

Summary of trends up to 2022 Released December 2025

Dated: Tuesday, 25 November 2025

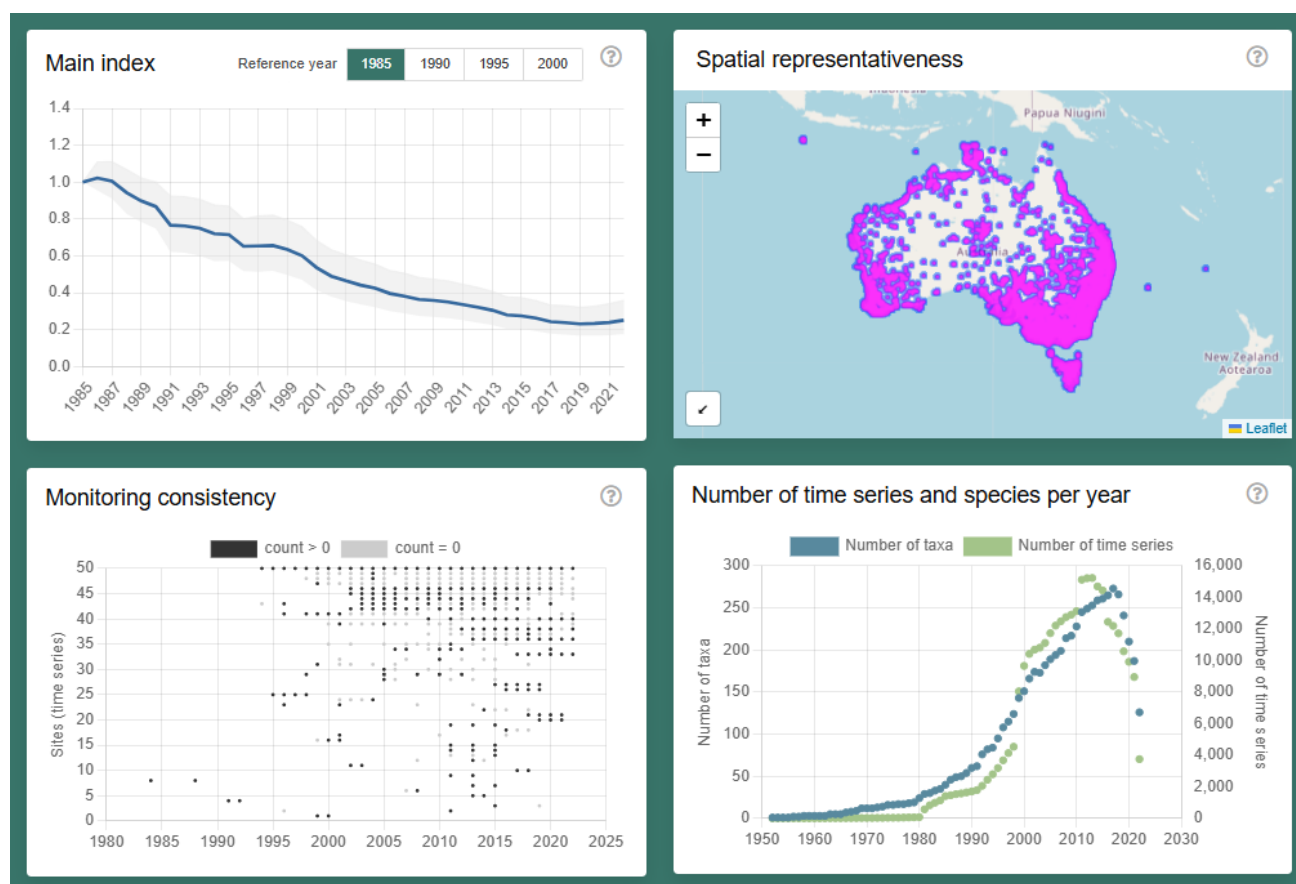


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Background

Over 2,000 species and subspecies of flora and fauna are classified as near-threatened, threatened or extinct in Australia. Monitoring of threatened species plays a critical role in assessing how populations are changing over time and helps to identify where management actions are and are not working.

In recent decades, hundreds of threatened species have been monitored across Australia by dozens of different government, non-government, and community groups. Previously, however, there has been no means of bringing these data together to assess long-term trends, and to assess the status of different groups of species across different regions of Australia.

The Threatened Species Index (TSX)

The TSX aims to provide reliable and robust measures of change in the relative abundance of Australia's threatened and near-threatened species, with data currently collated for birds, mammals, plants and amphibians (with reptiles entering the index this year). Understanding these changes in species populations is crucial for monitoring progress towards Australia's conservation targets.

The TSX has been managed since 2021 by the Australian Government's NCRIS-enabled ecosystem observatory, TERN Australia. Formerly, it came under the Australian Government's National Environmental Science Program, where it was established in 2016 with the not-for-profit organisation BirdLife Australia, as part of the *Threatened Species Recovery Hub*.

The TSX brings together thousands of monitoring datasets from across Australia and releases trend updates annually. Trends are calculated using the *Living Planet Index* (LPI) methodology, developed by the World Wildlife Fund and the Zoological Society of London. The LPI method enables trends from different species to be aggregated together at a national scale, as well as across jurisdictional, taxonomic and other groupings (e.g., for different functional groups and management categories).

Assembling all the data is a big task and is being staged. Data and trends for threatened birds, mammals and plants were released between 2018 and 2020. In 2021 and 2022, new data was collated for the existing groups, and in 2023 a comprehensive update to the *Threatened Bird Index* occurred. In 2024, a pilot *Threatened Frog Index* was created, representing the first addition of a new index to the TSX since 2020. These interim frog trends were updated and finalised in 2025, coinciding with the development of a pilot *Threatened Reptile Index*, which we aim to finalise in 2026.

What is this document for?

This document provides government and non-government data contributors and collaborators from across Australia with a summary of the results from the *Threatened Species Index 2025*. In this document you will find national trends along with a break-down of trends among species groups. Similar information is provided at the state and territory levels. The full set of trends can be viewed <https://tsx.org.au/tsx2025>. See also **Figure A1** in the Appendix illustrating how to interpret the Threatened Species Index trend graphs.

Note that a 3-year lag is implemented, given the time it takes for the data collectors to process, archive, and share the data with the index. **As such, the 2025 release includes trends up to 2022.** Note also that only species and subspecies classified as threatened or near-threatened according to the Australian Government's Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), the International Union for Conservation of Nature's (IUCN) Red List and/or The Action Plan for Australian Birds 2020 (Garnett & Baker, 2022) are considered for inclusion in the Threatened Species Index 2025.

Further information

If you require clarification of any of the content in this document, would like more information about the project or to become a *Friend of TSX* and receive updates on our progress of the project, please contact the TSX Team at tsx@tern.org.au.

The Threatened Species Index 2025

The dataset

<i>Taxa represented</i>	395 (up 60 from 2024)
○ <i>Birds</i>	73 (same as 2024)
○ <i>Mammals</i>	92 (up 6 from 2024)
○ <i>Plants</i>	178 (up 29 from 2024)
○ <i>Amphibians</i>	28 (up 1 from 2024)
○ <i>Reptiles</i>	24 (new group in 2025)
<i>EPBC Act listed taxa represented</i>	355
<i>National priority taxa represented</i>	49
<i>IUCN listed taxa represented (threatened)</i>	165
<i>IUCN listed taxa represented (near-threatened)</i>	41
<i>2020 Bird Action Plan listed taxa represented</i>	59
<i>Total data sources</i>	401 (up 85 from 2024)
<i>Total number of time series</i>	25,164 (up 921 from 2024)

Key findings: national trends

Overall trends

At the national scale, threatened and near-threatened species have experienced significant long-term losses, with an **average decline of 75% in relative abundance since 1985** for the 395 taxa represented (**Figure 1, Tables A1 and A2, see [here](#) for a list of taxa). Overall, the abundance of threatened and near-threatened species in the TSX dataset has declined by 1.6% per annum between 2000 and 2022.**

From 2021 to 2022, the overall trend across all groups shows a slight increase of 1.2%, based on data from 126 taxa and 3,754 time series. This change is largely driven by the stabilisation and increases observed among mammals, plants, and birds during this period (**Figure 1**).

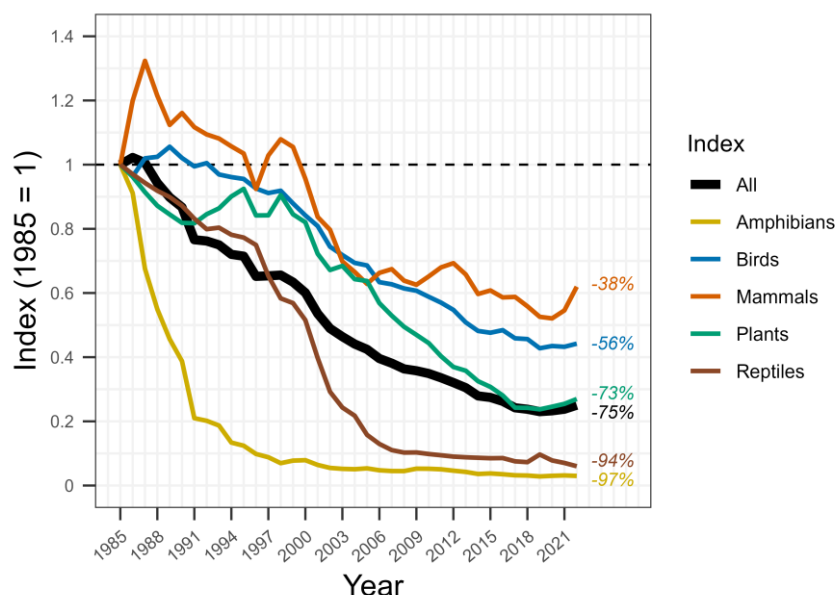


Figure 1. The Threatened Species Index 2025, showing trends up to 2022 across all taxa and separately for birds, mammals, plants, amphibians and reptiles. Each line shows the average change in relative abundance compared to the baseline year of 1985 where the index value is set to 1. Confidence limits for the 2022 index values are provided in Table A1.

The trend for **birds** follows a similar shape to the main index, with an **average decline in relative abundance of 56% since 1985** across 73 taxa (**Figure 1**). Overall, birds have declined by an average 1.8% per annum between 2000 and 2022.

The trend for **mammals** is less severe, with an **average decline in relative abundance of 38% since 1985** across 92 taxa (**Figure 1**). Overall, mammals have declined by an average 1.5% per annum between 2000 and 2022 but have displayed an overall relatively stable trend since 2005. The notable uptick for mammals observed between 2021 and 2022 (+7%) is driven by an average increase in relative abundance in 2022 across all jurisdictions, except New South Wales and the Australian Capital Territory (combined).

Across the 178 **plants** for which TSX data are available, there was an **average decline in relative abundance of 73% since 1985** (**Figure 1**). Overall, plants have declined by an average 2.5% per annum between 2000 and 2022.

The trend for **amphibians** shows a precipitous decline through to 2000. For the 28 taxa covered by the current dataset, **relative abundance has declined by 97% on average since 1985** (**Figure 1**). Overall, amphibians have declined by an average 0.2% per annum between 2000 and 2022.

The trend for **reptiles** shows a near-linear decline through to 2005. For the 24 taxa covered by the current dataset, **relative abundance has declined by 94% on average since 1985** (**Figure 1**). Overall, reptiles have declined by an average 2.1% per annum between 2000 and 2022. While there has been some stabilisation after 2005, declines are ongoing, albeit at a slower pace.

The **addition of reptile data** had a small but measurable impact on the overall TSX, with an **average decline of 75% since 1985 when reptiles are included, compared to 73% when they are excluded** (**Figure A2**). The inclusion of reptiles has further strengthened the robustness of the index.

Trends for National Priority Species

The TSX holds time-series data for 49 of Australia's 110 National Priority Species, as listed under the Australian Government's Threatened Species Action Plan 2022-2032. This includes 9 bird taxa, 15 mammal taxa, 13 plant taxa, 5 amphibian taxa, and 7 reptile taxa (**see Table A3**), totalling 2,315 time series.

The average trend across these datasets is shown in **Figure 2**. On average, the relative abundance of the 49 National Priority Species for which the TSX holds data has **declined by 82% since 1990**. Declines were steep from 1998, with some stabilisation since 2011.

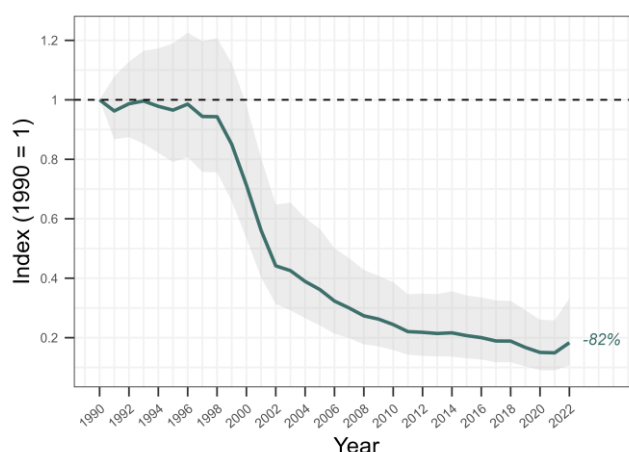


Figure 2. The trend for National Priority Species between 1990 and 2022. The green line shows the average change in relative abundance compared to the baseline year of 1990 where the index value is set to 1. The shaded areas show the confidence limits.

Comparison of trends among species groups

Data collated for the TSX may be used to compare the trends for major phylogenetic, morphological or ecological species groups within the 5 major groups currently represented – birds, mammals, plants, amphibians and reptiles. **Table 1** provides a comparison of trends for the species groupings monitored in the TSX, since the year 2000.

Table 1. Species groups ranked according to their change in abundance since 2000. The number of taxa included in each group, and the number of monitoring datasets (time series) available for each group, are also provided.

Group	Percent change since 2000	Number of taxa	Number of time series
Terrestrial Breeding Amphibians	-95.2% [#]	7	183
Herbaceous Plants	-88.5%	23	164
Freshwater Reptiles	-76.5% ^{^ε}	6 ^γ	17
Orchids	-75.2%	42	322
Chytrid non-impacted Amphibians	-72.8% [†]	9	87
Wetland Breeding Amphibians	-72.4% ^{#β}	9	507
Terrestrial Reptiles	-71.7% [^]	13 ^γ	125
Shrubs	-58.1%	98 ^π	532
Shoreline (Migratory) Birds	-56.4%	13	7,314
Chytrid-impacted Amphibians	-54.4% [†]	19	644
Critical Weight Range Mammals	-47.9%	63	2,249
Terrestrial Birds	-46.0%	44	12,224
Terrestrial Mammals	-40.9%	84	3,030
Marine Birds	-19.9%	15	588
Stream Breeding Amphibians	-15.9% ^{#β}	14	84
Small Mammals	-15.8%	15	407
Trees	-5.5%	23 ^π	79
Marine Reptiles	+7.1% ^{^φ}	7	24
Large Mammals	+25.7%	14	429
Marine Mammals	+42.9%	8	55

[#] This trend is from 2001, given insufficient data in 2000 across all breeding-related amphibian groupings.

[†] This trend is from 1997, given insufficient data in 2000 across all chytrid-related amphibian groupings.

[^] This trend is from 2005, given insufficient data in 2000 across all habitat-related reptile groupings.

^ε This value is for 2019, given insufficient data in 2022.

^π Nine plant taxa are classified as both Trees and Shrubs.

^β Two amphibian taxa are classified as both Stream breeding and Wetland breeding.

^γ Two reptile taxa are classified as both Terrestrial and Freshwater.

^φ This value is for 2021, given insufficient data in 2022.

Declines for **birds** were relatively modest compared to other groups, with average declines ranging from **20% for Marine Birds to 46% for Terrestrial Birds**, since 2000. Data for **Shoreline (Migratory Birds)** suggest declines of **56%** on average since 2000.

Datasets acquired through to 2022 **suggest significant population increases of 43% for Marine Mammals and 26% for Large Mammals (>5000 g body weight)** since the year 2000. However, sample sizes for these groups are relatively low. This is particularly problematic for **Marine Mammals**, for which very significant population growth of large cetaceans (e.g., Southern Right Whale) skew the data towards an upward trend overall. Among the mammal groups, the trend for **Critical Weight Range Mammals** was the most severe, with an average **decline of 48%** since 2000.

Declines for plant groups varied significantly, with data suggesting significant declines for **Herbaceous Plants (-89%)** and **Orchids (-75%)** since 2000. Despite long life-cycles, **Trees** exhibited an average **decrease of 6%** since 2000.

Using 2001 as the reference year (the first with sufficient data for all groups), trends for **amphibians** based on breeding type suggest very significant declines for **Terrestrial Breeding (-95%)** and **Wetland Breeding Amphibians (-72%)**, while **Stream Breeding Amphibians** showed a **modest decrease (-16%)**. Across the datasets compiled so far, **Chytrid-impacted Amphibians** have **declined by 54% on average since 1997, compared with 73% among Chytrid non-impacted Amphibians**.

For reptiles, there is a clear difference in trends between species from the terrestrial and freshwater realms from those in the marine realm. **Large declines are evident for terrestrial and freshwater taxa since 2005 (>70%)**, whereas **marine taxa** (which are dominated by marine turtles) have been **relatively stable** overall over this time-period, with an **increase of 7% between 2005 and 2021**. It is important to note that the number of taxa included for these groups in the pilot *Threatened Reptile Index* for 2025 remains limited.

Key findings: State and Territory trends

A comparison of the average trend across all groups for Australia's States and Territories is provided in **Table 2** and **Figure 3** for the period 2000–2022. Considering the significant variation in species and ecosystems represented by these jurisdictions, there is remarkable consistency in trends.

South Australia, Queensland, Western Australia and New South Wales + ACT show **average declines in relative abundance ranging from 47% to 59% since 2000 (Figure 3C, 3D, 3E and 3F)**. **Victoria** and the **Northern Territory** exhibited the most pronounced losses, both with an **average decline of 62%** in the relative abundance of threatened and near-threatened species since 2000 (**Figure 3A, 3B**). In contrast, data held for **Tasmania** suggest an **average decline of 33%** across the 35 taxa represented for that state (**Figure 3G**).

Table 2. Comparison of trends for Australia's States and Territories. The average trend from 2000 to 2022 is shown across all taxa for each jurisdiction.

State	Percent change since 2000	Number of taxa	Number of time series
Victoria	-62.3%	76	5,791
Northern Territory	-61.8%	34	652
Queensland	-59.3%	80	3,849
Western Australia	-55.7%	90	3,176
South Australia	-51.1%	87	3,074
New South Wales + ACT	-46.7%	151	5,791
Tasmania	-32.5%	35	614

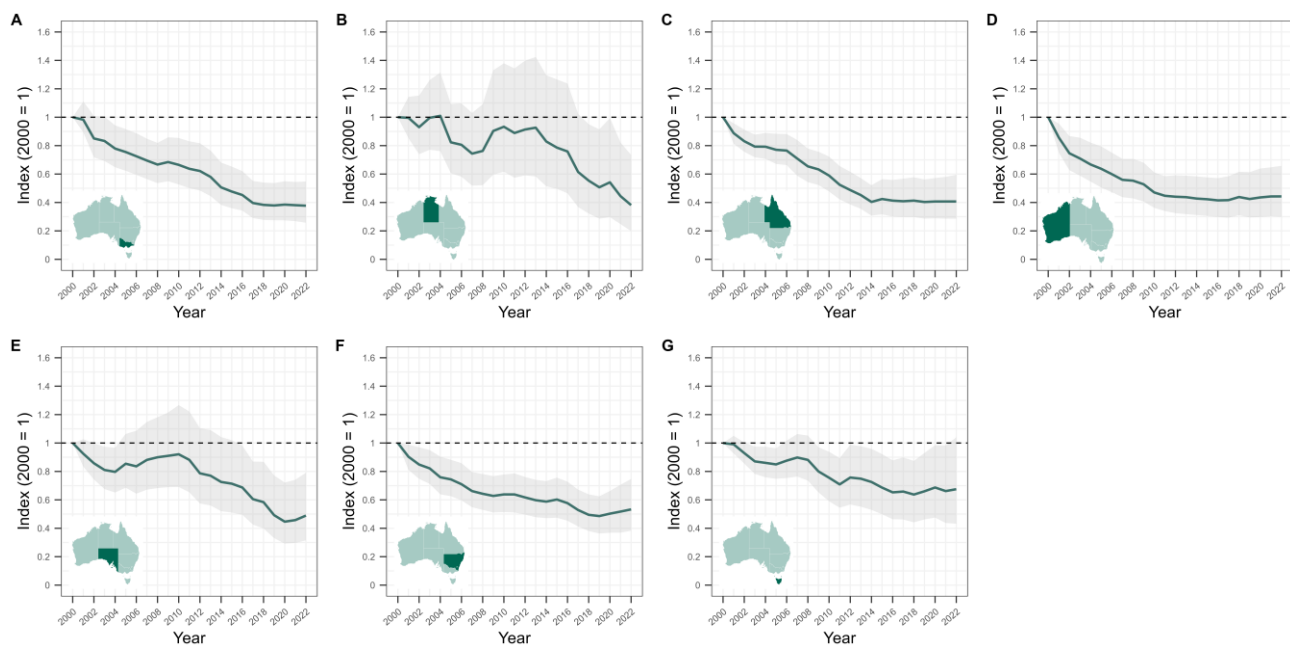


Figure 3. The Threatened Species Index 2025 for each of Australia’s States and Territories; **A)** Victoria, **B)** the Northern Territory, **C)** Queensland, **D)** Western Australia, **E)** South Australia, **F)** New South Wales and the Australian Capital Territory, and **G)** Tasmania. The green lines show the average change in relative abundance compared to the baseline year of 2000 where the index value is set to 1. The shaded areas show the confidence limits.

Table 3 provides a break-down of the overall trends displayed in **Table 2** for all taxonomic groups included in the index for the period 2000–2022.

For **birds**, notable trends include **declines of 65% in Queensland**, and **71% in South Australia**. No state or territory had an average increasing trend for birds, although declines in the **Northern Territory** were less than elsewhere (**-33%**) across the 18 bird taxa represented for that territory.

Trends for **mammals** are highly variable across jurisdictions. The strongest declines in abundance were seen in the **Northern Territory** for the period 2000–2022, at **76%** on average across the 11 taxa represented. Significant declines were also apparent in **New South Wales + ACT (-62%)**. Data for **Tasmania** and **South Australia** suggest considerable increases in the abundance of threatened and near-threatened mammals covered by the TSX, with **increases of 45% and 229%** respectively from 2000 to 2022. These increases reflect the benefits of active management for terrestrial mammals, with the species and locations represented for these jurisdictions including sites where re-introduction and predator control or exclusions are occurring.

Trends for **plants** reflect the declines noted at the national level. **Insufficient data** are available to produce trends for threatened and near-threatened plants for **Queensland**, **Tasmania** and the **Northern Territory**. For the remaining jurisdictions, significant declines are apparent in the data for plants in **Victoria (-90%)** and **Western Australia (-68%)**. The declines were less severe in **New South Wales + ACT (-47%)** and **South Australia (-41%)**.

Data are currently sufficient to build trends for **amphibians** in **New South Wales + ACT** and **Queensland**, showing **declines of 36% and 46%**, respectively, from 2000 to 2022. For this year’s **pilot Threatened Reptile Index**, trends can be generated for **Queensland** and **Western Australia**, with **declines of 32% and 41%** over the same period. For both amphibians and reptiles, spatial and temporal data limitations (**Figures 10 and 11**) mean these trends should be interpreted with caution.

Table 3. Comparison of trends across the States and Territories for all groups included in the Threatened Species Index 2025. Estimated average change in relative abundance from 2000 to 2022 is shown for each group for each jurisdiction. 'ID' = insufficient data to generate a reliable trend.

State	Birds			Mammals		
	% change since 2000	Taxa	Time series	% change since 2000	Taxa	Time series
Victoria	-46.9%	32	4,328	-19.7%	14	974
South Australia	-70.6%	28	2,225	+228.5%	21	374
Queensland	-65.1%	25	3,226	-15.4%	23	480
Northern Territory	-32.6%	18	433	-75.6%	11	211
Western Australia	-40.6%	23	2,862	-27.9%	29	218
New South Wales + ACT	-47.1%	37	4,562	-62.4%	20	498
Tasmania	-34.5%	21	382	+44.9%	8	224
State	Plants			Amphibians		
	% change since 2000	Taxa	Time series	% change since 2000	Taxa	Time series
Victoria	-89.5%	24	155	ID	5	255
South Australia	-41.1%	37	473	ID	0	0
Queensland	ID	15	86	-45.9%	11	40
Northern Territory	ID	1	1	ID	0	0
Western Australia	-68.1%	27	50	ID	3	35
New South Wales + ACT	-47.4%	74	287	-35.5%	12	399
Tasmania	ID	4	5	ID	1	2
State	Reptiles					
	% change since 2000	Taxa	Time series			
Victoria	ID	1	79			
South Australia	ID	1	2			
Queensland	-32.1%	6	17			
Northern Territory	ID	4	7			
Western Australia	-41.2%	8	11			
New South Wales + ACT	ID	8	45			
Tasmania	ID	1	1			

Key findings: management

The Threatened Species Index is a crucial source of information on the impacts of management on the trajectories of Australia's threatened and near-threatened species. At present, time series for mammals and plants have been categorised as stemming from sites that are either 'actively managed' for conservation purposes or at which there is 'no known management' (in future iterations of the index we hope to accrue management data for all groups). **Figures 4 and 5** provide a comparison of trends between these management categories for mammals and plants and show that trends are considerably better at actively managed sites.

For **mammals**, abundance at **actively managed sites has declined by an average of 18% since 1990 but has stabilised** since 2001. While some species at certain sites continue to decline (as shown by the 95% confidence interval being below 1), the weight of the confidence limits above 1 suggests that more species trajectories

are improving than declining. In contrast, sites with **no known management show widespread declines, with relative abundance decreasing by an average of 45% since 1990 (Figure 4).**

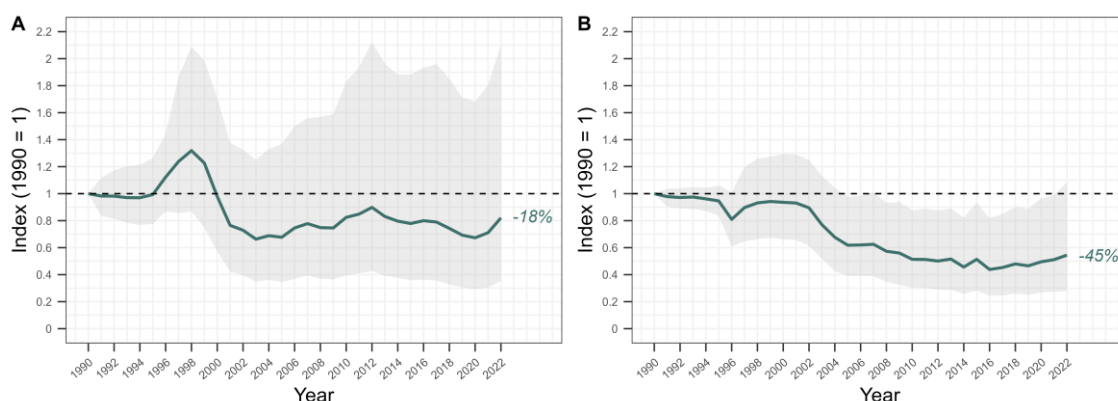


Figure 4. The difference in trends for mammals from actively managed sites **(A)** versus those from sites with no known management **(B)** between 1990 and 2022. The green lines show the average change in relative abundance compared to the baseline year of 1990 where the index value is set to 1. The shaded areas show the confidence limits.

For **plants**, abundance at **actively managed sites have, on average, stabilised: the index value for 2022 is a 2% increase from 1990 (Figure 5).** This is not true at sites with no known management, at which abundance has been falling in a linear fashion since ~1996 and the confidence limits demonstrate that most populations have significantly depressed abundance relative to 1990 (**Figure 5**). On average, **populations at sites with no known management have declined by 81% since 1990.**

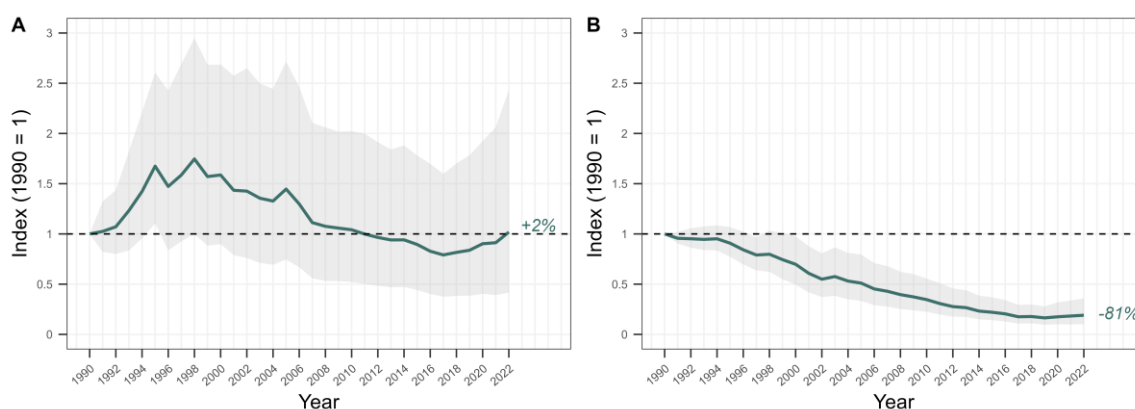


Figure 5. The difference in trends for plants from actively managed sites **(A)** versus those from sites with no known management **(B)** between 1990 and 2022. The green lines show the average change in relative abundance compared to the baseline year of 1990 where the index value is set to 1. The shaded areas show the confidence limits.

What we should know about the data

The multi-species trends listed above represent the best available data for Australia's threatened and near-threatened species. Data quality was maximised by 1) confirming that each dataset had been produced by standardised monitoring and 2) by assessing the trends in collaboration with data custodians. Nevertheless, it is important to consider the taxonomic, spatial and temporal biases when interpreting the trends generated from these data, and the uncertainty around the trends.

National trends

Data for All Groups

The National trends are based on monitoring data for 395 taxa and 25,164 time-series datasets. However, because TSX relies on survey data contributed to it rather than from its own systematic survey, these data stem largely from the populated south and east of the continent, with less representation of inland areas and limited representation of arid Australia (**Figure 6**). While this means the more developed parts of the country are perhaps over-represented, it is also true that the apparent distribution of threatened species aligns with the spatial pattern of those willing to contribute data to the TSX.

The temporal accumulation of data must also be considered when interpreting the national trends. In 1985 (the reference year), data were available for 40 taxa (10% of total) from 1,414 time series (6% of total). The number of taxa and time series included in the calculation of the index grew rapidly after 1990 before declining in more recent years (**Figure 6**). In turn, data quality is weakest early and late in the time series.

Perhaps of greatest importance for interpreting the national trends is the dominance of birds in the dataset. Birds make up 18% of taxa represented in the index and 80% of time-series datasets. As such, the overall national trend closely follows the trend for birds (see **Figure 1**).

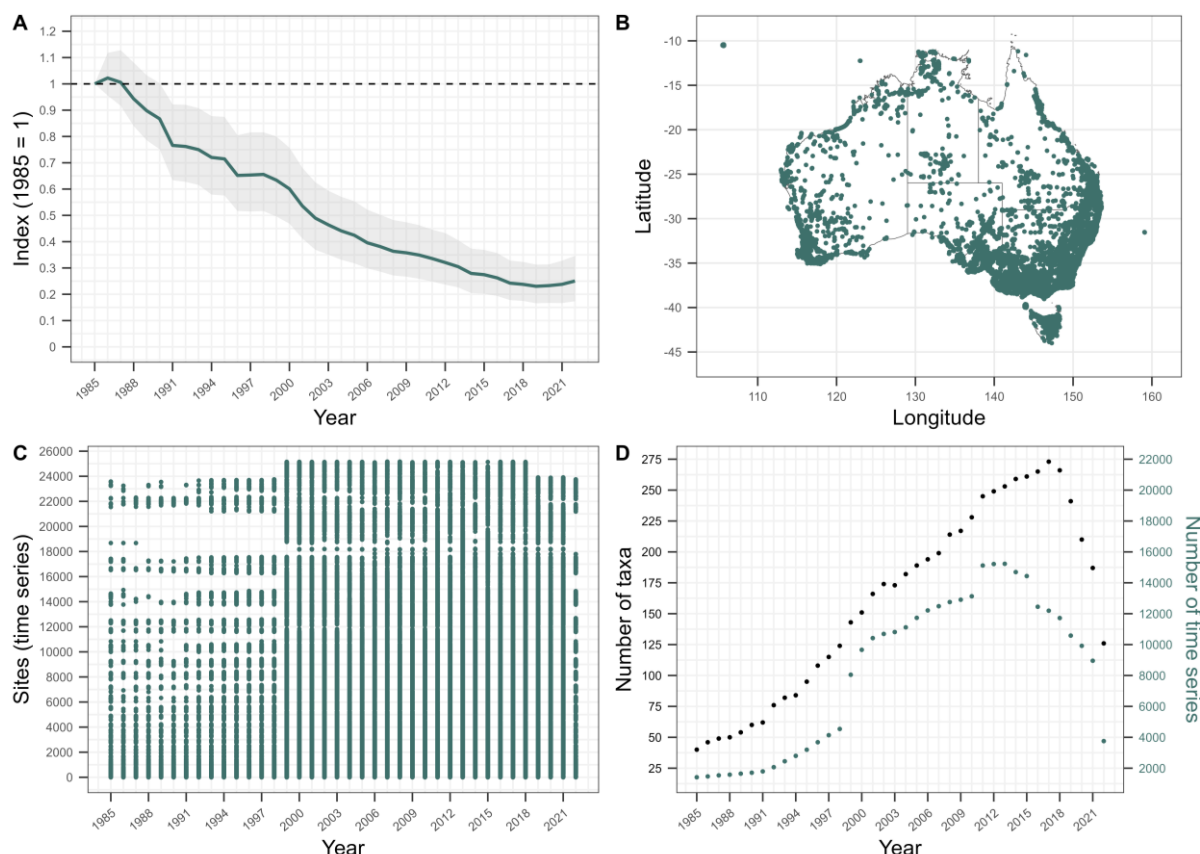


Figure 6. **A)** The Threatened Species Index 2025 based on the data provided for all species groups. The green line shows the average change in relative abundance compared to the baseline year of 1985 where the index value is set to 1. The shaded areas show the confidence limits. **B)** A map showing where the monitoring data, submitted to the index, were recorded in Australia. The green dots indicate repeatedly monitored sites. **C)** A dot plot showing the years for which monitoring data were available to compile the index. Each row represents a time series where a taxon was monitored with a consistent method at a single site in Australia. **D)** The number of taxa (in black circles) and number of time series (in green circles) used to calculate the national index for each year.

Data for Birds

Data for birds covers 73 taxa from a total of 20,128 time series. As in previous years, the data for birds are representative of most eastern states. Data coverage for Western Australia and the Northern Territory have increased since the index was first released in 2018, but remain marginal for inland, particularly arid, regions (**Figure 7**). The number of sites and taxa monitored have substantially increased since 1985, at which time there were only 1,121 time series (6% of total) for 11 taxa (15% of total).

Data for birds are dominated by Terrestrial Birds (44 taxa, 12,224 time series) and Shoreline (Migratory) Birds (13 taxa, 7,314 time series). Data for Marine Birds covers 15 taxa and 588 time series, while data for Wetland Birds includes 1 taxon and 2 time series.

More detailed information on habitat type has been collected for 64% (28/44 taxa) of Terrestrial Bird species included in the index. For those that are categorised, data are dominated by Woodland Birds (7 taxa, 3,736 time series) and Island Endemics (7 taxa, 1,685 time series), with 14 taxa represented for the remaining terrestrial categories (Grassland Birds, Heathland Birds, Rainforest Birds, Mallee Birds and Tropical Savanna Birds).

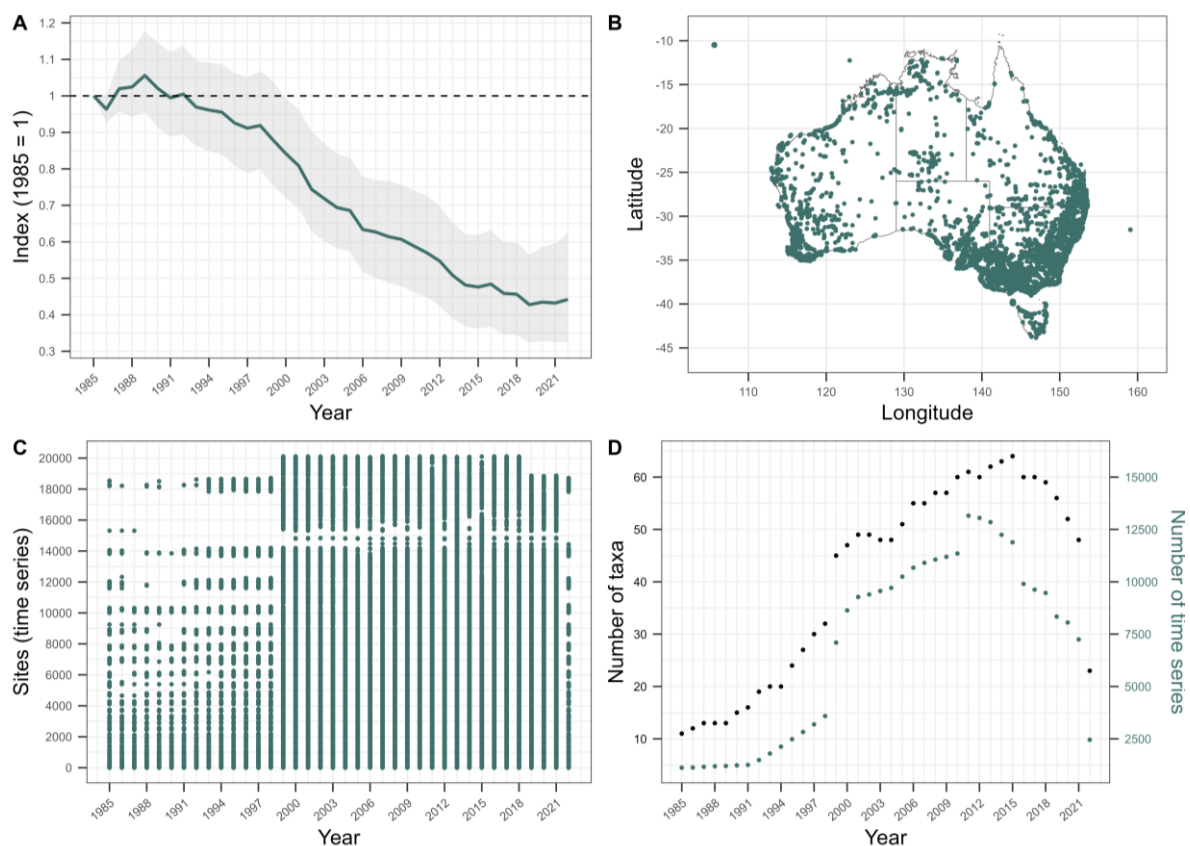


Figure 7. A) The Threatened Species Index 2025 based on all data provided on threatened and near-threatened bird taxa. The green line shows the average change in relative abundance compared to the baseline year of 1985 where the index value is set to 1. The shaded areas show the confidence limits. **B)** A map showing where the threatened bird data, submitted to the index, were recorded in Australia. The green dots indicate repeatedly monitored sites. **C)** A dot plot showing the years for which monitoring data were available to compile the index. Each row represents a time series where a taxon was monitored with a consistent method at a single site in Australia. **D)** The number of taxa (in black circles) and number of time series (in green circles) used to calculate the Threatened Bird Index for each year.

Data for Mammals

Mammals are represented in the index by 92 taxa from a total of 3,085 time series. Data for mammals are spatially patchy (**Figure 8**), with major clusters of sites from south-east and south-west Queensland, coastal regions of New South Wales, southern Victoria, Tasmania, inland and coastal South Australia (including offshore islands), south-western Western Australia, the Pilbara and Kimberley regions, and the Top End of the Northern Territory. Inland (particularly arid) areas of the country are poorly represented.

Time series and taxa have accumulated in a roughly linear fashion since 1985. For that year, monitoring data are available for 12 taxa (13% of total), from 225 time series (7% of total). Data are again sparse for the most recent years, after 2016 (**Figure 8**).

Data for mammals primarily come from Terrestrial Mammals (84 taxa, 3,030 time series), with few Marine Mammals currently included (8 taxa, 55 time series). Critical Weight Range Mammals (50–5,000 g body weight) dominate the Terrestrial Mammal dataset, with 63 taxa and 2,249 time series (74% of all terrestrial mammal time series), consistent with the fact that these species account for a high proportion (67%) of Australia's threatened and near-threatened terrestrial mammals. Small Mammals (<50 g body weight) are represented by 15 taxa and 407 time series, and Large Mammals (>5000 g body weight) by 6 taxa and 374 time series.

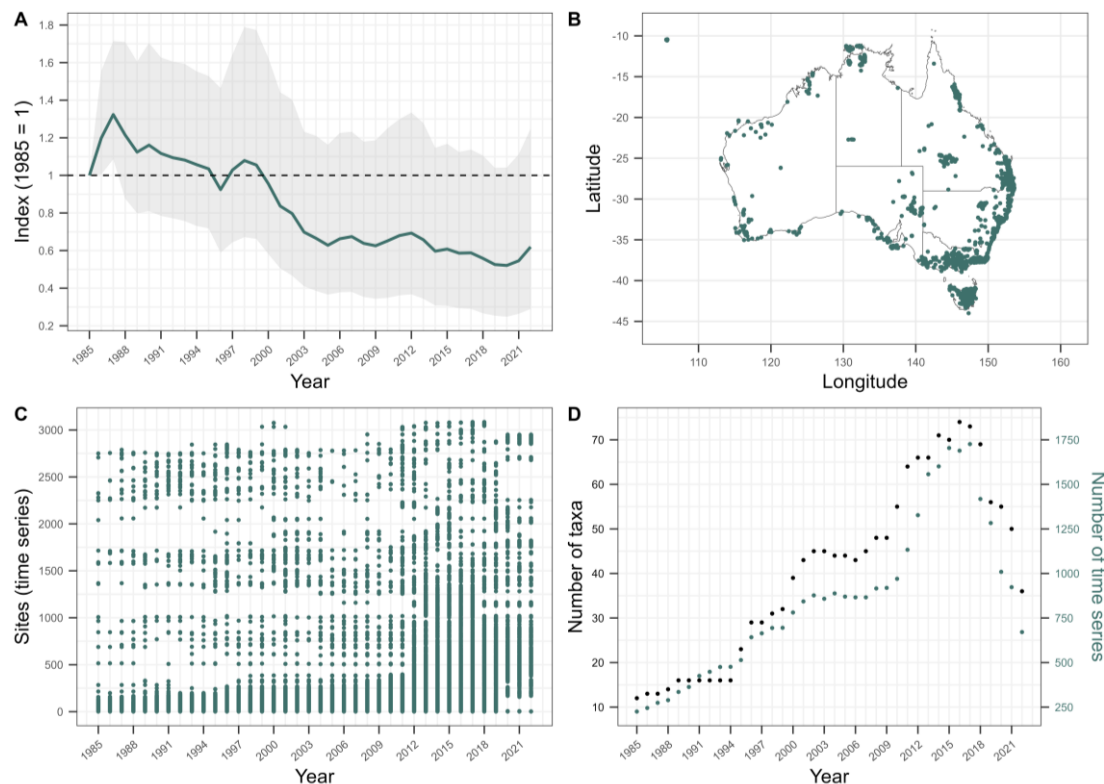


Figure 8. **A)** The Threatened Species Index 2025 based on all data provided on threatened and near-threatened mammal taxa. The green line shows the average change in relative abundance compared to the baseline year of 1985 where the index value is set to 1. The shaded areas show the confidence limits. **B)** A map showing where the threatened mammal data, submitted to the index, were recorded in Australia. The green dots indicate repeatedly monitored sites. **C)** A dot plot showing the years for which monitoring data were available to compile the index. Each row represents a time series where a taxon was monitored with a consistent method at a single site in Australia. **D)** The number of taxa (in black circles) and number of time series (in green circles) used to calculate the Threatened Mammal Index for each year.

Data for Plants

Some 178 plant taxa are represented in the TSX from a total of 1057 time series. Plant data collated for the TSX are considerably spatially biased, with all data coming from the southern half of the continent (**Figure 9B**). The monitoring data almost entirely originates from south-eastern Queensland, eastern New South Wales, central and southern Victoria, eastern South Australia and south-west Western Australia.

Plant monitoring data in the index also display a stronger temporal bias than for birds, mammals and amphibians. Data are sparse before 1995, and time series have accumulated in an exponential fashion since 1985 (**Figure 9D**). In that year, monitoring data are available for 8 taxa (5% of total) from just 26 time series (3% of total). However, data are not as sparse for more recent years relative to birds and mammals, with a less significant drop off in time series after 2015 (**Figure 9D**).

Plants covered by the index are dominated by Shrubs and Orchids. In total, 98 Shrub taxa are represented in the index from 532 time series, and 42 Orchid taxa from 322 time series. Herbaceous plants are represented by 23 taxa (164 time series), Trees by 23 taxa (79 time series), and Grasses by 1 taxon (1 time series). 9 taxa occur in both the Shrub and Tree categories, reflecting their variable growth forms.

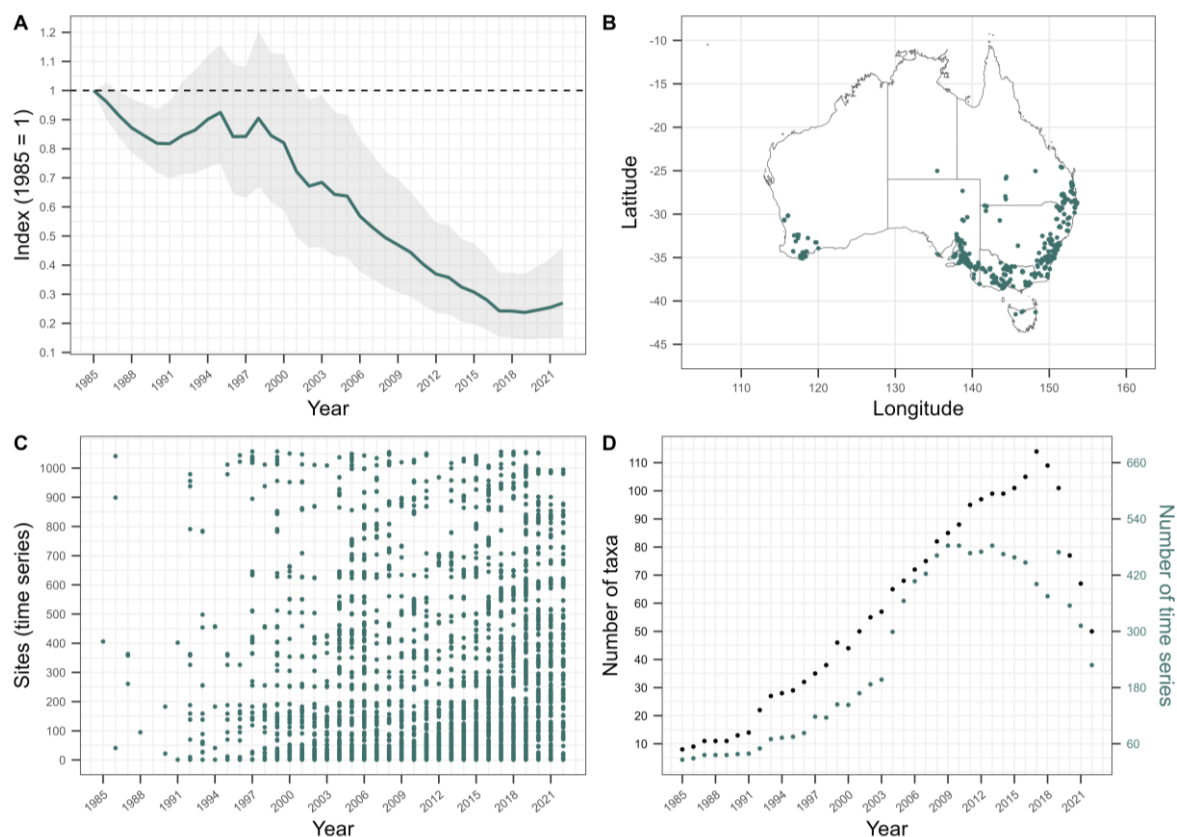


Figure 9. **A)** The Threatened Species Index 2025 based on all data provided on threatened and near-threatened plant taxa. The green line shows the average change in relative abundance compared to the baseline year of 1985 where the index value is set to 1. The shaded areas show the confidence limits. **B)** A map showing where the threatened plant data, submitted to the index, were recorded in Australia. The green dots indicate repeatedly monitored sites. **C)** A dot plot showing the years for which monitoring data were available to compile the index. Each row represents a time series where a taxon was monitored with a consistent method at a single site in Australia. **D)** The number of taxa (in black circles) and number of time series (in green circles) used to calculate the Threatened Plant Index for each year.

Data for Amphibians

Trends for frogs are based on data for 28 taxa from a total of 731 time series. Data are primarily from eastern Australia, in line with the distribution of threatened and near-threatened Australian amphibians (**Figure 10B**). Tasmania is represented by a single taxa and Western Australia by 3 taxa. No suitable monitoring data were obtained for South Australia or the Northern Territory.

In 1985, data were available for only 5 taxa (18% of total) from 29 time series (4% of total) (**Figure 10D**). The number of taxa and time series included in the calculation of the index grew during the 1990s (**Figure 10D**) as monitoring of frogs impacted by the invasive chytrid fungus ('chytrid') increased. Data availability, both in terms of time series and taxa coverage, declines slightly in more recent years, but not drastically so (**Figure 10D**).

An important additional factor that must be considered when interpreting the national amphibian trend is that all data acquired prior to 1992 were for chytrid impacted taxa, particularly those showing rapid population crashes in eastern Australia (such as North Queensland). Very steep declines early in the time series (**Figure 10A**) reflect these declines. Likewise, the lack of recovery of many taxa and populations impacted by chytrid, along with declines among non-impacted taxa for which data was accrued from 1992 onwards, effectively holds the national trend at a very low level subsequent to ~2000.

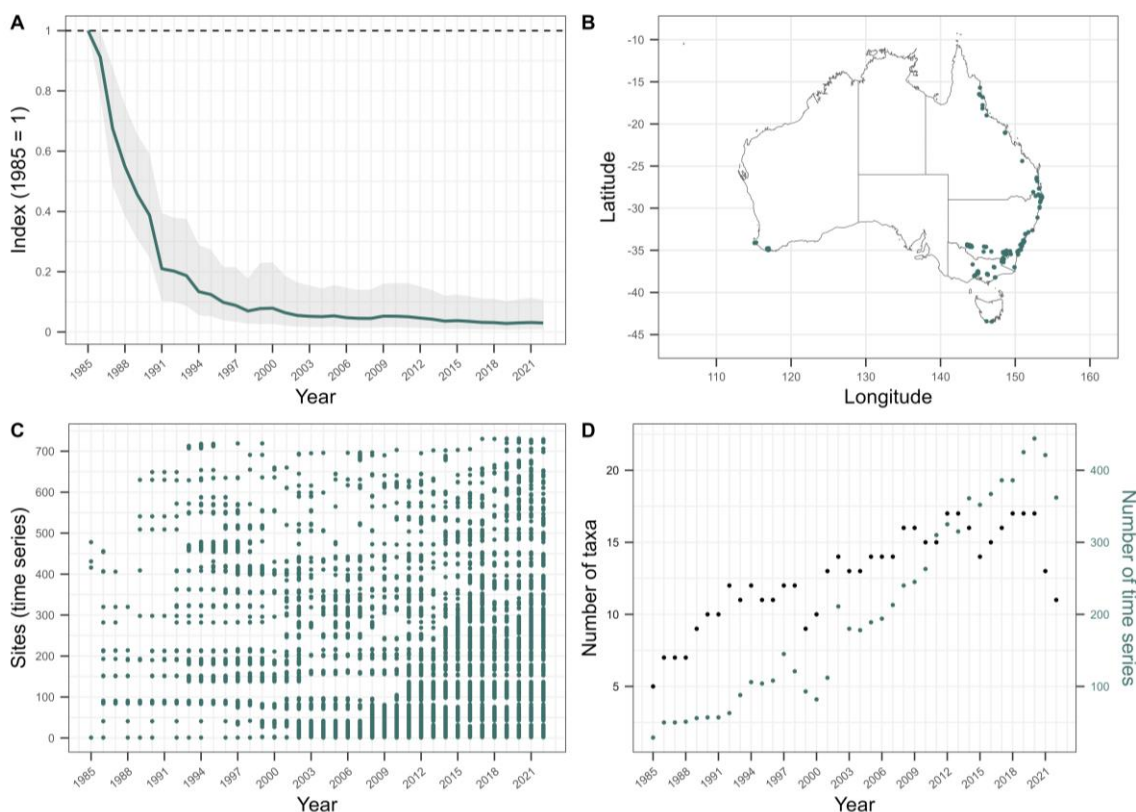


Figure 10. A) The Threatened Species Index 2025 based on all data provided on threatened and near-threatened amphibian taxa. The green line shows the average change in relative abundance compared to the baseline year of 1985 where the index value is set to 1. The shaded areas show the confidence limits. **B)** A map showing where the threatened amphibian data, submitted to the index, were recorded in Australia. The green dots indicate repeatedly monitored sites. **C)** A dot plot showing the years for which monitoring data were available to compile the index. Each row represents a time series where a taxon was monitored with a consistent method at a single site in Australia. **D)** The number of taxa (in black circles) and number of time series (in green circles) used to calculate the Threatened Frog Index for each year.

Data for Reptiles

The 2025 Threatened Reptile Index is a pilot, representing the first attempt to build this index. While the underlying dataset is extensive, important datasets are yet to be included, and we will continue to pursue these in 2026. **As such, the trends presented here should be considered interim.**

The current dataset includes data for 24 taxa from a total of 163 time series. Data are primarily from eastern Australia, although important long-term datasets were collated from Western Australia and the Northern Territory (**Figure 11B**). Tasmania and South Australia are represented by 1 taxon each from 3 time series in total.

In 1985 (the reference year), data were available for only 4 taxa (17% of total) from 13 time series (8% of total) (**Figure 11D**). The number of time series included in the calculation of the index grew rapidly during the 1990s (**Figure 11D**), although the number of taxa accumulates much more slowly and oscillates widely from 2003 onwards. Data availability, both in terms of time series and species coverage, is quite variable for more recent years (**Figure 11D**).

An important additional factor that must be considered when interpreting the national trend is that all data acquired prior to 1990 (except 1 survey for the Pedra Branca Skink) were derived from turtles, of which 3/4 were marine species. As such, the initial trend using reference years of 1985 and 1990 are based almost exclusively on marine turtles. Similarly, several species that enter the index have only single time series and/or were collected over short time periods.

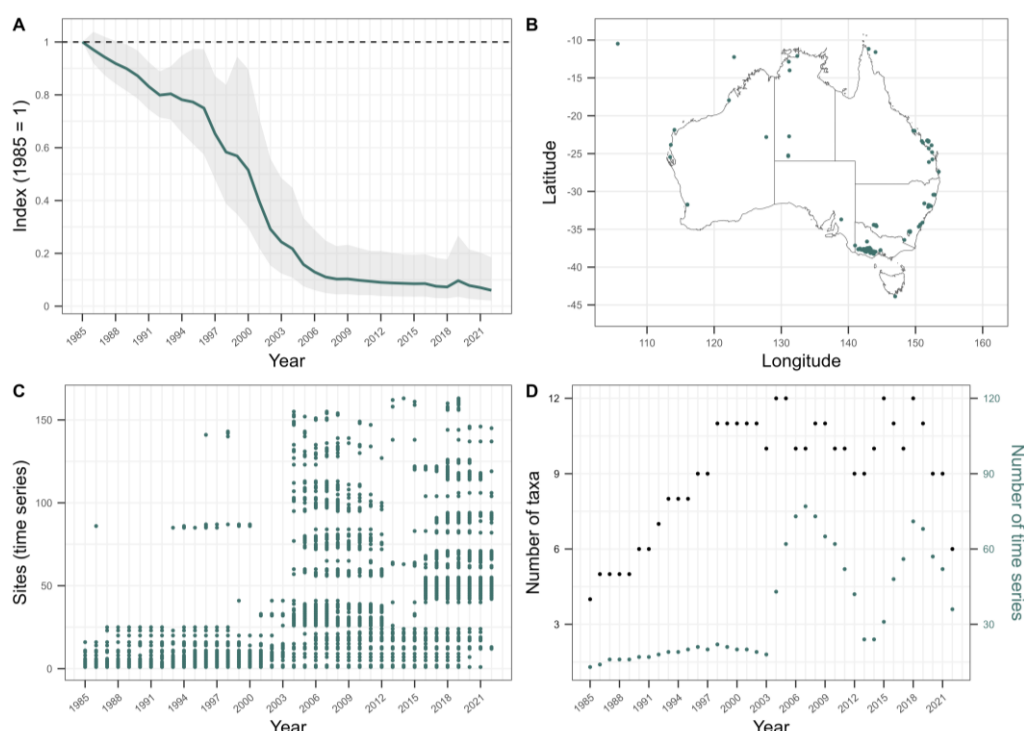


Figure 11. A) The Threatened Species Index 2025 based on all data provided on threatened and near-threatened reptile taxa. The green line shows the average change in relative abundance compared to the baseline year of 1985 where the index value is set to 1. The shaded areas show the confidence limits. **B)** A map showing where the threatened reptile data, submitted to the index, were recorded in Australia. The green dots indicate repeatedly monitored sites. **C)** A dot plot showing the years for which monitoring data were available to compile the index. Each row represents a time series where a taxon was monitored with a consistent method at a single site in Australia. **D)** The number of taxa (in black circles) and number of time series (in green circles) used to calculate the Threatened Reptile Index for each year.

State and Territory trends

Data for Queensland

Data coverage for Queensland is comprehensive across the central and south-east coast, moderate in the south but remains patchy in the northern and arid regions of the state (**Figure 12B**). Across all groups, both the number of sites and the number of taxa being monitored in Queensland has substantially increased since 1992, with data in the index peaking between 2012 and 2016 (**Figure 12C and 12D**).

You can find a summary of the taxa included in the Queensland index, and explore additional trends, on the [TSX visualisation tool](#).

Qld Index - Quick Facts

Reference year	2000
2022 index value	0.407
% change from 2000	-59.3%
Time series	3849
Taxa	80
Av. time-series length	15.3
Data sources	79

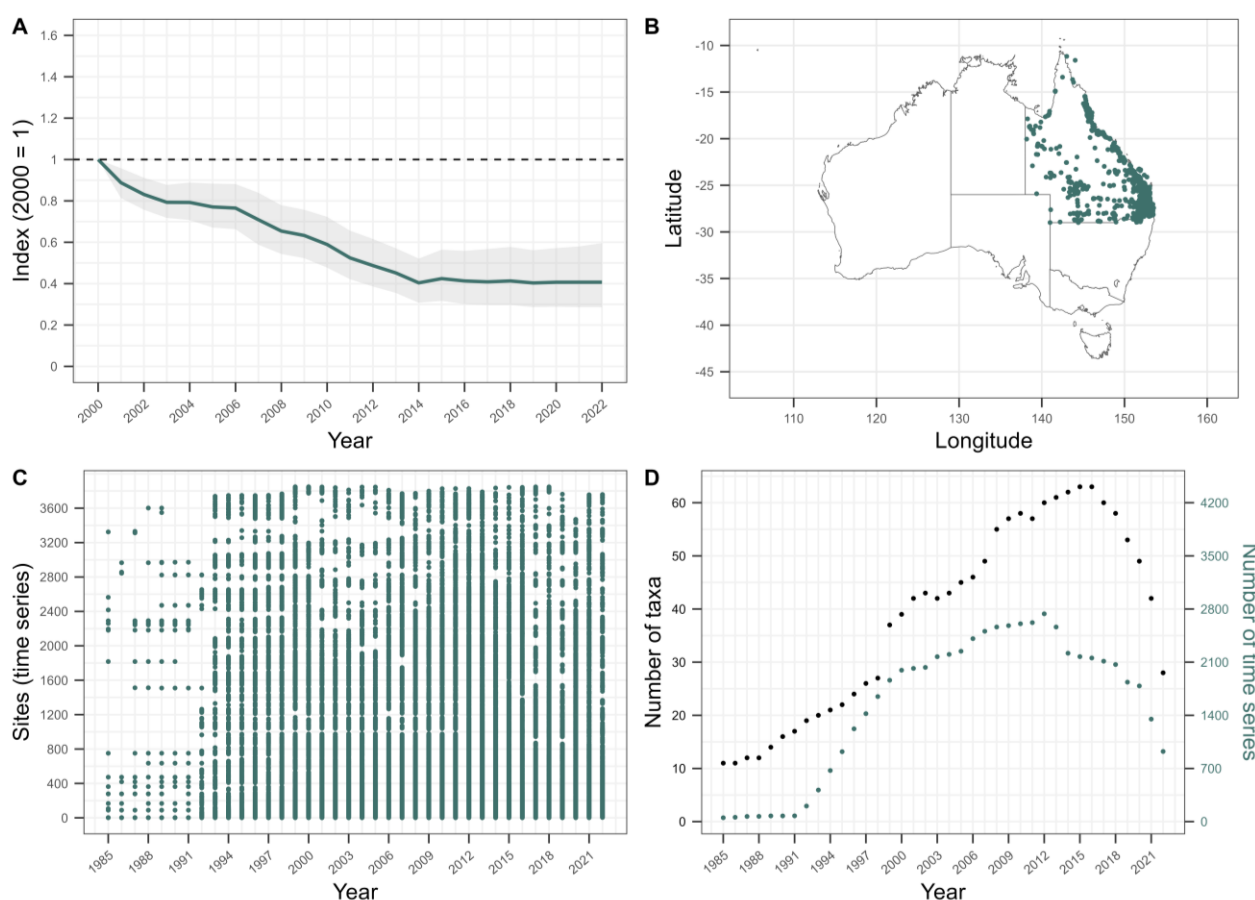


Figure 12. **A)** The Threatened Species Index 2025 for Queensland. The green line shows the average change in relative abundance compared to the baseline year of 2000 where the index value is set to 1. The shaded areas show the confidence limits. **B)** A map showing where the threatened monitoring data, submitted to the index, were recorded in Queensland. The green dots indicate repeatedly monitored sites. **C)** A dot plot showing the years for which monitoring data were available to compile the index. Each row represents a time series where a taxon was monitored with a consistent method at a single site in Queensland. **D)** The number of taxa (in black circles) and number of time series (in green circles) used to calculate the Queensland index for each year.

Data for New South Wales and the Australian Capital Territory

The data for New South Wales and the Australian Capital Territory are concentrated in the east of the combined area of these jurisdictions, with less data from western NSW (**Figure 13B**). The number of available taxa for all groups increased in a generally linear fashion from 1985 before peaking in 2018 (**Figure 13D**). There was a large increase in the number of time series included in the NSW + ACT index between 1995 and 2002, before peaking in 2017 (**Figure 13D**).

NSW + ACT Index - Quick Facts

Reference year	2000
2022 index value	0.533
% change from 2000	-46.7%
Time series	5791
Taxa	151
Av. time-series length	11.5
Data sources	161

You can find a summary of the taxa included in the NSW + ACT index, and explore additional trends, on the [TSX visualisation tool](#).

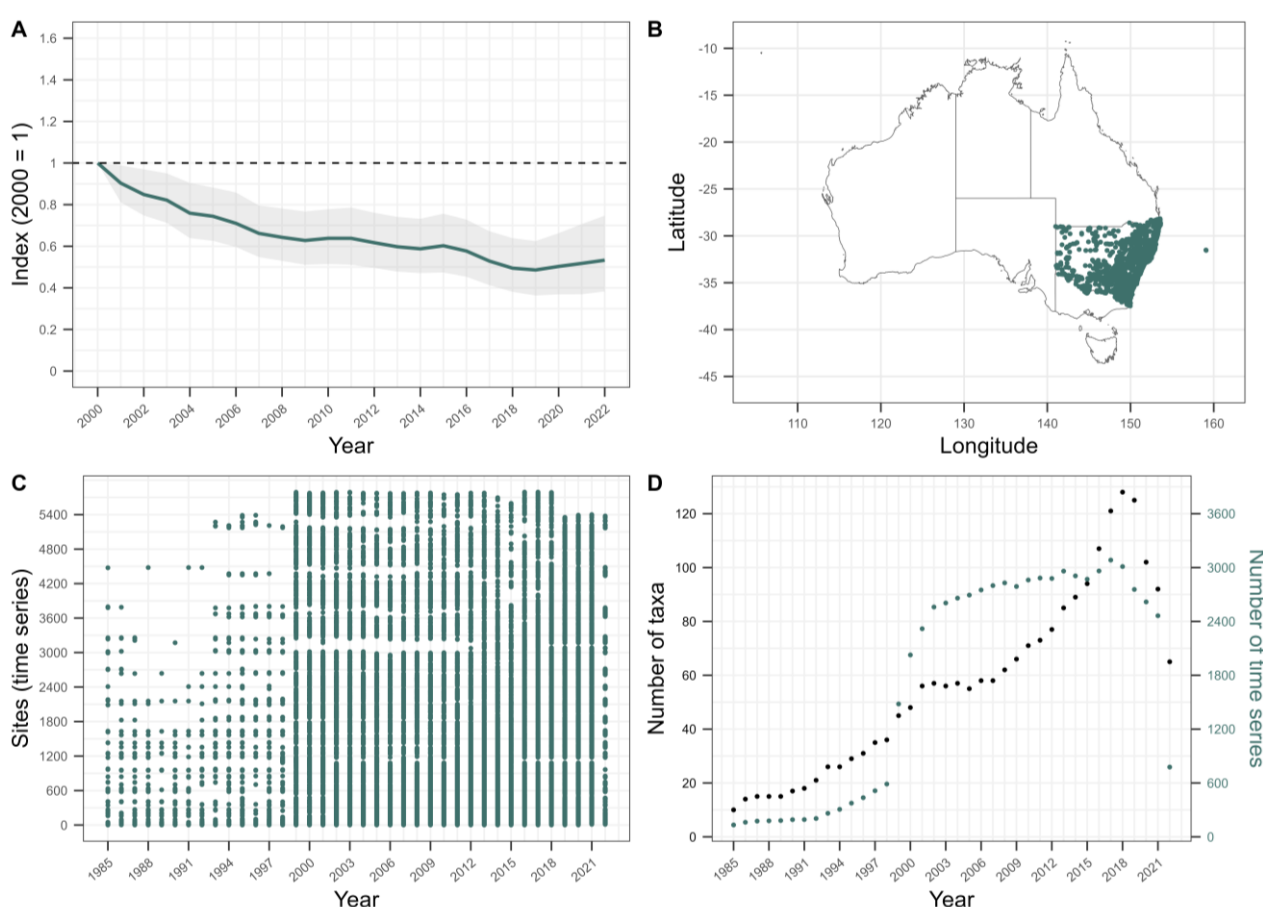


Figure 13. A) The Threatened Species Index 2025 for New South Wales (NSW) and Australian Capital Territory (ACT). The green line shows the average change in relative abundance compared to the baseline year of 2000 where the index value is set to 1. The shaded areas show the confidence limits. **B)** A map showing where the threatened monitoring data, submitted to the index, were recorded in NSW + ACT. The green dots indicate repeatedly monitored sites. **C)** A dot plot showing the years for which monitoring data were available to compile the index. Each row represents a time series where a taxon was monitored with a consistent method at a single site in NSW + ACT. **D)** The number of taxa (in black circles) and number of time series (in green circles) used to calculate the NSW + ACT index for each year.

Data for Victoria

The data for Victoria have the highest within-state spatial representativeness of anywhere in the country, covering all major biomes (**Figure 14B**). This coverage is driven by data for birds, with data for mammals, plants, amphibians and reptiles being sparser, particularly in north-west Victoria. The number of taxa represented each year increased in a roughly linear fashion from 1985, with the number of time series increasing in an exponential fashion. Both have declined in more recent years (**Figure 14C and 14D**).

Vic Index - Quick Facts

Reference year	2000
2022 index value	0.377
% change from 2000	-62.3%
Time series	5791
Taxa	76
Av. time-series length	12.5
Data sources	40

You can find a summary of the taxa included in the Victoria index, and explore additional trends, on the [TSX visualisation tool](#).

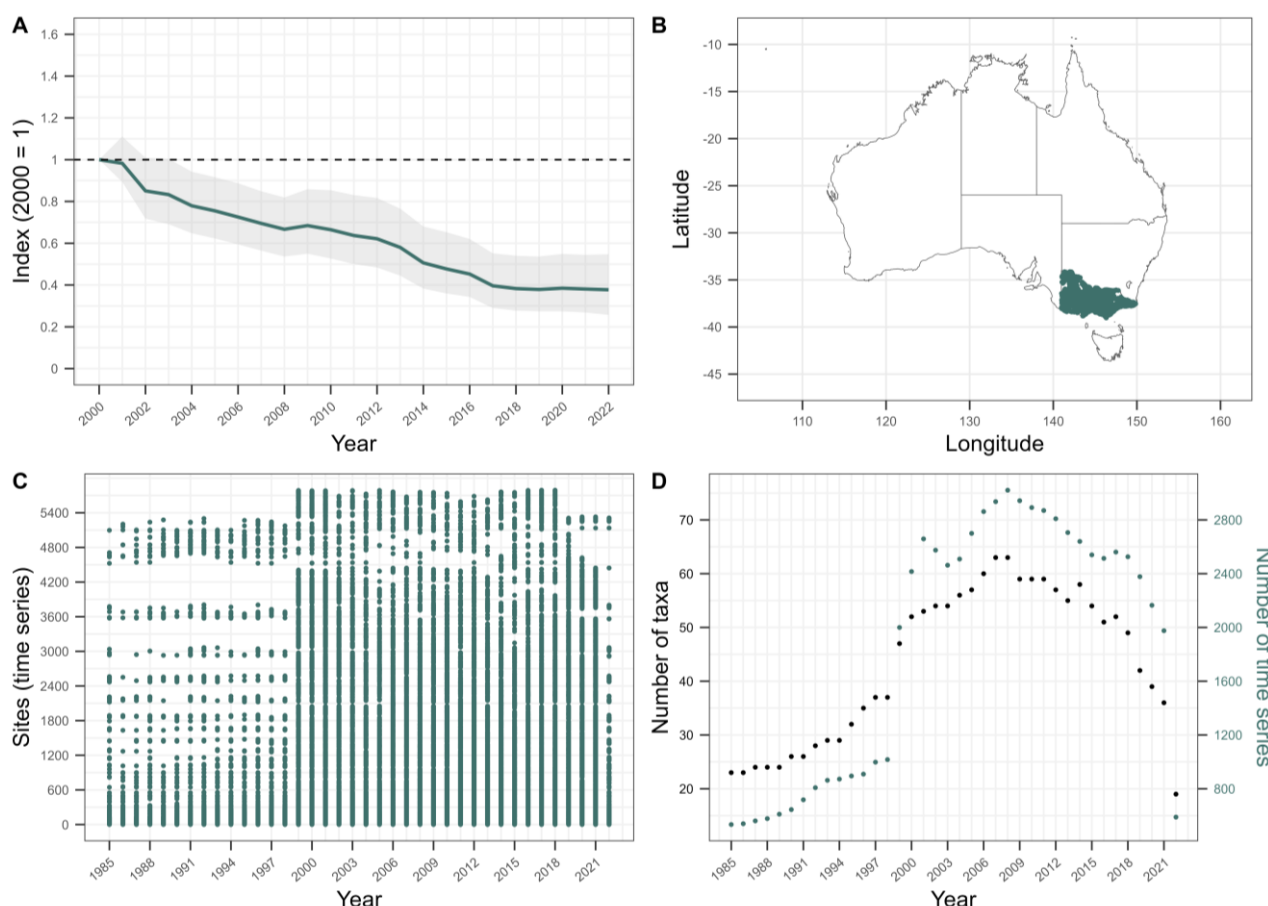


Figure 14. **A)** The Threatened Species Index 2025 for Victoria. The green line shows the average change in relative abundance compared to the baseline year of 2000 where the index value is set to 1. The shaded areas show the confidence limits. **B)** A map showing where the threatened monitoring data, submitted to the index, were recorded in Victoria. The green dots indicate repeatedly monitored sites. **C)** A dot plot showing the years for which monitoring data were available to compile the index. Each row represents a time series where a taxon was monitored with a consistent method at a single site in Victoria. **D)** The number of taxa (in black circles) and number of time series (in green circles) used to calculate the Victoria index for each year.

Data for Tasmania

There is relatively good spatial coverage for Tasmania's data (**Figure 15B**), except for the western coast of the state. The trend for Tasmania also includes data for Macquarie Island (9 species and 46 time series). Across all groups, the number of taxa and time series represented in the Tasmania index increased almost linearly until 2000 (**Figure 15D**). Numbers peaked between 2012 and 2018 and have declined rapidly in more recent years (**Figure 15D**).

Tas Index - Quick Facts

Reference year	2000
2022 index value	0.675
% change from 2000	-32.5%
Time series	614
Taxa	35
Av. time-series length	22.2
Data sources	22

You can find a summary of the taxa included in the Tasmania index, and explore additional trends, on the [TSX visualisation tool](#).

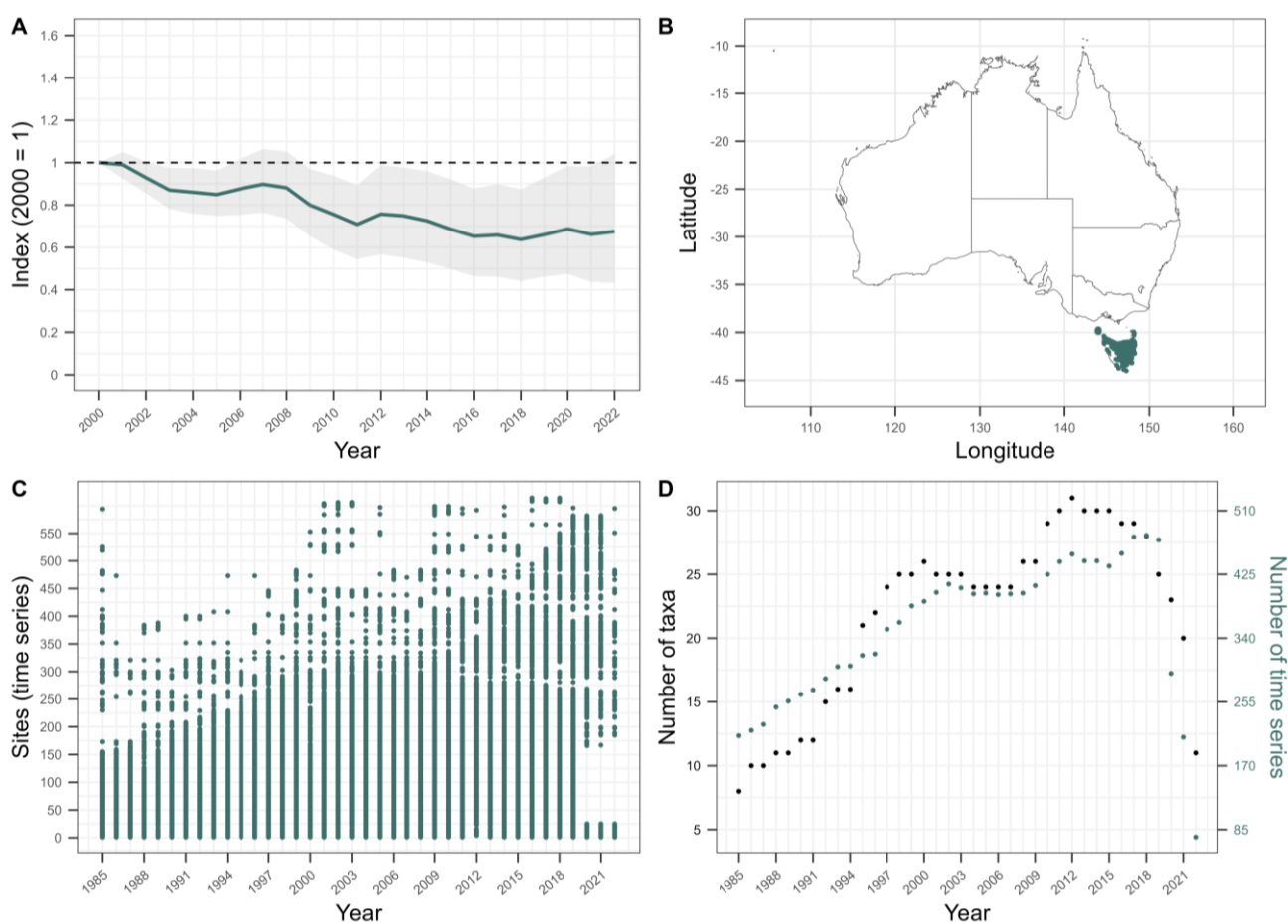


Figure 15. **A)** The Threatened Species Index 2025 for Tasmania. The green line shows the average change in relative abundance compared to the baseline year of 2000 where the index value is set to 1. The shaded areas show the confidence limits. **B)** A map showing where the threatened monitoring data, submitted to the index, were recorded in Tasmania. The green dots indicate repeatedly monitored sites. **C)** A dot plot showing the years for which monitoring data were available to compile the index. Each row represents a time series where a taxon was monitored with a consistent method at a single site in Tasmania. **D)** The number of taxa (in black circles) and number of time series (in green circles) used to calculate the Tasmania index for each year.

Data for South Australia

The majority of monitoring sites in South Australia from which the TSX has received data are in the south-east, with few datasets in the semi-arid and arid parts of the state (**Figure 16B**). The number of taxa represented in the SA index increased roughly linearly from 1985, peaking around 2012 (**Figure 16D**). The number of time series increased steeply from 1998 and declined after 2012. Both taxa and time series showed a small uptick around 2020 (**Figure 16D**).

SA Index - Quick Facts

Reference year	2000
2022 index value	0.489
% change from 2000	-51.1%
Time series	3074
Taxa	87
Av. time-series length	13.2
Data sources	48

You can find a summary of the taxa included in the South Australia index, and explore additional trends, on the [TSX visualisation tool](#).

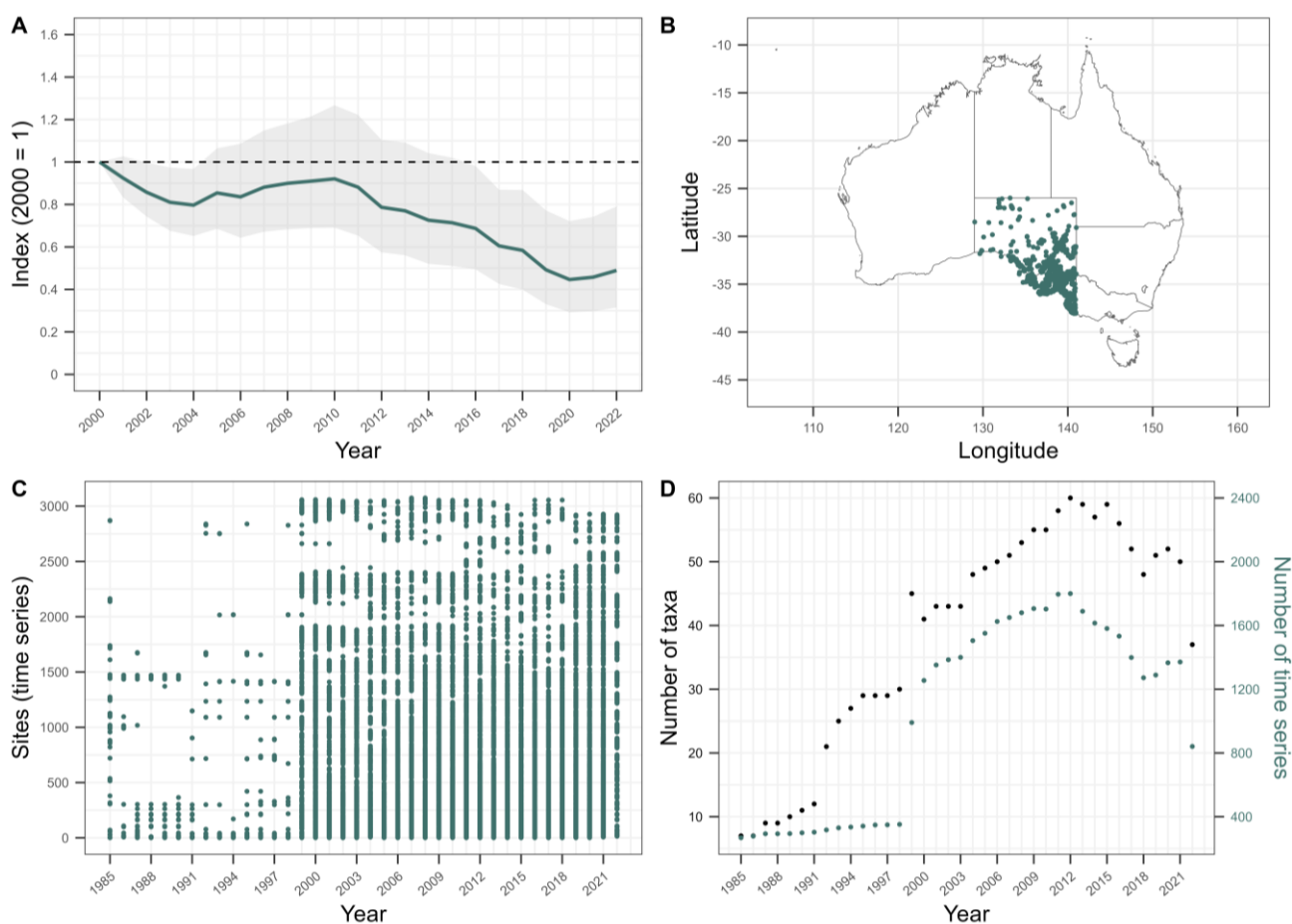


Figure 16. **A)** The Threatened Species Index 2025 for South Australia. The green line shows the average change in relative abundance compared to the baseline year of 2000 where the index value is set to 1. The shaded areas show the confidence limits. **B)** A map showing where the threatened monitoring data, submitted to the index, were recorded in South Australia. The green dots indicate repeatedly monitored sites. **C)** A dot plot showing the years for which monitoring data were available to compile the index. Each row represents a time series where a taxon was monitored with a consistent method at a single site in South Australia. **D)** The number of taxa (in black circles) and number of time series (in green circles) used to calculate the South Australia index for each year.

Data for Western Australia

Unsurprisingly for such a large state, there are limited monitoring data for some regions in WA. The data underlying the WA index have good coverage for the Perth area, Kimberley, and south-central and south-west coastal areas (**Figure 17B**). For plants, data are concentrated in south-west WA, consistent with the distribution of most threatened flora in this state (see [here](#) for a map). Both the number of sites and the number of taxa being monitored in WA has substantially increased since around 1999, peaking at around 2016 (**Figure 17C and 17D**).

WA Index - Quick Facts

Reference year	2000
2022 index value	0.443
% change from 2000	-55.7%
Time series	3176
Taxa	90
Av. time-series length	13.7
Data sources	64

You can find a summary of the taxa included in the Western Australia index, and explore additional trends, on the [TSX visualisation tool](#).

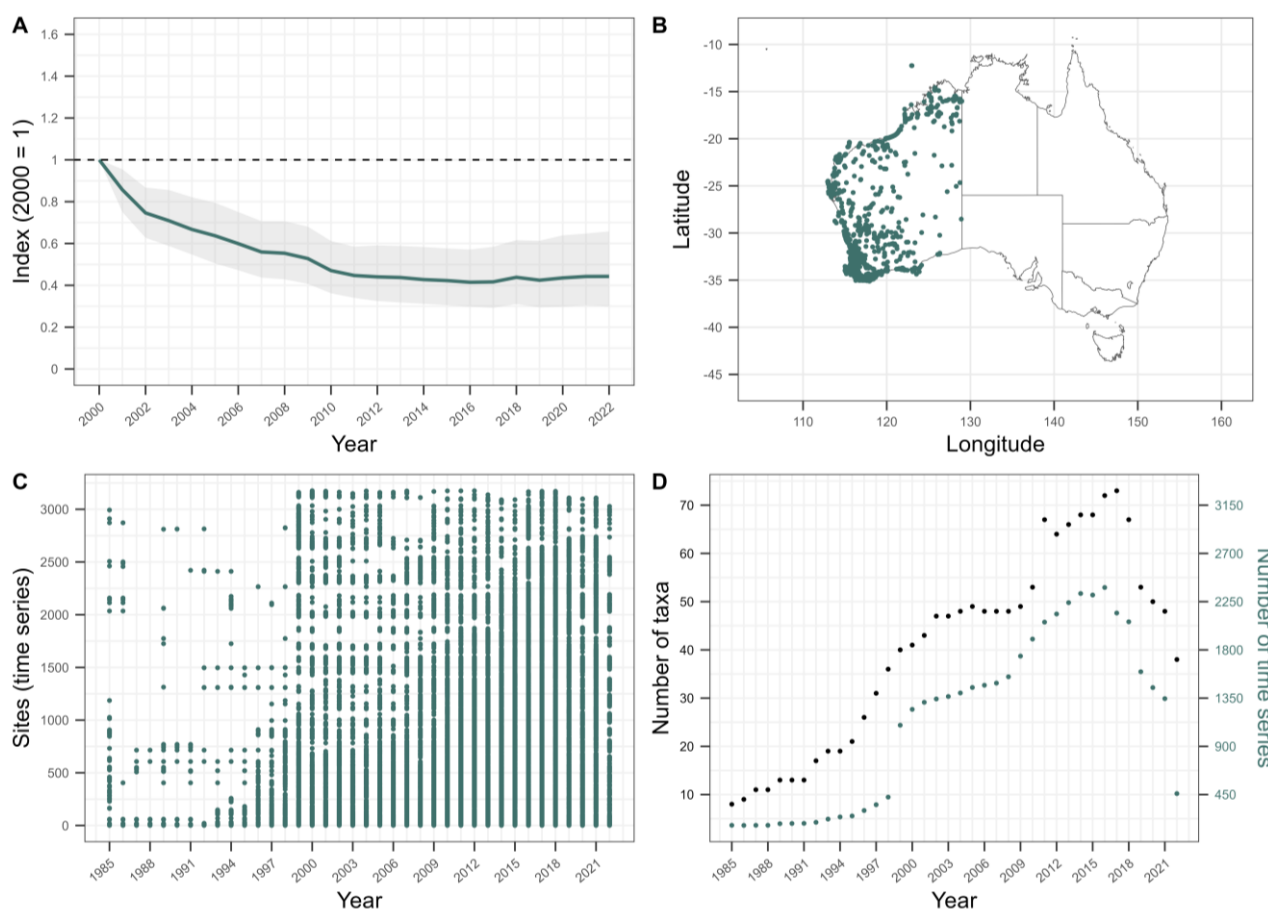


Figure 17. A) The Threatened Species Index 2025 for Western Australia. The green line shows the average change in relative abundance compared to the baseline year of 2000 where the index value is set to 1. The shaded areas show the confidence limits. **B)** A map showing where the threatened monitoring data, submitted to the index, were recorded in Western Australia. The green dots indicate repeatedly monitored sites. **C)** A dot plot showing the years for which monitoring data were available to compile the index. Each row represents a time series where a taxon was monitored with a consistent method at a single site in Western Australia. **D)** The number of taxa (in black circles) and number of time series (in green circles) used to calculate the Western Australia index for each year.

Data for the Northern Territory

The data underlying the NT index have higher coverage in the north and south of the territory but are limited for central regions of the semi-arid and arid zones (**Figure 18B**). For all groups, both the number of time series and the number of taxa being monitored in the NT has substantially increased since the early 1990s, peaking in 2010 and 2003 respectively, and have since declined (**Figure 18C and 18D**).

NT Index - Quick Facts

Reference year	2000
2022 index value	0.382
% change from 2000	-61.8%
Time series	652
Taxa	34
Av. time-series length	14.8
Data sources	18

You can find a summary of the taxa included in the Northern Territory index, and explore additional trends, on the [TSX visualisation tool](#).

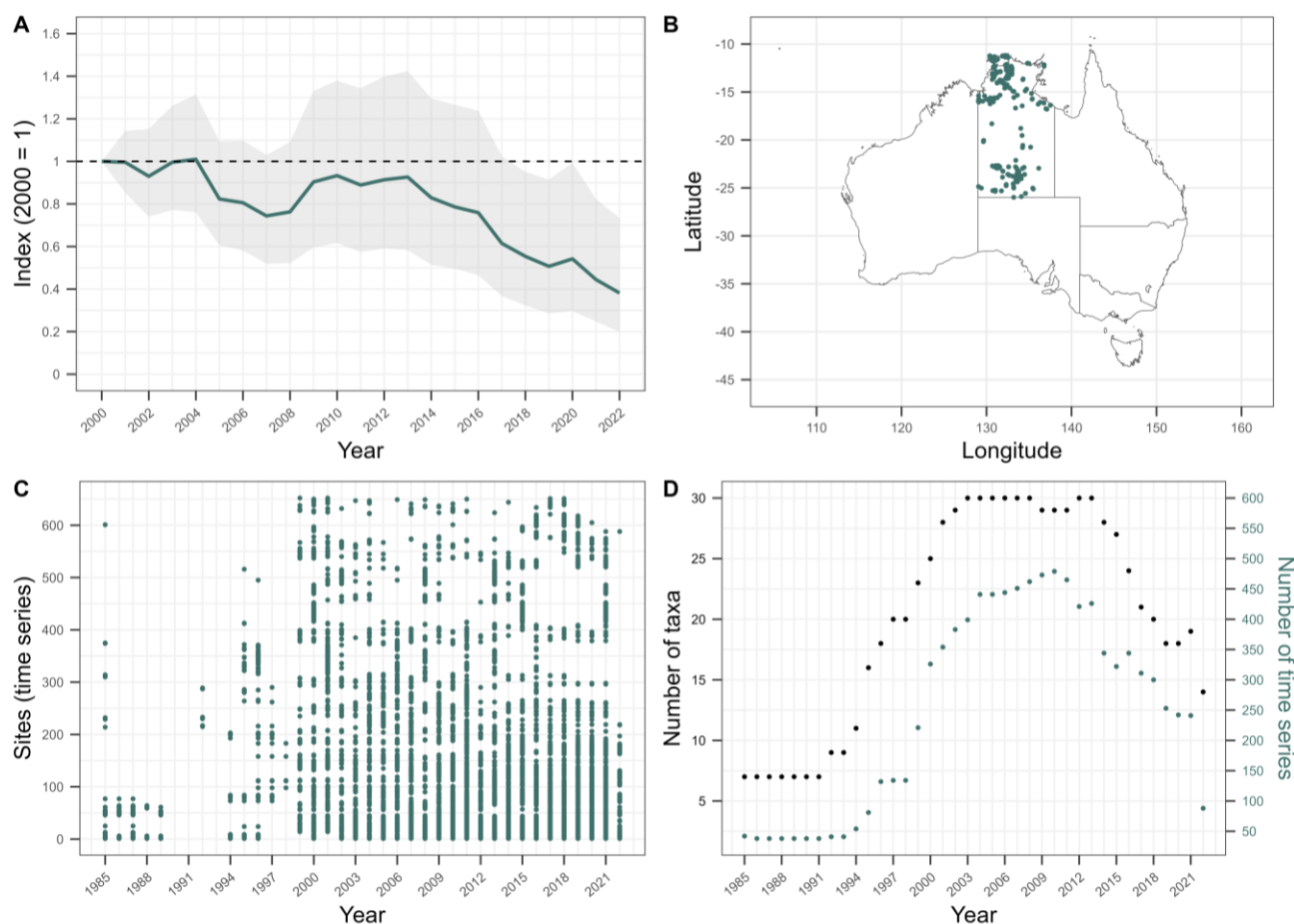


Figure 18. **A)** The Threatened Species Index 2025 for the Northern Territory. The green line shows the average change in relative abundance compared to the baseline year of 2000 where the index value is set to 1. The shaded areas show the confidence limits. **B)** A map showing where the threatened monitoring data, submitted to the index, were recorded in the Northern Territory. The green dots indicate repeatedly monitored sites. **C)** A dot plot showing the years for which monitoring data were available to compile the index. Each row represents a time series where a taxon was monitored with a consistent method at a single site in the Northern Territory. **D)** The number of taxa (in black circles) and number of time series (in green circles) used to calculate the Northern Territory index for each year.

Glossary

The TSX is created using multiple time series of population abundance, brought together to reveal changes in threatened species abundances over time. To interpret the results of the TSX correctly, refer to the following definitions of some commonly used terms.

Taxon: a taxonomic unit, specifically including both species and subspecies in this context.

Taxa: plural of *taxon*.

Time series: repeated surveys of a single taxon, conducted at a single site using the same method over at least 2 years.

Population: a group of organisms from the same taxon, living in a distinct area of habitat at a particular time. A single taxon can have multiple populations, depending on its range and habitat distribution.

Abundance: the number of individuals recorded at a survey site. This count provides an estimate of a species' local population size.

Relative abundance: the rate of change in population abundance over time. Rather than measuring the absolute number of individuals, this focuses on how populations increase or decrease relative to their starting abundance.

Confidence limits: ranges that show the level of uncertainty in an index calculation. These are produced using a statistical method called "bootstrapping," which resamples trends to estimate upper and lower bounds. Wider limits indicate greater variation in the underlying trends.

Appendix

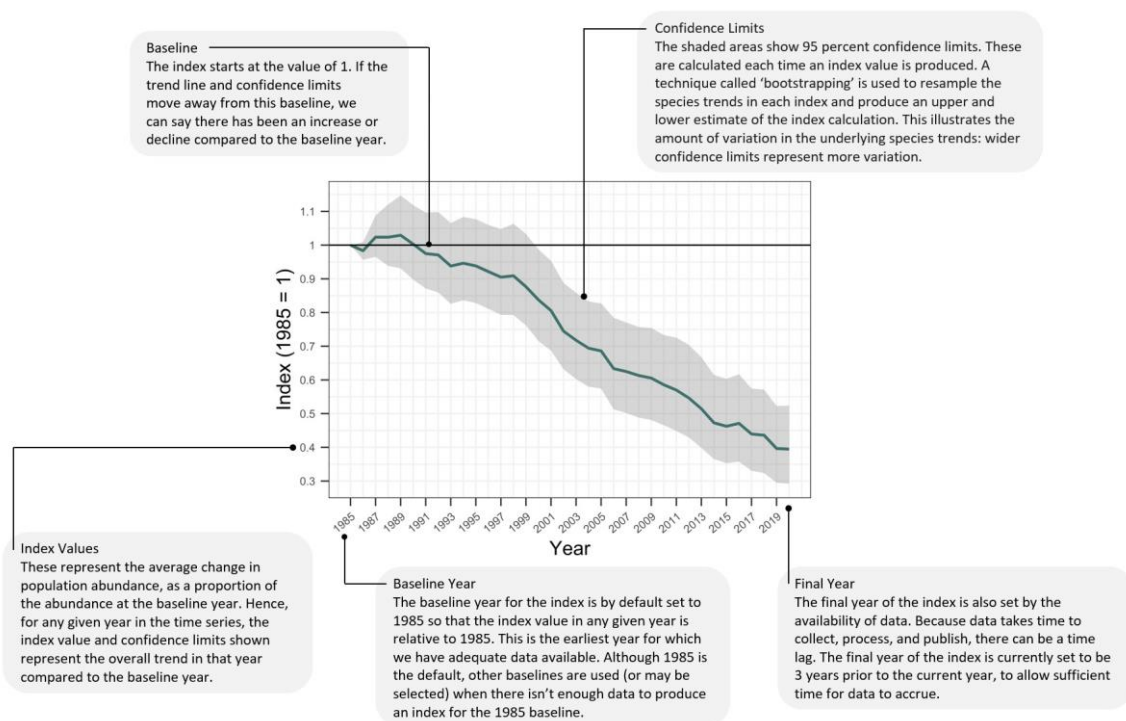


Figure A1. This illustration explains how to interpret the Threatened Species Index trend graphs. It briefly explains the time period displayed and what the confidence limits and index values show.

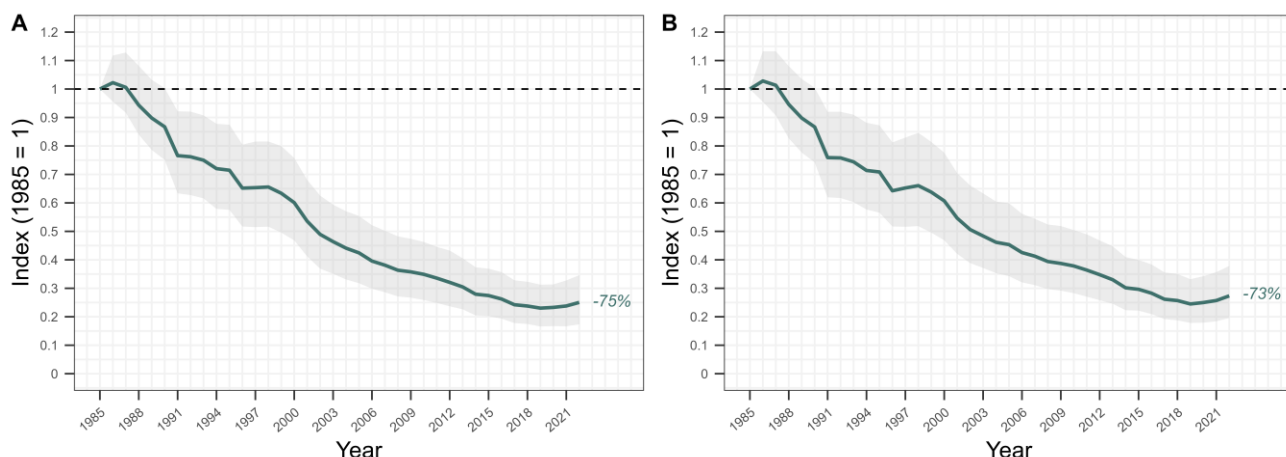


Figure A2. The Threatened Species Index 2025, showing trends up to 2022 across all taxa **(A)** and excluding reptile taxa **(B)**. The green lines show the average change in relative abundance compared to the baseline year of 1985 where the index value is set to 1. The shaded areas show the confidence limits.

Table A1. Upper and lower confidence interval (CI) values for the 2022 index value of the Threatened Species Index 2025, presented for the overall index (all groups) and separately for birds, mammals, plants, amphibians, and reptiles.

Trend	2022 Trend Value	2022 Lower CI Value	2022 Upper CI Value
All groups	0.250	0.174	0.346
Birds	0.442	0.325	0.624
Mammals	0.620	0.290	1.248
Plants	0.270	0.153	0.461
Amphibians	0.030	0.008	0.106
Reptiles	0.060	0.021	0.185

Table A2. All taxa currently included in the Threatened Species Index 2025 as listed according to EPBC Act, IUCN Red List, and The Action Plan for Australian Birds 2020. The proportion of all eligible listed taxa represented in the index is also provided. Values in parentheses exclude duplicates for subspecies where only the parent taxa (species) are explicitly listed.

	EPBC Act	IUCN Red List	The Action Plan for Australian Birds 2020	All listings
Total number of taxa	355 (349)	206 (182)	59	395 (389)
Proportion of all listed taxa represented	18% (19%)	11% (12%)	27%	12% (13%)

Table A3. All National Priority Species currently included in the Threatened Species Index 2025.

Group	Species	EPBC Act Status	Number of time series	Av. time-series length
Birds	Australasian Bittern <i>Botaurus poiciloptilus</i>	Endangered	2	4
Birds	Black-eared Miner <i>Manorina melanotis</i>	Endangered	103	14.4
Birds	Carnaby's Black-Cockatoo <i>Zanda latirostris</i>	Endangered	219	8.6

Table A3 (continued). All National Priority Species currently included in the Threatened Species Index 2025.

Group	Species	EPBC Act Status	Number of time series	Av. time-series length
Birds	Christmas Island Goshawk <i>Accipiter fasciatus natalis</i>	Endangered	225	5.6
Birds	Far Eastern Curlew <i>Numenius madagascariensis</i>	Critically Endangered	701	16.7
Birds	Malleefowl <i>Leipoa ocellata</i>	Vulnerable	175	16.5
Birds	Orange-bellied Parrot <i>Neophema chrysogaster</i>	Critically Endangered	7	28.3
Birds	Plains-wanderer <i>Pedionomus torquatus</i>	Critically Endangered	5	11
Birds	Western Ground Parrot <i>Pezoporus wallicus flaviventris</i>	Critically Endangered	4	7.2
Mammals	Australian Sea-lion <i>Neophoca cinerea</i>	Endangered	41	19
Mammals	Bilby <i>Macrotis lagotis</i>	Vulnerable	11	8.6
Mammals	Chuditch, Western Quoll <i>Dasyurus geoffroii</i>	Vulnerable	31	18.3
Mammals	Digul, Northern Quoll <i>Dasyurus hallucatus</i>	Endangered	102	10.6
Mammals	Eastern Quoll, Luaner <i>Dasyurus viverrinus</i>	Endangered	2	11
Mammals	Kangaroo Island Echidna <i>Tachyglossus aculeatus multiaculeatus</i>	Endangered	51	2.6
Mammals	Koala (Queensland, NSW and ACT) <i>Phascolarctos cinereus</i>	Endangered	115	15.1
Mammals	Leadbeater's Possum <i>Gymnobelideus leadbeateri</i>	Critically Endangered	19	19.8
Mammals	Mountain Pygmy-possum <i>Burramys parvus</i>	Endangered	12	33.8
Mammals	New Holland Mouse <i>Pseudomys novaehollandiae</i>	Vulnerable	8	22.4
Mammals	Northern Hairy-nosed Wombat <i>Lasiorninus krefftii</i>	Critically Endangered	1	23
Mammals	Numbat <i>Myrmecobius fasciatus</i>	Endangered	5	12.2
Mammals	Southern Bent-winged Bat <i>Miniopterus orianae bassanii</i>	Critically Endangered	103	5.8
Mammals	Spectacled Flying-fox <i>Pteropus conspicillatus</i>	Endangered	53	8.4
Mammals	Western Ringtail Possum, Ngwayir <i>Pseudocheirus occidentalis</i>	Critically Endangered	4	21.2
Plants	Angle-stemmed Myrtle <i>Gossia gonoclada</i>	Endangered	7	16
Plants	Bulberin Nut, Bulburin Nut Tree <i>Macadamia janseni</i>	Endangered	5	2
Plants	Davies' Waxflower, St Helens Waxflower <i>Phebalium daviesii</i>	Critically Endangered	2	27.5

Table A3 (continued). All National Priority Species currently included in the Threatened Species Index 2025.

Group	Species	EPBC Act Status	Number of time series	Av. time-series length
Plants	Footie's Grevillea, Cataby Grevillea <i>Grevillea calliantha</i>	Endangered	7	11
Plants	Forked Spyridium <i>Spyridium furculentum</i>	Endangered	5	12.2
Plants	Giant Andersonia <i>Andersonia axilliflora</i>	Critically Endangered	1	24
Plants	Mount Imlay Mallee <i>Eucalyptus imlayensis</i>	Critically Endangered	2	9
Plants	Small-flowered Snottygobble <i>Persoonia micranthera</i>	Critically Endangered	2	23
Plants	Stiff Groundsel, Behr's Groundsel <i>Senecio behrianus</i>	Endangered	4	3.8
Plants	Stirling Range Dryandra <i>Banksia montana</i>	Critically Endangered	1	26
Plants	Waddy-wood, Birdsville Wattle <i>Acacia peuce</i>	Vulnerable	1	29
Plants	Wollemi Pine <i>Wollemia nobilis</i>	Critically Endangered	1	25
Plants	<i>Pimelea cremnophila</i>	Critically Endangered	1	3
Amphibians	Kroombit Tinker Frog <i>Taudactylus pleione</i>	Critically Endangered	1	38
Amphibians	Red and Yellow Mountain Frog <i>Philoria kundagungan</i>	Endangered	1	5
Amphibians	Southern Bell Frog <i>Litoria raniformis</i>	Vulnerable	225	13.9
Amphibians	Southern Corroboree Frog <i>Pseudophryne corroboree</i>	Critically Endangered	24	12.1
Amphibians	White-bellied Frog <i>Anstisia alba</i>	Critically Endangered	3	6.3
Reptiles	Bellinger River Saw-Shelled Turtle <i>Myuchelys georgesi</i>	Critically Endangered	3	4
Reptiles	Canberra Grassland Earless Dragon <i>Tympanocryptis lineata</i>	Critically Endangered	8	13.4
Reptiles	Great Desert Skink <i>Liopholis kintorei</i>	Vulnerable	4	13.8
Reptiles	Green Sea Turtle <i>Chelonia mydas</i>	Vulnerable	3	22.3
Reptiles	Pygmy Bluetongue <i>Tiliqua adelaidensis</i>	Endangered	2	3.5
Reptiles	Short-nosed Sea Snake <i>Aipysurus apraefrontalis</i>	Critically Endangered	1	8
Reptiles	Western Swamp Turtle <i>Pseudemydura umbrina</i>	Critically Endangered	2	39

References:

Garnett ST & Baker GB (2022). The Action Plan for Australian Birds 2020 (1st ed.) CSIRO Publishing.