



WWF®

REPORT

AUS

2020

© WWF-AUSTRALIA / JIM & MITCH DODRILL

ANOTHER 37 MILLION AUSTRALIAN ANIMALS COULD BE LOST NEXT DECADE IF GOVERNMENT FAILS TO PROPERLY ENFORCE NATIONAL ENVIRONMENT LAWS

SUMMARY

WWF-Australia estimates that if Australia's national conservation law, the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), had been properly applied, complied with and enforced from 2010 to 2018, the death, displacement and suffering of at least 30 million native animals could have been prevented in Qld and NSW alone – this is an average of 3.7 million animals a year or 37 million a decade. Over this eight-year period, we estimate that more than 3.7 million native mammals (including at least 1,500 koalas), 6.2 million native birds and 20.2 million reptiles were displaced and/or killed in these two states due to the destruction of habitats that could, or should, have been prevented by the EPBC Act.

The Australian Government recently tabled the *Environment Protection and Biodiversity Conservation Amendment (Streamlining Environmental Approvals) Bill 2020* (the Bill), that would devolve national responsibilities to protect biodiversity to the states and territories, while the Australian Government would retreat to a role as overseer of yet-to-be-decided national standards. At the time of writing, the Bill will be debated in the Senate in October 2020.

Recent reviews of the EPBC Act reveal alarming maladministration, with a pervasive lack of compliance and enforcement. Considering how poorly the Australian Government has administered the EPBC Act to date, the failure of the current Bill to ensure the establishment of an independent compliance authority makes the prospects for effective future enforcement doubtful.

If habitat destruction for EPBC Act listed species and ecosystems continues unabated due to lack of compliance and proper enforcement, another 37 million native animals – including many not yet on the threatened list – will be condemned to displacement, suffering and death from the destruction of habitat.

If we are to stop Australia's extinction crisis, it is critical that the Australian Government reform the EPBC Act to remove current ambiguities and loopholes that allow mass ongoing destruction of habitat for native wildlife. The Australian Government should introduce strong national environmental standards, and rather than devolve powers to the states and territories, it should invest those powers in

an independent national ‘cop on the beat’ as recommended by the independent reviewer of the EPBC Act, and Australia’s leading environmental and legal experts.

Introduction

The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) requires actions that have, will have, or are likely to have, a significant impact on ‘matters of national environmental significance’ (MNES) to be referred to the Minister for assessment and a decision on whether or not to approve the action.¹

The independent review of the EPBC Act and other analyses have found that the Act is comprehensively failing to protect Australia’s matters of national environmental significance, such as threatened species and ecosystems, due to:

- pervasive non-compliance with the referral obligations of the EPBC Act, particularly by agricultural developers;
- corresponding lack of enforcement to rein-in mass non-compliance;²
- poor administration of approvals and offsets;
- lack of clear performance standards and an independent ‘cop on the beat’.³

The Australian Government recently tabled the *Environment Protection and Biodiversity Conservation Amendment (Streamlining Environmental Approvals) Bill 2020* (the Bill), that would devolve responsibility to the states and territories for assessing and granting approvals to developers under the EPBC Act, while the Australian Government would retreat into a role as overseer of yet-to-be-decided ‘national standards’.

Pervasive non-compliance with referral obligations, and the corresponding failure of the Australian Government to rein this in, is the greatest failing of the administration of the EPBC Act which, if it continues, threatens to result in the suffering, death and displacement of large numbers of native animals, while driving native species further towards extinction.

Considering how poorly the Australian Government has administered the EPBC Act to date, the prospects for effectively enforcing it one step removed, as proposed in the current Bill, are doubtful.

Scientists have identified ten threatened birds and seven threatened mammals that will likely become extinct by 2038 if current downward trends continue, due to the lack of effective abatement of threats.⁴

In this analysis, we applied methods used in previous WWF reports⁵ to estimate the numbers of individual birds, mammals and reptiles – not restricted only to threatened species – that were likely to have been killed or displaced due to forest and woodland habitat destruction over the last decade. This destruction could or should have been prevented had the EPBC Act been properly administered.

¹ Actions may be approved by determining that it is not a “controlled action”, that is, not significant.

² Craik W, 2018, *Review of interactions between the EPBC Act and the agriculture sector*. Independent report prepared for the Commonwealth Department of the Environment and Energy; Taylor MFJ, Blanch S, 2020, *Pervasive inaction on national conservation law in Queensland, 2016–18*. WWF-Australia Technical report update; Ward MS et al. 2019, Lots of loss with little scrutiny: The attrition of habitat critical for threatened species in Australia. *Conservation Science and Practice*, 1, 117; Australian National Audit Office 2020, *Referrals, Assessments and Approvals of Controlled Actions under the Environment Protection and Biodiversity Conservation Act 1999* (<https://www.anao.gov.au/work/performance-audit/referrals-assessments-and-approvals-controlled-actions-under-the-epbc-a>).

³ Samuel G, 2020, *The independent review of the Environment Protection and Biodiversity Conservation Act 1999: Interim report*. prepared for the Commonwealth Department of the Environment (<https://epbcactreview.environment.gov.au/resources/interim-report>).

⁴ Geyle HM et al. 2018, Quantifying extinction risk and forecasting the number of impending Australian bird and mammal extinctions. *Pacific Conservation Biology*, 24,157-167.

⁵ Cogger HG et al. 2003, *Impacts of land clearing on Australian wildlife in Queensland*. World Wide Fund for Nature Australia, Brisbane; Johnson C et al. 2007, *Impacts of land clearing: the impacts of approved clearing of native vegetation on Australian wildlife in New South Wales*. WWF-Australia report, Sydney; Cogger HG et al. 2017, *Australian animals lost to bulldozers in Queensland*. WWF-Australia; WWF-Australia 2015, *Native wildlife at risk if NSW Native Vegetation Act is repealed*.

We used spatial detections of landclearing in Qld and NSW since 2000 to determine areas of forests and woodlands cleared. Of these, we retained only instances of clearing:

- that were undeveloped forest both in 2000 and in 2009;
- that had not been cleared over the 2000-09 period;
- that was also likely-to-occur habitat for at least three species or at least two ecological communities listed as threatened under the EPBC Act.

We assumed that such instances of destruction of habitat for threatened species or ecosystems would highly likely have been prevented if the EPBC Act were reformed to remove loopholes and were properly enforced.

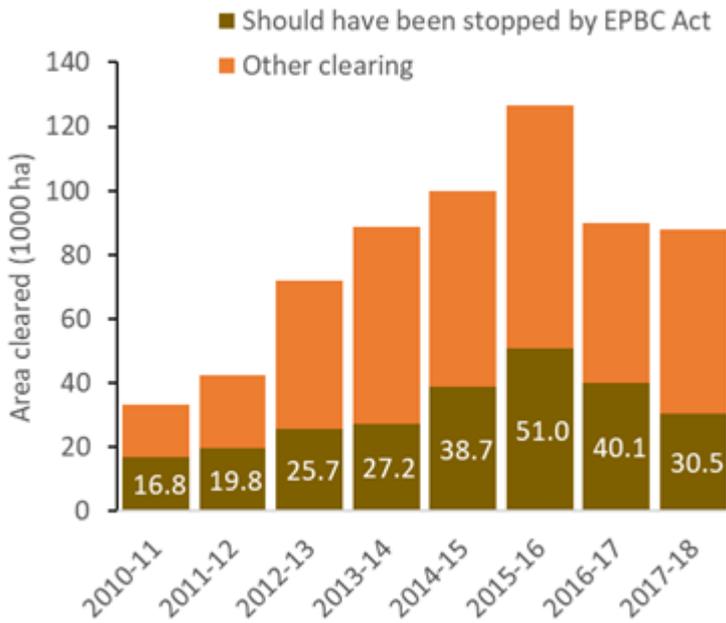
We excluded clearing attributed to forestry and plantation harvest – the former because almost all native forest logging operations are exempted under the Regional Forest Agreement provisions of the EPBC Act and the latter because it is not native forest.

We limited the analysis to just Qld and NSW, because these two states have had forest protection laws weakened in the past decade and account for the majority of deforestation in Australia. This has resulted in eastern Australia being listed as a 'global deforestation front' by WWF International.⁶

For more detail see the Methods section below.

⁶ WWF-International 2015, *Deforestation Fronts* (https://www.panda.org/our_work/our_focus/forests_practice/deforestation_fronts2).

a) Queensland



b) New South Wales

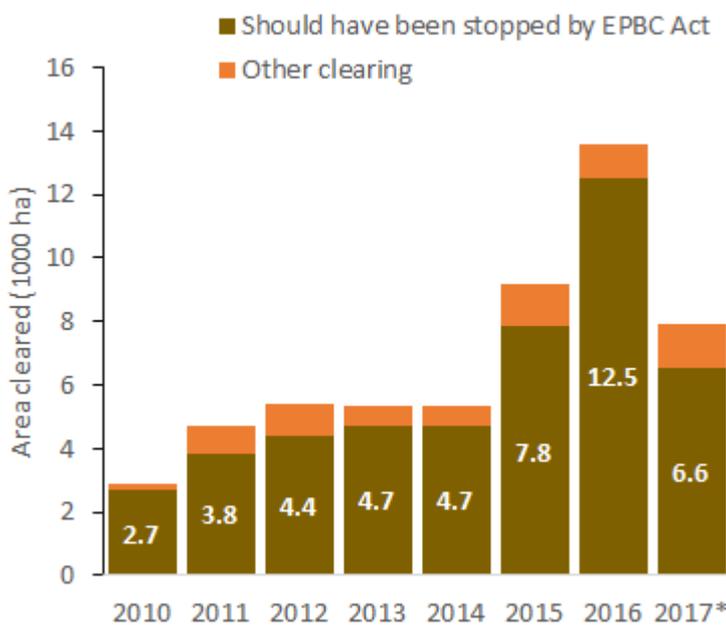


Figure 1. Areas cleared that could or should have been stopped by EPBC Act according to criteria proposed here, and other forest clearing for a) Qld and b) NSW, exclusive of forestry operations.

* detections only released for 2017 up to August 2017 when the *Native Vegetation Act* was repealed in NSW.

Results and discussion

A total of 641,316 ha was cleared in Qld over the 2010–18 period that was undeveloped native forest in both 2000 and 2009 and had not been cleared over the 2000–09 period, exclusive of forestry operations. Of this, 249,836 ha (39%) should have been prevented by the EPBC Act according to the criteria proposed here (Figure 1a). Of this, 89% was for livestock pasture development (primarily for beef cattle). Annual clearing rates surged upwards after the former Newman Queensland Government weakened state landclearing controls in 2012/13. Annual clearing rates declined again after the change of government in 2015 (Figure 1a).

Of a total of 54,397 ha cleared in NSW over the 2010–17 period that was undeveloped native forest in 2000 and 2009, 47,281 ha (87%) should have been prevented by the EPBC Act according to the criteria proposed here, exclusive of forestry operations (Figure 1b). Of this, 77 per cent was cleared for agriculture (pastures and crops). Areas approved for clearing increased 13-fold following the repeal of the *Native Vegetation Act* in 2017.⁷ Unfortunately, those spatial data have not been released to enable our analysis to include post-repeal habitat destruction statistics.

Applying density estimates previously compiled and published, we estimate that about 3.7 million native mammals (Table 1) and 6.2 million native birds (Table 3) would have lost their habitat so far this decade (2010–18). These losses could or should have been prevented if the EPBC Act were effective and properly enforced in regard to the threatened species and ecosystems present in the areas destroyed.

These totals include native animals that are listed as threatened, such as the koala, but are not restricted to threatened species. At least 1500 koalas were lost due to the destruction of forests that should otherwise have been prevented by the EPBC Act (Table 2). Note that this estimate is much less than the 6365 koalas we estimated earlier to have been lost due to the destruction of *all* likely habitats in Qld from 2010 to 2016.⁸ This is because, in this analysis, we only counted destruction of known koala habitat (according to the Australian Government map of known habitat) where at least three threatened species or two threatened ecological communities were also likely to occur, exclusive of forestry operations.

The koala and greater glider are arboreal, forest-dependent marsupials that should be less vulnerable to extinction than smaller, ground-dwelling mammals.⁹ But their populations have declined to the point that they were listed as vulnerable to extinction under the EPBC Act this past decade. Since they were listed under the EPBC Act, rates of destruction of their respective habitats actually increased rather than declining as it should have if the Act had been effective.¹⁰ An example of destruction of known koala habitat is shown in Figs 2-3.

At least 20 million reptiles could also have died due to habitat destruction, based on an overall average density of 68 scaled reptiles per hectare (i.e. lizards, geckos, skinks and snakes, excluding crocodylians). However, reptile densities are poorly characterised and this number could be much higher – over 59 million if earlier, higher density estimates are used (Table 4).¹¹

⁷ NSW Government 2020, *2018 landcover change reporting* (<https://www.environment.nsw.gov.au/topics/animals-and-plants/native-vegetation/landcover-monitoring-and-reporting/2018-landcover-change-reporting>).

⁸ WWF-Australia 2017, *Koalas lost to bulldozers in Queensland 2010–16*. Technical report.

⁹ Johnson CN, Isaac JL, 2009, Body mass and extinction risk in Australian marsupials: the 'Critical Weight Range' revisited. *Austral Ecology*, 34, 35–40.

¹⁰ See earlier WWF analyses: <https://www.wwf.org.au/news/news/2020/destruction-of-koala-habitat-increased-after-vulnerable-listing> and <https://www.wwf.org.au/news/news/2020/destruction-of-greater-glider-habitat-jumped-by-52-after-vulnerable-listing#gs.g4y6g5>

¹¹ van Eeden L et al. (in press), *Impacts of the 2019–2020 'Black Summer' bushfires on Australian vertebrates*. WWF-Australia.



Figure 2. An example of destruction of known forest habitat for the koala in 2016 in central coastal Qld for livestock pasture. The forest destroyed is also likely habitat for seven other threatened animal species and three threatened plant species. There was no referral made for this clearing under the EPBC Act, and no public record of enforcement action taken. TOP IMAGE: July 2016; BOTTOM IMAGE: Dec 2018, showing some resprouting after clearing in late 2016.



Figure 3. Koala sighted in July 2017 along the northern boundary of the property (near the top right corner of Figure 3) where habitat was destroyed the preceding year. Photo by anonymous local resident.

Table 1. Estimated numbers of mammals killed or displaced by clearing, exclusive of forestry operations, that could have been stopped by proper enforcement of the EPBC Act in Qld and NSW from 2010 to 2018.

Note that the discrepancy in total areas cleared relative to Figure 1 is due to some areas cleared not mapping to a region for which density estimates were available.

State	Bioregion	Habitat destroyed 2010-	Mammal density (no./ha)*	Number displaced/ killed
QLD	Brigalow Belt	193,494	3.93	760,430
	Central Qld Coast	5,473	42.12	230,541
	Desert Uplands	1,596	3.48	5,553
	Einasleigh Uplands	396	1.42	562
	Mitchell Grass Downs	2,741	2.86	7,840
	Mulga Lands	7,033	2.87	20,184
	New England Tablelands	519	45.11	23,397
	Southeast Queensland	32,195	51.24	1,649,685
	Wet Tropics	1,630	50.46	82,240
	Total	245,076		2,780,431
NSW	Coast and range	8,738	31.36	274,016
	Tablelands, slopes and plains	38,535	17.5	674,360
	Total	47,273		948,375
	Grand total	292,348		3,728,806

* Table 3 in Cogger et al (2003), and Table 3 in Johnson et al (2007) for NSW.

Table 2. Estimated numbers of koalas killed or displaced by clearing, exclusive of forestry operations, that could have been stopped by proper enforcement of the EPBC Act in Qld and NSW from 2010 to 2018.

State	Region	Known habitat destroyed 2010-18	Koala density (no./ha)*	Koalas displaced/ killed
QLD	Southeast Queensland	3,401	0.06	200
	Rest of state	29,526	0.02	635
NSW	Coast and range	6,988	0.05	349
	Tablelands, slopes and plains	6,599	0.08	528
	Grand total	43,113		1,512

* Table 3 in Johnson et al. (2007) for NSW. QLD in SEQ as modelled by Rhodes et al. (2018), outside SEQ 0.02 as in WWF 2017 report *Koalas lost to bulldozers in Queensland 2010-16*.

Table 3. Estimated numbers of birds killed or displaced by clearing, exclusive of forestry operations, that could have been stopped by proper enforcement of the EPBC Act in Qld and NSW from 2010 to 2018.

Note that the discrepancy in total areas cleared relative to Figure 1 is due to some areas cleared not mapping to a vegetation type for which density estimates were available.

State	General vegetation type (BVTs)	Habitat destroyed 2010-18 (ha)	Bird density (no./ha)*	Number displaced/killed
QLD	Acacia woodlands (10,11,12)	63,283	10.2	645,491
	Eucalypt woodlands (3,4,5,6,7,8,9)	96,815	26.0	2,517,180
	Open forest (2)	20,959	31.0	649,744
	Rainforests (15)	5,598	33.0	184,731
	Tablelands woodlands (1)	57,442	18.9	1,085,650
	Total	244,097		5,082,795
NSW	Coast and range	7,533	30	228,998
	Tablelands	2,861	20	55,791
	Western slopes	13,498	35	473,793
	Plains	23,000	14	317,397
	Rainforests	256	33	8,456
	Total	47,148		1,084,435
Grand total		291,245		6,167,230

* Table 4 in *Cogger et al.* (2003) for QLD, and Table 4 in *Johnson et al.* (2007) for NSW.

Table 4. Estimated numbers of reptiles killed or displaced by clearing, exclusive of forestry operations, that could have been stopped by proper enforcement of the EPBC Act in Qld and NSW from 2010 to 2018.

State	Habitat destroyed 2010-18 (ha)	Reptile density lower estimate (no./ha)*	Reptile density upper estimate (no./ha)**	Reptiles displaced/killed lower estimate	Reptiles displaced/killed upper estimate
QLD	249,836	68	200	16,988,848	49,967,200
NSW	47,281	68	200	3,215,075	9,456,102
Total	297,117			20,203,923	59,423,302

* estimate based on models in van Eeden et al (in press)

** estimate from *Cogger et al.* (2003)

Conclusions and recommendations

The lack of compliance with and enforcement of the EPBC Act means that the Act has failed its fundamental purpose, to stop the slide of Australian native animal and plant species toward extinction by preventing destruction of habitat and, in so doing, has condemned millions of native animals to displacement, suffering and death that results from that destruction of habitat.

The Australian Government, as a signatory to the Convention on Biological Diversity and related conventions, has primary responsibility under the external affairs powers of the Constitution for preventing and ameliorating Australia's biodiversity crisis. The current Australian Government effort to devolve approvals under the EPBC Act to the states and territories is an abdication of this primary obligation.

The Australian Government's Environment Department cannot be expected to effectively police the administration of the EPBC Act by the states and territories given the long-standing failure to halt mass non-compliance with the referral obligations of the Act. State and territory governments also have conflicts of interest, particularly in regard to mining, that could undermine their ability to effectively apply devolved approval powers under the EPBC Act.

It is critical for Australian native wildlife, our forests and natural ecosystems and the manifold benefits they provide to all Australians, that the EPBC Act be strengthened to remove the ambiguities and loopholes which are used to evade compliance. The Australian Government should follow the interim expert advice of Professor Graeme Samuel AC and introduce strong national standards and an independent 'cop on the beat' with the powers necessary to enforce the EPBC Act effectively and rein-in the epidemic of non-compliance that now prevails – free of interference from vested interests and their political allies.

If this recommendation were actioned, the Australian Government could very well prevent the displacement, suffering and loss of another 37 million Australian native animals over the coming decade.

Methods

Statewide Landcover and Trees Study (SLATS) spatial data for the period 2000 to August 2017 were obtained from the New South Wales Government and for the period 2000 to 2018 from the Queensland Government.¹² In NSW, the Landsat derived detections were used instead of SPOT5 derived detections up to 2010.

All epochs of clearing detections were condensed into single rasters with 30 m pixel size, in Albers Conical Equal Area projection. For pixels with more than one instance of clearing or forest loss detected in the period, only the first detection epoch and clearing purpose was assigned to the pixel, to exclude repeat clearing events.

These were filtered again to include only pixels that were also:

- forest both in 2000 and 2009 (per Australian Government's National Carbon Accounting System Forest Cover dataset v3)¹³;
- in undeveloped land uses in 2000 (constructed dataset based on ABARES Catchment Scale Land Use)¹⁴;
- outside a protected area (per CAPAD 2018)¹⁵;
- not in a plantation (per ABARES Forest Tenure 2018)¹⁶;
- not natural loss (fire, drought or storm damage, per SLATS purpose categories).

This footprint of clearing was reduced to just the present decade 2010–2018, and restricted to those areas where impacts on threatened species and ecosystems would have been significant enough to prevent the clearing taking place if the law had been effective.

That is, if also:

- within likely habitat for at least three EPBC Act listed threatened terrestrial species using the Australian Government public grids for Numbers of threatened species and Species of National Significance likely habitats; OR
- within likely habitat for at least two EPBC Act listed threatened ecological communities (TECs) using the Australian Government public grids for Numbers of TECs and likely TEC occurrences.¹⁷

We assumed that destruction of such important habitat for multiple threatened species and/or ecosystems would likely have been prevented if the EPBC Act had been reformed and properly enforced.

We excluded clearing that respective state governments assigned to forestry operations in the SLATS data, because these were likely exempted by the Regional Forest Agreement provisions of the EPBC Act, and so largely beyond the scope of the Australian Government Environment Department to prevent, under the existing provisions of the Act.

We multiplied the areas cleared, segmented by bioregions and vegetation types by densities used in the two earlier reports Cogger *et al.* (2003) for Qld and Johnson *et al.* (2007) for NSW.¹⁸

¹² Sources: NSW Government 2020, *SEED portal* (<https://www.seed.nsw.gov.au/>); Queensland Government 2020, *Queensland Spatial Data Catalog* (<http://qldspatial.information.qld.gov.au/catalogue/custom/index.page>).

¹³ Australian Government 2020, *National Forest and Sparse Woody Vegetation Data (Version 3, 2018 Release)* (<https://data.gov.au/data/dataset/national-forest-and-sparse-woody-vegetation-data-version-3-2018-release>).

¹⁴ As detailed in Ward MS *et al.* 2019. Lots of loss with little scrutiny: The attrition of habitat critical for threatened species in Australia. *Conservation Science and Practice*, 1, 117.

¹⁵ Australian Government 2019, *Collaborative Australian Protected Areas Database (CAPAD) 2018 - Terrestrial* (<https://www.environment.gov.au/fed/catalog/search/resource/details.page?uuid=%7B4448CACD-9DA8-43D1-A48F-48149FD5FCFD%7D>).

¹⁶ ABARES 2020, *Tenure of Australia's forests (2018)* (<https://www.agriculture.gov.au/abares/forestsaustralia/forest-data-maps-and-tools/spatial-data/forest-tenure>).

¹⁷ Australian Government 2020, Find Environmental Data (<https://www.environment.gov.au/fed/catalog/main/home.page>).

These earlier reports used a flat density of 200 per hectare for all reptiles. We used a much more conservative average of 68 reptiles per hectare, derived from more recent modelling by Lily van Eeden at the University of Sydney.¹⁹

To estimate koalas killed or displaced within the area of habitat destroyed, we first clipped to the known habitat as mapped by the Australian Government's Species of National Environmental Significance spatial database, Jan. 2016 release (obtained under licence). Then we applied the following density estimates to areas cleared in four zones: Coast and range of NSW 0.05/ha; Tablelands slopes and plains of NSW 0.08/ha from Johnson *et al.* (2007); in southeast Qld the densities as modelled by Rhodes *et al.* (2018); and in the rest of Qld a base value of 0.02/ha.

Key sources for animal density estimates

Cogger HG *et al.* 2003. *Impacts of land clearing on Australian wildlife in Queensland*. WWF- Australia report.

Johnson C *et al.* 2007. *Impacts of landclearing: the impacts of approved clearing of native vegetation on Australian wildlife in New South Wales*. WWF-Australia report.

Rhodes J *et al.* 2018. *South east Queensland Koala population modelling study*. University of Queensland report prepared for the Queensland Government Department of Environment and Heritage Protection.

van Eeden L *et al.* (in press). *Impacts of the 2019–2020 'Black Summer' bushfires on Australian vertebrates*. WWF-Australia draft report.

Caveats

As described in previous such analyses for WWF-Australia by leading zoologists, density estimates used were based on best available data and are averages over a collection of different studies with often wide ranges of variation due to observer and methodological differences, seasonality and times of observation, and differences in composition of species observed.

The analysis is also based on the assumption that clearing of likely-to-occur habitats for at least three threatened species or at least two threatened ecological communities would have been prevented or halted by a well-administered, reformed EPBC Act.

This WWF-Australia technical analysis was prepared by Senior Scientist Dr Martin Taylor, and reviewed by Professor Chris Dickman, University of Sydney

¹⁸ Cogger HG *et al.* 2003, *Impacts of land clearing on Australian wildlife in Queensland*. WWF-Australia report, Brisbane; Johnson C *et al.* 2007, *Impacts of landclearing: the impacts of approved clearing of native vegetation on Australian wildlife in New South Wales*. WWF-Australia report, Sydney.

¹⁹ van Eeden L *et al.* (in press), *Impacts of the 2019-2020 'Black Summer' bushfires on Australian vertebrates*. WWF-Australia.

WHAT WE DO

PROTECT OUR OCEANS

Ocean and reef ecosystems are resilient, productive and contribute to food security.

SAVE THREATENED SPECIES

Threatened species are on the road to recovery. Priority ecosystems are conserved and restored.

ENGAGE MILLIONS

Millions of Australians are united as active stewards of nature.



'PLANET-FRIENDLY' FOOD

'Planet-friendly' food is more widely available than ever before, and Australians are making sustainable food choices.

A STABLE CLIMATE

Australia is a leading exporter and investor in renewable energy with a zero carbon economy achieved before 2050.

CONSERVE NATURE WITH EQUITY

All WWF-Australia's initiatives will deliver positive outcomes for both people and nature.



Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

wwf.org.au

WWF-Australia National Office

Level 1/1 Smail Street,
Ultimo NSW 2007
GPO Box 528
Sydney NSW 2001

Tel: +1800 032 551
enquiries@wwf.org.au
[@WWF_Australia](https://www.facebook.com/WWF_Australia)
wwf.org.au