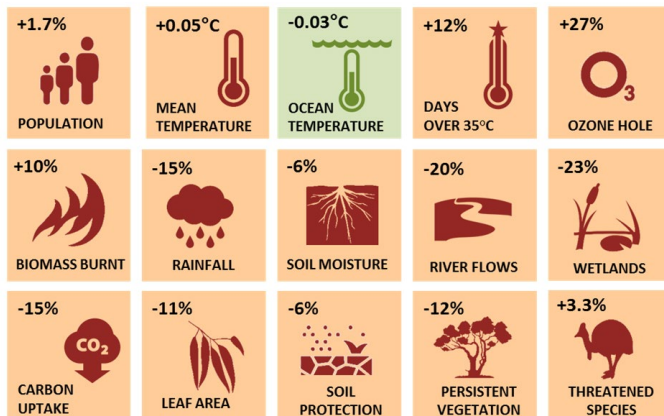


Australia's Environment in 2018

National environmental indicators: change from 2017



Rainfall conditions were generally poor across Australia in 2018, and temperatures increased once again. This fact sheet summarises indicators of Australia's environment. Full details are available on the website (www.ausenv.online/2018)

Global context

- The ozone hole increased by 27% from 2017 but remained within the range normal for the last two decades (NASA).
- Atmospheric CO₂ concentrations increased by 2.9 ppm to reach 411 ppm; a 29% increase from 1960 (NOAA).
- Global average temperatures were the fourth highest in the historical record, just below 2015 to 2017 (WMO).
- Sea ice extent increased 1% from record lows in 2017 (NSIDC).

Oceans

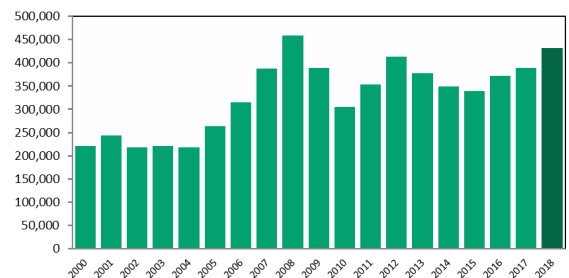
- Global ocean temperature reached a new record, continuing the pattern from previous years (IAP).
- Global sea level rose by 2.9 mm, marking an increase of 91 mm since 1993 (NASA).
- Average sea surface temperature around Australia was 0.03°C lower than in 2017, but still

well above the long-term average. A record marine heatwave occurred in the Tasman Sea in December (NOAA/BoM).

- No mass bleaching occurred in the Great Barrier Reef, but reef condition deteriorated across the length of the reef (AIMS).

Population pressure

- Australia's population increased by ca. 433,000 in 2018, the highest rate since 2008 (ABS).
- Population exceeded 25 million in June 2018, marking a 33% increase since 2000 (ABS).



Annual population growth

Weather

- National average rainfall was 422 mm - the lowest since 2005, 15% less than 2017 and 11% below long-term average.
- Rainfall was very much below average in most of inland southeast Australia, further intensifying drought conditions. Rainfall was also very low in Northern Australia, and above average in parts of WA.
- Australian average temperature was the 3rd highest on record, and mean maximum temperature the 2nd highest on record (BoM).
- Unseasonally warm and dry conditions throughout the year caused prolonged fire danger conditions (BoM).
- Average number of hot days (>35°C) was 12% higher than in 2017, including a record heatwave in northern Queensland in late 2018.

Australia's Environment in 2018

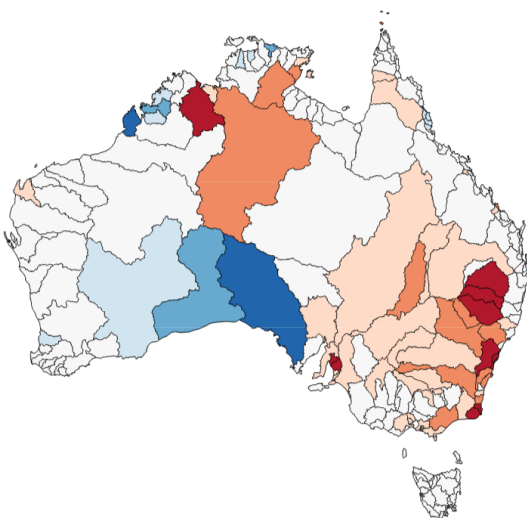
- Cool conditions in southwest WA and above average number of frost days in NSW and inland eastern Australia.

Fire

- Number of fires was 27% less than in 2017. Over 70 houses were lost in Tathra (NSW) in March, a fire fighter perished in Budawang NP (NSW) in August.
- Few very large fire events, but prolonged fire conditions during the cooler months, with major fire events in NSW and southern WA in April, May and August.
- Total carbon emissions from fire were 161 MtC or 10% more than in 2017, mainly due to increases in Queensland.

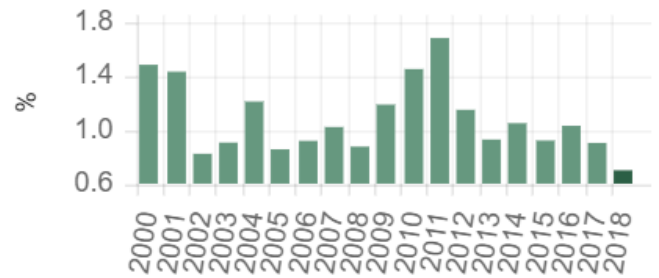
Rivers and wetlands

- Total runoff into waterways was 20% less than in 2017, with declines in all States and Territories except Queensland and Tasmania.
- Flood events occurred in northwest Australia in January, March on the Northern Queensland coast, and May in Tasmania (BoM).
- River flows were the lowest since at least 2000 in several catchments in the Darling River, southeast coast and Timor Sea catchments.

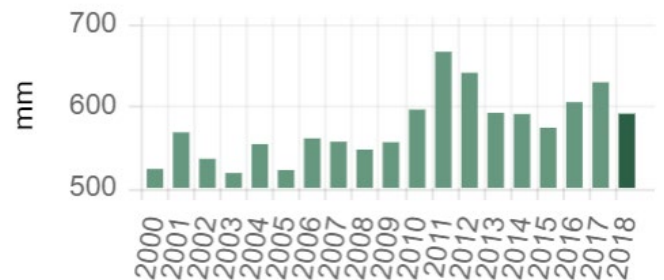


Very high (blue) and low (red) streamflow by catchment. Darkest colours represent record levels for 2000–2018.

- Water in storages declined in the Murray-Darling Basin (-31%), Ord Basin (-29%) and the southeast capitals (-11 to -22%), but increased in Perth (+37%) (BoM).
- The total area inundated was 23% less than in 2017 and lower than at any time since at least 2000.



National percentage area inundated for at least some time during the year.



National average soil moisture storage.

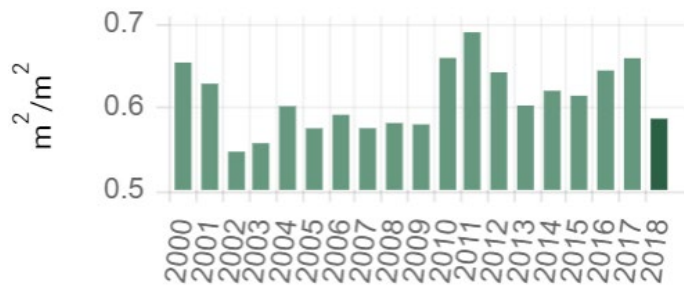
Soil condition

- Soil moisture status in the top 6m fell across by 38 mm or 6% from 2017.
- Moisture availability declined to the lowest levels since at least 2000 along the SE coast and Gulf of Carpentaria.
- Soil protection by vegetation and litter deteriorated across most of the country, reaching levels last seen in 2009.

Vegetation

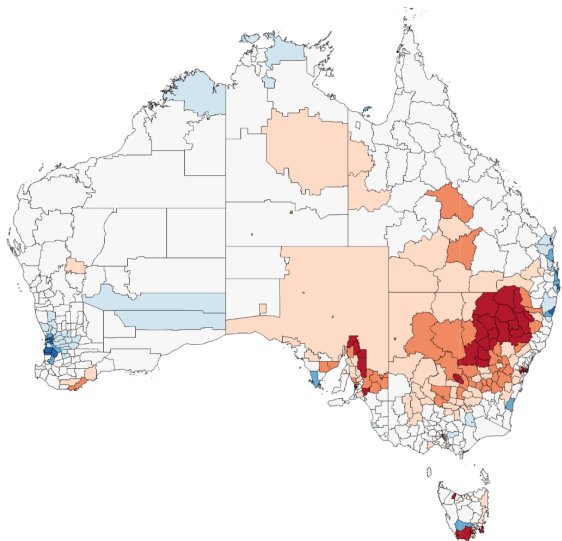
- Total vegetation leaf area declines 11% from 2018, reaching lows last seen in 2009.

Australia's Environment in 2018



National average leaf area index

- Total vegetation carbon uptake was 15% lower than in 2017 and the lowest since 2009.
- Vegetation condition and growth were particularly poor across much of NSW and SA. Conditions were above average in southern WA.
- Biomass production in dryland cropping was 17% lower than in 2017, with a 17% increase in WA offset by a 34% decrease in the other states.
- National biomass production also decreased on grazing land (-20%), irrigated land (-17%), native and plantation forestry (-4%) and natural environments (-11%).



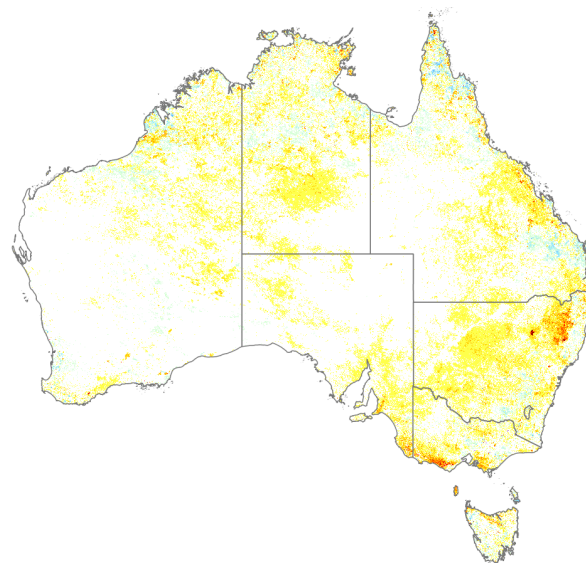
Very high (blue) and low (red) vegetation growth by local government area in 2018. Darkest colours represent record levels for 2000–2018.

Vegetation change

- The area of persistent vegetation cover declined across Australia in 2018, with an average decline

of 12% on 2017. Persistent vegetation includes most woody vegetation, but also perennial pasture and other evergreen vegetation.

- Greatest declines occurred on grazing land (-6.5 Mha or -20%) and natural environments (-4.1 Mha or -10%).
- Declines are mainly due to drought, compounded by losses from fire and clearing.



Persistent cover change by bioregion, ranging from -3% (yellow) to -35% of the area (dark brown).

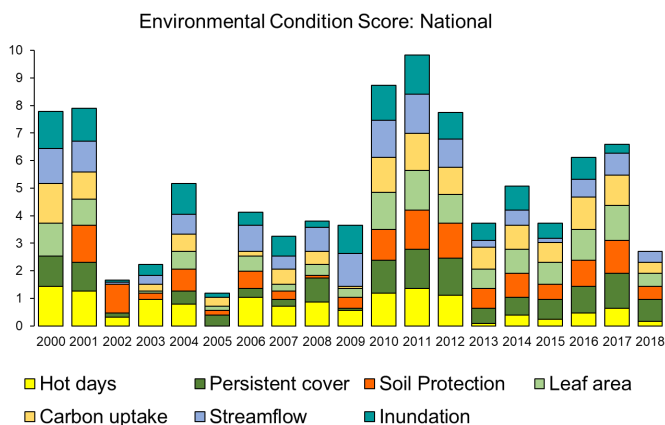
Biodiversity

- 54 species were added to the list of threatened species with 1775 species now listed in total (DoEE). This is an increase of 3% from 2017 and 47% from 2000. Newly added species occur mainly in southwest WA and along the NSW coast
- One plant species was declared extinct in 2018. One bee species was rediscovered.
- Water birds in NSW and southern Queensland continued to decline in abundance, breeding, and species richness (UNSW)
- Mass mortality among Spectacled Flying Foxes in tropical Queensland during late 2018 heatwave (CSIRO). Now listed as endangered.
- Invasive species represent a key threat to 82% of threatened species, with rabbits, *Phytophthora* root rot, and feral pigs, cats and goats all threatening more than 100 species.

Australia's Environment in 2018

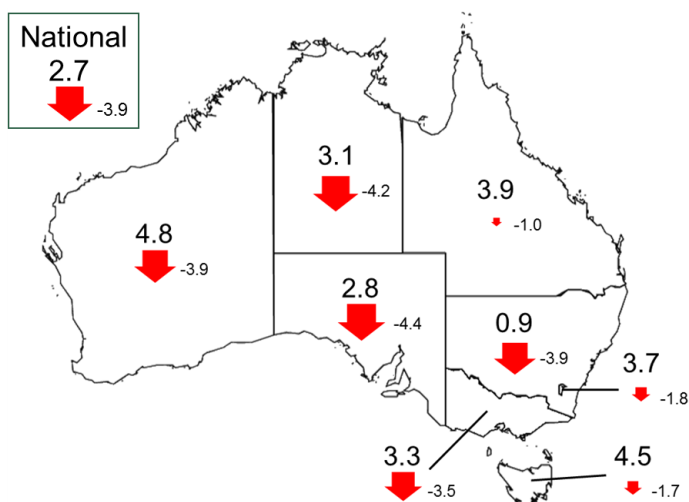
Headline indicators

- An experimental Environmental Condition Score (ECS) combines seven indicator values. The ECS represents a subjective and incomplete measure, but scores for the components are generally similar, suggesting some degree of robustness.
- National ECS decreased by 3.9 points to a very low 2.7, the lowest since 2005.



National ECS and its components for 2000–2018.

- ECS declines across Australia, reaching the lowest values since at least 2000 in NSW. Declines to around average conditions occurred in WA and Tasmania.



Environmental Condition Score by State and Territory, and change from the previous year

About this report

- This report summarises a large amount of environmental information made available through our interactive website, supplemented by information from other sources.
- Our objective is to understand how Australia's environment is changing, what environmental information is currently available, and where important gaps exist.
- In *Australia's Environment Explorer*, data on 16 indicators in 7 themes can be viewed as maps, accounts or charts; examined by region and land cover type; compared to preceding years; and downloaded for further analysis.
- Data and summary reports for 2019 are planned for release in February 2020.

How were the data derived?

- Mapping of land cover, inundation, bushfire intensity and occurrence, exposed soil and vegetation leaf area was derived through automated interpretation of satellite imagery.
- We estimated the other indicators by integrating ground- and satellite data with spatial environmental models using ANU's OzWALD model-data fusion system.

Acknowledgements

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More information

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