## One big thing

*So many important things happen in science every week. Here's one big thing you may have missed.*

**Professor Corey Bradshaw of Flinders University and the Australian Research Council Centre of Excellence of Australian Biodiversity and Heritage**:

Australia used to have a lot of really big animals — wombat-like creatures as big as cars, birds more than two metres tall, huge kangaroos, and lizards more than seven metres long once roamed the Australian continent. But most of these species disappeared during a peak about 42,000 years ago.

Why?

Ancient clues from fossils and archaeology scattered across Australia have led to several different hypotheses about the fate of these '[megafauna](#)'. The growing consensus is that [multiple](#) causes were at play, including climate change, the impact of people on the environment, and access to freshwater sources. New research has just [emerged](#) that assessed how susceptible different living and extinct species were to extinction — and what it means for the survival of species today.

Using characteristics such as body size, lifespan, survival, and fertility, the researchers created simulation models to predict the likelihood of surviving under different environmental disturbances. Simulations included everything from increasing droughts to increasing hunting pressure to see which species of 13 extinct megafauna, as well as eight comparative species still alive today, had the highest chances of surviving. Comparing the results to what we know about the timing of extinction derived from dated

fossils, the expectation was that the most extinction-prone species were the first species to go extinct. But that wasn't the case.

In fact, the relative susceptibility to extinction across species did not match the timing of their extinctions. Even most of the living species used for comparison — such as echidnas, emus, brush turkeys, and common wombats — were *more susceptible* on average than their now-extinct counterparts. This means that the true extinction cascade was likely the result of complex, localised scenarios, including impacts of regional climate change, different pressures from people across regions, and behavioural differences. For example, fast-hopping red kangaroos still alive today might have had an escape advantage over some of the slower-striding short-faced kangaroos that went extinct. Small wombats that dug burrows might also have been more difficult for people to hunt than the bigger, non-burrowing megafauna. The results support the idea that extinction risk can be high across all body sizes depending on a species' particular ecology, meaning that predicting [future extinctions from climate change and human impacts](#) isn't always straightforward.

"Some evidence suggests the risk of this condition occurring may be somewhat higher in people of a younger age, however a small number of cases have been reported in people of different ages (including older adults)."

There is still much - most, really - we don't know about this condition. Expect recommendations to change as scientists learn more.

*Have you got a big science question that you'd love to get an expert answer (or opinion) on? Send it to [liam.mannix@theage.com.au](mailto:liam.mannix@theage.com.au). I'll find an expert to answer it in an upcoming edition.*

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