



## Bring climate change back from the future

The 'shock' over an Australian extinction shows that we still don't accept that global warming is a problem for now, says James Watson.

Climate change has claimed its first mammal casualty, with the reported extinction of the Bramble Cay melomys (*Melomys rubicola*). The last of these Australian marsupials is thought to have disappeared around 2009, but the release last week of a report by the Queensland government stating the probable extinction of the species and the cause — sea-level rise induced by climate change — made worldwide news.

The death of the last individual of the last population of a mammal species, indeed of any species, is as irreversible as it is profoundly sad. Yet the widespread coverage of this extinction and the subsequent outpouring of concern from across society tapped into something else. Species go extinct every day with little fanfare or report. The last Australian mammal to go extinct before the melomys was the Christmas Island pipistrelle (*Pipistrellus murrayi*) in 2009, with almost no press. The melomys extinction was covered because it ended the idea that climate change will be a concern for species only in the future. That reflects a fundamental, widespread problem with how we think about and report on climate change, especially when it comes to nature and conservation. Too many people still think that climate change is a problem that we can deal with later.

It's easy to see why. Climatologists use long-term forecasts, on timescales such as 50–100 years, and for good reason. It takes long periods of time for alterations in atmospheric concentrations of greenhouse gases to cause change. Looking ahead for a scientist brings increased certainty — we know that there will be a problem to address. And politicians like to emphasize the long term for the opposite reason: they can stress the uncertainties in the detail, and talk about action without needing to take any. Yet these distant forecasts have also become the basis of how people assess and communicate the probable effects of climate change on species and ecosystems. And as the Bramble Cay melomys shows, we are seeing those impacts now.

The world's climate system is already seriously disrupted: the global average temperature is already nearly 1 °C warmer than it should be. Across Earth, we are seeing radical shifts in daily temperatures, rainfall regimes and the timing of seasons, as well as overall increases in the number and intensity of droughts, cyclones and floods. It is now accepted that we have moved beyond the natural climate cycle and that, even if climate-mitigation policies are implemented immediately, it will take centuries to recover.

Nature is in the firing line. Climate change introduces new threats and speeds up existing declines. There is an avalanche of extinctions coming because of the direct impacts of change — temperature, rainfall and sea-level rise. But that is not the end of it. Climate change also interacts

with other major forces that have precipitated the current extinction crisis — most of which are also driven by human actions. Vulnerable human communities are responding to the changing climate, and adding significant pressure to already degraded ecosystems. For example, expansion of agricultural activities owing to more favourable rainfall regimes across the Albertine Rift and the valleys of the Congo Basin now increasingly threatens the most biodiverse regions in Africa.

If we are going to have a fighting chance to avert the current extinction crisis, we must accept and communicate that climate change is already upon us and that proactive action is needed now. We should not treat the news of the extinction of the melomys as an interesting question for Trivial Pursuit or an undergraduate exam — we need to treat it as a lesson.

This species did not live in a place where its existence came into conflict with other societal needs, such as good farming land or places to live. It was on an uninhabited island, effectively protected from other threats. A wide range of actions could have been taken to manage its population without causing conflict with other competing agendas.

Australian marsupials are well researched, and given the melomys's habitat requirements, the islands' low elevation and the fact that there is widespread knowledge of increasing sea levels across coastal Australia, it was not hard to work out that the species was in dire trouble. Yet almost nothing was done in time: there were no proactive plans to monitor the melomys, move a few individuals to create a rescue population or create a simple sea-level barrier. No action was

taken because of the attitude that climate change is not really happening yet, and there is time to sort it out.

This is unacceptable. We need a fundamental shift in how the scientific community, the media, policymakers and environmental funders view and discuss climate change. When we think about the impact of climate change on biodiversity, we need to start framing the issue as something that is already well under way and that, in conjunction with other threats, needs to be managed now. Crucial to this will be research on what species are immediately threatened by climate change, followed by plans to help them to survive. It will be complicated, but to give nature a chance, we need to harness the fears of the future to address the realities of the present. ■

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