

Undocumented plant extinctions are a big problem in Australia

June 13 2019, by David Coates



Matchstick banksia (*Banksia cuneate*). There are only about 500 of these plants left in the wild at 11 different sites, with much of its habitat having been historically cleared for agriculture. Credit: Andrew Crawford/Threatened Species Hub

A [recent survey](#) on the world's plants found a shocking number have gone extinct—571 since 1750. And this is likely to be a stark underestimate. Not all plants have been discovered, so it's likely other plants have gone extinct before researchers know they're at risk, or even know they exist.

In Australia, the situation is just as dire. The Threatened Species Recovery Hub recently conducted two evaluations that aren't yet published of extinct [plants](#) in Australia. They found 38 have been lost over the last 170 years, such as the Daintree River banana (*Musa fitzalanii*) and the fringed spider-orchid (*Caladenia thysanochila*).

But [uncertainty](#) about the number of plant extinctions, in addition to the 38 confirmed, is an ongoing concern.

Both studies pointed out the actual number of extinctions is likely to be far more than those recognized in [formal lists](#) produced by the Commonwealth and state and territory agencies.

For example, there is still a high rate of discovery of new plant species in Australia. More than 1,600 plants [were discovered](#) between 2009 and 2015, and an estimated 10% are still yet to be discovered.

The [extinction](#) of Australian plants is considered most likely to have occurred in areas where there has been major loss and degradation of native bushland. This includes significant areas in southern Australia that have been cleared for agriculture and intensive urbanization around major cities.



Dark-bract banksia (*Banksia fuscobracteata*) Fewer than 100 plants remain in the wild. It's only found at two road-side sites about 125 km north of Perth. A major cause of the plants decline has been the clearing of the surrounding landscape for agriculture. Credit: Andrew Crawford

Many of these extinct plants would have had very restricted geographic ranges. And botanical collections were limited across many parts of Australia before broad scale land clearing and habitat change.

Why extinction goes undocumented

There is already [one well recognized](#) Australian plant extinction, a shrub in Phillip Island (*Streblorrhiza speciosa*), which was never formally recognized on any Australian threatened species list.

Researchers also note there are Australian plants that are not listed as extinct, but have not been collected for 50 years or more.

While undocumented extinction is an increasing concern, the [recent re-assessment](#) of current lists of extinct plants has provided a more positive outcome.



Dwarf spider-orchid (*Caladenia pumila*). Thought extinct for 80 years then rediscovered 10 years ago. There are only two plants left in the wild. Continuing effort by the native orchid conservation program at the Royal Botanic Gardens Victoria has resulted in approximately six adult plants now in the nursery, bring the world population to almost 10. Credit: John Eichler

The re-assessment found a number of plants previously considered to be extinct are not actually extinct. This includes plants that have been re-discovered since 1980, and where there has been confusion over plant names. Diel's wattle (*Acacia prismifolia*), for instance, was [recently rediscovered](#) in Western Australia.

A significant challenge for accurately assessing plant extinction relates to the difficulties in surveying and detecting them in the Australian landscapes.

Many have histories associated with fire or some other disturbance. For example, a number of plants spend a significant part of their time as long-lived seeds—sometimes for decades—in the soil with nothing visible above ground, and with plants only appearing for a few years after a fire.

But by far, the greatest reason for the lack of information is the shortage of field surveys of the rare plants, and the availability of botanists and qualified biologists to survey suitable habitat and accurately identify the plants.



Red-fruited ebony (*Diospyros mabacea*). A subtropical rainforest tree that often grows near rivers, this plant is found in a few stands around Mullumbimby. Threats include clearing for agriculture and trampling by livestock. Credit: Pete the Poet

What we've learnt

The continuing decline of Australia's threatened plants suggests more extinctions are likely. But there have been important achievements and lessons learned in dealing with the main causes of loss of native vegetation.

Our understanding of plant extinction processes—such as habitat loss, habitat degradation, invasive weeds, urbanisation, disease and climate change—is improving. But there is still a significant way to go.

One challenge in dealing with the causes of Australian plant extinction is how to manage introduced diseases.

Two plant diseases in particular are of major concern: Phytophthora dieback, a soil-borne water mould pathogen, and Myrtle rust, which is spread naturally by wind and water.



Aloe-leafed pipewort (*Eriocaulon aloefolium*). This aquatic plant species is only found at a single spring wetland in central Queensland. Habitat damage by pigs is an ongoing threat to the remaining wetland. Credit: Rod Fensham

Both diseases are increasingly recognized as threats, not only because of the impact they are already having on diverse native plant communities and many rare species, but also because of the difficulties in effective control.

Two Australian rainforest tree species *Rhodomyrtus psidioides* and *Rhodamnia rubescens* were [recently listed](#) as threatened under the NSW legislation because of myrtle rust.

While extinction associated with disease is often rapid, some individual plants may survive for decades in highly degraded landscapes, such as long-lived woody shrubs and trees. These plants will ultimately go extinct, and this is often difficult to communicate to the public.

While individual species will continue to persist for many years in highly disturbed and fragmented landscapes, there is little or no reproduction. And with their populations restricted to extremely small patches of bush, they're vulnerable to ongoing degradation.

In many such cases there is an "extinction debt," where it may take decades for extinction to occur, depending on the longevity of the plants involved.



Purple-wood wattle (*Acacia carneorum*) is slow growing and rarely produces viable seed. Threats are not well understood but grazing by livestock and rabbits is likely to impact on the species. Credit: Andrew Denham

But it's not all doom and gloom. [A recent study](#) found of the 418 threatened Australian plants showing ongoing decline, 83% were assessed as having medium to high potential for bouncing back.

And with long-term investment and research there are good prospects of saving the majority of these plants.

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