

## Improving conservation assessments and policy options for poorly known species

### Context

In Australia, assessments of species' conservation status are routinely based on information about population size and trends, distributional extent and threats. Species which are poorly known and for which these data do not exist are unlikely to be assessed or listed as threatened. It is likely that many of Australia's poorly known species would qualify as threatened if we had the evidence to assess them properly.

In the absence of sufficient knowledge to allow listing, poorly known species fall into a conservation limbo and are typically not provided any explicit protection or conservation management. Furthermore, this treatment perpetuates taxonomic biases in conservation — because typically more information is available for terrestrial vertebrates than for, say, invertebrates. As a result, the formal list of threatened species is

likely to be a marked underestimate of the actual number of species that merit listing. In some Australian states and territories, and internationally, some protection to such species is provided by including them within a Data Deficient conservation status, but this category is not allowed under Australia's national legislation., the *Environment Protection and Biodiversity Conservation Act* (EPBC Act).



Three invertebrate species (L to R: *Paralabella murrayi*, *Lithurgus andrewsi* and *Rhycolobus vittatus*) restricted to Christmas Island and not recorded for more than 100 years. Notwithstanding this long period without reports, none of these species is listed as Extinct or threatened.

#### Credit for drawings:

Andrews, C.W. (ed.) (1900). *A monograph of Christmas Island (Indian Ocean) – physical features and geology, with descriptions of the fauna and flora by numerous contributors*. British Museum Trustees: London

## What the research was about

The research attempted to assess the magnitude of the problem, and the fate, of poorly known but imperilled species whose conservation status is not formally recognised. We also developed and evaluated a range of policy and other responses to support better conservation outcomes for poorly known species.

## What we did

The research team held two workshops with stakeholders (notably including representatives of the Threatened Species Scientific Committee and the Department of Environment and Energy). In these, we discussed the issue of conservation for poorly known species, a menu of possible policy and other responses, and how to evaluate the costs and benefits of those options.

We also undertook some case studies to gauge the extent of the conservation challenge and outcomes for poorly known species. One of these involved a comprehensive inventory of endemic species on Christmas Island (that is, species found nowhere else); and in the other, we compiled and characterised poorly known Australian plant species.

*Grevillea minutiflora*. Photo: David Coates



BELOW: The conservation status categories applied globally (by the IUCN). The system forms the basis of threatened species listing adopted by the Australian Government, except that the categories Near Threatened, Data Deficient, Least Concern and Not Evaluated are not used or recognised. Credit: IUCN

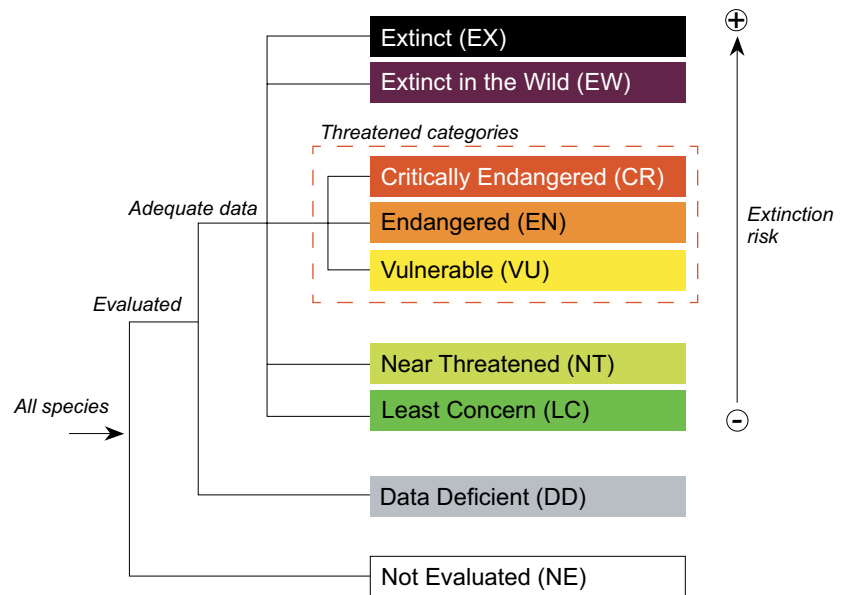
## Key findings

### The size of the problem

Our inventory of species found only on Christmas Island (James et al. in press) showed how taxonomic bias (towards better known species) works in the listing of threatened species. We concluded that at least 250 species are found only on the island. Of these, 16 are terrestrial vertebrate species, and of these 16 species, 12 are formally listed as threatened or extinct under the EPBC Act (with a further five endemic terrestrial vertebrate subspecies also listed as threatened).

In contrast, none of the approximately 200 endemic invertebrate species is listed as threatened or extinct under the EPBC Act, notwithstanding that more than 50 of these species have not been reported for more than 100 years. Because the poorly known endemic invertebrates are not recognised as threatened, they are not explicitly considered in strategic planning or conservation management. Because many are now likely to be extinct, the extent of loss of biodiversity on the island is likely to have been greatly underestimated.

In our second case study, we collaborated with relevant experts from state/territory agencies to compile a listing of all Australian plant species that are recognised as Data Deficient (or a comparable category) under the legislation of Australian states and territories. We found that about 2600 species (12% of Australia's vascular plants) are categorised as Data Deficient (or equivalent) under state/territory listings, and that this proportion had increased over the past two decades. Many of these species are likely to be imperilled. For example, 39% are known from 10 or fewer collections and 160 of the species have not been recorded for more than 30 years.



The largest number of poorly known plant species was in bioregions with highest plant species diversity rather than in bioregions where there has been little collection effort.

### Policy, legal and management responses

Through discussion papers and workshops, we developed a menu of options (that are by no means mutually exclusive) with stakeholders. Each of the options provides some way of improving the conservation of poorly known but imperilled species. These options include:

1. increasing the number and extent of EPBCA-listed threatened ecological communities, because these are also likely to include many poorly known species;
2. expanding the national reserve system, as this will provide further protection for some poorly known species from some threats;
3. amending the EPBC Act to allow for listing of 'short range endemic' species, consistent with Western Australian legislation. This category fits many poorly known species, particularly invertebrates;
4. amending the EPBC Act to allow for a Data Deficient conservation status, consistent with international (IUCN) practice;
5. establishing a non-statutory list of Data Deficient species;
6. increasing the number of listed Key Threatening Processes and the extent to which they are managed;
7. including biodiversity-rich islands as a Matter of National Environmental Significance under the EPBC Act, given that many poorly known species are island endemics and island species have suffered a disproportionate number of extinctions;
8. using the existing Commonwealth process of Species Expert Assessment Plans (SEAPs) or conservation themes to focus on particular groups of poorly known species;
9. enhancing existing survey and taxonomic research for poorly known groups of species;
10. increasing the application of the precautionary principle in assessing the conservation status of species.

These options are still being considered by relevant policy-makers.

*Stemodia* sp. Battle Hill. Photo: David Coates



## Cited material

The project has produced two discussion papers for workshops, contributed to sections of the Threatened Species Recovery Hub's submissions to the Senate Inquiry on Australia's faunal extinction crisis, and has produced three manuscripts currently in review at journals. Additional papers will be produced (notably on policy, legal and management options) in 2019.

The Christmas Island case study is: James, D.J., Green, P.T., Humphreys, W.F., and Woinarski, J.C.Z. (in press). Endemic species of Christmas Island, Indian Ocean. *Records of the Western Australian Museum*

Furthermore, a paper on conservation options and context for invertebrates was catalysed by the initial project workshop:

Braby MF (2018) Threatened species conservation of invertebrates in Australia: an overview. *Austral Entomology* 57, 173-181.

## Recommendations

Many Australian plant and animal species are poorly known. However, the standard of evidence that is required under the current formal process of threatened species' listing largely precludes such species from being assessed or listed as threatened. Without the formal protection that listing provides, many of these poorly known species are likely to become increasingly imperilled, and the current list of threatened species will continue to be biased towards better known and often more charismatic species.

This long-standing conservation problem should be addressed.

We considered many options that may contribute towards improving the conservation outlook for poorly known but imperilled species. Some of these options require changes to Australia's foundation conservation law, the EPBC Act, and hence may be challenging to achieve. Other options may be more tractable and less likely to be contested. A mix of options is likely to be required to achieve substantial benefit.

*Calandrinia mirabilis*. Photo: David Coates



## Further information

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