

Science for Saving Species

Research findings factsheet

Project 6.5



National Environmental Science Programme

An overview of citizen science programs for threatened species in Australia

What's the research about?

Citizen science has great potential to fill gaps in threatened species research effort, where the costs of adequately monitoring and evaluating threatened species recovery is often high. Using an online database (Australian Citizen Science Project Finder) to identify citizen science programs, we have reviewed the nature and extent of citizen science in Australia relevant to threatened species.

We found just over 130 programs that have been contributing to threatened species recovery since 1955, although more than 80% of programs were initiated post 2000. Every single threatened species in Australia is covered by at least one citizen science program, although only a few species have dedicated programs.

Where do programs occur?

More than a quarter (28%) of citizen science programs with threatened species relevance in Australia cover the whole country. The remaining programs are either focused in one state or may cover several (e.g. all east coast states). Of these, New South Wales receives the most attention from citizen science programs (21.5%), followed by Queensland (19%).

Tasmania and the Northern Territory have comparably lower citizen science programs relative to other states. This could be explained by the small geographic size of Tasmania and the smaller potential pool of citizen scientists in the Northern Territory. Both, however, have numerous threatened species in need to research and recovery actions that could be supported by citizen science.

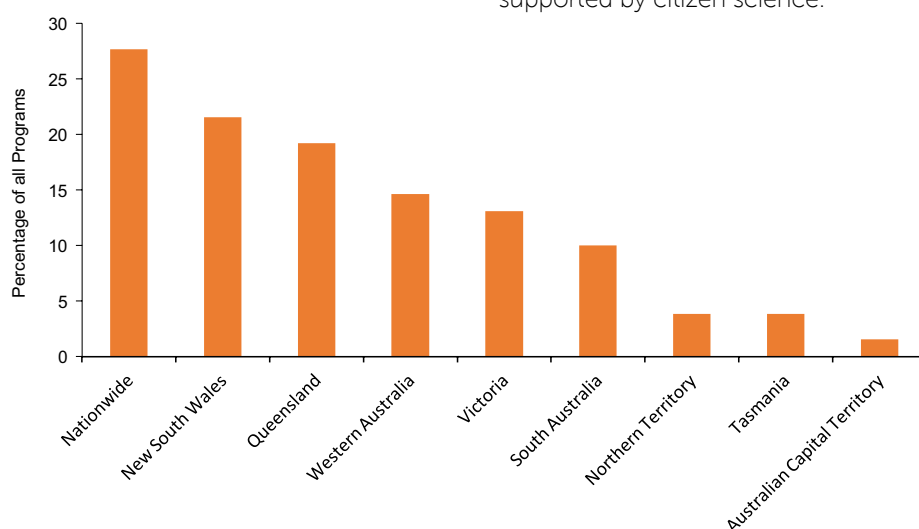


Figure 1: Where citizen science programs occur in Australia



Image: Dean Ingwersen

Eastern Curlew (Numenius madagascariensis)

The critically endangered Eastern Curlew is monitored by citizen science all across Australia by numerous volunteer observers. Key organisations include Australian Wader Study Group, BirdLife Australia, Care for Hedland Environmental Association, Discovery Circle and National Parks & Wildlife Service (NSW).



Image: Rochelle Steven

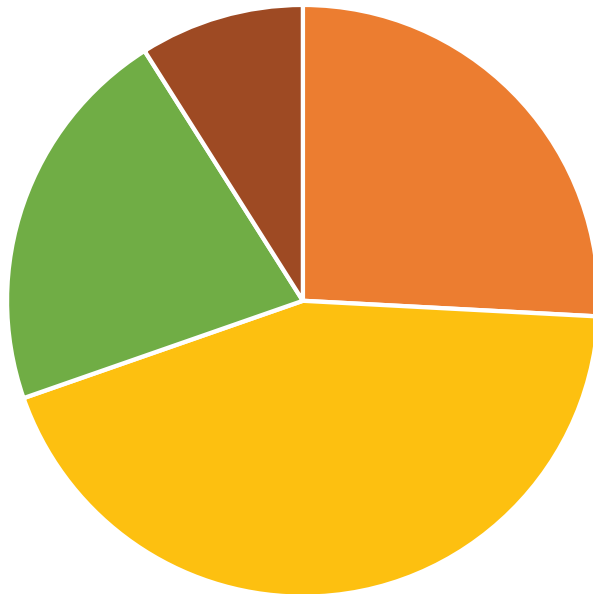
Swamp Orchid (*Phaius australis*)

The Swamp Orchid is a species that benefits from relatively little citizen science effort, with potentially good reason. One of the key threats to this species, in addition to severe habitat loss and fragmentation, is over harvesting by orchid enthusiasts. Like many threatened orchids, Swamp Orchids have been almost loved to death. Their remaining wild populations are shrouded in secrecy to minimise the risk of collectors removing the last known individuals of this large flowering and charismatic species. Opportunities to engage the public in recovery actions of this species may be best channeled into managing captive or semi-captive populations, with a view to re-introduce the species back into formerly occupied areas.

Who is implementing programs?

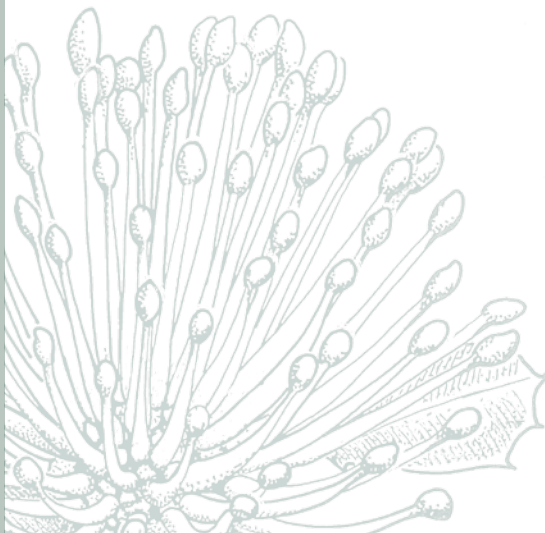
Almost half (44%) of all entities implementing citizen science relevant for threatened species in Australia are Local NGOs; including 'Friends of Groups', NRM groups and Catchment groups, while larger NGOs represent 20% of identified entities. BirdLife Australia, for example, leads 18% of all citizen science programs we have reviewed. For several threatened bird species, BirdLife Australia is often the first to establish these programs, with Local NGOs and Government entities following with additional program establishment for these species.

The Office for Environment and Heritage Protection in New South Wales leads the way for state government departments initiating programs that rely on citizen scientists for threatened species monitoring, with 4% of reviewed programs for threatened species in Australia. This is in addition to their subsidiary agency, the National Park Service, which coordinates an additional 3% of programs reviewed, with covering both terrestrial and marine species.



Government Local NGO Large NGO Research Institution

Figure 2: Who implements citizen science programs in Australia



Which environments?

Most citizen science programs relevant for threatened species are conducted in the terrestrial environment (69%). Coastal, marine and freshwater environments have fairly even representation with 28%,

24% and 20% respectively. The disparity between environments is likely due to the fact that terrestrial habitats are more accessible for most volunteers and thus easier to implement citizen science activities.

There is possibly scope for increased effort in coastal areas, owing to the large population density living along the Australian coast and the numerous threats to species in this realm.

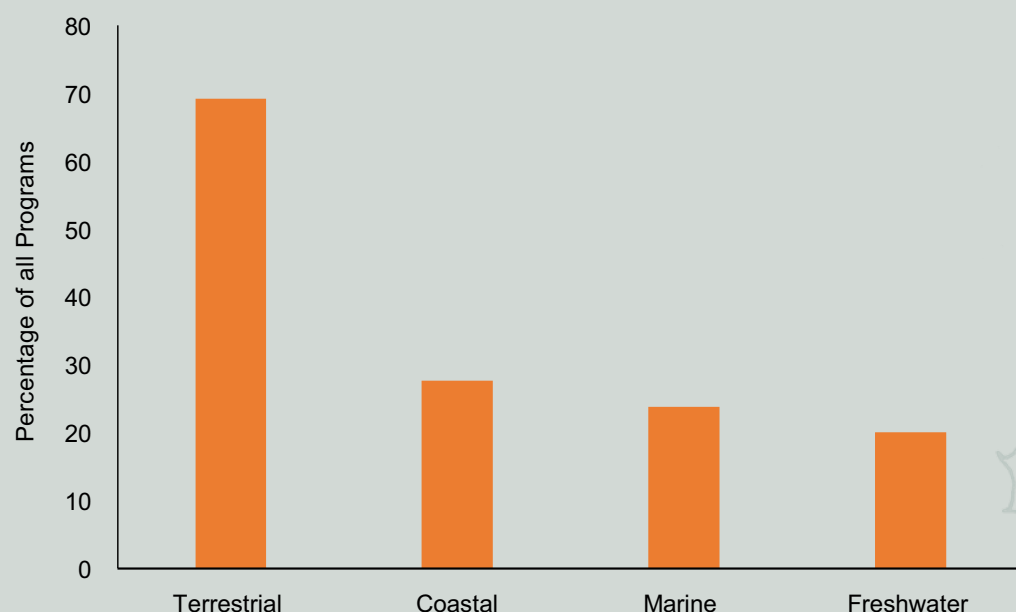


Figure 3: Which environments citizen science programs focus on

Which species groups?

A staggering amount of the citizen science investment in threatened species in Australia has an emphasis on vertebrates (98%). While it is encouraging to see so much attention directed towards some of our most iconic species, including koala and humpback whales, this trend is not proportionate to the numbers of threatened species among broad taxonomic groups. For example, while 74% of all nationally threatened species are plants, only 10% of citizen science programs include plants as their subject species. There is clearly a huge opportunity to channel at least some of the enthusiasm shown towards vertebrates in the direction of threatened plants, which form part of the habitats many threatened vertebrates depend on.

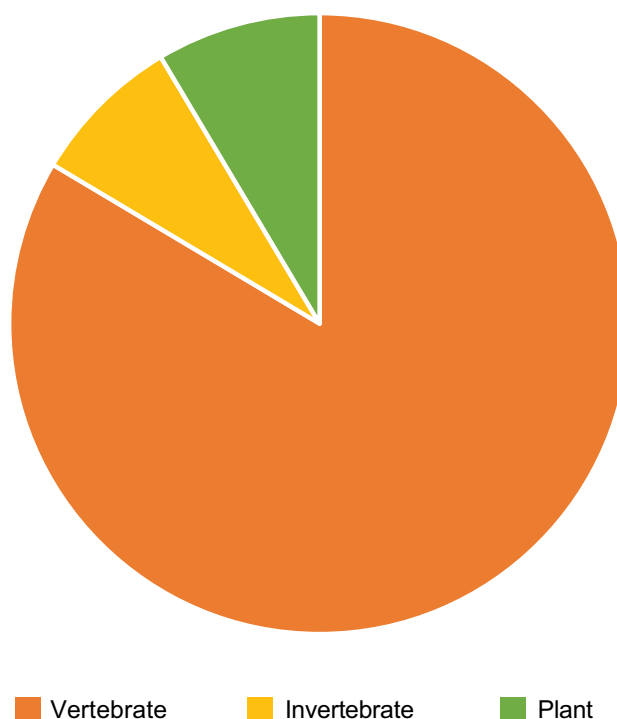


Figure 4: Which species groups are the focus of citizen science programs in Australia

Koala (Phascolarctos cinereus)

Koalas are one of Australia's most iconic species, and in the eastern states they are one of the species most at risk from land clearing for urban development. As a result, the combined east coast populations from Queensland, New South Wales and ACT are listed as vulnerable on the EPBC Act. Citizen science is playing a key role in monitoring the species across Queensland and New South Wales, with numerous Local NGOs and Local Government Authorities leading these activities.



Image: Phil Kirkpatrick_CC BY 2.0_Flickr

Further Information

For more information about this TSR Hub research, contact Rochelle Steven: r.steven@uq.edu.au or visit our website at <http://www.nespthreatenedspecies.edu.au/>