

The Effectiveness of Threatened Species and Ecological Communities' Protection in Australia

A submission for the Australian Senate Standing Committee on Environment and Communications

This submission has been prepared by T. Jury, Program Coordinator for the South Australian Threatened Plant Action Group (TPAG), a community based organisation that has worked toward the in-situ recovery of threatened plant species and communities in South Australia since 1993. TPAG is active on several threatened flora recovery teams and has almost two decades of experience in planning, implementing and coordinating recovery actions for threatened plant species and communities in South Australia. Hence the terms of reference are principally addressed with respect to nationally threatened plant species.

TPAG welcomes this important inquiry and offers the following comments for consideration by the Senate Standing Committee. We thank the Committee for the opportunity to provide input.

Summary

- The Environment Protection and Biodiversity Conservation Act 1999 needs strengthening and the Commonwealth is best placed to protect matters of National Environmental Significance.
- Much greater legal protection and compliance for nationally threatened species and listing of critical habitat is urgently needed.
- Management of key threats to listed species and communities has increased however is still insufficient for addressing the scale of attendant threats and achieving recovery.
- Threatened plant populations are under pressure across most land tenures but especially along transport corridors, on private land and in reserves used for recreation.
- The EPBC listing process takes too long and needs to become more responsive to extinction risk.
- Improved application of the precautionary principle is needed by decision making bodies under the EPBC Act.
- Funding has improved but longer cycles are needed to upscale management and achieve recovery.

A. Management of key threats to listed species and ecological communities

In South Australia the management of key threats to listed species and ecological communities are implemented by a diverse array of stakeholders including state government agencies, non-government organisations (NGOs), community groups, landholders, contractors and individuals. The most commonly identified threats to EPBC listed plant species are livestock grazing, herbivory, weed invasion, road maintenance, Phytophthora, herbicide spraying, recreation, development and small

population size. Most of these constitute deterministic threats of anthropogenic origin however stochastic threats and genetic factors are also recognised.

In South Australia a number of EPBC listed plant species (mostly Endangered category or higher) receive active management of threats such as weed invasion, livestock grazing and native herbivory. There are current community, NGO and government programs that have reduced some deterministic threats (such as weed invasion) to specific populations of listed species. Much of this work is ongoing and has been resourced by Government grants and significant volunteer contributions.

However for many listed plant species the management of key threats is either not done at all (benign neglect scenario) or not undertaken at the scale required to reduce the magnitude of threats operating throughout a species' range. In many cases extant populations occur on land that is subject to management practices that are inconsistent with recovery objectives, and in some of the worst cases land management practices constitute a direct threat in themselves. Blanket herbicide spraying of critical habitat along roadsides for general weed control or fire prevention, and habitat clearance along roadsides and fence lines are examples of this. Unfortunately such practices are common in South Australia.

Other threats to listed plant species (especially orchids) such as herbivory have been managed with enclosure cages and fencing with some success, although ongoing maintenance is required for repairs and the control of competing plant biomass. Even with caging of individuals, recruitment for small populations can be low due to emerging plants being eaten before they can be caged to aid establishment.

Another threat not always well addressed is the isolation and small size of extant populations for many threatened plant species. In heavily cleared, fragmented agricultural regions the survival of most threatened plant populations is now dependent on the appropriate management of small habitat fragments, roadsides and easements. Such remnants typically have high edge to area ratios and tend to be dominated by incursions from the surrounding agricultural land such as spray drift and nutrient runoff that promote weed growth. They are also subject to vegetation cutting and clearance for public safety and fire prevention which can promote weeds which then require more herbicide or removal to manage. This leads to a treadmill scenario whereby critical habitat becomes incrementally more degraded.

Selective weed management by specialists can be done in a way that effectively reduces weed competition without degrading critical habitat. However specialists cost more and landholders are often unwilling to pay due to undervaluation of biodiversity and/or perceptions that weed control is unskilled work and should be cheap. Poor plant detection and recognition skills are systemic (Wandersee & Schussler 2001), and this compounds these problems. It is also likely that there are synergies between many threats to listed species and communities.

The typically small size and isolation of threatened plant populations means limited resilience and buffering against threatening processes. There is an urgent need to either contain such threats and/or increase population size to enhance viability. Recent scientific reviews suggest that the minimum population size requirements to ensure both long-term persistence and evolutionary potential, require thousands (not hundreds) of individuals for a population to have an acceptable

probability of riding-out environmental fluctuations and catastrophic events, and ensuring evolutionary processes (Lochran et al. 2010). While required numbers are likely to differ depending on individual species (their life form and ecology), current recovery planning is rather conservative on this issue and greater consideration needs to be given to augmenting priority sub-populations to maintain abundance and meta-population structure throughout a species range.

It is likely that other poorly known threats such as the extinction of ecological interactions (i.e. pollination, dispersal) are also contributing to the decline of threatened plant species. Some small populations of threatened orchid species now only receive pollination by expert orchidologists due to the disruption of natural pollination.

There are also increasing pressures and threats in South Australia and more broadly from climate change, mining and development. The timing of prescribed burns in reserves and forestry land near Adelaide to protect adjacent housing is of concern. In particular, the impact of cool burns on the active growth, flowering and seeding of geophytes may be driving population decline in some EPBC listed orchid species.

Recreational activities such as mountain biking, 4WD, horse riding, and some reserve management activities are intensifying threats (such as *Phytophthora* spread) to threatened plant species (i.e. *Prasophyllum pruinatum*, *Prasophyllum pallidum*) and ecological communities (*Eucalyptus microcarpa* Grassy Woodland) in the Mount Lofty Ranges near Adelaide. These threats are escalating even within reserves, such as Belair National Park where recreational demands are being given priority over nature conservation resulting in a diminished level of protection for EPBC listed threatened species and ecological communities.

B. Development and implementation of recovery plans

In general there is a good level of targeted consultation by the South Australian Department for Environment, Water and Natural Resources (DEWNR) with relevant stakeholders for threatened plant recovery plans in South Australia with opportunities to provide comments during the plan preparation process. Some organisations still prefer to comment during the formal Commonwealth consultation process.

While recovery plans are important in organising information and guiding recovery there can be a tendency for plan development to overshadow implementation. Also some plans tend to be overly administrative and focus on statutory and bureaucratic particulars rather than on species ecology and the specific actions required to recover threatened species.

Over time the performance or progress criteria used to measure the success of plans has undoubtedly improved but plans often still fall short of setting clear targets for effecting recovery. Adopted criteria merely aim to maintain the status quo for species (in some cases a declining trajectory) rather than attempting proper recovery throughout a species' range. While the recovery of narrowly distributed endemics can present challenges given the constraints of a stenotopic range, there are still recovery options such as enlarging or re-establishing populations in habitable or suitable historic sites to increase abundance within a range. There are also recovery constraints for

species with complex reproduction and biology such as Spider-orchids (*Caladenia* species) that are less amenable to translocation.

Recovery Plans need to establish targets for population viability and recovery including required translocation actions (where feasible) to achieve these. Where possible we would prefer to see required translocation actions incorporated within recovery plans rather than in separate documents. Some recently prepared action plans for threatened plant species are now doing this (Quarmby 2010).

Some difficulty has been experienced in using threatened species recovery plans to protect critical habitat from listed threats. For example concern over proposed mountain biking in reserves has been met with semantic statements by authorities that while the relevant recovery plan “had been endorsed but not yet been formally adopted” meaning it could not be used in decision making on where to allow mountain bikers in Belair National Park. In this context, recovery planning processes need to be quicker so that plans become working documents sooner. Greater consideration is also warranted in planning for future threats such as prescribed burning and recreational impacts in the Mount Lofty Ranges.

Many threats are anthropogenic and their true origins are not always stated explicitly in plans. There is still a tendency to glaze over anthropogenic threats or under appreciate holistic factors such as land use activities, landholder behaviour, or regional development pressures. Whilst it is important to remain positive about species recovery, denial of threats operating in the landscape tends to undermine the efficacy of plans.

Lastly, there can be issues of ownership with recovery plans where despite the significant contribution of species information by non-government organisations toward the recovery planning process they are either under or unacknowledged in the final document. Also such organisations tend to be relegated to service provider roles such as abatement of weed threats or manual tasks. This can be despite their knowledge or recovery contributions to the threatened species under consideration.

C. Management of critical habitat across all land tenures

The protection, condition and management of critical habitat for threatened species and communities are probably the most important issues for their survival. The lack of formally protected critical habitat constitutes a major threat. Targeted levels of protection (overlap of reserves with species’ ranges) have been found to be less than 20% for Australian EPBC threatened species, with plants one of the most poorly represented taxonomic groups (Watson et al. 2011).

There is currently no mechanism for public nomination of critical habitat under the EPBC Act. At the very least areas of critical habitat could be nominated during species or community listing processes. Inalienable, legislative protection of critical habitat is essential for ensuring the survival of threatened species populations in the long term.

Threatened plant species and ecological communities are under pressure across most land tenures but especially where they occur along transport corridors (roadsides, unmade road reserves, and

railways) and on private land. Threats on private land include livestock grazing, vegetation clearance, general 'tidying up', blanket herbicide spraying, pest fumigation and burrow ripping, and water extraction. Aerial herbicide spraying of nationally threatened Fleurieu swamps has been observed near Nangkita.

In South Australia the Heritage Agreement scheme has helped improve legal protection for larger habitat remnants and ease livestock grazing pressure but hasn't always reduced threats such as weed invasion or herbivory in some regions. Significant Flora Markers have been used to indicate threatened plant habitat along roadsides however damage to threatened plants still occurs and compliance is difficult to enforce due to resource shortfalls and increasing fuel reduction activities. Also many roadsides need additional management to retain conservation values and this is not always forthcoming. So while better than nothing, the marker scheme is not a reliable form of protection for threatened plant species.

For bush regeneration programs more of a specific focus by on-ground practitioners on the in-situ recovery of threatened plant populations could be beneficial. Whilst assisting the natural regeneration of habitat remnants containing threatened plant species is desirable and perhaps an important secondary outcome there may be cases where a more deliberate single-species focus may yield more immediate recovery outcomes. The more general 'bushcare' background of many volunteers can lead to threatened species interests though not necessarily, and differing values and skills are evident. Additionally some remnants of critical habitat for threatened plant species can be so degraded that use of slow regeneration methods is unlikely to address population decline and novel management approaches that still ensure selectivity and maximise recruitment potential are needed, such as those developed by TPAG.

D. Regulatory and funding arrangements at all levels of government

Reports of threatened plant clearance are not necessarily met with prompt regulatory action by statutory authorities at either Commonwealth or State level. Authorities often tend to downplay clearance with statements such as 'well, only part of the population was cleared'. It is important to understand that all reductions to threatened plant populations help drive the decline of a species through the cumulative impact of small scale clearances. The cumulative impact of small decision effects on environmental degradation have been documented: *"Each threatened and endangered species, with a few exceptions, owes its special status to a series of small decisions"* (Odum 1982)

The failure of authorities to respond meaningfully or consistently to clearance reports can also send a message to the community that threatened species protection is unimportant and that clearance will be tolerated, which can lead to further destruction.

In South Australia much of the threatened species recovery work is ongoing and has been resourced by Government grants (Federal, State and Regional/NRM) as well as significant volunteer contributions. There has been important funding support for a number of NGO threatened species programs including the Threatened Plant Action Group and the Fleurieu Swamps Recovery Program as well as state government recovery programs.

For adopted threatened plant recovery plans, implementation funds are often lacking and recovery plan budgets are only costed rather than funded. Funding for on-ground management actions is typically piecemeal and short-term meaning that recovery implementation is discontinuous. Funds required for managing critical habitat can be reasonably modest compared with other government expenditure however the continuity of funding is just as important. There are funding limitations on what can be achieved and planned for, leading to a holding pattern mentality which can temper expectations for recovery. Funding constraints also tend to make future planning and adaptive management difficult.

Lastly, there is a concern over the length of the recovery plan adoption process with finite and diminishing resources at state government level for the conservation of EPBC listed matters. In addition to community and NGO recovery efforts, State Government recovery programs need stronger funding support.

E. Timeliness and risk management within the listings processes

In recent years the EPBC Act listing process has moved to an annual call for nominations and administrative reasons for this would seem justifiable. The species listing process does however take considerable time with successful listing unlikely to be completed within 2 years. The listing of threatened ecological communities appears even more protracted, presumably due to scientific, social and political issues, and has taken up to 7 years for some ecological communities to be listed in South Australia. The lengthy duration of the listing process is obviously problematic for 'high risk' species or communities as potential exists for further decline during the listing processes, which may exacerbate conservation status. When early consensus is possible amongst relevant agencies and experts, high risk species or communities should be given interim or emergency listing.

We also suggest better application of the precautionary principle in the assessment of nominations as considerable burden of proof problems can exist with providing evidence of species decline due to an absence of data. For example, a TSSC assessment of an EPBC nomination for Spade-leaf Bittercress (*Cardamine gunnii*) concluded: *"The Committee accepts that there has been an historic decline in numbers since European settlement which may be continuing but notes that there are insufficient data to judge the extent of any decline. The Committee further accepts that the South Australian population has a very restricted geographic distribution which is considered precarious given the ongoing threats and the species' limited capacity for dispersal. However, as the distribution and population size of the Tasmanian population is unknown, the species has not been demonstrated to have met sufficient elements of any criteria to make it eligible for listing under the EPBC Act"*¹.

This assessment equates the lack of Tasmanian data with uncertainty over status and threat. The nomination also states "the species is also believed to occur in Tasmania however the distribution and population size is unknown". The fact that nobody seems to know suggests the species has declined and an absence of data does not mean the species is not under threat, only that conclusive proof cannot be provided. However this would be the case for most native plant species, including many that are already EPBC listed. Furthermore there can be little doubt that a species' geographic

¹ <http://www.environment.gov.au/biodiversity/threatened/species/pubs/13644-listing-advice.pdf>

distribution is precarious for survival when most of its habitat has been cleared. It would appear that corollaries are being overlooked in the assessment process due to non-existent data and that the precautionary principle is not being applied where a strong likelihood of decline appears evident.

The current EPBC list of threatened flora appears to be strongly biased toward narrowly distributed endemics over more widespread species in agricultural regions that have undergone range depletion and decline in abundance due to vegetation clearance. The nomination assessments process would benefit from improved consultation with conservation biologists who have knowledge of these species and practical experience with threatened species recovery. A reliance on political appointments or academics with reductionist research backgrounds but who lack holistic understanding (see Odum 1982), may mean that real extinction risks are underestimated.

F. The historical record of state and territory governments on these matters

With the convenience of hindsight, we would rate the historical performance by the South Australian government as poor on the representativeness of habitat conservation in the states' Protected Area System. A number of ecological communities are almost absent from the reserve system such as Red Gum Woodlands, Swamp Gum Woodlands, Box Eucalypt Woodlands, Temperate Grasslands and numerous types of Wetlands. These ecological communities are known to provide habitat for disproportionately high concentrations of threatened species.

The more recent record of the states' Department for Environment, Water and Natural Resources (DEWNR) has been more positive and although large challenges and some bureaucratic problems persist there has been some good progress made through multi-partner recovery teams and threatened species programs in the last 15 years. An increase in targeted surveys, improved habitat management, population re-stocking, recovery plan preparation, and active implementation has achieved some interim stabilisation of status for threatened plant species such as *Acanthocladium dockerii*, *Lachnagrostis limitanea*, *Acacia rhotinocarpa*, *Allocasuarina robusta* and *Eucalyptus paludicola*. There has also been strong community leadership from a number of groups including the Threatened Plant Action Group, Native Orchid Society of South Australia, several Friends of Parks groups, and others. Evaluation of recovery progress has also been improved through facilitated team discussions and feedback sessions. The DEWNR Threatened Species Unit and some regional staff provide important support for a number of recovery programs.

There are however issues with other government instrumentalities. For example, Government Water and Forestry corporations own and manage large areas of remnant vegetation in South Australia and their management of critical habitat for threatened species and other important biota does not reflect their conservation value. There have been numerous observations of inappropriate management and degradation of threatened species habitat by these corporations. DEWNR and NGOs continue to make efforts to work with these corporations however despite some small concessions the business of these corporations is water or timber production and threatened species protection is not a high priority.

G. Any other related matter

There appears to be an increasing focus on conservation at the landscape scale which may help to improve holistic management of biodiversity. However landscape conservation planning requires better comprehension of how the landscape is actually being managed on a daily basis if strategies are to be effective. For many threatened plant species the local-scale impacts of agricultural, pest management practices, road development and maintenance, fire prevention, public 'safety' measures, and management of cemeteries and crown land pose under-acknowledged threats to areas of critical habitat.

While public education and awareness-raising may go some way towards addressing such threats, broader social change is required to ensure human activities do not continue to detrimentally impact on threatened species. Threatened species need to be seen as nested biodiversity assets rather than management liabilities and should be a focus for landscape conservation efforts especially in agricultural regions where ecosystem functionality has been lost due to extensive clearance and the absence of any large, intact remnant ecosystems. Triage arguments aside, we cannot say we are conserving biodiversity across the landscape if further decline of our most threatened species and ecological communities continues.

In addition to EPBC listed threatened species and ecological communities there are an increasing number of species and ecological communities threatened at state or regional scales. Such species don't receive the same attention and funding as EPBC listed matters, however their incremental loss is of concern to many working to arrest the decline of Australia's biodiversity. Funding bodies could enhance conservation outcomes by prioritising programs that deliver benefits for a greater suite of threatened taxa and communities. Given the increasing human pressures on biodiversity such a policy direction may stem the tide of lower concern species that could make their way on to the EPBC list in the future.

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