

Submission to the Senate Standing Committees on Environment and Communications re The effectiveness of threatened species and ecological communities' protection in Australia

submitted by Adrienne Weber, President
on behalf of Earth Learning Incorporated

Maintaining the diversity of living species underpins the resilience of Australia's ecosystems, providing the life support systems upon which we all depend. In the past two centuries human settlement has degraded and fragmented Australia's landscapes, many unique plant and animal species have become extinct. In the last fifty years technological advances have increased our ability to replace native ecosystems with rural and urban development. It is imperative that we ensure the survival of native habitats and species for our common interest.

Protecting threatened species and endangered ecological communities ecosystems is an important approach in concert with funding to maintain connectivity of conservation areas with vegetation on privately owned land, ensuring potential for species to migrate along climate change corridors. Maintaining the viability of healthy ecosystems and wildlife is complementary to protecting threatened species.

In the northern rivers of NSW over 90% of high conservation value vegetation is in private hands. Many landholders are positive about conserving this habitat and more funds are needed to help them covenant these areas. Under the new Local Environment Plan LEP these areas should be protected as wildlife corridors and zoned as Environmental rather than Agricultural. No threatened plant populations have recovered sufficiently to be removed from the threatened species list. In NSW Threatened Species recovery plans need adequate funds to be actioned. The regeneration efforts of landcare groups to conserve and extend habitat suitable for their local endemic and threatened species should be guided by, recorded and integrated into the recovery plans. Atlas of Living Australia is trialling a process to enable landcare groups to upload information via the ALA website.

Strategic propagation and return of threatened plant species to their native habitat areas should be funded. The success of private nurseries in collecting and propagating threatened plants is evident. Rather than these rare species being planted mainly in urban gardens a percentage of these could be earmarked to be returned to their native areas and suitable habitat found to extend these core areas.

The role of the federal government in protecting threatened species is vital. This power must not be transferred to the states. State legislation alone is failing to conserve threatened species. The NSW government has recently acted to remove protection for flora and fauna built up over recent decades by allowing shooting in National Parks and cutting of forest in National Parks and Nature Reserves. Natural Resource Management and Catchment Management Authority employees are being reduced by 40% when more staff and funding are essential to improve chances of sensitive ecological areas from threatening processes and human impacts such as development and mining.

Local governments are being coerced to weaken zoning in LEPs specifically designed to protect high conservation vegetation on Crown and private land in regional areas to come into line with a template more open to allowing development. These pressures are resulting in destruction and fragmentation of Australia's ecosystems across the continent. The threats to flora and fauna are well understood yet they are being allowed to increase.

It is imperative that the commonwealth government keep the legislative power available through the EPBC and increase funding to the Department of Environment and Heritage (DEH) for implementation of the Act. The EPBC Act is a strong legal instrument for protecting threatened species and ecological communities however its administration and implementation have numerous failings.

Threatened Ecological Communities

1. Exactly what constitutes an ecological community is very poorly defined under the EPBC Act. The current EPBC definition is “ecological community means the extent in nature in the Australian jurisdiction of an assemblage of native species that: (a) inhabits a particular area in nature; and (b) meets the additional criteria specified in the regulations (if any) made for the purposes of this definition. The problem with “assemblages of native species that inhabits a particular area in nature” is that they come in all sizes and number of species, from the lichen on a single rock to all native ecosystems and species on the Australian continent. Currently both of these dramatic extremes would meet the EPBC definition of an ecological community provided that (b) the EPBC listing advice said it met the criteria. This is clearly a major problem currently no guidelines exist for acceptable spatial climatic and species variation within an Ecological Community and which successional stages with other ecological communities are included. For Example Littoral Rainforests and Coastal Vine Thickets of Eastern Australia is listed as a single ecological community covering 8 IBRA bioregions across 3000km and climates from monsoonal to temperate with few or no species shared between the northern and southern extent of the ecological community, this greatly hinders mapping, management and identification of the community. Currently such areas of littoral rainforest that are likely meet the criteria for the ecological community are still being cleared in Northern QLD because they are not mapped and are not recognised as the community. In contrast there are 5 separate EPBC listings for very similar cave root mat communities in 5 limestone caves in WA and these caves that are relatively spatially close to one another. And two different bluegrass grasslands both dominated by the same species of grass but one includes other temperate grasses and the other does not contain temperate grasses. Clearly the same criteria are not being applied to all ecological communities as such the littoral rainforests an coastal vine thickets ecological community should be split into at least three or up to eight separate ecological communities.
2. Too few ecological communities are listed (only 58 as of December 2012) while approximately 3000 ecological communities may be eligible for listing according to Australia’s Terrestrial Biodiversity Audit. Additionally ecological communities or vegetation types listed as threatened by states are not automatically assessed for listing under the EPBC, there are approximately 800 such communities that could be listed. A framework for assessing the status of all ecological communities in Australia was being developed by DSEWPAC (Nicholson 2009) however this process was abandoned in favour of focusing on public nominations. It is an indicative fact that there is not a single ecological community currently listed under the EPBC act with a status of Vulnerable even though the criteria to list under this status are easier to meet than the endangered and critically endangered criteria, hence these ecological communities should be more numerous than endangered or

critically endangered ecological communities, however none are listed because of lack of assessment.

3. Too few public nominations for ecological communities are received. Nomination of an ecological community is generally beyond the capacity and knowledge of most nongovernment organisations such as landcare groups and DSEWPAC has previously failed to supplement data provided in nominations to properly assess if an Ecological community is eligible for listing. An example includes the nomination for the Ooline *Cadellia pentastylis* dominated ecological community which is almost certainly threatened as the dominant species is EPBC listed yet instead of adding to the nomination by consulting experts in QLD the nomination was rejected because the nominators did not supply information for the extent of the community in QLD.
4. Too few recovery plans are developed for ecological communities and the development of these currently takes multiple years. There has been a move recently to contract the development of recovery plans to private sector consultants to aid cost effective and timely development of such plans and this is a positive step however universities could also develop recovery plans quickly and cost effectively. If recovery plans cannot be developed much faster and for less cost and actually recover the ecological community. It may be a better conservation outcome to initially focus on listing and protecting the hundreds or thousands of threatened ecological communities that are currently unlisted than to spend years and large amounts of money to develop recovery plans which may or may not actually recover the ecological communities.

Threatened Species

1. Species listed in the states as threatened that are endemic to that state are not automatically nominated for assessment for listing under the EPBC Act. A tragic example is the tree *Clausena myrelliana* it was discovered prior to 2000 however it was formally scientifically named in 2000 at which time the paper describing the species stated it was critically endangered and the total known global population was six (6) mature plants including 5 trees in Mon Repos Conservation Reserve. Due to delays and lack of a transparent system for updating threatened species lists by the QLD government it took almost 10 years to list this species as Endangered under the QLD Nature Conservation Act in December 2009. During the delay in state threatened listing five of the six known wild plants died. This species with one known living wild tree is still not listed under the EPBC Act. This is just one example there are likely to be examples of other species suffering similar fates. Of particular concern is the hundreds of species of terrestrial Orchids which are currently not EPBC listed and are likely to be threatened and may be listed under state legislation or may have no formal name and may be only known by orchid enthusiasts before the ecosystems they inhabit are destroyed for urban development or mining (Swarts and Dixon 2009). An example is *Genoplesium (Corunastylis) sp.* Raby Bay (J.Elsol AQ462423) is a small ground orchid which has only been collected once in 1976 near Moreton Bay. As of 2012 this species is not considered to be threatened under the QLD Nature Conservation Act or EPBC Act. Most of the species potential habitat has been cleared for residential development however

some patches of habitat remain and it is not known if the species is extinct or extant. This is just one of hundreds of examples of terrestrial orchids in a similar predicament Australia wide.

2. Recovery plans are developed for too few threatened species and are poorly funded or implemented. No threatened flora species has actually been delisted from the EPBC Act threatened list due to implementation of recovery plans. A study by the University of Queensland (Taylor et al 2010) showed that the conservation status and decline or improvement of threatened species in Australia was not significantly different for species with or without recovery plans.
3. Activities such as land care projects and native nurseries that propagate threatened species could be utilised to aid recovery of threatened flora species. An example is *Diploglottis campbellii* an EPBC listed threatened rainforest tree. Thousands of plants of this species have been propagated by the native nursery industry and planted in private gardens as well as parks and landcare bush regeneration sites. Currently many recovery plans generally adopt a “hands off” approach to conservation for fear of inducing outbreeding depression, in effect they maintain a few remnant plants which may be suffering from inbreeding depression and slowly declining and do rarely plant propagated plants from nearby wild trees to increase genetic diversity and population size. Meanwhile landcare groups plant numerous individuals of unknown progeny and genetics in bush regeneration areas often far from where the seeds were collected.

Recommendations

Threatened Ecological Communities

1. Guidelines should be provided to define how an ecological community differs from other ecological systems with differing spatial scales and diversity of species. Examples of such ecological systems are (from large to small) biomes, broad vegetation groups, vegetation associations, regional ecosystems, species alliances and microhabitats (Benson 2008). All of the preceding concepts with wildly varying spatial scales are currently lumped into the uselessly broad definition of an ecological community under the EPBC Act. We recommend that a stricter definition of an ecological community be adopted to distinguish the concept from larger biomes and smaller vegetation associations and microhabitats. Guidelines should also be produced to account for the level of climatic variation permissible within one ecological community and the maximum dissimilarity of species assemblages from one part of the ecological community to another. After all if a site is spatially distant from and shares very few or no species in common with another site and has a different climate is it the same ecological community? Guidelines should be clearly provided for how to distinguish an ecological community from serial stages usually involved in fire regimes such as when does an unburned eucalypt forest or woodland with rainforest species invading the subcanopy become a rainforest or when does a grassland with scattered trees become a woodland? In Queensland the regional ecosystem system (Sattler and Williams. 1999) provides a potential

solution called the ecological dominant layer whereby the layer of vegetation with the highest biomass is considered dominant so once the combined weight (biomass) of rainforest species growing up under a eucalypt forest exceeds that of the eucalypts then it is considered a rainforest.

The EPBC threatened species scientific committee published a paper titled "Ecological communities a way forward" (2004) has addressed some of these difficulties the recommendations of this paper should be adopted.

2. After a workable definition of an ecological community is established the listing of ecological communities should be done in a strategic manner spatially ecologically and climatically stratified by using survey gap analysis algorithms developed by Ferrier et al. (2005) and targeted towards the bioregions with the lowest levels of remnant vegetation highest diversity of vegetation communities and species and highest levels of threat (the Hotspots Methodology) Meyers et al. (2000) National state and local vegetation mapping could be utilised to derive a short list of candidate ecological communities which have a total extent of less than a certain threshold such as 10000ha or less than 10% or their estimated pre European extent remaining for candidate Endangered or Critically Endangered and less than 30% remaining for candidate vulnerable ecological communities. This candidate list could then be assessed in more detail to join similar vegetation map units into single ecological communities or split broader vegetation map units into multiple ecological communities as needed. Universities have both the capacity and knowledge to undertake such a study cost effectively while DESEWPAC lacks all of these and have failed to develop a framework previously so universities or private sector consultants should undertake the study.
3. Public nominations should be accepted even if the public individual or group cannot find all the information for the nomination. The onus to assess the status of the ecological community should be on DSEWPAC once it is nominated, to consult relevant experts and literature rather than placing the onus on the nominating public as at present. Nominations should be assessed every 3 months or 6 months instead of annually and similar to the NSW threatened species scientific committee the EPBC TSSC should post preliminary determinations online within 3-6 months of the nomination being received. The current 1-3 year timeframe for listings is unacceptable as identified by the EPBC Audit. The recommendations of the EPBC Audit with regards to reassessing nominations that were rejected because the nominator failed to consider the national extent of the ecological community should also be adopted.
4. We recommend that it may be better to spend funds and time listing the many currently unprotected and no less threatened new ecological communities rather than writing recovery plans for the currently protected ones. Once an adequate strategic assessment of all Australia's threatened ecological communities is completed then recovery plans should be developed if they can be shown to be cost effective and actually capable planning instruments for the use in recovering ecological communities which they currently are not.

Threatened Ecological Communities

1. Significant progress towards synchronising state and EPBC threatened species lists has been made however states particularly with pro development governments may not list species that are worthy of EPBC listing. We recommend that newly discovered and described species are preliminarily assessed for their conservation status as these species are likely to be of restricted distribution or they would have been discovered previously, many papers describing new species assess them against IUCN red list criteria and recommend a conservation status. Terrestrial orchids due to their high diversity and threat should be subject to a special assessment whereby species herbarium records are downloaded from Australia's virtual herbarium and the number of records for each and extent of occurrence is calculated so that the species with fewer than 10 herbarium specimens or less than 100km² of distribution could be shortlisted for EPBC nomination. A Data deficient status as per the IUCN red list could be added to the EPBC Act. To identify species that may be threatened but for which adequate information is lacking. Such a list could increase awareness and encourage people to gather and report information on such species.
2. Recovery plans for species should be developed as quickly and cost effectively as possible such as by using universities to develop them while prioritising species that are in the Critically Endangered category where recovery actions may make the difference between extinction and survival. Recovery plans and recovery funding should be overseen by an independent panel of experts that could allocate funding and audit recovery actions and monitor outcomes so that in the future we can only hope that the first flora or fauna species may actually be recovered and delisted from the EPBC list due to conservation actions. Synergies could be identified between recovery plans by using GIS to map species and identify sites where one action can benefit multiple species facing similar threats. Such actions save money by benefiting multiple species with the same funding and meaning that less sites need to be monitored and maintained.
3. Nurseries require permits to cultivate threatened species and if a condition of this permit was that a portion (10-20%) of the plants propagated were devoted to implementation of the recovery plan for such species then species of threatened flora could actually reach sustainable populations in the wild and this species would possibly be able to be delisted. Inbreeding and outbreeding depression are a prime concern of recovery plans and these could be checked and audited by ensuring that the location and number of parent plants and the location of replanted seedlings is consistent with the maintenance of genetic diversity and the recovery plan. The guidelines for the translocation of threatened plants (Vallee et al 2004) should be included in such a plan.

References

- Benson, J. 2008. Classifying ecological communities and synthesizing data for natural resource management: Some problems and potential solutions
Ecological Management & Restoration 9, 2: 86–87, August 2008
- Funk, V.A., Richardson, K.S., Ferrier, S., 2005. Survey-gap analysis in expeditionary research: where do we go from here? Biological Journal of the Linnaean Society, 85: 549-567.
- Meyers et al. 2000. Biodiversity Hotspots for Conservation Priorities. Nature Feb 2000.
- Nicholson, E. Keith, D.A. and Wilcove, D.S. 2009. Assessing the Threat Status of Ecological Communities Conservation Biology 23: 259-276.
- Sattler and Williams. 1999. Regional Ecosystems.
- Swarts, N.D. and Dixon, K.W. 2009. Terrestrial orchid conservation in the age of extinction. Annals of Botany. 2009 August; 104(3): 543–556. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2720663>
- Taylor, M. F. J. Sattler, P. S. Evans, M. Fuller R. A. Watson J. E. M. Possingham H. P. 2010
What works for threatened species recovery? An empirical evaluation for Australia
21 December 2010 Springer Science+Business Media B.V. 2011
<http://www.fullerlab.org/wp-content/uploads/2011/02/Taylor-et-al-in-press.pdf>
- Threatened Species Scientific Committee. 2004 Ecological Communities: A Way Forward
Advice for the Minister for Environment and Heritage
<http://www.environment.gov.au/epbc/publications/pubs/ecological-communities-listing-approach.pdf>
http://aeda.edu.au/docs/2011_Watson_etal_EvaluatingThreatenedSpeciesRecoveryPlan.pdf
- L. Vallee, T. Hogbin, L. Monks, B. Makinson, M. Matthes and M. Rossetto. 2004.
Guidelines for the Translocation of Threatened Plants in Australia
Australian Network for Plant Conservation, Canberra.