**Submission to Independent Biodiversity Legislation Review Panel**

from **Doug Benson Botanist- Plant ecologist**

[redacted]

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I write as a scientist specifically as a botanist- plant ecologist who was employed in the NSW public service for over 40 years. My employment was as a botanist- plant ecologist in the Royal Botanic Gardens and Domain Trust and I was concerned with research and conservation issues over that time. This has given me a broad perspective on the conservation and biodiversity issues over that time and the role of legislation in dealing with them.

My work in the 1970s and 1980s was aimed at mapping the vegetation of NSW and my component was primarily with the greater Sydney Basin area ( broadly out to Newcastle, Wollongong and west to Bathurst. At that time there was no systematic mapping of the vegetation had been done and therefore no definition of the variety and number of plant communities either still existing or their original extent, both issues that were to subsequently become important in the determination of the conservation values of plant communities as well as dependent flora and fauna species. At the time the two main areas of public interest that had arisen in interest were rainforests and estuarine mangrove swamp. The other main areas of public conservation interest were the protection of large contiguous areas of wilderness. But while interest in particular vegetation types were important in some of these issues (conflicts such as the proposed pine planting on the Boyd Plateau - subsequently Kanangra Boyd NP- revolved around the type of vegetation to be impacted), specific data on terrestrial native vegetation was very limited. After much discussion our mapping procedures were to map vegetation as it was likely to have been in 1788 as well as to show current distribution of vegetation. Scale is always important as different levels show different levels of detail. The Botanic Gardens mapping series was planned to map at 1:1million for state coverage and 1:100 000 for important areas including the Sydney area. Vegetation Maps for western NSW and the Sydney as well as some national parks (at even more detailed scales were produced and published in the RBG journal *Cunninghamia* in the 1990s. These maps were instrumental in showing the significance of particular plant communities, for example the extent and location of rainforest, and the extent and composition of Cumberland Plain vegetation in western Sydney. By providing objective and independent (i.e. not as part of an EIS) the importance of remnant areas in the context of future development could be established. A number of conservation reserves in western Sydney (including Agnes Banks NR Mulgoa NR and Scheyville NP) for example resulted from this approach. The mapping program and the increasing rate of land clearing was also providing evidence that control of clearing was required if biodiversity was to be protected and allowed to survive, and provided support for the Native Vegetation act in the 1990s.

Prior to the 1970s conservation effort was concerned with establishing protected areas, many of which came together as national park areas with the National Parks and Wildlife Act in 1967. The development of the Planning and Environment Act in the 1970s was the first attempt to take into account the conservation values of areas and species outside of protected areas and its initial application showed how limited was the available information on the distribution and biology of most native flora and fauna. My work at the time was also to provide input and conservation value assessment at inquiries into coal mines, power stations dams and sand extraction, where assessment required basic scientific data on the importance of biodiversity. The relative importance of rare and

endangered species was important and a generally agreed list of species was developed in CSIRO, (ROTAP) but there was no statutory listing protection until the TSC Act in 1995.

The point of this historical background is to highlight the important association between public expectations on biodiversity conservation and the need for an adequate body of basic scientific research necessary for rational assessment of biodiversity assessment and protection, and that this research needs to be ongoing if conservation issues are to be adequately dealt with. The research is complicated by the need for data for assessment and protection at different scales (local, regional, landscapes, state, national etc), which will require different levels of sampling, data analysis etc. Our understanding of the importance and range of biodiversity has also been changing both in response to new findings, such as the importance of particular micro-organisms in groundwater, and in dealing with new threats to these organisms, such as CSG impacts on groundwater.

Over the 40 year period that I have had personal experience with there has been loss and degradation of biodiversity in many areas and while natural areas are still being destroyed, albeit at a lower rate than in the past, there will always be some loss. However our aspirational goal, and I strongly support it, is to retain all of the biodiversity that existed in pre-settlement NSW, in a much changed landscape. Current targets are for conserved lands to cover 5-10% of the state area, but recent international estimates are that 25-75% (average 50%) of an area will need protection to maintain biodiversity and ecological processes, captured in the phrase "Nature needs half".Whilst this may be impossible in many parts of the world, it is probably achievable in NSW given its already large core conservation areas,and a relatively small and educated population. However most of future conservation challenges are off-park and it is in these areas that the successful application of the EPA, TSC and NV Acts are critical particularly in dealing with the tyranny of small decisions that results from a range of local and often short term issues. There will always be complaints about any constraints applied by these Acts but they are dealing with issues on a longer time frame than most development issues and need to take future conditions into account. It may never be entirely clear what is the best approach for protection and conservation of biodiversity at any point in time; we can only use the current knowledge (and this needs to be constantly upgraded) in the best way. Thus the removal of stock grazing from Kosciusko in the 1950s was in response to soil conservation measures to protect the area as a water catchment, but it subsequently resulted in the conservation and recovery of much important alpine flora (conservation of alpine flora not being an important public issue at the time); however the current encroach of climate change is likely to reverse some of the gains and lead to biodiversity losses in the High Country.

In my view the regulation through the NPWS, EPA, TSC and NV Acts has been absolutely essential for the major advances in conserving biodiversity over the last 45 years. However the interactions with scientific knowledge and public perceptions, both in following and leading, is not necessarily well recognised. Because of its levels of scale and detail, conservation of biodiversity can involve very complicated scientific issues often with many unknowns, which may become clear with further work or may remain site specific. Many conservation issues involve some subjectivity and value judgements and are often overtaken by political processes. In my view the most fundamental need for conserving biodiversity is through a system of protected and the NPWS Act has been very successful in its role in doing this. However as clearing and development destroys the remaining scatter of small areas in the landscape, there is an increasing need for better complementary off-park conservation. The EPA, NV and TSC Acts have all been developed in response to these needs and this remains an ongoing process.

I have had particular experience with the TSC Act and regard this as a very significant measure necessary for the successful protection of species and threatened communities.

1. A significant feature of the TSC Act is the power of the Scientific Committee (made up of

independent scientists) to make the decision to List individual species and communities as threatened based on scientific issues of the degree of threat, rather than being influenced by vested interests (In other acts listing rests with a minister with advice from a committee). This procedure is an important feature of the NSW legislation, underpins the scientific basis of the process, and has worked well in practise. It must be retained.

2. As well as the importance of science in the listing process, the ability to list all types of biodiversity from mammals to fungi, and to list threatened communities and populations, recognises the diversity of life forms and the different scales that are relevant. Similarly the range of levels of listing available, ranging from vulnerable to critically endangered, allow for the wide range of individual treatments that may be appropriate. A particular result of the TSC act has been to provide a focus for conservation actions by drawing attention to species that may be occurring in sites that have previously been overlooked as degraded or as too small. This flexibility is important and should be continued.

3. In my view the TSC Act has had a great impact on the direction of conservation in NSW over the last two decades. Listing of species has allowed prioritisation in targeting public funds and effort for conservation issues, and in practice, has provided aims and objectives for organisations such as NPWS and land management agencies. It provides a list for prioritising species actions from amongst the hundreds of species in an area. At the same time habitat improvement work for a rare species will also help a common species.

4. To deal with land-use conflicts, Biobanking has been a more recent development for the TSC Act. While this has potential and works in some situations it is too easily subject to political processes, especially where major projects are concerned. Balancing the values of the trade-offs may be difficult e.g. trading off areas of the critical endangered Duffys Forest Endangered Ecological Community for areas of widely conserved sandstone woodland achieves relatively little with regard to conserving the particular endangered vegetation, though may help in general conservation. Conservation values of particular trade-offs need to be explicitly stated and evaluated against what is to be lost. Whether trade-off areas have long-term security and management need to be established. Trade-offs of critical communities should at least involve protection of areas of at least another endangered or critically endangered community, preferably in the same region.

5. The assessment process involving the proponent funding and selecting the ecological consultant is seriously flawed. Ecological and biodiversity surveys need to be done by professional scientists without a direct interest in the area or issue. It is easy to overlook or not find species/communities of significance that may hinder the development project. Or a report can be shelved and a “more suitable” consultant employed.

6. Such surveys need to be funded by a government body or independent external institution with no links to development or land use. Developers could pay into a fund, and independent consultants selected for the job. Consultants could be chosen by lot to avoid conflicts of interest. Consultants need to be registered and have adequate qualifications.

7. Serious biodiversity surveys need to allow adequate time for sampling as many species are only recognisable at particular seasons. State organisation is probably best as Federal organisation is too distant and council regions are too small for general survey overview.

8. Data from surveys should be available to all to allow fair assessment of threat conditions, particularly biodiversity distributions data, and this needs to be continually updated as past lists of community locations can be rendered out of date by recent destruction of habitat, in particular the

ongoing loss of sites through the tyranny of many small separate and isolated decisions.

9. Legislation and knowledge/ research go hand in hand with scientific knowledge highlighting the need for conservation actions and legislation needed to facilitate appropriate responses. Conservation is an ongoing process and in my experience it is clear that science, knowledge and ongoing research are critical to the conservation process. These feed back directly through management or through community input into the political process and thence into management. A current weakening of government employment of scientists needs to be reversed and long-term employment guaranteed. Expertise in survey and ecological work as well as the systematic identification and description of species takes years to build up.

10. Much important conservation work is achieved at the local scale as both local people and councils are more likely to respond to local conditions. Councils therefore need to be supported in these issues. In particular I have seen the listing of species under the TSC Act providing a focus for local interest in particular sites. I would like to see a series of regional biodiversity handbooks produced for local councils or clusters of councils with similar environmental regions, describing the vegetation types, plant and animal species and conservation parks and areeas of significant habitat, corridors etc with clear guidelines for future needs and uses.

11. Overall I consider that the NPWS, EPA, TSC and NV Acts have operated and continue to operate well. Conserving biodiversity in a landscape of changing development pressures, and changing community values, is a complicated process, and Acts dealing with it need to be able to deal adequately with a wide range of both broadscale (such as threatening processes), regional (such as endangered plant communities) and local issues (such as rare species). Though it might be desired, it is vain to expect favourable economic outcomes at least in the short term, should be attained in the process, consideration of the economy should not be included in in the legislation. The Acts should be focussed on biodiversity assessment in a scientific and rational context and its protection in a longer time frame than is ever applied to the economy.