

# Struggling with the Act – some observations by ecological consultants

Martin Denny

President, Ecological Consultants Association of NSW Inc.

88 Showground Road, Castle Hill, NSW 2154

## ABSTRACT

This paper explores the influence of the New South Wales *Threatened Species Conservation Act 1995* (TSC Act) and its predecessors upon the assessment of impacts on native fauna. There has been a move away from an overall assessment of impacts upon total biodiversity towards an approach focused on threatened species and communities. For ecological consultants dealing with the TSC Act, interpreting its many requirements can be difficult and can often lead to differences of opinion between the proponents of a development and the Determining Authority. Some of the positive and negative aspects of the TSC Act are described, and it is concluded that there is a large gap between satisfying the requirements of the Act and providing information about the effects of various activities upon the fauna and their habitats.

**Key words:** *Threatened Species Conservation Act*, Assessment of Significance, species impact statements, ecological consultant

## Introduction

This paper presents the combined thoughts and concerns of members from the Ecological Consultants Association of NSW Inc (ECA). The ECA represents professional ecological consultants in NSW and has the following objectives:

- To liaise with regulatory authorities and other bodies on matters relevant to the practice of ecological consultants
- To prepare and/or support standards relevant to the practice of ecological consultants, including a code of ethics, standards for the practice methodology, peer review of work
- To provide or co-ordinate training programs for the betterment of the practice of ecological consultancy
- To undertake any activity that will promote the interest of ecological consultants in NSW<sup>1</sup>.

## History of the act and its impact upon fauna

Prior to its discovery and settlement by Europeans, Australia could be considered to be a land that was occupied by plants and animals unencumbered by demands from management plans, captive breeding, taxonomic testing and legislative controls.

Until the early 20<sup>th</sup> century, plants and animals of NSW were described by their scientific names and by their physical, behavioural and ecological characteristics. Animals could roam freely within their favoured biotope and could easily be recognised by their evolved defining characteristics. However, the imposition of legislative controls on fauna with the *NSW Birds and Animals*

*Protection Act* in 1918 changed how fauna were defined in NSW. I will not go into the history of legislation associated with the conservation of fauna in NSW, as this is dealt with by Jarman and Brock (2004) in another paper, but I would like to view the development of the current legislation through the eyes of the fauna affected and to discuss its impact upon our current approaches to impact assessment. This paper only addresses fauna, and leaves any discussion of the effects from the *Threatened Species Conservation Act* on flora to someone more qualified.

Although the *Birds and Animals Protection Act 1918* recognised the need to protect some species of birds and mammals in NSW, the *NSW Fauna Protection Act 1948* divided these species into two groups, Protected and Scheduled. Protected animals became the property of the Crown and could not be killed, except during declared 'open seasons'. Scheduled animals were unprotected and could be hunted and killed at any time (although 'closed seasons' were possible). The list of Scheduled animals includes species now considered threatened (e.g. Grey Falcon, *Falco hypoleucos*, and 'flying foxes'), whilst another 23 species considered unprotected under the Fauna Protection Act are now classed as protected. These species included cormorants, Wedge-tailed Eagle *Aquila audax*, falcons, parrots, Dusky Moorhen *Gallinula tenebrosa* and the Common Wombat *Vombatus ursinus*.

Thus some fauna in NSW were no longer just defined in terms of their biological characteristics. Birds and mammals were now placed into two categories and some species could now be considered as being more important (protected) than others. This approach was repeated in the *NSW National Parks and Wildlife Act 1967*.

<sup>1</sup> Further information can be obtained from [www.ecansw.org.au](http://www.ecansw.org.au)

The NSW *National Parks and Wildlife Act 1974* (NPW Act) replaced the 1967 Act and consolidated the above collection of Acts that had protected the flora and fauna (although only some birds and mammals) of this State. From 1974 onwards, native animals were labelled with the terms ‘protected’ or ‘endangered’ and their lives were never the same. Animals could also be classed as ‘locally unprotected’ or ‘prescribed’. There were schedules of endangered fauna as well as protected amphibians. The ‘taking’ – in those days this meant ‘killing’ – of native animals could be undertaken under licence.

Thus, one no longer viewed a native animal as an integral part of the environment, interacting with the biotic and abiotic aspects of their surroundings. Each species had become labelled as either a protected or an endangered animal, and those species listed in Schedules 12 and 12A of the NPW Act were now considered to be more important than those that were only protected (amphibians left off Schedule 12A were still not considered ‘protected’). So began the change of impact assessment from the general to the specific.

The importance of impact assessment was set in place with the introduction of the *NSW Environment Planning and Assessment Act 1979* (EP&A Act). This Act introduced legislative requirements for development applications and environmental impact statements that included an assessment of the harm to the environment (this included most native fauna). Because there was little emphasis on endangered species (this had to wait until the introduction of the *NSW Endangered Fauna (Interim Protection) Act 1991* No. 66) assessments of impacts upon native fauna were taken in general terms. This is illustrated by the following extracts from Environmental Impact Statements produced in the early 1980s:

1. North Hermitage Colliery Pit Top Proposal at Fernbrook Environmental Impact Statement prepared by Nexus Environmental Studies for Coalex Pty Ltd September 1980. Environmental Report “Impact of the Proposed mine Top on Wildlife in Marrangaroo Valley” by M.J.S.Denny May, 1980:

“The impact of coal mining at the North Hermitage site will be significant for the terrestrial fauna living at the site. Most animals will initially move away from the disturbance and some will find it difficult to recolonize new areas. However, the relatively small area covered by the mine site (about 3.7 ha) will mean that overall numbers of animals in the Lithgow region will not be affected.” (p.8)

Part of the assessment included observations of wombat activity along Marrangaroo Creek, as well as descriptions of aquatic macro-invertebrate fauna within the creek. The report concluded that Marrangaroo Creek should be preserved in its present condition ‘for the sake of the total ecology of the area’.

2. Ulan Coal Mines Stage 2 Colliery Development and Expansion Environmental Impact Statement Prepared by Kinhill Stearns Engineers for Ulan Coal Mines Ltd February 1983:

“The clearing of vegetation from parts of the three sites surveyed will cause a loss of fauna from the same areas. This will occur through the land clearing process and its

associated noise and disturbances, as well as through the consequential changes to habitat. However, none of the species located at the three sites are unique to the site, area or region. Previous studies in the Upper Hunter region show that the species found at Ulan are distributed over a wide region in a range of habitats similar to those identified by the current survey.” (p. 103)

The Statement also provided figures showing the distribution of wildlife habitat as well as a general appraisal of the biodiversity of the area studied together with comparisons of survey results from nearby areas of similar habitats (e.g. Goulburn River, Newnes Plateau).

These two extracts show the approach to impact assessment prior to the emphasis on endangered species. Although endangered species (as listed in Schedule 12 of the NPW Act at the time) were found in the North Hermitage survey (Gang-gang Cockatoo *Callocephalon fimbriatum*, White’s Thrush i.e. Bassian Thrush *Zoothera lunulata*) there was no requirement to target these animals or their habitats. Rather, the overall species assemblages were assessed, in terms of their contribution to the region and their value to the local area. Also, wildlife habitat was assessed in terms of its value to the region’s biodiversity and not to that required by an individual (endangered) species.

The introduction of the EP&A Act provided a basis for future detailed assessments of impacts upon fauna. But more importantly, its introduction became a milestone in the development of an impact assessment industry. From 1979, it became necessary for a developer of a project of sufficient status (i.e. a designated development) to produce an impact assessment statement and possibly a fauna impact statement from 1992 onwards. This required persons of sufficient expertise to undertake investigations to determine the extent of impact upon various parts of the environment, including flora and fauna. Thus, an industry, based upon consultants assessing impacts upon the environment, was born and has blossomed over the last 24 years. Part of that industry includes ecological consultants. In 1979, there were one or perhaps two ecological consultants in NSW; today there are more than a hundred.

The introduction of the now repealed *NSW Endangered Fauna (Interim Protection) Act* in 1991 introduced the concept of a Fauna Impact Statement and set out seven factors required when deciding whether there is likely to be a significant effect on endangered species (the seven factors are given in Appendix 1). Unfortunately, or perhaps unconsciously recognising the importance of all native vertebrate species, when it passed through parliament in December 1991, the *Endangered Fauna (Interim Protection) Act* put ‘protected’ instead of ‘endangered’ fauna in Section 4A, i.e. the test using the seven factors had to assess the ‘significant effect on the environment of protected fauna’, not just endangered fauna.

An example of the effect from this wording can be seen in the Environmental Impact Statement for the North West Transport Links East (prepared by Manidis Roberts Consultants and Snowy Mountains Engineering Corporation Ltd for the NSW Roads and Traffic Authority, 1991). The Flora and Fauna Evaluation prepared by Mount King Ecological Surveys produced a fauna Impact Statement

for 131 protected vertebrate fauna species, ranging from the now endangered Eastern Bentwing Bat *Miniopterus schreibersii oceanensis* to the more common Australian Magpie *Gymnorhina tibicen*. Only two species assessed were listed in Schedule 12 of the NPW Act (Green and Golden Bell Frog *Litoria aurea*, and Diamond Python *Morelia spilota*), but it was possible to discuss conservation status within the Statement so importance locally could be addressed. Thus species such as the Brown Pigeon *Macropygia amboinensis*, Gang-gang Cockatoo and Powerful Owl *Ninox strenua* could be highlighted as having declining population status in the Sydney region, and emphasis placed on restoration of their habitat. Although this approach to impact assessment was laborious, it did provide a broad platform to look at and assess the total biodiversity of an area where impacts may occur. The drafting error in the Act was rectified in the *Endangered Fauna (Interim Protection) Amendment Act 1992 No. 97*, and only the impact upon endangered species (as listed in Schedule 12 of the NPW Act) needed to be assessed by the seven-factor test.

Now, there was increased emphasis on endangered species, and less on the general fauna populations i.e. biodiversity of species and populations. Australian fauna had now become a class-ridden society, i.e. endangered or non-endangered, with the invertebrates, being completely ignored.

Finally, in 1995, the NSW *Threatened Species Conservation Act 1995* (TSC Act) was proclaimed. This Act, together with the recent *NSW Threatened Species Conservation Amendment Act 2002*, is one of the major subjects of this forum.

The TSC Act has set the focused approach to impact assessment in concrete, with definitions of threatened species (called and defined as ‘endangered species’ in the *Endangered Fauna (Interim Protection) Act*), endangered populations and communities, critical habitat and key threatening processes.

The process of assessing whether an activity could be considered a significant impact upon a threatened species etc is clearly spelt out as the 8-part test (an amended seven-factor test). The 8-part test is given in Appendix 1. Recovery plans and threat abatement plans are described and their use defined. The Fauna Impact Statement was expanded to include all threatened species of flora and fauna (including invertebrates and non-vascular plants), endangered populations and endangered ecological communities and was renamed a Species Impact Statement.

In all, the TSC Act plus amendments provides all the requirements for consultants to undertake impact assessment of native flora and fauna. Of all native flora and fauna? Well, perhaps not all – just those species, populations and ecological communities listed at the back of the Act, i.e. the Schedules.

There are benefits to species that are listed in the Schedules of the TSC Act. Such benefits include the possibility of increased research funding to threatened species such as the Powerful Owl and Barking Owl *Ninox connivens*, and the power to stop or modify developments (e.g. the humble Cumberland Land Snail *Meridolum comeovirens*, has wrought havoc to residential development in western Sydney).

## The nature of the Act

Whatever one’s philosophical approach to impact assessment, the *Threatened Species Conservation Act* has become the ecological consultants bible. Each Section and sentence must be studied, interpreted and acted upon. Each word and definition needs to be puzzled over, and any official interpretation and guidance by NPWS and its replacement, the Department of Environment and Conservation (DEC), in the form of Information Circulars and workshops, is eagerly consumed.

Because the text of the Act, like the bible, can be interpreted in many ways by people of different persuasions and agendas, its application can sometimes be considered a bit like a lottery or the roll of a dice. Whoever determines the assessment produced by an ecological consultant holds the power to accept or reject such an assessment. Often such a person or agency can take a broad approach or can look at the assessment from a strictly narrow fundamentalist interpretation of each word within the Act. This is called the ‘black letter’ approach to law, and is practised by many within the environmental and legal community.

Thus the Determining Authority, be it the DEC or another government authority, or local government staff, are able to interpret the Act in a manner that may be different from that taken by the proponent. Consequently, the passage of a development through its assessment phase may not depend on what you know, or whom you know, but on the attitude taken by unknown representatives of the Determining Authority. This attitude is acknowledged by the DEC in their guidelines for persons undertaking surveys and assessments of threatened species (NPWS and SMEC Australia 2003):

“Ultimately, it is left to the discretion of the consent, determining or licensing authority to form a view as to whether a proposed development, activity or action is likely to have a significant effect on threatened species, populations or ecological communities, or their habitats” (p. 3-11).

This problem extends to the NSW Land and Environment Court, where the black letter approach dominates in an adversarial environment. Decisions from the Court are more than likely to be based upon precedence, i.e. previous interpretations of the law, rather than on the merits of the case.

Unfortunately, by applying a black letter approach, the Act has become a checklist of do’s and don’ts. It is now possible for an applicant without knowledge of the interaction between species and their environment, or of broader biodiversity principles, to pass through the assessment process by ensuring that the detailed requirements of the Act are met. Such an approach ignores the spirit of the TSC Act, particularly Object (a) i.e. “to conserve biological diversity and promote ecologically sustainable development”. At present, one could argue that the Act does not meet this objective, by narrowly focusing on threatened species and ignoring the remainder of the biological diversity. There is no need to change the objects of the Act, rather change the Act to suit the objective.

The checklist approach makes life easier for those who have the task of determining whether the assessment process has been correctly undertaken. They can also

go through a checklist of items to ensure that all have been covered. Whether they are covered adequately or whether their needs to be a broader assessment covering the full range of plants and animals and their interaction is not brought into the determination.

The checklist approach reaches out to include the contents of Species Impact Statements, the added requirements set by the DEC Director-General for a SIS, the techniques and methodology used during surveys and the qualifications of those involved in the assessment.

## Using the Act

For all of the general complaints about the evolution of legislative controls on conservation of the natural environment, the *Threatened Species Conservation Act* and Amendments creates the environment in which ecological consultants must work. So it is important to see what benefits and liabilities stem from the implementation of this Act. First, let us look at some of the benefits.

Primarily, the Act does provide protection to a set of plants and animals within NSW (those found on the Schedules). Together with the NPW Act, all native vertebrate and some invertebrate species in NSW are protected and cannot be harmed without a valid development consent or activity approval and/or a licence from the DEC. The inclusion of a test for significant impact within the EP&A Act and the TSC Act has had a strong effect on how activities are developed. The original intention of the seven-factor test in 1992 and the 8-part test in 1995 (called Assessments of Significance, NPWS and SMEC 2003) was to provide a quick assessment of the significance of impact from a development. If such an assessment led to a Species Impact Statement then detailed surveys and assessments could then be undertaken. However, over the years, results from Assessments of Significance have become critical. Many proponents were quick to realise that the results from such an assessment were not always available for public comment or submissions (although an 8-part test accompanying a Development Application is available to the public), whereas a Species Impact Statement becomes public property. Thus the production of an SIS could be expensive and its assessment drawn-out, i.e. period for exhibition, time to respond to submissions and time for a decision. It is far better to put the resources into the 8-part test and attempt to show that no significant impacts are expected.

This has led to a reversal in the sequence of events, i.e. detailed surveys now come before an 8-part test. The 8-part test is now produced as an extensive assessment of impacts. Initially, an 8-part test would have been only one to two pages long, now it can be at least 50 to 60 pages.

The benefits from this approach are many. For the ecological consultant, it may mean that you have two bites at the cherry, i.e. a survey prior to the 8-part test and then another survey to cover those requirements needed for a SIS. But far more important is the attitude taken by some proponents to ensure that a SIS is not required. This will often mean that advice on mitigation of impacts given by an ecological consultant will be taken. Thus, a proponent may see the advantage of setting aside areas of land proposed for

development as a trade-off for ensuring a successful passage of the modified development. This is illustrated in the paper by Whelan *et al.* (2004) when describing the conservation of an area containing *Darwinia biflora*.

Another benefit stemming from the TSC Act is the emphasis on providing an area of compensatory habitat as part of the development. Similar actions are part of other policies within NSW. The provision of compensatory wetlands is part of the NSW Wetlands Management Policy when social and economic imperatives give no other alternative (Department of Land and Water Conservation 2002). Land managers in south-western NSW can set aside areas of land as compensation for the clearing of other parts of their property (Land Use Agreements under the Southern Mallee Project). Land Use Agreements involve landholders developing existing grazing country for dryland cultivation. Any development which takes place on a property must be offset with an equal or larger Private Reserve (where stock and watering points are removed) within the property. Up to September 2003, 22 properties have been granted consents to develop 37,550 ha, with 100,000 ha being placed in Private Reserves for perpetuity.

Such arrangements are now being incorporated into large developments and are defined and described in Environmental Impact Statements and Species Impact Statements, i.e. there is compensation for the loss of habitat during development by providing and protecting another area of similar habitat. Such an approach has been undertaken for the Western Sydney Orbital Tollway (Sinclair Knight Merz and PPK Environment & Infrastructure Pty Ltd 2000).

Finally, the use of the TSC Act and the ensuing publicity associated with controversial developments has raised the public profile of threatened species and communities. I am sure that no one knew about the Cumberland Land Snail, Bathurst (=Purple) Copperwing Butterfly *Paralucia spinifera* or of the Cumberland Plain Woodland before these were the subject to assessment under the TSC Act. Such publicity has also made the public aware that there are constraints on developments that may affect biodiversity, and that the concept of biodiversity is sufficiently important to result in legislation to enforce its protection.

Let us now look at the other side of the coin. The focused view of biodiversity assessment via the TSC Act has, in the view of many consultants, eroded the broader view of flora and fauna impact assessment, and led to trivialising ecological assessment. Species richness, habitat values and conditions are no longer part of the assessment process unless they focus upon threatened species and communities. The Western Australian Environmental Protection Authority has recognised the importance of placing species into an ecosystem context in its Position Statement No.3. "The EPA expects proponents to ensure that terrestrial biological surveys provide sufficient information to address both biodiversity conservation and ecological function values within the context of the type of proposal being considered and the relevant EPA objectives for protection of the environment" (Environmental Protection Authority 2002).

The EPA of WA emphasises that, “It is important to clarify that the intrinsic value of a species should not be judged only by its rarity or how threatened the taxon may be. Even though a species may occur in large numbers, it may be a major component (or ‘keystone species’) for the sustainability of the system.” The position statement also points out that it is important to consider the concept of species as it relates to diversity (e.g. species richness) or endemism, particularly regards areas of high biodiversity (‘hotspots’). It is felt that NSW DEC should adopt a similar approach.

The increased emphasis on the application of Assessments of Significance is leading to a confused and vague interpretation of the factors within the test. A submission in 2003 to the DEC by the Ecological Consultants Association of NSW (ECA) raised many questions concerning the interpretation of the yet to be proclaimed 7-part test (the 7-part test is outlined in Appendix 1). Definitions of terms used in the seven factors are inconclusive, particularly as a quantitative term of reference. Terms such as ‘local viable population’, ‘local occurrence’, ‘substantially’, ‘extent’, ‘importance’ and ‘locality’ need to be defined precisely before accurate assessments can be undertaken. Taking one example of the concerns of members of the ECA, Factor (d), Sub-factor (iii) of the proposed 7-part test (see Appendix 1) states that “in relation to the habitat of a threatened species, population or ecological community: the **importance** of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the **species, population or ecological community** in the **locality**” must be taken into consideration when assessing impacts.

The four underlined terms in this sub-factor require a clearer definition to avoid varying interpretation. The use of the collective terms “species, population or ecological community” can cause confusion. For example, does “population” refer to an endangered population? Or does population refer to a *population* of the threatened *species* being assessed by the 7-part test. If so, is it a local population? And is it defining the local population as those within the “locality” – another undefined term. Does ecological community mean endangered ecological community, or the ecological community of which a threatened species is part? There needs to be clarification about what type of criteria needs to be considered in assessing ‘importance’ of habitat to be removed or modified to the species, population or endangered ecological community. There may need to be separate criteria for each category. Also, it may be necessary to define habitat in terms of the particular species under consideration. For example, if the species to be assessed were the Cumberland Land Snail, there would be a significant impact if the herb and shrub layers were removed or modified, but the trees retained.

The term “locality” has been inconsistently defined in the past. The draft guidelines for persons undertaking surveys and assessments of threatened species (NPWS and SMEC Australia 2003) state: “The size of the locality will vary depending upon the location of the study area and the amount of information available. For example, in Sydney the locality may be defined as a 5km radius of the subject site compared with far western NSW where the locality may be a 50km radius of the subject site due to a limited number of surveys conducted” (p. 4-36). This places some expectation

upon the consultant to define locality that will be consistent with that used by the DEC. The size of a locality is usually defined in the DEC Director-General’s requirements for a Species Impact Statement. Examples from such requirements show that the radius for a locality in western NSW is usually 20 km, and 10 km for the North Coast of NSW. Hence, are we to consider the local population as those individuals likely to occur within a 5, 10, 20 or 50 km radius (or any other nominal radius)? Consequently, the definition of this term will vary in its significance to the ecology of the species, and can be open to exploitation. For example, for a Common Planigale *Planigale maculata* with a very small home range of about 1 ha, the “importance” of 10 ha of Common Planigale habitat to be modified in a locality of about 160 km<sup>2</sup> (10 km radius circle) could be argued not to be significant, as numerous sub-populations may occur within such a wide area which may contain a lot of potential habitat (which for a species found in a wide range of habitats, can be substantial). Thus, the habitat of a small population on the 10 ha of habitat proposed for development could be argued to not be significant in a “local” sense, and could be eliminated. As the title of the paper suggests, many consultants are ‘struggling with the Act’. They are struggling because some terms and concepts used in the Act are ambiguous and difficult to interpret. Much of the energy used in attempting to provide a clear assessment of impacts can go in trying to determine what is required under the Act. Clearer guidelines to the Act and better communication between determining authorities and consultants would make this task easier.

The inclusion of key threatening processes, recovery plans and threat abatement plans within the proposed 7-part test present problems in terms of adequacy of available information. Factor (f) of the 7-part test asks “whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan” (the 7-part test is outlined in Appendix 1). At present, there are few recovery plans available for threatened species or communities, and according to the Amendment Act, the Service (now DEC) has three to five years to provide such plans. However, there is an obligation for a proponent to ensure that any action is consistent with the objectives of these plans. Also, there are many more key threatening processes listed (22) than there are related threat abatement plans available (2). Thus, it will be highly likely that an action will constitute a key threatening process, e.g. clearing of vegetation, but it is not possible to apply any of the objectives of the relevant threat abatement plan, as none are available on vegetation clearing.

Another problem is the increasing complexity of the Act, particularly when combined with the other legislative requirements associated with impact assessment e.g. State Environmental Planning Policies, vegetation clearing requirements (e.g. Regional Vegetation Management Plans), NPWS Translocation Policy, NSW *Fisheries Management Act 1994*, NSW *Rural Fires Act 1997*, Animal Welfare concerns and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Each new amendment to the Act adds increasing specialised work for the consultant ecologist. In addition, the Schedules are being continually upgraded with additional species, communities, populations and key threatening processes. Between 1995 and 2002, over 300 listings involving flora

and fauna have been added. There were 241 fauna species listed as threatened in the TSC Act in 1995. In 2004, there are 289 fauna species listed as threatened. In March 2004, there were 14 Preliminary Determinations listed that covered nine threatened fauna species, a Key Threatening Process and four endangered ecological communities. A Preliminary Determination needs to take into account any submissions from the public before being listed as a Final Determination. DEC recommends that a proponent take into account those endangered species, populations and ecological communities that are listed as Preliminary Determinations when undertaking Assessments of Significance (NPWS and SMEC Australia 2003).

The increasing specialisation of the assessment process, because of the listing of species that are only known to a small number of taxonomists, has placed a greater strain on the role of ecological consultants. Consultants have had to become familiar with a range of obscure invertebrate species, as well as vertebrate species that have undergone taxonomic changes since being listed (e.g. Gunther's Skink, *Cyclodomorphus branchialis*, is now called the Mallee Slender Blue-tongued Lizard, *C. melanops elongatus*).

As we hear so often from the political arena, The Devil is in the Detail! Nothing could be truer for ecological consultants. The aims, intentions and requirements of the TSC Act are clearly spelt out. However, the difficulty is being able to implement the aims and satisfy the requirements. Vague terms, unrealistic demands, ambiguous expectations and inconsistent determinations all lead to difficulties when undertaking the assessment process.

There is a great need to refer to such groups as the Ecological Consultants Association of NSW for their practical knowledge to ensure that the Act becomes more workable. It is praiseworthy that NPWS, now DEC, has invited the ECA to contribute to the development of the guidelines for the proposed 7-part test, and in assisting in the certification process for persons undertaking Species Impact Statements (this is a requirement under the TSC Act and Amendments).

## In praise of the Act

On reflection, particularly after presenting such a negative view of the Act, I came upon a revelation. In the case

of the TSC Act, the government and bureaucracy were stepping outside their normal conservative role and have provided a *Threatened Species Conservation Act* that is too far ahead of its time!

All that the Act states and requires is correct and is important for the conservation of flora and fauna. The trouble is that the scientific, consulting and planning communities cannot provide the answers needed to satisfy the requirements of the Act. These communities are struggling to answer such questions as:

- the extent of a local population;
- the specific feeding, shelter and breeding requirements of each threatened species;
- the degree of loss of habitat that may affect a species;
- the impact from the creation of a road;
- the effect from constant or erratic noise upon a breeding population;
- the home ranges of threatened species

and so on. Yet, these are questions that must be answered before a rigorous Assessment of Significance, i.e. using the 8-part or the proposed 7-part test, can be achieved.

There is an opportunity for a conduit of information between consultants and members of the scientific community through conferences etc. Conferences and workshops targeting problems relating to assessment of impacts upon threatened species need to be developed. With the proposed certification of consultants undertaking Species Impact Statements information relevant to impact assessment could be channelled through the DEC. This already occurs through Threatened Species Management Information Circulars and Species Profiles, and could be upgraded by the use of the internet (e.g. regular updates via the email).

So, to be honest, we should not be looking down our noses at the *Threatened Species Conservation Act* and its administration by the DEC. Rather we should be turning to the scientific community and asking why they haven't provided the information needed to help support this innovative piece of legislation. This piece of legislation was welcomed by all interested in flora and fauna conservation, but has fallen into disrepute because of lack of support by a community that fought for its introduction.

## References

- Department of Land and Water Conservation 2002 *Compensatory Wetlands A discussion paper under the NSW Wetlands Management Policy* Department of Land and Water Conservation and NSW State Wetland Advisory Committee.
- Environmental Protection Authority 2002 *Terrestrial Biological Surveys as an Element of Biodiversity Protection Position Statement No.3 March 2002*, Environmental Protection Authority, Perth.
- Jarman, P.J. and Brock, M.A. 2004 The evolving intent, coverage and use of threatened species legislation in Australia. Pp 1-19 in *Threatened Species legislation: is it just an Act?* Edited by P. Hutchings, D. Lunney and C. Dickman. Royal Zoological Society of NSW, Mosman, NSW, Australia.
- Lunney, D., Curtin, A.L., Ayers, D., Cogger, H.G., Dickman, C.R., Maitz, W., Law, B. and Fisher, D. 2000 The threatened and non-threatened native vertebrate fauna of New South Wales: status and ecological attributes. *Environmental and Heritage Monograph Series No.4*. Pp 1-132. NSW National Parks and Wildlife Service, Hurstville.
- NPWS and SMEC Australia 2003 *Draft Threatened Species Survey & Assessment Guidelines* NSW National Parks and Wildlife Service, Hurstville.
- Sinclair Knight Merz and PPK Environment & Infrastructure Pty Ltd 2000 *Proposed Western Sydney Orbital Environmental Impact Statement, Species Impact Statement and Working Papers*.
- Whelan, R., Brown, C.L. and Farrier, D. 2004 How and when might the precautionary principle be applied in threatened species conservation? Pp 49-58 in *Threatened Species legislation: is it just an Act?* Edited by P. Hutchings, D. Lunney and C. Dickman. Royal Zoological Society of NSW, Mosman, NSW, Australia.

## APPENDIX I Factors to be taken into consideration when undertaking Assessments of Significance

### 1. Seven-factor test (Schedule 2 *Endangered Fauna (Interim Protection) Amendment Act 1992 No. 97*):

In deciding whether there is likely to be a significant effect on the environment of endangered fauna the following factors must be taken into account:

- (a) the extent of modification or removal of habitat, in relation to the same habitat type in the locality;
- (b) the sensitivity of the species of fauna to removal or modification of its habitat;
- (c) the time required to regenerate critical habitat, namely, the whole or any part of the habitat which is essential for the survival of that species of fauna;
- (d) the effect on the ability of the fauna population to recover, including interactions between the subject land and adjacent habitat that may influence the population beyond the area proposed for development or activities;
- (e) any proposal to ameliorate the impact;
- (f) whether the land is currently being assessed for wilderness by the Director of National Parks and Wildlife under the Wilderness Act 1987;
- (g) any adverse effect on the survival of that species of endangered fauna or of populations of that fauna.

### 2. 8-part test (Schedule 5 *Threatened Species Conservation Act 1995 No. 101*):

The following factors must be taken into account in deciding whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats:

- (a) in the case of a threatened species, whether the life cycle of the species is likely to be disrupted such that a viable local population of the species is likely to be placed at risk of extinction,
- (b) in the case of an endangered population, whether the life cycle of the species that constitutes the endangered population is likely to be disrupted such that the viability of the population is likely to be significantly compromised,
- (c) in relation to the regional distribution of the habitat of a threatened species, population or ecological community, whether a significant area of known habitat is to be modified or removed,
- (d) whether an area of known habitat is likely to become isolated from currently interconnecting or proximate areas of habitat for a threatened species, population or ecological community,
- (e) whether critical habitat will be affected,
- (f) whether a threatened species, population or ecological community, or their habitats, are adequately represented in conservation reserves (or other similar protected areas) in the region,
- (g) whether the development or activity proposed is of a class of development or activity that is recognised as a threatening process,
- (h) whether any threatened species, population or ecological community is at the limit of its known distribution.

### 3. 7-part test (yet to be proclaimed Schedule to *Threatened Species Conservation Amendment Act 2002*):

The factors to be taken into account when making a determination as to whether an action, development or activity is likely to significantly affect threatened species, populations or ecological communities or their habitats are:

- (a) in the case of a threatened species, whether the action proposed is likely have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,
- (b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,
- (c) in the case of an endangered ecological community, whether the action proposed:
  - (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
  - (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

APPENDIX I

- (d) in relation to the habitat of a threatened species, population or ecological community:
  - (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and
  - (ii) whether an area of habitat is likely to become fragmented or isolated from areas of habitat as a result of the proposed action, and
  - (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality,
- (e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),
- (f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,
- (g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.