

A directory of conservation-status listing processes for threatened Australian plant species and ecological communities

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Introduction

Australia is blessed with a federal system of government, and if we can do things nine different ways, we generally do. The legislative and administrative bases for identifying and assessing species and ecological communities as 'threatened', and the status and form of the official lists of such entities, are among the many conservation matters which are done differently in each of the nine Australian jurisdictions. To date there has been no convenient way to locate and compare the listing regimes, the categories and criteria, and their legal background.

Some conservation-status listing regimes are based in dedicated 'threatened species' legislation, others in more general conservation legislation while others are embedded in land-use or fisheries legislation.

This directory provides a guide to:

- the main legislation and policies which mandate the lists and assessment processes;
- the form of assessment process and the degree of public input that is possible;
- the general form of the criteria used to categorise entities as threatened, not threatened, and any grades within these categories;
- where the details of criteria and assessment methods can be found; and
- some appraisals of how the various systems work.

Scope of the Directory

The summary descriptions of legislative provisions and administrative processes in this directory are a guide only, and must not be taken as adequate for the assessment of any situation requiring legal interpretation or close adherence to processes. Direct reference to the Acts and regulations, and liaison with the relevant agencies, are required in such cases.

Where *threatened species* are concerned, this directory relates only to threat-assessment and listing processes, and for 'plants' only (in the broad sense, including fungi, lichens, and algae).

Some information is included on legislatively prescribed protection lists, or conservation categories, erected for non-threatened plant species under the various Acts mentioned (for example, several jurisdictions have 'no-

pick' restrictions) or 'sub-threatened' categories. Some Acts stratify such flora in complex ways and information on this is not comprehensive.

This directory does not attempt to capture 'non-listing' provisions of the Acts for species protection, such as prescribed management and penalties. The actual management and protection of any threatened taxon is also affected by many more pieces of legislation than are mentioned here; typically a dozen or so other Acts may impinge on threatened species management, including terrestrial and marine natural resource management (NRM), agriculture, soil conservation, and planning laws. In addition, this directory does not attempt to capture the very extensive, mostly recent, literature on methods for non-legislative prioritisation of species for conservation action.

For *threatened ecosystems*, listing regimes vary even more than for species, in respect of the type of legislation in which they are embedded, the scale of ecosystem recognised, the criteria used to identify them as threatened, and the form of protection applied (which is often intimately entwined with vegetation clearing legislation or other NRM Acts). As with species, these intricacies are well beyond the scope of this summary. In the case of New South Wales, for example, the *Native Vegetation Act 2003* is crucial for the protection and management of terrestrial ecosystems, but the only Acts treated here are the two under which actual conservation-status listing occurs for terrestrial and marine ecosystems.

Threatening processes are not legislatively eligible for listing in all jurisdictions, and criteria again vary.

The term 'threatened entities' is used in this directory for brevity, to indicate 'threatened taxa, populations, and ecological communities'. In practice, terminology and definitions are critical for clear understanding, vary with jurisdiction and may differ from normal usage. Correct legal usage is important in the development of nominations and submissions by non-government organisations. Adam (2004) provides a useful discussion of the definition of terms in threatened species legislation, in the context of NSW.

Interactions between state/territory listing processes and those under the Commonwealth's Environment Protection and Biodiversity Conservation (EPBC) Act are not traced in detail. The EPBC writ runs across all jurisdictions for certain matters (EPBC Act Part 3, see Commonwealth

entry, pages 29-33), many taxa and ecosystems are separately listed in more than one jurisdiction, and many recovery plans are now joint between the Commonwealth and a State/Territory.

Information Provided in the Directory

Where possible, wording used is from Acts, Regulations or departmental websites, although more often it has been rendered as a close paraphrase. I am grateful to colleagues in several agencies for additional wording which I have used verbatim in some cases.

Main Act for Threatened Flora Protection shows the primary Act for the jurisdiction, and the main legislative Regulation/s that relate to listings of flora, ecosystems, and threatening processes.

Current Policy Context shows the main conservation policy documents relating to threatened entities; usually these are non-statutory but in a couple of jurisdictions they have been enacted as regulations or statutory declarations.

Listing Provisions of the Act cite the main sections (abbreviated to 's') of each Act relating to assessment of conservation status and listing; other sections not shown may also have a bearing.

Listing Process is a simplified description of the nomination, assessment and listing procedures.

Assessment Committee describes the form and role of the bodies that conduct assessments; these usually but not always have a statutory basis.

Listing Categories, Terminology and Criteria is a highly compressed summary only. Some jurisdictions have generalised criteria defined in statute, and then an operational set of criteria that assist in assigning entities appropriately. The operational set may or may not be fully codified and publicly available. Some assessment committees find it advantageous to maintain a certain freedom from full codification, whereas others see explicit and detailed codification as an advantage.

Current Lists and Statistics (flora) shows the legislative schedules and (if separate) the departmental versions. Legislative schedules of listed items are the authoritative source; departmental websites that mirror the legislative lists (often with links to plant information systems) often lag behind the schedules. Where discrepancies in summarised numbers have been found, the schedules have been preferred. Any such summary becomes out of date almost immediately, as the various assessment committees proceed with their work. The figures given for the number of entities listed in each system are those available at the end of August 2008. Species figures are those for *flora only*, including non-vascular plants, algae and fungi/lichens.

Listing Implications indicates whether some form of recovery or mitigation actions (recovery plan or equivalent, or threat abatement plan) is prescribed by statute as a direct requirement for listed entities. This section does not

deal with other 'implications' of listing such as penalties for harm, harvesting controls, protection mechanisms other than recovery plans, etc.

Other Relevant State/Territory Acts are mentioned for some jurisdictions only, in cases where there is more than one Act under which threatened entity listing may occur. This does not exhaust the number of Acts which have a bearing on threatened entity protection and management; there are several to many in each jurisdiction.

Additional Information Sources shows, for threatened entities, contact details for the main agencies responsible for listings, and some of the authoritative sources of expertise and data on biological, demographic and recovery action factors in threatened species assessment.

Recent (post-2000) Public-domain Analyses, Appraisals provides an almost certainly incomplete list of published reviews of the operation of the listing systems in use. This section omits some major analyses of threatened species legislation or operational management that relate to areas other than conservation-status listing.

The directory is undoubtedly incomplete. Corrections and additions from readers will be incorporated in a later web version and will help ANPC members and the wider conservation community stay abreast.

Website Information

The threatened entity listing information carried by departmental websites is often fragmented and with poor internal linking, even in cases where overall it is fairly comprehensive. Also, several departments have URLs for lower-level pages that are made up of long code rather than keywords. For these reasons, the web-page (URL) addresses given here are mostly either exact to sub-pages, or to the nearest well-linked higher-level page.

Listing procedures are legislatively set in most jurisdictions, and therefore the content of the web-pages on which they appear (though not the domains) tend to be relatively stable (meaning a typical life of perhaps 3-5 years). They are not, however, immune from departmental name and web-domain changes, so the many links in this directory, while valid at the time of writing (August 2008), are vulnerable to obsolescence.

Towards a Consolidated National List?

The nine discrepant Australian systems for conservation-status assessment and listing have evolved within the constraints of nine sets of legislation, some of it dating from as early as 1950. While threat assessment and listing are important precursors for effective conservation action, they are rarely a prime motive for legislative amendment. The staff of conservation agencies have to work to local legislative prescriptions, and where the legislation sets the criteria for assigning conservation status, there is limited room to reform either the philosophy of approach or the actual procedures.

From about the middle of the 1990s there was an increased level of liaison between the various agency units responsible for assessment and listing, and with external conservation scientists concerned with the methods used. The last decade has seen some degree of operational convergence in the type of data now being gathered for assessment purposes, an increased level of data and information exchange, and a partial trend towards acceptance of International Union for Conservation of Nature (IUCN 2001, 2008) categories and criteria as a useful method of assessment, although the local legislative categories for listing necessarily take priority.

Nevertheless, we still do not have a consolidated national 'red list' for either threatened species or threatened ecosystems. The lists under the EPBC Act are not a consolidation of separate state lists, and certainly do not yet contain all the entities that would be needed for a consolidated national list. In the case of ecosystems, operational definition of the same entity may vary. Only a couple of jurisdictions have committed to nominating all locally listed endemic species for EPBC listing as well; a more general commitment to this would be a good step forward. There is however considerable discussion of 'alignment' of EPBC and state-level lists, and progress is being made in some jurisdictions.

The last (only) attempt at a single national listing process for flora species was the informal (non-legislative) *Rare or Threatened Australian Plants* (ROTAP) system, with iterations from 1979 to 1995 (Briggs & Leigh 1995). The ROTAP categories and criteria were simple, applicable with expert knowledge but low levels of data, and were rightly internalised by a whole generation of Australian botanists and plant conservation practitioners. ROTAP required, as a minimum, only basic best-knowledge estimation of a species' distribution, degree of presence in reserves, and broad features of total and population-level numbers.

It is still fairly common, over a decade after the final ROTAP edition was published, and despite its methods having been superseded, for new species to be published with a 'recommended conservation code' expressed in ROTAP terms. This persistence reflects in part the difficulties encountered by people, other than listing specialists, in coping with the discrepant and sometimes arcane jurisdictional systems, and in accessing and understanding the other main methodology, the IUCN (2001, 2008) system.

The IUCN maintains the Global Red List of endangered species, and mandates the development of IUCN-compliant national red lists. The *IUCN Red List Categories and Criteria* (Version 3.1, 2001), and the *Guidelines for using the IUCN Red List Categories and Criteria* (Version 7.0, Aug 2008), are intended for use for assessing the conservation status of all plant and animal species, terrestrial and marine.

Broadly, the IUCN (2001) system requires quite a lot of information about extent of occurrence, degree of fragmentation, estimated area actually occupied, estimated

rates of past or projected decline, and population structure. The resulting estimates of species conservation status are methodologically transparent and repeatable, robust, and can be translated to quite different legislative categories if necessary. The advantages of using the IUCN method for all assessments in all jurisdictions (even if other criteria continue to be used for final listing) would be a greater degree of analysable and updatable information across political boundaries, greater legal defensibility of listings, and greater methodological transparency.

Some of the legislative categories and criteria in use in Australia for species are now either broadly compliant with the higher levels of the IUCN categorisation, or in two instances fully compliant with the whole IUCN criteria. Others have points of analogy only. While local legislative categories and criteria are paramount for the assessment committees, several are now more or less routinely using IUCN criteria as part of their process. One State (Victoria) is attempting to assess its whole flora against IUCN criteria.

The IUCN system is complex, and much hungrier in its data requirements than ROTAP. Both factors are a disincentive to non-professional users to come to grips with it, and few agencies have yet tried to develop tools or explanatory material to encourage people to contribute to IUCN-compliant assessments. A good plain-English explanation of it is sorely needed, setting out the types of data now needed for assessments. Equally important is the establishment by more agencies and NGOs of mechanisms by which people can actually contribute such information, short of the major task of constructing a whole nomination.

Criteria for ecosystems are not as well evolved as for species. Preston and Adam (2004), and Keith (in press), review the issues. Several Australian jurisdictions have ecosystem criteria analogous to the IUCN species criteria, relating to extent, fragmentation, area occupied, and rates of past or projected decline. A strong international model for such criteria is lacking, but IUCN, with Australian input, is working to develop one in the next two or three years.

What role for Individuals and the Non-government Sector?

Not all jurisdictions provide for non-agency nominations or other inputs to the listing process. In those that do, often a high proportion of nominations for threatened entities come from the public or from non-government organisations.

Public nominations are not always optimally constructed. People intending to nominate taxa, ecosystems or threatening processes for listing should consult staff of the relevant agencies or independent committees responsible for conservation-status assessment. An adversarial relationship between non-government nominators and these bodies is scarcely ever productive. Assessment processes always require collection of information over and above what is provided in nominations, and this can take months, but the better the initial nomination, the faster the process will go.

Substantive independent reviews and appraisals of the working of threatened species legislation and management systems are a big task. Some NGOs have been able to devote the resources to generate valuable critiques on a state basis, either by symposium publications or by commissioning reports. Examples are some local offices of the Environmental Defenders Office, some State Conservation Councils, WWF, the Field Naturalists Club of Victoria, and the Royal Zoological Society of NSW. Where these address listing processes they are noted in this directory. Attempts at independent national appraisals are rare (e.g. Griffin NRM Pty Ltd, 2004; HSI/WWF 1998). With the accelerating shift in governmental attention from a concern with species conservation, to valid but increasingly speculative commitments to landscape- and habitat-scale conservation, independent reviews are badly needed to ensure that the species baby is still in the bath.

At a broader level, several of the Acts and policy frameworks have good and sometimes unique features for threatened species listing: the determinative nature of assessments in NSW; the emphasis on early survey in WA, Tasmania and the NT; the plain-English policy documents of WA and NT; and the levels of public involvement in several states. There is a need to glean the best practices from several of the jurisdictions and to be ready to inject these into the periodic audits, reviews and legislative reform processes.

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IUCN (2001). *IUCN Red List Categories and Criteria, Version 3.1*, <http://cms.iucn.org/about/work/programmes/species/red_list/resources/technical_documents/index.cfm>.

IUCN (2008). *Guidelines for using the IUCN Red List Categories and Criteria, Version 7.0*, <http://cms.iucn.org/about/work/programmes/species/red_list/resources/technical_documents/index.cfm>.

Keith, D.A. (in press). The interpretation, assessment and conservation of ecological communities. *Ecological Management and Restoration*.

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QUEENSLAND

Main Act for Threatened Flora Protection

The *Nature Conservation Act 1992 (NCA)*; *Nature Conservation (Wildlife) Regulation 2006*; *Nature Conservation (Protected Plants) Conservation Plan 2000*; all via <www.legislation.qld.gov.au>. Summaries are at <www.epa.qld.gov.au/about_the_epa/legislation/nature_conservation/>.

Administering agency: Environmental Protection Agency (EPA), <www.epa.qld.gov.au>.

All native wildlife is protected; 'wildlife' includes all taxa down to viruses. All plants 'native to Australia' are

protected. A 'protected plant' is defined in the Regulation (Schedule 3) as 'an endangered, vulnerable, rare or least concern plant' (see categories below).

Current Policy Context

The *Nature Conservation (Protected Plants) Conservation Plan 2000* outlines State policy for plant conservation and regulates 'take' and permits. It is gazetted as a regulation under the NCA. Aims of the Plan include:

- to promote the continued existence in the wild of biologically viable populations of all taxa of protected plants;

- to allow the ecologically sustainable use of protected plants taken from the wild;
- to control threatening processes;
- to minimise the impact of taking protected plants in nature including, for example, by adopting a precautionary approach in the setting of limits for taking and the granting of licences;
- to facilitate the export of protected plants;
- to encourage the transition from taking protected plants from the wild to obtaining protected plant parts from cultivation;
- to provide for the phased reduction in the taking of whole plants from the wild for commercial processes; and
- to minimise the potential for illegally taken plants to be used for commercial purposes.

Listing Provisions of the Act

The NCA confers levels of protection (with some exemptions) on all native species or taxa, including terrestrial, freshwater aquatic, and marine plants, algae and fungi. Taxa from any of these groups are eligible for listing as Threatened. Subspecies and varieties are eligible for listing as Threatened.

There is no provision under this Act for legislative listing of populations of taxa, or threatening processes, though these are addressed in the *Nature Conservation (Protected Plants) Conservation Plan 2000*.

Ecosystem protection is a consideration under the *Vegetation Management Act 1999* (see below).

Listing Process

Anyone may nominate a species for listing as a threatened species. Nomination forms and guidelines are on the EPA website at <www.epa.qld.gov.au/publications?id=1273>.

Nominations are assessed by an internal EPA Species Technical Committee of eight officers with wide experience with Queensland flora and fauna, which meets every six months. The Committee's role is advisory to the Minister.

Listing Categories, Terminology and Criteria

Amendments to the Act in 2005 more closely aligned the assessment of Queensland species with the IUCN and other Australian jurisdictions, and provide consistency across categories in signifying level of threat. Prior to 2005, species were categorised as presumed extinct, endangered, vulnerable, rare, or common.

Threatened species listing comes under the *Nature Conservation (Wildlife) Regulation 2006*, which has as its purpose the prescribing of wildlife to the following classes:

- *Presumed Extinct in the wild (X)*: Regulation Part 2 Division 1, sections 6-10; list for flora is at Schedule 1, Part 2;

- *Endangered (E)*: Regulation Part 2 Division 2, sections 11-15; list for flora is at Schedule 2, Part 2;
- *Vulnerable (V)*: Regulation Part 2 Division 3, sections 16-20; list for flora is at Schedule 3, Part 2;
- *Rare (R)*: [to be phased out by 2010]: Regulation Part 2 Division 4, sections 21-25; list for flora is at Schedules 4, Part 2;
- *Near Threatened (N)*: Regulation Part 2 Division 5, sections 26-30; list for flora is at Schedule 5 (currently *Acacia chinchillensis* only);
- *Least Concern (LC)*: Regulation Part 2 Division 6, sections 31-35; list for flora is at Schedule 6 Part 2.

This Regulation also states the declared management intent for each class.

Some non-threatened plants to which statutory forms of protection apply (see below) are listed in the *Nature Conservation (Protected Plants) Conservation Plan 2000* (schedules 1 and 2).

Taxa currently listed as Rare will require re-assessment to determine which of the new categories most adequately describe their status. The list of Rare plants can be found in the *Nature Conservation (Wildlife) Regulation 2006*.

Taxa formerly (pre-2005) listed as common have been automatically listed as Least Concern. Taxa assessed to the categories 'Near-threatened' and 'Least Concern' are not legislatively listed, but may serve as guides for conservation action.

Current Lists and Statistics (flora)

The protected plant lists in the *Nature Conservation (Protected Plants) Conservation Plan 2000* (schedules 1 and 2, and Section 11; see above) are found via <www.legislation.qld.gov.au> (select Regulations).

Threatened species lists are in the schedules of the *Nature Conservation (Wildlife) Regulation 2006*, at <www.legislation.qld.gov.au/LEGISLTN/CURRENT/N/NatureConWiR06.pdf>.

Current (August 2008) figures for threatened flora species are:

	Number
Presumed Extinct in the wild (X)	27
Endangered (E)	149
Vulnerable (V)	279
Rare (R)	700

Near Threatened (N) and *Least Concern (LC)* lists are also in the Regulation (schedules 5 and 6 respectively).

Listing Implications

Recovery Plans are not mandatory for individual species listed under the NC Act, but have been for species listed under the Commonwealth EPBC Act. Plans prepared under

the latter act are usually developed jointly with the State. Links to Queensland State and joint approved Recovery Plans are at <www.epa.qld.gov.au/nature_conservation/wildlife/threatened_plants_and_animals/recovery/conservation_plans/>.

Other Protection Provisions

Under the *Nature Conservation (Protected Plants) Conservation Plan 2000*, special restrictions, independent of listing as threatened, are placed on the taking of certain classes of protected plants:

- *Schedule 1 (Protected plants for which additional taking limitations apply)* of the Plan specifies taxa the taking of which is governed by sections 15 and 51 of the Plan (s15 relates to granting of harvesting permits where incidental damage to Schedule 1 taxa is likely; s51 relates to permits for educational and scientific collecting). Schedule 1 includes all fungi, algae, lichens, mosses and liverworts, as well as a considerable list of vascular plant species and some whole families and genera.
- *Schedule 2 (Whole protected plants)* of the Plan specifies taxa for which an official tag is required when taken in the wild, as provided in sections 19, 32 and 38 of the Act. The Schedule 2 list currently includes 'type A restricted plants', plus *Asplenium australasicum*, *Asplenium nidus*, and *Spathoglottis plicata*. The list of 'Type A Restricted Plants' is in *EcoAccess Information sheet: Protected Plants - Type A Restricted Plants* at <www.epa.qld.gov.au/publications?id=1990>.
- *Section 11* of the Plan (*Restriction on grant of licence, permit or authority for taking, keeping or using particular plants*) allows only clearing permits or scientific purposes permits, for a suite of protected plants: the genus *Aponogeton*, one lycopod, the genus *Blandfordia*, and 10 orchid species.
- *Section 12* of the Plan specifies restrictions on taking and using endangered plants listed under the *Nature Conservation (Wildlife) Regulation 2006*.

Other Regulations with a bearing on protected plants (particularly harvesting) are the *Nature Conservation (Protected Areas Management) Regulation 2006* and the *Nature Conservation (Protected Plants Harvest Period) Notice 2006*. See also <www.epa.qld.gov.au/eoaccess/plants_and_animals/commercial_taking_and_use_of_protected_plants/commercial_harvesting_of_protected_plants/>, and the *Code of practice for the taking and use of protected plants* at <www.epa.qld.gov.au/publications?id=1955>.

Other Relevant Queensland Acts

Vegetation Management Act 1999 (VMA); *Vegetation Management Regulation 2000*; both at <www.legislation.qld.gov.au>. ***Administering agency***: Department of Natural Resources and Water (NRW), <www.nrw.qld.gov.au/vegetation/index.html>.

Ecological communities in Queensland are classified on the Regional Ecosystems database. The VMA provides for listing of threatened and non-threatened Regional Ecosystems (REs) in VM Regulation 2000, schedules 1 and 2. Regional ecosystems are defined by a mix of landform, soil/geology, and vegetation characteristics. A summary of the definition process is at <www.epa.qld.gov.au/nature_conservation/biodiversity/regional_ecosystems/regional_ecosystem_framework/>.

Each RE has a conservation status based on its current extent in each Bioregion. Maps of regional ecosystems, at varying scales, are available at <www.epa.qld.gov.au/nature_conservation/biodiversity/regional_ecosystems/introduction_and_status/Regional_Ecosystem_Maps/>.

Listing process: State government agencies revise the VM Regulation on the basis of updated regional ecosystem mapping every two years, and advise the Minister, who must also consult local government and landowners and invite submissions prior to a final declaration.

After each release of the latest regional ecosystem mapping, extent-of-remnant and extent-of-regional ecosystem figures are produced by the Queensland Herbarium; see Accad *et al.* (2006). These extent data form the basis for the conservation listing.

Listing categories: the *Vegetation Management Regulation 2000* provides the legislative lists of regional ecosystem in the following categories:

- Endangered (Schedule 1);
- Of concern (Schedule 2);
- Not of concern (Schedule 3).

The VMA criteria for these categories, and additional EPA criteria applied for biodiversity planning purposes, are summarised at <www.epa.qld.gov.au/nature_conservation/biodiversity/regional_ecosystems/introduction_and_status/>.

The VM Regulation also lists Grassland Regional Ecosystems, although these do not fall under the coverage of the VM Act (Section 8 of which defines vegetation in such a way as to exclude grassy or non-woody herbage and mangroves).

Current lists of regional ecosystems are at <www.legislation.qld.gov.au/LEGISLTN/CURRENT/V/VegetManR00.pdf> and (with information) at <www.epa.qld.gov.au/REDD_Regional_Ecosystem_Description_Database>.

Connection to NCA: if a species is listed under the *Nature Conservation Act 1992*, then point-locations for it are automatically linked to 'essential habitat' under the *Vegetation Management Act 1999*. If the point is within remnant vegetation, then the VMA provides a 500 m essential habitat zone around the point location. Within this essential habitat, the area will be examined for the species factors to assess if the species is likely to occur. Essential habitat in remnant vegetation can also be derived from

models of the distribution of listed species (J. Neldner pers. comm.). See <www.epa.qld.gov.au/nature_conservation/biodiversity/regional_ecosystems/>.

Additional Information Sources

The 'Back on Track species prioritisation framework', administered by the EPA, aims to prioritise conservation and recovery actions for species. It addresses all species (terrestrial, marine and freshwater), not just those listed as threatened under Queensland and Commonwealth laws. Details, including criteria, are at <www.epa.qld.gov.au/nature_conservation/wildlife/back_on_track_species_prioritisation_framework>, or contact the Threatened Species and Ecosystems Unit (see below).

Back on Track uses an expert-panel technical assessment of species against three major criteria:

- Probability of Extinction (using IUCN 2001 criteria),
- Consequences of Extinction, and
- Potential for Successful Recovery.

Species are ranked as Critical Priority, High Priority, Medium Priority, Low Priority or Poorly Known (data deficient). Research priorities for poorly known species are identified to focus research. Back on Track implementation includes a strong trend towards multi-species recovery plans (and away from single-species plans), which are being developed on a regional basis by identifying sets of common threats and potential recovery actions.

The EPA is also developing a range of Conservation Management Profiles <www.epa.qld.gov.au/nature_conservation/conservation_management_profiles/> for ecosystems, species (fauna and flora) and cultural heritage.

Other Sources: Organisations

Australian Tropical Herbarium (Cairns): ph. 07 4042 1859; <www.jcu.edu.au/atfi/JCUDEV_003572.html>.

Best contact for species listing matters: Threatened Species and Ecosystems Unit, QEPA, PO Box 15155, City East Qld 4002; ph. 07 3227 6386; email <sara.williams@epa.qld.gov.au>.

Dept of Natural Resources and Water: Vegetation Management inquiries: phone DNRW regional offices, or email <VMEnquiries@nrw.qld.gov.au>.

Queensland Herbarium (Brisbane): ph. 07 3896 9326; <www.epa.qld.gov.au/nature_conservation/plants/queensland_herbarium/>.

Other Sources: Publications

Accad, A., Neldner, V.J., Wilson, B.A. and Niehus, R.E. (2006). *Remnant Vegetation in Queensland: Analysis of Remnant Vegetation 1997-1999-2000-2001-2003, including Regional Ecosystem Information*. Queensland Herbarium, Environmental Protection Agency, Brisbane, <www.epa.qld.gov.au/publications?id=1209>.

Environmental Defenders Office (Qld) Inc. <www.edo.org.au/edoqld/>: Fact sheets (select 'Nature Conservation - Species and Areas' and 'Vegetation Protection'; the latter also has a useful 2008 powerpoint).

Jasmyn, A., Lynch, J. and Drury, W.L. (2006). Assessing the conservation status and threats to priority plants: a case study in south-east Queensland, Australia. *Australasian Journal of Environmental Management* 13: 36-51.

NEW SOUTH WALES

Main Act for Threatened Flora Protection

The ***Threatened Species Conservation Act 1995 (TSC Act)***; *Threatened Species Conservation Regulation 2002*; both available at <www.legislation.nsw.gov.au>.

Administering agency: Department of Environment and Climate Change (DECC), <www.environment.nsw.gov.au>.

The protection of marine vegetation is the responsibility of the Department of Primary Industries under the *Fisheries Management Act 1994* (see 'Other Relevant NSW Acts' below).

Current Policy Context

The Objects of the TSC Act are:

- a) to conserve biological diversity and promote ecologically sustainable development, and
- b) to prevent the extinction and promote the recovery of threatened species, populations and ecological communities, and

- c) to protect the critical habitat of those threatened species, populations and ecological communities that are endangered, and
- d) to eliminate or manage certain processes that threaten the survival or evolutionary development of threatened species, populations and ecological communities, and
- e) to ensure that the impact of any action affecting threatened species, populations and ecological communities is properly assessed, and
- f) to encourage the conservation of threatened species, populations and ecological communities by the adoption of measures involving co-operative management.

NSW State Plan, <www.nsw.gov.au/stateplan/>:

- *Priority E4: Better outcomes for native vegetation, biodiversity, land, rivers, and coastal waterways.*
- *Biodiversity target 3: 'By 2015 there is an increase in the recovery of threatened species, populations and ecological communities'.*
- *New directions: Biodiversity strategies.*

The first NSW Biodiversity Strategy expired in 2003. The State Plan commits to a new one, although the sub-points in the Plan itself relate only to reserves, private-land conservation, and weed/pest mitigation.

Listing Provisions of the Act

The TSC Act provides for the listing of threatened species, populations, ecological communities, Key Threatening Processes, and Critical Habitat. The main listing provisions are in Part 2 (lists, eligibility, and procedure) and Part 8 (Scientific Committee).

Under Section 4, '*species* of animal or plant includes any defined sub-species and taxon below a sub-species and any recognisable variant of a sub-species or taxon', and '*plant* means any plant-life that is indigenous to New South Wales, whether vascular or non-vascular and in any stage of biological development, and includes fungi and lichens, but does not include marine vegetation within the meaning of Part 7A of the Fisheries Management Act 1994'.

Section 5A of the TSC Act states that the Minister of the Environment may, with concurrence of the Fisheries Minister '[1](b)] declare a species of marine vegetation to be a species of plant for the purposes of this Act if it is a species that may inhabit freshwater or a terrestrial environment at some stage of its biological development'.

Listing Process

Details of the listing process, with nomination forms and guidelines, are at <www.environment.nsw.gov.au/committee/AboutTheNSWSscientificCommittee.htm>.

Anyone can propose changes, additions or deletions to the threatened species lists. A Scientific Committee (see below) assesses all nominations, and decides whether there are grounds to proceed. If so, the Committee considers the nomination in detail, usually after seeking additional information from various sources. Once a nomination is assessed, the Committee makes a Preliminary Determination (PD) to either support or not support the proposal. The PD is published on the Committee website, advertised, and is open for public comment for at least 30 days. The Committee then considers all submissions and any new information and makes a Proposed Final Determination (PFD) about the matter. The Minister is informed of the PFD and has two months in which to refer the matter back to the Committee on scientific grounds. Once this period is passed, or after the Minister formally advises the Committee that the PFD is not going to be referred back, whichever is soonest, the Committee proceeds to Final Determination (FD) stage. The FD is published and advertised, and the change to the schedules is gazetted.

Division 4 of the Act provides for provisional listing of endangered or critically endangered species on an emergency basis.

The Scientific Committee has an active program of reviewing schedules, with priority given to entities for which there is a *prima facie* case for re-ranking or de-listing.

Assessment Committee

The TSC Act (Part 8, Sections 128-136) establishes the NSW Scientific Committee, an independent body of eleven members with specialist expertise, appointed by the Minister for the Environment and Climate Change. Membership is drawn from conservation agencies, universities and professional bodies as specified in Section 129. The Committee meets approximately monthly. Its main functions include:

- deciding which species should be listed '... as threatened (critically endangered, endangered, vulnerable or presumed extinct) in NSW';
- deciding which populations should be listed as endangered in NSW;
- deciding which ecological communities should be listed as critically endangered, endangered or vulnerable;
- deciding which threats to native plants and animals should be declared key threatening processes under the Act; and
- reviewing and updating the lists of threatened species, populations and communities and key threatening processes in the schedules of the Act.

The Committee does not make decisions about threatened fish and marine plants, which is the responsibility of the NSW Fisheries Scientific Committee.

More details of the NSW Scientific Committee are at <www.environment.nsw.gov.au/committee/AboutTheNSWSscientificCommittee.htm>, including its membership, all Preliminary and Final Determinations, and a 2007 Freedom of Information (FoI) document outlining the Committee's functions and points of public involvement.

The NSW Scientific Committee and its Fisheries counterpart (see below) are unique among the 'threat assessment' bodies in the Australian jurisdictions in being determinative rather than advisory in respect of listings. The Minister may ask the Scientific Committees to reconsider a proposed Final Determination on scientific grounds, but may not reject their subsequent decision.

Listing Categories, Terminology and Criteria

The *Threatened Species Conservation Regulation 2002* sets out the criteria for assigning list status to species, populations and ecological communities. These criteria in their current form are recent and many entities listed under the TSC Act were assessed against earlier versions. Some listed entities were inherited from the TSC Act's precursor Act.

Species of flora eligible for listing under the Act are categorised as:

- Presumed Extinct in NSW (Schedule 1, Part 4);
- Critically Endangered (Schedule 1A, Part 1);
- Endangered (Schedule 1, Part 1); or
- Vulnerable (Schedule 2, Part 1).

Under the Act, the term ‘threatened species’ means a species listed under any one of these categories. These listing categories and the criteria for assigning species to them are stipulated in the Regulation (Part 3, Division 1, sections 13-18). These are very closely based on IUCN (2001) criteria, and current Scientific Committee practice is to assess against both legislative and IUCN criteria.

Populations may be listed only in the single category of Endangered (in NSW), in Schedule 1, Part 2. The listing categories and criteria for populations are stipulated in the Regulation (Part 3, Division 2, sections 19-23). These are closely analogous to IUCN (2001).

Ecological communities may be listed as:

- Critically Endangered (Schedule 1A, Part 2);
- Endangered (Schedule 1, Part 3); or
- Vulnerable (Schedule 2, Part 2).

In some cases vulnerable ecological communities are excluded from the term ‘threatened ecological communities’ as used in the Act (s4, subs5; see also below).

The criteria for assessment of communities are specified in the Regulation (Part 3, Division 3, sections 24-27). They are based on gauging the degree of reduction or restriction in geographic area and ecological function.

Key Threatening Processes (KTPs) may be listed under Section 13 of the Act, in Schedule 3. A threatening process is eligible for listing as a KTP if, in the opinion of the Scientific Committee, it:

- a) adversely affects threatened species, populations or ecological communities; or
- b) could cause species, populations or ecological communities that are not threatened to become threatened.

Critical Habitat: Part 3 of the Act sets out processes for the declaration of critical habitat for any part or parts of the area or areas of land comprising the habitat of a species, population or ecological community that is listed under the Act as Endangered or Critically Endangered (but not Vulnerable). This part of the Act has been rarely used.

Current Lists and Statistics (flora)

The official (legislative) schedules of TSCA-listed entities are at <www.legislation.nsw.gov.au/fullhtml/inforce/act+101+1995+FIRST+0+N#sch.1>. A modified version of the schedules, sometimes lagging a little behind the legislative changes but with useful summary information, is at <www.environment.nsw.gov.au/committee/schedules/threatenedspeciesconservationact.htm>.

Current (4 July 2008) figures for gazetted flora entities:

	Number
Species (plants, algae, fungi)	
• Presumed Extinct in NSW	34
• Critically Endangered:	11
• Endangered	350*
• Vulnerable	229
Endangered population	23
Ecological communities	
• Critically Endangered	2
• Endangered	83
• Vulnerable	2
Key Threatening Processes	32**

* includes 5 fungi and one charophyte

** not all are plant-related

Profiles of all threatened species, populations, ecological communities and key threatening processes are available via <www.threatenedspecies.environment.nsw.gov.au/tsprofile/home_species.aspx>.

Publications (some rather dated) on a number of threatening processes are at <www.environment.nsw.gov.au/threatenedspecies/tspubs.htm>.

Critical Habitat declarations are available at <www.environment.nsw.gov.au/criticalhabitat/CriticalHabitatProtection.htm>.

Listing Implications

Part 4 of the Act provides for Recovery Plans for threatened species, populations and ecological communities. Recovery Plans (approved and draft) are at <www.environment.nsw.gov.au/threatenedspecies/tspubs.htm> or through <www.threatenedspecies.environment.nsw.gov.au/tsprofile/home_recovery.aspx>.

Under amendments in 2006, such plans are no longer mandatory for listed threatened entities. While some single-entity plans are still in force, and a few more may be developed in special cases, the DECC approach now is to stratify proposed recovery actions for most species into the Threatened Species Priority Action Statement (PAS) (<www.threatenedspecies.environment.nsw.gov.au/tsprofile/home_PAS.aspx>). In some cases multi-species recovery plans are developed or recovery actions more fully incorporated into area management plans or habitat management plans, covering several to many threatened entities (and often other matters). Part 5A of the Act sets out the legislative basis for the PAS.

Part 5 of the Act sets out the requirements and process for Threat Abatement Plans, which are not mandatory.

The Act provides for the identification and listing of Vulnerable ecological communities, but these are excluded from some legal applications of the term ‘threatened ecological communities’, notably the licensing provisions of the TSC Act and from related offences under the *National Parks and Wildlife Act 1974*. However, they may be the subject of a recovery plan, in which case the

provisions of Part 4 Division 2 of the TSC Act apply to implementation of that plan. The TSC Act still applies in full to any threatened species or endangered populations that may form part of a vulnerable ecological community.

Other Relevant NSW Acts

National Parks and Wildlife Act 1974. This Act has several areas of interaction with the TSC Act in relation to threatened species management, but not listing of threatened entities. Schedule 13, however, contains a list of Protected (no-pick) plants, being mostly species subject to collection for foliage or flowers.

Environmental Protection and Biodiversity Conservation Act 1992 (Commonwealth) (EPBC Act), <www.environment.gov.au/epbc/about/index.html>. There are many points of interaction between the EPBC and state Acts. However in NSW, the TSC Act requires (s9) that 'As soon as practicable after a species or ecological community that is or was indigenous to New South Wales becomes a listed threatened species or a listed threatened ecological community under the [EPBC Act], the Scientific Committee is to consider whether ... the [entity] should be listed [under the TSC Act]'.

Fisheries Management Act 1994 (FMA); Fisheries Management (General) Regulation 2002; both available at <www.legislation.nsw.gov.au>. **Administering agency:** NSW Department of Primary Industries (DPI), <www.dpi.nsw.gov.au>.

The FMA has among its Objects: '(2)(a) to conserve fish stocks and key fish habitats, and (b) to conserve threatened species, populations and ecological communities of fish and marine vegetation, and (c) to promote ecologically sustainable development, including the conservation of biological diversity ...'. Part 7A of the Act provides for legislative listing of threatened species, ecological communities and key threatening processes. Critical Habitat declarations are provided for in Division 3 of the Act.

Marine vegetation is defined as 'any species of plant that at any time in its life must inhabit water (other than fresh water)' (although inland saline aquatic flora fall under the TSC Act, not the FMA). Demarcation between the two Acts is slightly idiosyncratic. The FMA covers freshwater animals but not freshwater plants; all the latter come under the TSC Act for listing purposes. Similarly, the freshwater ecological communities listed as threatened under the FMA are defined exclusively in terms of their animal constituent taxa, not plants.

Part 7 of the FMA provides for the protection of fish habitat, with Part 7A providing for the declaration of critical habitat. Section 220BA of the FMA (*Relationship of Part to Threatened Species Conservation Act 1995*) provides that the Minister 'may ... with the concurrence of the Minister administering the [TSC Act] ... (b) declare a species of plant to be a species of marine vegetation for the purposes of this Act if it is a species that may inhabit

water (other than freshwater) at some stage of its biological development'. As with the TSC Act, 'species' under the FMA includes 'any defined sub-species and taxon below a sub-species and any recognisable variant of a sub-species or taxon'.

The FMA asserts (sections 205 & 338) some protection over all marine flora in State waters, with permits being required to 'take'. It also allows for declaration of some rare taxa as Protected (from fishing or collecting), although no flora are listed in this category to date (see <www.dpi.nsw.gov.au/fisheries/species-protection/protected-species>). The FMA also provides for habitat protection for mangroves, seagrasses and seaweeds (see <www.dpi.nsw.gov.au/fisheries/habitat/protecting-habitats>).

FMA Listing Process. This process is similar to that for the TSC Act, with anyone able to make a nomination to add, remove or change a listing. A Fisheries Scientific Committee (see below) assesses the nomination in accordance with listing criteria prescribed in the *Regulation 2002* (Part 11B). Details of the process are at <www.dpi.nsw.gov.au/fisheries/species-protection/species-conservation/identifying>. Brodie *et al.* (in press) provide a useful summary of the FMA process and compare it to other protection regimes.

Assessment Committee. The Fisheries Scientific Committee (FSC) is an independent body of seven scientists established under the FMA, Part 7A. The main functions of the Committee are related to:

- the listing of species, populations, ecological communities and key threatening processes in the schedules of the FMA;
- advising the Minister on the identification of critical habitat;
- reviewing draft joint management agreements and the performance of parties under the agreements;
- advising the Director-General on the exercise of NSW DPI functions under threatened species legislation of the FMA; and
- advising the Minister and the Natural Resources Commission on matters relating to the conservation of threatened species, populations or ecological communities.

Details of the Committee are at <www.dpi.nsw.gov.au/fisheries/species-protection/fsc>. Final Determinations are at <www.dpi.nsw.gov.au/fisheries/species-protection/fsc/final>.

As with the TSC Act, the FSC's findings are determinative, not advisory to the Minister. The Minister may ask the FSC to 'further consider' a proposed Final Determination in relation to scientific issues, but the FSC's eventual decision is final.

Current lists, Categories, Terminology and Criteria for Marine Vegetation. The FMA (Division 2) provides for

the following categorisation of threatened entities; the numbers of entities currently listed (as at August 2008) are also shown. Current lists are at <www.dpi.nsw.gov.au/fisheries/species-protection/species-conservation/what-current>.

Species:

- Presumed Extinct (Part 4 of Schedule 4): one marine alga listed;
- Critically Endangered (Part 1 of Schedule 4A): nil flora listed;
- Endangered (Part 1 of Schedule 4): nil flora listed;
- Vulnerable (Part 1 of Schedule 5): one marine alga listed.

Populations – endangered only (Part 2 of Schedule 4): nil flora listed.

Ecological communities:

- Critically endangered (Part 2 of Schedule 4A): nil listed;
- Endangered (Part 3 of Schedule 4): three communities listed, all freshwater (all are defined by non-plant biota);
- Vulnerable (Part 2 of Schedule 5): nil listed.

Key Threatening Processes (Schedule 6): 8 listed, of which 5 have a direct or indirect bearing on plants.

Criteria for listing of species, populations and communities are set broadly in the Act (sections 220F species, 220FA populations, 220FB ecological communities, and 220FC key threatening processes). These are more closely specified in the Regulation (Part 11B, sections 340E-340R). They are conceptually compatible with the higher levels of IUCN (2001) criteria, but the numerical thresholds used for IUCN assessment (e.g. population sizes, decline rates) are not applied by the FSC, which takes a more case-by-case approach given the constraints on data and the particular dynamics of aquatic systems.

Implications of FMA listing. In November 2004, the NSW State Government amended the FMA and the TSC Act by means of the *Threatened Species Legislation Amendment Act 2004*, as part of a broader natural resource management reform package in NSW. One element of the reforms includes a requirement for the NSW DPI and DECC to prepare and adopt a Priorities Action Statement (PAS). The DPI Priorities Action Statement is available through <www.dpi.nsw.gov.au/fisheries/species-protection/species-conservation>. This site delivers the DPI Priorities Action Statement and provides information on threatened fish and marine vegetation listed under the FM Act in NSW. Other recovery information, including Recovery Plans and Threat Abatement Plans, is available at <www.dpi.nsw.gov.au/fisheries/species-protection/species-conservation/what>.

Additional Information Sources

Best contact for FMA threatened entity listing issues: Executive Officer, Fisheries Scientific Committee, c/- NSW DPI, Locked Bag 1, Nelson Bay, NSW 2315; ph. 02 4916 3828; email <fsc@dpi.nsw.gov.au>.

Best contact for TSC Act threatened entity listing issues: Suzanne Chate, Executive Officer, NSW Scientific Committee, c/- PO Box 1967, Hurstville NSW 2220; ph. 02 9585 6940.

Department of Environment and Climate Change (DECC): threatened species matters are no longer centralised in the Department; local DECC offices can advise on the best expertise.

Department of Primary Industries (DPI): <www.dpi.nsw.gov.au>. Conservation information is at <www.dpi.nsw.gov.au/fisheries/species-protection/species-conservation>.

National Herbarium of New South Wales: Mrs Macquaries Rd, Sydney NSW 2000; ph. 02 9231 8111; <www.rbgsyd.nsw.gov.au/science/nsw_herbarium>. PlantNET website: <<http://plantnet.rbgsyd.nsw.gov.au>>. Botanical Information Service: email <botanical.is@rbgsyd.nsw.gov.au>. Centre for Plant Conservation: ph. 0408 116 488; email <bob.makinson@rbgsyd.nsw.gov.au>.

Recent (post-2000) Public-domain Analyses, Appraisals

Brodie, J., Andersen, RA., Kawachi, M. and Millar, A.J.K. (in press). Endangered algal species and how to protect them. *Aquatic Conservation: Marine and Freshwater Ecosystems*.

Environmental Defender's Office New South Wales Ltd (2005) *Comment on the proposed National Parks and Wildlife Amendment (Threatened Species) Regulation 2005, Threatened Species Conservation Amendment (Listing Criteria) Regulation 2005, and the Threatened Species Conservation (Savings and Transitional) Amendment (Significant Effect) Regulation 2005*. Available at <www.edo.org.au/edonsw/site/policy.php>.

Environmental Defender's Office New South Wales Ltd (2006a) *Submission on Threatened Species Priorities Action Statement*. Available at <www.edo.org.au/edonsw/site/policy.php>.

Environmental Defender's Office New South Wales Ltd (2006b) *Accreditation Scheme for Individuals Involved in Threatened Species and Biodiversity Survey and Assessment – Draft for Comment*. Available at <www.edo.org.au/edonsw/site/policy.php>.

Hutchings, P., Lunney, D. and Dickman, C. (eds) (2004). *Threatened species legislation – is it just an Act?* Royal Zoological Society of New South Wales, Mosman, NSW.

Nature Conservation Council of NSW (2006). *Submission on Priorities Action Statement (changes to Threatened Species Recovery Planning)*. <nccnsw.org.au/index.php?option=com_content&task=view&id=2020&Itemid=951>.

Preston, B.J. and Adam, P. (2004). Describing and listing threatened ecological communities under the Threatened Species Conservation Act 1995 (NSW). *Environmental Planning and Law Journal* 21: 250-262.

AUSTRALIAN CAPITAL TERRITORY

Main Act for Threatened Flora Protection

The *Nature Conservation Act 1980 (NCA)*; *Nature Conservation (Criteria and Guidelines for Declaring Threatened Species and Communities) Determination 2008 (NCD 2008)*; both at <www.legislation.act.gov.au>.

Administering agency: Department of Territory and Municipal Services (TAMS), <www.tams.act.gov.au>.

Current Policy Context

ACT Aquatic Species and Riparian Zone Conservation Strategy (Action Plan No. 29) gazetted as *Nature Conservation (Threatened Ecological Communities and Species) Action Plan 2007 (No 1)* <www.legislation.act.gov.au>, also at <www.tams.act.gov.au/live/environment/native_plants_and_animals/threatened_species_and_ecological_communities_in_the_act/aquatic_species_and_riparian_zone_conservation_strategy>.

ACT Lowland Native Grassland Conservation Strategy (Action Plan No. 28) <www.tams.act.gov.au/live/environment/native_plants_and_animals/threatened_species_and_ecological_communities_in_the_act/grassland_conservation_strategy>.

Woodlands for Wildlife: ACT Lowland Woodland Conservation Strategy (Action Plan No. 27) gazetted as *Nature Conservation (Threatened Ecological Communities and Species) Action Plan 2007 (No 2)* <www.legislation.act.gov.au>, also at <www.tams.act.gov.au/live/environment/native_plants_and_animals/threatened_species_and_ecological_communities_in_the_act/woodlands_strategy>.

Listing Provisions of the Act

The NCA provides for the legislative listing of species and subspecies, and 'a distinct population of organisms prescribed as being a species'. Both terrestrial and aquatic organisms are covered, including vascular and non-vascular plants, fungi, and algae. The Act also allows the listing of threatened ecological communities and threatening processes.

The Act does not apply to threatened species protection in the Jervis Bay enclave of the ACT, where the Commonwealth EPBC Act applies instead.

The main listing provisions of the Act are in Divisions 3.2 and 3.3 (sections 33-39), and are given effect through the NCD 2008.

Listing Process

Any person or organisation may make a nomination to the Flora and Fauna Committee requesting that the Committee recommend declaration of a species, ecological community or threatening process.

Guidelines for making a nomination, examples of nominations, and the criteria specified by the Committee for recommending declaration, are set out in the NCD 2008 (via <www.legislation.act.gov.au>). The criteria posted at <www.tams.act.gov.au/__data/assets/pdf_file/0018/13590/criteria.pdf> [sic] appear, at 7 Sept 2008, to be an older (2001) version.

Assessment Committee

The Flora and Fauna Committee (FFC) is an expert committee of seven, of which at least two must not be public servants. The FFC advises the Minister of native species and ecological communities that are threatened in the ACT and ecologically significant threatening processes, and may recommend that they be declared. The Minister may choose to reject or not to act on a recommendation; a ministerial declaration may be disallowed by the ACT Legislative Assembly.

Details of FFC membership and its work program are said to be available in its most recent Annual report (see <www.tams.act.gov.au/live/environment/native_plants_and_animals/threatened_species_and_ecological_communities_in_the_act/act_flora_and_fauna_committee>). As at 7 September 2008, the most recent report posted covered 2004-5 (<www.tams.act.gov.au/__data/assets/pdf_file/0019/13285/floraandfaunacommitteeannualreport2004-2005.pdf>).

Listing Categories, Terminology and Criteria

A species may be declared as:

- Endangered (E) if it is likely to become extinct in the ACT region unless the circumstances and factors threatening its abundance, survival or evolution cease; or if its numbers or habitats have been reduced to such a level that the species is in immediate danger of extinction in the ACT region.
- Vulnerable (V) if within the next 25 years it is likely to become endangered in the ACT region unless the circumstances and factors threatening its abundance, survival or evolution cease.

An ecological community may be declared as Endangered if it is in immediate danger of extinction in the ACT region unless the circumstances and factors threatening its distribution, composition and viability as an ecological unit cease.

A process may be declared as threatening if it threatens, or may threaten, the survival, abundance or evolution of a species or community in the ACT region.

Details of the revised (2008) assessment criteria are at <<http://www.legislation.act.gov.au/di/2008-170/current/pdf/2008-170.pdf>>. The criteria for species are fairly closely compatible with IUCN (2001).

In addition to legislatively declarable categories, the FFC recognises additional categories for entities ('items') that are nominated but do not satisfy the criteria for declaration. These working categories are:

- *Ecological communities at lower risk*: communities that are sufficiently threatened to cause concern for their viability as an ecological unit in the 'medium-term', typically the next 25-50 years.
- *Rare*: species or ecological communities with small distributions or small populations which are at significant risk from events such as land use changes, reduced protection measures or major disturbance.
- *Insufficiently known*: species or ecological communities with poorly known distributions or populations, or of uncertain taxonomy, that are suspected to be endangered or vulnerable but for which there is insufficient information available. Threatening processes may also be identified as insufficiently known.

These 'working category' entities are then flagged for further survey and/or taxonomic research and kept under review, and may be re-considered for declaration. Action Plans are not required for these.

Current Lists and Statistics (flora)

The official current list is in the *Nature Conservation (Species and Ecological Communities) Declaration 2008 (No. 2)*, at <www.legislation.act.gov.au/di/2008-53/default.asp>. The list is mirrored on the TAMS Departmental website: <www.tams.act.gov.au/live/environment/native_plants_and_animals/threatened_species_and_ecological_communities_in_the_act> under the heading 'Listing of threatened species, ecological communities and threatening processes'.

Current (August 2008) figures for threatened entities are:

	Number
Endangered plant species	8
Vulnerable plant species	0
Endangered ecological community	2
Threatening process	0

Fact-sheets on threatened entities are available at the above TAMS Departmental website under the heading 'Information on action plans'. Maps of threatened entities

are available at the Integrated Nature Conservation Plan (INCP) at <<http://incp.environment.act.gov.au/>>

Maps of threatened entities are available at the *Integrated Nature Conservation Plan* (INCP) at <<http://incp.environment.act.gov.au/>>.

Listing Implications

Declaration of a threatened entity by the Minister triggers a requirement for the Conservator of Flora and Fauna to prepare an Action Plan for it, with a period for public comment. The plan outlines conservation and protection proposals for the species or community, or proposals to minimise the effects of threatening processes, with a main objective of maintaining long term, viable, wild populations of species (or samples of ecological community) in the ACT. Each Action Plan must be released as a draft for public comment.

Finalised action plans have been prepared for the six listed plant species and the two listed ecological communities, and are available through the TAMS Departmental website (see previous section) under the heading 'Threatened species action plans'.

Some of the action plans for species have been incorporated into updated habitat-based action plans for the two listed ecological communities (action plans 27 and 28; see above under 'Policy Context').

Review of Act in Progress

A review of the NCA is underway, with a report and public comment phase pending.

See also article by Potter on pages 33-35 of this issue.

Additional Information Sources

Australian National Botanic Gardens: GPO Box 1777, Canberra ACT 2601; ph. 02 6250 9450; <www.anbg.gov.au>.

Australian National Herbarium, Centre for Plant Biodiversity Research: GPO Box 1600, Canberra ACT 2601; ph. 02 6246 5533; <www.cpbr.gov.au/cpbr>.

Best contact for listing matters: The Secretariat, Flora and Fauna Committee, PO Box 158, Canberra ACT 2601; ph. 13 22 81 (NSW and ACT residents) or 02 6207 5111; email <lee-anne.wahren@act.gov.au>.

VICTORIA

Main Act for Threatened Flora Protection

The *Flora and Fauna Guarantee Act 1988 (FFG Act)*; *Flora and Fauna Guarantee Regulations 2001*; both at <www.legislation.vic.gov.au>.

Administering agency: Department of Sustainability and Environment (DEC), <www.dse.vic.gov.au>.

Current Policy Context

The Objectives of the FFG Act include:

- a) to guarantee that all taxa of Victoria's flora and fauna ... can survive, flourish and retain their potential for evolutionary development in the wild; and
- b) to conserve Victoria's communities of flora and fauna; and
- c) to manage potentially threatening processes; and
- d) to ensure that any use of flora or fauna by humans is sustainable; and
- e) to ensure that the genetic diversity of flora and fauna is maintained.

Our Environment, Our Future, the Sustainability Action Statement 2006 <www.dse.vic.gov.au/ourevironment-ourfuture/>.

Land and Biodiversity White Paper (due for release 2009; see <www.dse.vic.gov.au/DSE/nrence.nsf/LinkView/523B19576C368289CA2572C0007B3BEA554FC9C681B6CAB6CA2572C600036DB1>). The White Paper will set the direction for Victorian Government policy and investment priorities in natural resource management, land health and biodiversity for the next 20-50 years.

The *Victorian Biodiversity Strategy*, some elements of which date from 1997. This Strategy is being renewed (see <www.dse.vic.gov.au/DSE/nrence.nsf/childdocs/-8946409900BAC6344A256B260015D4AF?open>). The new version, due for release in 2009, will provide a more detailed framework for implementation of policy directions set in the White Paper. A draft is expected to be released around the end of 2008, and will be open for public comment for a minimum of 30 days.

Native Vegetation Management: A Framework for action was released in 2002, to implement the objectives of Victoria's *Biodiversity Strategy*, and the *National Strategy for the Conservation of Australia's Biological Diversity*.

Listing Provisions of the Act

The main FFG Act listing provisions for threatened entities are in Part 3 (sections 10-16).

'A taxon or community of flora or fauna is eligible to be listed if it is in a demonstrable state of decline which is likely to result in extinction or if it is significantly prone

to future threats which are likely to result in extinction' (s11(1)).

'A potentially threatening process is eligible for listing if, in the absence of appropriate management, it poses or has the potential to pose a significant threat to the survival or evolutionary development of a range of flora or fauna' (s11(2)).

For species, the Act recognises three classes of protected plants:

- plant taxa listed as Threatened under the Act;
- plant taxa belonging to communities listed as Threatened under the Act;
- plant taxa which are not threatened but require protection for other reasons.

Part 4 of the Act also provides for the determination and declaration of Critical Habitats. Section 20(1) states that 'The Secretary may determine that the whole or any part or parts of the habitat of any taxon or community of flora or fauna is critical to the survival of that taxon or community.' There has been only one declaration of Critical Habitat under the FFG Act, soon revoked.

Listing Process and Assessment Committee

Any terrestrial, freshwater aquatic, or marine species may be nominated for listing, as may 'communities of flora and fauna' and 'potentially threatening processes'.

Part 3 of the Act sets the general parameters for the listing process. The Regulations (Schedule 1) set out the details.

Any person may make a nomination to add an item to, or remove an item from, the Threatened List or the Processes List. The *Flora and Fauna Guarantee Regulations 2001* (Schedule 2) specify the prescribed information which must be provided in a nomination. The DSE website provides templates for nominations, and a list of useful references.

Nominations go to the Scientific Advisory Committee (SAC), an expert advisory committee of seven scientists, a majority of whom are not Victorian Government employees (s8 of the Act). Details of SAC functions and membership are on the DSE website. The SAC determines whether the nomination is for a valid item and assesses whether the item satisfies one or more of the FFG listing criteria that determine the eligibility of an item to be listed. The listing criteria are at Schedule 1 (Regulation 5) of the *Flora and Fauna Guarantee Regulations 2001*. The SAC then prepares a preliminary recommendation for each nomination, stating whether or not the nomination satisfies the listing criteria and is therefore supported or rejected by the SAC. This preliminary recommendation is advertised for public comment for a minimum of 30 days.

The SAC reconsiders the nomination in light of any submissions or new information and makes a final recommendation to the Minister for Environment and Climate Change, together with any comments from the Victorian Catchment Management Council. The Minister has 30 days in which to decide whether or not to recommend to the Governor-in-Council that the item be listed or de-listed. The Minister's recommendation 'must have regard only to nature conservation matters' (s10(7)).

Both listing and de-listing ('repeal') are given effect by gazetted Order of the Governor-in-Council, on the recommendation of the Minister (FFG Act, Part 3), and published in the Victorian Government Gazette (<www.gazette.vic.gov.au>). The Minister may make such recommendations only after considering a recommendation of the Scientific Advisory Committee. Both the Minister and the Committee, in making a recommendation under Part 3, and in preparing the list of criteria for eligibility, must have regard only to nature conservation matters.

The SAC Final Recommendation Reports are public documents and available to all interested persons. As yet only recent SAC recommendations are available on the DSE web pages (under the title 'Items listed under the FFG Act', at <www.dse.vic.gov.au/DSE/nrenpa.nsf/LinkView/EADA0F1874AF9CF24A2567C1001020A388BBA5581CF9D859CA256BB300271BDB>). DSE intends to have all (over 1,000) SAC recommendation reports posted on the DSE web site eventually. Until then, reports may be obtained from the SAC Executive Officer (see 'Additional Information Sources' below).

Listing Categories, Terminology and Criteria

For *species listings*, one category of 'Threatened' is legislatively recognised.

For '*Communities of flora and fauna*', one category of 'Threatened' is legislatively recognised.

Three lists are required under the Act:

- The *Excluded List* (native flora and fauna taxa which are not to be conserved because they constitute a serious threat to human welfare); the only item on this list is 'human disease organisms'.
- The *Threatened List* (taxa and communities of native flora and fauna);
- The *Processes List* (potentially threatening processes).

A separate *Protected Flora List* is a consolidated list and includes plants from three classes: plant taxa listed as Threatened under the Act; plant taxa belonging to communities listed as Threatened under the Act; plant taxa which are not threatened but require protection for other reasons.

The separate FFG *Processes List* contains listed Potentially Threatening Processes.

The legislative criteria for listing of all entities are in Schedule 1 of the *Flora and Fauna Guarantee Regulations 2001*. Those criteria that are met or not met by a nominated entity are detailed in the Preliminary and Final Recommendations of the SAC. Taxa below the rank of subspecies, and communities which are 'narrowly defined', must satisfy extra 'special need to conserve' criteria (Regulation, sections 3 and 4 respectively) to be eligible for listing.

The SAC may, at its own discretion, use IUCN (2001) criteria and guidelines in the course of assessing a nomination for a species, but this is neither required nor routine. However, apparently alone among the Australian agencies, DSE is also conducting a comprehensive assessment of all native plant taxa in Victoria against IUCN categories and criteria (see Cameron 2008).

'Populations' are not specifically stated to be eligible for listing, but Primary Criterion 6.1 allows for 'determining whether a specifically defined item is eligible to be listed where a more generally defined item has already been listed ... A specifically defined item, the subject matter of which is a sub-set or example of the subject matter of a more generally defined item which is listed, is eligible to be listed if it is of such significance that it warrants being listed in its own right so that an action statement must be prepared specifically for that item.'

De-listing criteria (for repeal of an item from the Threatened List or the Processes List) are established under Primary Criterion 7.1.

Current Lists and Statistics (flora)

The easiest navigation to DSE's main threatened entities and threatening processes content is via the DSE home-page <www.dse.vic.gov.au>, then select 'Plants and animals', 'Native plants and animals', and 'Threatened species and communities'. The resulting page, *Flora and Fauna Guarantee Act - Listed Taxa, Communities and Potentially Threatening Processes*, provides links to the lists of 'items' gazetted under the FFG Act.

The above web page also links to a separate set of non-statutory *Threatened Species Advisory Lists (Rare or threatened Plants in Victoria, and Threatened vertebrate fauna in Victoria)*. Developed and maintained by DSE, they are based on technical information and expert advice, and are reviewed usually every one to two years (without defined public-input processes). Unlike the FFG Act lists, there are no legal requirements or consequences that flow from inclusion of a species in advisory lists (although some species are listed on both). The Advisory Lists include notations indicating whether taxa are also listed under the FFG Act or the Commonwealth EPBC Act.

The same page also links to *Threatened Species Education and Information Resources*, including a number of fact-sheets on listed entities.

Current (August 2008) figures for listed flora entities:

	Number
Threatened species (flora)	319
(vascular)	(303)
(non-vascular)	(13)
(fungi/lichens)	(3)
Communities	36*
Potentially Threatening Processes	37**

* not all are vegetation communities

** not all relate to plants

Listing Implications

Division 2 of the FFG Act specifies that an Action Statement must be prepared 'for any listed taxon or community of flora or fauna or potentially threatening process as soon as possible after that taxon, community or process is listed ... The action statement must set out what has been done to conserve and manage that taxon or community or process and what is intended to be done and may include information on what needs to be done.' Action statements may address both nature conservation considerations and social and economic matters.

As at August 2008 the DSE website shows:

- 110 Action Statements approved for listed Victorian plant species, plus 14 Draft Action Statements (13 of which are revisions of approved ones) open for comment;
- 11 Action Statements approved for communities, plus three drafts;
- 13 Action Statements approved for Potentially Threatening Processes, plus two drafts (not all relate to plants).

Action Statements are being progressively parsed into DSE's Actions for Biodiversity Conservation (ABC) information system.

The Act as currently applied is (for threatened species) of greatest relevance on public land. Disturbance and 'take' of protected flora 'items' on private land is permissible if the flora is not taken for sale, and is not taken from areas of declared Critical Habitat. In the absence of any Critical Habitat listings, the Act thus allows a broad private-land exemption.

Other Provisions of the FFG Act

The Act also provides for protection of additional plant taxa, including some whole families or genera, which are not on the Threatened lists but require protection for other reasons (e.g. they are subject to commercial or illegal collection). Protection for such species is conferred under Part 3 of the Act by Order of the Governor-in-Council published in the Government Gazette.

For all Protected plant species, protection includes living (e.g. flowers, seeds, shoots and roots) and non-living (e.g.

bark, leaves and other litter) plant material. For permits to take, contact DSE.

A consolidated list of plants that are listed as Threatened plus 'Protected but non-threatened', is available on the DSE's *Flora and Fauna Guarantee Act - Listed Taxa ...* webpage (see above under 'Current Lists').

Audit in Progress

The Victorian Auditor-General's Office is conducting an audit to assess the extent to which the FFG Act has been implemented effectively, including whether organisations are fulfilling their obligations under the Act, and whether there is evidence that the legislation has benefited threatened species and ecological communities. The audit started in July 2008 and the report is expected to be tabled in Parliament by the end of 2008 (see <www.audit.vic.gov.au>).

Additional Information Sources

Best contact for listing matters or to obtain copies of SAC Recommendation Reports: SAC Executive Officer, ph. 03 9637 9869, via the DSE Call Centre 136 186, or email <martin.o'brien@dse.vic.gov.au>.

Native Vegetation Information for Victoria pages, <www.dse.vic.gov.au/DSE/nrence.nsf/LinkView/ED128E11A362A51CA256FF001CAB6C544ABC860B2506F7CA257004002550CC>. These include outlines of the Ecological Vegetation Classes (EVCs) used for management of native vegetation in Victoria (300 EVCs state-wide). Similar EVCs have been assigned to 20 simplified native vegetation groups and 34 sub-groups for more convenient management and illustration of data. This site also contains EVC benchmarks for estimating the quality of EVCs at the site scale, and other data, descriptions, maps, and links.

The National Herbarium of Victoria: a primary source of plant and fungal species information; ph. 03 9252 2300; <www.rbv.vic.gov.au/research_and_conservation/herbarium>.

Viridans Pty Ltd: has a suite of Victorian plant and vegetation data sets and information products, some relating to threatened species; ph. 03 9557 5988; <www.viridans.com.au>.

Recent (post-2000) Public-domain Analyses, Appraisals

Cameron, D. (2008). Conservation status of the Victorian flora: a progress report on the current review of status using IUCN Red List categories and criteria. *Australasian Plant Conservation* 16(4):7, conference abstract.

Lawyers for Forests (2002). *Review of the Flora and Fauna Guarantee Act 1988 (Vic)*. Lawyers for Forests, available at <www.lawyersforforests.asn.au/index.php?option=content&task=view&id=10&Itemid=28>.

Various authors (2008) *Land and biodiversity at a time of climate change: Green Paper Submissions*. [300+ submissions to the 2008 Green Paper process: <www.dse.vic.gov.au/DSE/nrence.nsf/LinkView/20739D0612169564CA257486001C1D89554FC9C681B6CAB6CA2572C600036DB1>]

The Victorian Naturalist 120: 212-259, December 2003, ran a special issue with papers on threatened species protection in Victoria and NSW given at a Biodiversity Symposium in late 2002. The following papers give thorough critiques of the FFG Act from differing points of view:

Moorrees, A. (2003). Victoria's Flora and Fauna Guarantee Act: a perspective from the Department of Sustainability and Environment. *The Victorian Naturalist* 120(6): 214-216.

Sutton, P. (2003). Has the Flora and Fauna Guarantee Act achieved what we hoped for? *The Victorian Naturalist* 120(6): 216-223.

Walker, A. (2003). The Victorian Flora and Fauna Guarantee Act – a toothless tiger quoll? *The Victorian Naturalist* 120(6): 224-237.

TASMANIA

Main Act for Threatened Flora Protection

The ***Threatened Species Protection Act 1995 (TSPCA)***; *Threatened Species Protection Regulations 2006*; *Threatened Species Protection Order 2008* (includes Schedules of threatened taxa); see <www.thelaw.tas.gov.au>.

Administering agency: Department of Primary Industries and Water, <www.dpiw.tas.gov.au>.

Current Policy Context

Schedule 1 of the TSPA sets out the Act's Objectives:

[Part 1, s1]: 'The objectives of the resource management and planning system of Tasmania are (a) to promote the sustainable development of natural and physical resources and the maintenance of ecological processes and genetic diversity ...'

[Part 1 s2]: '... "sustainable development" means managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural well-being and for their health and safety while –

- a) sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations; and
- b) safeguarding the life-supporting capacity of air, water, soil and ecosystems; and
- c) avoiding, remedying or mitigating any adverse effects of activities on the environment.'

[Part 2, s3]: 'The objectives of the threatened species protection system established by this Act are, in support of the objectives specified in Part 1 of this Schedule –

- a) to ensure that all native flora and fauna in Tasmania can survive, flourish and retain their potential for evolutionary development in the wild; and
- b) to ensure that the genetic diversity of native flora and fauna is maintained; and
- c) to educate the community in the conservation of native flora and fauna; and
- d) to encourage co-operative management of native flora and fauna including the making of co-operative agreements for land management under this Act; and

- e) to assist landholders to enable native flora and fauna to be conserved; and

- f) to encourage the conserving of native flora and fauna through co-operative community endeavours.'

Threatened Species Strategy for Tasmania: this is required under the Act (Section 10). The current version of the Strategy (prepared in 2000; a review is due) is at <www.dpiw.tas.gov.au/inter.nsf/WebPages/RLIG-544755?open>. The Strategy aims:

- to ensure that threatened species can survive and flourish in the wild;
- to ensure that threatened species and their habitats retain their genetic diversity and potential for evolutionary development; and
- prevent further species becoming threatened.

The Strategy takes two broad approaches towards these objectives: addressing key threatening processes, and addressing priority threatened species.

Listing Provisions of the Act

The TSPA provides for listing of *fauna and flora species*. The listing provisions are in Part 3 Division 2, sections 13-22.

'Flora' is defined in the Act as 'any taxon of plant, whether vascular or non-vascular, in any stage of biological development and any part of any such taxon'. Flora includes vascular plants, bryophytes, lichens, fungi, and algae (terrestrial, freshwater, and marine).

Subspecies and varieties are eligible for listing, but Section 15(5) provides that 'A taxon of native flora or fauna which is below the level of sub-species and which is narrowly defined owing to its taxonomic position, environmental conditions or geography may be listed only if, in addition to the requirements of this section, there is a special need to conserve it in Tasmania.' A listed example is a lycopod rare on Macquarie Island but common in Tasmania.

Populations of species are not eligible for listing under the TSPA.

Ecological communities are not eligible for listing under the TSPA, but may be listed (as 'Threatened Native Vegetation Communities') under the *Nature Conservation*

Act 2002 (see below). Note also that some TSPA-gazetted Recovery Plans amount to ecosystem plans.

Threatening processes are not eligible for listing under the TSPA, but the Scientific Advisory Committee may advise the Minister on these on a non-legislative basis.

Critical Habitat for listed native flora or fauna may be listed under the Act (Part 3, Division 4, sections 23, 24).

Listing Process

Any person may nominate an eligible native species for listing or delisting by completing a nomination form. The form and guidelines are at <www.dpiw.tas.gov.au/inter.nsf/WebPages/SJON-59V9LR?open>. The form is statutorily prescribed in Schedule 1 (*Nomination for listing or delisting taxon*) of the *Threatened Species Protection Regulations 2006*.

The Scientific Advisory Committee (SAC) assesses nominations against its criteria (see Guidelines), and has 12 months to make an assessment. SAC may seek external advice. SAC makes a preliminary recommendation which is advertised for public comment for one month. SAC may take on any submissions or new advice, and makes a final recommendation to the Minister for Primary Industries and Water. The Minister's final decision is advertised and gazetted.

Listing Statements are required by legislation for all listed species and are published on the above website. They are brief documents providing basic data relevant to the species' status and its recovery (see article by Potts on pages 40-41 of this issue).

Assessment Committee

The Scientific Advisory Committee is an expert committee mandated under Section 8 of the Act. It meets quarterly, and its functions are:

'to advise the Minister and the Director on –

- the listing and de-listing of taxa of flora and fauna; and
- threatening processes; and
- the criteria to be followed in the determination of critical habitats; and
- other matters relating to the conservation of threatened native flora and fauna; and
- the review and approval of listing statements.'

The Committee may consult with members of the broader scientific community as it considers appropriate.

SAC Members are appointed for up to two three-year terms; not more than three of the seven members may be Government employees; see <www.dpiw.tas.gov.au/inter.nsf/WebPages/LJEM-6366F4?open>.

Listing Categories, Terminology and Criteria

The categories for threatened species listing under the TSCA are:

- Endangered*: Taxa which are either (e) in danger of extinction because long term survival is unlikely while the factors causing the species to be endangered continue operating, or (x) presumed extinct on the grounds that no occurrence of the taxon in the wild can be confirmed during the past 50 years (*Schedule 3*: for flora see *Part 1 Division 2 Extant taxa*, and *Part 2 Division 2 Taxa presumed extinct*);
- Vulnerable (v)*: a species which is likely to become endangered while the factors causing it to be vulnerable continue operating (*Schedule 4 Part 2*);
- Rare (r)*: a species which has a small population in Tasmania that is not endangered or vulnerable but is at risk (*Schedule 5 Part 2*).

Criteria for assessing nominations are in the *Guidelines for the Listing of Species under the Tasmanian Threatened Species Protection Act 1995* (2001), available at <www.dpiw.tas.gov.au/inter.nsf/WebPages/RLIG-5433LB?open>. The Guidelines criteria are largely based on IUCN (1994) criteria, but with caveats to allow the SAC to vary from these where it sees fit. The Endangered and Vulnerable TSCA categories correspond closely with IUCN usage, but the Rare category does not.

Current Lists and Statistics (flora)

Legislative schedules (*Threatened Species Protection Order 2008*) are at <www.thelaw.tas.gov.au/tocview/index.w3p;cond=;doc_id=%2B43%2B2008%2BAT%40EN%2B20080820110000;histon=;prompt=;rec=;term=>>; select 'sessional' version.

DPIW versions of the lists, including status code, listing statements, note sheets, and Commonwealth listings (where applicable), are at <www.dpiw.tas.gov.au/inter.nsf/WebPages/SJON-58E2VD?open#ListingInformation>.

Current (August 2008) figures for listed flora species are:

	Number
Endangered – presumed extinct	Vascular: 23 Non-vascular: 1
Endangered – extant	Vascular: 115 Non-vascular: 9
Vulnerable	Vascular: 61 Non-vascular: 4
Rare	Vascular: 255 Non-vascular: 16

Listing Implications

Recovery Plans are not mandatory, and Listing Statements are used in place of them where the actions needed do not warrant preparation of a full plan. Where a full plan is made, once gazetted it remains in force until the species is removed from the legislation. Recovery Plans are binding on the Tasmanian and Australian governments and the community. Once a recovery plan is in place, government agencies and the public sector must act in accordance with that plan.

There are currently 12 Recovery Plans, of which six are multi-species and two amount to ecosystem plans; see <www.dpiw.tas.gov.au/inter.nsf/WebPages/LJEM-6H644R?open#ListofFloraRecoveryP>.

While threatening processes are not eligible for listing under the TSCA, there is provision in the Act (sections 24 & 25) for the development of Threat Abatement Plans 'in respect of any process which, in the opinion of the Secretary, is a threatening process'. TAPs are an element of the *Threatened Species Strategy for Tasmania* (see above).

Other Relevant Tasmanian Acts

National Parks and Wildlife Act 1970 (NPWA); *National Parks and Reserved Land Regulations 1999*: the NPWA provides blanket protection for native plants on land reserved under this Act.

Nature Conservation Act 2002 (NCA); see via <www.thelaw.tas.gov.au>.

Main administering agency: Department of Primary Industries and Water, but the regulatory framework for protecting threatened native vegetation communities is administered by the Forest Practices Authority (see 'Additional Information Sources').

The NCA provides (Schedule 3A) for the listing of Threatened Native Vegetation Communities. There are interactions with controls on land clearing under the *Forest Practices Act 1985* and *Forest Practices Regulations 2007*. Communities may be listed as:

- R = rare (a total range of less than 1,000 hectares);
- V = vulnerable (70% of original area cleared); and
- E = endangered (90% of original area cleared).

The initial list of threatened communities under the NCA was established through a scientific assessment process against criteria for the scheduled categories. The DPIW website advises that future alterations to this list will involve the following:

- Proposals to DPIW for new listings or de-listings; it is expected that most will originate from reviews carried out within DPIW or related resource agencies.
- Consideration by a scientific review group, against appropriate criteria.
- Provision of advice by a Community Review Committee on socio-economic implications for landowners, land managers and business.
- Provision of advice by an Affected Agency Group.
- Proposals with this cumulative advice will then go to the Minister administering the *Nature Conservation Act 2002* for approval or rejection; if approved, the community is added to or deleted from Schedule 3A of this Act.

Detail on the process, and the roles, membership and operation of the groups is at <www.dpiw.tas.gov.au/inter.nsf/Attachments/LJEM-72M3ZV?open>.

The NCA makes provision for determination of critical habitat and for interim protection orders, but none of either have been made to date.

Thirty-nine native vegetation communities are currently listed as Threatened (out of 146 recognised in Tasmania); see <www.dpiw.tas.gov.au/inter.nsf/WebPages/AWAH-6547ZL?open>; this site also gives corresponding TASVEG and RFA vegetation mapping codes.

Fact-sheets on Threatened Native Vegetation Communities are available at <www.fpa.tas.gov.au/index.php?id=121>.

Additional Information Sources

Best contact for threatened native vegetation communities: Dr Phil Bell, Section Head, DPIW Threatened Species Section; ph. 03 6233 2863; email <phil.bell@dpiw.tas.gov.au>.

Best contact for threatened species: Threatened Species Section, DPIW, GPO Box 44, Hobart, Tas. 7000; ph. 03 6233 8759; email <ThreatenedSpecies.Enquiries@dpiw.tas.gov.au>.

Forest Practices Authority: ph. 03 6233 7966; <www.fpa.tas.gov.au>.

Scientific Advisory Committee: Secretary, Scientific Advisory Committee, Threatened Species Section, DPIW; ph. 03 6233 8759; fax 03 6233 3477; email <louise.jerrim@dpiw.tas.gov.au>.

Tasmanian Herbarium: GPO Box 1164, Hobart, Tas. 7001; ph. 03 6211 4177; email <tmagmail@tmag.tas.gov.au>; <www.tmag.tas.gov.au/Herbarium/Herbarium2.htm>.

Threatened Plants Tasmania group (TPT): see article on pages 38-39 of this issue.

Threatened Species Network: TSN Coordinator, Tasmanian Conservation Trust, 102 Bathurst St, Hobart Tas. 7000; ph. 03 6234 3552.

See also article by Potts on pages 40-41 of this issue.

Other Resources

Environmental Defenders Office Tasmania (2007). *Biodiversity Fact Sheets: Protecting Tasmania's threatened species*. <www.edo.org.au/edotas/factsheets/biodiversity%20-%20threatened%20species%20_tas_.pdf>.

SOUTH AUSTRALIA

Main Act for Threatened Flora Protection

The *National Parks and Wildlife Act 1972 (NPWA)*; *National Parks and Wildlife (Amendment of Schedules 7, 8 and 9 of Act) Regulations 2008* (current lists); see both via <www.legislation.sa.gov.au>.

Administering agency: Department for Environment and Heritage (DEH), <www.deh.sa.gov.au/>.

Current Policy Context

No Species Loss – A Nature Conservation Strategy for South Australia 2007-2017; available at <www.environment.sa.gov.au/biodiversity/pub.html#nsl>. The Strategy is a ten year plan to protect species and ecosystems.

Listing Provisions of the Act

Part 4 of the Act (*Conservation of native plants*, sections 46-49A) establishes the framework under which the current listing process operates, although it does not specifically refer to threatened species. Section 5 (*Interpretation*) specifies meanings for 'endangered', 'vulnerable' and 'rare' species only in terms of their inclusion on schedules. Section 80 provides a general enabling power for the establishment of these: 'The Governor may make such regulations as are contemplated by this Act, or as are necessary or expedient for the purposes or objects of this Act.' Part 4 also provides for listing of other 'prescribed' species (none to date). The Governor may, by proclamation, suspend the provisions of Part 4, or revoke or vary a proclaimed list.

Only terrestrial vascular plant species, and freshwater and marine vascular plant species, are eligible for listing under the NPWA. Subspecies and varieties are also eligible. Fungi, lichens and algae are not eligible, although under a current review of the Act, strong consideration is being given to changing this situation.

There is also a capacity for listing of freshwater aquatic species under the *Fisheries Management Act 2007* (see below), although none have been listed so far.

There is no provision in the Act for the listing of populations within species, nor of ecological communities or their equivalent, nor of threatening processes. However the *Native Vegetation Act 1991* prohibits clearance of 'intact stratum' and similar language, and defines the term 'clearance of native vegetation' in a way that covers many threatening activities (see below under 'Other Relevant ... Acts').

Listing Process & Assessment Committee

Parnell (undated) summarises the process for flora as follows:

'The Act does not set out any formal process for listing or categorising species ... The amendment of lists, whether

a species is being included, removed, or having its status revised, is conducted at an administrative level and implemented through Regulations (s.80(2a)). In practice, species are listed on the basis of advice from biologists within the Department of Environment, Heritage and Aboriginal Affairs, the State Herbarium, the SA Museum and comments from the general public, with consideration of IUCN and CITES criteria.'

Anyone may nominate a vascular plant species for listing under the NPWA. No nomination pro-forma exists, so close liaison with DEH staff in the preparatory phase of a nomination is recommended.

Nominations, and departmentally generated proposals for listing, are assessed by an informal Threatened Species Schedules Sub-committee, mandated under Section 19E of the Act and comprised of professional biologists and expert community members. The sub-committee makes recommendations which are released for public comment. Changes are made again before the recommendations are provided to the Minister.

The most recent review of the schedules began in 2003, and the resulting changes were gazetted in February 2008.

Listing Categories, Terminology and Criteria for Species

DEH uses the following definitions in assigning plant species to listing categories:

- Endangered: those species thought to be extinct or at very high risk of extinction in the wild;
- Vulnerable: those species thought to be at high risk of extinction in the wild;
- Rare: those species that are not currently Endangered or Vulnerable, but are potentially at risk of extinction due to their limited abundance or their potential to become Endangered or Vulnerable in the near future.

There is no 'extinct' category in published lists, but 'administratively, a species is regarded as extinct if it has not been "definitely located in the wild during the past 50 years", or has "not been found in recent years despite thorough searching"' (Parnell, undated).

For species, assessment of extinction risk in SA uses the IUCN Red List Categories and Criteria (Version 3.1). The IUCN categories are then translated into the categories recognised under the *National Parks and Wildlife Act 1972*.

Current Lists and Statistics (flora)

Current lists are gazetted under the *National Parks and Wildlife (Amendment of Schedules 7, 8 and 9 of Act) Regulations 2008*, all available via <www.legislation.sa.gov.au>.

Current (August 2008) figures for flora species are:

	Number
Endangered (Schedule 7, Part 2)	187
Vulnerable (Schedule 8, Part 2)	195
Rare (Schedule 9, Part 2)	431

The DEH website links to the gazetted lists from <www.environment.sa.gov.au/biodiversity/threatened.html>, where it also posts fact sheets on a number of threatened flora species.

Listing Implications

Recovery Plans are not mandatory for listed species. SA has a few species-specific Recovery Projects for flora, and several multi-species plans; see <www.environment.sa.gov.au/biodiversity/threatened.html>. Regional Biodiversity Plans (which include threatened species, threatened plant communities, threats, significant habitats and key biodiversity areas) are at <www.environment.sa.gov.au/biodiversity/pub.html#nsl>.

The *Native Vegetation Act 1991* (see below), in its Schedule 1 (*Principles of native vegetation clearance*), Section 1, states that ‘Native vegetation should not be cleared if ... (c) it includes plants of a rare, vulnerable or endangered species ...’.

Other Provisions of the NPW Act

The Act asserts general protection, through regulation of ‘take’, of all native plants on public lands. Under Section 47, the ‘taking’ of any native plant (without a permit) is prohibited on any reserve, wilderness protection area or wilderness protection zone; on any other Crown land; on any land reserved for or dedicated to public purposes; or on any forest reserve.

Sections 47, 48, 59 of the Act prohibit the taking, trading or export of a ‘prescribed’ species on or from private land (although s47(6) sets out grounds for legal defence). ‘Prescribed plant’ in this usage is a species described as such by regulation. This allows a ‘no-pick’ provision for native plants on private land, regardless of whether they are listed as threatened. There are no species ‘prescribed’ as yet under these provisions. Native plants may not be taken on private land without the consent of the owner of the land.

Legislative review in progress

DEH is preparing the first stages of a legislative review, following a recent audit of the Act.

Other Relevant South Australian Acts

Native Vegetation Act 1991 (NVA); *Native Vegetation Regulations 2003*; see <www.legislation.sa.gov.au>. Administering agency: Department for Environment and Heritage, <www.deh.sa.gov.au>.

Parnell (undated) summarises the vegetation protection role of the NVA as follows: ‘This Act protects all native vegetation in South Australia except those parts of the state that are “within the area shown as Metropolitan Adelaide in the Development Plan, and are also within the area of a local council, but are not within ... the Hills Face Zone” (s4). Outside this area, no native vegetation can be cleared without consent.’

Consent to clearing is by the Native Vegetation Council, within the Principles of native vegetation clearance specified in NVA Schedule 1:

‘Native vegetation should not be cleared if, in the opinion of the Council—

- it comprises a high level of diversity of plant species; or
- it has significance as a habitat for wildlife; or
- it includes plants of a rare, vulnerable or endangered species; or
- the vegetation comprises the whole, or a part, of a plant community that is rare, vulnerable or endangered; or
- it is significant as a remnant of vegetation in an area which has been extensively cleared; or
- it is growing in, or in association with, a wetland environment ...’

Other provisions of the NVA prohibit clearance of ‘intact stratum’ and similar language, and the Act generally regulates clearance of ‘native vegetation’ in such a way as to cover many threatening activities, e.g. grazing, use of herbicide, burning, slashing, mowing, draining a wetland. There are however no provisions for the legislative listing of threatened vegetation types or threat processes in the same sense as in several other jurisdictions.

Clearance applications can be assessed either by the Native Vegetation Group in the Department for Water, Land and Biodiversity Conservation, or by accredited consultants. Their reports are assessed by the Native Vegetation Assessment Panel, which in turn reports to the Native Vegetation Council (a statutory body independent of government). Decisions made by the Native Vegetation Council are determinative, not advisory, to the Minister. An offset mechanism applies to approved clearing actions.

In relation to marine ecosystems, CCSA (2007) notes that the NVA ‘could be relevant to at-risk fish protection in that native marine vegetation, such as seaweeds and seagrasses, are important habitat for a number of at-risk species. Under the [NV] Act “native vegetation means a plant or plants of a species indigenous to South Australia including a plant or plants growing in or under waters of the sea” [Sect. 3 (1)]’.

The last significant review of the NVA was in 2003. A Miscellaneous Amendments Bill, which is to be tabled in Parliament later this year, will make some minor changes.

A general overview of the DEH approach to ecosystem protection is at <www.environment.sa.gov.au/biodiversity/eecocons.html>.

Fisheries Management Act 2007 (FMA); Fisheries Management (General) Regulations 2007 (Schedule 5 – Protected Species); see <www.legislation.sa.gov.au>. Administering agency: Department of Primary Industries and Resources, <www.pir.sa.gov.au/fisheries>.

The Objects of the Act include:

7(1)(a) proper conservation and management measures are to be implemented to protect the aquatic resources of the State from over-exploitation and ensure that those resources are not endangered; and

7(1)(c) aquatic habitats are to be protected and conserved, and aquatic ecosystems and genetic diversity are to be maintained and enhanced.

Ownership of aquatic resources of the State are vested (s6) in the Crown with use subject to license or permits. The FMA covers all aquatic biota (marine and freshwater) and ecological communities. Freshwater algae may be listed under the FMA, but none are listed to date.

There is no statutory listing process and no published mechanisms for nomination; entities listed under this Act (so far only fish and other fauna) were at the discretion of the Minister. No formal process is required by law, but Section 128 of the Act gives a general power to regulate for conservation and management.

The current list of FMA protected species is *Schedule 5 (Protected Species)* of the *Fisheries Management (General) Regulations 2007*, available via <www.legislation.sa.gov.au>. No flora are listed to date.

For a general overview of the FMA provisions, and their relationship to the Commonwealth EPBC Act, see CCSA (2007).

Additional Information Sources

Best contact for threatened entities: Peter Copley, Senior Ecologist, Threatened Species, Department for Environment and Heritage; ph. 08 8222 9417; email <copley.peter@saugov.sa.gov.au>.

Department for Environment and Heritage: DEH information line 08 8204 1910.

State Herbarium of South Australia: Plant Biodiversity Centre, PO Box 2732, Kent Town SA 5071; ph. 08 8222 9307; email <pubc@saugov.sa.gov.au>.

Threatened Plant Action Group (TPAG): Tim Jury ph. 08 7127 4166, email <tpag@ncssa.asn.au>; <www.ncssa.asn.au/index.php?option=com_content&task=blogcategory&id=47&Itemid=162>.

Threatened Species Network (SA): 120 Wakefield Street, Adelaide SA 5000; ph. 08 8223 5155; email <tsnsa@wwf.org.au>; <www.ccsa.asn.au/index.php?option=com_content&task=blogcategory&id=77&Itemid=229>.

Other Resources

CCSA (Conservation Council of SA) (2007), *Protecting South Australia's fish, sharks and rays – legislation overview*. <www.ccsa.asn.au/files/FSR/Legislation_overview.pdf>.

eFlora SA (electronic flora of South Australia): contains or links to a range of information systems and tools, at <www.flora.sa.gov.au>.

NatureMaps: free spatial information service at <www.naturemaps.sa.gov.au>.

The Department for Environment and Heritage (D. Bickerton, pers. comm.) has a suite of databases that are used to capture threatened flora data in different ways:

- Plant Population: specifically to capture threatened plant data at the population level, and for comparison between visits;
- Survey: for data captured during routine biological surveys to designated survey quadrats;
- Reserve: data specifically captured within sites found in the National Reserve System;
- Opportune: opportunistic sightings;
- AdHerb: SA Herbarium database.

The first four comprise the Biological Databases of SA (BDBSA), and are updated on a weekly basis. DEH staff are able to access these data on-line, either in table format or spatially, using GIS packages. DEH is also considering adoption of the Victorian ABC model (see *Australasian Plant Conservation* 16(4):8) for updating threatened species information and management at a site level.

Recent Public-domain Analyses, Appraisals

Parnell, M (undated, but pre-2000). *Endangered Species Law Reform in South Australia: The Adequacy of Existing Legislation*. Environmental Defenders Office, South Australia, accessed 20 August 2008, <www.edo.org.au/edos/research/endspecfinal.htm>.

See also article by Jury on pages 36-38 of this issue.

WESTERN AUSTRALIA

Main Act for Threatened Flora Protection

The **Wildlife Conservation Act 1950 (WCA)**; see <www.slp.wa.gov.au/legislation/statutes.nsf/default.html>

Administering agency: Department of Environment and Conservation (DEC), <www.dec.wa.gov.au>.

Current Policy Context

[DEC] Policy Statement No. 9: *Conservation of threatened flora in the wild*.

[DEC] Policy Statement No. 44: *Wildlife Management Programs*.

[DEC] Policy Statement No. 50: *Setting priorities for the conservation of Western Australia's threatened flora and fauna*.

Listing Provisions of the Act

The WCA defines *flora* as ‘any plant (including any wildflower, palm, shrub, tree, fern, creeper or vine) which is (a) native to the State; or (b) declared to be flora pursuant to subsection (4), and includes any part of flora and all seeds and spores thereof’. There are two broad classes of flora under the Act, given different degrees of protection: ‘Protected flora’ and ‘Declared Rare flora’.

Protected flora ‘means, any flora for the time being declared to be protected flora for the purposes of this Act’. The Minister has wide powers to either [s6(a)] ‘by notice published in the Government Gazette declare any class or description of flora to be protected flora for the purposes of this Act, either throughout the whole of the State or in such part or parts of the State as are specified in the notice’, and conversely [s6(b)] ‘by notice so published, vary or revoke any notice published under paragraph (a) or (b)’.

The current gazettal notice declares all vascular plants, bryophytes, algae, fungi and lichens as protected flora throughout the whole of the State, including within State waters. Subspecies and varieties are included as protected flora.

Section 23F provides for declaration of ‘Rare flora’, where ‘(2)... the Minister is of opinion that any class or description of protected flora is likely to become extinct or is rare or otherwise in need of special protection ...’. Again the Minister may vary or revoke such a declaration by a further gazetted notice.

There is no specific provision in the Act for listing of species populations, but the s23F provision for listing of any ‘class or description’ might hold a theoretical capacity for population listing. In practice however this descriptor is only used for listing undescribed, but accepted, taxa.

There is no provision in the WCA for listing of Threatened Ecological Communities, but a non-statutory listing process for the latter is in place (see below).

There is no provision in the WCA for listing of threatening processes, but DEC has developed policy responses for some, e.g. *Policy Statement No. 3*, which deals with the management of *Phytophthora cinnamomi*. Many others are addressed in management plans for species, reserves, districts and regions.

Listing Process and Assessment Committee

Most details of the listing process for species are at <www.dec.wa.gov.au/management-and-protection/threatened-species/listing-of-species-subspecies-and-communities.html>.

Any person may nominate a species for listing, de-listing or a change of list category. Nominations are assessed by the WA Threatened Species Scientific Committee (TSSC), which is appointed by the Minister for the Environment with administrative support provided by DEC. Members of the TSSC are at <www.dec.wa.gov.au/management-and-protection/threatened-species/threatened-species-scientific-committee.html>.

The role of the Committee is to:

- review and make recommendations annually to the Minister, via the Director General of DEC and the WA Conservation Commission, on threatened and specially protected flora and fauna;
- allocate the threatened taxa to IUCN categories of threat annually, for endorsement by the Minister; and
- provide advice and recommendations to the Director General of DEC in respect of research and management needs arising from its reviews of taxonomic lists and threat categories.

Proponents of a de-listing proposal are encouraged to suggest a lower ‘Priority Species’ status (see below).

TSSC meetings take place in the first quarter of each year. The nomination form and nomination guidelines are at <www.dec.wa.gov.au/management-and-protection/threatened-species/call-for-public-nominations-for-listing-and-delisting-of-threatened-plants-and-animals.html>. Nominations may be sent at any time to the Threatened Species Scientific Committee (see contact details under ‘Additional Information Sources’ below).

Listing Categories, Terminology and Criteria for Species

The WCA provides only for statutory listing of declared ‘Rare Flora’ (Schedule 1 of the legislative *Wildlife Conservation (Rare Flora) Notice*, also referred to operationally by DEC as ‘Threatened Flora’).

DEC and the TSSC operate a non-statutory assessment process for nominated species that is fully compliant with IUCN (2001) categories and criteria. The criteria are specified in the nomination guidelines (see above). Details of data and the IUCN assessment pathway are not currently made public.

Species of conservation concern are allocated to one of the following two classes for the purposes of legislative listing and management planning.

Declared Rare Flora (i.e. Threatened flora) are taxa assessed to the IUCN categories of Extinct (EX), Critically endangered (CR), Endangered (EN), or Vulnerable (VU) and then recommended to the Minister for listing and special protection under the WCA. Taxa appear as Extant Taxa (Schedule 1) or Taxa Presumed to Be Extinct (Schedule 2) in the declaration (through publication in a *Wildlife Conservation (Rare Flora) Notice*). Rare Flora taxa are assessed to categories by the total distribution of the species, not just their distribution within WA. The available IUCN category of Extinct in the Wild (EW) is not used in the WA assessment process; taxa that might assess to it under IUCN are assigned to either EX or CR.

Priority species are those that do not meet the criteria for listing as Declared Rare Flora (e.g. due to lack of

information) and are poorly known and/or conservation dependent. These in turn are assigned to one of five categories to guide management and research, and are managed by DEC accordingly:

- *Priority One*: taxa with few, poorly known populations on threatened lands.
- *Priority Two*: taxa with few, poorly known populations, some of which are on conservation lands.
- *Priority Three*: taxa with several, poorly known populations, some on conservation lands, or widely distributed.
- *Priority Four*: taxa in need of monitoring.
- *Priority Five*: taxa that are conservation dependent (i.e. their conservation status is dependent on ongoing active management).

Nominations of species for priority listing do not require a standard form, but should contain as much information as possible to justify the category suggested.

Listing Categories, Terminology and Criteria for Ecological Communities

There is currently no WA legislation covering the conservation or listing of threatened ecological communities (TECs). However, DEC has established an advanced non-statutory process, including advice from a scientific advisory committee, the establishment of a threatened ecological communities database, and a process for assigning communities to threat categories.

Definitions, categories and criteria for Threatened and Priority ecological communities are available in a document at <www.dec.wa.gov.au/management-and-protection/threatened-species/listing-of-species-subspecies-and-communities.html>, together with an explanatory brochure and TEC listing flowchart. These DEC criteria are a rule-set fairly closely analogous to the IUCN (2001) system used for species, with thresholds relating to range, area occupied, number of occurrences, decline, rate of modification, and degree and scale of threatening processes.

Categories constituting the *Threatened Ecological Community* class as defined by DEC are:

- Presumed Totally Destroyed (PD);
- Critically Endangered (CR);
- Endangered (E); and
- Vulnerable (V).

Further categories accommodate ecological communities that do not meet TEC survey criteria for Threatened status or are inadequately defined; these are placed on a *Priority Ecological Community* (PEC) List. The Priority categories (much abridged, see website for full criteria) are:

- Priority 1: poorly known, localised, mostly not managed for conservation, active threats;
- Priority 2: poorly known, localised, mostly managed for conservation, no imminent threats;

- Priority 3: poorly known, more widespread, low to medium threats;
- Priority 4: adequately known, rare but not or only near-threatened; and
- Priority 5: not threatened but conservation-dependent.

An 11-person Threatened Ecological Community Scientific Advisory Committee formally advises the WA Minister through DEC about the listing, ranking and delisting of TECs in this State. The group also now provides advice about the priorities for recovery of TECs, and on other TEC-related issues that are referred to it. A brief history of the Committee is in the June 2008 issue of WATSNU (<www.dec.wa.gov.au/management-and-protection/threatened-species/watsnu.html>).

Current Lists and Statistics (flora)

The legislative *Wildlife Conservation (Rare Flora) Notice 2008(2)*, via <www.dec.wa.gov.au/management-and-protection/threatened-species/index.html>, provides a bare list of declared Rare Flora. Schedule 1 is extant taxa; Schedule 2 is taxa presumed extinct. There are no links to fact sheets, but species profiles for all WA plants are separately available through the WA Herbarium's Florabase (<www.dec.wa.gov.au/science-and-research/wa-herbarium/florabase.html>). Excellent fact-sheets for 29 species assessed as 'Critically Endangered' (*sensu* IUCN 2001) are at <www.dec.wa.gov.au/management-and-protection/plants/wa-s-critically-endangered-flora.html>.

The non-statutory lists of Threatened and Priority ecological communities are at <www.dec.wa.gov.au/management-and-protection/threatened-species/wa-s-threatened-ecological-communities.html>. The PEC list is mirrored at <www.naturebase.net/content/view/849/1210/>.

Current (August 2008) statistics on flora entities are:

	Number
Threatened extant plant taxa	391
Presumed extinct plant taxa	13
Threatened ecological communities	69*
Priority ecological communities (non-statutory)	177 (P1: 106; P2: 27; P3: 26; P4: 18)

* 16 also listed under the EPBC Act

Listing Implications

The WCA does not require Species Recovery Plans, but DEC has an active policy of developing these and also Regional or District Threatened Flora Management Programs, which review the status of declared threatened flora and priority taxa in a DEC region or district, develop local priorities, and outline management needs.

Methods used to decide priorities for conservation action for threatened species are described in the department's *Policy Statement No. 50: Setting priorities for the conservation of Western Australia's threatened flora and fauna*. This Policy Statement commits DEC to produce a Recovery

Plan or Interim Wildlife Management Guidelines for all taxa ranked as Critically Endangered, and for as many Endangered taxa as resources permit. It also requires annual review of DEC resource allocation to threatened species and communities and ensure changes as appropriate.

There are no current Approved Recovery Plans for plants, but there are 155 Interim Recovery Plans (IRPs) which are the basis for active management. WA has the most active programs of any Australian jurisdiction of conservation translocations of threatened flora, due in part to the high number of very localised threatened taxa. Translocations are managed through DEC *Policy 29: Translocation of threatened flora and fauna* (which does not appear to be available on the web). A short DEC translocation web-page is at <www.dec.wa.gov.au/science-and-research/plant-research/plant-translocation.html>.

The WCA specifies [s23A(1)] that 'The property in protected flora on Crown land until lawfully taken, is, by virtue of this Act, vested in the Crown'. Protected flora may only be taken from Crown land under a licence [s23B(1)], which may be for commercial purposes or scientific purposes or any prescribed purpose [s23C(1)]. Protected flora may only be taken from private property with the permission of the owner or occupier [s23D(1)].

Section 23F provides that Ministerial consent is required to 'take' declared rare flora on any land tenure, irrespective of whether a licence is required and/or held.

The special protection afforded 'rare flora' only relates to the taking of the flora (plants or part of plants), and does not apply to its habitat. However, the definition of 'to take' includes direct (gather, pluck, cut, pull up, destroy, dig up, remove or injure the flora) and indirect (to cause or permit the same to be done by any other means) actions. Impacts to the habitat of rare flora which affects the rare flora in any way would still constitute taking of the rare flora.

DEC has a standard rare flora report form to capture information on a species' occurrence in the field, and encourages its use (see <<https://www.dec.wa.gov.au/management-and-protection/plants/protecting-our-plants/taking-protected-flora.html>>). DEC maintains a comprehensive population database for threatened flora which mirrors the fields on the rare flora report form. This database is used extensively for management and environmental impact assessment.

The *Wildlife Conservation (Rare Flora) Notices* have an interesting and unique stipulation (Clause 5), that declaration of a species as Rare Flora does not apply to plants that have been planted for any purpose, except for those planted for the purpose of conservation of the taxon and in accordance with approval given by the Director General. This clarifies the protection status of plants translocated as part of a conservation recovery plan, as against those planted for research or amenity, an open issue in other jurisdictions.

Reform of Act Pending

The WA Government in 2002 produced a consultation paper for a proposed *Biodiversity Conservation Act* to replace the *Wildlife Conservation Act 1950*. Following public consultation, a Biodiversity Conservation Bill was being drafted and the then-government (i.e. pre-2008 election) made a commitment to introduce it into Parliament.

Additional Information Sources

Best contact for ecological communities: WA Threatened Ecological Community Scientific Advisory Committee, Executive Officer Mia Podesta; ph. 08 9334 0116; email <mia.podesta@dec.wa.gov.au>.

Best contact for nominations: Threatened Species Scientific Committee, Species and Communities Branch, DEC, Locked Bag 104, Bentley DC WA 6983; email <tssc@dec.wa.gov.au>.

Best contact for threatened flora: Dr Ken Atkins, Species and Communities Branch, DEC, Locked Bag 104, Bentley DC WA 6983; ph. 08 9334 0455; email <tssc@dec.wa.gov.au>.

Brown, A., Thomson-Dans, C. and Marchant, N. (1998) *Western Australia's Threatened Flora*. WA Dept of Conservation and Land Management.

FloraBase: the WA Herbarium's plant information system that contains profiles for all WA plants, <www.dec.wa.gov.au/science-and-research/wa-herbarium/florabase.html>.

WA Herbarium: ph. 08 6467 5000; <www.dec.wa.gov.au/science-and-research/wa-herbarium/index.html>.

WATSNU (Newsletter of the DEC Species and Communities Branch): <mia.podesta@dec.wa.gov.au> or <jill.pryde@dec.wa.gov.au>.

Recent (post-2000) Public-domain Analyses, Appraisals

Coates, D.J. and Atkins, K.A. (2001). Priority setting and the conservation of Western Australia's diverse and highly endemic flora. *Biological Conservation* 97: 251-263.

WA Department of Conservation and Land Management (2003). Threatened Ecological Communities Symposium. A summary of proceedings hosted by CALM (now DEC), December 2003, to provide an update on progress with identifying and conserving Threatened Ecological Communities (TECs) in Western Australia. (see <www.dec.wa.gov.au/management-and-protection/threatened-species/index.html>, but web-link no longer operational).

NORTHERN TERRITORY

Main Act for Threatened Flora Protection

The *Territory Parks and Wildlife Conservation Act (TPWCA)*; *Territory Parks and Wildlife Conservation Regulations*; both available at <www.nt.gov.au/dcm/legislation/current.html>.

Administering agency: Department of Natural Resources, Environment, the Arts and Sport (NRETAS), <www.nt.gov.au/nreta>.

Current Policy Context

The *TPWCA* (Part IV, Section 31: *Principles of management*) stipulates that:

‘(1) The management of wildlife under this Act is to be carried out in a manner that (among other objectives) promotes

- a) the survival of wildlife in its natural habitat;
- b) the conservation of biological diversity within the Territory;
- c) the management of identified areas of habitat, vegetation, ecosystem or landscape to ensure the survival of populations of wildlife within those areas;
- d) the control or prohibition of –
 - (i) the introduction or release of prohibited entrants into the Territory; and
 - (ii) any other act, omission or thing that adversely affects, or will or is likely to adversely affect, the capacity of wildlife to sustain its natural processes; and
- e) the sustainable use of wildlife and its habitat.

(2) Species of wildlife are to be managed in a manner that –

- a) accords with their classification [conservation status] under Section 29; and
- b) in the case of threatened wildlife – maintains or increases their population and the extent of their distribution within the Territory at or to a sustainable level (which may include breeding in captivity).’

A strategy for the conservation of threatened species and ecological communities in the Northern Territory of Australia (Parks and Wildlife Commission NT, 1998), <http://nt.gov.au/nreta/wildlife/programs/pdf/strategy_for_conservation_of_threatened_species.pdf>. The goal of the Strategy is ‘To enable those species and ecological communities threatened with extinction to survive and prosper in their natural habitats, and to minimise the chance of more species and communities becoming threatened.’ The Objectives of the Strategy are:

1. To identify species and ecological communities subject to various levels of threat of extinction, and to monitor changes in abundance and distribution as a basis for reviewing levels of threat of extinction.

2. To establish a system of managed National Parks and other protected areas that provide optimal opportunity for the recovery of species and ecological communities under threat.
3. To investigate the causes of decline in the distribution and abundance of species and ecological communities, and develop methods to ameliorate the impacts on species or ecological communities.
4. To undertake the captive breeding and propagation of species with a high probability of extinction.
5. To implement prescriptions for the recovery of species and ecological communities subject to threat.
6. To research, trial and implement landscape-scale management of factors known to threaten species and ecological communities.
7. To develop a legislative framework which provides for the identification and management of species and ecological communities threatened with extinction.
8. To cooperate with other institutions and governments in the management of species and ecological communities threatened with extinction, and for the fulfilment of Australia’s international obligations.
9. To keep the public informed on, and involved in the conservation of species and ecological communities threatened with extinction.
10. To seek public donations and sponsorship for the research, management, captive breeding and propagation of threatened species.

Draft NT Parks and Conservation Masterplan (2005), <www.nt.gov.au/nreta/parks/masterplan/publications/draftplan.html>.

A Strategy for Conservation through the Sustainable Use of Wildlife in the Northern Territory of Australia (1997), <www.nt.gov.au/nreta/wildlife/programs/pdf/sustainable_utilisation_wildlife.pdf>.

A Strategy for the Conservation of Biological Diversity of the Wetlands of the Northern Territory of Australia (2000).

Listing Provisions of the Act

The Act provides (Part IV, Division 2) for ‘classification’ of the conservation status of species of wildlife. Section 9(3A) defines ‘species of wildlife’ as ‘a species, subspecies, population or subpopulation of wildlife, and includes a reference to a hybrid or variant race of a species of wildlife’. To date there are no listings of populations.

The threatened species lists resulting from classification are not schedules to the Act, although they are termed Schedule 1 (animals) and Schedule 2 (plants) on the NRETAS website.

Plants as a subset of wildlife are defined very broadly as 'a member of the plant kingdom or the fungus kingdom, whether dead or alive'. Plants include algae and lichen; procaryotes; a virus and a virus-like particle; the seeds, pollen or spores of a plant or a plant at any other stage of its life history; a part of a plant including an exudate or a secretion; and a chemical or other extract derived from a plant.

Aquatic plants fall under the definition of 'wildlife' under the TPWCA, including for threat-listing. Aquatic plants also fall into the definition of 'aquatic life' under the NT *Fisheries Act*, in which 'aquatic life' means 'any species of plant or animal life (except species of birds) which, at any time of the life history of the species, must inhabit water at any stage of its life history, and also includes any part of such plant or animal, but does not include fish, or aquatic life declared by the Minister by notice in the *Gazette* to be aquatic life to which the Fisheries Act does not apply'.

Part IV (*Plants and Animals*) Section 27 gives the Minister power to grant exemptions from the other provisions of that Part, for defined areas, particular species (including listed items), or specified activities.

The Act provides (sections 37-41) for the declaration of 'essential habitat' for any species (threatened or not), being 'a habitat that is essential for the survival in that area or those areas of wildlife generally or a species of wildlife', subject to consultation with the land owner/occupier. Essential habitat may also be declared if, in the opinion of the Minister, there is an area of land in which there is a species of wildlife that is likely to become extinct if not immediately protected.

The TPWCA does not provide for listing of ecological communities (but see under *Heritage Conservation Act* below). Of the 38 ecosystems listed to date under the Commonwealth EPBC Act, none occur in the NT. The 1998 NT Conservation Strategy (see URL above) had an objective of developing a legislative framework that included threatened ecological communities. Section 6.2 of the Strategy commits NRETAS to classifying the conservation status of ecological communities as well as species. The *Draft NT Parks and Conservation Masterplan* (see URL above) foreshadows review of the TPWCA, also with a view to providing for listing and protection of ecological communities.

The TPWCA does not provide for listing of threatening processes. Garnett *et al.* (2007) discuss potential links between a future revised TPWCA and other NT laws.

Listing Process

The first Threatened Species List for the NT using IUCN criteria was produced in 2003 and reviewed in 2006, resulting in the current (2007) list. NRETAS expects to review the list every 3-5 years. Review is by Departmental officers with external advice.

While the TPWCA does not provide for public nominations of species for listing of altered list status, the NRETAS website states that nominations can be sent to the Threatened Species Officer, and available data will be assessed against the IUCN criteria for consideration at the next review. Only in exceptional circumstances will changes be considered outside the 3-5 year review program.

To date, opportunities for public comment in each of the reviews of the Threatened Species List have been limited to a 30-day period after notification in the Government Gazette of the Minister having accepted revisions proposed by the Department. During the 2007 review, changes proposed then and the reasons were published, but not final reasons. The NRETAS website states that the Department regards public comment as a vital component of the process of review, and that information from the public on distribution and abundance of native species of concern is welcomed. Garnett *et al.* (2007) make extensive comments on the listing process.

Listing Categories, Terminology and Criteria

The Regulations (Part 2) prescribe the use of IUCN categories to produce a conservation-status classification of all species; Version 3.1 (IUCN 2001) is currently in use. 'Threatened wildlife' is defined as species that have been assessed as Extinct in the Wild (EW), Critically Endangered (CR), Endangered (EN) or Vulnerable (VU). Threatened wildlife are automatically given protected wildlife status under the Act.

Species assessed as not threatened are allocated to the other IUCN conservation categories: Near Threatened (NT), Least Concern (LC), or Data Deficient (DD). Taxa not yet assessed against the criteria are listed as Not Evaluated (NE). Garnett *et al.* (2007) make recommendations on the use of these and the Threatened categories for guiding management of species.

Current Lists and Statistics (flora)

The official schedules of classified wildlife (including Schedule 2 for Plants) are at <www.nt.gov.au/nreta/wildlife/animals/native/classification.html>, a bare list of names in the various IUCN categories, including the non-threatened categories.

A duplicate list at <www.nt.gov.au/nreta/wildlife/animals/threatened/specieslist.html> provides links to good-quality fact-sheets on each taxon, which include brief summaries of the reasons for their assigned conservation status. As well as taxa listed under the NT Act, this list also notes species listed under Commonwealth law but not regarded as threatened in the NT. The reasons for this discrepancy vary: some may be threatened at national scale but regarded as least-concern, data-deficient or near-threatened in NT.

Current (August 2008) figures for flora taxa:

	Number
Extinct in the Wild	0*
Critically Endangered	2*
Endangered	16*
Vulnerable	47*
Near Threatened	381
Least Concern	3040
Data Deficient	707
Not Evaluated	309

* legislatively recognised as Threatened

Listing Implications

Species Management Programs are optional, not mandatory, for listed entities under the TPWCA. Eleven programs have been prepared to date, four relating to plants. Joint Recovery Plans may be required if a species is listed under the Commonwealth EPBC Act.

The NT and Commonwealth governments have an agreement that species listed under the TPWCA that are endemic to the NT will be nominated by NRETAS for listing on the EPBC Act, and many species have been so nominated.

The TPWCA (Division 3) stipulates that 'Protected wildlife is protected wildlife whether or not the property in the wildlife is vested in the Territory'. Consultative processes are required for conservation actions on private tenures.

Listed entities become subjects of the 1998 NT Conservation Strategy (see above), a simple but comprehensive blueprint for generating knowledge and recovery actions across all NT tenures.

Other Provisions of the TPWC Act

Wildlife, including plants, are deemed under the Act (Division 3) to be 'protected wildlife' if present in a park, reserve, sanctuary, wilderness zone or area of essential habitat, or if Threatened species under the Regulations. The Minister may also declare other species as protected in parts or all of the Territory, but no plants are declared under this provision so far.

Other Relevant NT Acts

The NT's *Heritage Conservation Act* (HCA) provides for the conservation of places of 'social, aesthetic or scientific value', including 'plant communities and ecosystems'. In addition to cultural or historical considerations, several of the HCA assessment criteria (*Heritage Conservation Regulations*, Section 5) relate directly to species or vegetation type, i.e. whether or not the object or place has special significance in the Territory:

- a) for the evolution of flora, fauna, landscape or climate;
- b) because of the diversity or richness of its flora, fauna, landscapes or cultural features;

- c) because it contains rare, endangered or uncommon flora, fauna, biotic communities, ecosystems, natural landscapes or phenomena;
- d) in demonstrating the principal characteristics of the range of landscapes, environments or ecosystems, the attributes of which identify them as being characteristic of their class;
- e) as wilderness;
- f) for the maintenance of existing natural processes or systems;
- g) because it contributes to a wider understanding of natural history by virtue of its use as a research site, a teaching site, an example of a type of locality or reference area ...'

Garnett *et al.* (2007) provide a brief analysis of the HCA and its potential for use for flora conservation, and a directory of 38 other NT Acts with a bearing on threatened species and ecosystems.

Additional Information Sources

Best contact for threatened plant species matters: Northern Territory Herbarium, NRETAS, PO Box 496, Palmerston NT; ph. 08 8999 4516; fax 08 8999 4527. Information re data requests is at <www.nt.gov.au/nreta/wildlife/plants/herbarium/requests.html>.

Northern Territory Herbarium: Darwin ph. 08 8999 4516; Alice Springs (Desert Park) ph. 08 8951 8792; <www.nt.gov.au/nreta/wildlife/plants/herbarium/index.html>.

NRM SNAPSHOT website: provides a standardised Natural Resource Management profile of an area, <www.infonet.cdu.edu.au/nrm>.

Recent (post-2000) Public-domain Analyses, Appraisals

Garnett, S., Ainsworth, G. and Carey, R. (2007). *Analysis of Northern Territory legislation for the protection of threatened species*. School for Environmental Research, Charles Darwin University, available at <www.wwf.org.au/publications>.

WWF Australia (2006) *Reviewing the threatened species provisions within Northern Territory legislation – a discussion paper*. Available at <www.wwf.org.au/publications>.

WWF Australia (2007?) *Recommendations for improving threatened species provisions within legislation in the Northern Territory*. Available at <www.wwf.org.au/publications>.

COMMONWEALTH

Main Act for Threatened Flora Protection

The *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*; *Environment Protection and Biodiversity Conservation Regulations 2000*; see <www.comlaw.gov.au>. The Act is large and presented in two volumes.

Administering agency: Department of the Environment, Water, Heritage and the Arts (DEWHA), <www.environment.gov.au>.

Current Policy Context

The Objects of the EPBC Act include:

- ‘1a): to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance;
- b) to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources;
- c) to promote the conservation of biodiversity; ...
- e) to assist in the co-operative implementation of Australia’s international environmental responsibilities; ...’

The Act [Object 2]:

- ‘a) recognises an appropriate role for the Commonwealth in relation to the environment by focussing Commonwealth involvement on matters of national environmental significance and on Commonwealth actions and Commonwealth areas; ...
- e) enhances Australia’s capacity to ensure the conservation of its biodiversity by including provisions to:
 - (i) protect native species (and in particular prevent the extinction, and promote the recovery, of threatened species) and ensure the conservation of migratory species; ...
 - (iii) protect ecosystems by means that include the establishment and management of reserves, the recognition and protection of ecological communities and the promotion of off-reserve conservation measures;
 - (iv) identify processes that threaten all levels of biodiversity and implement plans to address these processes’.

The general ‘protection’ features of the Act mean that approval is required for any action that is likely to have a significant impact on a matter protected under Part 3, i.e.

- matters of national environmental significance;
- the environment on Commonwealth land;
- the environment generally where the activity will be carried out on Commonwealth land or will be taken by the Commonwealth or a Commonwealth agency.

There are currently seven ‘matters of national environmental significance’:

- the world heritage values of World Heritage properties;
- the national heritage values of National Heritage places;
- the ecological character of Ramsar wetlands;
- threatened species (other than ‘extinct’ and ‘conservation dependent’ species) and threatened ecological communities (other than ‘vulnerable’ communities) listed under the EPBC Act;
- migratory species listed under the EPBC Act;
- nuclear actions ... likely to have a significant impact on the environment;
- environment in Commonwealth marine areas (includes Commonwealth-managed fisheries).

National Strategy for the Conservation of Australia’s Biological Diversity, Department of the Environment, Sport and Territories (1996), <www.environment.gov.au/biodiversity/publications/strategy/index.html>.

National objectives and targets for biodiversity conservation 2001 – 2005, <www.environment.gov.au/biodiversity/publications/objectives/index.html>.

National biodiversity and climate change action plan 2004 – 2007, <www.environment.gov.au/biodiversity/publications/nbccap/index.html>.

Native Vegetation Policy – Reversing the Decline in the Quality and Extent of Australia’s Native Vegetation Cover; a policy statement by Minister Robert Hill, September 2001, still on DEWHA website as policy, <www.environment.gov.au/land/publications/vegetation-policy.html>.

The National framework for the management and monitoring of Australia’s native vegetation (2001), *Natural Resource Management Ministerial Council, Department of Environment and Heritage*, <www.environment.gov.au/land/vegetation/policies.html>.

Listing Provisions of the Act

Part 13 of the EPBC Act (*Species and communities*: sections 178-194T) contains the main provisions governing the listing process. The Act provides for listing of threatened native species, threatened ecological communities, Key Threatening Processes (KTPs), and Critical Habitat. Section 528 defines ‘native’ in terms of continental and offshore applicability of the Act.

Species, subspecies and varieties are eligible for nomination. The definition of ‘species’ (s528) explicitly allows listing of subspecies; some named taxa at varietal rank are already listed under the Act.

Populations of species may be nominated. The ‘species’ definition includes a provision that for the purposes of Part 13A [listings] ‘a distinct population ... of such biological

entities' may also count as a species, potentially allowing the listing of either geographical populations, or genetic or morphological variants. Under the Regulation (s7.02), one of the criteria relating to assessment and listing of an ecological community relates to decline of a 'population of a native species that is likely to play a major role in the community'.

All types of terrestrial or aquatic organisms, including flora, fauna, and fungi, are eligible for nomination (unless exempted, e.g. human pathogens). 'Plant' is defined (s528) as 'a member, alive or dead, of the plant kingdom or of the fungus kingdom, and includes a part of a plant and plant reproductive material'.

The sections of the DEWHA website dealing with threatened species aspects of the EPBC Act are thorough and moderately well cross-linked. Most relevant aspects are linked from <www.environment.gov.au/biodiversity/threatened/index.html> or from <www.environment.gov.au/epbc/protect/species-communities.html>.

Part 13A of the Act (*International movement of wildlife specimens*) sets out the main provisions for Australia's compliance with the CITES agreement and related provisions of the Convention on Biological Diversity; these are not examined further here.

Listing Process

Any person may nominate a native species, ecological community or threatening process for listing under any of the EPBC Act categories. Details of the nomination and listing process, including flowcharts and forms, are available on the above webpages, and the statutory requirements are detailed in Part 7 of the Regulation.

A call for nominations is made before each yearly assessment cycle. The Minister establishes conservation themes for specific assessment periods. The themes indicate the type of nominations that the Minister considers should be given priority for that period, but these are not exclusive of other nominations. Any theme determined by the Minister, and the nomination time frame for an assessment period, are announced at the time of advertising for nominations. Normally this would occur around November each year.

Nominations that satisfy the EPBC Regulations are forwarded to the Threatened Species Scientific Committee (TSSC; see below), which prepares a Proposed Priority Assessment List (PPAL) of nominations for consideration by the Minister. In preparing the PPAL, the Committee takes into account the year's conservation theme; level of threat; role of a species in ecosystem function; likely conservation status of nominated entities at national level; benefit of listing the entity (e.g. in terms of legislative protection and threat abatement); capacity to effect recovery or to abate a threatening process; efficacy of existing protection measures; degree to which the nomination considers the national extent of the entity; the scope of KTPs; availability of assessable information; and TSSC workload.

The Minister considers the PPAL and may make changes, leading to a Finalised Priority Assessment List (FPAL). The

FPAL for the assessment period commencing 1 October 2008 is at <www.environment.gov.au/biodiversity/threatened/publications/priority-assessment-list.html>. The TSSC assesses FPAL nominations within a time frame set by the Minister, and invites public and expert comment. The TSSC's final recommendation ('listing advice'), together with a 'conservation advice' (mandatory since 2007 amendments to the Act), then goes to the Minister, who decides whether the nominated entity is eligible for EPBC Act listing. The Minister can only have regard to matters that relate to the survival of the entity when making listing decisions on species and communities.

TSSC 'listing advices' and 'conservation advices', if approved by the Minister, become publicly available through the SPRAT (Species Profile and Threats) database website (see <www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>). These advices generally detail the listing decision pathway (i.e. the EPBC listing criteria that were satisfied), and can be accessed via SPRAT or from the relevant threatened list from <www.environment.gov.au/biodiversity/threatened/index.html> by clicking on the relevant entity, looking for a heading 'Listing and Conservation Advice' and selecting 'view'. Species listed under the EPBC Act that were carried over from the precursor Act (see below under 'Current Lists and Statistics') do not have a 'listing advice' statement.

The EPBC lists do not constitute a consolidated 'national red list' (*sensu* IUCN) for Australia (see discussion on pages 3-4 earlier).

Assessment Committee

The Threatened Species Scientific Committee (TSSC) advises the Minister on the amendment and updating of lists for threatened species, threatened ecological communities, and key threatening processes, together with the making or adoption of recovery plans and threat abatement plans. The Minister is not bound to accept TSSC recommendations. The TSSC generally meets four times each year. Its membership and Annual Reports are available at <www.environment.gov.au/biodiversity/threatened/committee.html>.

Listing Categories, Terminology and Criteria for Species

Section 179 of the EPBC Act requires the Minister to gazette a list of threatened species divided into the following categories:

- Extinct: definition and criteria in the Act, s179(1);
- Extinct in the wild*: definition and criteria in the Act, s179(2);
- Critically Endangered*: definition in Act, s179(3); criteria in the Regulation, s7.01;
- Endangered*: definition in Act, s179(4); criteria in the Regulation, s7.01;
- Vulnerable*: definition in Act, s179(3); criteria in the Regulation, s7.01;
- Conservation Dependent: definition and criteria in the Act, s179(6).

Only species in those categories marked with an asterisk (*) are matters of national environmental significance (protected matters) under the EPBC Act.

The EPBC categories and criteria for species listing correspond closely to those of IUCN (2001).

Listing Categories, Terminology and Criteria for Ecological Communities

Sections 181 and 182 of the Act prescribe and define three categories of threatened ecological communities: Critically Endangered (CE), Endangered (E) and Vulnerable (V). The criteria for assigning these are in the Regulation, s7.02.

Since 2006, applicability of the Act's protective listings of ecological communities to particular sites or occurrences have usually been determined in practice by assignment of that occurrence to a 'condition class', using 'condition thresholds'. These are developed by the TSSC in its 'listing advice' to the Minister. Condition class is generally assessed by measures of biotic richness, impact of threatening processes, and the area's size or connectivity. 'Significantly degraded, low condition' areas are deemed to be excluded from a listed threatened ecological community when they do not meet certain condition thresholds. For excluded patches, exceeding such condition thresholds through recovery on the ground over time, may see them fall again within the protective coverage of the Act. The thinking behind this application to the Act is detailed in *Ecological communities: a way forward* (2006), together with a fact-sheet summary (see <www.environment.gov.au/epbc/publications/ecological-communities-listing-approach.html>).

'Listing advice' to the Minister is accompanied by a separate 'conservation advice', providing the TSSC's guidance on known threats and desirable threat abatement and priority recovery actions that can be immediately undertaken at a local and regional level, and a recommendation on the need (or not) for a recovery plan.

DEWHA produces *Communities for Communities*, a quarterly newsletter on threatened ecological communities nominated for listing. It can be subscribed to at <www.environment.gov.au/biodiversity/threatened/communities.html>.

Listing Criteria for Key Threatening Processes (KTPs)

The Regulation (s7.06) sets out the evidentiary basis required of nominations of KTPs, and, *de facto*, the criteria used by the TSSC to assign that status. There is no restriction on the matters that the Minister can consider when deciding whether or not to accept a TSSC recommendation and to include a process on the list.

Current Lists and Statistics (flora)

Links to the current EPBC Act lists are at <www.environment.gov.au/epbc/about/lists.html#species> and <www.environment.gov.au/biodiversity/threatened/index.html>.

Current (August 2008) statistics on flora entities are:

	Number
Threatened species	
• Extinct:	49
• Extinct in the wild	0
• Critically Endangered	71
• Endangered	514
• Vulnerable	664
• Conservation dependent	0
Total listed flora	1298
Threatened ecological communities	39*
Key Threatening Processes	17**

* not all communities are plant communities

** not all KTPs are plant-related

The *Register of Critical Habitat* (<www.environment.gov.au/cgi-bin/sprat/public/publicregisterofcriticalhabitat.pl>) has five habitats listed to date, one of which is for the plant *Lepidium ginninderrense* (Ginninderra Peppercreess).

The EPBC Act at its commencement 'inherited' the list of threatened species and other entities previously listed under the *Endangered Species Protection Act 1992* (replaced by the EPBC Act 16 July 2000). Not all these entities have yet been reassessed. There is periodic review by DEWHA staff and the TSSC of the categories assigned to listed entities as new information becomes available.

Fact sheets on a number of EPBC-listed threatened entities are at <www.environment.gov.au/biodiversity/threatened/publications/>. The SPRAT database maintained by DEWHA (see 'Listing Process' above) provides summary information on EPBC-listed entities, including descriptions, distribution, ecology, and conservation factors. Profiles are not yet available for all entities. Comments and new information are welcomed and can be provided via <sptrat@environment.gov.au>.

Listing Implications

Since 2007 amendments to the EPBC Act, preparation of Recovery Plans for listed entities has not been mandatory. Instead the TSSC provides to the Minister a recommendation on the need for a Recovery Plan for listed threatened species or ecological communities (other than conservation dependent species), on which the minister may act. Before making a recovery plan, the Minister must:

- consult with the appropriate Minister of each State and Territory in which the species or ecological community occurs;
- consider advice from the TSSC;
- invite public comment on the proposed plan; and
- consider all comments received.

The Minister may adopt a recovery plan made by a State or Territory if it meets EPBC Act requirements.

Around 250 Recovery Plans for listed threatened flora species and ecological communities have been made or