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AUDITOR-GENERAL
SPECIAL REPORT No. 78

Management of threatened species

March 2009

Presented to both Houses of Parliament in accordance with the provisions of section 30 of the Audit Act 2008

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12 March 2009

President
Legislative Council
HOBART

Speaker
House of Assembly
HOBART

Dear Mr President
Dear Mr Speaker

SPECIAL REPORT NO. 78

Management of threatened species

This report has been prepared consequent to examinations conducted under section 23 of the *Audit Act 2008*, for submission to Parliament under the provisions of section 30 of the Act.

The performance audit examined measures in place to protect native species biodiversity in Tasmania.

Yours sincerely

H M Blake
AUDITOR-GENERAL

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Foreword

Managing wild flora and fauna is a complex task, be they endangered or not. Managing as many as 674 legislatively protected identified threatened species in Tasmania's unique wilderness is extremely so. Despite this, maintenance of Tasmania's biodiversity is a key component of our natural heritage conservation and the existence of effective approaches to managing threatened species is expected.

With this background, a performance audit assessing how effectively threatened species are managed was always going to be difficult and so it has proven. However, our approach of assessing management's performance in implementing and managing threatened species strategies against approved management plans and legislative requirements and developing audit criteria based on these enables the conduct of a tightly focused audit.

In Tasmania, a habitat-based approach to managing threatened species has been successful with protection of large areas of Tasmania including national parks, state forests, marine reserves and privately owned land. It was also concluded that the process for listing a species as threatened is sound.

However, delays in completing listing statements, preparing information about important habitats, including cataloguing them at a species level, and developing recovery plans was a concern. This is particularly so bearing in mind evidence that the existence of recovery plans, which it is acknowledged are expensive to complete, was associated with a reasonable level of implementation of recommended actions although their effectiveness needed assessment.

It was pleasing to find evidence that private forest covenants had been numerically effective but that only two public authority management agreements, which provide an effective mechanism to allow public sector entities to commit to arrangements for management of species and habitats, had been made.

Another concern was that the existing organisational structure did not encourage a strategic approach to conservation of threatened species, their habitats and the threats confronting them. However, a divisional plan with clearly defined objectives exists and performance against the plan was regularly monitored and results published.

The Report includes 19 recommendations primarily aimed at introducing a structured and prioritised approach to managing Tasmania's threatened species with a focus on assessing implementation plans and monitoring progress.

H M Blake

Auditor-General

12 March 2009

List of acronyms and abbreviations

CSIRO	Commonwealth Scientific and Industrial Research Organisation
DFTD	Devil facial tumour disease
Division	Resource Management and Conservation Division
DPIW	Department of Primary Industries and Water
IAE	Intergovernmental Agreement on the Environment
KPI	Key performance indicator
NRM	Natural Resource Management
NVA	Natural Values Atlas
PAMA	Public Authority Management Agreements
PWS	Parks and Wildlife Service
RMC	Resource Management and Conservation Division
SAC	Scientific Advisory Committee
Secretary	Secretary for the Department of Primary Industries and Water
TASVEG	Tasmania-wide Vegetation Mapping Program
TSPA	*Threatened Species Protection Act 1995*
TWWHA	Tasmanian Wilderness World Heritage Area

Glossary of terms

Fauna	Collection of animals found in a specific time or place
Flora	Collection of plant life occurring in an area or time period
Taxon	A name designating an organism or a group of organisms
Wildlife	Animals living in their natural environment

Executive summary

Executive summary

Background

Tasmania promotes itself as a state that provides visitors with a unique wilderness experience, with its abundance of flora and fauna. There are a number of species that were previously found on the Australian mainland but are now only present in Tasmania. Accordingly, Tasmania is a highly significant state for the conservation of threatened species.

The management and protection of native species is a topical issue underlined by the widespread concern about the Tasmanian devil facial tumour disease (DFTD) and continuing strategies to eliminate foxes in Tasmania. In *Tasmania* Together *2006 revised Goals and Benchmarks* the maintenance of biodiversity is commented upon as being a key component of natural heritage conservation (Goal 11).

Tasmania has 674 species listed as threatened which, are categorised as follows:

- Endangered — in danger of extinction because long-term survival is unlikely while the factors causing them to be endangered continue operating.
- Vulnerable — likely to become endangered while the factors causing them to become vulnerable continue operating.
- Rare — a small population in Tasmania that is at risk.

The large number and diversity of threatened species pose a significant challenge for conservation agencies.

Audit objectives and scope

The objectives of this audit were to:

- determine the effectiveness of measures to identify, report on and protect threatened species
- review management of functions and areas related to the identification and protection of threatened species.

Whilst other divisions within the Department of Primary Industries and Water (DPIW) are also directly involved in managing threatened species, Resource Management and Conservation (RMC) is the lead division. Accordingly, we focused this audit on evaluating RMC's role in implementing and managing threatened species strategies.

The scope did not include the conservation activities of Forestry Tasmania, Natural Resource Management organisations, Parks and

Wildlife Service or other public sector bodies with a conservation role.

Audit opinion

Objective 1: to determine the effectiveness of measures to identify, report on and protect threatened species

Identifying and listing

Six hundred and seventy four threatened species have been listed and provided with legislative protection under the *Threatened Species Protection Act 1995* (TSPA). However, despite the existence of habitat data in various systems and documents, no comprehensive listing of the important habitats of threatened species has been prepared. Consequently, there were gaps in the approach to habitat management.

Species strategies

Only 18% of 674 listed species had a completed listing statement as required by the TSPA. There was evidence that the backlog was unlikely to be resolved with current resources in the foreseeable future. Also, information gaps were contributing to difficulties in RMC's role in providing conservation advice in respect of planning and development matters.

Further, only 20% of threatened species had a recovery plan. Whilst recovery plans are not a legislative requirement and are expensive to produce, the lack of both listing statements and recovery plans for the majority of threatened species was a concern.

Where recovery plans existed, there was evidence of a reasonable level of implementation of recommended actions in a majority of cases. However, RMC rarely assessed the effectiveness of recovery plans after their review date.

Habitat strategies

At a general level, there was evidence that the habitat-based approach has been successful with protection of large areas of Tasmania including national parks, state forests, marine reserves and privately owned land. There was evidence that private forest covenants in particular had been numerically effective.

While public authority management agreements provided an effective mechanism to allow public sector entities to commit to arrangements for management of species and habitats, in 13 years only two such agreements had been made relating to a very small number of species.

At a species level, there was no structured approach to cataloguing important habitats and planning for their management or recovery. Consequently, despite protection of large areas of Tasmania, it was not possible to conclude as to the adequacy of protection of all important habitats.

Threat abatement

Threat abatement planning for pests and diseases had been completed for the Tasmanian Wilderness World Heritage Area but had not yet been extended to the rest of Tasmania.

Twelve of 72 identified pests had been categorised as posing a high or extreme risk to wildlife. Implementation of the recommended actions has been inconsistent with significant action being taken in respect of some pests but little or no action for others.

Similarly, three of 19 diseases had been categorised as posing a high or extreme risk to wildlife. RMC was actively involved in developing and implementing strategies to manage the threat posed by the identified diseases. In particular, DFTD was receiving significant attention and funding.

In respect of weeds, RMC had registered 111 weeds and prepared and published weed management plans for all declared weeds occurring in Tasmania. We found that RMC had been involved in weed management programs and was fulfilling its roles of enforcement, co-ordination and provision of technical support.

Monitoring

Only 28 of 177 threatened wildlife species were being monitored and a recent review by DPIW had concluded the monitoring program was ad-hoc and lacked clear guidelines as to which species should be monitored. A priority ranking scheme had just been introduced, but at the time of the audit most Priority One wildlife species were still unmonitored.

Although, the Tasmania-wide vegetation mapping program (TASVEG) included baseline vegetation data, there was little systematic monitoring of individual habitats.

RMC had an effective database for storing observational information. Most threatened species had some observational data included, although in many cases the data was more than ten years old.

Objective 2: to review management of functions and areas related to the identification and protection of threatened species

Strategic management

RMC maintained a divisional plan which included clearly defined objectives. Performance against the plan was regularly monitored and results were published in the DPIW Annual Report.

The divisional plan identified strategies, although the majority related to RMC's policy and procedural framework rather than service delivery, e.g. implementation of control measures. The plan also outlined performance indicators, but the indicators were not particularly useful measures of the work of the RMC.

RMC's existing organisational structure did not encourage a strategic approach to conservation of threatened species, their habitats and the threats confronting them. In addition, the existing funding model tended to promote substantial funding for a small number of high-profile programs and little or no funding for others.

List of recommendations

The following table reproduces the recommendations contained in the body of this report.

Rec No.	Section	We recommend …
1	1.3	… that a complete catalogue of important habitats be prepared and used as an element of a strategic approach to management of threatened species.
2	1.4	… that RMC adopts a structured approach to conservation of threatened species that ensures systematic coverage of threatened species, important habitats and substantial threats.
3	2.2.1	… that RMC prioritises preparation of listing statements for all listed species. We further recommend the use of listing statements that provide brief conservation advice and cross-references to other relevant documents.
4	2.2.2	… that RMC prepare a prioritised list of threatened species needing a recovery plan, and prepare plans for the highest priority species.
5	2.3	… that an implementation review be undertaken of each recovery plan once the review date for the recovery plan has been reached.
6	2.4	… RMC seek or re-deploy resources to enable timely completion of listing statements and advisory tools in order to make the giving of advice a more efficient process.
7	2.4	… RMC liaises with local government to ensure all threatened species receive appropriate protection.
8	3.2	… that, following identification of important habitats, plans be developed to provide coverage of important habitats not included in existing other documentation.
9	3.3.1	… RMC actively pursue the greater use of Public Authority Management Agreements with public sector entities such as local government councils.
10	4.2.2	… that a strategy for introduced pest species be developed for the whole state.
11	4.2.3	… that RMC works to implement strategies developed to manage identified introduced pest species.
12	4.4.2	… that a strategy for addressing diseases affecting threatened species be developed for the whole state.
13	4.4.3	… that RMC works to implement strategies developed to manage identified diseases.

Rec No.	Section	We recommend …
14	5.2.1	… that RMC implements a system to ensure monitoring of threatened species. The level of monitoring should be based on a species priority rating and the availability of resources.
15	5.2.1	… that monitoring should also be considered for important species that are not listed but are at risk.
16	6.3	… that RMC's 2000 *Threatened Species Strategy for Tasmania* be updated.
17	6.4	… a review of RMC's KPIs to ensure they are more representative with respect to threatened species.
18	6.5	… that RMC ensures that it has effective input to Australian Government processes for determining funding programs.
19	6.6	… that RMC reviews whether or not the existing roles and organisational structure will support a more strategic approach to management of threatened species.

Secretary's response

This Response outlines the Tasmanian Government's strategic approach to managing threatened species, while the Tasmanian Audit Office's performance audit *Management of threatened species* focuses primarily on the role of the Resource Management and Conservation Division of DPIW.

The Tasmanian Government attaches high importance to the protection and sustainable management of Tasmania's biodiversity, including threatened species. It recognises that a range of activities are needed to protect and manage threatened species across the landscape, including:

- Protection and management of ecosystems, habitats and species through the **reserve system** on private and public land;
- Protection and management of ecosystems, habitats and species through **forest management** systems;
- Protection and management of ecosystems, habitats and species through other **statutory and planning mechanisms**;
- **Recovery efforts, monitoring and conservation planning**; and
- **Management of key threats** to biodiversity.

Each of these elements is supported in Tasmania by formal policies and legislation, with regular monitoring and review of progress. A brief overview of each is provided below, in regard to threatened species protection and management in Tasmania.

The Tasmanian approach has been developed in the context of national and international policy frameworks and commitments, including the *Convention on Biological Diversity 1993* (CBD), *National Strategy for ESD 1992*, *National Strategy for the Conservation of Australia's Biological Diversity 1993*, *Intergovernmental Agreement on the Environment 1992*,draft revised *National Biodiversity Strategy 2009* and draft revised *National Reserve System Strategy 2009*.

Various high level policy documents including the *Tasmanian-Commonwealth Regional Forest Agreement 1997* (RFA), the *Nationally Agreed Criteria for the Establishment of a Comprehensive, Adequate and Representative Reserve System for Forests in Australia* (JANIS report), and the draft revised *National Reserve System Strategy 2009* recognise that a range of approaches including reservation and off-reserve management are needed to manage and protect threatened species and ecosystems, including recovery efforts, forest management prescriptions and broader NRM activities. The Tasmanian approach to conserving and managing threatened species is consistent with this.

While the Tasmanian *Threatened Species Strategy 2000* and *Nature Conservation Strategy 2002* were useful in guiding the development of threatened species and biodiversity programs in Tasmania, they have been in part superseded by the review of National strategies and the need to respond to issues such as climate change. Any revised Threatened Species Strategy will be developed in line with the revised *National Biodiversity Strategy*[1].

Auditor-General's comment

The Secretary's response provides a most useful summary detailing the totality of the approach to the management of threatened species. The Introduction to this Report details the scope of this performance audit, our objectives and the criteria applied, which, in light of the Secretary's response, I have reviewed. In the context of this performance audit, I remain of the view that my scope and approach were appropriate.

My focus was on the work of RMC with my approach targeted at existing approved plans and strategies.

[1] Secretary's response only includes the first section on strategic overview. The full text of the Secretary's response has been appended.

Introduction

Introduction

Background

Tasmania promotes itself as a state that provides visitors with a unique wilderness experience, with its abundance of flora and fauna. There are a number of species that were previously found on the Australian mainland but are now only present in Tasmania. Accordingly, Tasmania is a highly significant state for the conservation of threatened species.

The management and protection of native species is a topical issue underlined by the widespread concern about the Tasmanian devil facial tumour disease (DFTD) and continuing strategies to eliminate foxes in Tasmania. In *Tasmania* Together *2006 revised Goals and Benchmarks* the maintenance of biodiversity is commented upon as being a key component of natural heritage conservation (Goal 11).

Tasmania has 674 species listed as threatened which, are categorised as follows:

- Endangered — in danger of extinction because long-term survival is unlikely while the factors causing them to be endangered continue operating.
- Vulnerable — likely to become endangered while the factors causing them to become vulnerable continue operating.
- Rare — a small population in Tasmania that is at risk.

The large number and diversity of threatened species pose a significant challenge for conservation agencies.

An Australian National Audit Office report released during 2007 examined the conservation and protection of national threatened species. It found that there were excessive delays in getting some marine species listed as a threatened species[2].

Legislative framework

The *Intergovernmental Agreement on the Environment* (IAE), signed between the Australian and State governments in 1992, provides that: '… each State has responsibility for the policy, legislative and administrative framework within which living and non living resources are managed within the State'[3].

[2] Australian National Audit Office, *The Conservation and Protection of National Threatened Species and Ecological Communities*, 2006.

[3] Australian Government, *Intergovernmental Agreement on the Environment*, section 2.3.2, 1992.

To fulfil its obligations under the IAE, the Tasmanian Parliament enacted the *Threatened Species Protection Act 1995* (TSPA) that provides for the protection and management of threatened native flora and fauna as well as promoting their conservation. The TSPA is administered by the Department of Primary Industries and Water (DPIW or the Department).

The Secretary of DPIW must prepare a listing statement for any taxon of flora or fauna listed as threatened as soon as practicable after that taxon is listed. With the Minister's approval, the Secretary may make a recovery plan for any listed taxon of flora or fauna.

The TSPA also provides for the establishment of a Scientific Advisory Committee (SAC) that prepares guidelines for applying criteria specified by the TSPA. For example, criteria for determining if a species is to be listed as endangered include a population reduction of 50% over the last ten years or a population of less than 2500 individuals and declining.

The protection of native fauna and flora in general is governed by the *Nature Conservation Act 2002*. It also provides for the declaration of national parks and other reserved land. National parks and reserves are managed under the *National Parks and Reserves Management Act 2002.*

In relation to the protection of natural resources, the *Nature Conservation Act 2002* provides the Secretary with various powers, including:

- setting aside land for conservation purposes
- prohibiting or controlling the taking or hunting of wildlife.

Other relevant legislation includes, but is not limited to:

- *Whales Protection Act 1988*
- *Weed Management Act 1999*
- *Environmental Management and Pollution Control Act 1994*
- *Land Use Planning and Approvals Act 1993*
- *Forest Practices Act 1985*
- *Water Management Act 1999*
- *Crown Lands Act 1976.*

Threatened species stakeholders

Whilst DPIW, through its Resource Management and Conservation division (RMC), is primarily responsible for protecting threatened

species there are other public sector stakeholders, including: Parks and Wildlife Service, Forestry Tasmania, Forest Practices Authority and local government councils. In addition, there are also a number private sector stakeholders in both the not-for-profit and for-profit sectors.

The Australian Government also plays a significant role through directly funding conservation programs and by supporting local Natural Resource Management (NRM) organisations. NRMs are community-based organisations funded by the Australian Government who then undertake natural resource management projects involving the local community or engagement of other entities such as RMC to undertake conservation tasks on its behalf.

Threatened Species Strategy

In 2000, the Department published the *Threatened Species Strategy for Tasmania*, which provided an overall direction for managing threatened fauna and flora. The strategy outlined two primary approaches to assist with the conservation of threatened species:

- targeting threatening processes
- giving priority to threatened species.

Additionally, the strategy includes five secondary approaches. In turn, each of those identifies 19 lower level approaches, and for each of those numerous performance targets are listed — 84 in all. The *Threatened Species Strategy* outlines a clearly defined approach to managing threatened species with specific performance indicators for each part of the strategy.

Whilst the *Threatened Species Strategy for Tasmania* has not been updated, many of the objectives outlined in it are now being addressed by alternative means and strategies, e.g. there is now a separate strategy for managing wildlife diseases in the Tasmanian Wilderness World Heritage Area.

Objective

The objectives of this audit were to:

- determine the effectiveness of measures to identify, report on and protect threatened species
- review management of functions and areas related to the identification and protection of threatened species.

The aim of the audit was not to form an opinion on how best to preserve species, but rather focus on the strategies adopted by DPIW to do so.

Scope

Whilst other divisions within DPIW are also directly involved in managing threatened species, RMC is the lead division. Accordingly, we focused this audit on evaluating RMC's role in implementing and managing threatened species strategies.

The scope excluded the conservation activities of Forestry Tasmania, NRMs, Parks and Wildlife Service or other public sector bodies with a conservation role.

We focused on the two primary approaches (namely targeting threatening processes and giving priority to threatened species) and a secondary approach — research and monitoring, which appeared to be an essential element of the overall strategy.

Criteria

Our audit criteria applied to determining our audit work resulting in forming an audit opinion about the management of threatened species included whether there was adequate:

1. Control over threatening processes
    - threat reducing processes
    - vegetation clearance
    - pests, weeds and diseases
2. Prioritising of threatened species
    - setting species priorities
    - important habitats
    - recovery actions
    - habitat management
3. Research and monitoring
    - database
    - research
4. Management of threatened species
    - effective use of policy and planning documents
    - effective implementation processes
    - effective monitoring and reporting of performance.

Audit approach

Our methodology included a review of government policies, the DPIW corporate plan, RMC's divisional plan and other related strategy documents.

Discussions were held with relevant staff of DPIW to help identify audit evidence.

About this Report

The above criteria have been addressed throughout the report and may not necessarily be wholly addressed in a single chapter. The following list shows coverage of sub-criteria in individual chapters.

Chapter 1

- Have threatened species been identified and listed?
- Have important habitats been identified and listed?

Chapter 2

- Have recovery actions for national priority and Tasmanian prioritised species been prepared?
- Have appropriate recovery mechanisms been put in place for each important habitat type?

Chapter 3

- Have management plans been prepared for important habitat areas?
- Has there been adequate control over vegetation clearance to ensure intactness of important habitats?
- Have conservation agreements with public authorities been successfully implemented to protect threatened species?
- Have conservation agreements with private landowners been successfully implemented to protect threatened species?

Chapter 4

- Has there been adequate implementation of pest control measures?
- Has there been adequate implementation of weed control measures?
- Has there been adequate implementation of disease control measures?

Chapter 5

- Has there been adequate monitoring of numbers of threatened species?
- Has readily accessible, comprehensive and current information about threatened species been maintained?
- Has there been adequate monitoring of the intactness of important habitats?

Chapter 6

- Does management make effective use of policy and planning documents?
- Are there effective implementation processes?
- Is there effective monitoring and reporting of performance?

Timing

Planning work for the audit commenced during the latter part of 2007. Fieldwork was conducted between January and October 2008. The report was finalised in February 2009.

Acknowledgement

We gratefully acknowledge the co-operation and assistance provided by the RMC division within DPIW.

Resources

The total cost of the audit excluding report production costs was approximately $160 000.

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1 Identifying and listing

1 Identifying and listing

1.1 Background

In the initial stages of planning this audit, we assumed that the task of conserving and managing threatened species would be structured around the requirements of the individual species listed under the *Threatened Species Protection Act 1995* (TSPA). Under that assumption the audit would have focused on selecting a sample of threatened species and assessing the adequacy of the actions taken for those species.

However, during planning discussions, officers of RMC expressed concern at our proposed species-based approach. We were advised RMC had found it difficult to comply with certain parts of the TSPA and that there had been a shift in focus away from concentrating on individual species. It was explained that with over 600 threatened species, many facing common threats, it was more practical and efficient to adopt a habitat-based approach.

It is noted that the management of threatened species is only one part of a larger strategy for managing the conservation values of Tasmania's natural environment. Broad conservation strategies (such as the protection of representative habitats) have an important role in reducing threatening processes such as habitat loss. A high degree of focus is now placed on landscape-level planning and ecosystem functions. However, the species-based objective of current legislation, such as the TSPA, precedes this change in thinking.

To accommodate this shift away from a species-based view we revised the audit to take into account both a species-based and habitat-based approaches. In our view, habitat-based strategy requires that a catalogue of important habitats has been clearly identified and that the catalogue is used to provide a systematic basis for determining conservation strategies and actions, and for monitoring the success of that work. Chapter 3 specifically looks at habitat strategies[4].

In Section 1.2 we look at how a species is recognised as being threatened and how it comes to be listed as threatened. We then examine the identification of important habitats before suggesting the adoption of a more strategic approach to managing threatened species.

[4] We have used the wider term 'important habitats' rather than the legal term, 'critical habitats' since 'critical habitats' is restricted to those habitats so deemed by the Secretary. The concept of important habitat is imprecise by necessity.

1.2 Identification and listing: threatened species

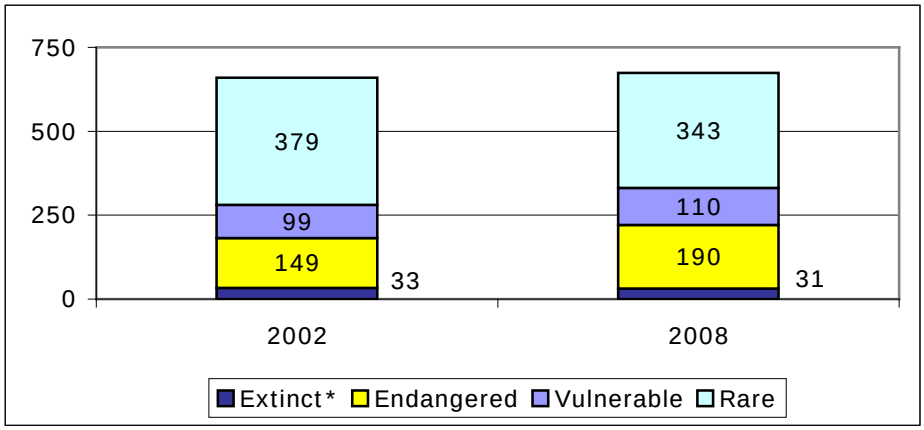
Criterion: have threatened species been identified and listed?

The TSPA provides for a threatened species to be listed and hence receive legal protection following recognition that its continued existence is in doubt. In order for a species to be listed it must conform to one of the following eligibility criteria:

- Endangered — in danger of extinction because long-term survival is unlikely while the factors causing them to be endangered continue operating.
- Vulnerable — likely to become endangered while the factors causing them to become vulnerable continue operating.
- Rare — a small population in Tasmania that is at risk.

In 2008, 674 species were listed on the threatened species register. Figure 1 compares the number of threatened species between 2002–08.

Figure 1: Comparison of threatened species numbers 2002–08



* Species previously considered extinct, e.g. black bristle-rush, can be 're-discovered' and reclassified or even de-listed.

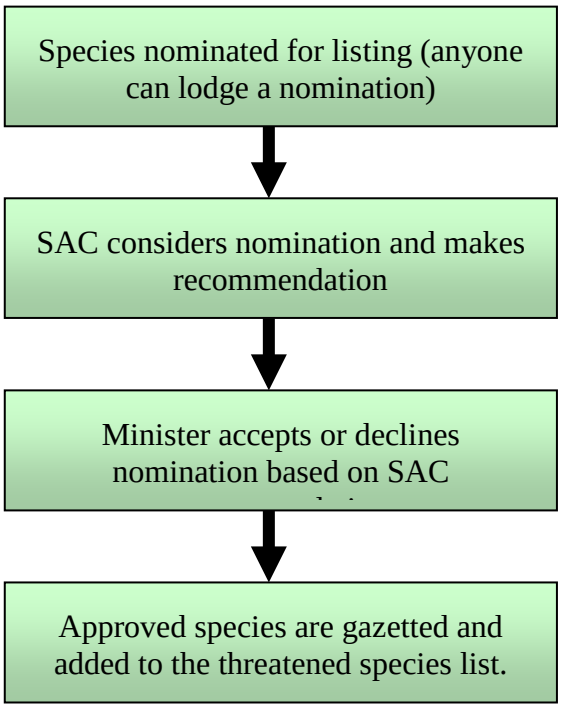
Figure 1 shows little change in the six-year period other than a small increase in total threatened species and in the endangered category in particular.

1.2.1 Listing process

The TSPA details the procedure for listing a species. Anyone, including RMC, can nominate a species for listing simply by completing and submitting a nomination form.

All nominations are considered by the SAC, an independent body set up to advise both the Minister and the Secretary on listing, de-listing and movement within the threatened species register. Decisions by the Minister are gazetted. Movement within the three categories is also assessed by the SAC, with these decisions also being gazetted. Figure 2 illustrates the nomination and listing process.

Figure 2: Summary of listing nomination process



If a species is successfully listed under the TSPA, a listing statement must then be prepared by the Secretary. Compliance with this requirement is reviewed in Section 2.2.1

1.3 Identification and listing: important habitats

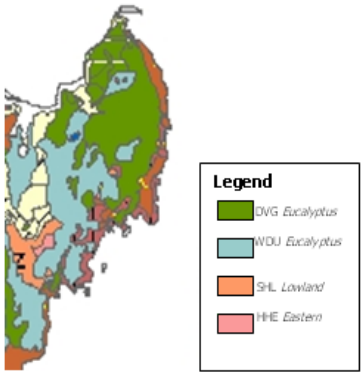
Criterion: have important habitats been identified and listed?

Although the government had adopted a broad habitat-based approach through the reservation of large tracts of Tasmanian forest, we found no complete listing of important habitats or evidence of a strategic approach based on such a listing.

On the other hand, we did find considerable information about habitats in a variety of sources, including the following:

- Listing statements and other species-based information typically contain reasonably detailed habitat information such as the distribution of a species, its important habitat locations and significant threats, such as habitat destruction or disease.

- Tasmania-wide Vegetation Mapping Program (TASVEG) is a vegetation mapping database covering the state. It includes data about more than 150 vegetation types, derived from aerial photography and supplemented by on-ground research.



- The Natural Values Atlas (NVA) is an observational database that has been developed by RMC to record both historic and contemporary observations of species. It can be used in conjunction with TASVEG to provide species information for selected habitats.
- Detailed information about forests is available from reports jointly produced by the state and the Australian governments to meet the requirements of the Regional Forest Agreement.

Recommendation 1

We recommend that a complete catalogue of important habitats be prepared and used as an element of a strategic approach to management of threatened species.

1.4 A suggested strategic approach

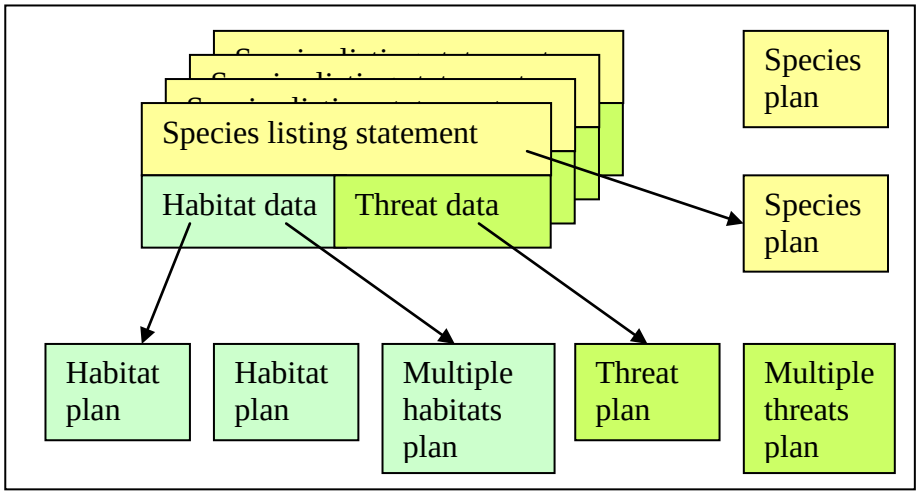
The TSPA requirement for a listing statement to be prepared for each listed species necessitates that the overall strategy should not ignore individual species. However, as discussed in Section 1.1, a simple species-based strategy would be impractical and inefficient given the 674 species currently listed as threatened.

Our suggestion is a combined approach that would include the following elements:

1. Listing of all important habitats and preparing recovery or management plans for each. It may be appropriate in some circumstances for multiple habitats to be covered by a single plan.

2. Listing of all significant threats and preparing threat abatement plans for each. It may be appropriate in some circumstances for multiple habitats to be covered by a single plan.
3. Preparation of listing statements that consist of a few brief notes about the species, but make use of cross-references to habitat and threat abatement plans rather than duplicating detailed information from those plans. The listing statements would also include prioritisation, based on factors such as the existence of a substantial threat, whether the species is endemic to Tasmania and the likelihood of arresting the decline in numbers.
4. Preparation of recovery plans for high priority species or groups of species (which would also be cross referenced to listing statements).

Figure 3: Suggested combined approach



In many respects, the suggested approach is not dissimilar to current practice in that RMC creates separate species habitat and threat reduction plans and develops listing statements for threatened species. Listing statements themselves need only be shell or brief documents with cross-references to other information as appropriate. However, we could find little evidence of a structured approach to ensure systematic coverage of threatened species, important habitats or substantial threats.

Recommendation 2

We recommend that RMC adopts a structured approach to conservation of threatened species that ensures systematic coverage of threatened species, important habitats and substantial threats.

1.5 Conclusion — identifying and listing

Six hundred and seventy four threatened species have been listed and provided with legislative protection under the TSPA. However, despite the existence of habitat data in various systems and documents, no comprehensive listing of the important habitats of threatened species has been prepared. Consequently, there were gaps in the approach to habitat management.

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2 Species strategies

2 Species strategies

2.1 Background

Listing under the TSPA provides legal protection for a species. However, that protection does not in itself guarantee survival. Accordingly, plans are needed to determine conservation actions and strategies.

In addition to strategies for a specific species, there were also strategies that contribute to the conservation of threatened species generally. These are discussed in Section 2.4. Strategies for habitats are discussed in Chapter 3.

In this Chapter we review the two main species planning documents, listing statements and recovery plans. Section 2.4 then looks at other conservation activities undertaken by RMC.

2.2 Planning: species

Criterion: have recovery actions for national priority and Tasmanian prioritised species been prepared?

In reviewing species plans, we considered any document that included recovery strategies for specific species. In the main, the relevant documents were:

- listing statements
- species recovery plans.

2.2.1 Listing statements

A listing statement is a species-specific document that: 'The Secretary must prepare … for any taxon of flora or fauna … as soon as practicable after that taxon is listed'[5]. Amongst other things, the TSPA calls for a description of the species, its conservation status, what threats it faces and what actions are needed for the purpose of managing and conserving it[6]. Listing statements are therefore an important document for encapsulating and summarising a species' characteristics and known threats. Therefore, we expected to see that a listing statement had been prepared for every listed threatened species.

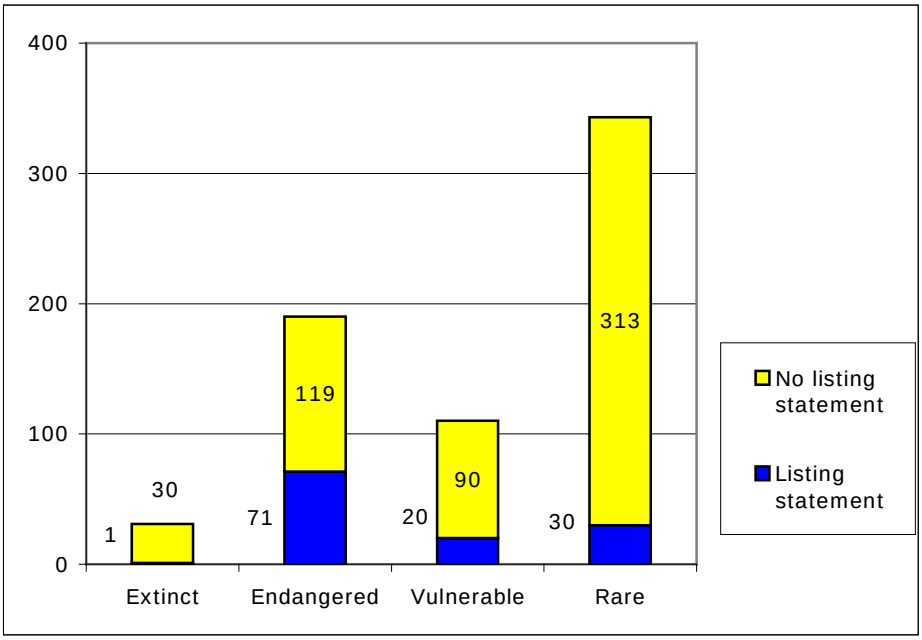
Based on our audit, the 'actions needed' section of listing statements focused more on information requirements than actions to protect and rebuild populations, except when they referred to an existing recovery plan.

[5] Section 22, *Threatened Species Protection Act 1995*.

[6] ibid.

We looked to see how many listed species had a finalised listing statement — the results are illustrated by Figure 4.

Figure 4: Listed species with or without listing statements



Of the 674 species listed, only 122 (18%) had a completed listing statement. Not surprisingly, we found the endangered species category had the highest number of listing statements prepared. RMC acknowledged the deficiency in the number of listing statements prepared and stated that it was attempting to complete a listing statement for each newly listed species. In relation to clearing the backlog of outstanding listing statements, RMC indicated that this would be unlikely before 2014 for forest-related species, with listing statements for non-forest species taking considerably longer to complete.

If RMC is to bridge the gap between the number of listed species and the completed listing statements, it will need to devote additional resources and develop innovative ways to increase the current number of completed listing statements. Our suggestion from Section 1.4 was for …

> preparation of listing statements that consist of a few brief notes about the species, but make use of cross-references to habitat and threat abatement plans rather than duplicating detailed information from those plans. The listing statements would also include prioritisation, based on factors such as the existence of a substantial threat, whether the species is endemic to Tasmania and the likelihood of arresting the decline in numbers.

Recommendation 3

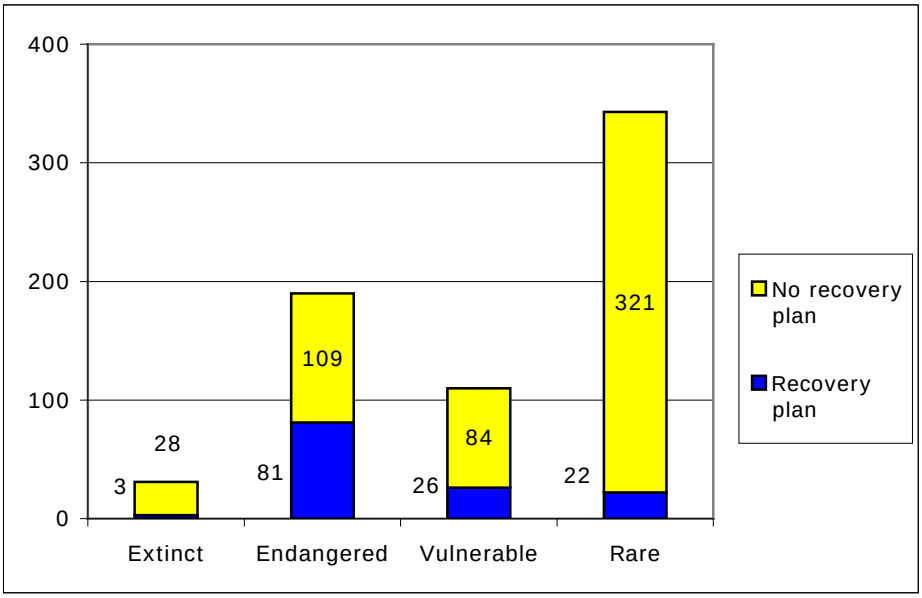
We recommend that RMC prioritises preparation of listing statements for all listed species.

We further recommend the use of listing statements that provide brief conservation advice and cross-references to other relevant documents.

2.2.2 Species recovery plans

Recovery plans are documents for species requiring long-term recovery management. Unlike a listing statement, a recovery plan is not required for every listed species[7]. Although similar in many ways to a listing statement, recovery plans are more comprehensive and therefore more expensive to produce[8].

Figure 5: Listed species recovery plans



We found that of the 674 species listed, as at mid–2008, only 132 species or 20% had a recovery plan prepared. In the absence of a legislative requirement to prepare recovery plans, we had no basis to conclude as to whether 20% represented a satisfactory performance.

However, examination of a sample of 24 recovery plans revealed that their initial preparation had been funded by the Australian

[7] Section 25,*Threatened Species Protection Act 1995*, The Secretary may with the Minister's approval, make a recovery plan for any listed taxon of flora or fauna.

[8] In March 2007, the Australian National Audit Office reported that single species recovery plans can cost between $5000–$65 000, whilst a wide-ranging multiple species recovery plan can cost up to $200 000. *The Conservation and Protection of National Threatened Species and Ecological Communities,* Australian National Audit Office, p.98.

Government. In any event, it also appeared that there was a risk that the choice of species to be allocated a recovery plan was being made by the Australian Government, and may not therefore reflect Tasmanian priorities.

In recent years, we noted that a number of draft recovery plans for multiple species had been developed, including:

- all threatened Tasmanian ferns
- the Greater Freycinet region
- threatened cave fauna in Southern Tasmania.

Recommendation 4

We recommend that RMC prepare a prioritised list of threatened species needing a recovery plan, and prepare plans for the highest priority species.

2.3 Implementation: species recovery plans

Criterion: have appropriate recovery mechanisms been put in place for each important habitat type?

An important part of recovery plans are the recovery actions. These actions are very detailed and designed to be implemented over the life of the plan. Typically, recovery actions include most of the following points:

- assessment of the habitat
- population and habitat management
- community education and involvement programs
- management of threats.

Because recovery plans are documented to be an action plan for species recovery, we took a sample of recovery plans to assess how well they were implemented. Table 1 summarises our findings:

Table 1: Adequacy of recovery plan implementation

Common name of species	Recovery plan period	No. of recovery actions	Degree of implementation[9]
Burrowing crayfish	2001–05	8	31%
Orange-bellied parrot	1998–02	6	83%
Pedra branca skink	2001–05	5	60%
Shy Susan	2001–05	5	60%
Spotted handfish	1999–01	6	92%
Swift parrot	2001–05	6	58%

Of the six recovery plans examined, all but one (burrowing crayfish) had seen at least 50% of recovery actions implemented. Recovery plans for the orange-bellied parrot and the spotted handfish showed implementation rates in excess of 80%.

Another result from the above testing was that, apart from the review of the orange-bellied parrot, all of the selected recovery plans did not appear to have been reviewed prior to our request. Our view is that given the expense of developing and implementing recovery plans it is important to review the success of the plan — as with any project of significant size.

Recommendation 5

We recommend that an implementation review be undertaken of each recovery plan once the review date for the recovery plan has been reached.

2.4 Other conservation activities: provision of advice

One of the RMC's most important activities is the provision of advice in respect to the issuing of permits and other matters with respect to legislation, including but not limited to:

- *Land Use Planning and Approvals Act 1993*
- *Forest Practices Act 1985*
- *Threatened Species Protection Act 1995*

[9] Degree of implementation was total number of recovery actions divided by those actions either implemented (1 point) or partially implemented (0.5 point). No points were allocated to those actions where the information was unclear or showed an action as not implemented.

- *Mineral Resources Development Act 1995*
- *Nature Conservation Act 2002*
- *Environmental Management and Pollution Control Act 1994*
- *Water Management Act 1999*
- *Crown Lands Act 1976.*

The importance of this function is that it enables RMC to ensure that conservation values are considered in respect of any major project that could impact on the environment.

The process of providing advice is currently very time consuming because of information gaps and the lack of effective tools to access existing information. In particular, RMC highlighted the need to:

- bring listing statements up to date
- develop an advisory tool to use the listing information to assess conservation values of an area and to assist with determining actions, strategies and management requirements for that area.

Currently, RMC has the use of an advisory tool, but it is limited to threatened fauna in forest habitats. Unfortunately, RMC has found it difficult to make time for completion of listing statements and development of an advisory tool largely because provision of advice in the absence of those facilities is extremely time consuming.

We also noted that local government is responsible for approvals of some planning developments. While some councils routinely seek conservation advice from RMC, many do not. Our view is that there is a need to raise the profile of RMC, possibly by conducting information sessions and by offering assistance and advice.

Recommendation 6

We recommend RMC seek or redeploy resources to enable timely completion of listing statements and advisory tools in order to make the giving of advice a more efficient process.

Recommendation 7

We recommend RMC liaises with local government to ensure all threatened species receive appropriate protection.

2.5 Conclusion — species strategies

Only 18% of 674 listed species had a completed listing statement as required by the TSPA. There was evidence that the backlog was unlikely to be resolved with current resources in the foreseeable future. Also, information gaps were contributing to difficulties in RMC's role in providing conservation advice in respect of planning and development matters.

Further, only 20% of threatened species had a recovery plan. Whilst recovery plans are not a legislative requirement and are expensive to produce, the lack of both listing statements and recovery plans for the majority of threatened species was a concern.

Where recovery plans existed, there was evidence of a reasonable level of implementation of recommended actions in a majority of cases. However, RMC rarely assessed the effectiveness of recovery plans after their review date.

3 Habitat strategies

3 Habitat strategies

3.1 Background

RMC advised that with 674 threatened species, many facing common threats, it was more practical and efficient to adopt a habitat-based approach. In our view, a habitat-based strategy required a catalogue of important habitats to be clearly identified. In that way, a catalogue could be used to provide a systematic basis for planning conservation strategies and actions and later be used to monitor the success of that work.

In Section 3.2 we evaluate the extent to which planning has been performed for individual habitats. We then discuss a number of strategies for the preservation of large areas of Tasmania, including:

- reservation of national parks or conservation areas under legislation
- declaration of state forests
- proclamation of marine reserves
- actions required under TSPA land management and public authority management plans
- covenants over private land.

Our audit scope included only public and private land management agreements together with private conservation covenants, which are discussed in sub sections 3.3.1 and 3.3.2.

3.2 Plans for important habitat areas

Criterion: have management plans been prepared for important habitat areas?

We noted the following planning documentation relevant to habitat:

- management plans for reserves developed as part of the current comprehensive adequate and representative approach
- habitat details and plans in listing statements and recovery plans for individual and groups of species, e.g. snails
- recovery plans for groups of species within a habitat including wetlands, grasslands, dry forest, cave systems
- recovery plans within a locality such as King Island and Freycinet.

However, as noted in Chapter 1, there was no overall listing of important habitats to form a basis for strategic planning of

conservation activities. Consequently, recovery or management plans that explicitly targeted individual important habitats did not exist.

Recommendation 8

We recommend that, following identification of important habitats, plans be developed to provide coverage of important habitats not included in existing documentation.

3.3 Other conservation activities: preserving habitat

Criterion: has there been adequate control over vegetation clearance to ensure intactness of important habitats?

Clearance of habitat has long been recognised as one of the most serious threats to wildlife, not only in Australia but also globally. All governments in Australia, national and state, have agreed to tackle land clearance. In controlling destruction of habitat, government needs to know the extent of the problem before putting in strategies to control it.

Habitat can be preserved in a number of ways including involvement of private landowners, which is important as about one third of Tasmania's total land area of approximately 6.8 million hectares is privately owned. The remaining two thirds is split between formal reserves and public land.

Currently, there are a number of protection mechanisms for different types of habitat, including:

- additions to the Tasmanian Reserve Estate, which is comprised of areas of land and water in formal, informal and private reserves. The Reserve Estate indicates a total reserved area of 3.2 million hectares, including:
  - A land reserved area of 3 million hectares, or over 44% of the area of Tasmania. This area includes almost 45 000 hectares under conservation covenants on private property, under the *Nature Conservation Act 2002*.
  - The proclamation of marine reserves — 123 000 hectares, with almost 75 000 hectares alone belonging to the Macquarie Island marine protected area.
- actions required under TSPA land management and public authority management plans
- management prescriptions in Forest Practices Plans and other forms of development approvals.

3.3.1 Land management plans and public authority management plans

Criterion: have conservation agreements with public authorities been successfully implemented to protect threatened species?

Land management plans

Although designed to provide a mechanism for reaching agreement with private land owners to preserve private land for the benefit of threatened species, not one land management plan had been developed or implemented. Instead, the preferred mechanism to preserve private land is through the private land conservation program, see Section 3.3.2.

Public authority management agreements

Whilst the use of land management plans has not eventuated there has been some limited success in using public authority management agreements (PAMAs). These agreements were introduced by the TSPA in 1995 with the intention of allowing public sector entities the capability of entering into agreements with the responsible Secretary (currently DPIW).

RMC advised that it supported PAMAs because they allowed a strategic approach to managing species and habitats. However, as at December 2008 only two PAMAs have been completed in the intervening 13 years, these being:

- Aurora Energy Pty Ltd — agreement signed in June 2008 with the purpose of providing information on threatened fauna coming into contact with power infrastructure. Aurora Energy will also attempt to develop strategies to reduce the number of bird collisions with infrastructure.
- Forestry Tasmania — established as an umbrella agreement in 2003 with a number of subsidiary agreements to be developed progressively. So far two subsidiary agreements have been developed covering eucalyptus radiata (Forth River peppermint) and the Simson's stag beetle.

We were able to confirm for the rare species of eucalyptus that Forestry Tasmania has been providing RMC with regular annual reports on harvesting details occurring within coupes contained within the management agreement. The new PAMA with Aurora Energy requires it to now report to RMC all relevant bird collisions with its infrastructure. Aurora Energy has agreed to research and

develop, where practicable, best practice measures intended to reduce the number of collisions.

We support the use of PAMAs and suggest their use could be expanded to include local government councils.

Recommendation 9

We recommend RMC actively pursue the greater use of PAMAs with public sector entities such as local government councils.

3.3.2 Conservation agreements on private land

Criterion: have conservation agreements with private landowners been successfully implemented to protect threatened species?

The *Nature Conservation Act 2002* allows for the establishment of private land conservation areas that are protected by covenants between landowners and the government. The purpose of these covenants is mainly to protect identified natural values including threatened flora and habitat of threatened wildlife. The use of private land covenants is preferred over private land management plans because covenants are more enduring and remain in place even after a change in property ownership.

At the time of the audit there were a number of private land conservation programs in place, which could be grouped as forest or non-forest programs.

Forest covenant programs

The Private Forest Reserve Program was established in 1997 as part of the Regional Forest Agreement because a comprehensive, adequate and representative reserve system could not be achieved solely through the reservation of public land. By September 2007, a total of 246 private properties representing 38 000 hectares of reserve land had been secured[10]. The Private Forest Reserve Program has now been wound-up and replaced by the Australian Government's Forest Conservation Fund.

The Forest Conservation Fund is wholly funded and managed by the Australian Government, as part of the 2005 Tasmanian Community Forest Agreement in which the Tasmanian Government is a partner. As a result, the state government has specific responsibility for executing and registering conservation covenants, providing ongoing monitoring and managing support for participating landowners.

[10] Gilligan, B. and Syneca Consulting Pty Ltd, *Review and Evaluation of the Tasmanian Private Forests Reserves Program*, 2007.

We noted that a 2007 report had found high conservation value in the Private Forest Reserve Program PFRP (now Forest Conservation Fund). [11]

Non-forest covenant programs

A number of non-forest private land conservation programs are run and controlled by the state government, but largely funded by the Australian Government. Before a property is accepted for a covenant it must satisfy a number of principles, including:

- The covenant should protect natural values that are not significantly degraded and are considered likely to be viable in the long-term.
- The proposed area must be of an adequate size (generally a ten hectares minimum) but smaller areas will be considered based on conservation values.
- The proposed covenant must make a useful contribution to the protection of priority natural values.

Assessment of each property is carried out by way of field visits and the satisfaction of a number of criteria, including consideration of the presence and diversity of threatened species present.

We found these programs to be numerically effective with over 7000 hectares spread over 150 properties covered by covenants. We tested a sample of property assessments and found that the above criteria had been consistently applied.

We expected to see active targeting of species under-represented in existing reserves. In 2005, RMC, in consultation with stakeholders developed a specific strategy of targeting landowners with priority non-forest vegetation types, including:

- lowland native grasslands
- wetlands
- coastal complex vegetation that included heath, wetlands, salt marsh and coastal grasslands
- native vegetation on Flinders Island.

To reach potentially interested landowners with the above types of non-forest vegetation, RMC contacted landowners directly, held a number of field based events, ran advertisements in rural publications and participated in rurally focused media programs. In some cases, financial incentives were available to participating landowners. In early 2008, RMC reported in one of its external

[11] ibid.

newsletters that 15 conservation covenants had been completed with landowners — protecting 924 hectares of native grasslands — with another 29 covenants still in negotiation[12].

3.4 Conclusion — habitat strategies

At a general level, there was evidence that the habitat-based approach has been successful with protection of large areas of Tasmania including national parks, state forests, marine reserves and privately owned land. There was evidence that private forest covenants in particular had been numerically effective.

While public authority management agreements provided an effective mechanism to allow public sector entities to commit to arrangements for management of species and habitats, in 13 years only two such agreements had been made relating to a very small number of species.

At a species level, there was no structured approach to cataloguing important habitats and planning for their management or recovery. Consequently, despite protection of large areas of Tasmania, it was not possible to conclude as to the adequacy of protection of all important habitats.

[12] Department of Primary Industries and Water, 'Native grasslands — worth conserving', *The Running Postman*, February 2008, p.9.

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4 Threat abatement

4 Threat abatement

4.1 Background

TSPA defines a threatening process as '… any action which poses a threat to the natural survival of any native taxon of flora or fauna'[13]. There are a number of broad threatening processes that can impact native species, e.g. climate change, habitat destruction and loss of bio-diversity. In this Chapter, we have selected three major threatening processes under the categories of:

- pests
- weeds
- diseases.

Because RMC is the lead division within DPIW managing threatened species, we have concentrated on RMC's responsibilities and actions in dealing with these threats.

4.2 Pests

Criterion: has there been adequate implementation of pest control measures?

4.2.1 Background

In the present context of threatening processes, a pest is a species that poses a threat to the survival of any endemic species. Research indicates that there were 44 introduced vertebrate species (including birds, mammals and fresh water fish) and 350 species of invertebrate animals present in Tasmania.

4.2.2 Identification and planning

In 2007, a draft *Introduced Animal Management Strategy for the Tasmanian Wilderness World Heritage Area* was developed that examined the impact or potential impact of introduced species in the 1.38 million hectare Tasmanian Wilderness World Heritage Area (TWWHA) [14]. Whilst the strategy had not been extended to the rest of the state it still covers approximately a fifth of Tasmania.

The strategy includes a list of 72 introduced species, with risk assessments, potential impacts and locality. We found that recommended actions had been included in the strategy document for all of the 12 introduced species that were considered to pose an extreme or high risk. Effectively, this strategy represented a

[13] Section 3, *Threatened Species Protection Act 1995.*
[14] Mallick, S. and Driessen, M. *Introduced Animal Management Strategy for the Tasmanian Wilderness World Heritage Area,* p.35.

simplified set of threat abatement plans for pests in the TWWHA. Even though the strategy was not written specifically to focus on threatened species, it provided a tool that identified threats to threatened species.

Recommendation 10

We recommend that a strategy for introduced pest species be developed for the whole state.

4.2.3 Implementation of control measures

We selected a judgement sample of six pests and looked to see how RMC was dealing with their impact on threatened species.

Brown trout

Brown trout were introduced to inland waterways and lakes to encourage recreational fishing. They prey on smaller endemic galaxiid fish species, which inhabit many of Tasmania's fresh water streams and lakes.

The Inland Fisheries Service has primary responsibility for managing brown trout and was implementing a recovery plan for five species of galaxiids currently listed as threatened. Although RMC was mentioned in the strategy as having joint responsibility for control measures in the TWWHA, it had not co-ordinated or monitored the actions of Inland Fisheries Service.

The European red fox

If the European red fox becomes established in Tasmania, the resulting impact on native wildlife — and agriculture — would be according to experts catastrophic. RMC have assessed the impact of foxes on 24 native species as being either high or extreme. While, clear irrefutable evidence that foxes have become established is still disputed by some, RMC advised us that there was clear evidence of the presence of foxes.

In 2007, the state government allocated $2.53 million per year over ten years to eradicate foxes. RMC also secured additional funding from the Australian Government, matching the State's contribution for the two financial years to 30 June 2009. The use of baiting (especially new toxins) is seen as the most effective way to eradicate the fox threat, but other methods including the use of cages were also being considered.

New Zealand screw shells

The New Zealand screw shell is a filter feeding mollusc that breeds prolifically and is likely to have an adverse impact on native molluscs such as scallops and native screw shells.

New Zealand screw shells were first introduced into Tasmanian waters around 80 years ago. Following observation of a small number of specimens in the Port Davey area in 2003, RMC has been involved in organising funding for control activities. Follow-up surveys were conducted between 2003 and 2007, with results showing low numbers or no screw shells being detected. A further survey was planned for late 2009.

Feral cats (on offshore islands)

In the past, when feral cat numbers were around 500, they were killing up to 60 000 seabirds on Macquarie Island. However, the Tasmanian Government ran a successful Australian Government-funded feral cat removal program between 1997 and 2001[15].

On King Island, where orange-bellied parrots are present, RMC has been involved in:

- a de-sexing program for domestic cats
- strategic trapping of feral cats
- development of a strategic plan for the control of cats.

Northern Pacific seastars

The northern Pacific seastar was initially introduced into the Tasmanian marine environment via contaminated ballast water from ships. The seastar is a voracious predator that has impacted detrimentally on a number of native marine species, including the spotted handfish.

To date, RMC had not directly taken any action with regard to this pest in the TWWHA but as an agency DPIW has worked co-operatively with other states to contain this pest. Under the *Living Marine Resources Management Act 1995* a permit is now required to collect and possess any northern Pacific seastars.

European wasps

The European wasp, which was introduced in the 1950's, is an aggressive predator and is known to feed on the Ptunarra brown butterfly. The above mentioned TWWHA strategy document recommended actions for RMC to investigate impacts of European wasps on

[15] Mallick, S. and Driessen, M., *Draft Introduced Animal Strategy for the Tasmanian Wilderness World Heritage Area*, 2007, p.24.

- Ptunarra brown butterfly
- other native fauna and flora.

Although both a listing statement and a recovery plan have been prepared for the Ptunarra brown butterfly, there was no evidence of substantial implementation of either of the recommended actions.

However, RMC has indicated that impact assessment experiments and methods of impact on Ptunarra brown butterfly populations have begun in the North West of the state.

Summary — pests

From our testing of implementation of measures to reduce the impact of known pests, there was clear evidence of action being taken in respect of foxes, feral cats and New Zealand screw shells. Whilst DPIW as an agency has been active with regard to brown trout and northern Pacific seastars RMC's role has been limited to dealing with these pests in the TWWHA, where little has happened. Action has now commenced to reduce the impact of European wasps on native fauna and flora.

Recommendation 11

We recommend that RMC works to implement strategies developed to manage identified introduced pest species.

4.3 Weeds

Criterion: has there been adequate implementation of weed control measures?

4.3.1 Background

In the present context a weed is defined as a plant species that is non-native to the ecosystem under consideration and its introduction is likely to cause environmental, social or economic harm. Weeds can result in the loss of conservation values and potentially threaten endemic species when native bushland is invaded. They can also have an economic and social impact. The Tasmanian Government has estimated that more than $33 million is either spent on weed control activities or lost primary production per year[16]

Introduced plants that are considered to be a threat can be declared a weed under the *Weed Management Act 1999*. A register is maintained by RMC and species are listed on RMC's website. Of an estimated 800 introduced plant species, 111 have been declared to

[16] Tasmanian Government, *Weedplan*, 2005.

be weeds as at 30 June 2008 and were listed on the schedules forming part of the *Weed Management Act 1999*.

4.3.2 Planning

The *Weed Management Act 1999* requires development of weed management plans for declared weeds. Development of weed management plans form part of the required process to formally declare a plant a weed. A draft plan has to be drawn up within 12 months of declaration and it should address:

- distribution
- measures required to reduce the number and geographical spread
- notification procedures
- measures to prevent entry into Tasmania.

We found that weed management plans had been developed and included on the RMC website for all declared weeds occurring in Tasmania. Whilst a weed plan outlined control activities, as above, these activities focused on the legal responsibilities that apply to individual land owners rather than weed management action plans requiring pro-active implementation by DPIW. This reflected the focus of the *Weed Management Act 1999.*

4.3.3 Other conservation activities

The strategic approach to management of weeds is defined by *Weedplan*, a weed management strategy developed in 1996 (revised 2005) by the Tasmanian Weed Management Working Group, comprising representatives from a wide range of stakeholders.

Weedplan defines management of individual declared weeds to be the primary responsibility of land holders and land managers. The RMC's 2007–08 plan and other internal documents reflected this view and defined the role of RMC as supporting co-operative weed management programs, including:

- enforcement activities by weed inspectors
- co-ordination with Quarantine Tasmania to ensure no new weeds enter Tasmania
- provision of technical support to regional NRM groups and others
- management and coordination.

Weed control measures range from the removal of single weeds by hand pulling, through to the application of herbicides to large areas

of crops, or the implementation of vegetation management and rehabilitation plans for a national park or river system.

Enforcement

The *Weed Management Act 1999* gives weed inspectors enforcement powers. Weed inspectors are appointed within RMC but are also present within PWS, Forestry Tasmania and 19 local councils. Usually, when an inspector contacts a landowner about a weed problem the landowner will comply with any directions given by the inspectors. Occasionally, a formal requirement notice will have to be subsequently issued due to non-compliance.

Co-ordination with Quarantine Tasmania

Quarantine Tasmania has an important role in helping to prevent additional outside weeds and other prohibited plants being brought into the state. RMC interacts with Quarantine Tasmania through:

- joint membership of working groups established to protect Tasmania's bio-security
- provision of training by RMC
- referral by Quarantine Tasmania of suspicious plant matter to RMC for identification
- participation in the development or review of biosecurity policy.

Supporting NRMs

RMC has an informal involvement with a number of organisations such as the NRMs. These informal links were quite strong with each of the three regional weed management officers having a close association with their respective NRMs. Also, weed management officers are closely associated with regional and catchment planning processes that the NRMs and other organisations are involved with. We noted in the Land Conservation branch's 2007–08 business plan that assistance was to be given to the regional NRMs in implementing regional weed management strategies.

Weed management and coordination

The legislation and *Weedplan* place responsibility on landowners to detect and manage declared weeds on their properties. Therefore, RMC weed management officers do not perform substantial on-ground control activities, instead providing a support role to landowners and other interested organisations. Although weed management officers perform on-ground enforcement activities

(requests for landowners to take action, 270–500 annually), enforcement is not their primary responsibility.

Weed management officers were noted as being pro-active in running training programs for officers appointed as authorised weed inspectors in other areas of the department and in local government.

Legislation requires the development of weed management plans but they were only ever intended to provide guidance for landowners affected by a particular weed. They were not intended to be considered as action plans and RMC has no responsibility to assess or measure the effectiveness of these plans.

Weedplan outlines the need for strategies and mechanisms for cooperation and coordination of weed management at local, regional, state and national levels. We noted that DPIW and NRMs worked closely together to deliver regional and state weed management outcomes.

4.4 Diseases

Criterion: has there been adequate implementation of disease control measures?

4.4.1 Background

Diseases cause enormous damage to livestock and crops, a problem all too familiar to farmers. Native species of flora and fauna can also be greatly impacted by disease. At present, the most notable disease to affect wildlife is the debilitating DFTD, which has resulted in the once widespread Tasmanian devil being placed on the threatened species list. The Tasmanian devil was also placed on the International Union for the Conservation of Nature and Natural Resources' 'Red List' in 2008, indicating international recognition of DFTD's impact on the species. Whilst significant resources (See Section 4.4.3) have been directed towards saving the Tasmanian devil there are other diseases just as deadly as the DFTD affecting scores of other less prominent plant and animal species such as amphibian chytridiomycosis — frogs — and phytophthora cinnamomi — plants.

4.4.2 Identification and planning

In 2008 RMC prepared, *Strategy for managing wildlife disease in Tasmanian Wilderness World Heritage Area.* To date, that strategy has not been extended to the rest of the state[17].

[17] Philips A. and Driessen M., *Strategy for managing wildlife disease in Tasmanian Wilderness World Heritage Area*, 2008.

The strategy included a list of 19 diseases that posed a threat to native wildlife, complete with risk assessments, potential impacts and localities. Three of the categorised diseases were assessed as posing either an extreme or high risk to wildlife. Effectively, this strategy represented a simplified set of threat abatement plans for wildlife diseases in the TWWHA. Implementation of the above strategy would help ensure that a consistent approach was adopted for addressing diseases that endanger threatened species.

Recommendation 12

We recommend that a strategy for addressing diseases affecting threatened species be developed for the whole state.

4.4.3 Implementation of control measures

We selected a judgement sample of four diseases (three affecting wildlife and one affecting plants) and reviewed how DPIW was dealing with their impact on threatened species.

Unlike the approach developed by RMC for pests, each individual disease does not have its own individual strategy, although some high-profile diseases such as the DFTD do have a separate Tasmanian or national plan. Other diseases are managed by a single plan with generic actions, such as identification, prevention, education and communication. The TWWHA wildlife disease strategy previously mentioned has received $428 000 from the Australian Government through NRM North.

Devil facial tumour disease

The DFTD was first detected in the north east of Tasmania in the mid-1990s when Tasmanian devils were first noticed as having gross lesions around their mouths, heads and necks. The scientific consensus was that the DFTD is a transmissible cancer. Death by starvation and breakdown of bodily functions appears to occur in every case, usually within a year. By 2007 the disease had spread to 59% of Tasmania and caused populations to decline in affected areas by up to 89%[18]. Experts believe that if left unchecked the disease could result in the extinction of the species in the wild within 25 years.

Because of the iconic nature of the Tasmanian devil itself, and the seriousness of the threat, the program receives more funding and

[18] McCallum, H., Tompkins, D.M., Jones, M., Lachish, S., Marvanek, S., Lazenby, B., Hocking, G., Wiersma, J., Hawkins, C.E., Distribution and impacts of the Tasmanian Devil Facial Tumour Disease. *Ecohealth* Vol. 4 No. 3 2007: pp318–325.

resources than any other threatening disease. Funding to date has included:

- state government funding of $13.5 million over the next five years from 2008–09
- $10 million funding over five years from the Australian Government
- substantial funds raised through the public Tasmanian Devil Appeal.

RMC has developed *Save the Tasmanian Devil*, a strategic plan intended to implement measures to combat the effects of the DFTD. Actions include:

- monitoring wild populations
- diagnostic investigation into the disease
- a captive Tasmanian devil management strategy
- a management strategy for wild populations.

Funding for research and implementation of the strategic plan was satisfactory and involved a number of Australian universities.

We noted a number of implementation actions including capture of young animals from disease-free areas, scientific investigations at various universities and substantial monitoring activity. Much of the implementation has been by collaboration with other entities such as universities, wildlife park operators and CSIRO.

Figure 6: Spread of DFTD across Tasmania

Map courtesy of DPIW.

Figure 6 shows that much of the western part of Tasmania remains DFTD-free at present. This supports RMC's strategy of relocating disease-free Tasmanian devils for captive breeding purposes and also its strategy of managing those areas that are still disease free.

Amphibian chytridiomycosis

Amphibian chytridiomycosis (chytrid fungus) is a disease that affects the skin of frogs. The establishment of chytrid fungus has resulted in the decline and extinction of frog species around the world. The TWWHA strategy rated the threat posed by this disease on frogs as extreme. At the time of this audit, RMC indicated that the evidence was unclear as to whether the decline in two species, green and gold frogs and striped marsh frogs, was the result of chytrid infection or habitat loss.

During 2008 funding was secured from the Australian Government (part of the $428 000 previously mentioned) to conduct laboratory and field testing on the effect of the fungus on the two frog species. Work has also commenced on developing methods to survey all selected frog species. The University of Tasmania and James Cook University have been actively researching and assisting RMC, which included a number of disinfectant trials. Educational brochures have also been developed to help restrict the spread of the chytrid fungus. Further measures to reduce or contain the threat of chytrid fungus are contained within the Australian Government's threat abatement plan on *Infection of amphibians with chytrid fungus resulting in chytridiomycosis.*

Psittacine circoviral disease

Psittacine circoviral (beak and feather) disease is a threat to parrot species. It causes infected birds to shed protective feathers and distorts beak growth, which may impact on an infected bird's ability to feed properly. The Australian Government recognised beak and feather disease as a serious threat in 2005 by preparing a threat abatement plan in an attempt to deal with it. As a viral disease, it cannot be treated with antibiotics and while some birds can recover, others will perish.

Psittacine circoviral disease threatens the orange-bellied and swift parrots and has been assessed in the *Strategy for managing wildlife disease in Tasmanian Wilderness World Heritage Area* as having a potentially high risk of impacting on the orange-bellied parrot population in the TWWHA. We were advised by RMC that current management strategies for the disease were largely concentrated on recovery actions for the orange bellied-parrot, including:

- captive breeding programs in Tasmania, Victoria, and South Australia
- monitoring programs at two sites within the TWWHA
- development of a vaccine.

We confirmed that the above actions were being implemented, with the assistance of funding by the Australian Government. In addition, genetic research was being conducted on behalf of RMC at La Trobe University with research also taking place at Murdoch University.

Although there are greater numbers of the swift parrot than the orange-bellied parrot (around 5000 compared to 300), RMC indicated that there was no monitoring or research currently being carried out on the impact of beak and feather disease on the swift parrot.

Phytophthora cinnamomi — native plant species

Phytophthora cinnamomi (phytophthora) is a soil-and water-borne fungus, which causes root rot in infected plants, consuming plant tissue as food. There are 109 plant species in Tasmania identified as being susceptible to phytophthora, 36 of which are listed under the TSPA. Phytophthora can be spread by groundwater, human activity, animals and birds.

In 2003, RMC in conjunction with the Australian Government developed a strategic regional threat abatement plan for Tasmania. The aims of the plan were to promote the recovery of nationally listed threatened species and limit the spread of phytophthora. Phytophthora also affects a large number of native plant species in Western Australia. Accordingly, RMC has participated in joint phytophthora research projects with Murdoch University. RMC also works with the Tasmanian Museum and Art Gallery, which has collected large numbers of threatened plant species seeds as part of the international Kew *Millennium Seed Bank* project.

RMC is not responsible for monitoring all on-ground management of phytophthora in Tasmania but along with Forestry Tasmania it maintains the State's database on it. As the principal advisor to PWS, RMC has a good knowledge of phytophthora on reserved land and liaises with Forestry Tasmania in managing the disease. RMC has direct input into phytophthora management where development applications have been subject to a conservation assessment. However, RMC's knowledge of phytophthora's distribution and management on private land was limited to areas where a private

land conservation agreement has been undertaken — refer Section 3.3.2.

Summary — diseases

For the four diseases examined above, RMC was actively involved in developing and implementing strategies. In particular, DFTD was receiving significant attention and funding. However, we noted that actions designed to limit the impact of beak and feather disease were restricted to the orange-bellied parrot but excluded the more numerous but still threatened swift parrot.

Recommendation 13

We recommend that DPIW works to implement strategies developed to manage identified diseases.

4.5 Conclusion — threat abatement

Threat abatement planning for pests and diseases had been completed for the TWWHA but had not yet been extended to the rest of Tasmania.

Twelve of 72 identified pests had been categorised as posing a high or extreme risk to wildlife. Implementation of the recommended actions has been inconsistent with significant action being taken in respect of some pests but little or no action for others.

Similarly, three of 19 diseases had been categorised as posing a high or extreme risk to wildlife. RMC was actively involved in developing and implementing strategies to manage the threat posed by the identified diseases. In particular, DFTD was receiving significant attention and funding.

In respect of weeds, RMC had registered 111 weeds and prepared and published weed management plans for all declared weeds occurring in Tasmania. We found that RMC had been involved in weed management programs and was fulfilling its roles of enforcement, co-ordination and provision of technical support.

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5 Monitoring

5 Monitoring

5.1 Background

Monitoring is an important part of any management strategy. In the case of threatened species, it enables detection of changes to a species' status and allows for assessment of the effectiveness of management and recovery actions. Methods used to monitor species' numbers include counts of individuals for flora or fauna. In the case of fauna, other techniques involve counts based on road kill or scats.

With 674 threatened species, the task is too great to monitor every species to the extent necessary to detect significant changes in population. Accordingly, priorities need to be determined.

Individual observational data was not held for plant species, but TASVEG allowed for statewide tracking of major vegetation types mainly using aerial photography.

5.2 Monitoring of species numbers

Criterion: has there been adequate monitoring of numbers of threatened species?

5.2.1 Current state of monitoring

In 2008, RMC released a document entitled *Review of Wildlife Monitoring Priorities*, which explained that traditionally Tasmania had been more focused on species subject to harvesting (e.g. duck hunting) than with monitoring of threatened species that only became established over the last 20–25 years. The review found that only 28 of the 177 then threatened wildlife species were monitored. We agreed with its conclusions that the current monitoring program was ad-hoc and lacked clear guidelines as to which species should be monitored.

Until the 2008 report, there had been no prioritisation of which species should be monitored. At the time of the audit, RMC was implementing a new system that used a decision key to rank wildlife importance using criteria, which included:

- listing status
- evidence of declining numbers
- existence of a substantial threat
- whether the species was endemic to Tasmania.

Based on that ranking, Figure 7 details the current level of monitoring for threatened wildlife species with a priority rating of either: One, Two or Three.

Figure 7: Monitoring of threatened wildlife species

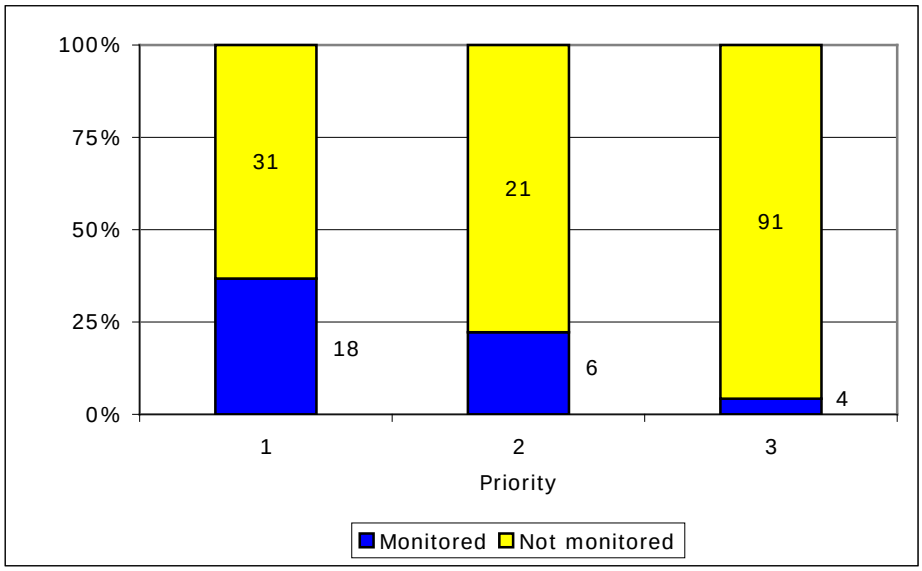

Figure 7 shows that only 18 out of 49 high priority (or Priority One) species are currently being monitored. Ninety percent of threatened species with a Priority One — the most critical rating — were listed as endangered.

Recommendation 14

We recommend that RMC implements a system to ensure monitoring of threatened species. The level of monitoring should be based on a species priority rating and the availability of resources.

Recommendation 15

We recommend that monitoring should also be considered for important species that are not listed but are at risk.

5.2.2 Monitoring by other organisations

We found that RMC was achieving a greater level of monitoring, than would have otherwise occurred by leveraging off the work of outside research bodies including:

- CSIRO — spotted handfish
- Forest Practices Authority and Department of Infrastructure, Energy and Resources — Simson's stag beetle and Scottsdale burrowing Crayfish
- Gunns Ltd and Hydro Tasmania — Ptunarra brown butterfly

- Inland Fisheries Service — threatened galaxiids.

5.2.3 Individual monitoring programs

We reviewed individual RMC programs for five threatened and one potentially threatened species.

Humpback whales

Monitoring of humpback whales via boat and aerial surveys dates back 25 years with sightings in recent years having significantly increased. Also, as part of the monitoring activities, individual identification and biopsy sampling activities are carried out. Funding for the monitoring program comes largely from external sources. The program has delivered good uninterrupted sighting data since its inception.

Fairy prion

On Macquarie Island, PWS performs burrow checks during the breeding season, funded by the Australian Government. The monitoring also assists in determining the effectiveness of the eradication program for rabbits and rodents on the island.

Southern elephant seal

In conjunction with PWS, RMC undertakes annual headcounts of female elephant seals on Macquarie Island. The actual counts are undertaken by PWS with volunteer support from expeditioners. There is no specific funding to support this program — instead it is incorporated into the PWS staff work plan.

Tasmanian devil

Monitoring of Tasmanian devils goes back to the mid-1980s when spotlight surveys first began. This data was supplemented through trapping, conducted at several sites around the state. Data obtained from monitoring activities was fed into the NVA. Additional information was also collected from veterinarians who treat wildlife, providing RMC with valuable native wildlife information — not just relating to Tasmanian devils.

Figure 8 details the average number of mean sightings of Tasmanian devils over a thirteen-year period between 1993–06.

Figure 8: Average number of mean sightings of Tasmanian devils

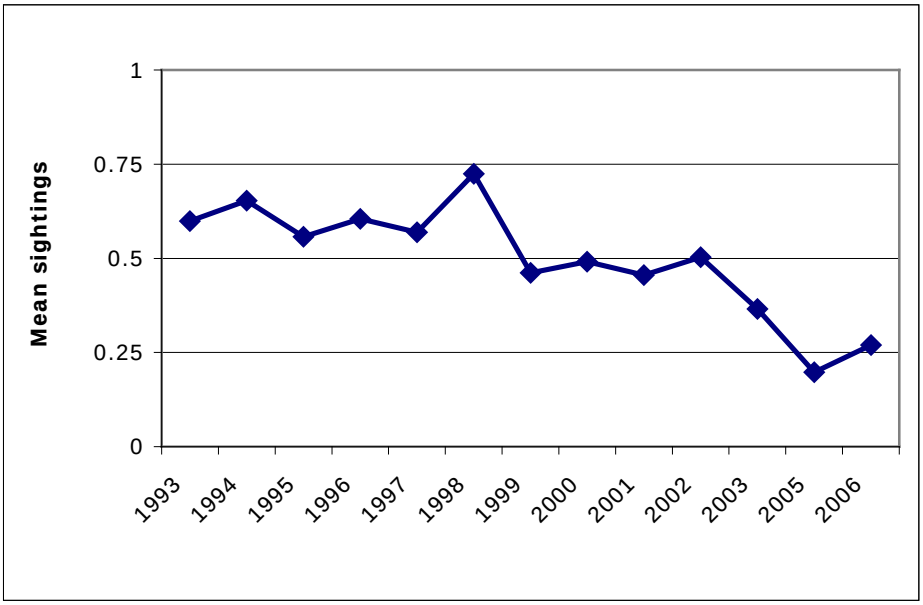

Figure 8 shows the decline in average annual Tasmanian devil sightings per site, collected through spotlighting surveys.

At the time of the audit monitoring of Tasmanian devils was primarily focused on the impact and distribution of DFTD. In particular, RMC was looking to:

- assess the seriousness of declining Tasmanian devil numbers
- detect signs of recovery from DFTD
- assess numbers of disease-free animals available for insurance populations
- study the epidemiology of DFTD
- obtain data for modelling.

We considered monitoring activities were satisfactory given that spotlight data goes back in excess of 20 years. However, we noted that the live trapping data provided only went back to 2004.

Eastern quolls

Although the eastern quoll was not listed as a threatened species, it has been assessed as being seriously at risk from the European fox — if that pest species becomes firmly established in Tasmania. However, monitoring of the eastern quoll goes back to the early 1980s, a time that predates the fox threat.

Monitoring is conducted annually using the same spotlight methodology used for monitoring other harvested species. RMC planned to establish other types of monitoring for the eastern quoll such as live trapping and release as well as the use of remote cameras.

Wedge-tailed eagle

Whilst some nest activity monitoring occurred back in the late 1980's, regular annual monitoring of the wedge-tailed eagle only started from 2000. Monitoring includes an assessment of nests and whether they are occupied and being used for raising chicks. Monitoring suggests that around 50% of the known 458 territories in Tasmania were supporting breeding pairs. The population has been estimated to be around 1200–1500 individuals, with approximately half being mature birds.

We were satisfied that from 2000 onwards RMC has been collecting reliable annual monitoring data on wedge-tailed eagles.

5.3 Maintenance of observational data

Criterion: has readily accessible, comprehensive and current information about threatened species been maintained?

The main database for storing observational information was the NVA, described in Section 1.3. The NVA is accessible by external users and observations are routinely submitted by a wide variety of people and organisations including DPIW, universities and the general public. Inclusion of observations into the database is subject to approval by qualified personnel. The database has existed in one form or another for 40 years.

We tested 25 endangered species to determine whether observational data was included in the NVA. All but one species had observational data, although four of the tested species had no observational data from the past ten years. More information was consistently available for species which had an Australian Government classification.

In summary, the NVA was a valuable, evolving but incomplete resource. In particular, it allowed users to produce a list of threatened species in any selected location.

5.4 Monitoring of habitat

Criterion: has there been adequate monitoring of the intactness of important habitats?

As previously discussed at Section 1.3, important habitats have not been identified and it follows that there was no systematic monitoring of individual habitats.

On the other hand, RMC had the TASVEG system which provided complete baseline vegetation data for the state as at 2005 and was due for update in 2010. Only then will a full state-wide comparison be possible. Prior to TASVEG, forest communities had been mapped on several occasions: 1996, 2001 and 2005. During this period native forest communities decreased by 91 000 hectares whilst plantation areas expanded by 95 000 hectares[19].

5.5 Conclusion — monitoring

Only 28 of 177 threatened wildlife species were being monitored and a recent review by DPIW had concluded the monitoring program was ad-hoc and lacked clear guidelines as to which species should be monitored. A priority ranking scheme had just been introduced, but at the time of the audit most Priority One wildlife species were still unmonitored.

Although, the TASVEG included baseline vegetation data, there was little systematic monitoring of individual habitats.

RMC had an effective database for storing observational information. Most threatened species had some observational data included, although in many cases the data was more than ten years old.

[19] Australian and Tasmanian Governments, *Sustainability Indicators for Tasmanian Forests 2001 – 2006.*

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6 Strategic management

6 Strategic management

6.1 Background

In order to ensure the best use of available resources we looked at how well RMC was implementing and monitoring its threatened species programs. To form an opinion on how well RMC was strategically managing its activities we examined whether:

- management made effective use of policy and planning documents
- there were effective implementation processes
- there was effective monitoring and reporting of performance.

6.2 Existence of strategic plans

Criterion: does management make effective use of policy and planning documents?

RMC's main strategic planning document was its 2007–08 divisional plan, which included the objective — relevant to this audit — of facilitating '… the sustainable management of Tasmania's natural resources on public and private lands and to ensure their conservation'.

The divisional plan was current and included the necessary strategic elements of objectives, strategies and performance targets. We also found that it was consistent with relevant Tasmania *Together* goals or benchmarks and with Australian Government strategies.

RMC also had a number of supporting planning documents including branch business plans and conservation strategy documents.

6.3 Relevant and effective strategies

Short-term strategies for 2007–08 were included in RMC's divisional plan and we considered that the strategies were in close alignment with the work being performed. Whilst some of the strategies relate to implementation of control measures or other conservation activities, the majority related to improving RMC's policy and procedural framework.

The strategies included a program for the development and implementation of a knowledge management approach including identification of gaps and actions to address them. We agreed that this was an important issue, but would have preferred to see a more practical focus on addressing gaps such as incompleteness of listing statements, identification of important habitats and practical tools.

As noted elsewhere in this Report, there were also a number of strategy documents that covered RMC needs at a more detailed and practical level such as *Strategy for managing wildlife disease in Tasmanian Wilderness World Heritage Area*. While valuable, the strategies outlined were too limited by location to provide overall direction for RMC.

In 2000, RMC produced a specific threatened species strategy,[20] which provided a comprehensive outline of over a hundred specific and long-term targets, many of them relevant to matters raised in this Report. Unfortunately, the strategy is now dated, largely because of its focus on individual species, and RMC has acknowledged the need to produce a current version. However, RMC was awaiting the finalisation of a national strategy, being undertaken by a national task force on which Tasmania has representation.

Recommendation 16

We recommend that RMC's 2000 *Threatened Species Strategy for Tasmania* be updated.

6.4 KPIs: reasonable?

Criterion: are there effective implementation processes?

To assess whether RMC was implementing its programs as intended, we used a number of KPI's. KPIs in the division plan, relevant to the work of RMC consisted of:

- measures relating to land protected or covenanted
- level of public use of the NVA
- percentage of weed inspections that indicated a need for actions
- fox eradication (number of municipalities with physical evidence of foxes during the year)
- percentage of trapped Tasmanian devils with DFTD.

We noted that RMC had defined KPIs for itself and that most functions were represented by a KPI. However, we were not convinced that some of the measures were adequate indicators of performance. For example:

- The DFTD indicator was not representative. A better KPI for wider disease management might be the

[20] Department of Primary Industries Water and Environment, *Threatened Species Strategy for Tasmania*, 2000.

implementation percentage of actions recommended in the TWWHA disease strategy, rather than a focus on the high-profile DFTD.

- A similar argument applies to the fox eradication KPI, which has the additional disadvantage that it seemed a weak measure of the success of the eradication program.
- Public use of the NVA also seemed an ineffective KPI of the intended objective, namely to measure the accessibility of information to support management and development decisions. RMC advised us that the provision of advice in regard to development and planning decisions was one of its most important functions. However, the function was impaired by incompleteness of listing statements and the lack of suitable tools for extracting and summarising data. In our view, the KPI should relate more closely to RMC's need.

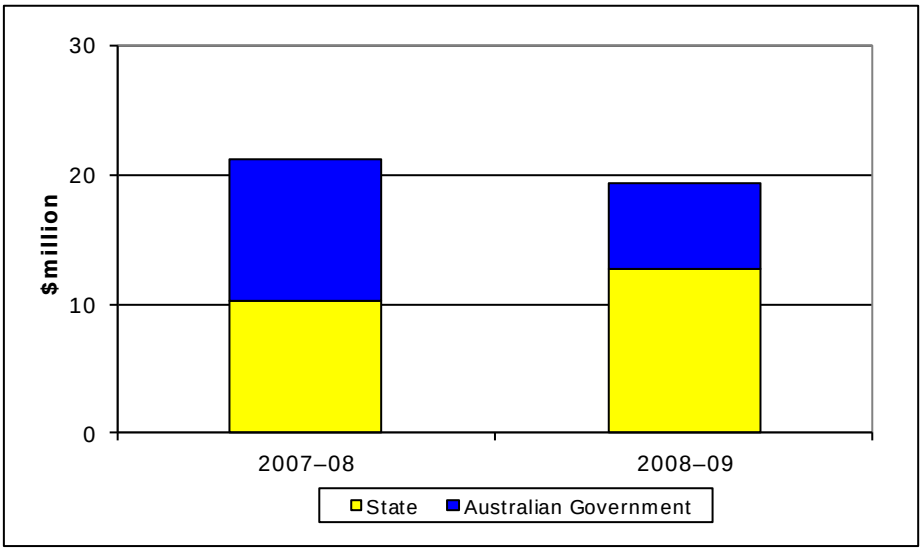
Recommendation 17

We recommend a review of RMC's KPIs to ensure they are more representative with respect to threatened species.

6.5 Funding

RMC receives funding from both the state and Australian governments. State funding supported core divisional functions whilst both the state and Australian governments provided funds directly to specific programs. Figure 9 illustrates funding by source for the previous and current financial years.

Figure 9: RMC funding 2008 and 2009



Total funding for RMC in 2007–08 was $22 million with $12 million provided by the Australian Government. The winding back of some projects has led to the Australian Government's 2008-09 contribution decreasing to $6 million.

A consequence of the combined Commonwealth–state funding arrangements was that the Tasmanian contribution tended to be focused on providing organisational infrastructure (including policy, procedures, information and advice) with Commonwealth funds used on conservation projects. For instance, for 2008-09 two projects absorbed three-quarters of the funds: fox eradication (42%) and the DFTD (33%).

Since there is an obvious alignment between Australian Government and state government projects, the projects do make a valuable contribution to achieving RMC goals. Nonetheless, the direction of relatively large sums of Australian Government money to a small number of specific projects has contributed to a sometimes inappropriate 'lumpiness' in work performed across a range of RMC activities.

Recommendation 18

We recommend that RMC ensures that it has effective input to Australian Government processes for determining funding programs.

6.6 Organisational structure

We see RMC as being responsible for three main functions:

- Resource management activities, which involved managing the state's wildlife populations on a sustainable basis and were largely concerned with decisions about harvesting and culling of wildlife.
- Conservation activities that were not related to specific threatened species but are of broad-spectrum value to many species. Examples included reserving large areas of land and weed management.
- Conservation activities that related to threatened species or their specific habitats or threats. Examples included the provision of advice in respect of proposed developments and actions relating to recovery plans.

RMC's six branches, 22 sections and almost 200 staff encompassed combinations of the above functions, particularly the latter two. For example we noted there was a Threatened Species Section with ten staff but many other sections provided threatened species functionality as well.

We were concerned that the existing structure may not support a strategic approach to threatened species. We have recommended approaches to eliminating information gaps with respect to threatened species and their important habitats and were not convinced that the existing structure best facilitated implementation of the recommendations. At the same time, we recognised that the structure of RMC has to serve other purposes in addition to strategic management of threatened species.

Recommendation 19

We recommend that RMC reviews whether or not the existing roles and organisational structure will support a more strategic approach to management of threatened species.

6.7 Monitoring

Criterion: is there effective monitoring and reporting of performance?

At the divisional level, monitoring of information flowing up from the branches was achieved via weekly meetings and monthly written reports, both involving branch heads.

Examination of meeting minutes disclosed that regular meetings occurred, during which threatened species issues were discussed. Although regular divisional meetings did not usually involve numerical data, a formal review of performance against targets was conducted annually, with the information published in the department's Annual Report.

6.8 Conclusion — strategic management

RMC maintained a divisional plan which included clearly defined objectives. Performance against the plan was regularly monitored and results were published in the DPIW Annual Report.

The divisional plan identified strategies, although the majority related to RMC's policy and procedural framework rather than service delivery, e.g. implementation of control measures. The plan also outlined performance indicators, but the indicators were not particularly useful measures of the work of the RMC.

RMC's existing organisational structure did not encourage a strategic approach to conservation of threatened species, their habitats and the threats confronting them. In addition, the existing funding model tended to promote substantial funding for a small number of high-profile programs and little or no funding for others.

7 Recent reports

7 Recent reports

Year	Special Report No.	Title
2005	53	Follow-up audits
2005	54	Compliance audits
2005	55	Gun control in Tasmania
2005	56	TT-Line: Governance review
2005	57	Public housing: Meeting the need?
2005	58	FBT
		Payment of accounts
		Asset management: Bridges
2006	59	Delegations in government agencies
		Local government delegations
		Overseas Travel
2006	60	Building security
		Contracts appointing Global Value Management
2006	61	Elective surgery in public hospitals
2006	62	Training and development
2006	63	Environmental management and pollution control act by local government
2006	64	Implementation of aspects of the *Building Act 2000*
2007	65	Management of an award breach
		Selected allowances and nurses' overtime
2007	66	Follow-up audits
2007	67	Corporate credit cards
2007	68	Risdon Prison: Business case
2007	69	Public building security
2007	70	Procurement in government departments
		Payment of accounts by government departments
2007	71	Property in police possession
		Control of assets: Portable and attractive items
2008	72	Public sector performance information
2008	73	Timeliness in the Magistrates Court
2008	74	Follow up of performance audits April – October 2005
2008	75	Executive termination payments
2008	76	Complaint handling in local government
2008	77	Food safety: safe as eggs?

8 Current projects

8 Current projects

Performance and compliance audits that the Auditor-General is currently conducting:

Hydro hedges	Examines processes for approving currency and interest hedges.
Profitability, and economic benefits to Tasmania, of Forestry Tasmania	Evaluates Forestry Tasmania's long-term financial and economic performance.
Contract management	Examines the effectiveness of contract management processes of a number of selected contracts.
Follow-up of previous performance audits	Examines the degree of implementation of recommendations in selected performance audits tabled in 2006.
Speed detection devices	Evaluates Tasmania's speed detection devices enforcement program looking at the efficiency and effectiveness of the program.
Communications by the Government	Evaluates whether government expenditure on communications is for political purposes and whether the current guidelines are adequate.

9 Appendix

9 Appendix

SECRETARY'S RESPONSE IN FULL

Strategic overview

This Response outlines the Tasmanian Government's strategic approach to managing threatened species, while the Tasmanian Audit Office's performance audit *Management of threatened species* focuses primarily on the role of the Resource Management and Conservation Division of DPIW.

The Tasmanian Government attaches high importance to the protection and sustainable management of Tasmania's biodiversity, including threatened species. It recognises that a range of activities are needed to protect and manage threatened species across the landscape, including:

- Protection and management of ecosystems, habitats and species through the **reserve system** on private and public land;
- Protection and management of ecosystems, habitats and species through **forest management systems**;
- Protection and management of ecosystems, habitats and species through other **statutory and planning mechanisms**;
- **Recovery efforts, monitoring and conservation planning**; and
- **Management of key threats** to biodiversity.

Each of these elements is supported in Tasmania by formal policies and legislation, with regular monitoring and review of progress. A brief overview of each is provided below, in regard to threatened species protection and management in Tasmania.

The Tasmanian approach has been developed in the context of national and international policy frameworks and commitments, including the *Convention on Biological Diversity 1993* (CBD), *National Strategy for ESD 1992*, *National Strategy for the Conservation of Australia's Biological Diversity 1993*, *Intergovernmental Agreement on the Environment 1992*, draft revised *National Biodiversity Strategy 2009* and draft revised *National Reserve System Strategy 2009*.

Various high level policy documents including the *Tasmanian-Commonwealth Regional Forest Agreement 1997* (RFA), the *Nationally Agreed Criteria for the Establishment of a Comprehensive, Adequate and Representative Reserve System for Forests in Australia* (JANIS report), and the draft revised *National Reserve System Strategy 2009* recognise that a range of approaches including reservation and off-reserve management are needed to manage and protect threatened species and ecosystems, including recovery efforts, forest management prescriptions and broader NRM activities. The Tasmanian approach to conserving and managing threatened species is consistent with this.

While the *Tasmanian Threatened Species Strategy 2000* and *Nature Conservation Strategy 2002* were useful in guiding the development of threatened species and biodiversity programs in Tasmania, they have been in part superseded by the review

of National strategies and the need to respond to issues such as climate change. Any revised Threatened Species Strategy will be developed in line with the revised *National Biodiversity Strategy*.

1. Tasmania's Reserve System

Tasmania's Reserve system has been developed using a nationally agreed standard that is internationally regarded as best practice. The design principle is based on a comprehensive, adequate and representative (CAR) reserve system to protect and manage natural values. It is supported by Tasmanian Government commitments and targets including the RFA, draft revised *National Biodiversity Strategy 2009* and draft revised *National Reserve System Strategy 2009*.

The CAR reserve system is based on reserving a proportion of the full range of ecosystems and species habitats on a bioregional basis. The RFA aims to create a CAR reserve system for forests, while the NRS aims to create a CAR reserve system for all ecosystems. By ensuring that a proportion of all ecosystems are reserved, it is assumed that all native species are given basic protection. The *NRS Directions Statement* also contains specific targets for reservation of threatened species on a bioregional basis, while the JANIS reserve design criteria include protecting threatened species as a priority and insurance against natural risk such as fire.

The development of the reserve system is ongoing. DPIW has developed tools such as the *Reservation Status of Tasmania's Higher Plants 2008* and related spatial data to assist in priority-setting for threatened species reservation under the Private Land Conservation Program and DPIW's broader conservation planning programs.

The terrestrial reserved area of Tasmania was 3,000,600 hectares, or 44.1% of the area of Tasmania at June 2008, including formal and informal reserves on public land and private reserves. Tasmania has the highest level of reservation of any Australian state and exceeds international standards.

The Tasmanian Government has a number of mechanisms available to provide protection for threatened species on private land, including:

- declaration of Land Management Plans, and associated Land Management Agreements under the Tasmanian *Threatened Species Protection Act 1995* (TSPA);
- voluntary conservation covenants and management agreements under the Tasmanian *Nature Conservation Act 2002* (NCA); and
- conservation covenants entered into under the NCA as a condition of financial compensation, which an affected landowner may be eligible for where an application for certification of a forest practices plan is refused in part or whole or amended on the basis of protecting threatened species or communities.

The Tasmanian Government focuses considerable effort on establishing voluntary covenants under the NCA through a range of programs including the Private Forest Reserves Program, Non-forest Vegetation Program and Protected Areas on Private

Land Program, (administered through DPIW), and the Forest Conservation Fund, Midlands Biodiversity Hotspot Programs and Tasmanian Revolving Fund (administered through private organisations). The majority of these programs receive Australian Government funding, and all result in covenants or agreements with the Crown under the NCA.

The CAR reserve system wholly protects the habitat of many threatened species, especially for those that are listed as rare. Complete reservation however is not necessary or practical for all threatened species, especially the wide ranging, transient species or where the threat to the species can be adequately managed by other mechanisms.

2. Tasmania's Forest Management Systems

The *Tasmanian-Commonwealth Regional Forest Agreement 1997* (RFA) forms the basis for sustainable management and conservation of forests in Tasmania. The *Tasmanian Forestry Act 1920, Forest Practices Act 1985* (FPA) and Forest Practices Code provide a regulatory framework for ecologically sustainable forest management practices and include provisions for threatened species. A certified forest practices plan is required for most forestry operations, including where an activity may impact on threatened species habitat. The Forest Practices Authority is required to provide for maintenance of a permanent native forest estate at no less than 95% of 1996 levels (*Permanent Native Forest Estate Policy 2007*).

Under the RFA, Tasmania and the Commonwealth agreed to arrangements that meet their respective legislative requirements for threatened species. Tasmania committed to, and has implemented, a range of initiatives to further improve its management systems including development and implementation of environmental management systems for State Forest compatible with ISO 14000, annual compliance audits of the implementation of the FPA, Forest Practices Code and Code of reserve management, and 5-yearly independent expert code reviews. A review of biodiversity elements of the Forest Practices Code is currently underway, involving experts in threatened species.

The Tasmanian Government maintains databases and planning tools to underpin adaptive management for threatened species in production forestry areas, including the Threatened Fauna Adviser, Threatened Fauna Manual, Forest Botany Manuals, Fauna and Flora Technical Notes and GIS layers (eg species habitat ranges). The Threatened Fauna Adviser and the Threatened Fauna Manual provide mapped information of known localities and potential habitat for threatened fauna, and a decision support system to deliver recommended management prescriptions. These were reviewed and endorsed by the Scientific Advisory Committee (SAC) established under the TSPA in 2001. These tools are maintained by the Forest Practices Authority, developed with DPIW and reviewed regularly. Forest management for threatened species is also informed by DPIW's Natural Values Atlas (NVA), TASVEG mapping, Listing Statements, Recovery Plans and strategic plans for individual species, where these are considered a priority.

The Forest Practices Code outlines the approach to planning, assessment and site management for flora and fauna, including provisions for Wildlife Habitat Clumps (WHC), Wildlife Habitat Strips (WHS) and Special Management Zones (SMZ) for specific threatened species values, as well as enabling the Agreed Procedures with DPIW for consultation and ongoing development of management prescriptions for threatened species and inadequately reserved communities.

3. Other Statutory Mechanisms and Planning Systems

The majority of Tasmania's environmental legislation comes under the resource management and planning system (RMPS), whose primary objectives include: *to promote the sustainable development (including avoiding, remedying or mitigating any adverse effects of activities on the environment and safeguarding the life-supporting capacity of air, water, soil and ecosystems) of natural and physical resources and the maintenance of ecological processes and genetic diversity.*

Impacts on threatened species in Tasmania are primarily regulated under the TSPA. All listed species are protected under the TSPA and it is an offence to knowingly, take, keep, trade in or process any specimen of a listed taxon, to disturb a listed taxon in certain circumstances (on certain land), or to release a listed species into the wild, without a permit. Threatened native vegetation communities are also regulated under the *Nature Conservation Act 2002* (NCA). Impacts on most fauna species are also regulated under the NCA and associated *Wildlife Regulations (1999)*, including impacts on products of wildlife such as nests. There are no flora species listed under the *Wildlife Regulations* at present.

Activities that have an impact on threatened species may be authorised by a permit issued under the TSPA. A permit is not required where a person is acting in accordance with approval under the FPA, *Water Management Act* (WMA) or a Public Authority Management Agreement, as part of the integrated regulatory system for threatened species in Tasmania. DPIW also assesses proposals referred by other planners and regulators including the Forest Practices Authority (FPA), DEPHA (*Environmental Management and Pollution Control Act 1994* (EMPCA)), the RPDC (*State Policies and Projects Act 1993* (SPPA)) and Local Councils (Land Use Planning and Approvals Act (LUPAA)) where the activities may impact on threatened species. There are protocols within DPIW and with other agencies to incorporate DPIW's threatened species considerations and/or conditions into approvals under this legislation.

Separate approvals are required from the Australian Government for certain actions in relation to threatened species and communities that are listed on the Commonwealth *Environment Protection and Biodiversity Control Act 1999* (EPBCA). For some approvals involving both EMPCA and the EPBCA the assessment is carried out under a Bilateral Agreement with Tasmania.

Potential impacts of proposed developments on threatened species are often assessed on a case-by-case basis using an expert model, with expert judgment supported by a range of decision support tools including the Threatened Fauna Adviser, manuals,

Listing Statements, Recovery Plans, Natural Values Reports (based on threatened species locality records, TASVEG mapping and information relating to habitats in the NVA), offset guidelines and other relevant information such as Consultant's reports and surveys. Where sufficient information is not available there can be a request for further surveys and reports prior to the final assessment, in accordance with DPIW's Consultants Brief.

The TSPA establishes an independent Scientific Advisory Committee (SAC) to advise the Minister and Secretary on threatened species issues including listing and delisting, listing statements and threatening processes. The skills of its members are defined and cover specific areas of flora and fauna ecology and conservation knowledge. The SAC can also consult with members of the broader scientific community as appropriate. Under the RFA, the SAC must endorse new or revised management prescriptions for forest dependent threatened species.

4. Recovery efforts, monitoring and conservation planning

Various strategic approaches to species-level conservation planning in Tasmania, and the planning tools that underpin them, are described above. Conservation planning also includes efforts to monitor and manage native species with an aim to ensure they do not become threatened over time. This includes protection of habitat and regulation of impacts on non-threatened species.

Vegetation mapping and monitoring change in the cover of native vegetation under DPIW's TASVEG Mapping and Monitoring Program (TVMMP) can inform assessments for some threatened species. TASVEG is based on 1:25,000 mapping of all native vegetation communities across Tasmania. RFA forest community mapping is also available at 1:25,000.

A recent project between DPIW and the Forest Practices Authority documented and mapped significant habitat for species of threatened fauna particularly vulnerable to habitat loss through plantation development. DPIW will continue this work towards documentation and mapping of significant habitat for all terrestrial and freshwater threatened fauna. This information will be made available to land use planners and decision-makers through the Natural Values Atlas.

Monitoring is critical to identify and manage known and potential threats to both threatened and other native species. The Tasmanian Government's *Wildlife Monitoring Strategy 2008* provides a prioritisation framework for all native fauna species and ensures monitoring is undertaken using appropriate scientific methods and information is appropriately stored, managed and disseminated. On-ground observations by a network of community groups, research institutions, government departments and the general public assist in identifying threats which are assessed against the Strategy to inform management activities. The Government also undertakes vegetation condition monitoring across the private reserve system to inform appropriate management of threatened species populations.

Specific programs and recovery efforts are ongoing. In addition to the preparation of Recovery Plans and Listing Statements current major programs include the Save the

Tasmanian Devil Program and the Orange Bellied Parrot Recovery Program, jointly funded by Tasmanian and Australian Governments. DPIW administers a major long-term program for marine conservation (including the Princess Melikoff Fund) which focuses on cetaceans, seals and seabirds including threatened species.

DPIW plays a central role in educating stakeholders and the general public on threatened species issues, including specific recovery actions, field days, training programs, publications and presentations to industry, schools, and community and interest groups.

There is also a range of natural resource conservation initiatives and programs led outside of State Government that contribute to threatened species protection and management, such as through Natural Resource Management (NRM) regional strategies and projects (supported by the Tasmanian Government), Local Government planning processes and the *Threatened Species Network Community Grant Program*.

5. Management of Threats and Threatening Processes

While there are no formal Threat Abatement Plans in place under the TSPA, the Tasmanian Government has specific programs to manage threats to individual species and functional groups, either because they are threatened or at risk of becoming threatened due to these pressures, as well as broader threats to our biodiversity. These include:

- DPIW's Fox Eradication Program addresses the potentially significant threat by predation on native threatened and non-threatened species in Tasmania. As well as an active program for eradication, monitoring programs have been established for potential prey species such as the Tasmanian Native-hen, Eastern Quoll, Eastern Barred Bandicoot and Tasmanian Bettong.
- DPIW is also undertaking work relating to climate change mitigation, including drafting a *Vulnerabilities Assessment for Tasmania's Natural Environments.*
- DPIW is monitoring the potential threat of chytrid frog disease on our unique frog species. This disease has caused the extinction of frog species elsewhere in Australia and overseas. DPIW is also investigating the potential threat of mucormycosis to platypus in Tasmania by undertaking surveys of platypus populations throughout their range.
- The Tasmanian Government has an extensive Biosecurity program and a *Weed Management Strategy* in place to manage the impacts of invasive species on our native flora and fauna. The *Tasmanian Weed Management Act 1999* also provides specific protection to threatened species populations.
- The Tasmanian Government addresses habitat loss through a range of mechanisms involving reservation and regulation of land use, as described above.