

9. Biodiversity

9.1 Goals

To protect, maintain, improve and restore biodiversity, including species, genetic and ecosystem diversity

To develop within the community a deep appreciation and knowledge of our biodiversity, which sustains the life-supporting systems of our world, contributes to a healthy lifestyle and provides inspiration for our art and culture

9.2 Aspirational Targets

These are long-term targets for the desired condition of natural resources over the next 50+ years.

Habitat is managed, restored and, where appropriate, protected to provide security and viability for all indigenous terrestrial and aquatic flora and fauna species

There are no further human-induced extinctions of species or communities, or additional threatened species

Endangered species/communities are recovered, and vulnerable and rare species are maintained

Viable populations of iconic species (orange-bellied parrot, giant freshwater lobster, Burnie burrowing crayfish, platypus and Tasmanian devil) are maintained

There are no biodiversity impacts from existing pests, weeds, diseases and pollution, and new incursions are mitigated.

9.3 Resource Condition Targets

This chapter outlines management actions that are needed to achieve progress towards the goals for Biodiversity. The Resource Condition Targets for Biodiversity are mainly aimed at preventing further damage to the Region's vegetation types and habitat for fauna. They are also directed at protecting flora and fauna, including threatened species, especially the Region's iconic species. The targets listed below are those that relate directly to Biodiversity assets. The condition of these assets is expected to improve in measurable ways as the other goals and targets of the Region's NRM Strategy are implemented. The Strategy recognises the many linkages between the different natural resource assets, and so the most closely linked targets and management actions for other assets are shown in the tables in this chapter.

The Resource Condition Targets and following Management Action Targets are numbered to make it clear how they relate to the Management Action Packages at the end of the chapter.

The Land, Water and Coastal, Estuarine and Marine chapters have additional targets for weeds, pests and diseases. Targets for river condition and wetland extent and condition are in chapter 8: Water. Targets for sustainable fisheries, and condition of coastal, estuarine and marine environments, including wetlands integrity, are in chapter 10: Coastal, Estuarine and Marine. The links between the asset targets are shown in Appendix 6.

The Resource Condition Targets for Biodiversity are coded RCT B1 to B10.

Resource condition	Target no.	Resource Condition Targets for Biodiversity (10–20 years)
Native vegetation	RCT B1	No reduction in the 2005 extent of forest and non-forest vegetation types listed as Threatened (Rare, Vulnerable or Endangered): by 2025.
	RCT B2	No reduction in the 2006 condition of native vegetation listed as Threatened (Rare, Vulnerable or Endangered): by 2025.
	RCT B3	No reduction in the 2006 extent or condition of priority structural types of vegetation for faunal habitat: by 2025.
Threatened species	RCT B4	No new known flora or fauna additions to the threatened species lists, or upgrading of the threat status of species already on the lists, due to activities or actions within the Region: by 2025.
	RCT B5	Improvement in status of existing species listed by the Threatened Species Protection Act and the EPBC Act, and improvement in populations of iconic species: by 2025.
	RCT B6	Giant freshwater lobster and Burnie burrowing crayfish populations are maintained or increased from 2006 benchmarks: by 2025.
Flora and fauna	RCT B7	Reduction in the extent of priority weeds (declared weeds, Weeds Of National Significance and Weeds Of Regional Significance) by 50%: by 2025.
	RCT B8	No new weed species established beyond 2015.
	RCT B9	No new populations of existing weed species established beyond 2015.
	RCT B10	No new incursions or changes in abundance/distribution of introduced pests and diseases: from 2005.



9.4 Management Action Targets

The Management Action Targets for Biodiversity are coded MAT B1 to MAT B14.

Resource condition	Target no.	Management Action Targets for Biodiversity (1–5 years)
Native vegetation	MAT B1	From the 2005 baseline, increase by 20% the area of Threatened (Rare, Vulnerable or Endangered) forest and non-forest communities that is under formal management/conservation agreements: by 2010.
	MAT B2	Set benchmarks and targets for vegetation condition: by 2006.
	MAT B3	Set benchmarks for river condition: by 2010 (refer Water chapter 8.4 and W35).
	MAT B4	Determine priority wetlands, and set benchmarks for their condition and extent: by 2010 (refer Water MAT W6 in chapter 8.4 and W34).
Threatened species	MAT B5	Review population benchmarks for giant freshwater lobster and Burnie burrowing crayfish, and assess threats from introduced pests: by 2006.
	MAT B6	Undertake threatened species recovery actions for at least 5 high priority recovery programs in the Region: by 2010.
Flora and fauna	MAT B7	Implement National and State-wide pest and disease management plans: by 2010.
	MAT B8	Carry out Regional monitoring programs, review adequacy of monitoring at regular intervals and modify management practices where appropriate: by 2010.
	MAT B9	Increase community awareness, appreciation and participation in property planning to improve biodiversity conservation: by 2010.
	MAT B10	Determine the extent and impact of pests and diseases on flora and fauna: by 2010.
	MAT B11	Set a Regional weed mapping program in place to determine the distribution and density of declared weeds in the Region (including Weeds Of National Significance and Weeds Of Regional Significance): by 2007. Set benchmarks for their control: by 2010.
	MAT B12	Establish mechanisms for the early detection, reporting and management of new weed species, outbreaks of existing weeds and emerging weed problems: by 2015.
	MAT B13	Coordinate management for priority transport corridors: by 2007.
	MAT B14	Ensure no declared plants or Weeds Of Regional Significance available for sale by plant or aquarium retailers: by 2010.

9.5 Asset description

The Cradle Coast Region is endowed with some of world's most precious and extraordinary flora, fauna and ecosystems. These biodiversity values arise from our unique geological history, and plant and animal life that has evolved in relative isolation from the rest of the world for over 40 million years. The numerous relict species include many descendants of Gondwanan fauna and flora. These ancient species are well represented, many as endemics, within the Region.

The Region also owes its amazing biodiversity to the remote and largely untouched nature of much of its landscape. Huge tracts of pristine or near-pristine wilderness include the Tasmanian Wilderness World Heritage Area, proclaimed for its unique biodiversity, landscape and cultural heritage values. The Region also contains Australia's two largest contiguous tracts of temperate rainforest, home to many of the Region's threatened species, within the National Estate-listed Tarkine Wilderness Area. The largest rainforest tract is protected within the Savage River National Park.

The Cradle Coast Region has the highest vegetation cover of the three NRM Regions, and the most diverse range of vegetation types. These include wet eucalypt forests, rainforests, buttongrass plains, alpine moorland, scrub, swamp forest, coastal heathland and salt marsh (see the Map: Vegetation Groups in the Cradle Coast NRM Region and also the Map: Provisional Threatened Forest and Non-forest Native Vegetation Communities). There are also remnants of native forest and shrublands on fertile basalt soils within the farming areas in the north. The fauna species include those that are well adapted to these distinctive habitats.

Vegetation in the more rugged southern part of the Region has had a complex fire history. The relative influence on the vegetation of a long history of Aboriginal burning, post-European settlement burning and lightning-caused fires is the subject of ongoing research. Fires, caused by human carelessness or deliberately lit, have at times caused serious damage by destroying sensitive vegetation communities such as rainforest.

The Region's extensive areas of relatively undisturbed and diverse vegetation provide important habitat for fauna, especially in the World Heritage Area, which supports a broad range of Tasmanian animals and is the stronghold for the ground parrot and the only breeding area of the endangered orange-bellied parrot (see Appendix 4: Threatened species in the Cradle Coast Region). Marsupials include wallabies, bandicoots, possums, the long-tailed mouse, long-eared bats and the vulnerable spotted-tail quoll.

Birds range from the threatened wedge-tailed eagle to the King Island sub-species of several endemic Tasmanian birds, including the green rosella, brown thornbill, scrubtit, dusky robin, yellow wattlebird and black currawong.

The far north-west of Tasmania provides a very important passage for migratory birds, including the endangered swift parrot. Lavinia State Reserve is an internationally significant (Ramsar-listed) wetland and a critically important feeding area for the migratory orange-bellied parrot (see Map: Significant Wetland Sites). Tasmania's largest diversity and density of migratory and resident shorebirds is found in the Robbins Passage–Boullanger Bay wetlands. The area is an important resting and feeding site for 15 bird species listed under international Migratory Bird Agreements, and is home to the endangered little tern and the vulnerable hooded plover (see Appendix 4 for a list of threatened species).

Important seabird colonies are on Petrel Island (Australian pelicans), Trefoil Island (muttonbirds),

Albatross Island (shy albatross) and Black Pyramid Rock (gannets). The Region is home to numerous little penguin colonies, with at least 3500 breeding pairs along the coast from Stanley to Port Sorell and large colonies on King Island. A substantial seal-breeding colony is on Reid Rocks south of King Island, and a smaller one on Bull Rocks off Stanley.

The Region's rivers and streams contain 15 freshwater fish species, including the threatened Australian grayling and dwarf galaxias, and the largest populations of the threatened giant freshwater lobster. The northern snow skink is largely restricted to the Central Plateau, and three species of Tasmanian frogs occur principally in the Region – the endemic Tasmanian tree frog, the smooth froglet and the rare striped marsh frog. The extensive karst areas of Gunns Plains, Loongana and the Pedder–Gordon contain unique cave fauna with restricted distributions.

Human impacts on fauna, flora and landscape have been greatest in Tasmania over the last 200 years. Consequently, some flora and fauna species, notably the Tasmanian tiger, have become extinct and many others are threatened with extinction.

This chapter deals with the Region's vegetation types and flora and fauna assets. Freshwater river and wetlands ecosystems are discussed in chapter 8: Water. Coastal, Estuarine and Marine species and ecosystems are discussed in the next chapter. Land is a closely linked asset that is covered in more detail in other chapters.

Scientific names of animals and plants are in Appendix 5.

9.6 Values and services provided

Native flora and fauna are fundamental parts of the ecosystems that provide the basics of life including the oxygen we breathe, the water we drink, the generation and maintenance of topsoil, and pollination of crops. These ecosystem services are fundamental to our survival, and healthy ecosystems and native vegetation provide habitats for wildlife.

Our Biodiversity assets are an integral component of the Region, and interact with every other natural resource. Their sustainable management is central to NRM.

Biodiversity assets also have intrinsic values. All life forms have a right to exist in their own communities and ecosystems. The aesthetic and symbolic values of native species are respected by many Tasmanians who wish to protect our unique plants, animals and ecosystems.



Native flora and fauna and ecosystems are valued for a range of important functions. They provide economic, social and environmental benefits in:

- agriculture and forestry, including pollination
- small industries such as essential oils, floriculture, honey, and bush foods
- tourism and recreation
- aesthetic values
- cultural identity and spiritual values
- community and individual health and wellbeing
- protection of water supplies
- pollution breakdown & absorption
- contribution to climate stability
- nutrient cycling and soil formation
- mitigation of soil salinity and erosion
- biodiversity conservation

9.7 Asset condition

Vegetation and fauna

At the broadest level the native vegetation of the Region is in good condition. However, plant communities continue to be cleared and converted to other uses. This is particularly true of remnant vegetation across the agricultural landscape. These remnants of native vegetation provide important habitats for fauna. The main threats to biodiversity are habitat loss and habitat modification. Habitat loss refers to changes such as clearance of native vegetation and conversion of native forest to plantation. Habitat modification includes fragmentation that results in reduction of habitat, declining condition, weed invasion and isolation of habitat.

Environmental weed threats in the Region are generally greatest in estuarine, coastal and riparian vegetation. Rice grass is putting entire estuarine ecosystems at risk, while beach weeds transform dune systems, affecting landforms, plants and birdlife (see next chapter). Competitive woody weeds such as gorse threaten a number of vegetation communities in the Region. For example, Spanish heath is encroaching into the Rocky Cape National Park and Arthur–Pieman Conservation Area, threatening native coastal heath species. Six Weeds Of National Significance occur in the Region. These include gorse, serrated tussock, boneseed, willow and blackberry, as well as bridal creeper, which poses a major threat to coastal vegetation.

Weeds can severely reduce the productivity of other enterprises that rely on natural resources, such as agriculture and forestry. Weed Strategies have been developed and implemented by several

municipalities – Circular Head, Waratah–Wynyard and Latrobe Council – and the King Island Natural Resource Management Group. The West Coast municipality, in partnership with Parks and Wildlife Service, Forestry Tasmania and key stakeholders, has developed the *West Coast Weed and Fire Management Strategy*. In addition there are regional weed management plans for land managed by Forestry Tasmania and Parks and Wildlife, including the World Heritage Area. Many local area weed management plans have been developed by community groups, the Department of Primary Industries, Water and Environment, Hydro Tasmania and industries such as forestry companies. The *Cradle Coast Regional Weed Management Strategy* was released in May 2005.

Phytophthora root rot disease, which causes the dieback of native vegetation, is a critical threat to biodiversity. This introduced plant disease is spreading into the World Heritage Area along roads and tracks. Phytophthora root rot is widespread in heathland and moorland vegetation in the Region, and these vegetation types are now generally in a degraded condition. All the large Reserves containing these vegetation types (including Rocky Cape National Park, Lavinia State Reserve, Arthur–Pieman Conservation Area and the South West Conservation Area) have widespread infestations. Myrtle wilt disease, a native plant pathogen, is a problem in some areas.

The World Heritage Area and its fauna are in good condition. The natural values of the area are being maintained by managing the main threats, especially introduced pests and fire, as specified in the Management Plan for the World Heritage Area (1999).

The West Coast is a stronghold for hooded plovers and other shorebirds that nest on beaches and foredunes. These beaches are generally in good condition but the increasing presence of recreational off-road vehicles and the pressure of stock grazing can prevent these birds from breeding.

Most of the seal and seabird colonies off the North-West Coast are in good condition, but seals become entangled in fishing nets. Research is being conducted into the serious mite infection affecting young shy albatross in the colony on Albatross Island. The little penguin colonies in urban areas are under pressure from urban development, and from domestic and feral animals.

Until recently, the Tasmanian devil population appeared to be unaffected by the facial tumour infection widespread in the east of the State, where it has reduced devil populations by up to 85%.

However, a devil with the disease was found near Cradle Mountain in November 2004.

Several programs are in place to protect our native flora and fauna. On public land, numerous reserves range from the huge World Heritage Area to small Public Reserves. They are managed by Government agencies that include the Parks and Wildlife Service, Forestry Tasmania and Local Government. These Public Reserves have been proclaimed through State and National programs such as the National Reserve System Program and the Regional Forest Agreement. Management plans for Reserves are listed in Appendix 3.

Under the Permanent Forest Estate Policy, there is a moratorium on the clearing of threatened forest communities. The Forest Practices Code applies to all commercial harvesting operations, public and private, and requires the preparation and approval of forest practices plans. Moreover, the Forest Practices Act has recently been amended to limit land clearance even if no timber harvest will occur. Land managers must now complete an approved environmental evaluation (including threatened ecological communities and species), before clearing any native vegetation on sites exceeding one hectare.

Under the Trust Bilateral Agreement, the Australian Government and the State of Tasmania agreed to work cooperatively to implement measures to protect rare, vulnerable and endangered native non-forest vegetation communities in Tasmania. Through this initiative, governments are investing to cooperatively develop voluntary vegetation management agreements with landholders and Local Government, and to provide financial incentives for land holders to give effect to these agreements. Work with the Tasmanian Farmers and Graziers Association is underway to ensure that all agreements are strictly voluntary and that incentive payments are provided on an agreed and transparent basis.

The Department of Primary Industry is also working with Local Government to introduce

changes to Local Government planning schemes to protect rare, vulnerable and endangered non-forest native vegetation, such as native grasslands, heathlands, wetlands and riparian scrubs, from clearance and conversion. Voluntary conservation agreements can also be set up under the Private Forest Reserves Program, Land for Wildlife, and the Protected Areas on Private Land Program, which protects under-reserved vegetation communities, threatened species and areas containing other significant natural values.

Threatened species

In Tasmania, 673 species are currently listed under State or Australian Government legislation as being threatened with extinction and therefore of major conservation concern. The Cradle Coast Region contains approximately 194 (41%) of Tasmania's threatened plant species and 82 (42%) of Tasmania's threatened animal species. Altogether there are approximately 276 threatened species in the Region. This is a lower proportion than in the other two NRM Regions, which are more populated with fewer large areas of wilderness.

In December 2003, a total of 26 plant and 21 animal species in the Cradle Coast Region were listed under Australian Government legislation (*Commonwealth Environment Protection and Biodiversity Conservation Act 1999*) as threatened with extinction (see Appendix 4). The others are listed under State legislation (*Tasmania's Threatened Species Protection Act 1995*).

The threatened species within the Cradle Coast Region occur in all habitat types in land, freshwater and marine environments. Some species, such as certain freshwater insects and orchids, have very localised or limited distributions, while others, such as the orange-bellied parrot and migratory shorebirds (including the eastern curlew), are more widespread but are found in extremely low numbers. Invertebrate animals in particular are poorly described and differ markedly from those of eastern Tasmania. Recent studies have shown that a

Table 9.1 Status of threatened flora in the Cradle Coast Region (Dec 2003)

Status	Tasmania	Cradle Coast Region	% in Region
Extinct	12	1	8%
Endangered	103	18	27%
Vulnerable	73	18	38%
Rare	288	137	47%
Total plants	476	194	40%

Source: DPIWE

Table 9.2 Status of threatened fauna in the Cradle Coast Region (Dec 2003)

Status	Tasmania	Cradle Coast Region	% in Region
Extinct	9	2	22%
Endangered	49	18	37%
Vulnerable	37	18	49%
Rare	102	44	43%
Total animals	197	82	42%

Source: DPIWE

large percentage of invertebrate species identified in the World Heritage Area are restricted to that area.

Threatened species are classified as extinct, endangered, vulnerable or rare. The status of threatened plants and animals in the Cradle Coast Region, compared with the whole of Tasmania, is shown in Tables 9.1 and 9.2. A complete database of the Region's threatened species is maintained by NRM Cradle Coast. The State and National lists of threatened species (available on the website www.dpiwe.tas.gov.au) are updated quite frequently.

While all threatened species are a priority, those with the highest category of threat and which are nationally listed require the most urgent attention. In response, the State is developing recovery plans to aid their survival (plans relevant to the Region are listed in Appendix 3). The nationally threatened species predominantly or exclusively restricted to the Region include the orange-bellied parrot, threatened eagles, swift parrots, the giant freshwater lobster and the burrowing crayfish.

The more widespread threatened species depend on all the NRM Regions to play a role in their conservation. These include the swift parrot, the wedge-tailed eagle, the white-bellied sea eagle, dwarf galaxias, the green and gold bell frog, the little tern, the fairy tern, the eastern curlew, albatrosses, grasslands, orchids and ferns. Table 9.3 lists other priority species found in the Cradle Coast Region.

The Strategy lists two nationally listed invertebrates that are restricted to Cradle Coast as iconic species for the Region (section 9.2 in this chapter). These iconic species – the giant freshwater lobster and the Burnie burrowing crayfish – are valuable for helping increase awareness of threatened species throughout the local community.

The Cradle Coast Region contains some key areas and ecosystems that are important havens for threatened species:

- the western Bass Strait Islands
- King Island sedge heath complex

- Fleurieu Island Group including the Boullanger Bay region
- Mole Creek karst (mostly in the Northern NRM Region)
- Gog Range
- Port Sorell–Greens Beach area
- coastal vegetation from Stanley to Port Davey.

While there are National and State listed threatened species which are priorities for the Cradle Coast Region and for which recovery plans have been finalised or are under development (refer Appendix 3), there are other threatened species, which are also priorities, but for which recovery plans have not been developed. These other species could be considered as flagship groups for the Region, helping to increase awareness throughout the local community. They are listed in Table 9.3.

The accelerated loss of species indicates fundamental problems with our life support systems. We need to maintain the ability of these systems to respond to environmental change.

9.8 Causes of degradation

The main State-wide threats to biodiversity include:

- clearance, conversion and fragmentation of native vegetation
- impacts of pests, weeds and diseases
- degradation of water systems
- inappropriate use of fire
- inappropriate or illegal harvesting
- impact of stock.

It is critical to the survival of not only threatened species but also Tasmania's biodiversity that these key threats are tackled with some urgency. There are, however, some additional issues that are of concern to the Cradle Coast Region:

- loss of riparian vegetation
- inappropriate use of recreational vehicles in sensitive areas

Table 9.3 Other National and State threatened species important in the Cradle Coast Region

Animals	Plants
King Island endemic bird complex (5 species)	King Island plant complex (40 species)
Grey goshawk	Three-awned spear grass
Marawah skipper	Serpentine micranthemum
Land snails (3 species)	Bootlace bush
Freshwater invertebrates (35 species)	Coast New Holland daisy
Azure kingfisher	Straw daisy
Masked owl	Lime fern
Cave ecosystem species (12 species)	Grassland species
Schayer's grasshopper	
Green and gold frog	
Spotted-tail quoll	

(Scientific names of animals and plants are in Appendix 5)

Source: DPIWE

- wind farm developments affecting raptors and migrating birds
- mine and acid rock drainage
- loss and degradation of threatened species along roadsides
- unrestricted cattle grazing in coastal areas and on offshore islands
- loss of natural vegetation in the Woolnorth area and on King Island, impeding migration of birds
- road-kill in areas of dense wildlife populations, such as the Cradle Mountain Highway from Moina to Vale and Belvoir
- firewood gathering in certain local areas of the West Coast.

Land clearing and conversion to other uses, along with changes to hydrology, are the most critical threats to biodiversity. Land clearing for urban development, grazing or plantation establishment does not just relate to removal of trees or specific plant species, but equates to the loss of plant communities. Wetlands, salt marsh, riparian bush, grasslands, alpine systems and coastal vegetation are constantly being lost along with the richness of

their unique diversity and habitat for fauna. Blackwood swamp vegetation was cleared for agriculture (particularly in the lower Welcome and Montagu rivers), before recent State-wide controls on clearing came into effect.

Areas of high conservation value, including the World Heritage Area and National Parks, are at risk from weeds, phytophthora root rot disease and fire.

Fire is highly significant as a risk to biodiversity and production in forestry and agriculture. Fire has damaged sensitive vegetation, such as native conifers, but it can also be used as a management tool to promote conservation of vegetation communities that depend on fire, such as buttongrass and some eucalypt and coastal heath communities.

The recent introduction of foxes to Tasmania is a very serious threat to our native fauna, in particular the smaller mammals and birds. On the other hand, native browsing animals such as wallabies, grazing on improved pastures, can be a problem for farmers.

Of the Region's landmass of around 2.25 million hectares, 608 000 hectares are under private ownership. Much of this privately owned land has been developed for agriculture and grazing, or for production forest. Hence private land managers can have a huge impact on our biodiversity.

Many vegetation types on public land are well protected through World Heritage listings and State Reserves. However, the National Land and Water Resources Audit indicates that only two of the five bioregions within the Cradle Coast NRM Region are in good condition (see Map: Boundaries in the Cradle Coast NRM Region, in chapter 2). The King, West and Central Highlands bioregions are in fair but declining condition. Both vulnerable and endangered ecosystems are present in each of these bioregions.

Opportunities to promote and develop business around biodiversity, our 'clean and green' image, and protecting threatened species are extensive, and will assist in raising awareness of the issues threatening many species. Commercial enterprises have already been established around:

- giant freshwater lobster viewing at Flowerdale and Dismal Swamp, and tours in the north-west
- platypus viewing at Latrobe, Burnie and Circular Head
- little penguin and muttonbird viewing at The Nut
- orange-bellied parrot breeding at Melaleuca
- albatross and seal viewing from Stanley
- devil watching tours at Marawah
- wildlife tours at Narawntapu National Park.

Gaps in existing knowledge or management systems

The main gaps for managing biodiversity assets are lack of:

- information about the fauna, especially invertebrates, and fungi
- detailed understanding of the habitat retention required to maintain native fauna in viable numbers, and lack of a plan for a connected network of habitats
- a database and maps of critical habitat for fauna
- assessment of the scrub vegetation, the most poorly known in the State
- knowledge of appropriate fire frequencies for some vegetation types
- protection for parts of the National Estate-listed Tarkine Wilderness Area, which provides refuge for several threatened species
- monitoring of migratory birds covered by international agreements (including Ramsar and the Japan–Australia and China–Australia Migratory Bird Agreements – JAMBA and CAMBA)
- management strategies for diseases, pests and game species in the Region
- a central database and mapping capability of the distribution and extent of outbreaks of pests, weeds and diseases
- a coordinated approach to educating the public on biodiversity issues
- awareness of ecologically sensitive tourism opportunities.

Other issues for Biodiversity include:

- revision of TASVEG mapping in the rural belt is needed, including field surveys of remnant vegetation, especially on basalt soils
- a thorough botanical survey of offshore islands is required for conservation planning and lease conditions
- more research is needed into methods of controlling aggressive infestations of phytophthora and Spanish heath, broom, gorse, pampas and blackberries.

9.9 Priority issues

The priority issues for Biodiversity were developed from the community consultation process as outlined in chapters 4 and 13 (see the list in Table 13.4). The detailed process for determining these priorities (*Methodology for prioritising management actions*) is available as a Supplementary Document from Cradle Coast NRM and is on

our website www.nrmtas.com.au (click on Cradle Coast Region).

Note that because many natural resources belong to more than one asset group, some of the priorities affecting Biodiversity assets are discussed mainly in other chapters. For instance, aquatic habitat loss or modification is discussed in chapter 8: Water. (Habitat loss refers to changes such as clearance of native vegetation. Habitat modification includes fragmentation that results in reduction of habitat, declining condition and isolation of habitat.)

The priority issues identified for the Biodiversity asset are:

- terrestrial habitat loss or modification
- aquatic habitat loss or modification
- threatened species and communities of high conservation value
- weeds, pests and diseases.

These priorities were used to develop the following packages of management actions.

9.10 Management Action Packages

A suite of management actions has been designed to achieve the Management Action Targets and to contribute to achieving the longer-term Resource Condition Targets for the priority issues. These management actions are grouped in packages as set out in the following tables. The tables contain groups of actions, called Management Action Packages, which address each cause of the priority issues for the Biodiversity asset. The action packages are designed to address causes rather than symptoms.

Our Goals for the Region provided the direction for setting all the targets and Management Action Packages. Many of the actions have been drawn from the various action plans and strategies that support the Strategy. A number of these activities are already underway as Priority Projects for NRM. These include setting vegetation condition benchmarks, developing priority protection measures for nationally threatened species, including the Burnie burrowing crayfish and scrambling ground fern (funded by the Natural Heritage Trust), and management of rice grass in Robbins Passage (funded by the National Landcare Program). These have been identified in the packages in the tables below.

Additional actions for habitats, weeds, pests and diseases are in the Land, Water and Coastal, Estuarine and Marine chapters. Additional actions for river condition, and wetland extent and condition, are in chapter 8: Water. Actions for

sustainable fisheries, and condition of coastal, estuarine and marine environments, including wetlands integrity, are in chapter 10: Coastal, Estuarine and Marine.

The text at the top of each table shows how each Management Action Package for Biodiversity is linked to the Resource Condition Targets and Management Action Targets.

The Management Action Packages have been numbered for ease of referring to them in developing the first Regional Investment Proposal.

This process will involve further stakeholder consultation to identify the funding requirements for implementing the highest priority management actions, as discussed in the following section, Part E.

(Note 'threatened' here and in the next table refers to species and communities that are at risk of degradation as a result of human activity. 'Threatened' in this context does not necessarily relate to the Tasmanian or Australian Government threatened species lists.)

Biodiversity Package 1: Terrestrial habitat loss or modification. This package addresses Resource Condition Targets B1, B2, B3 and Management Action Targets B1, B2, B8, B9.

Cause	No.	Action	Possible Lead Org. ⁴
Inadequate strategic planning	B1	Develop the means to interpret Regional data for focusing the implementation of on-ground works (e.g. revegetation, habitat protection and roadside vegetation management).	CCNRM
	B2	Promote and support integrated property planning as a mechanism for protection of habitat loss or modification. (NHT Priority Project: Funded 2004: Operational whole farm planning)	CCNRM, DPIWE
	B3	Investigate and develop management systems (e.g. limits of acceptable change) to ensure minimal impacts from grazing, tourist and recreation activities (e.g. camp site degradation, track site duplication).	PWS
	B4	Support the completion of the Comprehensive, Adequate and Representative reserve system (CAR) and the private land covenanting program.	DPIWE
	B5	Develop a Regional biodiversity management framework, similar to the Regional Forest Agreement, specifying zones for allowable uses that will maintain biodiversity in the Region (including agricultural and forestry land tenures).	CCNRM, TFGA, DPIWE
	B6	Provide specialist training to assist Local Government in assessment of vegetation clearance and impacts of developments on vegetation.	DPIWE
	B7	Support and assist conservation and restoration of habitat (including habitat that forms or enhances strategic biodiversity links, e.g. King Island) throughout Region, by providing incentives. (NHT Priority Project: Funded 2004: Bush and streamside restoration)	CCNRM
	B8	Support the implementation of the revised Permanent Forest Estate Policy and the Non-Forest Vegetation Agreement.	FPB
	B9	Support production of audit data relating to native vegetation clearance on private land, to identify habitats most at risk.	FPB
	B10	Develop and implement an industry-based accreditation process for nature-based tourism.	Tourism Tasmania
	B11	Develop and implement an accreditation system for wild flora harvesting	DPIWE

⁴ Possible lead organisations have been identified. Negotiation with these organisations is part of the next phase of developing the first Regional Investment Proposal. Acronyms are explained on the last page of this Strategy.

Cause	No.	Action	Possible Lead Org.
Inadequate knowledge	B12	Set vegetation condition benchmarks for Cradle Coast Region. (NHT Priority Project: Funded 2004: Setting vegetation condition benchmarks for Cradle Coast NRM - State-wide project)	CCNRM
	B13	Support the State-wide systematic survey and analysis of scrub communities to identify and assess conservation priorities for these communities.	DPIWE
	B14	Complete baseline biological surveys for the Region, encompassing all terrestrial habitats, vegetation and organism types (e.g. invertebrates and lower plants).	DPIWE
	B15	Assess the vulnerability of communities and species (e.g. migratory birds) to disturbance and reduced distribution/habitat loss (e.g. through human intervention, flood regimes, land use change and climate change).	DPIWE
	B16	Determine required fire regimes for biodiversity maintenance and translate results into guidelines for use by all land managers.	DPIWE/ PWS
	B17	Identify priority vegetation sites for protection (e.g. communities of critical ecological function, sites of high species diversity, scientific reference sites).	DPIWE

Biodiversity Package 2: Aquatic habitat loss or modification. This package addresses Resource Condition Targets B1, B2, B3, B5 and Management Action Targets B6, B8.

Cause	No.	Action	Possible Lead Org.
Inadequate strategic planning	B18	Implement and interpret Regional aspects of State-wide programs (e.g. State Wetlands Strategy).	CCNRM
	B19	Develop and implement conservation plans/agreements (e.g. migratory birds) at priority sites in consultation with landowners.	DPIWE
Inadequate knowledge	B20	Undertake detailed survey to assess the status, condition and threats to groundwater-dependent ecosystems for the Cradle Coast Region.	DPIWE
	B21	Identify the threat to biodiversity from salinity on King Island and elsewhere in the Region, and implement on-ground works on the basis of research.	King Island NRM/ CCNRM
	B22	Promote research into the effect of changed land use (and land use conversion) upon biodiversity assets within the Region (particularly riverine and floodplain biodiversity).	DPIWE
	B23	Maintain the database of all instream barriers to fish passage in the Region, for the purpose of management and habitat restoration.	CCNRM
	B24	Refine current modelling of flows to detect impacts of flow regulation and flow regimes on ecosystems.	DPIWE
	B25	Complete baseline biological surveys for the Region, encompassing all aquatic habitats, vegetation and organism types (linkages to W34, W35).	DPIWE

Biodiversity Package 3: Threatened species and communities of high conservation value. This package addresses Resource Condition Targets B3, B4, B5, B6 and Management Action Targets B5, B6, B8, B9.

Cause	No.	Action	Possible Lead Org.
Inadequate strategic planning	B26	Support development and coordinate the implementation of threatened species recovery plans and protection measures (e.g. ferns and grasslands in Arthur–Pieman) within the Cradle Coast NRM Region, and engage all stakeholders for uniform implementation across all land tenures. (NHT Priority Project: Funded 2004: Priority protection measures for nationally threatened species in the north-west NRM region – State-wide project)	DPIWE
	B27	Provide and promote information and management systems, that ensure the protection of threatened species, through Local Government planning processes (e.g. listing statements).	DPIWE/ Local Govt
	B28	Support the identification of critical habitat for threatened species and communities of high conservation value (including the investigation of priority wetlands of international importance for nomination and inclusion in reserve systems or recognition under Ramsar).	DPIWE
Lack of knowledge	B29	Contribute to the process of identifying flora and fauna of high conservation priority or iconic status in the Region (e.g. eastern barred bandicoot, platypus, eastern quoll and Tasmanian devil) to prevent them becoming threatened, and develop and implement appropriate management actions.	DPIWE
	B30	Support and develop the identification and determination of the status of threatened species in the Region and State.	DPIWE
	B31	Undertake surveys to identify population characteristics of giant freshwater lobster and Burnie burrowing crayfish.	CCNRM
	B32	Ensure monitoring programs are in place to assess impacts on threatened values from large-scale developments.	DPIWE



Biodiversity Package 4: Pest plants, animals and diseases. This package addresses Resource Condition Targets B3, B7, B8, B9, B10 and Management Action Targets B7, B8, B10, B11, B12, B13, B14.

Cause	No.	Action	Possible Lead Org.
Inadequate strategic planning	B33	Develop and implement a Regional weed management strategy (that includes Weeds Of National Significance). (NHT Priority Project: Funded 2004: Cradle Coast Regional Weed Management Strategy)	CCNRM
	B34	Implement National and State-based weed and disease management plans (e.g. threat abatement plans).	Various
	B35	Develop consistent Regional standards (including guidelines and codes of practice) for controlling pest plants and animals and diseases (e.g. for transport of stock fodder and grain, fodder and grain vendor declaration systems, and game management).	CCNRM
	B36	Identify gaps in animal and disease management strategies and develop plans to fill gaps.	DPIWE
	B37	Develop, implement and promote reporting and response procedures for new and priority pests and diseases.	Various
	B38	Support the provision of adequate mechanisms and resourcing to maintain tight State quarantine arrangements.	DPIWE
	B39	Support the State-wide fox eradication program.	DPIWE
	B40	Implement the <i>West Coast Weed and Fire Management Strategy</i> . (NHT Priority Action: Funded 2004: Implementation of the West Coast Weed and Fire Management Strategy)	West Coast Weed and Fire Mgt Group
Inadequate knowledge	B41	Support measures to investigate and control disease in Tasmanian devils, including monitoring the presence of facial tumours.	DPIWE
	B42	Determine the current distribution, abundance and movement of pest animals, and their relative impacts upon biodiversity.	DPIWE
	B43	Promote stakeholder involvement in development of research to control pest plants, animals and diseases.	CCNRM
	B44	Establish mechanisms for the early detection, reporting and management of new weed species, outbreaks of existing weeds and emerging weed problems.	DPIWE/ CCNRM
	B45	Develop and implement criteria to determine Weeds Of Regional Significance.	DPIWE/ Cradle Coast Regional Weed Committee
	B46	Develop and implement strategic plans (including weed transport corridors) for the eradication of priority limited distribution weeds.	Various
	B47	Support the development and implementation of municipal weed management strategies (general weeds).	Local Govt
Inappropriate management practices	B48	Develop and implement a Regional washdown plan in consultation with user groups, State and Local Government.	various
	B49	Encourage and support the coordination of weed management plans to address Tasmania <i>Together</i> targeted areas.	DPIWE
	B50	Establish and implement incentive programs to encourage land managers and groups to control weeds. Monitor outcomes, identify hot spots and review management as necessary.	CCNRM
	B51	Eradicate pampas grass.	Various

Monitoring and Evaluation Package

Monitoring and evaluation will allow the Region to learn about the effectiveness of actions taken, to make changes where necessary and to report on progress in achieving Regional targets. The following table contains the monitoring and evaluation actions for Biodiversity. For more information and the full set of monitoring and evaluation actions see chapter 15: Monitoring and Evaluation.

Monitoring and Evaluation Package for Biodiversity: This package addresses Resource Condition Targets B3 and Management Action Targets B8.

Asset	No.	Action	Possible Lead Org.
Biodiversity	M16	Maintain a monitoring system to provide data on extent and condition of native vegetation in the region.	DPIWE
	M17	Maintain a monitoring system to provide data on threatened and iconic native species and ecological communities' extent and conservation status.	DPIWE
	M18	Establish and maintain monitoring systems to provide data on the distribution and severity of pest animal and weed infestations.	DPIWE

