

Biodiversity status, trends and indicators

The 1996 State of the Environment Report

The 1996 Report (SoE 1996) was motivated by a commitment to ecological sustainability and a concern for Australia's biodiversity. It outlined over 50 major issues of concern for biodiversity and its conservation including 11 key issues that were identified as threats to biodiversity (Table 3).

Table 3: The 11 key issues identified in SoE (1996) as threats to biodiversity
The detail and comments are also from the 1996 report and mostly still apply in 2001.

Issue	Detail	Comment
Effects of human population and consumption	The overwhelming causes of the decline in Australia's biodiversity result from the human population, their lifestyles, technologies and demands on natural resources	The situation continues to deteriorate as population and demands on natural resources increase
Condition of ecosystems	Most terrestrial freshwater and marine ecosystems are altered in structure and function to some extent	Few ecosystems remain in a largely natural condition. The situation is deteriorating
Distribution and abundance of species	Many species are undescribed or poorly studied; of those that are described, many are lost or threatened	The loss of and decline in species continues and is cause for national concern
Changes in genetic diversity	Little is known for most species, although there is strong evidence of loss of genetic diversity for some	While the degree of genetic diversity is unclear, it is almost certainly declining
Land clearance and related activities	Land clearing destroys and modifies ecosystems thus threatening biodiversity. The past extent and continuing rate vary greatly between states and territories	This is the single largest threat to biodiversity. The situation is deteriorating as threatening activities continue
Effects of introduced species	Most terrestrial freshwater and marine ecosystems are affected or threatened, as are many native species	Effects have often been severe and the situation continues to deteriorate
Harvesting native species	Some species have been and are being overexploited. There are detrimental effects on habitat and non-target species	Harvesting of native species is an important pressure on biodiversity in some areas. The situation is deteriorating
Lack of knowledge of biodiversity	This affects ability to develop strategies for achieving sustainable production without further detrimental effects on biodiversity	The knowledge base, while still inadequate, is slowly improving
Effectiveness of conservation measures outside reserves	Most biodiversity will continue to rely on areas outside the system of conservation parks and reserves	Better integration of management approaches in the local regional and national spheres is required
Adequacy of protected areas	The number and extent of protected areas is increasing but nature conservation is generally a residual land use in agricultural districts	Some ecosystems and species are represented well, others poorly
Adoption of integrated ecosystem-based management of natural resources	This is necessary for achieving sustainable production without further detrimental changes in biodiversity	Bioregional management requirements are partially recognised but enormous efforts are still required to fully develop and implement them

An explicit purpose of environmental reporting is to allow tracking of changes over time, particularly from one report to the next. This section compares some of the findings of the 2001 Report with those of SoE (1996).

The threats to biodiversity identified in SoE (1996) (Table 3) are presented here in further detail (Table 4). Many ecosystems and species are threatened by human activities such as habitat clearance and modification and the invasion of systems by exotic organisms. Genetic diversity is also threatened although the nature and detail of genetic diversity loss is most poorly documented. At the general level, SoE (1996) stated that 'to balance conservation of biodiversity, human population growth and economic development' would require 'substantial changes in the way that land and oceans are managed'. Clearly between 1996 and 2001, an expectation of 'substantial' change would be likely to be disappointed. Mostly we do not yet fully understand what such changes entail. This Report shows that there have been both encouraging signs of improvement and evidence of both lack of progress or emerging and as yet poorly addressed issues.

Indicators of biodiversity

Environmental indicators

This Report pioneers the use of environmental indicators on a continental scale. Environmental indicators are physical, chemical, biological or socioeconomic measures that

Table 4: Qualitative comparison of status and trends for biodiversity between SoE (1996) and the 2001 Report

Eucalypt-dominated savanna woodlands and marine systems such as seagrasses were not addressed in the 1996 report. Climate change is seen as a pervasive threat to both terrestrial and marine ecosystems.

Key issue: (ecosystem or taxa)	Condition 1996	Condition 2001	Pressure 1996	Pressure 2001	Key response 1996	Key response 2001	Effectiveness of key response
Ecosystem diversity							
Northern rainforests	Highly fragmented many areas degraded	No change to 1996	Habitat destruction	Habitat destruction	Listing as protected areas including World Heritage Register; improved land management		Limited; some unique areas not protected; clearing grazing fire management and weeds still problematic
Southern rainforests	Highly fragmented	No change to 1996	Habitat destruction	Habitat destruction	Listing in protected areas		Increase in reserve estate (NSW)
Tall open forests	Extensive losses in area and altered species composition	No change to 1996	Altered fire regimes, land clearance logging	Altered fire regimes, land clearance logging	Improved management reservation	Fire management	Reserve system expanded via RFA process; initial definition of Ecological Sustainable Forest Management (effectiveness not yet assessable)
Acacia forests, woodlands and shrublands	Habitat loss and degradation; species diversity reduced	Habitat loss and degradation; species diversity reduced	Clearance, grazing	Clearance, grazing, altered fire regimes. Land clearance is the single largest threat to biodiversity. The situation is deteriorating as threatening activities continue	Improved land management	Vegetation clearance controls	Locally effective. Vegetation clearance not yet controlled
Eucalypt-dominated temperate woodlands	Widespread habitat loss; fragmentation	Widespread habitat loss; fragmentation	Clearance, grazing, salinity	Clearance, grazing, salinity		Vegetation clearance controls	Vegetation, clearance not yet controlled
Savanna woodlands	Habitat degradation and modification	Habitat degradation and modification		Altered fire and grazing regimes, weeds, feral animals		Improved land management	Locally effective
Eucalypt scrubs and shrublands	Extreme fragmentation, possible inability to regenerate	No change to 1996	Clearance, grazing	Clearance, grazing, salinity. Land clearance is the single largest threat to biodiversity. The situation is deteriorating as threatening activities continue	Reservation; restoration	Vegetation clearance controls	Very limited; reserves inadequate. Vegetation clearance not yet controlled
Heathlands	Widespread habitat loss; fragmentation	No change to 1996	Clearance, altered fire regimes, urbanisation, agriculture and sand mining	Clearance, altered fire regimes, urbanisation, agriculture and sand mining	Reserves	Fire management	Limited and only locally effective
Chenopod shrublands	Widespread habitat degradation; many plant species endangered	No change to 1996	Grazing	Grazing, woody weeds	Improved land management; reserves	Weed control strategies	Locally effective only. Very limited
Native grasslands	Many areas highly degraded or altered by introduction of exotic species	No change to 1996	Grazing	Grazing, weeds, urban development. Altered fire regimes	Improved land management and legislation; reservation		Locally effective; reserves inadequate. Inclusion in regional vegetation planning in some jurisdictions (effectiveness unclear)

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Key issue: (ecosystem or taxa)	Condition 1996	Condition 2001	Pressure 1996	Pressure 2001	Key response 1996	Key response 2001	Effectiveness of key response
Alpine and subalpine vegetation	Some areas highly degraded	No change to 1996	Grazing, tourism, climate change (predicted)	Grazing, tourism, climate change (likely)	Reservation; improved land management		Many areas now in national parks; others remain degraded and vulnerable
Salt marshes and mangroves	Extensive loss near urban areas	No change to 1996	Habitat destruction and degradation	Habitat destruction and degradation, sediments and nutrients from land, climate change (sea level rise)	Protected areas, development control, community awareness	ICM pollution control. Greenhouse policy	Unknown. Greenhouse policy not clear on biodiversity aspects
Species diversity							
Microorganisms	Unknown but population composition and size likely to be affected	No change to 1996	Habitat modification and loss	Habitat modification and loss, unknown	Little direct response		Not known. Insufficient research or policy development
Marine invertebrates	Reduction in population size of exploited species	Unknown	Habitat modification and loss, harvesting; competition pests	Habitat modification and loss, harvesting, competition pests, sediments/ pollution from land	Management plans for exploited species; controls on illegal harvesting	Pollution control; ballast water management	Pressures are continuing; very few successes. Effect of pollution control unknown; ballast water strategies taking effect
Freshwater invertebrates	Insufficient information to assess	No change to 1996	Habitat modification and loss	Habitat modification and loss, salinity; climate change; pollution; water allocation	ICM; waste-water treatment; restoration of wetlands; control of introduced pests	Various policy responses. Research and monitoring	Little known. Uncertain as yet. Increasing from low base
Land invertebrates	Massive reduction in population size of effected species	No change to 1996	Habitat modification and loss	Habitat modification and loss	Little direct response; protected areas		Little known
Marine fish	Many important species overexploited majority in good condition	Some species overexploited; majority sustainably harvested; some status unclear	Harvesting of edible species	Harvesting of edible species, effect on non-target species	Management plans for most major species	Management plans in place for few stocks—few properly address ecological effects. Individual transferable quota systems	Management plans required in most jurisdictions; bycatch planning commencing. Unclear
Freshwater fish	Generally in poor condition, many species threatened	Situation worsened?	Habitat modification and loss; introduced species	Habitat modification and loss, introduced species, salinity, pollution, sediments/ nutrients from land, reduce/ altered flows from storages and diversion	ICM; wetland restoration; control of introduced pests	Various policy responses. Provision of environmental flows	ICM more widespread; NPI in place; control of exotics difficult. Efficacy of policies for protecting biodiversity unknown. Unclear; environmental flow provision beginning under COAG water reforms
Amphibians	Several species have disappeared or are declining	No change to 1996	Sustained habitat loss but often pressures not identified, pollution, sediments and nutrients, climate change	Sustained habitat loss but often pressures not identified, pollution, sediments and nutrients, climate change	Protected areas; community-initiated protection		Lack of knowledge of causes of declines prevents effective actions

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Key issue: (ecosystem or taxa)	Condition 1996	Condition 2001	Pressure 1996	Pressure 2001	Key response 1996	Key response 2001	Effectiveness of key response
Reptiles	Massive reduction in numbers in urban and agricultural areas	No change to 1996	Habitat loss	Habitat loss	Protection areas; protection of marine and freshwater turtles	Bycatch policy	Partially effective
Birds	Some species disappearing; others threatened; a few increasing their range	No change to 1996	Habitat modification and loss, predation from feral animals	Habitat modification and loss, predation from feral animals	General protection; protected areas	Threat abatement plans. Revegetation (limited direct response). Increase in protected areas in some jurisdictions	Unclear as yet. Partially effective
Mammals	Several species lost; others threatened; a few increasing their range	No change to 1996	Habitat modification and loss, competition with and predation by feral animals	Habitat modification and loss, competition with and predation by feral animals, forest management; land clearance	General protection; protected areas	Threat abatement plans; species action plans. Protected areas	Pressure from feral cats and foxes continues; unclear as yet. Partially effective
Marine plants	Extensive loss of seagrasses; localised loss of mangroves	No change to 1996	Habitat modification and loss, pollution, natural events (floods cyclones)	Habitat modification and loss, pollution, natural events (floods cyclones), nutrients/sediments from land, climate change (sea level rise)	Protection for seagrasses and mangroves but destruction still allowed in some areas by permit	ICM; pollution control; greenhouse policy; reservation	Unclear as yet; reserves increased in some jurisdictions
Freshwater plants	Species threatened	No change to 1996	Habitat modification and loss	Habitat modification and loss, weeds, water extraction	Limitation on water licences; protected areas	Wetland restoration; environmental flows; ICM; weed strategies	Some localised advances—unclear as yet
Land plants	Many species endangered or vulnerable	No change to 1996	Clearance, habitat modification and loss	Clearance, habitat modification and loss, environmental weeds altered fire regimes, grazing, harvesting	Protected areas	Weeds strategies; fire management; harvesting controls pastoral management strategies. Protected areas increased in some regions and jurisdictions	Unclear. Effective in some areas
Genetic diversity							
	Some species show reduced genetic diversity	While the degree of genetic diversity is unclear, it is almost certainly declining	Habitat fragmentation and loss	Habitat fragmentation and loss, GMOs	Protected areas; captive breeding; reintroduction; regulation of exploitation		Little known; research in progress

are considered to best represent the key elements of a complex ecosystem or environmental issue. When fully developed they should help define the nature and size of environmental issues, set goals for their solution and track progress towards these goals (Heinemann et al. 1998). In order to track these changes, a monitoring program is essential where repeated sets of measurements are compared with a benchmark set or condition. For SoE reporting, these benchmarks must enable the effects of current programs and policies and of land/resource management activities to be assessed in relation to their biodiversity outcomes.

The 2001 State of the Environment Report

The national level biodiversity indicators that form the basis of the report were developed by Saunders et al. (1998). A total of 65 indicators were recommended (Table 5), 14 of which related to pressures on biodiversity, 17 to the condition of biodiversity and 34 to responses to the loss of or perceived threats to biodiversity. Throughout this Report the indicators will be referred to by the numbering system used in Table 5.

Table 5: Biodiversity indicators for national State of Environment reporting

Each Indicator is referred to in the Report according to its number.

No.	Title
BD 1.1	Human population distribution and density
BD 1.2	Change in human population density
BD 2.1	Extent and rate of clearing or major modification of natural vegetation or marine habitat
BD 2.2	Location and configuration or fragmentation of remnant vegetation and marine habitat
BD 3.1	Rate of extension of exotic species into IBRA
BD 3.2	Pest numbers
BD 4.1	Distribution and abundance of GMOs
BD 5	Pollution
BD 6	Areal extent of altered fire regimes
BD 7	Human-induced climate change
BD 8.1	Lists and numbers of organisms being trafficked and legally exported
BD 8.2	Number of permits requested and issued for legal collecting or harvesting by venture
BD 8.3	Proportion of numbers collected over size of reproducing population
BD 8.4	Ratio of bycatch to target species
BD 9.1	Number of subspecific taxa
BD 9.2	Population size, numbers and physical isolation
BD 9.3	Environmental amplitude of populations
BD 9.4	Genetic diversity at marker loci
BD 10.1	Number of species
BD 10.2	Estimated number of species
BD 10.3	Number of species formally described
BD 10.4	Percentage of number of species described
BD 10.5	Number of subspecies as a percentage of species
BD 10.6	Number of endemic species
BD 10.7	Conservation status of species
BD 10.8	Economic importance of species
BD 10.9	Percentage of species changing in distribution
BD 10.10	Number distribution and abundance of migratory species
BD 10.11	Demographic characteristics of target taxa
BD 11.1	Ecosystem diversity
BD 11.2	Number and extent of ecological communities of high conservation potential
BD 12	Integrated bioregional planning
BD 13.1	Extent of each vegetation type and marine habitat type in protected areas
BD 13.2	Number of protected areas with management plans
BD 13.3	Number of interest groups involved in protected area planning
BD 13.4	Resources committed to protected areas
BD 14	Proportion of bioregions covered by biological surveys
BD 15.1	Number of recovery plans
BD 15.2	Amount of funding for recovery plans

Table 5: Biodiversity indicators for national State of Environment reporting (continued)
Each Indicator is referred to in the Report according to its number.

No.	Title
BD 16.1	Number of <i>ex situ</i> research programs
BD 16.2	Number of releases to the wild from <i>ex situ</i> breeding
BD 17.1	Number of management plans for ecologically sustainable harvesting
BD 17.2	Effectiveness of bycatch controls
BD 18.1	Area of clearing officially permitted
BD 18.2	Area cleared to area revegetated
BD 18.3	Number of lending institutions considering biodiversity
BD 19.1	Number of management plans for exotic/alien/GMOs
BD 19.2	Number of research programs for exotic/alien/GMOs
BD 19.3	Funding for research and control of exotic/alien/GMOs
BD 20	Control over the impacts of pollution
BD 21	Reducing the impacts of altered fire regimes
BD 22	Minimising the potential impacts of human-induced climate change on biodiversity
BD 23.1	Number of local governments with management plans for biodiversity
BD 23.2	Number of companies with management plans for biodiversity
BD 24.1	Number of species described per reporting cycle
BD 24.2	Number of taxonomists involved per reporting cycle
BD 24.3	Amount of funding for taxonomy
BD 24.4	Number of research programs into surrogates
BD 24.5	Number of research programs into the role of biodiversity in ecological processes
BD 24.6	Number of long-term ecological monitoring sites
BD 24.7	Percentage of budgets spent on conservation
BD 24.8	Amount of Indigenous ethnobiological knowledge
BD 25.1	Local government management of biodiversity
BD 25.2	Involvement of community groups in conservation
BD 26	Australia's international role in conservation

Source: Saunders et al. (1998).

When Saunders et al. (1998) were developing the national level indicators, each one was assessed to see if it would:

- 1 serve as a robust indicator of environmental change
- 2 reflect a fundamental or highly valued aspect of the environment
- 3 be either national in scope or applicable to regional environmental issues of national significance
- 4 provide an early warning of potential problems
- 5 be capable of being monitored to provide statistically verifiable and reproducible data that show trends over time and preferably apply to a broad range of environmental regions
- 6 be scientifically credible
- 7 be easy to understand
- 8 be monitored regularly with relative ease
- 9 be cost-effective
- 10 have relevance to policy and management needs
- 11 contribute to monitoring of progress towards implementing commitments in nationally significant environmental policies
- 12 where possible and appropriate facilitate community involvement
- 13 contribute to the fulfilment of reporting obligations under international agreements
- 14 where possible and appropriate use existing commercial and managerial indicators
- 15 where possible and appropriate be consistent and comparable with other countries and state and territory indicators.



Figure 4: Australian terrestrial and marine regions derived from IBRA (version 5) and IMCRA, respectively.

These regionalisations are used as a framework for reporting on several of the biodiversity indicators used in this Report and are being increasingly used as the basis for biodiversity planning in Australia (see list of regions on pages 26–28).

Source: Environmental Information Resources Network.

Reporting scale

The bioregional scale provides a national framework for the conservation and the protection of biodiversity and is used as the basis for reporting for many of the indicators developed by Saunders et al. (1998). The two major regionalisations used in Australia are the: IBRA (Thackway & Cresswell 1995) and IMCRA (IMCRA Technical Group 1998). In Australia, 85 IBRA and 60 IMCRA regions have been identified (Figure 4).

The National Reserve System Program (NRSP) has funded additional studies for the refinement of IBRA regions and in October 2000 a set of revised boundaries was agreed by the

IBRA (version 5)

Name	Region No.
Australian Alps	1
Arnhem Coast	2
Arnhem Plateau	3
Avon wheat belt	4
Brigalow Belt North	5
Brigalow Belt South	6
Ben Lomond	7
Broken Hill Complex	8
Burt Plain	9
Central Arnhem	10
Carnarvon	11
Channel Country	12
Central Kimberley	13
Central Mackay Coast	14
Coolgardie	15
Cobar Peneplain	16
Central Ranges	17
Cape York Peninsula	18
Daly Basin	19
Darwin Coastal	20
Desert Uplands	21
Dampierland	22
Davenport Murchison Ranges	23
Darling Riverine Plains	24
Einasleigh Uplands	25
Esperance Plains	26
Eyre Yorke Block	27
Finke	28
Flinders Lofty Block	29
Flinders	30
Gascoyne	31
Gawler	32
Gibson Desert	33
Gulf Fall and Uplands	34
Geraldton Sandplains	35
Great Sandy Desert	36
Gulf Coastal	37
Gulf Plains	38
Great Victoria Desert	39
Hampton	40
Jarrah Forest	41
Kanmantoo	42
King	43
Little Sandy Desert	44
MacDonnell Ranges	45
Mallee	46
Murray–Darling Depression	47
Mitchell Grass Downs	48
Mount Isa Inlier	49
Mulga Lands	50
Murchison	51
Nandewar	52
Naracoorte Coastal Plain	53
New England Tableland	54
Northern Kimberley	55
NSW North Coast	56
NSW South Western Slopes	57
Nullarbor	58
Ord Victoria Plain	59
Pine Creek	60
Pilbara	61
Riverina	62
Sydney Basin	63

IBRA (version 5)

Name	Region No.
South East Coastal Plain	64
South East Corner	65
South Eastern Highlands	66
South Eastern Queensland	67
Simpson Strzelecki Dunefields	68
Stony Plains	69
Sturt Plateau	70
Swan Coastal Plain	71
Tanami	72
Tasmanian Central Highlands	73
Tiwi Cobourg	74
Tasmanian Northern Midlands	75
Tasmanian Northern Slopes	76
Tasmanian South East	77
Tasmanian Southern Ranges	78
Tasmanian West	79
Victoria Bonaparte	80
Victorian Midlands	81
Victorian Volcanic Plain	82
Warren	83
Wet Tropics	84
Yalgoo	85

IMCRA

Name	Region No.
Abrolhos Islands	1
Anson Beagle	2
Arafura	3
Arnhem Wessel	4
Batemans Shelf	5
Boags	6
Bonaparte Gulf	7
Bruny	8
Cambridge-Bonaparte	9
Canning	10
Carpentaria	11
Central Bass Strait	12
Central Reef	13
Central Victoria	14
Central West Coast	15
Cobourg	16
Coorong	17
Davey	18
Eyre	19
East Cape York	20
Eighty Mile Beach	21
Eucla	22
Flinders	23
Franklin	24
Freycinet	25
Groote	26
Hawkesbury Shelf	27
Karumba-Nassau	28
Kimberley	29
King Sound	30
Leeuwin-Naturaliste	31
Lucinda-Mackay Coast	32
Mackay-Capricorn	33
Manning Shelf	34
Murat	35
Ningaloo	36
North Spencer Gulf	37

IMCRA (continued)

Name	Region No.
North West Shelf	38
Oceanic Shoals	39
Otway	40
Pellew	41
Pilbara (nearshore)	42
Pilbara (offshore)	43
Pompey–Swains	44
Ribbons	45
Spencer Gulf	46
St Vincent Gulf	47
Shark Bay	48
Shoalwater Coast	49
Tiwi	50
Torres Strait	51
Tweed-Moreton	52
Twofold Shelf	53
Victorian Embayments	54
Van Diemens Gulf	55
WA South Coast	56
Wellesley	57
West Cape York	58
Wet Tropic Coast	59
Zuytdorp	60

Commonwealth, state and territory governments. As a result, IBRA version 5 is being developed and where indicated, is used in this Report.

Other national scale indicators

Two other sets of national scale indicators have or are being developed in Australia. First, ANZECC (2000a) has chosen 13 core biodiversity indicators on the basis that they can be used to report on the state of the environment across jurisdictions within Australia. Many of these indicators have strong links to those recommended by Saunders et al. (1998) as illustrated in Table 6.

The second set of national scale indicators is being developed by the ABS. These represent a small set of headline indicators based on the core objectives of the National Strategy for Ecological Sustainable Development. Six indicators have been identified under the heading in the ABS document *Protecting biodiversity and maintaining ecological processes and life support systems*. Those most directly relevant to biodiversity conservation focus on the extent and condition of representative ecosystems, the health of land and water systems and the number of extinct endangered and vulnerable species and ecological communities.

Table 6: The ANZECC core biodiversity indicators and their links to National State of Environment indicators

Issue	ANZECC indicator	Title	Description	Links to SoE biodiversity indicators (see Table 5)
Threatening processes	BD 1	Native vegetation clearing	Rate of clearing in hectares per year of terrestrial native vegetation types by clearing activity	BD 2.1
	BD 2	Aquatic habitat destruction	Rate of destruction in hectares per year of freshwater and marine habitats by the types of disturbing activities	BD 2.1
	BD 3	Fire regimes	Area of vegetation burnt by frequency and intensity of burning and type of vegetation	BD 6
	BD 4	Introduced species	The distribution (and abundance) of non-Indigenous terrestrial, marine and freshwater species (plants, vertebrates, invertebrates and pathogens) identified as pests. This indicator also includes displaced or translocated native species. The identified species will vary with place and time	BD 3.1, BD 3.2, BD 4.1
	BD 5	Species outbreaks	The number (and identity) of native species outbreaks and the location and area affected	BD 3.2
Loss of biodiversity	BD 6	Extinct endangered and vulnerable species and ecological communities	Number of species and ecological communities presumed extinct endangered or vulnerable. This indicator should be reported by major group together with the estimated number of endemic species per major group. Applies to animals and plants both terrestrial and aquatic	BD 10.7, BD 11.2
	BD 7	Extent and condition of native vegetation	The area and condition of native vegetation by type. In the absence of other measures, vegetation assemblages are used as surrogates for ecological communities and ecosystem diversity	BD 11.1, BD 11.2
	BD 8	Extent and condition of aquatic habitats	The area and condition of marine coastal estuarine and freshwater habitats by type. Marine and estuarine habitat types include algal beds, beaches and dunes, coral reefs, intertidal reefs, intertidal sand/mudflats, mangroves, saltmarshes, seagrass and seamounts. Freshwater habitats include riverine areas and wetlands	BD 11.1, BD 11.2, BD 13.1
	BD 9	Populations of selected species	Estimated populations of selected species including declining species are an important measure for assessing the conservation status of species. They are also potential surrogates for assessing changes in genetic diversity	BD 10.9, BD 10.1, BD 10.7
Biodiversity, conservation and management	BD 10	Terrestrial protected areas	Area by vegetation type in protected area categories as defined by the International Union for the Conservation of Nature (IUCN) in hectares as a percentage of the pre-1750 area by IBRA region	BD 13.1
	BD 11	Marine and estuarine protected areas	The number extent and classification of marine and estuarine protected areas (classification based on IUCN World Conservation Union criteria). Also area as a percentage of each IMCRA region)	BD 13.1
	BD 12	Recovery plans	Recovery plans for threatened species and ecological communities as required under legislation	BD 15.1, BD 6, BD 9, BD 10
	BD 13	Area revegetated	The area revegetated by species or genus. In hectares per year, disaggregated into areas revegetated using local vegetation or other vegetation and the purpose of the revegetation	BD 18.2
Marine habitat and biological resources	BD 3	Total seafood catch	The total catch of fish (excluding aquaculture) disaggregated into: commercial fish catch (by species where possible), discarded catch, landed bycatch and estimated recreational and subsistence catch	BD 8.3, BD 8.4

Source: after ANZECC (2000a).