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# *Appendix 1*

**International treaties relating to the environment,  
conservation and heritage**

# *Appendix 2*

**Australia's extinct, endangered and vulnerable  
plants and animals**

# *Acronyms*

# *Glossary*

# *Subject Index*

## International treaties relating to the environment, conservation and heritage

### Multilateral

Date and place of instrument	Head Treaty Title	Entry into force generally	Notes
25 January 1924, Paris	International Agreement for the Creation at Paris of an International office for dealing with Contagious Diseases of Animals	12 January 1925	The Agreement established the International Office of Epizootics. Acceded to by Australia 9 February 1924.
2 December 1946, Washington	International Convention for the Regulation of Whaling (International Whaling Convention)	10 November 1948	Established the International Whaling Commission, located in the UK. Signed for Australia 2 December 1946. Instrument of ratification deposited for Australia 1 December 1947. The Schedule to the Convention has been amended every year since entry into force.  See also the 1956 Protocol to the Convention. Signed for Australia 19 November 1956. Instrument of ratification deposited for Australia 8 April 1957.
11 October 1947, Washington	Convention of the World Meteorological Organization (WMO)	23 March 1950	Signed for Australia 11 October 1947. Instrument of ratification deposited for Australia 14 March 1949. Extended to Norfolk Island from 1950 and Australian Antarctic Territory from 1955.
26 February 1948, Baguio	Agreement for the Establishment of the Indo-Pacific Fisheries Council (under the auspices of FAO)	9 November 1948	Instrument of acceptance deposited for Australia 10 March 1949. Entry into force for Australia 10 March 1949. Renamed the Indo-Pacific Fishery Commission in 1976.
6 March 1948, Geneva	Convention on the Inter-Governmental Maritime Consultative Organization (IMCO, later IMO)	17 March 1958	Signed for Australia 6 March 1948. Instrument of acceptance deposited for Australia 13 February 1952. Title of Convention amended to "Convention on the International Maritime Organization" in 1975.  See also the 1964 Amendments to the Convention. Accepted for Australia 6 January 1965.  See also the 1965 Amendments to the Convention. Instrument of acceptance deposited for Australia 23 June 1966.  See also the 1975 and 1977 Amendments to the Convention. Instruments of acceptance deposited for Australia 29 May 1980.  See also the 1979 Amendments to the Convention. Instrument of acceptance deposited for Australia 10 November 1980.  See also the 1991 Amendments to the Convention. Instrument of acceptance deposited for Australia 1 July 1994. The Amendments are not yet in force.
6 December 1951, Rome	International Plant Protection Convention (under the auspices of FAO)	3 April 1952	Signed for Australia 30 April 1952. Instrument of ratification deposited for Australia 27 August 1952. Entry into force for Australia 27 August 1952. Extended to Norfolk Island by declaration in 1954.  See also Supplementary Convention of 27 February 1956, below.  See also 1979 Revised Text of Convention. Instrument of acceptance deposited for Australia 22 May 1981.
14 May 1954, The Hague	Convention for the Protection of Cultural Property in the Event of Armed Conflict (under the auspices of UNESCO)	7 August 1956	Signed for Australia 14 May 1954. Instrument of ratification deposited for Australia 19 September 1984. Entry into force for Australia 19 December 1984.
27 February 1956, Rome	Plant Protection Agreement for the South-East Asia and Pacific Region (under the auspices of FAO)	2 July 1956	Signed for Australia, without reservation as to ratification, 27 February 1956. Title of Agreement was amended to "Plant Protection Agreement for the Asia and Pacific Region" in 1979.  See also the 1984 Amendments to the Agreement which extended the definition of the region to include China. Instrument of acceptance deposited for Australia 24 October 1989.

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Date and place of instrument	Head Treaty Title	Entry into force generally	Notes
1 December 1959, Washington	The Antarctic Treaty	23 June 1961	<p>Signed for Australia 1 December 1959. Instrument of ratification deposited for Australia 23 June 1961.</p> <p>See also the 1991 Protocol on Environmental Protection to the Treaty (Annexes I - IV). Signed for Australia 4 October 1991. Instrument of ratification deposited for Australia 6 April 1994. The Protocol is not yet in force.</p> <p>See also 1991 Annex V on Area Protection to the Protocol on Environment Protection to the Treaty. Instrument of approval deposited for Australia 6 April 1994. The Annex is not yet in force.</p>
5 August 1963, London, Moscow, Washington	Treaty banning Nuclear Weapon Testing in the Atmosphere, in Outer Space and Under Water (Partial Test Ban Treaty)	10 October 1963	<p>Signed for Australia 8 August 1963. Instruments of ratification deposited for Australia 12 November 1963. Entry into force for Australia 12 November 1963.</p>
27 January 1967, London, Moscow, Washington	Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies	10 October 1967	<p>Signed for Australia 27 January 1967. Instruments of ratification deposited for Australia 10 October 1967.</p> <p>See also 1979 Agreement Governing the Activities of States on the Moon and other Celestial Bodies (under the auspices of the UN). Instrument of accession deposited for Australia 7 July 1986. Entry into force for Australia 6 August 1986.</p>
29 November 1969, Brussels	International Convention on Civil Liability for Oil Pollution Damage (under the auspices of IMO)	19 June 1975	<p>Signed for Australia 17 December 1970. Instrument of ratification, with declarations regarding claims on sovereign immunity, deposited for Australia 7 November 1983. Entry into force for Australia 5 February 1984.</p> <p>See also the 1973 Protocol to Convention. Instrument of accession deposited for Australia 7 November 1983. Entry into force for Australia 5 February 1984.</p> <p>Instrument of denunciation of Protocol, pursuant to Article VI, deposited for Australia 22 June 1988 with effect from the date on which Protocol enters into force. However, latter Protocol was denounced before it entered into force for Australia.</p> <p>See also 1992 Protocol to amend of the Convention. Instrument of accession deposited for Australia 9 October 1995.</p>
29 November 1969, Brussels	International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969 (under the auspices of IMO)	6 May 1975	<p>Signed for Australia 17 December 1970. Instrument of ratification, with declaration on coastal protection, deposited for Australia 7 November 1983. Entry into force for Australia 5 February 1984.</p> <p>See also 1973 Protocol relating to Intervention on the High Seas in Cases of Marine Pollution by Substances other than Oil. Instrument of accession, with declaration regarding intervention on the high seas, deposited for Australia 7 November 1983. Entry into force for Australia 5 February 1984.</p>
17 November 1970, Paris	Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property	24 April 1972	<p>Adopted by UNESCO General Conference on 14 November 1970 by which date it is sometimes cited. Instrument of acceptance, with reservation to Article 10 regarding the maintenance of registers by antique dealers, deposited for Australia 30 October 1989. Entry into force for Australia 30 January 1990.</p>
2 February 1971, Ramsar (Iran)	Convention on Wetlands of International Importance especially as Waterfowl Habitat	21 December 1975	<p>The Convention, including the List of Wetlands of International Importance established under it, is administered by the International Union for Conservation of Nature and Natural Resources (IUCN). UNESCO is depositary for ratifications, accession, etc. Signed for Australia without reservation as to ratification 8 May 1974.</p> <p>See also the 1982 Protocol to Convention. Instrument of accession deposited for Australia 12 August 1983.</p> <p>See also the 1987 Amendments to the Convention. Instrument of acceptance deposited for Australia 25 July 1990.</p>

<b>Date and place of instrument</b>	<b>Head Treaty Title</b>	<b>Entry into force generally</b>	<b>Notes</b>
11 February 1971, London, Moscow, Washington	Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea-bed and the Ocean Floor and in the Subsoil Thereof	18 May 1972	Signed for Australia 11 February 1971. Instruments of ratification deposited for Australia 23 January 1973. Entry into force for Australia 23 January 1973.
18 December 1971, Brussels	International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (under the auspices of IMO)	16 October 1978	Instrument of accession deposited for Australia 10 October 1994. Entry into force for Australia 8 January 1995.  See also the 1976 Protocol to Convention. Instrument of accession deposited for Australia 10 October 1994. Entry into force for Australia 8 January 1995.  See also 1992 Protocol to amend the Convention. Instrument of accession deposited for Australia 9 October 1995.
29 March 1972, London, Moscow, Washington	Convention on International Liability for Damage Caused by Space Objects	1 September 1972	Instruments of accession deposited for Australia 20 January 1975. Entry into force for Australia 20 January 1975.
10 April 1972, London, Moscow, Washington	Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction	26 March 1975	Signed for Australia 10 April 1972. Instruments of ratification deposited for Australia 5 October 1977. Entry into force for Australia 5 October 1977.
1 June 1972, London	Convention for the Conservation of Antarctic Seals	11 March 1978	Signed for Australia 5 October 1972. Instrument of ratification deposited for Australia 1 July 1987. Entry into force for Australia 31 July 1987.  Amendments to the Annex, done at London on 16 September 1988, entered into force 27 March 1990
23 November 1972, Paris	Convention for the Protection of the World Cultural and Natural Heritage (under the auspices of UNESCO)	17 December 1975	Adopted by UNESCO General Conference 16 November 1972 by which date it is sometimes cited. Instrument of ratification deposited for Australia 22 August 1974.
29 December 1972, London, Mexico City, Moscow, Washington	International Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention)	30 August 1975	Known as London Dumping Convention until 1993. Signed for Australia, with declaration regarding Article VII(1)(c), 10 October 1973. Instrument of ratification deposited for Australia 21 August 1985. Entry into force for Australia 20 September 1985.  Amendments to Annexes made in 1978, 1980 and 1989. These entered into force in 1979, 1981 and 1990 respectively.  Amendments of 12 November 1993, concerning phasing out of sea disposal of industrial waste, entered into force generally 20 February 1994. Accepted for Australia by declaration deposited 15 February 1994, except in relation to jarosite waste where the option of dumping at sea will be retained for a short period after the January 1996 deadline but not beyond December 1997.
3 March 1973, Washington	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	1 July 1975	Signed for Australia 21 September 1973. Instrument of ratification deposited for Australia 29 July 1976. Entry into force for Australia 27 October 1976. Appendices I, II and III are subject to continual revision.  See also 1979 Amendment to Article XI.3(a) of the Convention. Instrument of acceptance deposited for Australia 1 July 1986.  See also 1983 Amendment to Article XXI of the Convention. Instrument of acceptance deposited for Australia 13 November 1991. The Amendment is not yet in force.

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Date and place of instrument	Head Treaty Title	Entry into force generally	Notes
12 April 1973, Rome	Statutes of the International Centre for the Study of the Preservation and Restoration of Cultural Property of 5 December 1956, as amended 24 April 1963 and 12 April 1973 (ICCRUM - under the auspices of UNESCO)	10 May 1958	The Centre was established in Rome. Declaration of accession deposited for Australia 26 June 1975. Entry into force for Australia 26 June 1975.  Further amended by the General Assembly of the Centre 23 April 1979.
2 November 1973, London	International Convention for the Prevention of Pollution from Ships (MARPOL 1973) and Protocols I and II		See also Protocol of 1973 to the Convention. Signed for Australia, with declaration and subject to ratification, 24 December 1974. The Convention did not enter into force but see Protocol of 17 February 1978 (below).
18 November 1974, Paris	Agreement on an International Energy Program, as amended 5 February 1975 (under the auspices of OECD)	18 November 1974 (provisionally) 19 January 1976 (definitively)	The Agreement established the International Energy Agency. Instrument of accession, with explanatory statement, deposited for Australia 17 May 1979. Entry into force for Australia 27 May 1979.
12 June 1976, Apia (Western Samoa)	Convention on the Conservation of Nature in the South Pacific	26 June 1990	Instrument of accession deposited for Australia 28 March 1990. Federal statement deposited for Australia 15 November 1990.
18 May 1977, Geneva	Convention on the Prohibition of Military or any other Hostile Use of Environmental Modification Techniques (ENMOD - under the auspices of the UN)	5 October 1978	Adopted by UN General Assembly 10 December 1976 by which date it is sometimes cited. Signed for Australia 31 May 1978. Instrument of ratification deposited for Australia 7 September 1984. Entry into force for Australia 7 September 1984.
17 February 1978, London	Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships of 2 November 1973, as amended (MARPOL Protocol)	2 October 1983 (Annex I: 2 October 1983; Annex II: 6 April 1987; Annex III: 1 July 1992; Annex V: 31 December 1988)	Signed for Australia 30 May 1979. Instrument of ratification, including Annexes I and II, deposited for Australia 14 October 1987. Entry into force for Australia 14 January 1988. Instrument of accession to Annex III (Regulations for the Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form) deposited for Australia 10 October 1994. Entry into force of Annex III for Australia 10 January 1995. Instrument of accession to Annex V (Regulations for the Prevention of Pollution by Garbage from Ships) deposited for Australia 14 August 1990. Entry into force of Annex V for Australia 14 November 1990.  MARPOL Convention of 2 November 1973 (above) did not enter into force but pursuant to Article 1(b) of the MARPOL Protocol, the latter incorporated the terms of the Convention, including Protocols I and II, subject to modifications and additions made by MARPOL Protocol.  There have been various amendments to Annexures.
23 October 1978, Geneva	International Convention for the Protection of New Varieties of Plants of 2 December 1961, as amended 10 November 1972 and revised 23 October 1978	8 November 1981	Instrument of accession deposited for Australia 1 February 1989. Entry into force for Australia 1 March 1989.
23 June 1979, Bonn	Convention on the Conservation of Migratory Species of Wild Animals	1 November 1983	Instrument of accession, with federal statement, deposited for Australia 26 June 1991. Entry into force for Australia 1 September 1991.  Amendments to Appendices I and II, done at Bonn in 1985, entered into force in January 1986; and done at Geneva in 1988 entered into force in January 1989.
10 July 1979, Honiara	South Pacific Forum Fisheries Agency Convention	9 August 1979	Accepted by signature for Australia 13 September 1979. Entry into force for Australia 13 October 1979.  See also 1983 Amendment to the Convention. Instrument of acceptance deposited for Australia, with explanatory note, 2 February 1987. The Amendment is not yet in force. The Amendment was revised in May 1989.

Date and place of instrument	Head Treaty Title	Entry into force generally	Notes
3 March 1980, Vienna	Convention on the Physical Protection of Nuclear Material (under the auspices of IAEA)	8 February 1987	Signed for Australia 22 February 1984. Instrument of ratification deposited for Australia 22 September 1987. Entry into force for Australia 22 October 1987.
20 May 1980, Canberra	Convention on the Conservation of Antarctic Marine Living Resources	7 April 1982	Signed for Australia 11 September 1980. Instrument of ratification deposited for Australia 6 May 1981. Australia is depositary for the Convention.
10 December 1982, Montego Bay	United Nations Convention on the Law of the Sea	16 November 1994	The Convention was adopted by the third UN Conference on the Law of the Sea (UNCLOS). Signed for Australia 10 December 1982. Instrument of ratification deposited for Australia 5 October 1994. Replaced Conventions (four) of 29 April 1958.  See also 1994 Agreement relating to the implementation of Part XI of the Convention. Signed for Australia 29 July 1994. Instrument of ratification deposited for Australia 5 October 1994. Provisional application of Convention will terminate 16 November 1998 if requirements of Article 6.1 are not fulfilled.  See also 1995 Agreement for the Implementation of the Convention relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks. Signed for Australia, subject to ratification, 4 December 1995. The Agreement is not yet in force.
18 November 1983, Geneva	International Tropical Timber Agreement, 1983	1 April 1985 (provisionally)	The Agreement established the International Tropical Timber Organization with headquarters at Yokohama. Instrument of accession deposited for Australia 16 February 1988. Entry into force for Australia 16 February 1988. Due to expire 1990 but extended to 1994.
22 March 1985, Vienna	Vienna Convention for the Protection of the Ozone Layer	22 September 1988	Instrument of accession deposited for Australia 16 September 1987.  See also Montreal Protocol on Substances that Deplete the Ozone Layer of 16 September 1987 (below).
6 August 1985, Rarotonga	South Pacific Nuclear Free Zone Treaty	11 December 1986	Also known as Treaty of Rarotonga. Signed for Australia 6 August 1985. Instrument of ratification deposited for Australia 11 December 1986. Protocols 1, 2 and 3 to Treaty, done at Suva on 8 August 1986, provide for acceptance by certain nuclear weapon States of undertakings in relation to the Zone.
26 September 1986, Vienna	Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (under the auspices of IAEA)	26 February 1987	Signed for Australia 26 September 1986. Instrument of ratification, with declaration pursuant to Article 8.9 that Australia would not be bound by Articles 8.2 and 8.3, deposited for Australia 22 September 1987. Entry into force for Australia 23 October 1987.
26 September 1986, Vienna	Convention on Early Notification of a Nuclear Accident (under the auspices of IAEA)	27 October 1986	Signed for Australia 26 September 1986. Instrument of ratification deposited for Australia 22 September 1987. Entry into force for Australia 23 October 1987.
24 November 1986, Noumea	Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (SPREP)	22 August 1990	Signed for Australia 24 November 1987. Instrument of ratification deposited for Australia 19 July 1989.  See also 1986 Protocol for the Prevention of Pollution of the South Pacific Region by Dumping. Signed for Australia, subject to ratification, 24 November 1987.  See also 1986 Protocol concerning Co-operation in Combating Pollution Emergencies in the South Pacific Region. Signed for Australia 24 November 1987. Instrument of ratification deposited for Australia 19 July 1989.  See also 1993 Agreement establishing the South Pacific Regional Environment Programme (SPREP) [as an intergovernmental organisation]. Signed for Australia at Suva on 21 September 1993. Instrument of ratification deposited for Australia 18 October 1994.

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Date and place of instrument	Head Treaty Title	Entry into force generally	Notes
2 April 1987, Port Moresby	Treaty on Fisheries between the Governments of Certain Pacific Island States and the Government of the United States of America, and Agreed Statement on Observer Programme	15 June 1988	Signed for Australia 2 April 1987. Instrument of ratification deposited for Australia 18 May 1987. See also Agreement with the United States of America of 2 April 1987 (under Bilateral).  See also 1992 Amendments to Annexures I and II. Notification of acceptance deposited for Australia 9 June 1993. The Amendments are not yet in force.
2 April 1987, Port Moresby	Agreement among Pacific Island States concerning the Implementation and Administration of the Treaty on Fisheries between the Governments of Certain Pacific Island States and the Government of the United States of America	15 June 1988	Signed for Australia 2 April 1987. Instrument of ratification deposited for Australia 18 May 1987.  See also 1992 Amendments to Schedule 1 of Agreement. Instrument of acceptance deposited for Australia 14 July 1993. The Amendments are not yet in force.
16 September 1987 Montreal	Montreal Protocol on Substances that Deplete the Ozone Layer	1 January 1989	Signed for Australia 8 June 1988. Instrument of ratification deposited for Australia 19 May 1989. Entry into force for Australia 17 August 1989.  See also 1992 Amendment to the Montreal Protocol. Instrument of acceptance deposited for Australia 11 August 1992. Entry into force for Australia 9 November 1992.  See also 1994 Amendment to the Montreal Protocol. Instrument of acceptance deposited for Australia 30 June 1994. Entry into force for Australia 28 September 1994.
22 March 1989, Basel, Switzerland	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	5 May 1992	Instrument of accession deposited for Australia 5 February 1992.
24 November 1989, Wellington	Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific	17 May 1991	Signed for Australia at Auckland 2 February 1990. Instrument of ratification deposited for Australia 6 July 1992. Entry into force for Australia 6 July 1992.
10 September 1990, Washington	Agreement concerning the Continuation of Marine Geoscientific Research and Mineral Resource Studies in the South Pacific Region (Tripartite Phase II Extended Agreement)	10 September 1990	The Agreement, concluded with New Zealand and the United States of America, was signed for Australia and entered into force on signature. Extended provisions of Phase II Agreement of 19 September 1984. Due to expire 9 September 1995.
30 November 1990, London	International Convention on Oil Pollution Preparedness, Response and Co-operation (under the auspices of IMO)	13 May 1995	Instrument of accession deposited for Australia 6 July 1992.
9 May 1992, New York	United Nations Framework Convention on Climate Change	21 March 1994	Signed for Australia at Rio de Janeiro, 4 June 1992. Instrument of ratification deposited for Australia 30 December 1992.
5 June 1992, Rio de Janeiro	Convention on Biological Diversity	29 December 1993	Signed for Australia 5 June 1992. Instrument of ratification deposited for Australia 18 June 1993.
9 July 1992, Honiara	Niue Treaty on Cooperation in Fisheries Surveillance and Law Enforcement in the South Pacific Region	20 May 1993	Signed for Australia 9 July 1992. Instrument of ratification deposited for Australia 3 September 1993. Entry into force for Australia 3 September 1993.
13 January 1993, Paris	Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction		Signed for Australia 13 January 1993. Instrument of ratification deposited for Australia 6 May 1994. The Convention is not yet in force.
10 May 1993, Canberra	Convention for the Conservation of Southern Bluefin Tuna	20 May 1994	Signed for Australia, Japan and New Zealand 10 May 1993. Instrument of ratification deposited for Australia 20 May 1994. Australia is depositary for Convention.
17 June 1994, Paris	United Nations Convention to Combat Desertification in those Countries experiencing Serious Drought and/or Desertification, particularly in Africa		Signed for Australia, subject to ratification, 14 October 1994. The Convention is not yet in force.

Date and place of instrument	Head Treaty Title	Entry into force generally	Notes
17 December 1994, Lisbon	Energy Charter Treaty	17 December 1994 (provisionally - for signatories accepting such application) Part VII: 17 December 1994 (provisionally for all signatories)	Signed for Australia, subject to ratification, 17 December 1994, with declaration pursuant to Article 45(2)(a) not accepting provisional application of the Treaty, and declaration concerning trade-related investment measures. The Treaty is not yet in force definitively.  See also 1994 Protocol to Treaty on Energy Efficiency and related Environmental Aspects. Signed for Australia, subject to ratification, 17 December 1994. The Protocol is not yet in force.
16 September 1995, Port Moresby	Regional Convention on Hazardous Wastes (Waigani Convention)		Also known as Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region. Signed for Australia, subject to ratification, 16 September 1995. The Convention is not yet in force.

**Bilateral**

<b>Date and place of signature</b>	<b>Head Treaty Title</b>	<b>Entry into force</b>	<b>Notes</b>
20 October 1986, Canberra	CHINA Agreement for the Protection of Migratory Birds and their Environment	1 September 1988	The Agreement entered into force when Notes were exchanged 26 December 1986 and 1 September 1988 pursuant to Article VI(1).
11 December 1989, Timor Sea	INDONESIA Treaty on the Zone of Cooperation in an Area between the Indonesian Province of East Timor and Northern Australia (Timor Gap Treaty)	9 February 1991	The Treaty entered into force 30 days following an exchange of Notes of 10 January 1991 pursuant to Article 32.
22 April 1992, Jakarta	Agreement relating to Cooperation in Fisheries	29 May 1993	The Agreement entered into force when Notes were exchanged 24 June 1992 and 29 May 1993 pursuant to Article 13.1.
8 September 1986, Hobart	INTERNATIONAL ORGANISATIONS Headquarters Agreement with the Commission for the Conservation of Antarctic Marine Living Resources	8 September 1986	The Agreement, concerning the Commission's headquarters in Hobart, entered into force on signature pursuant to Article 26.1.
6 February 1974, Tokyo	JAPAN Agreement for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment	30 April 1981	The Agreement entered into force when instruments of ratification were exchanged at Canberra 30 April 1981 pursuant to Article IX.2.
17 October 1979, Canberra	Agreement on Fisheries	1 November 1979	The Agreement entered into force on the date specified in Article XII. 1. Superseded Agreement of 27 November 1968. Subsidiary Agreements were done yearly between 1979 and 1993.
21 December 1994, Melbourne	Subsidiary Agreement (to Agreement of 27 October 1979) concerning Japanese Tuna Long-Line Fishing	21 December 1994	The Subsidiary Agreement entered into force on signature pursuant to Article IX. Due to expire 31 October 1995.
23 November 1983, Canberra	KOREA, REPUBLIC OF Agreement on Fisheries, and Exchange of Letters	24 November 1983	The Agreement entered into force on the date specified in an exchange of Notes of 24 November 1983 pursuant to Article XIII. The Exchange of Letters entered into force on the same date.
18 December 1978, Sydney	PAPUA NEW GUINEA Treaty concerning Sovereignty and Maritime Boundaries in the Area between the Two Countries, including the Area known as the Torres Strait, and Related Matters	15 February 1985	Also known as the Torres Strait Treaty. The Agreement entered into force when instruments of ratification were exchanged at Port Moresby 15 February 1985 pursuant to Article 32.
15 February 1990, Canberra	RUSSIA Agreement (with the Union of Soviet Socialist Republics) on Cooperation in the Field of Protection and Enhancement of the Environment	15 February 1990	The Agreement entered into force on signature pursuant to Article X.1.
2 April 1987, Port Moresby	UNITED STATES OF AMERICA Exchange of Notes constituting an Agreement on Access to the Australian Fishing Zone	2 April 1987	The Agreement entered into force on the date of the Note in reply.  See also Agreements with the Pacific Islands of 2 April 1987 (under Multilateral).

Source: Condensed from list provided by the Department of Foreign Affairs and Trade (1995).

## Australia's extinct, endangered and vulnerable plants and animals

This Appendix lists plant and animal species in Australia which are either recognised in the Commonwealth's *Endangered Species Protection Act 1992* (Schedule 1), or are currently being considered for listing. Species that are endangered are listed in Part 1 (see pages A11–12), those that are vulnerable are listed in Part 2 (see pages A13–16), and species that are presumed extinct are listed in Part 3 (see page A17). Conservation status recommended by the ANZECC Endangered Fauna Network, which are to be considered for changes to the *Endangered Species Protection Act* Schedule, are provided on pages A18–19.

Threatened species that may have been identified by action plans and overviews — being prepared under the National Endangered Species Program — for bats, cetaceans (whales and dolphins), seals, dugongs, amphibians, and non-marine invertebrates and non-vascular plants are not included in this Appendix. Also, this Appendix does not include the public nominations pending under the Commonwealth's *Endangered Species Protection Act*, such as the koala, the Tiger Quoll, Eastern Gemfish and others.

It should be remembered that these lists are compiled from the national perspective — species that are known to be threatened to some degree at the national level. They do not take into account species, subspecies and discrete populations that are either extinct or threatened on a regional, state, territory or local level. In addition, these lists do not reflect those plants and animals which may have already experienced significant declines in population and distribution, but are not recognised as threatened under existing legislation. Such a comprehensive analysis is possible, but was not undertaken for the purposes of this national report. Nor does this list include threatened freshwater and marine plants, marine invertebrates or marine fish and lichens.

Commonwealth  
Endangered Species  
Protection Act, 1992  
Schedule 1

Part 1 – Species that  
are endangered

**Animals**

**Fish**

- Galaxias fontanus*  
Swan Galaxias
- Galaxias fuscus*  
Brown Galaxias
- Galaxias johnstoni*  
Clarence Galaxias
- Galaxias pedderensis*  
Pedder Galaxias
- Maccullochella ikei*  
Eastern Freshwater Cod
- Maccullochella macquariensis*  
Trout Cod
- Melanotaenia eachamensis*  
Lake Eacham Rainbow Fish

**Amphibians**

- Geocrinia vitellina*  
Yellow-bellied Frog
- Litoria spenceri*  
Spotted Tree Frog
- Rheobatrachus silus*  
Gastric-brooding Frog
- Rheobatrachus vitellinus*  
Eungella Gastric-brooding  
Frog
- Taudactylus acutirostris*  
Sharp-snouted Day Frog
- Taudactylus diurnus*  
Southern Day Frog
- Taudactylus eungellensis*  
Eungella Day Frog

**Reptiles**

- Aprasia aurita*  
Legless Lizard
- Aprasia parapulchella*  
Pink-tailed Legless Lizard
- Caretta caretta*  
Loggerhead Turtle
- Hoplocephalus bungaroides*  
Broad-headed Snake
- Pseudemydura umbrina*  
Western Swamp Tortoise
- Tiliqua adelaidensis*  
Adelaide Blue-tongued  
Lizard

**Birds**

- Cacatua pastinator pastinator*  
Western Long-billed Corella
- Calyptorhynchus banksii*  
*graptogyne*  
South-eastern Red-tailed  
Black Cockatoo
- Coracina tenuirostris*  
*melvillensis*  
Melville Cicadabird
- Cyanoramphus novaezelandiae*  
*cookii*  
Norfolk Island Parrot
- Diomedea exulans chionoptera*  
Wandering Albatross  
(southern subspecies)
- Erythrura gouldiae*  
Gouldian Finch
- Falcunculus frontatus whitei*  
Kimberley Crested Shrike-tit
- Geopsittacus occidentalis*  
Night Parrot
- Leipoa ocellata*  
Mallee fowl
- Lichenostomus melanops*  
*cassidix*  
Helmeted Honeyeater
- Manorina melanotis*  
Black-eared Miner
- Neophema chrysogaster*  
Orange-bellied Parrot
- Ninox novaeseelandiae*  
*undulata*  
Norfolk Island Boobook  
Owl
- Pardalotus quadragintus*  
Forty-spotted Pardalote
- Petrophassa smithii blauwi*  
Western Partridge Pigeon
- Pezoporus wallicus flaviventris*  
Western Ground Parrot
- Poecilodryas superciliosa*  
*cerviniventris*  
Derby White-browed Robin
- Psephotus chrysopterygius*  
Golden-shouldered Parrot
- Psittaculirostris diophthalma*  
*coxeni*  
Coxen's Fig-parrot
- Pterodroma leucoptera*  
*leucoptera*  
Gould's Petrel
- Sterna albifrons*  
Little Tern
- Stipiturus malachurus*  
*intermedius*  
Mount Lofty Southern  
Emu-wren
- Sula abbotti*  
Abbott's Booby
- Turdus poliocephalus*  
*poliocephalus*  
Norfolk Island Thrush
- Xanthomyza phrygia*  
Regent Honeyeater
- Zosterops albogularis*  
Norfolk Island Silvereye

**Mammals**

- Balaenoptera musculus*  
Blue Whale
- Bettongia lesueur*  
Burrowing Bettong
- Bettongia penicillata*  
Brush-tailed Bettong
- Bettongia tropica*  
Northern Bettong
- Crocidura tenuata var. trichura*  
Christmas Island Shrew
- Dasyuroides byrnei*  
Kowari
- Dasyurus geoffroii*  
Western Quoll
- Eubalaena australis*  
Southern Right Whale
- Gymnobelideus leadbeateri*  
Leadbeater's Possum
- Isodon auratus*  
Golden Bandicoot
- Lagorchestes hirsutus*  
Rufous Hare-wallaby
- Lagostrophus fasciatus*  
Banded Hare-wallaby
- Lasiorhinus krefftii*  
Northern Hairy-nosed  
Wombat
- Leporillus conditor*  
Greater Stick-nest Rat
- Megaptera novaeangliae*  
Humpback Whale
- Myrmecobius fasciatus*  
Numbat
- Notomys fuscus*  
Dusky Hopping-mouse
- Onychogalea fraenata*  
Bridled Nailtail Wallaby
- Parantechinus apicalis*  
Dibbler
- Perameles bougainville*  
Western Barred Bandicoot
- Perameles eremiana*  
Desert Bandicoot
- Petaurus gracilis*  
Mahogany Glider
- Phascogale calura*  
Red-tailed Phascogale
- Potorous longipes*  
Long-footed Potoroo
- Potorous tridactylus gilberti*  
Gilbert's Potoroo
- Pseudocheirus peregrinus*  
*occidentalis*  
Western Ringtail Possum
- Pseudomys oralis*  
Hastings River Mouse
- Pseudomys praeconis*  
Shark Bay Mouse
- Pseudomys shortridgei*  
Heath Rat
- Sminthopsis douglasi*  
Julia Creek Dunnart
- Zyzomys pedunculatus*  
Central Rock-rat

**Plants**

- Acacia cretacea*
- Acacia enterocarpa*
- Acacia leptalea* Maslin ms.
- Acacia pinguifolia*
- Acacia porcata*
- Acronychia littoralis*
- Adenanthos pungens*
- Adenanthos velutinus*
- Agrostis adamsonii*
- Agrostis limiteana*
- Alectryon ramiflorus*
- Allocasuarina defungens*
- Allocasuarina emuina*
- Allocasuarina portuensis*
- Allocasuarina thalassoscopica*
- Andersonia* sp. Two Peoples  
Bay (G. Keighery 8229)
- Anthocercis gracilis*
- Apatophyllum constablei*
- Aristida granitica*
- Arthraxon hispidus*
- Asterolasia elegans*
- Astrotricha roddii*
- Atalaya collina*
- Atriplex kochiana*
- Austromyrtus fragrantissima*
- Austromyrtus gonoclada*
- Ballantinia antipoda*
- Banksia brownii*
- Barbarea australis*
- Bentleya spinescens*
- Boronia granitica*
- Boronia repanda*
- Brachyscome muelleri*
- Cajanus mareebensis*
- Caladenia audasii*
- Caladenia busselliana* Hopper  
and A.P. Brown ms.
- Caladenia cristata*
- Caladenia elegans* Hopper and  
A.P. Brown ms.
- Caladenia formosa*
- Caladenia fragrantissima*  
subsp. *orientalis*
- Caladenia fulva*
- Caladenia hastata*
- Caladenia lowanensis*
- Caladenia robinsonii*
- Caladenia rosella*
- Caladenia tensa*
- Caladenia thysanochila*
- Caladenia viridescens* Hopper  
and A.P. Brown ms.
- Calochilus psednus*
- Calochilus richae*

- Calytrix breviseta* subsp. *breviseta*  
*Centrolepis pedderensis*  
*Chamaelaucium griffinii* Marchant & Keighery ms.  
*Colobanthus curtisiae*  
*Conostylis setigera* subsp. *dasy*  
*Corchorus cunninghamii*  
*Cyathea exilis*  
*Cynanchum elegans*  
*Cyperus ohwii*  
*Danthonia popinensis*  
*Darwinia apiculata*  
*Darwinia carnea*  
*Darwinia ferricola* N.G. Marchant and Keighery ms.  
*Davidsonia* sp. Mullumbimby-Currumbin Ck (A.G. Floyd 1595)  
*Daviesia bursarioides* Crisp ms.  
*Daviesia microcarpa* Crisp ms.  
*Daviesia oxylobium* Crisp ms.  
*Daviesia purpurascens*  
*Dendrobium antennatum*  
*Dendrobium mirbelianum*  
*Dendrobium nindii*  
*Deyeuxia appressa*  
*Digitaria porrecta*  
*Diospyros mabacea*  
*Diploglottis campbellii*  
*Dipodium pictum*  
*Diuris fragrantissima*  
*Diuris micrantha*  
*Diuris pallens*  
*Dodonaea subglandulifera*  
*Drakonorchis drakeoides* Hopper and A.P. Brown ms.  
*Dryandra mimica*  
*Dryandra* sp. Kamballup (M. Pieroni s.n. 20/9/88)  
*Dryandra* sp. Stirling Range (F. Lullfitz 3379)  
*Elaeocarpus williamsianus*  
*Endiandra floydii*  
*Epacris hamiltonii*  
*Epacris stuartii*  
*Epiblema grandiflorum* var. *cyanea* Dixon ms.  
*Eremophila caerulea* subsp. *merrallii* Chinnock ms.  
*Eremophila nivea*  
*Eremophila veneta* Chinnock ms.  
*Eremophila verticillata*  
*Eriocaulon carsonii*  
*Eucalyptus absita*  
*Eucalyptus conglomerata*  
*Eucalyptus crenulata*  
*Eucalyptus crucis* subsp. *praecipua* Brooker and Hopper ms.  
*Eucalyptus cuprea* Brooker and Hopper ms.  
*Eucalyptus dolorosa* Brooker & Hopper ms.  
*Eucalyptus graniticola* Brooker and Hopper ms.  
*Eucalyptus impensa* Brooker and Hopper ms.  
*Eucalyptus morrisbyi*  
*Eucalyptus phylacis*  
*Eucalyptus recurva*  
*Eucalyptus rhodantha*  
*Euphrasia collina muelleri*  
*Euphrasia collina osbornii*  
*Euphrasia* sp. Southport (W.M. Curtis 5/12/58)  
*Fimbristylis adjuncta*  
*Fontainea oraria*  
*Frankenia plicata*  
*Gardenia actinocarpa*  
*Gastrolobium callistachys*  
*Gastrolobium glaucum*  
*Gastrolobium graniticum*  
*Gastrolobium hamulosum*  
*Genoplesium rhyoliticum*  
*Genoplesium tectum*  
*Gentiana baeuerlenii*  
*Gentianawingecarribiensis*  
  
*Gonocarpus intricatus*  
*Graptophyllum reticulatum*  
*Grevillea batrachioides*  
*Grevillea beadleana*  
*Grevillea caleyi*  
*Grevillea calliantha*  
*Grevillea flexuosa*  
*Grevillea iaspicula*  
*Grevillea scapigera*  
*Grevillea wilkinsonii*  
*Habenaria macraithii*  
*Hakea aculeata*  
*Hakea pulvinifera*  
*Haloragis eyreana*  
*Haloragodendron lucasii*  
*Homopholis belsonii*  
*Huperzia carinata*  
*Huperzia dalhousieana*  
*Huperzia filiformis*  
*Huperzia squarrosa*  
*Hypocalymma longifolium*  
*Isoglossa eranthemoides*  
*Isopogon uncinatus*  
  
*Kunzea rupestris*  
*Lambertia echinata* subsp. *echinata*  
*Lambertia fairallii*  
*Lambertia orbifolia*  
*Lepidium catapycnon*  
*Lepidium hyssopifolium*  
*Lepidium monoplacoides*  
*Leucochrysum albicans* subsp. *incanum*  
*Lomatia tasmanica*  
*Macadamia* sp. Woopen Creek (B. Hyland 3472)  
*Macrozamia lomandroides*  
*Malaxis lawleri*  
*Marsdenia coronata*  
*Marsdenia longiloba*  
*Meziella trifida*  
*Muellerargia timorensis*  
*Myoporum turbinatum*  
*Neoroepa buxifolia*  
*Ochrosia moorei*  
*Olearia flocktoniae*  
*Olearia hygrophila*  
*Olearia microdisca*  
*Persoonia nutans*  
*Phaius bernaysii*  
*Phalaenopsis rosenstromii*  
*Phebalium daviesii*  
*Phebalium equestre*  
*Phebalium lachnaeoides*  
*Phebalium obtusifolium*  
*Pimelea rara*  
*Pimelea spicata*  
*Pityrodia scabra*  
*Planchonella eerwah*  
*Pleurophascum occidentale*  
*Pomaderris cotoneaster*  
*Prasophyllum chasmogamum*  
*Prasophyllum concinnum*  
*Prasophyllum diversiflorum*  
*Prasophyllum petilum*  
*Prasophyllum uroglossum*  
*Prostanthera eurybioides*  
*Psoralea parva*  
*Pterostylis arenicola*  
*Pterostylis despectans*  
*Pterostylis gibbosa*  
*Pterostylis* sp. Dimboola (D.L. Jones 5333 ex P. Branwhite s.n.)  
*Pterostylis* sp. Northampton (S.D. Hopper 3349)  
*Ptilotus beckerianus*  
*Ptychosema pusillum*  
*Ptychosperma bleeseri*  
  
*Pultenaea pauciflora*  
*Pultenaea trichophylla*  
*Quassia* sp. Mooney Creek (J. King s.n., 1949)  
*Randia moorei*  
*Ranunculus prasinus*  
*Restio abortivus*  
*Romnaldia strobilacea*  
*Rutidosis leptorrhynchoides*  
*Sclerolaena napiformis*  
*Senecio behrianus*  
*Sowerbaea multicaulis*  
*Stemmacantha australis*  
*Stylidium coroniforme*  
*Stylidium scabridum*  
*Swainsona recta*  
*Tectaria devexa*  
*Tetratheca gunnii*  
*Tetratheca paynteri* Alford ms.  
*Thelymitra dedmaniae*  
*Thelymitra epipactoides*  
*Thysanotus wangariensis*  
*Triunia robusta*  
*Tylophora linearis*  
*Tylophora rupicola*  
*Tylophora woollsii*  
*Uromyrtus australis*  
*Verticordia fimbriolepis*  
*Verticordia harveyi*  
*Verticordia hughanii*  
*Verticordia plumosa* var. *ananeotes*  
*Vrydagzynea paludosa*  
*Westringia crassifolia*  
*Xanthostemon formosus*  
*Xerothamnella herbacea*  
*Zieria adenophora*  
*Zieria baeuerlenii* J.A. Armstrong ms.  
*Zieria buxijugum* J. Briggs and J.A. Armstrong ms.  
*Zieria formosa* J. Briggs and J.A. Armstrong ms.  
*Zieria obcordata*  
*Zieria parrisiae* J. Briggs and J.A. Armstrong ms.  
*Zieria prostrata* J.A. Armstrong ms.

## Part 2 – Species that are vulnerable

**Animals****Fish**

- Galaxias parvus*  
Swamp Galaxias
- Galaxias tanycephalus*  
Saddled Galaxias
- Nannoperca obscura*  
Yarra Pygmy Perch
- Nannoperca variegata*  
Ewens Pygmy Perch
- Prototroctes maraena*  
Australian Grayling
- Pseudomugil mellis*  
Honey Blue-eye

**Amphibians**

- Geocrinia alba*  
Creek Frog/White-bellied Frog
- Philoria frosti*  
Mount Baw Baw Frog

**Reptiles**

- Chelonia mydas*  
Green Turtle
- Ctenophorus yinnietharra*  
Yinnietharra Rock-dragon
- Ctenotus angusticeps*  
Airlie Island Ctenotus
- Ctenotus lanceolini*  
Lancelin Island Striped Skink
- Delma impar*  
Striped Legless Lizard
- Delma mitella*  
Legless Lizard
- Delma torquata*  
Legless Lizard
- Dermochelys coriacea*  
Leathery Turtle
- Egernia stokesii aethiops*  
Baudin Island Spiny-tailed Skink
- Eretmochelys imbricata*  
Hawksbill Turtle
- Lepidochelys olivacea*  
Pacific Ridley
- Morelia carinata*  
Rough-scaled Python
- Ophidiocephalus taeniatus*  
Bronzebacked Legless Lizard
- Pseudemoia palfreymani*  
Pedra Branka Skink
- Rhodytes leukops*  
Fitzroy River Tortoise

**Birds**

- Amytornis dorotheae*  
Carpentarian Grasswren
- Amytornis textilis textilis*  
Western grasswren
- Anous tenuirostris melanops*  
Lesser Noddy
- Atrichornis clamosus*  
Noisy Scrub-bird
- Casuaris casuaris*  
Southern Cassowary
- Cereopsis novaehollandiae grisea*  
Recherche Cape Barren Goose
- Charadrius rubricollis*  
Hooded Plover
- Dasyornis brachypterus*  
Eastern Bristlebird
- Dasyornis longirostris*  
Western Bristlebird
- Eclectus roratus*  
Eclectus Parrot
- Erythrotriorchis radiatus*  
Red Goshawk
- Falcunculus frontatus leucogaster*  
South-west Crested Shriketit
- Fregata andrewsi*  
Christmas Island Frigatebird
- Lathamus discolor*  
Swift Parrot
- Malurus leucopterus edouardi*  
Barrow Island Black-and-white Fairy-wren
- Malurus leucopterus leucopterus*  
Dirk Hartog Black-and-white Fairy-wren
- Ninox squamipila natalis*  
Christmas Island Hawk-owl
- Pachycephala rufogularis*  
Red-lored Whistler
- Pedionomus torquatus*  
Plains-wanderer
- Polytelis alexandrae*  
Alexandra's Parrot
- Stipiturus malachurus parimeda*  
Eyre Peninsula Southern Emu-wren
- Strepera graculina crissalis*  
Lord Howe Island Currawong
- Tricholimnas sylvestris*  
Lord Howe Island Woodhen
- Turnix melanogaster*  
Black-breasted Button-quail
- Turnix varia scintillans*  
Abrolhos Painted Button-quail

**Mammals**

- Burramys parvus*  
Mountain Pygmy-possum
- Dasyercus cristicauda*  
Mulgara
- Dasyurus viverrinus*  
Eastern Quoll
- Macroderma gigas*  
Ghost Bat
- Macropus robustus isabellinus*  
Barrow Island Euro
- Macrotis lagotis*  
Greater Bilby
- Mesembriomys macrurus*  
Golden-backed Tree-rat
- Notomys aquilo*  
Northern Hopping-Mouse
- Perameles gunnii*  
Eastern Barred Bandicoot
- Petrogale lateralis*  
Black-footed Rock-wallaby
- Petrogale penicillata*  
Brush-tailed Rock-wallaby
- Petrogale persephone*  
Proserpine Rock-wallaby
- Pseudomys australis*  
Plains Rat
- Pseudomys chapmani*  
Pebble-mound Mouse
- Pseudomys occidentalis*  
Western Mouse
- Pseudomys pillagaensis*  
Pilliga Mouse
- Sminthopsis psammophila*  
Sandhill Dunnart
- Xeromys myoides*  
False Water-rat
- Plants**
- Acacia anomala*
- Acacia aphylla*
- Acacia araneosa*
- Acacia argutifolia*
- Acacia attenuata*
- Acacia axillaris*
- Acacia barattensis*
- Acacia bynoeana*
- Acacia calantha*
- Acacia carnei*
- Acacia chinchillensis*
- Acacia clunies-rossiae*
- Acacia constablei*
- Acacia courtii*
- Acacia crombiei*
- Acacia curranii*
- Acacia denticulosa*
- Acacia depressa*
- Acacia deuteroneura*
- Acacia eremophiloides*
- Acacia fleckeri*
- Acacia flocktoniae*
- Acacia forrestiana*
- Acacia georgensis*
- Acacia glandulicarpa*
- Acacia grandifolia*
- Acacia guyeri*
- Acacia handonis*
- Acacia imbricata*
- Acacia lanuginophylla* R.S. Cowan & Maslin ms.
- Acacia latzii*
- Acacia lauta*
- Acacia lobulata*
- Acacia menzelii*
- Acacia merrickiae*
- Acacia perangusta*
- Acacia peuce*
- Acacia pharangites*
- Acacia phasmoides*
- Acacia pickardii*
- Acacia pubescens*
- Acacia pubifolia*
- Acacia purpureapetala*
- Acacia pygmaea* Maslin ms.
- Acacia ramiflora*
- Acacia rheticocarpa*
- Acacia ruppii*
- Acacia semicircularis*
- Acacia simulans*
- Acacia* sp. Dandaragan (S. van Leeuwen 269)
- Acacia tenuinervis*
- Acacia undoolyana*

- Acacia vassalii*  
*Acacia wardellii*  
*Acronychia crassipetala*  
*Acrophyllum australe*  
*Actinotus schwarzii*  
*Adenanthos cunninghamii*  
*Adenanthos dobagii*  
*Adenanthos ellipticus*  
*Adenanthos eyrei*  
*Adenanthos ileticos*  
*Allocasuarina fibrosa*  
*Allocasuarina glareicola*  
*Allocasuarina tortiramula*  
*Alloxylon flammeum*  
*Ammobium craspedioides*  
*Amorphospermum whitei*  
*Amphibromus fluitans*  
*Angophora robur*  
*Anigozanthos bicolor* subsp. *minor*  
*Anigozanthos humilis* subsp. *chrysanthus*  
*Anigozanthos viridis* subsp. *terraspectans*  
*Apatophyllum olsenii*  
*Aphanes pentamera*  
*Apium prostratum* subsp. *phillipii* Keighery ms.  
*Aponogeton hexatepalus*  
*Archidendron lovelliae*  
*Aristida annua*  
*Arytera dictyoneura*  
*Asperula asthenes*  
*Asplenium hookerianum*  
*Asplenium pellucidum*  
*Asplenium wildii*  
*Astelia australiana*  
*Asterolasia drummondii*  
*Asterolasia grandiflora*  
*Asterolasia nivea*  
*Asterolasia phebalioides*  
*Atriplex infrequens*  
*Baeckea arbuscula*  
*Baeckea crenatifolia*  
*Baeckea* sp. Mt Tozer (L.J. Brass 19348)  
*Baeckea* sp. Pyramids (W.F.J. McDonald 357)  
*Baloghia marmorata*  
*Banksia cuneata*  
*Banksia goodii*  
*Banksia oligantha*  
*Banksia sphaerocarpa* var. *dolichostyla*  
*Banksia tricuspis*  
*Banksia verticillata*
- Basedowia tenerrima*  
*Bertya ingramii*  
*Bertya opponens*  
*Bertya pinifolia*  
*Bertya sharpeana*  
*Beyeria subtecta*  
*Billardiera mollis*  
*Boronia adamsiana*  
*Boronia deanei*  
*Boronia keysii*  
*Boronia revoluta*  
*Borya mirabilis*  
*Bosistoa monostylis*  
*Bosistoa selwynii*  
*Bosistoa transversa*  
*Bossiaea oligosperma*  
*Bothriochloa biloba*  
*Bothriochloa bunyensis*  
*Brachychiton vitifolius*  
*Brachyscome ascendens*  
*Brachyscome muelleroides*  
*Brachyscome papillosa*  
*Budawangia gnidioides*  
*Bulbophyllum boonjee*  
*Bulbophyllum globuliforme*  
*Bulbophyllum gracillimum*  
*Bulbophyllum longiflorum*  
*Cadellia pentastylis*  
*Caladenia bryceana*  
*Caladenia caesarea* subsp. *maritima* Hopper and A.P. Brown ms.  
*Caladenia caudata*  
*Caladenia christineae* Hopper and A.P. Brown ms.  
*Caladenia dilatata* subsp. *villosissima*  
*Caladenia dorrienii*  
*Caladenia excelsa* Hopper and A.P. Brown ms.  
*Caladenia exstans* Hopper and A.P. Brown ms.  
*Caladenia gladiolata*  
*Caladenia harringtoniae* Hopper and A.P. Brown ms.  
*Caladenia hoffmanii* Hopper and A.P. Brown ms.  
*Caladenia huegelii*  
*Caladenia insularis*  
*Caladenia integra*  
*Caladenia longii*  
*Caladenia ovata*  
*Caladenia rigida*  
*Caladenia tessellata*  
*Caladenia versicolor*  
*Caladenia voigtii* Hopper and A.P. Brown ms.
- Caladenia wanosa*  
*Calamus warburgii*  
*Calectasia arnoldii* Dixon ms.  
*Callistemon chisholmii*  
*Callistemon formosus*  
*Callitriche cyclocarpa*  
*Callitris oblonga*  
*Callitris* sp. aff. *oblonga* Apsley River (A.M. Gray 22495)  
*Calophyllum bicolor*  
*Calotis glandulosa*  
*Calotis moorei*  
*Calytrix gurulumundensis*  
*Canarium acutifolium*  
*Canthium costatum*  
*Capparis thozetiana*  
*Carronia pedicellata*  
*Cassinia rugata*  
*Centotheca philippensis*  
*Centrolepis paludicola*  
*Chamaelaucium griffinii*  
*Chamaelaucium erythrochlora* N.G. Marchant and Keighery ms.  
*Chamaelaucium roycei* N.G. Marchant and Keighery ms.  
*Cheiranthra volubilis*  
*Choricarpia subargentea*  
*Clematis fawcettii*  
*Codonocarpus pyramidalis*  
*Comesperma oblongatum*  
*Commersonia* sp. Cardarga (G.P. Guyer 1642 )  
*Conospermum toddii*  
*Conostylis drummondii*  
*Conostylis lepidospermoides*  
*Conostylis micrantha*  
*Conostylis misera*  
*Conostylis rogeri*  
*Conostylis seorsiflora* subsp. *trichophylla*  
*Conostylis wonganensis*  
*Cooperhooikia georgei*  
*Corokia whiteana*  
*Correa baeuerlenii*  
*Correa calycina*  
*Corybas limpidus*  
*Cossinia australiana*  
*Croton magneticus*  
*Cryptocarya foetida*  
*Cryptostylis hunteriana*  
*Ctenopteris blechnoides*  
*Ctenopteris walleri*  
*Cupaniopsis shirleyana*  
*Cupaniopsis tomentella*  
*Cyperus semifertilis*
- Darwinia acerosa*  
*Darwinia biflora*  
*Darwinia collina*  
*Darwinia macrostegia*  
*Darwinia masonii*  
*Darwinia meeboldii*  
*Darwinia oxylepis*  
*Darwinia* sp. Stirling Range (G.J. Keighery 5732 )  
*Darwinia squarrosa*  
*Darwinia wittwerorum*  
*Daviesia discolor*  
*Daviesia euphorbioides*  
*Daviesia megacalyx* Crisp ms.  
*Daviesia pseudaphylla* Crisp ms.  
*Daviesia speciosa* Crisp ms.  
*Daviesia spiralis*  
*Dendrobium bigibbum*  
*Dendrobium callitrophyllum*  
*Dendrobium carronii*  
*Dendrobium johannis*  
*Dendrobium tozerensis*  
*Denhamia parvifolia*  
*Desmodium acanthocladum*  
*Dichanthium queenslandicum*  
*Dichanthium setosum*  
*Dillwynia tenuifolia*  
*Dioclea reflexa*  
*Diplazium cordifolium*  
*Diuris aequalis*  
*Diuris drummondii*  
*Diuris praecox*  
*Diuris purdiei*  
*Diuris recurva*  
*Diuris sheaffiana*  
*Diuris venosa*  
*Dodonaea rupicola*  
*Drakaea concolor* Hopper and A.P. Brown ms.  
*Drakaea confluens* Hopper and A.P. Brown ms.  
*Drakaea elastica*  
*Drakaea micrantha* Hopper and A.P. Brown ms.  
*Drakonorchis barbarella* Hopper and A.P. Brown ms.  
*Drosera fimbriata*  
*Drosera schizandra*  
*Drummondita ericoides*  
*Drummondita hassellii* var. *longifolia*  
*Dryandra serratuloides*  
*Ectrosia blakei*  
*Ehretia microphylla*  
*Eleocharis blakeana*

<i>Eleocharis obicis</i>	<i>Eucalyptus hallii</i>	<i>Gastrolobium appressum</i>	<i>Homoranthus montanus</i>
<i>Eleocharis retroflexa</i>	<i>Eucalyptus imlayensis</i>	<i>Gastrolobium tomentosum</i>	<i>Homoranthus porteri</i>
<i>Endiandra cooperiana</i>	<i>Eucalyptus infera</i>	<i>Gentiana bredboensis</i>	<i>Huperzia lockyeri</i>
<i>Endiandra hayesii</i>	<i>Eucalyptus insularis</i>	<i>Genus nov. sp.</i> Boonjee (B. Hyland 2519; Family: MYRTACEAE)	<i>Huperzia marsupiiiformis</i>
<i>Epacris apseyensis</i>	<i>Eucalyptus johnsoniana</i>	<i>Germainia capitata</i>	<i>Huperzia phlegmarioides</i>
<i>Epacris barbata</i>	<i>Eucalyptus kabiana</i>	<i>Glycine latrobeana</i>	<i>Huperzia prolifera</i>
<i>Epacris glabella</i>	<i>Eucalyptus kartzoffiana</i>	<i>Gnaphalium nitidulum</i>	<i>Hydrocharis dubia</i>
<i>Epacris grandis</i>	<i>Eucalyptus langleyi</i>	<i>Goodenia macharronii</i>	<i>Hydrocotyle lemnoides</i>
<i>Epacris limbata</i>	<i>Eucalyptus lateritica</i>	<i>Goodenia megasepala</i>	<i>Idiospermum australiense</i>
<i>Epacris sp.</i> Dans Hill (S. J. Jarmen HO 32456)	<i>Eucalyptus leprophloia</i> Brooker and Hopper ms.	<i>Goodenia quadrifida</i>	<i>Indigofera efoliata</i>
<i>Epilobium brunnescens</i>	<i>Eucalyptus leptoloma</i>	<i>Grammitis reinwardtii</i>	<i>Ipomoea sp.</i> Stirling (P. Latz 10408)
<i>Eremophila barbata</i>	<i>Eucalyptus macrorrhyncha</i> subsp. <i>cannonii</i>	<i>Graptophyllum ilicifolium</i>	<i>Isopogon fletcheri</i>
<i>Eremophila denticulata</i>	<i>Eucalyptus mckieana</i>	<i>Grevillea cirsiifolia</i>	<i>Ixodia achillaeoides</i> subsp. <i>arenicola</i>
<i>Eremophila inflata</i>	<i>Eucalyptus merrickiae</i>	<i>Grevillea dryandroides</i>	<i>Jagera javanica</i>
<i>Eremophila microtheca</i>	<i>Eucalyptus mooreana</i>	<i>Grevillea evansiana</i>	<i>Jedda multicaulis</i>
<i>Eremophila prostrata</i> Chinnock ms.	<i>Eucalyptus nicholii</i>	<i>Grevillea glossadenia</i>	<i>Kelleria laxa</i>
<i>Eremophila racemosa</i>	<i>Eucalyptus olivacea</i> Brooker and Hopper ms.	<i>Grevillea inconspicua</i>	<i>Kennedia beckxiana</i>
<i>Eremophila resinosa</i>	<i>Eucalyptus paedoglauc</i>	<i>Grevillea infecunda</i>	<i>Kennedia glabrata</i>
<i>Eremophila subteritifolia</i> Chinnock ms.	<i>Eucalyptus parramattensis</i> subsp. <i>decadens</i>	<i>Grevillea infundibularis</i>	<i>Kennedia macrophylla</i>
<i>Eremophila ternifolia</i>	<i>Eucalyptus parvifolia</i>	<i>Grevillea involucrata</i>	<i>Kennedia retrorsa</i>
<i>Eremophila tetraptera</i>	<i>Eucalyptus pruiniramis</i>	<i>Grevillea kennedyana</i>	<i>Kunzea cambagei</i>
<i>Eremophila virens</i>	<i>Eucalyptus pulverulenta</i>	<i>Grevillea prostrata</i>	<i>Lasiopetalum longistamineum</i>
<i>Eremophila viscida</i>	<i>Eucalyptus pumila</i>	<i>Grevillea rivularis</i>	<i>Lasiopetalum micranthum</i>
<i>Eriocaulon australasicum</i>	<i>Eucalyptus rameliana</i>	<i>Grevillea saccata</i>	<i>Lastreopsis walleri</i>
<i>Eriocaulon pusillum</i>	<i>Eucalyptus raveretiana</i>	<i>Grevillea scortechinii</i>	<i>Lawrencia buchananensis</i>
<i>Eriostemon ericifolius</i>	<i>Eucalyptus rhodops</i>	<i>Grevillea shiressii</i>	<i>Laxmannia jamesii</i>
<i>Eriostemon sp.</i> Mt Tozer (L.J. Brass 19483)	<i>Eucalyptus robertsonii</i> subsp. <i>hamaespherica</i>	<i>Grevillea treueriana</i>	<i>Lechenaultia chlorantha</i>
<i>Eriostemon wonganensis</i>	<i>Eucalyptus rubida</i> <i>barbigorum</i>	<i>Grevillea venusta</i>	<i>Lechenaultia larinica</i>
<i>Erythranthera pumila</i>	<i>Eucalyptus rubida canobolensis</i>	<i>Gymnema brevifolium</i>	<i>Lechenaultia pulvinaris</i>
<i>Eucalyptus aquatica</i>	<i>Eucalyptus scoparia</i>	<i>Habenaria xanthantha</i>	<i>Lechenaultia superba</i>
<i>Eucalyptus articulata</i> Brooker and Hopper ms.	<i>Eucalyptus sp.</i> Norseman (S.D. Hopper 2736)	<i>Hakea megalosperma</i>	<i>Lepidium pseudopapillosum</i>
<i>Eucalyptus argophloia</i>	<i>Eucalyptus steedmanii</i>	<i>Hakea pulvinifera</i>	<i>Leptorhynchos gatesii</i>
<i>Eucalyptus argutifolia</i>	<i>Eucalyptus sturgissiana</i>	<i>Hakea sp.</i> Kowmung River (M. Doherty 17-24)	<i>Leptospermum deanei</i>
<i>Eucalyptus balanites</i>	<i>Eucalyptus suberea</i>	<i>Hakea sp.</i> Mariala Scientific Reserve (C. Sandercoe 507)	<i>Leptospermum thompsonii</i>
<i>Eucalyptus beardiana</i>	<i>Eucalyptus synandra</i>	<i>Hakea trineura</i>	<i>Leucopogon cuspidatus</i>
<i>Eucalyptus bennettiae</i>	<i>Eucalyptus tetrapleura</i>	<i>Haloragis exalata</i>	<i>Leucopogon exolasius</i>
<i>Eucalyptus benthamii</i>	<i>Eucalyptus virens</i>	<i>Halosarcia bulbosa</i>	<i>Leucopogon obtectus</i>
<i>Eucalyptus blaxellii</i>	<i>Eucalyptus xanthope</i>	<i>Halosarcia flabelliformis</i>	<i>Limosella granitica</i>
<i>Eucalyptus brevipes</i>	<i>Eucryphia sp.</i> Mt Bartle Frere (M. Godwin C1158)	<i>Helicteres sp.</i> Glenluckie Creek (N. Byrnes 1280)	<i>Lindsaea pulchella</i>
<i>Eucalyptus burdettiana</i>	<i>Euphrasia amphisysepala</i>	<i>Hemiantra gardneri</i>	<i>Livistona drudei</i>
<i>Eucalyptus cadens</i>	<i>Euphrasia bella</i>	<i>Hemiantra rutilans</i>	<i>Livistona mariae</i>
<i>Eucalyptus camfieldii</i>	<i>Euphrasia eichleri</i>	<i>Hemigenia viscida</i>	<i>Logania diffusa</i>
<i>Eucalyptus ceracea</i>	<i>Euphrasia phragmostoma</i>	<i>Hensmania chapmanii</i>	<i>Logania insularis</i>
<i>Eucalyptus cerasiformis</i>	<i>Floydia praealta</i>	<i>Hexaspora pubescens</i>	<i>Macadamia integrifolia</i>
<i>Eucalyptus coronata</i>	<i>Fontainea australis</i>	<i>Hibbertia crispula</i>	<i>Macadamia ternifolia</i>
<i>Eucalyptus crispata</i>	<i>Fontainea rostrata</i>	<i>Hibbertia sp.</i> Porongurups (R.D. Hoogland 12186)	<i>Macadamia tetraphylla</i>
<i>Eucalyptus crucis</i> subsp. <i>crucis</i>	<i>Fontainea venosa</i>	<i>Hicksbeachia pinnatifolia</i>	<i>Macadamia sp.</i> Iron Range (B. Hyland 3102)
<i>Eucalyptus erectifolia</i>		<i>Hodgkinsonia frutescens</i>	<i>Macropteranthes montana</i>
<i>Eucalyptus glaucina</i>		<i>Homoranthus darwinioides</i>	<i>Macrozamia fearnsideae</i>
<i>Eucalyptus goniantha</i> subsp. <i>goniantha</i>		<i>Homoranthus decumbens</i>	<i>Macrozamia macdonnellii</i>
			<i>Maireana cheelii</i>
			<i>Maireana melanocarpa</i>

- Malacocera gracilis*  
*Medicosma elliptica*  
*Medicosma obovata*  
*Melaleuca groveana*  
*Melaleuca kunzeoides*  
*Melaleuca sciotostyla*  
*Mesua* sp. Boonjee (A.K. Irvine 1218)  
*Microcorys eremophiloides*  
*Microlepidium alatum*  
*Micromyrtus blakelyi*  
*Micromyrtus minutiflora*  
*Microstrobos fitzgeraldii*  
*Microtis globula*  
*Minuria tridens*  
*Myoporum cordifolium*  
*Myoporum latisepalum*  
*Myriophyllum coronatum*  
*Myriophyllum implicatum*  
*Myriophyllum petraeum*  
*Myriophyllum porcatum*  
*Neisosperma kilneri*  
*Newcastelia velutina*  
*Nicotiana burbridgeae*  
*Notelaea lloydii*  
*Olearia astroloba*  
*Olearia cordata*  
*Olearia macdonnellensis*  
*Olearia pannosa* subsp. *pannosa*  
*Oreodendron biflorum*  
*Oreoporanthera petalifera*  
*Owenia cepiodora*  
*Ozothamnus eriocephalus*  
*Ozothamnus tessellatus*  
*Pandanus spiralis* var. *flammeus*  
*Paspalidium grandispiculatum*  
*Persicaria elatior*  
*Persoonia acerosa*  
*Persoonia amaliae*  
*Persoonia glaucescens*  
*Persoonia marginata*  
*Phaius australis*  
*Phaius tancarvilliae*  
*Phebalium lowanense*  
*Phebalium ralstonii*  
*Phebalium rhytidophyllum*  
*Phebalium sympetalum*  
*Phebalium whitei*  
*Phyllota humifusa*  
*Picris evae*  
*Pimelea leptospermoides*  
*Pimelea spinescens* subsp. *spinescens*  
*Pimelea venosa*  
*Pityrodia augustensis*
- Plectranthus gratus*  
*Pleuropappus phyllocalymmeus*  
*Plinthanthesis rodwayi*  
*Poa sallacustris*  
*Polyscias bellendenkerensis*  
*Pomaderris brunnea*  
*Pomaderris clivicola*  
*Pomaderris halmaturina* subsp. *halmaturina*  
*Pomaderris pallida*  
*Pomaderris parrisiae*  
*Pomaderris sericea*  
*Pomaderris subplicata*  
*Pomatocalpa marsupiale*  
*Prasophyllum frenchii*  
*Prasophyllum morgani*  
*Prasophyllum pallidum*  
*Prasophyllum truncatum*  
*Prasophyllum validum*  
*Prasophyllum wallum*  
*Prostanthera calycina*  
*Prostanthera carrickiana*  
*Prostanthera cineolifera*  
*Prostanthera cryptandroides*  
*Prostanthera densa*  
*Prostanthera discolor*  
*Prostanthera magnifica*  
*Prostanthera* sp. Dunmore (D.M. Gordon 84)  
*Prostanthera* sp. Mt Tinbeerwah (C. Sandercoe C1256)  
*Prostanthera stricta*  
*Prostanthera teretifolia*  
*Pterostylis bicornis*  
*Pterostylis cucullata*  
*Pterostylis pulchella*  
*Pterostylis cobarensis*  
*Pterostylis tenuissima*  
*Ptilotus maconochie*  
*Pultenaea aristata*  
*Pultenaea baeuerlenii*  
*Pultenaea campbellii*  
*Pultenaea glabra*  
*Pultenaea parrisiae* J. Briggs and Crisp ms.  
*Pultenaea parviflora*  
*Pultenaea selaginoides*  
*Pultenaea setulosa*  
*Pultenaea stuartiana*  
*Pultenaea villifera* var. *glabrescens*  
*Pultenaea williamsoniana*  
*Quassia bidwillii*  
*Ranunculus anemoneus*  
*Restio longipes*  
*Rhagodia acicularis*
- Rhamphicarpa australiensis*  
*Rhaphidospora bonneyana*  
*Rhizanthella gardneri*  
*Ricinocarpos gloria-medii*  
*Ricinocarpos trichophorus*  
*Ristantia gouldii*  
*Roycea pycnophylloides*  
*Rulingia procumbens*  
*Rulingia prostrata*  
*Rutidosia heterogama*  
*Rutidosia leiolepis*  
*Sagina* sp. Mt Anne (A.M. Buchanan 5115)  
*Sarcophilus fitzgeraldii*  
*Sarcophilus hartmannii*  
*Sarcophilus hirticalcar*  
*Sarcophilus weinthalii*  
*Sauropus macranthus*  
*Sclerolaena blakei*  
*Sclerolaena walkeri*  
*Senecio garlandii*  
*Senecio laticostatus*  
*Senecio macrocarpus*  
*Senecio megaglossus*  
*Solanum carduiforme*  
*Solanum dunalianum*  
*Sophora fraseri*  
*Sowerbaea subtilis*  
*Spathoglottis plicata*  
*Spirogardnera rubescens*  
*Spyridium coactilifolium*  
*Spyridium eriocephalum* var. *glabrisepalum*  
*Spyridium leucopogon*  
*Spyridium microphyllum*  
*Spyridium obcordatum*  
*Stackhousia annua*  
*Stawellia dimorphantha*  
*Stemona angusta*  
*Stipa metatoris*  
*Stylidium galioides*  
*Stylidium plantagineum*  
*Swainsona minutiflora*  
*Swainsona murrayana*  
*Swainsona plagiotropis*  
*Swainsona pyrophila*  
*Symplocos baeuerlenii*  
*Symplocos* sp. Imbil-Beenleigh (W.J. MacDonald 3832)  
*Syzygium hodgkinsoniae*  
*Syzygium moorei*  
*Syzygium paniculatum*  
*Syzygium velarum*  
*Taraxacum cygnorum*  
*Tasmannia glaucifolia*  
*Tasmannia purpurascens*
- Tephrosia leveillei*  
*Tetradlea aphylla*  
*Tetradlea glandulosa*  
*Tetradlea harperi*  
*Tetradlea juncea*  
*Thelymitra matthewsii*  
*Thelymitra psammophila*  
*Thelymitra stellata*  
*Thesium australe*  
*Thomasia montana*  
*Thomasia* sp. York (A.S. George 8075)  
*Thryptomene wittweri*  
*Tinospora tinosporoides*  
*Toechima pterocarpum*  
*Tribonanthes purpurea*  
*Trichanthodium baracchianum*  
*Trichoglottis australiensis*  
*Trigonostemon inopinatus*  
*Trymalium minutiflorum*  
*Tylophora williamsii*  
*Vanda hindsii*  
*Velleia perfoliata*  
*Verreauxia verreauxii*  
*Verticordia creba*  
*Verticordia helichrysantha*  
*Verticordia staminosa*  
*Villarsia calthifolia*  
*Westringia davidii*  
*Westringia parvifolia*  
*Wrixonia schultzei*  
*Wurmbea tubulosa*  
*Wurmbea* sp. Cape Naturaliste (S.D. Hopper 5871)  
*Xanthostemon oppositifolius*  
*Xanthostemon youngii*  
*Xerothermella parvifolia*  
*Xyris* sp. Stirling Range (G.J. Keighery 7951)  
*Zeuxine polygonoides*  
*Zieria citriodora* J.A. Armstrong ms.  
*Zieria collina*  
*Zieria coventyi* J.A. Armstrong ms.  
*Zieria granulata*  
*Zieria ingramii* J.A. Armstrong ms.  
*Zieria involucrata*  
*Zieria murphyi*  
*Zieria obovata* (C.T. White) J.A. Armstrong ms.  
*Zieria rimulosa*  
*Zieria tuberculata* J.A. Armstrong ms.  
*Zieria verrucosa* J.A. Armstrong ms.

## Part 3 – Species that are presumed extinct

**Animals****Fish**

nil

**Amphibians**

nil

**Reptiles**

nil

**Birds**

*Aplonis fusca*  
Norfolk Island Starling

*Columba vitiensis godmanae*  
Lord Howe Pigeon

*Cyanoramphus novaezelandiae erythrotis*  
Macquarie Island Parakeet

*Cyanoramphus novaezelandiae subflavescens*  
Lord Howe Parakeet

*Dasyornis broadbenti littoralis*  
South-western Rufous Bristlebird

*Dromaius baudinianus*  
Kangaroo Island Emu

*Dromaius minor*  
Dwarf Emu/King Island Emu

*Drymodes superciliaris colcloughi*  
Roper River Scrub-robin

*Gerygone insularis*  
Lord Howe Warbler

*Hemiphaga novaeseelandiae spadicea*  
New Zealand Pigeon (Norfolk Island Race)

*Lalage leucopyga leucopyga*  
Norfolk Island Long-tailed Triller

*Nestor productus*  
Norfolk Island Kaka

*Ninox novaeseelandiae albaria*  
Lord Howe Boobook Owl

*Notornis alba*  
White Gallinule

*Psephotus pulcherrimus*  
Paradise Parrot

*Rallus pectoralis clelandi*  
Lewin's Water Rail (western race)

*Rallus philippensis maquariensis*  
Macquarie Island Rail

*Rhipidura cervina*  
Lord Howe Fantail

*Turdus xanthopus vinitinctus*  
Lord Howe Island Vinous-tinted Thrush

*Zosterops strenua*  
Robust White-eye

**Mammals**

*Caloprymnus campestris*  
Desert Rat-kangaroo

*Chaeropus ecaudatus*  
Pig-footed Bandicoot

*Conilurus albigipes*  
White-footed Rabbit-rat

*Lagorchestes asomatus*  
Central Hare-wallaby

*Lagorchestes leporides*  
Eastern Hare-wallaby

*Leporillus apicalis*  
Lesser Stick-nest Rat

*Macropus greyi*  
Toolache Wallaby

*Macrotis leucura*  
Lesser Bilby

*Notomys amplus*  
Short-tailed Hopping-mouse

*Notomys longicaudatus*  
Long-tailed Hopping-mouse

*Notomys macrotis*  
Big-eared Hopping-mouse

*Notomys mordax*  
Darling Downs Hopping-mouse

*Onychogalea lunata*  
Crescent Nailtail Wallaby

*Potorous platypus*  
Broad-faced Potoroo

*Pseudomys fieldi*  
Alice Springs Mouse

*Pseudomys gouldii*  
Gould's Mouse

*Pteropus brunneus*  
Percy Island Flying Fox

*Rattus macleari*  
Christmas Island Rat

*Rattus nativitatus*  
Christmas Island Rat

*Thylacinus cynocephalus*  
Thylacine

**Plants**

*Acacia murrubensis*

*Acacia prismifolia*

*Acacia volubilis*

*Acanthocladium dockeri*

*Acianthus ledwardii*

*Amphibromus whitei*

*Argentipallium spiceri*

*Beyeria lepidopetala*

*Caladenia atkinsonii*

*Caladenia pumila*

*Calothamnus accedens*

*Centrolepis caespitosa*

*Choristemon humilis*

*Coleanthera virgata*

*Deyeuxia drummondii*

*Deyeuxia lawrencei*

*Dicrasyliis morrisonii*

*Eriostemon falcatus*

*Euphorbia carissoides*

*Euphrasia arguta*

*Euphrasia* sp. Tamworth (Rupp s.n. -/9/1904)

*Frankenia conferta*

*Frankenia decurrens*

*Frankenia parvula*

*Glyceria drummondii*

*Grevillea divaricata*

*Gyrostemon reticulatus*

*Haloragis platycarpa*

*Hemigenia exilis*

*Hemigenia obtusa*

*Hutchinsia tasmanica*

*Hydatella leptogyne*

*Hypsela sessiliflora*

*Lasiopetalum rotundifolium*

*Lepidium drummondii*

*Lepidium peregrinum*

*Leptomeria dielsiana*

*Leptomeria laxa*

*Leucopogon cryptanthus*

*Leucopogon marginatus*

*Menkea draboides*

*Nemcia lehmannii*

*Oberonia attenuata*

*Olearia oliganthema*

*Opercularia acolytantha*

*Ozothamnus selaginoides*

*Persoonia prostrata*

*Phlegmatospermum drummondii*

*Pimelea spinescens* subsp. *pubiflora*

*Platysace dissecta*

*Plectrachne bromoides*

*Prasophyllum subbisectum*

*Pseudanthus nematophorus*

*Ptilotus fasciculatus*

*Ptilotus pyramidatus*

*Rapanea* sp. Richmond River (J.H. Maiden and J.L. Boorman NSW 26751)

*Scaevola attenuata*

*Scaevola macrophylla*

*Schoenus natans*

*Senecio georgianus*

*Stylidium merrallii*

*Stylidium neglectum*

*Tetraria australiensis*

*Tetratea elliptica*

*Tetratea fasciculata*

*Thomasia gardneri*

*Trachymene scapigera*

*Trianthema cypseloides*

Australian and New Zealand Environment and Conservation Council Endangered Fauna Network conservation status recommendations which are to be considered for changes to the Endangered Species Protection Act Schedules

<i>Taxon</i>	<i>Current</i>	<i>New</i>
<b>Birds</b>		
Emu (Tasmanian subspecies) <i>Dromaius novaehollandiae diemenensis</i>	–	X
Grey-headed Albatross <i>Diomedea chrysostoma</i>	–	V
Kermadec Petrel (western subspecies) <i>Pterodroma neglecta neglecta</i>	–	V
Soft-plumaged Petrel (northern subspecies) <i>Pterodroma mollis deceptionis</i>	–	V
Blue Petrel <i>Halobaena caerulea</i>	–	V
Fairy Prion (southern subspecies) <i>Pachyptila turtur subantarctica</i>	–	V
White-bellied Storm-Petrel (Australasian subspecies) <i>Fregetta grallaria grallaria</i>	–	V
Heard Island Shag <i>Phalacrocorax nivalis</i>	–	V
Macquarie Island Shag <i>Phalacrocorax purpurascens</i>	–	V
Brown Goshawk (Christmas Island subspecies) <i>Accipiter fasciatus natalis</i>	–	V
Wedge-tailed Eagle (Tasmanian subspecies) <i>Aquila audax fleayi</i>	–	E
Mallee fowl <i>Leipoa ocellata</i>	E	V
Buff-banded Rail (Cocos (Keeling) Island subspecies) <i>Gallirallus philippensis andrewsi</i>	–	E
Buff-breasted Button-quail <i>Turnix olivei</i>	–	E
Antarctic Tern (Indian and Atlantic Ocean subspecies) <i>Sterna vittata vittata</i>	–	V
Antarctic Tern (New Zealand subspecies) <i>Sterna vittata bethunei</i>	–	E
Partridge Pigeon (eastern subspecies) <i>Geophaps smithii smithii</i>	–	V
Squatter Pigeon (southern subspecies) <i>Geophaps scripta scripta</i>	–	V
Eclectus Parrot (Australian subspecies) <i>Eclectus roratus macgillivrayi</i>	V	delete
Superb Parrot <i>Polytelis swainsonii</i>	–	V
Regent Parrot (eastern subspecies) <i>Polytelis anthopeplus anthopeplus</i>	–	V
Glossy Black-Cockatoo (Kangaroo Island subspecies) <i>Calyptorhynchus lathami halmaturinus</i>	–	E
Carnaby's Black-Cockatoo <i>Calyptorhynchus latirostris</i>	–	V
Western Long-billed Corella (southern subspecies) <i>Cacatua pastinator pastinator</i>	E	V
Masked Owl (northern subspecies) <i>Tyto novaehollandiae kimberli</i>	–	V
Masked Owl (Melville Island subspecies) <i>Tyto novaehollandiae melvillensis</i>	–	V
Noisy Scrub-bird <i>Atrichornis clamosus</i>	V	E
Purple-crowned Fairy-wren (western subspecies) <i>Malurus coronatus coronatus</i>	–	V
Mallee Emu-wren <i>Stipiturus mallee</i>	–	V
Carpentarian Grasswren <i>Amytornis dorotheae</i>	V	delete
Thick-billed Grasswren (eastern subspecies) <i>Amytornis textilis modestus</i>	–	V
Thick-billed Grasswren (Gawler Ranges subspecies) <i>Amytornis textilis myall</i>	–	V
Western Bristlebird <i>Dasyornis longirostris</i>	V	E
Brown Thornbill (King Island subspecies) <i>Acanthiza pusilla archibaldi</i>	–	E
Slender-billed Thornbill (western subspecies) <i>Acanthiza iredalei iredalei</i>	–	V
White-browed Robin (western subspecies) <i>Poecilodryas superciliosa cerviniventris</i>	E	delete
Scarlet Robin (Norfolk Island subspecies) <i>Petroica multicolor multicolor</i>	–	V
Western Whipbird (western heath subspecies) <i>Psophodes nigrogularis nigrogularis</i>	–	E
Western Whipbird (eastern subspecies) <i>Psophodes nigrogularis leucogaster</i>	–	V
Western Whipbird (western mallee subspecies) <i>Psophodes nigrogularis oberon</i>	–	E
Crested Shrike-tit (northern subspecies) <i>Falcunculus frontatus whitei</i>	E	V
Crested Shrike-tit (western subspecies) <i>Falcunculus frontatus leucogaster</i>	V	delete
Golden Whistler (Norfolk Island subspecies) <i>Pachycephala pectoralis xanthoprocta</i>	–	V
Cicadabird (north-western subspecies) <i>Coracina tenuirostris melvillensis</i>	E	delete
Star Finch (eastern subspecies) <i>Neochmia ruficauda ruficauda</i>	–	E
Crimson Finch (white-bellied subspecies) <i>Neochmia phaeton evangelinae</i>	–	V
Black-throated Finch (southern subspecies) <i>Poephila cincta cincta</i>	–	V
<b>Marsupials</b>		
Eastern Quoll <i>Dasyurus viverrinus</i>	V	delete
Proserpine Rock-wallaby <i>Petrogale persephone</i>	V	E
Western Ringtail <i>Pseudocheirus occidentalis</i>		
(currently listed as a subspecies now to be listed as a full species)	E	V
Sandhill Dunnart <i>Sminthopsis psammophila</i>	V	E
<b>Rodents</b>		
Thevenard Island Mouse <i>Leggadina affin. lakedownensis</i>	–	E

<i>Taxon</i>	<i>Current</i>	<i>New</i>
<b>Frogs</b>		
Orange-bellied Frog <i>Geocrinia vitellina</i>	E	V
Creek Frog or White-bellied Frog <i>Geocrinia alba</i>	V	E
Armoured Mistfrog <i>Litoria lorica</i>	–	E
Waterfall Frog <i>Litoria nannotis</i>	–	E
Mountain Mistfrog <i>Litoria nyakalensis</i>	–	E
Lace-eyed Tree Frog <i>Nyctimystes dayi</i>	–	E
Tinkling Frog <i>Taudactylus reophyllis</i>	–	E
<b>Reptiles</b>		
Mary River Tortoise <i>Elusior macrurus</i>	–	E
Lancelin Island Skink <i>Ctenotus lanceolini</i>	V	E
Mallee Worm-lizard <i>Aprasia aurita</i> (common name change)	E	E
Blue Mountains Water Skink <i>Eulamprus leuraensis</i>	–	E
Dreeite Water Skink <i>Eulamprus tympanum ssp. nov.</i> (basalt plains, VIC)	–	E
Allan's Lerista <i>Lerista allanae</i>	–	E
Woma <i>Aspidites ramsayi</i> (south-western WA)	–	E
Western Spiny-tailed Skink <i>Egernia stokesii badia</i>	–	E
Black-striped Snake <i>Simoselaps calonotus</i>	–	E
Hermite Island Worm-lizard <i>Aprasia rostrata rostrata</i>	–	V
Christmas Island Blind Snake <i>Ramphotyphlops exocoeti</i>	–	V
Lord Howe Island Skink <i>Pseudemoia lichenigera</i>	–	V
Christmas Island Gecko <i>Lepidodactylus listeri</i>	–	V
Long-legged Worm-skink <i>Anomalopus mackayi</i>	–	V
Kreffft's Tiger Snake <i>Notechis ater ater</i> (Flinders Ranges, SA)	–	V
Broad-headed Snake <i>Hoplocephalus bungaroides</i>	E	V
Namoi River Elseya <i>Elseya sp. nov.</i> (Namoi River, NSW)	–	V
Bellinger River Emydura <i>Emydura signata</i> (Bellinger River, NSW)	–	V
Pygmy Copperhead <i>Austrelaps labialis</i> (Adelaide, SA)	–	V
Collared Delma <i>Delma torquata</i> (common name change)	V	V
Mount Cooper Striped Lerista <i>Lerista vittata</i>	–	V
Three-toed Snake-tooth Skink <i>Coeranoscincus reticulatus</i>	–	V
Ornamental Snake <i>Denisonia maculata</i>	–	V
Dunmall's Snake <i>Furina dunmalli</i>	–	V
Lord Howe Island Gecko <i>Christinus guentheri</i>	–	V
Pedra Branca Skink <i>Niveoscincus palfreymani</i> (scientific name change)	V	V
Striped-tailed Delma <i>Delma labialis</i>	–	V
Flinders Ranges Worm-lizard <i>Aprasia pseudopulchella</i>	–	V
Western Australian Carpet Python <i>Morelia spilota imbricata</i>	–	V
Rough-scaled Python <i>Morelia carinata</i>	V	delete
Lake Cronin Snake <i>Echiopsis atriceps</i>	–	V
Bardick <i>Echiopsis curta</i> (population east of Adelaide)	–	V
Fitzroy Tortoise <i>Rheodytes leukops</i> (common name change)	V	V
Pernatty Knob-tail <i>Nephrurus deleani</i>	–	V
Border Thick-tailed Gecko <i>Underwoodisaurus sphyrurus</i>	–	V
Short-nosed Snake <i>Elapognathus minor</i>	–	V
Hamelin Ctenotus <i>Ctenotus zastictus</i>	–	V
Great Desert Skink <i>Egernia kintorei</i>	–	V
Jurien Bay Rock-skink <i>Egernia pulchra longicauda</i>	–	V
Houtman Abrolhos Spiny-tailed Skink <i>Egernia stokesii stokesii</i>	–	V
Bronzeback Snake-lizard <i>Ophidiocephalus taeniatus</i> (common name change)	V	V
Brigalow Scaly-foot <i>Paradelma orientalis</i>	–	V
<b>Fish (fresh water)</b>		
Barred Galaxias <i>Galaxias fuscus</i> (common name change)	E	E
Swamp Galaxias <i>Galaxias parvus</i>	V	delete
Dwarf Galaxias <i>Galaxiella pusilla</i>	–	V
Red-Finned Blue-Eye <i>Scaturiginichthys vermeilipinnis</i>	–	E
Clarence River Cod <i>Maccullochella ikei</i> (common name change)	E	E
Mary River Cod <i>Maccullochella peeli mariensis</i>	–	E
Elizabeth Springs Goby <i>Chlamydogobius sp. A</i>	–	E
Murray Hardyhead <i>Craterocephalus fluviatilis</i>	–	V
Oxleyan Pygmy Perch <i>Nannoperca oxleyana</i>	–	V

Note: E – Endangered; V – Vulnerable; X – Presumed Extinct

## Acronyms

- AAS**  
Australian Academy of Science
- ABARE**  
Australian Bureau of Agricultural and Resource Economics
- ABS**  
Australian Bureau of Statistics
- ACT**  
Australian Capital Territory
- AGPS**  
Australian Government Publishing Service
- AHC**  
Australian Heritage Commission
- AIATSIS**  
Australian Institute of Aboriginal and Torres Strait Islander Studies
- AIHW**  
Australian Institute of Health and Welfare
- ANCA**  
Australian Nature Conservation Agency
- ANOP**  
Australian National Opinion Polls
- ANZECC**  
Australian and New Zealand Environment and Conservation Council
- AQIS**  
Australian Quarantine Inspection Service
- ASTEC**  
Australian Science and Technology Council
- ATSIC**  
Aboriginal and Torres Strait Islander Commission (of Commonwealth)
- AUSLIG**  
Australian Surveying and Land Information Group
- AWQG**  
Australian Water Quality Guidelines (of ANZECC)
- BoM**  
Bureau of Meteorology (of Commonwealth)
- BRS**  
Bureau of Resource Sciences (of Commonwealth)
- CaLM**  
Conservation and Land Management (present or former name of government departments in several States)
- CAMBA**  
China/Australia Migratory Birds Agreement
- CAT**  
Centre for Appropriate Technology (in Alice Springs, Northern Territory)
- CITES**  
Convention on International Trade in Endangered Species of Wild Fauna and Flora
- COAG**  
Council of Australian Governments (Council of Commonwealth and State heads of government and the head of the Australian Local Government Association)
- CRC**  
Cooperative Research Centre
- CSD**  
Commission on Sustainable Development (of UN)
- CSIRO**  
Commonwealth Scientific and Industrial Research Organisation
- DEET**  
Department of Employment, Education and Training (of Commonwealth)
- DEST**  
Department of the Environment, Sport and Territories (of Commonwealth)
- DHRD**  
Department of Housing and Regional Development (of Commonwealth)
- DPIE**  
Department of Primary Industries and Energy (of Commonwealth)
- EEZ**  
Exclusive Economic Zone
- EPA**  
Environment Protection Authority or Agency (NSW, SA, VIC, and WA have an Environment Protection Authority, while the Commonwealth has an Environment Protection Agency )
- ERIN**  
Environmental Resources Information Network (of DEST)
- ERP**  
Estimated Resident Population
- ESCAP**  
Economic and Social Commission for Asia and the Pacific (of United Nations)
- ESD**  
Ecologically Sustainable Development
- FCCC**  
Framework Convention on Climate Change (of United Nations)
- GBRMPA**  
Great Barrier Reef Marine Park Authority (of Commonwealth)
- GIS**  
Geographic Information System
- IBRA**  
Interim Biogeographic Regionalisation for Australia
- ICICPA**  
Independent Committee of Inquiry into Competition Policy in Australia
- ICOMOS**  
International Council for Monuments and Sites

**IGAE**

Intergovernmental Agreement on the Environment  
(Commonwealth/State/Local government agreement)

**IPCC**

Intergovernmental Panel on Climate Change  
(international panel under auspices of WMO and UNEP)

**ISTP**

Institute for Science and Technology Policy  
(of Murdoch University, Western Australia)

**IUCN**

World Conservation Union (formerly the  
International Union for the Conservation of  
Nature and Natural Resources)

**JAMBA**

Japan/Australia Migratory Birds Agreement

**JANIS**

Joint Australia and New Zealand Environment and  
Conservation Council, the Ministerial Council of  
Forests, Fisheries and Aquaculture, and the  
National Forest Policy Statement Implementation  
Subcommittee

**MARPOL**

International Convention for the Prevention of  
Pollution from Ships

**MDBC**

Murray–Darling Basin Commission  
(Commonwealth/State commission)

**NEPC**

National Environment Protection Council

**NGGI**

National Greenhouse Gas Inventory

**NGGIC**

National Greenhouse Gas Inventory Committee

**NGRS**

National Greenhouse Response Strategy

**NHMRC, NH & MRC**

National Health and Medical Research Council

**NSW**

New South Wales

**NT**

Northern Territory

**OCS**

Offshore Constitutional Settlement

**OECD**

Organisation for Economic Cooperation and  
Development

**QDPI**

Queensland Department of Primary Industries  
(since March 1996, Queensland Department of  
Natural Resources)

**QLD**

Queensland

**RAC**

Resource Assessment Commission  
(former Commonwealth commission)

**RFA**

Regional Forest Agreement  
(Commonwealth/State agreement)

**SA**

South Australia

**SLA**

Statistical Local Area

**SoE**

State of the Environment

**SoMER**

State of the Marine Environment Report  
(of DEST)

**TAS**

Tasmania

**UNCLOS**

United Nations Convention on the Law of the Sea

**UNEP**

United Nations Environment Program

**UNESCO**

United Nations Educational Scientific and Cultural  
Organization

**VIC**

Victoria

**WA**

Western Australia

**WHO**

World Health Organization  
(of United Nations)

**WMO**

World Meteorological Organization  
(of United Nations)

**WWF**

World Wide Fund for Nature

## Glossary

### **Aboriginal and Torres Strait Islander places**

(as used in chapter 9) sites, areas or regions of significance to indigenous peoples including places with archaeological traces, ceremonial, story and other places with particular traditional or contemporary associations; places reflecting the historic interaction of indigenous peoples with non-indigenous peoples; may be single sites, site complexes or landscapes *see* **historic places, natural places**

### **Aboriginal English**

a term covering many types of English as spoken by indigenous people, especially in northern Australia; the first language of thousands of Australians

### **acid deposition**

the deposition on the earth's surface, either in dry or wet form, of substances derived from natural and human-induced emissions of various compounds, especially those of sulfur and nitrogen which have been transformed by chemical processes in the atmosphere

### **acid gases and acid precursors**

gases such as sulfur dioxide and oxides of nitrogen which undergo chemical reactions in the atmosphere and are transformed to sulfate and nitrate particles (acid gas precursors) as well as gaseous sulfuric and nitric acids (acid gases)

### **adaptation**

a particular part of the anatomy, a physiological process, or a behaviour pattern that improves an organism's chances to survive and reproduce

### **adaptation measures**

management measures or options in response to, or anticipation of climate change (as a result of increasing emissions of greenhouse gases) to reduce or avoid adverse consequences or to take advantage of beneficial changes *see* **mitigation measures**

### **aerosol**

a suspension of particles, other than water or ice, in the atmosphere and ranging in size from approximately  $10^{-3}\mu\text{m}$  to larger than  $10\mu\text{m}$  in radius; may be either natural or caused by human activity and most of the latter are usually considered to be pollutants

### **after housing poverty**

households falling below standards developed by the 1975 Henderson Poverty Inquiry after meeting housing costs are described as being in 'after housing poverty' or financial housing stress (Jones, R. (1994); The Housing Needs of Indigenous Australians (1991), *Centre for Aboriginal Economic Policy Research, Australian National University Research Monograph No. 8*)

### **age-standardised death rates**

summary measures that allow comparison of populations with different age distributions, either different populations at the same time or the same population at different times; they are calculated by applying the observed age-specific death rates for the population of interest to a given reference

population, and represent the total death rate that would be observed in the population of interest, if it had the same age distribution as the reference population

### **agricultural land**

any land on which crops or pastures are cultivated or domestic stock are grazed

### **air toxics**

pollutants present at very low concentrations, known to cause or suspected of causing long-term health effects in humans

### **airshed**

a body of air bounded by topographical and/or meteorological features in which a contaminant, once emitted, is contained

### **Airtrak**

a smog monitoring instrument developed by CSIRO in the late 1980s which simultaneously measures all major components of photochemical smog and combines the measurements with information on weather conditions; it then predicts how the smog will develop as the day progresses

### **algal blooms**

a sudden proliferation of microscopic algae in water bodies, stimulated by the input of nutrients such as phosphates

### **allele**

a form of a gene, where multiple such forms occur

### **allergen**

a substance inducing an allergic reaction

### **alluvial**

arising from sediments deposited from flowing water

### **ambient air**

surrounding outdoor air

### **ambient air quality guideline**

a level to which atmospheric concentrations of a substance should be reduced to avoid undesirable effects on human health, well-being and/or vegetation; guidelines are generally regarded as advisory rather than mandatory requirements

### **anthropogenic**

of human origin or human induced; can be used in the context of emissions that are produced as a result of human activities

### **aquaculture**

the commercial growing of marine (mariculture) or freshwater animals and plants in water

### **arable land**

land that is, or has the potential to be, cultivated for crop production

### **arid zone**

often arbitrarily defined in Australia as those areas receiving less than 250 mm of annual rainfall in the south and 350 mm (or sometimes higher) in the north

### **assimilative capacity**

the ability of the natural environment to absorb or deal with external pressures such as emissions

produced as a result of human activities without leading to permanent and/or significant change

**atmosphere**

composite layer of colourless, odourless gases, known as air, surrounding the Earth; it shows distinct vertical zonation *see* **troposphere**, **stratosphere**

**atmospheric stability**

a parcel of air is termed stable, neutral or unstable according to its motion when displaced upward adiabatically (with no exchange of heat with its environment) from its equilibrium position — if stable the parcel will tend to return to its equilibrium position, if neutral it remains constant, and if unstable it will accelerate upwards; the major meteorological factor controlling vertical mixing of air pollutants

**Australian Fishing Zone (AFZ)**

proclaimed 200 nautical mile wide zone around the coast, within which Australia controls domestic and foreign access to fish resources

**ballast water**

water carried in tanks to maintain stability when a ship is lightly loaded, it is normally discharged to the sea when the ship is loaded with cargo

**bare fallow**

a fallow period in which the soil has no vegetative or crop residue cover

**basalt**

dark coloured rocks of volcanic origin

**baseline information**

information relating to a specific time or defined area of land or water, from which trends or changes can be assessed

**benthic**

associated with (attached to or buried in) the sea floor

**Better Cities**

a series of demonstration programs in each Australian State with seed funds from the Commonwealth Government, which is designed to show how to make better cities through integrated planning with sustainability and social justice goals

**biodiversity**

the variety of all life-forms: the different plants, animals and micro-organisms, the genes they contain and the ecosystems they form; often considered at three levels: genetic diversity, species diversity and ecosystem diversity

**biogeochemical cycle**

the movement of chemical elements between organisms and non-living compartments of atmosphere, aquatic systems and soils

**biogeographic region**

an extensive region distinguished from adjacent regions by its broad physical and biological characteristics

**biological control**

controlling a pest by the use of its natural enemies

**biomass**

the quantity of organic matter within an ecosystem (usually expressed as dry weight for unit area or volume)

**biomass burning**

the combustion of organic waste matter, burning in slash-and-burn cultivation, fuel-wood use and land clearing through forest burning

**bloom**

a proliferation of plants (for example, macroalgae or phytoplankton) during favourable growing conditions generated by availability of nutrients or sunlight

**bore capping**

permanent or temporary closure of discharging artesian bore

***Bos indicus***

the species of humped cattle native to India and Africa, including modern breeds such as the Brahman

**brackish water**

water that is saline, but less so than sea water; it may be suitable for selective irrigation and watering of livestock

**broadacre farms**

commercial farms producing relatively low value crops such as wool, sheep meat, beef, cereals, on large areas

**Burra Charter**

a document prepared by the Australian Committee for the International Council for Monuments and Sites (Australia ICOMOS) to guide conservation philosophy and practice for cultural heritage places in Australia; its full name is The Australia ICOMOS Charter for the Conservation of Places of Cultural Significance

**bushfire**

a term used to describe almost any form of fire burning out of control *see* **prescribed fire**

**by-catch**

species taken incidentally in a fishery where other species are the target; may be of lesser value than the target species and are often discarded

**calcareous**

composed of, or containing lime or limestone

**carrying capacity**

the maximum population size that can be supported indefinitely by a given environment

**catchment**

the area determined by topographic features within which rainfall will contribute to run-off at a particular point under consideration

**CFCs (chlorofluorocarbons)**

synthetic products, which do not occur naturally and contain chlorine and fluorine; commonly used in various industrial processes and as refrigerants and, prior to 1990, as a propellant gas for sprays; deplete ozone in the stratosphere and are powerful greenhouse gases

**chenopod shrubland**

areas dominated by shrubs of the Chenopodiaceae family (commonly known as saltbushes and bluebushes)

**chlorophyll**

the green pigment in plants that functions in photosynthesis by absorbing light from the sun

**cleaner production**

a worldwide industry trend towards reduced resource inputs and waste outputs in the production process; in Australia, the Commonwealth EPA has set up a program to demonstrate cleaner production processes

**clearfelling**

the removal of all trees on a specified cutting area *see coupe*; in many cases some trees are retained for environmental protection or conservation reasons

**clearing**

removing vegetation, particularly trees and shrubs, from a landscape, often with the intention of replacing it with plants regarded to be more directly useful to humans

**climate**

the synthesis of the day-to-day weather conditions in a given area; the actual climate is characterised by long-term statistics of the state of the atmosphere in an area

**climate change**

under the terms of the United Nations Framework Convention on Climate Change, the term means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods

**climate variability**

the natural year to year and season to season variation of the climate system

**codes of practice** (relating to forestry)

sets of guidelines adopted by forest management agencies concerned with minimising impacts of forestry operations on the environment (for example, on soil erosion) and with worker safety

**coliform**

a group of bacteria originating from animal (including human) intestines and used as an indicator of the sanitary quality of water

**compaction**

the reduction in bulk volume of sediments owing to the increased weight of overlying materials or by impact on the surface layers such as by machinery or livestock

**comprehensiveness** (as used in chapter 9)

the extent to which heritage registers or collections include all significant places or objects of a particular type

**condition indicator**

something that describes the quality of the environment and the quality and quantity of natural resources; highlights changes in environmental conditions over time

**conservation** (as used in chapter 9)

all the processes of looking after places or objects so as to retain their heritage significance

**conservation farming** (tillage)

farming systems designed to reduce run off so that water storage in the soil is maximised and soil erosion is reduced

**contour banks**

small banks cut in the soil that are aligned close to the contour and convey water across the slope to a waterway or drain designed to resist erosion

**coupe**

an area of forest harvested in a single operation; usually 10 to 300 hectares harvested over a single season

**creole**

a language developed when a new generation takes a pidgin for its first language, and extends and develops it so that it is capable of a full range of expression *see pidgin*

**cultural mapping**

the identification and recording of the cultural resources and activities of a community or region

**cultural tourism**

travel for essentially cultural motivations, which may include travel for specific purposes, for example, to attend festivals or to visit sites or monuments, or may be more broadly motivated by the desire to experience cultural diversity or to immerse oneself in the culture of a region

**db(A)**

decibels of noise levels measured using the electronic 'A-weighting' filter incorporated in sound level measuring devices; the frequency response of this filter is similar to that of human hearing; the level of sound in db(A) is an accurate measure of the loudness of that sound

**denitrification**

the process by which nitrogen, which would otherwise be available to plants, is converted to a gaseous form and lost from the soil

**desertification**

the degradation of land in arid, semi-arid, and other areas with a dry season; caused primarily by over-exploitation and inappropriate land use interacting with climatic variations

**diatom**

a single-celled microscopic alga with two ornate interfitting outer shells containing silica

**diffuse-source pollution**

pollution from sources such as an eroding paddock, urban or suburban lands and forests; spread out, and often not easily identified or managed

**dinoflagellate**

a microscopic, single-celled organism that moves using two whip-like hairs called flagella. Many are photosynthetic, considered to be algae, and form part of the phytoplankton

**discharge**

(as used in Chapter 7)  
the volume of water which flows through a cross-section of a stream

**dispersion**

(as used in Chapter 5)  
the spread of pollutants caused by atmospheric mixing, transportation or turbulence (random fluctuations in wind velocity)

**Distributed National Collection**

the aggregate of collections of objects located in major Commonwealth, State and Territory collecting institutions, as well as those held in community, regional and specialist museums, libraries, schools and private collections

**divertible resources**

the volume of water that can be diverted on a sustained basis into conventional water supply systems or to substantial private users, using existing storage and potential dam sites

**domestic animals**

animals directly managed by humans *see* feral

**doughnut effect**

the loss of population and urban services from inner city areas to outer areas

**drainage**

the interception and/or removal of surface and/or groundwater from a given area by natural or artificial means

**drainage division**

the primary subdivision of groups of catchments *see* Fig. 7.1

**dredge spoil**

sediments and materials removed from the seabed during dredging

**drip irrigation**

a method of irrigation by a pipe system which provides water to individual plants by means of a drip emitter

**dry sclerophyll**

a type of eucalypt forest found in moderate rainfall (less than 1000 mm per year) areas. Sometimes called 'open forests' *see* wet sclerophyll

**dryland cropping**

cropping without irrigation, usually in areas of relatively low rainfall

**dryland salinity**

soil salinity levels high enough to affect plant growth; occurs as a result of natural soil forming process (primary salinity) or in disturbed landscapes through clearing or other activities that interfere with the water and salinity balance and lead to shallow watertables; hydrological response to the replacement of deep-rooted perennial native vegetation with shallow rooted annuals which use less water; as a consequence more rainfall enters the groundwater, causing watertables to rise; where these rise to within 1–2 m of the soil surface, salinisation occurs as a result of evapotranspiration and direct evaporation; can result in both stream and soil salinity

**eco-tourism**

nature-based tourism which involves education and interpretation of the natural environment and is managed to be ecologically sustainable

**ecological footprint**

the ecological impact of cities, including the direct local effects and the indirect regional and global effects due to the resources they use and the wastes they produce

**ecological sustainability**

the capacity of ecosystems to maintain their essential processes and functions and to retain their biological diversity without impoverishment

**ecologically mature forests**

stands of trees approaching the limit of their life span which show little increase in biomass and usually support a high biodiversity *see* old-growth forests

**Ecologically Sustainable Development (ESD)**

development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (*for the ESD core objectives and guiding principles, see Council of Australian Governments (1992) 'National Strategy for Ecologically Sustainable Development', AGPS, Canberra*)

**ecology**

the scientific study of living organisms and their relationships to one another and their environment

**economic efficiency**

the extent to which managers are able to make optimum use of resources in production by accounting for the relative prices of resources and products; prices are used to select from a number of technically efficient combinations of resources *see* technical efficiency; where market prices do not coincide with community values the result is the selection of products and practices that are socially inefficient

**ecosystem**

a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit

**ecosystem services**

the role played by organisms in creating a healthy environment for human beings, from production of oxygen to soil formation and maintenance of water quality

**effluent**

(i) a discharge or emission of liquid or gas or other waste product  
(ii) description of a stream network which draws water out of or away from a river or water body

**El Niño**

a warm water current which periodically flows southwards along the coast of Ecuador and Peru in South America, replacing the usually cold northwards flowing current; occurs once every five to seven years usually during the Christmas season (the name refers to the Christ child). Occasionally (eg 1925, 1972–73, 1982–83 and 1990–94) the

occurrence is major and prolonged; the opposite phase of an El Niño event is called a La Niña *see* ENSO

**emissions**

(as used in Chapter 5)

substances such as gases, or particles discharged into the atmosphere as a result of natural processes or human activities, including those from chimneys, elevated point sources and tailpipes of motor vehicles

**endemic**

native to a particular area and found nowhere else

**enhanced greenhouse effect**

the addition to the natural greenhouse effect resulting from human activities such as the burning of fossil fuels and land clearing, which increase the atmospheric levels of greenhouse gases such as carbon dioxide, methane, nitrous oxide, ozone and CFCs *see* greenhouse effect.

**ENSO (El Niño–Southern Oscillation)**

a suite of events that occur at the time of an El Niño; at one extreme of the cycle, when the central Pacific Ocean is warm and the atmospheric pressure over Australia is relatively high, the ENSO causes drought conditions over eastern Australia *see* El Niño, Southern Oscillation

**environmental indicator**

physical, chemical, biological or socio-economic measures that can be used to assess natural resources and environmental quality

**environmental stress**

the damaging influence of human activities on the environment (for example, through pollution or consumption of natural resources) or that generated by natural events such as storms or droughts

**ephemeral**

organisms that have a short life span or a watercourse that does not flow all the time

**epiphyte**

a plant or other organism that lives on the surface of plants without deriving nutrition from them

**equivalence scales (Henderson) and equivalent final income**

household income data does not provide a very realistic picture of relative living standards because it fails to take the numbers of people in households or their different needs into account; the **Henderson equivalence scales** provide a way of factoring these differences into the assessment of final household income and of providing figures which more accurately reflect household living standards; **equivalent final income** is derived by applying equivalence scales to more conventional measures of disposable household income

**erodible**

susceptible to erosion

**estuary**

area of an inlet or river mouth that is influenced by the tides and also by fresh water from the land; area where fresh and salt waters mix

**eutrophication**

process by which waters become enriched with nutrients, primarily nitrogen and phosphorus, which stimulate the growth of aquatic flora and/or fauna

**evapotranspiration**

water withdrawn from soil by evaporation and/or plant transpiration

**Exclusive Economic Zone (EEZ)**

a concept recognised under the United Nations Law of the Sea, whereby coastal States assume jurisdiction over the exploration and exploitation of marine resources extending 200 nautical miles from the shore or baseline

**exotic species**

an animal or plant that has been introduced to a region (compare with native or indigenous species)

**externalities (external costs)**

costs (or benefits) arising from the decisions of an individual which impact on people other than that individual; for example, the costs of salinity that may arise downstream as a result of the agricultural practices used by a farmer upstream *see* off-site impacts

**exurbanisation**

the development of rural areas, which although normally considered to be outside the reach of the metropolitan area, contain more than 20 per cent of households with people commuting to the city for work

**fallow**

a phase when land is not being actively cropped

**family**

in the hierarchical classification of organisms, a group of species of common descent higher than the genus and lower than the order; hence a group of genera

**fauna**

the entire animal life of a region *see* flora

**feral animals**

animals that have reverted to a wild state from domestication (for example, feral cats, pigs, donkeys etc)

**fire regime**

the pattern of fires at a location; includes the frequency, intensity and seasonality of the fires

**flood levee**

a constructed embankment designed to prevent flooding of selected areas

**flora**

the entire plant life of a region *see* fauna

**flow modification**

to change natural sequence of flows in or into a waterbody

**flux**

the rate at which heat (energy, radiation, carbon dioxide, water vapour etc) flows across unit area eg heat flux is the flow of heat in a heat exchange process

**forest**

a tree covered area in which at least 60 per cent of the land surface is covered by tree crowns

**fossil fuel**

any hydrocarbon deposit that can be burned for heat or power, such as coal, oil and natural gas; produces carbon dioxide when burnt

**freehold tenure**

land owned privately *see* **leasehold land**

**fresh water**

water containing no significant amounts of salts, potable water suitable for all normal uses  
*see* **potable water**

**fugitive emissions**

in the context of the National Inventory of Greenhouse Gas Emissions, these are greenhouse gases emitted from fuel production, processing, transmission, storage and distribution processes and include emissions from oil and natural gas exploration, venting, flaring as well as the mining of black coal

**gene**

the basic unit of heredity

**genome**

all the genes of a particular organism or species

**gentrification**

colonisation of an urban area by a higher socio-economic group

**Geographic information system (GIS)**

a package of computer programs specifically designed to deal with data that are spatially related; a set of tools for collecting, storing, retrieving, manipulating, analysing and displaying mapped data from the real world

**GJ (gigajoule)**

one thousand million joules

**GL (gigalitre)**

one thousand million litres

**globalisation**

the economic and social process whereby local markets and cultures are increasingly dominated by global markets and culture

**grassland**

areas dominated by grasses and with few or no trees

**Great Artesian Basin**

an enormous store of underground water underlying much of the drier regions of eastern Australia

**greenhouse effect**

a popular term used to describe the role of atmospheric trace gases — water vapour, carbon dioxide, methane, nitrous oxide, ozone, in keeping the Earth's surface warmer than it would be otherwise *see* **enhanced greenhouse effect**

**grey water**

waste water useable for a limited range of purposes, such as playing field irrigation or industrial cooling

**groundwater**

water occurring below the ground surface

**gully erosion**

a form of erosion involving the formation of deep, steep-sided channels or gullies which cannot be removed by cultivation *see* **rill erosion**, **sheet erosion**

**habitat**

the place where an animal or a plant normally lives and reproduces

**hardwood**

timber from sources other than pines and cypresses; includes timbers from eucalypts, wattles and most rainforest species *see* **softwood**

**HCFCs (Hydrochlorofluorocarbons)**

transitional replacements for CFCs; they are also greenhouse gases

**headwaters**

the upper parts of a river drainage system

**heath**

a vegetation dominated by small shrubs with small hard leaves

**heavy metal**

metallic element with relatively high atomic mass (over 5.0 specific gravity), such as lead, cadmium, arsenic and mercury; generally toxic in relatively low concentrations to plant and animal life

**hectare (ha)**

10 000 square metres

**herbarium**

a systematically arranged collection of dried plants

**herbivore**

an animal that consumes plants

**heritage** (as used in Chapter 9)

those places, objects and indigenous languages that have aesthetic, historic, scientific or social significance or other special value for future generations as well as for the community today

**heritage registers**

registers of places maintained by State and Territory heritage agencies administering laws designed to protect Australia's natural and cultural heritage

**high pressure system**

an atmospheric pressure distribution in which there is a high central pressure relative to the surroundings; the circulation about the centre of the high pressure is anticlockwise in the southern hemisphere (clockwise in the northern hemisphere) and the weather is usually fine and calm

**historic places**

(as used in chapter 9) those sites, areas or regions of heritage significance demonstrating physical characteristics or other associations with important events, developments or cultural phases in Australia's history since the arrival of non-indigenous people; individual structures such as buildings, archaeological sites, and cultural landscapes *see* **Aboriginal and Torres Strait Islander places**, **natural places**

**hummock grass**

spinifex grasses usually growing together as large rounded 'hummocks' which can be several metres across, often forming rings with a central dead or decaying patch; hummock grasslands are largely confined to the arid interior and to infertile soils

**hybrid**

the offspring of two animals or plants of different varieties, species or genera

**hydrocarbon**

an organic molecule containing hydrogen and carbon; the major components of petroleum

**hypersaline**

more salty than seawater

**impoundment**

a pond, lake, tank, basin, or other space, either natural or created in whole or part by the building of engineering structures, which is used for storage, regulation and control of water

***in situ***

(as used in Chapter 9)

the location of biological, physical or material culture objects in their original physical and cultural context

**index of economic resources, and index for education and occupation**

belonging to a family of four indices — the Socio-Economic Indexes (*sic*) for Areas (SEIFA) — designed to provide a range of new summary measures of social and economic well being across regions of Australia

**indicator species**

a species used to assess the health of an ecosystem.

**indigenous species**

species that are native to (that is, occur naturally) in a region *see* **exotic species**

**indoor air quality**

the totality of attributes of indoor air that affect a person's health and well-being

**infant mortality rate**

the number of deaths of infants in the first 12 months of life per 1000 live births

**infiltration**

the passage of water through the soil surface and into the soil matrix

**inshore waters**

waters of the shallower part of the continental shelf

**intertidal**

between the levels of low and high tide; (the intertidal zone is often called the littoral zone in Australia)

**inversion**

usually refers to a thermal inversion, in which air temperature increases rather than decreases with height *see* **atmospheric stability**

**invertebrate**

an animal without a backbone composed of vertebrae; examples include insects, worms, snails, mussels, prawns and cuttlefish *see* **vertebrate**

**joule**

a unit of energy *see* **GJ (gigajoule)**, **PJ (petajoule)**, **MJ (megajoule)**, **KJ (kilojoule)**

**keeping place**

a special place or structure used by Aboriginal and Torres Strait Islander communities to house important cultural items, for example ceremonial objects; it may also house significant materials returned to traditional owners from museum and other collections, including in some cases human remains

**KJ (kilojoule)**

one thousand joules

**KL (kilolitre)**

one thousand litres, or one cubic metre.

**L (litre)**

a unit of volume equal to 1/1000 of one cubic metre

**land cover**

the physical state of the land surface, including vegetation, soil, rock and human made structures

**Landcare**

a voluntary and cooperative movement that brings together rural people, government agencies and others with an interest in the long term health of the land; the term was first used in Victoria in 1986 but spread nationally after 1988 when the Australian Conservation Foundation and the National Farmers' Federation persuaded the Commonwealth Government to provide significant financial support

**laser levelling**

the use of a rotating laser beam to control land levelling to achieve a land surface of uniform slope

**leasehold land**

land owned by governments on behalf of the people they represent but leased to specified people or organisations for a specific purpose; about 50% of Australia, mostly in the drier regions, comes under some form of leasehold; governments retain a variety of controls over how leasehold land is used

**littoral**

of or pertaining to a shore, especially a seashore; littoral zone — the specific zone of the sea floor lying between high and low tide levels (intertidal)

**livability**

those qualities of urban life and social amenity that are represented by income (including the social wage), employment, education, housing, accessibility, community and health

**mallee**

small multi-stemmed eucalypts that often dominate semi-arid and arid areas

**mangrove**

(i) a plant (belonging to any of a wide range of species, mainly trees and shrubs) that grows in sediment regularly inundated by seawater

(ii) a community (forest, woodland, shrubland) of such plants

**marginal water**

water that is suitable for watering of livestock, irrigation, and other general uses

**material culture collections**

collections of objects of cultural significance housed in museums and other collecting institutions

**materials conservation**

the processes involved in the conservation and preservation of the physical material of objects and the physical fabric of structures or places

**medic**

species of the genus *Medicago*, which includes lucerne; many help add (fix) nitrogen to the soil

**microgram (µg)**

1 x 10<sup>-6</sup> grams

**minimum tillage**

*see* reduced tillage, zero tillage

**mitigation measures**

(with respect to climate change) management measures or options for responding to climate change (as a result of increasing emissions of greenhouse gases) in which the growth of greenhouse gas concentrations in the atmosphere is slowed or reversed by limiting emissions of greenhouse gases or enhancement of greenhouse sinks; examples include reforestation, fuel switching from high to low carbon dioxide-emitting-fuels and increased energy efficiency *see* adaptation measures

**mixing**

(as used in Chapter 5) a process associated with turbulent flow where air parcels are subject to random fluctuations in the wind velocity

**MJ (megajoule)**

one million joules

**ML (megalitre)**

one million litres, or 1000 cubic metres, (1 acre foot = 1234 cubic metres)

**monitoring**

routine counting, testing or measuring of environmental factors or biota to determine their status or condition

**monoculture**

the cultivation of a single species, usually a single crop on land

**multiple use**

managing an area to achieve multiple goals or multiple outputs; for example timber production, water and recreational opportunities

**National Estate**

'those places, being components of the natural environment of Australia, or the cultural environment of Australia, that have aesthetic, historic, scientific or social significance or other special value for future generations as well as for the present community' (*Australian Heritage Commission Act 1975*, Section 4)

**National Estate Grants Program**

the Commonwealth Government's major program to assist the identification, conservation and presentation of national estate (heritage) places across Australia

**natural places**

(as used in chapter 9) those sites, areas or regions for which the heritage significance is based on their natural biological and physical features; may also have cultural heritage values *see* Aboriginal and Torres Strait Islander places, historic places

**neritic**

located in the surface or middle depths of the water, over the continental shelf

**neutron moisture meter**

an instrument used for measuring the volumetric water content of materials by counting the rate of absorption of thermal neutrons; widely used to measure field soils for irrigation scheduling purposes

**nitrogen fixation**

the conversion of gaseous nitrogen into more complex molecules that can be used by plants and other organisms; often carried out by micro-organisms in the soil or closely associated with some plant species (for example the legumes or pea relatives)

**nominal prices**

nominal prices, incomes, costs or interest rates are not adjusted for inflation (purchasing power); everyday market prices *see* real prices

**nutrient enrichment**

the increase of nourishing substances

**off-site impacts**

consequences of an action or decision that occur beyond the area (for example the farm or catchment) under consideration *see* externalities

**old-growth forests**

forests dominated by mature trees and with little or no evidence of any disturbance such as logging, road building or clearing *see* box on page 6.20 for more detail

**open woodlands**

an area with scattered trees in which the tree crowns cover less than about 30% of land surface *see* woodland

**oral history**

a record of information gathered in oral form, usually on tape, as the result of a planned interview

**organochlorine**

a hydrocarbon compound containing chlorine. Includes many pesticides and industrial chemicals

**ozone**

a gas with molecules comprising three atoms of oxygen; in the stratosphere it occurs naturally and provides a protective layer shielding the Earth from ultraviolet radiation; in the troposphere, it is usually formed from anthropogenic emissions and is a major component of photochemical smog; ozone is also a greenhouse gas

**particles**

very small pieces of solid or liquid matter, such as soot, dust, smoke, or mist etc

**particulate matter**

in this report, the term particulate matter has been used interchangeably with particles

**pastoral areas**

those areas used predominantly for grazing livestock with little or no cultivation or improved pastures

**pathogen**

agent causing disease

**PCBs (polychlorinated biphenyls)**

a group of chlorinated organic compounds that are non-corroding and resistant to heat and biological degradation; used as insulation in electrical equipment; can accumulate in some species and disrupt reproduction

**pelagic**

associated with the surface or middle depths of a body of water

**per capita consumption**

the average amount of a commodity used per person

**perennial plants**

plants that live for more than one year

**pest**

an animal, or sometimes a plant, occurring where it is not wanted by humans *see* **weed**

**photochemical smog**

air pollution caused by chemical reactions among various substances and pollutants in the atmosphere in the presence of sunlight; **ozone** is a major constituent

**photosynthesis**

the biochemical process in plants and certain other organisms by which energy from the sun, captured by chlorophyll, powers the production of organic matter from carbon dioxide and water, releasing oxygen

**pidgin**

a restricted form of language which has relatively limited vocabulary and grammatical devices and which is not anyone's first language; generally developed as a means of communication between peoples of different language backgrounds *see* **creole**

**PJ (petajoule)**

one thousand million million ( $10^{15}$  joules)

**plankton**

free-drifting, suspended organisms; usually small plants (phytoplankton), or animals (zooplankton)

**plume**

(as used in Chapter 5)

a sometimes visible or measurable discharge of a pollutant from a given source; sources can range from car exhausts to whole urban areas

**PM10/PM2.5**

*see* **TSP**

**point-source pollution**

pollution from an easily discernible, single source such as a factory *see* **diffuse-source pollution**

**pollution**

the direct or indirect alteration of the physical, thermal, biological or radioactive properties of any part of the environment in such a way as to create a hazard or potential hazard to the health, safety or welfare of any living species

**population**

a group of individuals of the same species, forming a breeding unit and sharing a habitat

**potable water**

water suitable for drinking

**precautionary principle**

where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation

**precipitation**

any form or all forms of liquid or solid water particles that fall from the atmosphere and reach the Earth's surface; includes drizzle, rain, snow, snow pellets, ice crystals, ice pellets and hail

**prescribed fire**

a fire deliberately lit and controlled by humans, usually as part of a land management program; for example to reduce the chance of uncontrollable bushfires, or to control weeds

**preservation**

(as used in chapter 9) maintaining the physical material of places or objects in their existing state and retarding deterioration

**pressure indicators**

measures that can be used to describe both positive and negative pressures on the environment, including the quality and quantity of natural resources; such pressures can be caused by human inaction as well as action

**primary productivity**

the rate at which plants produce organic matter through photosynthesis

**primary salinity**

salinity mobilised in the landscape from a change in the hydrologic cycle either from climate change or clearing

**primary treatment of waste water**

the first step in sewage treatment to remove large solid objects by screens and sediment and organic matter by settlement *see* **secondary treatment**, **tertiary treatment**

**productivity (biological)**

the rate of accumulation of organic material in an ecosystem

**productivity growth (economic)**

the sum of technological change and change in

**economic efficiency;** 'total factor productivity' is a measure of productivity growth for an industry which takes account of all the resources used (or factors of production) and all products produced

**protocol**

a formal arrangement defining procedures

**protozoans**

a group of single-celled animals

**public realm**

those parts of rural and urban areas that are not owned privately, such as streets, parks, public transport, squares and public buildings; privately owned landscapes and streetscapes which have a public dimension can also be included; it can also incorporate resources such as air, water and biodiversity.

**pulp logs**

logs that are used to produce woodchips or wood-based products such as chipboard *see* sawlogs

**rangelands**

areas of native grasslands, shrublands and woodlands that cover a large proportion of the arid and semi-arid regions, and also include tropical savanna woodlands; regular cropping is not practised and the predominant agricultural use, if any, is grazing of sheep and cattle on native vegetation

**re-urbanisation**

the redevelopment taking place in the existing city and suburbs rather than on the fringe of the city

**real prices**

real prices, incomes, costs or interest rates are adjusted for inflation; for example, if the nominal interest rate is 10% and inflation is 6% as judged by the CPI, the real interest rate is 4% *see* **nominal prices**

**recharge**

the action by which water is added to a rock layer either naturally or artificially

**recirculation**

the recycling of pollutants over an area or within an airshed in response to reversal in the wind regime usually due to diurnal thermal changes such as the land-breeze/sea-breeze regime; in Australian urban airsheds it is a major cause of air pollution episodes

**recruitment**

(to a fishery) the addition of new individuals to the fished component of a stock

**reduced (or minimum) tillage**

a soil management system in which tillage is avoided as much as possible

**refugia**

areas that have been protected from environmental changes such as increasing aridity or fire

**Register of the National Estate**

a national heritage register that covers significant natural, historic and Aboriginal and Torres Strait Islander places across Australia *see* **National Estate**

**representativeness**

(as used in chapter 9) the extent to which every significant type of place or object is represented in heritage registers or collections

**residence time**

the period for which a substance remains in its active form in the air

**response indicator**

indicator that shows the extent to which society is responding to environmental changes and concerns; includes changes in attitude and individual and collective actions aimed at mitigating, adapting to or reversing negative impacts on the environment and reversing environmental damage already caused; also includes actions to improve the preservation and conservation of the environment

**rill erosion**

a form of erosion involving formation of shallow gutters which may be removed by cultivation *see* **gully erosion, sheet erosion**

**ring barking**

killing of trees by cutting a narrow strip deep beneath the bark; sometimes called girdling

**river regulation**

the formulation and execution of a specific operating plan for flow modification of water in a river system; may involve the creation of impoundments and diversions, and the control and flow to and from such storages

**run-off**

that portion of precipitation not immediately absorbed into or detained upon the soil and which thus becomes a surface flow

**rural (tree) dieback**

the gradual decline in vigour and eventual death of many trees in rural settings; there are several different causes; some of them related to current agricultural practices such as fertilisation

**salinisation**

the process by which soluble salt levels in the soil increase to the point where plant growth is affected *see* **secondary salinity**

**salinity**

the concentration of salts in water

**saltbush**

*see* **chenopod shrubland**

**saltmarsh**

saltwater wetland occupied mainly by herbs and dwarf shrubs, characteristically able to tolerate extremes of environmental conditions, notably waterlogging and salinity

**savanna**

a vegetation type with scattered trees over a grassland, usually found in subtropical areas

**sawlogs**

logs that can be seen to produce sawn timber, sleepers, poles etc *see* also **pulp logs**

**seagrass**

flowering plant adapted to living wholly submerged in seawater; not true grasses, but many have a grass-like form

**seaweed**

macro-algae (not flowering plants) occurring in the sea; typical examples are kelps, Neptune's necklace and sea-lettuce

**secondary salinity**

human induced, largely believed to be related to irrigation, results from rise in naturally saline watertable to less than one metre from the root zone, causing salinisation *see* **salinisation**

**secondary treatment of waste-water**

after primary treatment, removal of biodegradable organic matter from sewage by bacteria and other micro-organisms, activated sludge or trickle filters; also removes about 30 per cent of phosphorus and 50 per cent of nitrate *see* **primary treatment**, **tertiary treatment**

**sediment**

(i) solid material settled from suspension in the water, (ii) solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by water, air or ice and has come to rest on the land or sea floor

**seed banks**

the seed naturally available at a site; most of it is stored in the soil, but some may be in protective fruits such as banksia 'cones'

**semi-arid zone**

lands where rainfall is so low and unreliable that crops cannot be grown with any reliability *see* **arid zone**

**sheet erosion**

the removal of a fairly uniform layer of soil from the land surface by raindrop splash and/or run-off *see* **rill erosion**, **gully erosion**

**shrubland**

an area dominated by short, multi-stemmed plants; a typical example is the chenopod shrublands but sometimes the 'mallee' is classified as a shrubland

**siltation**

deposition of sediments from water in channels, harbours, etc.

**sinks**

processes or places that remove pollutants or greenhouse gases from the atmosphere

**sodic soils**

soils with a high proportion of sodium that cause poor physical conditions; about 30% of Australian soils

**softwood**

timbers from trees such as pines and cypresses; in Australia most softwood comes from pine plantations *see* **hardwood**

**SOI (Southern Oscillation Index)**

an indicator based on the pressure gradient between the quasi-stationary low pressure region

over Indonesia and the centre of the subtropical high pressure cell over the eastern Pacific Ocean; traditionally, Darwin and Tahiti are used as the sites for determining the magnitude of the Southern Oscillation; a negative SOI is associated with higher than normal pressures over Darwin and drought conditions over much of eastern Australia *see* **Southern Oscillation**

**soil acidification**

a gradual increase in the acidity of a soil as a consequence of a variety of natural processes and management actions

**Southern Oscillation**

a fluctuation in the atmospheric circulation, in particular over the tropical areas of the Pacific and Indian Oceans; in general, when atmospheric pressures are high over the eastern Pacific Ocean they tend to be low in the eastern Indian Ocean and vice versa; the fluctuation between the two produces a marked variation in parameters such as the sea-surface temperature and rainfall over a wide area of the Pacific and has a cycle of 2-7 years; the phenomenon is strongly linked to the **El Niño** *see* **SOI**

**species**

a group of plants, animals or micro-organisms that have a high degree of similarity and generally can interbreed only amongst themselves to produce fertile offspring, so that they maintain their 'separateness' from other such groups

**standardised mortality ratios**

an estimate of the number of deaths expected for each human settlement type if that population were to experience the same age-specific death rates as the Australian-born population; the ratio of the number of deaths observed to the number expected is known as the standardised mortality ratio (SMR); an SMR greater than 1.0 indicates a level of mortality higher than that in the Australian-born population, while an SMR less than 1.0 indicates a lower level of mortality

**State of the Environment reporting**

a process that provides a scientific assessment of environmental conditions, focusing on the impacts of human activities, their significance for the environment and societal responses to the identified trends

**stock**

(in fisheries) a group of individuals of a **species** that can be regarded as an entity for management or assessment purposes; commonly a distinct local **population**; some species form a single stock, others several distinct stocks

**stocking rate**

the number of animals carried per unit area of land on a year-long basis

**stratosphere**

the region of the atmosphere roughly 15 to 50 km above the Earth's surface where typically the temperature changes little or increases with height; its thermal structure is determined by radiation balance and is generally very stable

**streamflow**

a smaller watercourse than a river, usually forms the link between a drainage line and a river in a natural catchment flow path

**strip cropping**

strips of various crops and fallow land aligned at right angles to the direction of water flow; this slows the flow of surface water and reduces soil loss

**subsurface**

pertaining to, formed, or occurring, underneath the surface of the earth

**subtidal**

below low-water level

**subtropical ridge**

the belt of high pressure systems (highs or anticyclones) which pass from west to east between latitudes 25 and 45 degrees in both hemispheres

**suburbanisation**

the development of new suburbs in undeveloped sites usually on the fringe of the city

**surface water**

water that remains at or close to the land surface

**surfactant**

a material that facilitates and accentuates the emulsifying, wetting and other surface-modifying properties of substances

**suspended solids**

any solid substance present in water in an undissolved state, usually contributing directly to turbidity *see* sediment

**sustainable infrastructure plan**

a way of ensuring that settlement infrastructure is helping to shift settlements towards sustainability

**sustainable yield**

a management goal in which the rate of harvesting does not exceed the rate of renewal of the resource over a prescribed time

**symbiotic**

a close association between the individuals of pairs of species often leading to mutual gains

**taxonomy**

the categorisation and naming of animals and plants, animal and plant groups and the relationships between them; a group of organisms so named (for example, a **species**, a **family**, etc.) is called a taxon (plural taxa)

**technical efficiency**

the physical relationship between resources and products; achieved when a maximum level of output is obtained from a given level of inputs; the level of maximum output achievable may be increased by technological progress *see* economic efficiency

**tertiary treatment of waste water**

the removal of nitrates, phosphates, chlorinated compounds, salts, acids, metals and toxic organics after secondary treatment of sewage *see* primary treatment, secondary treatment

**tillage**

mechanical disturbance of the soil by using various implements to alter the soil structure; usually done to create a seedbed, kill weeds or increase water entry

**Top End**

the northern section of the Northern Territory.

**total factor productivity**

*see* productivity growth

**trajectory**

a line drawn to represent the path of an air parcel over an interval of time

**translocation**

the movement of organisms from their native range to another bioregion

**trend**

a general direction or tendency; an indication of change (or its absence) in a property or condition

**troposphere**

the lower layer of the atmosphere extending to roughly 15 km above the Earth's surface where typically the temperature decreases with height; nearly all clouds form and weather processes are found in this region

**TSP (total suspended particles)**

includes all particles from the smallest up to 50 µm in diameter; subcategories within the TSP range include those particles less than 10 µm in diameter known as PM10, and those smaller than 2.5 µm and known as PM2.5

**turbidity**

(i) a measure of the extent to which passage of light through water is reduced by suspended matter  
(ii) the cloudy conditions caused by suspended solids in liquids

**tussock grass**

grasses in which individuals occur in discrete, compact clumps or bunches

**Type Specimen**

a specimen of a plant or animal species which is the designated representative of a taxon *see*

**taxonomy**

**ultraviolet (UV) radiation**

electromagnetic radiation of higher frequencies and shorter wavelengths than visible light; ultraviolet radiation is divided into three ranges: UV-A (320–400 nm), UV-B (280–320 nm) and UV-C (40–290 nm)

**upwelling**

divergence of water currents or the movement of surface water away from land can lead to a 'welling-up' of deeper water which commonly is richer in nutrients than is surface water

**urban agglomeration**

the metropolitan area and its surrounding ex-urban areas of development where more than 20 per cent of households commute to the city for work

**urbanisation**

the shift of population from rural to urban areas

**vascular plants**

a grouping of plants that includes ferns, the gymnosperms (for example, pines) and flowering plants

**vector**

a disease carrier

**vegetable fault**

plant material (for example, seeds, thorns) that becomes trapped in wool and reduces the value of a fleece

**vertebrate**

an animal with a backbone composed of vertebrae, examples include mammals, fishes, frogs, amphibians, reptiles and birds *see invertebrate*

**visibility**

the greatest distance at which an object can be seen and identified with the naked eye in any particular circumstances, or, in the case of night observations, can be seen and identified if the general illumination is raised to the normal daylight level

**VOCs (volatile organic compounds)**

organic compounds with boiling points between 50°C and 260°C; in this report VOCs also include formaldehyde and pesticides

**Walker Cell**

an east-west air circulation confined to equatorial regions of the Pacific Ocean and driven principally by the oceanic temperature gradient

**water abstraction**

the removal of water from a natural water body for human use

**water repellence**

a condition of porous materials where the surface repels water lying on it and so inhibits infiltration; drought may induce water repellency in soils

**water resources**

water in various forms, such as groundwater, surface water, snow, and ice, at present in the land phase of the hydrological cycle — some parts may be renewable seasonally but others may be effectively being mined

**waterlogging**

the saturation of soils with water; often associated with insufficient oxygen for good plant growth

**watertable**

a surface defined by the level to which water rises in an open well or piezometer

**weather**

the day-to-day changing atmospheric conditions, which in synthesis constitute the climate of a region

**weed**

a plant species growing where it is not wanted by humans

**wet sclerophyll**

a type of eucalypt forest found in high rainfall (more than 1000 mm per year) areas; sometimes called 'tall-open forests' *see dry sclerophyll*

**wetland**

the land area alongside fresh and salt waters, that is flooded all or part of the time; marine and estuarine wetlands include tidal basins, saltmarshes and mangroves

**wilderness**

remote areas that are substantially undisturbed by colonial and modern technological society and that are large enough to enable the long-term protection and integrity of their natural systems and biological diversity

**woodland**

an area with scattered trees where the portion of the land surface covered by the crowns is more than 30 per cent (open woodland) but less than 60 per cent (forest)

**woody weeds**

shrubby plants (both native and exotic) that have increased in numbers to be a problem for pastoralists in parts of the arid and semi-arid zones

**World Heritage**

a term applied to sites of outstanding universal natural or cultural significance which are included on the World Heritage List

**zero tillage**

a production system in which there is no tillage at all; many Australians use the term incorrectly to describe what should be referred to as reduced tillage *see reduced tillage*

**zooxanthellae**

unicellular dinoflagellates that live within the tissues of certain corals, giant clams and other invertebrates

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