

BIODIVERSITY AND THE LAW:

A REVIEW OF THE COMMONWEALTH ENDANGERED SPECIES PROTECTION ACT OF 1992

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Introduction: Endangered Species Protection as a Political Problem

Public surveys in Western developed nations, like Australia or the US, generally reveal that citizens are concerned about a significant decrease in the number of native species found in their natural habitats, and that the public would be willing to endure some small hardship to ensure the continuation of these species.¹ The problem with this data, however, is its generality. These

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¹ Three surveys conducted in the U.S.A. during the 1970's and 1980's into public support for endangered species protection found that 67%, 73% and 80% of the public, respectively, agreed or strongly agreed with such protective measures. See: *Public Opinion on Environmental Issues: Results of a National Opinion Survey*, Washington, 1980; and *The Continental Group Report, Towards Responsible Growth: Economic and Environmental Concern in the Balance*, Stamford, Connecticut, Continental Group, 1982 in R.Tobin, *The Expendable Future: U.S. Politics and the Protection of Biological Diversity*, Duke University Press, 1990, 18-19 & 48. These figures are comparable to surveys of the Australian public, 89% of whom believe the Commonwealth Government should have the power to protect endangered species. J. Lambert, "Commonwealth Endangered Species Legislation" in *11th National Environmental Law*

surveys typically do not require individuals to focus on the often necessary requirement of personal sacrifice, nor do they relate to the preservation of particular species.

Endangered species protection, while supported in the abstract, generally suffers a marked decrease in support when specific measures to rectify species loss problems are proposed. As species become less “desirable”, in the sense that they are not “cuddly” or “beautiful”, or fail to provide any real economic benefits, the support for their preservation also diminishes.² Further, programs and agencies that impose controls, without providing tangible benefits often find it difficult to generate or sustain necessary public support.³

Most plant and animal species are endangered or threatened because political or economic actions and policies of government allow or encourage activities (primarily habitat destruction or modification) that endanger species.

Individuals and governments are often less concerned with biological diversity, because it is a collective good, or common asset that is readily accessible to all. Individuals generally have no incentive to limit their consumption of collective goods as long as others also have unfettered access to these goods. The consequence is what Garrett Hardin described in 1968 as a tragedy of the commons.⁴ In these cases, Tobin notes that, “the pursuit of individual gain engulfs and overwhelms concern for the common good”, and that the only possible solution to avoid despoilation of common resources is collective action provided by national governments.⁵

National governments and policy makers generally prefer popular, recurring issues that are easy to understand. It is easier to pursue matters with which they have some familiarity and experience, rather than ones which are

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² See generally, S.R.Kellert, “Social and Perceptual Factors in the Preservation of National Species” in B.G.Norton (ed.), *The Preservation of Species: The Value of Biological Diversity*, Princeton Univ. Press, 1986, 50.

³ R.Tobin, *above* n.1 at 48.

⁴ G. Hardin, “The Tragedy of the Commons” (1968) 162 *Science* 1243, 1244.

⁵ R.Tobin, *above* n.1 at 15-16.

new, complex or politically untested.⁶ This means that national and state political authorities are often most concerned with issues such as taxes, budgets, employment, education, medical cover, and foreign policy.

The protection of *all* endangered plant and animal species, however, can no longer be seen to be the concern of only “long haired greenies” and environmentalists.⁷ It is an issue that involves complex, moral, legal, political and scientific considerations.⁸ Conservation of biodiversity is becoming the most significant conservation issue of our time. In fact, of the four primary environmental problems facing the world today, specifically, conservation of air, of water, of land, and of diversity of life, it is biological diversity which is increasingly seen as being of paramount importance.⁹

This article highlights the threats to flora and fauna as a problem worthy of national and international concern, and examines the remedies that can and have been pursued to end these threats, with particular reference to the newly enacted *Australian Endangered Species Protection Act 1992 (Cth) (ESPA)*, and a brief comparison with the US Endangered Species Act. The article is divided into four parts. Part I offers a definition of biodiversity, examines the issue of species extinctions on a global scale, and discusses the extent and causes of the problem in Australia. Part II explains why biological diversity is so vitally important, and considers the various models for conserving biological diversity. Part III reviews the provisions of the *ESPA*, and Part IV critically analyses the effectiveness of the Act in achieving its objectives and for preserving biological diversity.

Part I: The Meaning and Value of Biodiversity

A. In Search of a Definition:

⁶ *Id* at 16.

⁷ J.A.McNeely, *et al.*, “Conserving the World’s Biological Diversity” (1990) 20 IUCN, Gland, Switzerland.

⁸ J.Bradsen, “Biodiversity Legislation: Species, Vegetation, Habitat”, (1992) 9 *E.P.L.J.* 175.

⁹ *Ibid.*

Biodiversity is probably best understood by the public¹⁰ to mean the total number and total variety of species of animals, plants and other organisms within a given area or "ecosystem".¹¹ This equation of species diversity, ie., number of species plus variety of species, with biodiversity is not unusual.¹²

Sheer numbers within particular species plus variety of species, however, is not a sufficient measure for biodiversity. Thus, biodiversity has also been defined as including the twin concepts of species diversity and genetic diversity, ie., the genetic variability within particular species that make up an ecosystem's species diversity.¹³ Other scientists illustrate this concept by defining biodiversity as the measure of "species richness, plus the richness of activity each species undergoes during its existence."¹⁴

¹⁰ The popular press often equates biodiversity with species loss. For example, E. Linden, "Biodiversity: The Death of Birth" (Jan.2, 1989) *Time* 32, at 33 notes that:

"[h]umanity is making a risky wager -- that it does not need the great variety of earth's species to survive. Despite the alarm with which scientists view this trend, biodiversity has just surfaced on the world's agenda. The troubles of high-profile animals such as the tiger and the rhino grab public attention, while most people hardly see the point of worrying about insects or plants. But extinction is the one environmental calamity that is irreversible. As these lowly species disappear, they take with them hard-won lessons of survival encoded in their genes over millions of years."

¹¹ Ecosystems can be defined as the combination of a community of animal and plant species plus the chemical and physical factors constituting its "non-living" environment. Although isolable, generally terrestrial ecosystems such as forests or deserts or aquatic ecosystems such as lakes and coral reefs do not have distinct boundaries, but blend into adjacent areas. G.T.Miller, Jr., *Living in the Environment*, 6th ed., Wadsworth Publishing Co., 1990, 80.

¹² G.D.Meyers, "Surveying the Lay of the Land, Air, and Water: Features of Current International Environmental and Natural Resources Law, and Future Prospects for the protection of Species Habitat to Preserve Global Biological Diversity" (1992) 3 *Colo. J. Int'l. Env'tl. L. & Pol'y.* 479, 503 and *below* n.173.

¹³ See G.T.Miller *above* n.11 at 142.

¹⁴ T.L.Erwin, "An Evolutionary Basis for Conservation Strategies" (1991) 253 *Science* 750, at 751.

No doubt, genetic variability within a particular species is as important as the population base of the species, and diminishment of either leads to loss of biodiversity. Dr Paul Erlich comments that the loss of genetically distinct populations from within species is as critical a problem as the loss of entire species;¹⁵ and Norman Myers notes that reduced genetic diversity may have severe repercussions for the course of evolution.¹⁶

If however, biodiversity was confined to total numbers and variety of species plus genetic variability within these species, we could employ the “Noah Principle”,¹⁷ and, with some effort, minimal comparative expense, and virtually insignificant loss of “developable land” solve the problem of preserving biodiversity. With only 1.4 million to 1.8 million species classified, we would first need to identify the vast majority of plant and animal species

¹⁵ P.R.Erlich, “The Loss of Diversity: Causes and Consequences” in E.O.Wilson, (ed.), *Biodiversity*, National Academy Press, 1988, 22.

¹⁶ N. Myers, “Tropical Forests and Their Species: Going, Going ...?” in E.O.Wilson, (ed.), *Biodiversity*, National Academy Press, 1988, 28 and 32.

¹⁷ The Noah Principle is based on God’s commandment to save all life forms before the great flood:

“...And God said to Noah, ‘I have determined to make an end of all flesh; for the earth is filled with violence through them ... Make yourself an ark of gopher wood... For behold, I will bring a flood water upon the earth,... everything that is on the earth shall die... But I will establish my covenant with you; and you shall come into the ark... and of every living thing of all flesh, you shall bring two of every sort into the ark, to keep them alive with you; they shall be male and female. Of the birds according to their kinds, and of the animals according to their kinds, of every creeping thing of the ground according to its kind, two of every sort shall come to you, to keep them alive. Also take with you every sort of food that is eaten, and store it up; and it shall serve as food for you and them.’ Noah did this; he did all that God commanded him.”

“Genesis”, Chap. 6, Par. 11, in *The New Oxford Annotated Bible*, Oxford University Press, 1973, 8-9.

By this directive, God, through Noah, preserved ancient earth’s species diversity -- animals, including humans (Noah and his family) and plants (“every sort of food” for humans and other animals). Presumably, God believed that fish and marine mammals could survive the flood.

estimated at between 5 million to 30 million (most of them insects) which remain unidentified, unclassified, and undescribed by biologists.¹⁸ We could then construct or preserve a few terrestrial and aquatic “ biodiversity arks”, collect sufficient specimens (probably a few more than two-by-two) of plant and animal species (including seeds preserved in genetic banks), and stock our “arks” with all the world’s biodiversity. Finally, to preserve genetic variability, we would need to collect and preserve sub-species and distinct population groups.¹⁹

But biodiversity arks, whether labelled zoos, wildlife safari parks, or botanical gardens, are insufficient for preserving biodiversity, because biodiversity is much more than sheer numbers of species or varieties of animals or plants within species. The somewhat facetious suggestion that we can re-enact the Old Testament’s salvation of the world’s wildness is not meant to diminish the important role that zoos, botanical gardens, museums, and other institutions play in conserving endangered species. The ex-situ conservation of flora and fauna is an important tool to combat the continuing impoverishment of nature,²⁰ but it cannot be the primary tool employed to sustain biodiversity.

¹⁸ G. Meyers, *above* n.12 at 511, and nn. 235-37.

¹⁹ *Id* at 505.

²⁰ For example, the recent Convention on Biological Diversity signed by 154 countries at the U.N. Conference on Environment and Development (Rio de Janeiro, Brazil, June 5, 1992), UNEP/Bio.Div./Conf./L.2 (May 22, 1992), notes that fundamental to the conservation of biodiversity “is the in-situ conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings.” See the Preamble and also Article 8. Article 9 of the Convention also recognises that ex-situ conservation measures are needed, but “predominantly for the purpose of complimenting in-situ measures.”

On the importance of ex-situ conservation measures, see generally: J.A.McNeely, “Protected Areas and Human Ecology: How National Parks Can Contribute to Sustaining Societies of the Twenty-first Century” 150-57; W.G.Conway. “The Prospects for Sustaining Species and Their Evolution” 199-209; and M.R.Stanley Price, “Reconstructing Ecosystems” 210-20 all in D. Western & M. Read (eds.), *Conservation for the Twenty-first Century*, Oxford University Press, 1989. For a recent article on the contribution of Australian zoos to preserving species

Current definitions generally now expressly recognise what is implicit in fully understanding the concept of biodiversity, that is, "the important role played by ecosystems and the critical role of ecological processes" for preserving biodiversity.²¹ The fundamental role of "ecosystem diversity" and importance of preserving ecosystemic services and relationships is underlined by "the overwhelming consensus that habitat modification and destruction are the prime causes of the decline of global biodiversity."²² Preserving biodiversity thus requires preservation of species habitat, ie., terrestrial and aquatic ecosystems, for both species maintenance as well as the maintenance of the biological and ecological productivity of these natural systems.²³

The emerging consensus that biodiversity includes more than sheer numbers and varieties of species and that definitions of biodiversity must reflect a process of relationships, is evident in international treaties and in national proposals to preserve biodiversity. For example, the Biodiversity Convention defines biodiversity as "the variability among living organisms from all sources, including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems."²⁴

A similar concept has been adopted by the US government, Office of Technology assessment which defines biodiversity as "the variety and variability among living organisms and the ecological complexes in which they occur."²⁵ Similarly, a submission by the Prime Minister's Science Council defines biodiversity as "the sum of the parts that make up the web of life and their pattern on earth. It includes a number of levels, best addressed under the

diversity, see, J.Ferrari, "Zoo; joins world effort to save rhinos" *The Australian*, 3 December 1992, 6.

²¹ G. Meyers, *above* n.12 at 504.

²² *Id.*, and see references cited in n.180.

²³ *Id.*, at 505-06.

²⁴ Biodiversity Convention, *above* n.20 at Article 2.

²⁵ See R.L.Fischman, "Biological Diversity and Environmental Protection: Authorities to Reduce Risk" (1992) 22 *Env.L.* 434, at 437.

headings: genetic diversity, species diversity, and ecosystems diversity.”²⁶ Interestingly, however, the *Commonwealth Endangered Species Protection Act* (1992) fails to address itself to the conservation of biodiversity.²⁷

B. Is Species Loss A Problem?

Whether species extinction is a real problem, depends upon considerations of the total number of species believed to be in existence in the world today, and the estimated rate at which this number is declining.²⁸ The range of estimates for these two considerations are, not surprisingly - given the present level of scientific and biological knowledge - quite large. Conservative estimates suggest that there are only five to ten million species of flora and fauna populating the earth. Whereas, more recent, credible estimates of scientific and biological experts suggest that it is more likely that there exists up to thirty million species²⁹ or even as high as fifty million³⁰ different plant and animal species.

Some commentators suggest that the rate of species extinction may range as high as fifty³¹ to 100³² species each day. Though not without controversy,³³

²⁶ Prime Minister's Science Council, *Scientific Aspects of Major Environmental Issues*, Australian Government Publishing Service, 1992, 2.

²⁷ Although it served as a basis for drafting Commonwealth endangered species legislative proposals and recognised that habitat loss was a major cause of species extinctions, the *Draft Australian National Strategy for the Conservation of Species And Habitats Threatened With Extinction*, Australian National Parks and Wildlife Service, Commonwealth of Australia, 1989, 7 and 12 defines biodiversity as “the conservation of plants, animals and micro-organisms in the world.” and see: J.Lambert, *above* n.1 at 2.

²⁸ M. Kennedy, “An International and National Perspective on Endangered Species Legislation - What is Needed” in *Endangered Species Legislation Seminar*, Sydney, Environmental Defenders Office Ltd., 1991, 3.

²⁹ G. Meyers, *above* n.12 at 505.

³⁰ M.Kennedy, *above* n.28 at 3.

³¹ *Id.*

³² P.H.Raven, “The Causes and Impacts of Deforestation” in H.J.de Blij (ed.) *Earth 88: Changing Geographic Perspectives*, National Geographic Society, 1988, 212, 220.

these projections are especially alarming when one realises that, historically, the natural rate of extinction for all species, known as the background rate, has been estimated at only one species per year.³⁴ An equally important consideration is that although the natural rate of extinction has fluctuated with time, traditionally, the rate of evolution has generally exceeded the rate of extinction.³⁵ The modern extinction crisis is different. Currently, the degradation and loss of terrestrial and aquatic ecosystems is not only leading to the extinction of existing species, but is so formidable that it is preventing the evolution of new species.³⁶

The accelerating loss of biodiversity is not confined to any particular region on Earth. Human encroachment on *all* types of ecosystems is leading to the loss of biodiversity.³⁷ The International Union for the Conservation of

³³ In a recent commentary by a Senior Fellow of the Sydney-based, Centre for Independent Studies, one researcher reports that estimates of large order species extinctions are unreliable. He notes that, “[t]he public and governments are being panicked into extreme [conservation] measures, with immense implications, on the basis of inadequate science, fictitious figures, and wild exaggeration”. B.Markey, “Demise Much exaggerated” (1993) 115 (No. 5885) *The Bulletin* 36-38.

³⁴ R.Tobin, *above* n.1 at 2.

³⁵ *Ibid.* R.Tobin also notes that historically, the total number of species has risen over time.

³⁶ World Resources Institute in Collaboration with the United Nations Environment Programme, *World Resources 1992-93: A Guide to the Global Environment*, Oxford University Press, 1992, 127.

³⁷ A variety of terrestrial, fresh water, and marine ecosystems are under increasing stress. The loss and pollution of coastal estuaries, development of non-tidal wetlands, human caused desertification in Africa and the middle East, massive clear cutting of temperate rainforests in North America and elsewhere, and the depletion and destruction of coral reefs are all leading causes of biodiversity loss. G. Meyers, *above* n.12 at 491-92 and 506-09. Particularly problematic is the rapid destruction of tropical rainforest ecosystems in Central America, South America, Asia and Australia (rainforests which are the exclusive habitat for 50% to 80% of the world’s fauna and flora, though they occupy only 7% of the earth’s surface) at 511-12. The World Resources Institute estimates a 35% reduction in tropical forest cover in the next 50 years at current clearing rates. World Resources Institute, *above* n.36 at 128.

Nature (IUCN) lists some four thousand and eighty nine mammals on its Red List of Threatened Mammals as endangered,³⁸ and estimates that nearly sixteen thousand species of plants³⁹ can be added to this, making a total of over twenty thousand threatened or endangered species. However, even the IUCN admits that these figures are conservative, being based only on species known to them, and that in all probability the figure is far higher.⁴⁰

Given the present rates of extinction and evolution, one commentator has estimated that if nothing is done to protect endangered species, the Earth could conceivably lose up to thirty to fifty per cent of all life forms by the turn of the century.⁴¹ A more conservative estimate is provided by the World Resources Institute which reports that, globally, the “[c]ombined loss or degradation of habitats at the present rates could doom up to 15% of the earth’s species over the next quarter of a century.”⁴² Whether the loss is 5%-15% or 30%-50% over the next few decades, the significance of the magnitude of potential species loss cannot be denied.

The causes of biodiversity loss are many. The major cause is active habitat destruction, and most of the scientific literature currently focuses on protecting and managing physical landscapes to preserve biodiversity.⁴³ Chief among the other identified causes of species loss and biodiversity depletion are habitat fragmentation, over-exploitation and illegal trade, the spread of exotic or

³⁸ G.T.Miller, *above* n.11 at 321 and see also, M.Kennedy, *above* n.28 at 4.

³⁹ M.Kennedy, *above* n.28 at 4.

⁴⁰ *Id* at 4.

⁴¹ *Id* at 3. This figure may be extreme. Peter Raven, Director of the Missouri Botanical Garden who predicts the loss of species at 100 each day for the next 25 years (see: P.H.Raven, *above* n.32) estimates that such a loss would doom up to 1.2 million species, which, given estimates of 10-30 million species world-wide, means a total loss of approximately 4% to 12% of the world’s species.

⁴² World Resources Institute, *above* n.36 at 127.

⁴³ R.L.Fischman, *above* n.25 at 438.

introduced species and diseases, pollution of natural systems, and the effects of climate change.⁴⁴

Uncontrolled population growth exacerbates all the causes of biodiversity loss. The dawning of the industrial age saw the world's human population top the one billion mark with biological resources⁴⁵ at an all time high, freely available for exploitation.⁴⁶ Today, the world's population is rapidly approaching six billion people. The increasing size of the human population, as well as its distribution⁴⁷ suggests that as increasing numbers of people attempt to survive and feed families in any way that is possible, the stress on marginal and sensitive ecosystems will inevitably grow worse.

Depletion of biodiversity is a global phenomenon requiring cooperative global redress. But it is also a national problem requiring action by individual states. Despite the fact that the majority of Earth's biodiversity lies within less developed countries (predominantly in the southern hemisphere),⁴⁸ which, parenthetically, lack the financial and technical resources to conserve habitats

⁴⁴ See: M.E.Soule, "Conservation: Tactics for a Constant Crisis" (Aug. 16, 1991) 253 *Science* 744, at 745; G.T.Miller, *above* n.11 at 326-27; and Draft Australian National Strategy, *supra* n.27 at 12-15.

⁴⁵ "Biological resources" are defined as the proportion of the diversity of life of actual or potential use to people. J.A.McNeely, *above* n.7 at 11.

⁴⁶ *Ibid.*

⁴⁷ See: World Commission on Environment and Development, *Our Common Future*, Oxford University Press, 1987, 101. The WCED estimates that global population will reach 6 billion by the year 2000. Dr Nathan Keyfitz, Head of the Population Programme at the International Institute of Applied Systems Analysis estimates that 95% of the growth in world population is occurring in less developed countries and much of the growth represents a massive redistribution from rural to urban centres. N. Keyfitz, "The Growing Human Population" (1989) 261 *Scientific American* 119-21. For a brief review of the effects of population growth on natural systems, see, G. Meyers, *above* n.12 at 496-500.

⁴⁸ S. Nyamekah Blay and R.W.Piotrowicz, "Biodiversity and Conservation in the Twenty-First Century: A Critique of the Earth Summit 1992" (1993) 10 *EPLJ* 450, at 451.

and which also face enormous pressures to develop those resources,⁴⁹ biodiversity loss is a significant problem in industrialised countries like Australia.

C. The Problem of Species Loss in Australia

Due to Australia's long isolation from the rest of the geographical world, its flora and fauna are characterised by high natural diversity, high endemism and *particular susceptibility to extinctions and overall declines in population*.⁵⁰ Australia is rich in species diversity, it has at least eighteen thousand species of vascular plants and over twelve thousand species of non-vascular plants. Australia is populated by about eight hundred and fifty species of birds, and about seven hundred species of reptiles; in fact the reptile fauna of Australian deserts is the richest in the world.⁵¹ Scientists believe that there are at least one hundred thousand species of insects in Australia, with thousands remaining to be identified and described. In terms of marine life, there are about three thousand six hundred species of fish and tens of thousands of species of molluscs; the flora and fauna of Australian coastal waters being among the most species-rich and diverse on earth.⁵²

Much of Australia's diversity is unique to this continent. Approximately 80% of the animal and plant life occurs only in Australia.⁵³ For example, all living species of monotremes, specifically the platypus and the echidna, are found only in Australia and New Guinea. In fact, eighty nine percent of marsupials, seventy percent of birds, eighty eight percent of reptiles ninety four percent of frogs and seventy three percent of other mammals found in Australia occur nowhere else on earth.⁵⁴

⁴⁹ See generally, R.K.L.Panjabi, "The South and the Earth Summit: The Development/Environment Dichotomy" (1992) 11 *Dickinson J Intl L* 77.

⁵⁰ Draft Australian National Strategy, *above* n.27 at 4.

⁵¹ *Id* at 4.

⁵² *Id* at 5.

⁵³ Prime Minister's Science Council, *above* n.26 at 1.

⁵⁴ Draft Australian National Strategy, *above* n.27 at 5.

Given the importance and uniqueness of the Australian environment, it is tragic to realise that this country has suffered rates of extinction more like those of small islands, and other easily disturbed ecosystems, than those of other continents.⁵⁵ Since the Europeans first arrived in Australia, over two centuries ago, the land has suffered immensely due to the attitude of Europeans to the natural environment.⁵⁶ One commentator describes the white settlement of Australia as “a tale of European culture in a non-European land.”⁵⁷ Settlers cleared and burnt three quarters of Australia’s rainforests, removing two thirds of its original tree cover and degrading more than half of its arable lands.⁵⁸ In essence, these settlers approached land and resource development as if nature imposed no limits on its use.⁵⁹ In consequence, Australia’s natural landscape and vegetation has experienced rapid and widespread modification.⁶⁰

Since 1788, eighteen species of Australian mammals have become extinct; this is half of all the known mammal species that have become extinct worldwide in recent times - the worst record of any country in the world.⁶¹ Plants have fared no better, with about one hundred kinds of Australian flowering plants becoming extinct.⁶² This disastrous trend has continued, so that presently forty species of mammals, twenty eight bird species and

⁵⁵ *Id* at 5.

⁵⁶ See: The Prime Minister’s Science Council, *above* n.26 at 8-9. The author also notes that, “[i]n 200 years we have changed our environment at an unprecedented rate, in many cases too fast for the flora and fauna to adapt” (at 6).

⁵⁷ T.R.Dunlap, “Australian Nature, European Culture: Anglo Settlers in Australia” (1993) 17 (1) *Envmtl.Hist.Rev.* 25.

⁵⁸ Draft Australian National Strategy, *above* n.27 at 2.

⁵⁹ T.R.Dunlap, *above* n.57 at 41-42.

⁶⁰ See: R.J.Hobbs and A.J.M.Hopkins, “From frontier to fragments: European impact on Australia’s vegetation”, (1990) 16 *Proc.Ecol.Soc.Aust.* 93-114.

⁶¹ Draft Australian National Strategy, *above* n.27 at 2.

⁶² Prime Minister’s Science Council, *above* n.26 at 6.

hundreds of different species of plant are classified as endangered⁶³ and threatened with extinction.

In Australia, habitat destruction, habitat change or degradation, the introduction of non-native plant and animal species to Australia, direct exploitation, and the interaction of a combination of these factors have all led to large scale species depletion.⁶⁴ Clearing of habitat for agriculture and urban or other developments is a major cause of extinctions in Australia, as most native species cannot exist outside their natural ecosystem. Besides broad scale clearing, fragmentation of habitat can also lead to loss of species from habitat remnants.⁶⁵ Species are at risk where the habitat remnants are too small to support a viable population, or the local population disappears from a remnant because of a local event, or when the species cannot repopulate a habitat due to clearing of the surrounding regions, or when the remnant supports a plant population but not its pollinator.⁶⁶ Other causes of habitat destruction, aside from clearing, are fire, increased water and soil salinity, drainage of natural catchments, flooding of valleys, soil erosion, grazing by introduced herbivores, and the presence of introduced noxious plants.⁶⁷

Australian native species are also threatened with extinction due to the introduction of non-native competitors, predators, and diseases. Australia has a large number of introduced birds and mammals,⁶⁸ many of which have caused, or have the potential to cause extinction of native species.⁶⁹ The

⁶³ Draft Australian National Strategy, *above* n.27 at 2.

⁶⁴ *Id* at 11-14.

⁶⁵ See: N.Amos, J.B.Kirkpatrick, and M.Giese, *Conservation of Biodiversity, Ecological Integrity and Ecologically Sustainable Development*, Australian Conservation Foundation, 1993, 23-26.

⁶⁶ Draft Australian National Strategy, *above* n.27 at 12.

⁶⁷ *Id* at 13.

⁶⁸ *Ibid*.

⁶⁹ Rabbits, goats, cattle, buffalo, pigs, donkeys and camels are all introduced herbivores that have caused substantial environmental damage. Two exotic predators, cats and European red foxes, are now overly abundant in Australia and

presence of exotic species has also led to changes in the competitive relationships of native species, usually to their detriment.⁷⁰ In many parts of Australia, introduced plants and noxious weeds are replacing naive species of plants, causing choking of waterways, and reductions in the numbers of native species dependant upon those plants for food and shelter.⁷¹

To date, there is no proof that Australian species have become extinct solely because of hunting or collecting by humans.⁷² However, all such practices have the potential for exacerbating species loss, especially where there is a possibility of trade in the fruits of these activities, as with the trade in birds and wildflowers.⁷³

Habitat loss in the 20th century has left Australia with a track record for the extinction of species of which it cannot be proud,⁷⁴ especially when one considers Australia's high standard of living, its relatively low human population, and the country's stable political situation. All of these characteristics make it possible for Australia to conserve species without the hindrance of many of the problems faced by other countries.⁷⁵ Dr Judy Lambert, an Environmental Consultant to the Commonwealth calls Australia's conservation record, "amongst the worst in the developed world."⁷⁶

recent studies have shown that foxes are partially responsible for the disappearance of remnant populations of endangered mammals. *Id* at 14.

⁷⁰ *Ibid.*

⁷¹ *Ibid.*

⁷² *Id* at 15.

⁷³ *Ibid.* For a discussion of the problem of illegal trade in Australia species, see: F.Antram, "Wildlife Trade and Exploitation" in M. Kennedy, *A Complete Reference to Australia's Endangered Species*, Simon & Schuster, 1990, 167.

⁷⁴ Draft Australian National Strategy, *above* n.27 at 2.

⁷⁵ *Id* at 6.

⁷⁶ J.Lambert, *above* n.1 at 8.

PART II. THE NEED FOR BIOLOGICAL DIVERSITY AND MODELS FOR CONSERVATION

A. Why Value Biodiversity ?

Why should we conserve endangered species and strive to preserve biological diversity? Many people might question the significance of the loss of some obscure, seemingly valueless animal or plant species. In contrast, however, the conservation position is best summarised by Edward O. Wilson, when he notes that a species,

“[i]s not like a molecule in a cloud of molecules. It is a unique population of organisms, the terminus of a lineage that split off thousands or even millions of years ago. It has been hammered and shaped into its present form by mutations and natural selection...each species of higher organism is richer in information than a Caravaggio painting, Bach fugue, or any other great work of art.”⁷⁷

Why is conservation of biodiversity so important? Aside from the scientific value of species, and their intrinsic value as unique life forms, as suggested by Dr Wilson, from a practical standpoint, this question is of fundamental importance to the allocation of public finance and resources, especially during times of economic difficulty when planning tends to be more concerned with short term goals.⁷⁸ Moreover, there are, arguably, ethical considerations that reflect upon our fundamental understanding of our role in nature.

Most commentators suggest what can be characterised as two broad categories of response to the question of species conservation. These responses are often denominated as “anthropocentric” or human-centred, instrumental, human-benefiting justifications and “non-anthropocentric” or

⁷⁷ E.O.Wilson, “The Biological Diversity Crisis” (1985) 35 *BioScience* 700, at 701.

⁷⁸ A.A.Burbidge, “The How and Why of Managing Biological Resources” in D.A.Saunders and A.A.Burbidge (eds.) *Ecological Theory and Biological Management of Ecosystems*, Department of Conservation and Land Management (WA) Occasional Paper No 1/88: June, 1988, 9.

“eco-centric” reasons that are justified on the ethical or moral basis of the inherent or intrinsic values of species and ecosystems.⁷⁹

Many environmentalists⁸⁰ have attempted to define the primary reasons for protecting endangered species and preserving biological diversity in terms of direct and indirect, economic and non-economic considerations. These anthropocentric justifications for preserving biodiversity range from the consumptive, generally economic values of these species and natural systems for agriculture, science, medicine and industry to non-consumptive human uses, such as preservation for “nature tourists”, aesthetic reasons, or protection of “amenity/heritage values”.⁸¹

Statements such as, “[s]pecies should be preserved because of their beauty”, and “symbolic value,” or that, “[t]he extinction of species reduces the richness of the human experience,”⁸² present the “aesthetic” argument for the protection of endangered species. In sum, these arguments suggest that species should be protected only so long as there is sufficient interest in their particular continued survival, hence preservation should be concentrated upon those species that are pleasing to look at or, for example, a national symbol.

⁷⁹ See eg. A.Batchelor, “The Preservation of Wildlife Habitat in Ecosystems: Towards A New Direction Under International Law to Prevent Species Extinction,” (1988) 3 *Fla. Int’l. L.J.* 307, at 322-26; Draft Australian National Strategy, *above* n.27 at 8-9; E.M.Smith, “The Endangered Species Act and Biological Conservation” (1984) 57 *So. Cal. L. Rev.* 361, at 370-78; B.Norton, “Commodity, Amenity, and Morality: The Limits of Quantification in Valuing Biodiversity” in E.O.Wilson, *above* n.15 at 200 and 205; A.Randall, “What Mainstream Economists Have To Say About The Value of Biodiversity” in E.O.Wilson, *above* n.15 at 217-23; World Resources Institute, *above* n.42 at 127; and D.J.Rohlf, *The Endangered Species Act: A Guide to its Implementation*, Stanford Environmental Law Society, 1989, 12-17.

⁸⁰ See: J.A.McNeely, *above* n.7 at Ch. II; A.A.Burbidge, *above* n.78 at 9-11; and J.Giddings and S.Edmonds, “Guaranteeing the Survival and Evolution of Endangered Species: An Analysis of the Flora and Fauna Guarantee Act (Victoria)” (1992) 9 *EPLJ* 421.

⁸¹ Prime Minister’s Science Council, *above* n.26 at 9-19.

⁸² *Id* at 8.

The short sightedness of this argument highlights the lack of awareness by the general public of the interdependence of species and ecosystems.

The second, and most often raised anthropocentric argument, is based wholly on economic rather than other human-centred considerations of biodiversity. Plants, animals and micro-organisms provide all our food, many of our medicines and drugs, as well as a variety of renewable resources.⁸³ Because only a minute proportion of the economic potential of the world's plants and animals has been realised, proponents of economic justifications argue that any decrease in the number of species reduces the amount of future options for humans.⁸⁴

A third reason suggested for preserving species is that species are part of the large interdependent ecosystem that provides us with the necessities of life, including the air that we breathe, the climate that we live in, the water that we drink, the soil in which food grows, disposal of pests, and the recycling of nutrients and waste.⁸⁵ No-one is independent of the need for these ecosystemic services. When species become extinct, the effect upon ecosystems is unpredictable, however, such disruptions have the potential to directly affect people everywhere; and many people fail to consider their complete dependence upon the processes of nature.⁸⁶ In other words, species ought to be conserved, because humans depend upon other species to support life giving processes for humans.

The fourth and final anthropocentric justification falls closer to a ecocentric approach. This argument recognises the intrinsic value of life, however, such recognition is dependant upon human largesse in order to be

⁸³ Examples of benefits include the use of plant and animal species as food sources, and for industrial use (for example, wood, fabrics, dyes, food flavourings, toiletries, glues and lubricants). (Council on Environmental Quality, 1980 Report) Various medicines like penicillin, digitalis and quinine come from plants; and medical researchers have extracted the pharmacologically active ingredients in plant, animal and microbiological species for use in chemotherapy and for the production of drugs, analgesics, antibiotics and anti-coagulants. Giddings and Edmonds, *above* n.80 at 421.

⁸⁴ Draft Australian National Strategy, *above* n.27 at 8-9.

⁸⁵ *Id* at 9; and A.A.Burbidge, *above* n.78 at 10.

⁸⁶ R.Tobin, *above* n.1 at 11.

validated.⁸⁷ Burbidge writes that human compassion demands consideration for other species survival.⁸⁸ In this context, “the needs and desires of humans cannot be the only basis for ethical decisions”.⁸⁹

On the other hand, many commentators, like Dr Wilson, have suggested broad-based ethical reasons for conserving species.⁹⁰ Eco-centric ethical reasons for preserving biodiversity include the suggestion that we owe a duty to the earth and its natural processes because the earth is a living organism,⁹¹ are based upon assumptions of species equality, ie., that all species have inherent value;⁹² or are founded upon arguments that the needs and desires of humanity should not be the only basis for ethical decisions.⁹³

The ecocentric approach rejects the *allowance* of species existence prevalent in anthropocentric arguments, and accepts in its place a philosophy recognising the *right* of species to exist. According to this approach to environmental ethics, species should be conserved because their, “existence

⁸⁷ A.A.Burbidge, *above* n.78 at 9.

⁸⁸ *Ibid.*

⁸⁹ *Ibid.*

⁹⁰ Eg. see H.Ralston III, *Environmental Ethics: Duties to and Values in the Natural Worlds*, Temple University Press, 1988, 158 who notes that in nature, all species including humans must exploit their environment to survive, however humans ought to have a conscience about how that exploitation affects other species. He notes that consumption of included animals and plants can be justified but that the “consumption” or destruction of an entire species cannot, for “each [species] extinction erodes the regenerative process on our planet”.

⁹¹ J.E.Lovelock, *Gaia: A New Look at Life on Earth*, Oxford University Press, 1987; and J.E.Lovelock, “The Earth As A Living Organism,” in E.O.Wilson, *above* n.15 at 486-89.

⁹² See generally B.Devall and G.Sessions, *Deep Ecology: Living As If Nature Mattered*, Penguin Smith Books, 1985.

⁹³ Draft Australian National Strategy, *above* n.27 at 8.

itself is but the present expression of a continuing historical process of immense antiquity and majesty.”⁹⁴

The anthropocentric rationale is the view most accepted by Governments and individuals, as it is the easiest view to justify and understand. When the United States Congress enacted the *Endangered Species Act* in 1973,⁹⁵ its stated purpose was to preserve, “[t]he aesthetic, ecological, educational, historical, recreational and scientific values species provide.”⁹⁶ During the debates prior to enactment, it was argued that genetic losses [of and within species] should be minimised because, “... they are potential resources. They are keys to puzzles which we cannot solve, and may provide answers to questions which we have not learnt to ask.”⁹⁷ Similarly, this type of approach is found in the Australian National Report to the United Nations Conference on Environment and Development, which refers to the substantial contribution of biological resources to the Australian economy, both presently and potentially.⁹⁸

There are, however, significant problems associated with reliance upon anthropocentric rationales for the conservation of species. For example, David Ehrenfeld argues that conservation should not be based solely upon material considerations, and notes that, “[i]t is certain that if we persist in this crusade to determine value where value ought to be evident, we will be left with nothing but our greed when the dust finally settles.”⁹⁹ Further, many scientists argue that not enough is known about any genes, species or ecosystems to be able to precisely calculate their ecological and economic worth in the larger scheme of things.¹⁰⁰

⁹⁴ D.Ehrenfeld, “The Conservation of Non-Resources” (1976) 64 *Am. Sci.* 648, at 654.

⁹⁵ *Endangered Species Act* 1988 (US), 16 USC secs. 1521-1544.

⁹⁶ *Id* at s.1531(a)(3).

⁹⁷ H.R.Rep. No. 412, 93D Cong., 1st Sess 4-5 (1973).

⁹⁸ Giddings and Edmonds, *above* n.80 at 422.

⁹⁹ D.Ehrenfeld, “Why put a value on Biodiversity?” in E.O.Wilson, *above* n.15 at 212-216.

¹⁰⁰ J.A.McNeely, *above* n.7 at 26.

As long as humanity persists in valuing life with reference only to itself, it will, in all likelihood, be difficult to adopt the policies required to protect endangered species at either a global or national level. The “human centred” approach is limited by the overall complexity of life, and the practical impossibility of assessing the value of the Earth’s life in order to justify saving it. In any case, what we already know in relation to the direct value of biological diversity, is more than sufficient to justify some form of immediate conservative and preservative action.

B. Models for Species Conservation

Since government policies are often responsible for depleting biological resources, it is obvious that policy changes of all types are required as the initial step towards conservation.¹⁰¹ Moreover, halting species loss and preserving biodiversity generally, will require both trans-national and national action to implement species conservation measures. As Norman Myers notes,

“[t]he emergent problem of disappearing species can be characterised as ‘supranational’ in form. Through habitat destruction, many nations contribute to the problem, whether directly or indirectly, whether wittingly or unwittingly. All nations will lose if species continue to disappear. So all nations should contribute to a joint campaign in support of conserving species. This places a premium on finding a new approach to the issues of species extinction. *Major initiatives on the part of a few individual governments will no longer suffice. What we need is a co-operative endeavour on the part of many, if not most and preferably all, nations.*”¹⁰²

Further, the IUCN has agreed that while there are a number of regional and global international instruments, that address the conservation of species,

¹⁰¹ Indirect policy issues relating to land tenure, rural development, family planning, and subsidies for food, pesticides and energy, as well as direct policy issues, such as forestry management, all effect conservation and protection of species. *Id* at 55.

¹⁰² N. Myers, “International Measures to Conserve Diminishing Species” (1984), unpublished paper, cited in M.Kennedy, *above* n.28 at 5 (emphasis added).

relatively few deal directly with the protection of the planet's biodiversity.¹⁰³ In fact, the IUCN concluded that the only effective means of dealing with the problem of species endangerment and extinction was through a new international treaty:

“Indeed, it is only through such a binding instrument that the duties and responsibilities of the world community may be recognised, and the roles of the world's partners in the achievement of biological diversity conservation can be delineated.”¹⁰⁴

A global strategy for conservation is required to provide the framework for national, local, and regional efforts, while supplying guidance on the choices and opportunities for positive action capable of achieving world goals while still addressing local priorities.¹⁰⁵ The Biodiversity Convention adopted at the U.N. Conference on Environment and Development (Rio Earth Summit) may well provide this international organising framework.¹⁰⁶ However, reliance on such international agreements is not free of problems.

Foremost among those problems is the initial unwillingness of nation states to enter into international arguments, particularly where they fear that their sovereignty may be compromised.¹⁰⁷ That concern by states for control over national resources may well undermine any attempt to negotiate a treaty.¹⁰⁸ Moreover, even when a treaty such as the Biodiversity Convention has been concluded, domestic political considerations may sabotage successful implementation.¹⁰⁹ As Peter Sand notes, the delays inherent in negotiating and

¹⁰³ *Id* at 5.

¹⁰⁴ *Draft Articles for Inclusion in a Proposed Convention on the Conservation of Biological Diversity in Situ and for the Establishment of a Fund for that Purpose* IUCN, June, 1988.

¹⁰⁵ J.A.McNeely, *above* n.7 at 21.

¹⁰⁶ See: M Chandler, “The Biodiversity Convention: Selected Issues of Interest to the International Lawyer” (1993) 4 *Colo.J.Intn'l.Envntl.L & Pol'y*. 141-75.

¹⁰⁷ See: “Developments in the Law: International Environmental Law” (1991) 104 *Harv.L.Rev.* 1484, at 1489-91.

¹⁰⁸ G. Meyers, *above* n.12 at 592.

¹⁰⁹ *Ibid.*

ratifying treaty instruments and amendments to those treaties to address emerging problems, ie.to respond flexibly to new data, also burdens the development of effective international law.¹¹⁰ Finally, as Zalob observes, “no law is better than its enforcement scheme”,¹¹¹ and a major problem plaguing international environmental protection treaties is the failure to establish effective, centralised enforcement mechanisms.¹¹²

Given the difficulties associated with international implementation of conservation measures, it is clear that sole reliance upon international agreements would be misplaced. Strong domestic legislation is essential to prevent the continuing depletion of biodiversity and halt species extinctions. In either, or both cases, most efforts to conserve species rely upon a mix of methods that are described below.

Typically, legislative approaches to preserving biological diversity can be described either as a “rare and endangered species designation” approach or a “habitat protection” approach.¹¹³ The “species-by-species” approach requires the identification and listing of all known threatened or endangered species in order to regulate their taking, exploitation, destruction or “harm”. The “habitat” approach, on the other hand, is concerned with the identification of valuable, or potentially valuable habitat in order to protect it from direct and indirect harm. Both approaches have a role to play in the preservation of biodiversity.¹¹⁴

Species are the building blocks of ecosystems, and are often considered the most obvious indicators of ecosystem health. For this reason, governments, NGO’s and international agencies have often paid significant attention to the “species “ legislative model. This approach is useful as it allows for

¹¹⁰ P.H. Sand, “Lessons Learned In Global Environmental Governance”, (1991) 18 *B.C.Env.Affairs L.Rev.* 213, at 219.

¹¹¹ D.S.Zalob, “Approaches to Enforcement of Environmental Law: An International Perspective” (1980) 3 *Hastings Intl. & Compar. L. Rev.* 299, at 300.

¹¹² G. Meyers, *above* n.12 at 593.

¹¹³ See generally: J.Bradsen, *above* n.8.

¹¹⁴ *Ibid.*

emergency action to preserve specific species and to promote their recovery.¹¹⁵

The species approach is best represented by the United States *Endangered Species Act of 1973*, which requires the maintenance of an updated list of endangered species of flora and fauna,¹¹⁶ and makes it an offence to “take” these listed species.¹¹⁷ In that Act, the concept of “take” has been widened to include both direct and indirect taking,¹¹⁸ thus protecting species from direct harm from individuals and indirect harm from the destruction of habitat.¹¹⁹ A law which protects species from direct harm is, by its very nature, most effectively defined in terms of species.

For most listed species, however, the primary need is for viable habitats.¹²⁰ Accordingly, the best approach for the preservation of these species includes provision for the identification and protection of habitats.¹²¹ A principal argument in favour of the use of the habitat model, is that the habitat

¹¹⁵ J.A.McNeely, *above* n.7 at 57.

¹¹⁶ 16 USC at s.1533.

¹¹⁷ *Id* at sec. 1538.

¹¹⁸ *Id* at s.1536(a)(2); and see: G.D.Meyers, “Old Growth Forests, The Owl, and Yew: Environmental Ethics Versus Traditional Dispute Resolution Under the Endangered Species Act And Other Public Lands And Resources Laws” (1991) 18 *B.C.Env.Affairs L.Rev.* 623, at 645.

¹¹⁹ See *Palila v Hawaii Department of Land & Natural Resources (Palila I)* 471 F. Supp. 985 (D. Hi, 1979), aff’d. 639 F2d 495 (9th Cir., 1981); and *Palila v Hawaii Department of Land & Natural Resources (Palila II)* 649 F. Supp. 1070 (D. Hi., 1986). aff’d. 852 F2d 1106 (9th Cir., 1988).

¹²⁰ A species habitat includes its native environment and that area necessary for its life, survival and growth. While species survive in smaller habitats than their traditional territories, a decline in such territory inevitably leads to an accelerated decline in the value of what is left, and an increase in the rate of extinction. See: J.M.Diamond, “The Island Dilemma: Lessons of Modern Biogeographic Studies for the design of Natural Reserve” (1975) 7 *Biological Conservation* 129-46; J.Terborgh, “Preservation of Natural Diversity: The Problem of Extinction Prone Species” (1974) 24 *BioScience* 715-22. According to Norman Myers, “arithmetical loss of space leads to geometric decline in the value of the remaining space.” N. Myers, *The Sinking Ark*, Pergamon Press, 1979, 225.

¹²¹ J.A.McNeely, *above* n.7 at 57.

conservation legislation in itself can protect species, without requiring any other action on the part of the government. For example, in South Australia, proposed developments or activities that may affect species populations must be granted approval, thus the onus rests with the action party to justify habitat clearance and not with the government.¹²²

A further argument in favour of the habitat approach is that it focuses on ecosystems, rather than on individual species. The species listing approach tends to support the view that it is possible to protect a few rare animals or plants by pairing them away in zoos or botanical gardens.¹²³ As previously suggested, however, that is not the case. To preserve biological diversity, it is essential to protect habitat.

While, as noted earlier, it is universally agreed that the most effective and efficient mechanism for the preservation of endangered species is the protection of habitat, ex-situ (off site) measures to promote conservation of species, including zoos, botanical gardens, gene banks, captive breeding programs, and game farms, are also of vital importance.¹²⁴ Species-specific, ex-situ programs supplement in situ schemes by providing for the long term storage, analysis, testing, and propagation of threatened and rare species.¹²⁵ Such programs are particularly important for highly endangered species restoration; serving as a back up to in situ conservation and providing a source of genetic material for present and future reintroduction of species to their natural habitats.¹²⁶

However, ex-situ programs do suffer from various limitations. These include the impracticality of maintaining a large sample of genetically diverse material from a particular species; the lack of habitat-responsive evolution due

¹²² J.Bradsen, *above* n.8 at 177-79. In response to the criticism that this approach is too drastic and prohibitive in its operation, the positive South Australian experience is reassuring. For a discussion of the operation of the Native Vegetation Act 1991(SA) see *ibid.*

¹²³ *Ibid.*

¹²⁴ J.A.McNeely, *above* n.7 at 62.

¹²⁵ *Ibid.*

¹²⁶ *Ibid.*

to environmental constants; and the reliance upon policy and funding from external sources, which is not necessarily guaranteed, nor even constant.¹²⁷

Measures to curb the contamination of the biosphere with pollutants are presently the most widespread conservation measures initiated by governments, attracting a substantial proportion of funding and public attention.¹²⁸ Biological diversity is threatened by various forms of pollution, including depletion of ozone, acidification of lakes, rivers and soil, and potentially, the greatest threat to diversity -- rapid climate change, brought about by air pollution, and increases in atmospheric carbon dioxide.¹²⁹

While not directly confined to the preservation of biodiversity, pollution prevention, control, and clean-up measures are important tools for combating the destruction of degradation of natural systems. Action to reduce pollutants should include the earliest possible phasing out of chlorofluorocarbons involved in ozone depletion, reduction of the release of other greenhouse gases to a minimum level,¹³⁰ and a stringent precautionary approach that minimises the discharges of all harmful substances into the planet's air and water systems.¹³¹

Species-by-species conservation measures (including ex-situ programs), habitat preservation models (particularly in-situ species conservation measures), and pollution control policies all provide mechanisms for the conservation of biodiversity. They are complementary, and need to be employed in concert to achieve biodiversity conservation. The next section of this article reviews the Australian species listing approach to conservation of endangered fauna and flora.

¹²⁷ *Ibid.*

¹²⁸ *Id* at 66.

¹²⁹ *Ibid.*

¹³⁰ As many reserves are now "islands" of habitat to which species are closely adapted, climate change could well cause extinctions among reserves species without being compensated with new "immigrating" species as has historically been the case. R.L.Peters, and J.D.S.Darling "The Greenhouse Effect and Nature Reserves" (1985) 35 *BioScience* 707.

¹³¹ J.A.McNeely, *above* n.7 at 67.

PART III. AUSTRALIAN ACTION TO PRESERVE BIODIVERSITY

At an international level, the Commonwealth has acted to protect certain classes of wildlife, such as migratory birds¹³² and whales,¹³³ and specific areas such as the Antarctic region.¹³⁴ Further, all Australian governments have adopted the World Conservation Strategy, developed by the IUCN and, as a member of the United Nations, adopted and solemnly proclaimed The World Charter for Nature.¹³⁵ Australia is also a signatory to and recently ratified the Biodiversity Convention.¹³⁶

According to Dr Lambert, the Commonwealth Government has long recognised the need for national legislative action to protect Australia's endangered species.¹³⁷ The first step in this process was the creation of a National Conservation Strategy, in 1983, which has been endorsed by the Commonwealth and most of the states.¹³⁸ The objectives of the National Conservation Strategy for Australia include the goals of maintaining essential ecological processes and life support systems; preserving genetic diversity;

¹³² *Migratory Birds Ordinances* 1980 (Cth).

¹³³ *Whale Protection Act* 1980 (Cth).

¹³⁴ *The Antarctic Treaty (Environment Protection) Act* 1980 (Cth).

¹³⁵ Adopted by the General Assembly U.N. on 28 December, 1982, the Charter expresses absolute support for the principles of conserving biodiversity. (Annex 2.)

¹³⁶ See: No 9 *Environment: Australian International Agenda* 5, Commonwealth Department of Foreign Affairs and Trade, June, 1993.

¹³⁷ J.Lambert, *above* n.1 at 2.

¹³⁸ The Australian National Conservation Strategy was adopted in response to the World Conservation Strategy put forward by the IUCN in 1980. See: G.M.Bates, *Environmental Law in Australia*, 3rd ed., Sydney, Butterworths, 9-10. So far, Western Australia, South Australia, New South Wales, and the Northern Territory have signed the National Strategy. Draft Australian National Strategy, *above* n.27 at 7.

ensuring the sustainable utilisation of species and ecosystems; and maintaining and enhancing environmental qualities.¹³⁹

Among other initiatives¹⁴⁰ initiated by the Commonwealth as part of its commitment to halt species loss, was the establishment in 1988 of the Endangered Species Advisory Committee to develop a national strategy for the conservation of species and habitats threatened with extinction. The Committee was comprised of representatives from State and Federal government agencies, non-government conservation organisations, scientific institutions and the rural community.¹⁴¹ The outcome of this Committee's work was the enactment of the *Endangered Species Protection Act 1992* (Cth).

Australian Commonwealth Endangered Species Legislation¹⁴²

On December 16, 1992 the Australian Parliament passed the *Endangered Species Protection Bill 1992* (Cth).¹⁴³ Passage followed months of

¹³⁹ G.M.Bates, *above* n.138 at 10-11.

¹⁴⁰ Draft Australian National Strategy, *above* n.27 at 2. Initiatives established by the Federal Government include; The National Threatened Species Network, which aims at setting up a network of information on endangered species; The Australian and New Zealand Environment and Conservation Council (ANZECC) whose aims are to provide scientific information on species diversity, develop a national strategy to conserve endangered species of flora and fauna and habitats, promote management practices, prevent further problems and provide a national forum for discussion; The National Forest Inventory, to record geographic information on Australia forests; and the "One Billion Trees" Programme administered by Greening Australia, which aims to help the community plant one billion trees by the year 2000. See: I. Castles, *Australia's Environment: Issues and Facts*, Australian Bureau of Statistics, Canberra, 1992, 57.

¹⁴¹ *Id.*

¹⁴² This sub-section of the article is based in large part upon revisions to a presentation by one of the authors to a seminar sponsored by the Australian Centre for Environmental Law (University of Sydney) and the Environmental Defender's Office of New South Wales. See: G.D.Meyers "A Comparative View of Endangered Species Legislation in the United States and Australia: How Effective Are These Acts for Preserving Biodiversity" in *Legislating for Biodiversity*, NSW, Environmental Defender's Office Ltd., 1993, 1-64.

acrimonious confrontation between industry and conservation forces. The initial Bill proposed by former Environment Minister Ros Kelly was rejected by the Cabinet as unsatisfactory to development ministers.¹⁴⁴ As one national editorial notes, the final draft of the legislation “bowed to industry concerns that the Environment Minister was being given too many controlling powers, with too little emphasis on economic considerations”.¹⁴⁵ As passed, the Act severely limits the powers of the Environment Minister (EM or Minister) to act to curtail threats to endangered species. A complicated, cabinet-level consultation process is required before any action can be taken to protect native species, unless the potentially threatening activity is “non-commercial” and will occur on Commonwealth lands such as national parks.¹⁴⁶ In its final form, it is a legislative “compromise that satisfied no one”.¹⁴⁷

Only recently have Australian States and Territories begun to amend existing general wildlife laws or develop new legislation to protect endangered species.¹⁴⁸ Significant steps have been taken to protect endangered native fauna and flora in South Australia, Victoria, and Queensland, while Western Australia and New South Wales are considering endangered species protection legislation.¹⁴⁹ A review, however, of state efforts to conserve endangered species of fauna and flora is outside the scope of this article.¹⁵⁰

¹⁴³ “Endangered species Bill law at last” *The West Australian*, 17 December 1992, 33.

¹⁴⁴ L.Taylor, “Cabinet rejects Kelly’s species Bill” *The Australian*, 21 October 1992, 2.

¹⁴⁵ Editorial, “Protecting our native species”, *The Australian*, 30 October 1992, 10.

¹⁴⁶ See: “Industry victory in Species Bill” *The West Australian*, 28 October 1992, 9; and L.Taylor, “Cabinet dilutes Kelly’s powers” *The Australian*, 28 October 1992, 3.

¹⁴⁷ Editorial, *above* n.145.

¹⁴⁸ J.Lambert, *above* n.1 at 4.

¹⁴⁹ For a review of existing state legislation see: P.Prineas, “Effectiveness of Current Wildlife Legislation in Australia and the Appropriateness and Implementation of Endangered Species Habitat Protection Legislation” in *Conservation of Threatened Species and their Habitats*, Canberra, 1987 Conference Proceedings,

The need for Commonwealth legislation to conserve endangered species and their habitats emerged in response to the recognition that Australian native fauna and flora was significantly at risk,¹⁵¹ as well as a response to Australia's responsibility to fulfil international obligations. Existing Commonwealth legislation implements Australia's responsibilities under CITES¹⁵² to control

IUCN Occasional Paper No. 2, 1989, 133, 134-50 ; and G.M.Bates, *above* n.147 at 265-86.

¹⁵⁰ For an example of recent state native vegetation protection legislation in South Australia, see: J.Bradsen, *above* n.8; and for a recent review of Victorian legislation, see, Giddings and Edmonds, *above* n.80.

In New South Wales, a recent legislative proposal, the Endangered And Other Threatened Species Conservation Bill 1992 (NSW), which was part of a multi-bill natural resources legislative package, was withdrawn by Premier John Fahey's government in mid-November, 1992. See T.Stevens, "Fahey to abandon resources package" *The Weekend Australian*, 14-15 November 1992, 10. The endangered species legislation is expected to be reintroduced by the NSW Government. One major problem with the previous proposal, which hopefully will be corrected, was its failure to list species as endangered in NSW if those species though threatened in that state, currently exist or are protected in other states. As such, the proposal failed to address the acute need to maintain species genetic viability by preserving distinct population groups. For a critique of the former natural resources package and its species protection legislation, see: B.J.Preston, "Natural Resources Package: A Critique of the NSW Government's Proposal" (paper presented to the Land & Environment Court Annual Conference, Judicial Commission of New South Wales, Macquarie University Graduate School of Management, Sept. 10, 1992).

¹⁵¹ See: J.Lambert, *above* n.1 at 2-4; and *above* nn.62-70 and accompanying text.

¹⁵² The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (done, 3 March 1973 in Washington, D.C.), 27 UST 1087, 993 U.N.T.S. 243 (entered into force, 1 July 1975) with over 100 nations as parties is the international community's most widely accepted wildlife conservation treaty. J.B.Heppes and E.J.McFadden, "The Convention on International Trade in Endangered Species of Wild Fauna and Flora: Improving the Prospects for Preserving Our Biological Heritage" (1987) 5 *B.Cl.Intnl.L.J.* 229.

The goal of CITES is to halt the effects of over-exploitation of animal and plant species that result from international trade, which accounts for one-third of the value of all trade in wildlife and wildlife products. G. Meyers, *above* n.12 at 559.

"CITES relies upon both national protection of domestic wild species and international cooperation to achieve its aims. Under CITES, species are afforded

trade in endangered species,¹⁵³ and as noted earlier,¹⁵⁴ fulfils other international wildlife protection responsibilities.¹⁵⁵ However, until passage of the 1992 Bill, no Commonwealth legislation existed to generally protect endangered native species.

The *ESPA* was enacted to address the lack of existing legislation and to resolve specific problems associated with this void. Chief among those problems, as former Environment Minister Kelly noted, is that, “endangered species do not recognise state boundaries. What is needed for their proper protection and management is a national perspective ..., [including] agreed lists of what species are endangered and vulnerable, and a national approach to plans for their recovery”.¹⁵⁶ The legislation is also designed to remedy: the lack of a formal means of identifying the incidence of species loss in Australia; the limited capacity to assess the cumulative impact of Commonwealth projects on endangered species and their habitats; the need for pro-active measures to conserve species and prevent threats to species recovery; and the need to provide incentives and develop controls for conserving endangered species.¹⁵⁷

three levels of protection, depending on their biological status, and are listed in one of three appendices based on this status. The severity of controls and restrictions on trade in particular species depends upon which appendix lists that species.” *Ibid.* See also for an in-depth treatment of CITES: D.S.Favre, *International Trade in Endangered Species: A Guide to CITES*, M.Nijhoff Publishers, 1989.

¹⁵³ *Wildlife Protection (Regulations of Exports and Imports) Act 1982* (Cth). For a brief review of the nature and extent of the problems associated with controlling illegal trade in Australian native flora and fauna, see, A.Moodie, “Smugglers decimate local flora and fauna” *The Weekend Australian*, 29-30 January 1993, 6.

¹⁵⁴ See: *above* nn.132-134 and accompanying text.

¹⁵⁵ G.M.Bates, *above* n.138 at 256-65.

¹⁵⁶ The Hon. Ros Kelly, M.P., “Endangered Species Protection Bill, Second Reading Speech”, The Parliament of the Commonwealth of Australia, House of Representatives (Nov. 4, 1992).

¹⁵⁷ J.Lambert, *above* n.1 at 5.

The objectives of the *ESPA* are set out in Section 3 and include: promoting the recovery of endangered or threatened species; preventing other species from becoming endangered; reducing land management conflicts through readily understood conservation mechanisms; promoting public involvement in and understanding of conservation; and encouraging cooperative conservation management strategies.¹⁵⁸ To achieve these objectives the *ESPA* provides for: listing of native species, communities of species (“ecological communities”), and processes that may lead to the endangerment of species (“key threatening processes”); and for adoption of protective conservation measures including species recovery and threat abatement plans, conservation agreements, and various degrees of conservation orders.¹⁵⁹ The Act also imposes duties on Commonwealth agencies to protect those listed species,¹⁶⁰ and establishes an administrative framework (including two advisory bodies) to achieve its objectives.¹⁶¹

The listing of species,¹⁶² communities of species, and threatening processes is provided for in Part 2 of the *ESPA*. Section 15 of the Act incorporates a list of endangered species;¹⁶³ a list of vulnerable species;¹⁶⁴ and a list of native

¹⁵⁸ *ESPA* s.3(1)(a)-(e).

¹⁵⁹ *Id* at s.2(a) and (b)(i)-(iii).

¹⁶⁰ *Id* at s.2(c).

¹⁶¹ *Id* at s.2(d) and (e).

¹⁶² “Species”, whether plant or animal, is defined broadly to mean “a group of biological entities that interbreed to produce fertile offspring; or possess common characteristics derived from a common gene pool”. The term species includes sub-species and distinct population groups of species if determined in writing to be a species by the Minister. *Id* at s.4(1).

¹⁶³ Section 15(1). “Endangered Species” is defined as a species likely to become extinct unless existing factors detrimentally affecting its survival or evolutionary development cease to be a threat or cease to operate; or whose numbers have been reduced to a critical level or whose habitat is so reduced that it is in danger of extinction; or which might already be extinct but is not so presumed. *Id* at s.6(1)(a)-(c). Species which clearly resemble listed species may also be classified as endangered if differentiation poses difficulties and to list that species would promote the objectives of the Act. *Id* at s.6(2)(a)-(c). This list is contained in Part 1 of Schedule 1 of the Act.

species presumed extinct.¹⁶⁵ One unique feature of the *ESPA* and its listing processes is the provision for the listing of inter-dependent species. Though none were listed at the time of passage, the *ESPA* includes a schedule¹⁶⁶ for the listing of groups of species or endangered ecological communities, defined as “an integrated assemblage of native species that inhabit a particular area in nature”, and that meet additional criteria to be established by future regulations made pursuant to the Act.¹⁶⁷ Processes which threaten or may threaten “the survival, abundance, or evolutionary development of a native species or ecological community”¹⁶⁸ may also be listed under the Act.¹⁶⁹ Five “Key Threatening Processes” were listed at the time of passage of the *ESPA*: European red fox predation; root-rot fungus which causes dieback in native forests; predation by feral cats; competition and land degradation by feral rabbits; and competition and land degradation by feral goats.¹⁷⁰

The Commonwealth Act also provides for adding or deleting species, ecological communities, and threatening processes to or from existing lists.¹⁷¹

¹⁶⁴ Section 15(2). A “Vulnerable Species” is one likely to become endangered within the next 25 years, or a species closely resembling an endangered species. *Id* at s.7(1) and (2). The list of vulnerable species is contained in Part 2 of Schedule 1 of the Act.

¹⁶⁵ Section 15(3). A species is presumed extinct if not definitely located in nature during the previous 50 years or the preceding 10 years despite thorough searching during that time period. *Id* at s.8(a) and (b). The list of species presumed extinct is contained in Part 3 of Schedule 1 of the Act.

¹⁶⁶ Schedule 2 of the Act. Listing in the Schedule is provided for in sec. 16 of the Act.

¹⁶⁷ *Id* at s.4(1).

¹⁶⁸ *Ibid.*

¹⁶⁹ *Id* at s.17.

¹⁷⁰ *Id* at Schedule 3. The latter three processes were added to the final Bill by Senate Amendment 11.

¹⁷¹ *Id* at s.18. Amendment of the lists is accomplished by filing a written instrument published in the Gazette and in a daily newspaper circulating in each state. *Id* at s.18(1). Written reasons for the proposed listing action are available from the Director of ANPWS. *Id* at s.19.

The Minister may, in his or her discretion, add or delete a species or ecological community if “satisfied” that the action is warranted.¹⁷² A key threatening process may also be added to Schedule 3, but only if the EM determines such action is essential because it affects two or more species or ecological communities, or could lead to native species or communities becoming endangered, and if after consultation with Commonwealth agencies, it is determined that a nationally coordinated threat abatement plan is feasible.¹⁷³

As originally written, the Act did not provide for citizen petitions to list species. However, prior to passage, the *ESPA* was amended in the Senate to provide for public nomination of species.¹⁷⁴ Any person may now nominate a species, ecological community, or threatening process to be included in the appropriate schedule.¹⁷⁵

Prior to amending the various lists, the EM must consult with and consider the advice of a Scientific Subcommittee established by the *ESPA*.¹⁷⁶ The Scientific Subcommittee is established by section 158 of the *ESPA* to advise the Minister on the criteria used for listing decisions and to develop the criteria for defining ecological communities.¹⁷⁷ The Scientific Subcommittee represents the scientific community,¹⁷⁸ as members of the more broadly constituted Endangered Species Advisory Committee established by section 137 of the *ESPA*. Advisory Committee functions include advising the Minister on any measures taken under the Act, including specifically the development and timing of draft recovery and threat abatement plans, and the

¹⁷² *Id* at ss.20(1) and (2), 21(1) and (2), and 22(1) and (2).

¹⁷³ *Id* at ss.23(1)-(4).

¹⁷⁴ By Senate Amendment No. 1; see *Id* at s.25(1).

¹⁷⁵ *Ibid*. Nominations must be in writing to the Director of the Australian National Parks & Wildlife Service (ANPWS), and include any information specified by future regulations. *Id* at s.25(A)(2). The Director is required to forward all such nominations to the Scientific Subcommittee described below. *Id* at s.25(A)(3).

¹⁷⁶ *Id* at s.24(1).

¹⁷⁷ *Id* at ss.159(1)(a)-(c). The Scientific Subcommittee is required to consider both listing decisions and listing criteria adopted by the Australia and New Zealand Environment and Conservation Council (ANZECC). *Id* at s.158(2) and (3).

¹⁷⁸ *Id* at s.140(3)(h).

mandated five-year-interval reviews of the *ESPA* provided for by section 165.¹⁷⁹

Decisions to list or de-list endangered and vulnerable species and ecological communities must be based exclusively on scientific evidence. Under the *ESPA*, the Minister's decision in these matters may "not consider any matters that do not relate to the survival of the native species ... [or] ecological community concerned".¹⁸⁰ The Minister may, however, decline to list an otherwise eligible species when that species poses a threat to human health.¹⁸¹

Once a species is listed on one of the schedules the EM is required to prepare a recovery plan for that species or community "that occurs in Commonwealth areas".¹⁸² Similarly, threat abatement plans are required to address the adverse effects of key threatening processes.¹⁸³ In each case when the listed species, ecological community or threat occurs on non-Commonwealth land, the Commonwealth must create a joint plan in cooperation with the effected States.¹⁸⁴ Minimum objectives for and the contents of these plans are specified by the Act,¹⁸⁵ and each plan must be consistent with the objectives of the *ESPA* and with principles of ecologically

¹⁷⁹ *Id* at ss.138(a)-(f). Membership of the Advisory Committee consists of at least 10 individuals appointed by the Minister who represent a variety of interests including ANZECC, business, rural, government, and conservation organisations. At least 5 of the members must represent the sciences and a majority must not be employees of the Commonwealth. *Id* at ss.138 and 139.

¹⁸⁰ *Id* at ss.27(1) and (2).

¹⁸¹ *Id* at ss.28(1)-(3).

¹⁸² *Id* at ss.31(1)(a) and (b).

¹⁸³ *Id* at s.33(1).

¹⁸⁴ *Id* at ss.31(2) and 33(2). The Act also provides for the EM to give a state financial and other assistance to enable it to prepare a plan for a species or ecological community that occurs on non-Commonwealth land. *Id* at s.44. That plan may then be adopted by the Commonwealth. *Id* at s.46.

¹⁸⁵ *Id* at ss.32(1) and (2) and 34(1) and (2).

sustainable development.¹⁸⁶ Specific time-lines are established for preparation of the plans;¹⁸⁷ and the Advisory Committee is required to advise the EM on the scheduling of plans, taking into account such matters as the severity of the threat to a species, its importance in its ecosystem, and the efficient allocation of resources to complete the plan.¹⁸⁸ Moreover, prior to approval by the Minister,¹⁸⁹ the Director of the Australian National Parks and Wildlife Service, subsequently renamed the Australian Nature Conservation Agency (ANCA) who prepares the plan,¹⁹⁰ must circulate a draft plan for comments by the public and the Advisory Committee, consider written comments to the draft plan, then forward that plan to the Environment Minister for approval, and/or revision prior to approval.¹⁹¹

To implement and enforce the provisions of the *ESPA*, the Act employs a number of mechanisms. These include the power to make conservation orders and enter into conservation agreements, the enforcement of prohibitions on the taking of protected species, and the imposition of other obligations on Commonwealth agencies.

While the Commonwealth Act contains no express provision mandating designation of reserved habitat for protected species, the *ESPA* does, however, empower the Minister to promulgate three types of conservation orders¹⁹²

¹⁸⁶ *Id* at ss.32(3) and 34(3).

¹⁸⁷ *Id* at s.36. The times for plan development range from 5 years for an endangered species or ecological community, to 10 years for a vulnerable species, to 6 years for a threatening process listed at the time of passage of the Act; and 3 years, 5 years, and 3 years respectively, for those same items listed at a later date.

¹⁸⁸ *Id* at ss.37(1) and (2). Similar guidance is directed towards preparation of threat abatement plans. *Id* at s.37(3)(a)-(c).

¹⁸⁹ *Id* at s.41.

¹⁹⁰ *Id* at s.38.

¹⁹¹ *Id* at ss.37-41.

¹⁹² The three types are: Interim Conservation Orders, Permanent Conservation Orders, and Impact Assessment Conservation Orders. See *ESPA* at s.56(1)-(4). The power to restrict activities by conservation orders applies to any person or specified persons, and persons includes Commonwealth agencies. See: *Explanatory Memorandum: Endangered Species Protection Bill 1992; Endangered Species Protection (Consequential Amendments) Bill 1992, The*

which provide protection for listed species somewhat analogous to that provided by designation of specially reserved habitat. However, unlike species and ecological community listing decisions which must be based solely on scientific information related to species survival,¹⁹³ all three conservation orders are additionally subject to consideration of the social and economic impacts of making the orders.¹⁹⁴

Interim Conservation Orders (ICO) may be made by the Minister to prohibit or require specified action to protect listed species in Commonwealth areas.¹⁹⁵ An ICO may remain in force for up to 28 days if it affects a primarily commercial activity; or for other activities, for up to 6 months; or until revoked by the Minister if that revocation occurs prior to the stated time limit.¹⁹⁶ The grounds for making an ICO to halt a particular activity include to: prevent a listed species or ecological community from becoming further endangered; prevent activities which interfere with the successful recovery of a protected species; ensure the successful implementation of a recovery plan; and forestall potential adverse effects on a particular species, ecological community, or species habitat before an assessment can be made to determine whether a species, an ecological community, or habitat requires protection.¹⁹⁷

The Environment Minister's power to make an interim conservation order is, however, qualified in three significant ways by two separate sections of the Act.¹⁹⁸ Under section 58, the Minister may not make an ICO with respect to an activity carried out "primarily for a commercial purpose" (undefined by the Act), until notice is given to all other Ministers whose area of responsibility

Parliament of the Commonwealth of Australia, House of Representatives, Cat. No. 92-5329-4 (hereinafter referred to as the "Explanatory Memorandum").

¹⁹³ *ESPA* at s.27(1) and (2).

¹⁹⁴ *Id* at ss.60, 70 and 81.

¹⁹⁵ *Id* at ss.57(a) and (b).

¹⁹⁶ *Id* at ss. 62(1) and (2). A 28 day ICO may, however, be extended for an additional 28 days if the EM believes it is reasonably necessary. *Id* at s.62(3).

¹⁹⁷ *Id* at ss.59(1)(a)-(d).

¹⁹⁸ *Id* at ss.58 and 66.

would be affected by the ICO.¹⁹⁹ As the explanatory memorandum accompanying the Bill makes clear, this condition on the Minister's discretion is designed "to ensure that Ministers or Commonwealth agencies more directly responsible for the commercial activity have an opportunity to consider the matter and, if possible, impose the controls using their own existing powers outside the ESP Act".²⁰⁰ If after the notice provided by the EM, the action Minister chooses to exercise his or her powers to prohibit or control an activity to the same extent *or to a lesser extent* than proposed in the ICO, *or chooses not to act* and informs the EM of his or her decision within 24 hours, the EM is precluded from promulgating the ICO.²⁰¹ If notice is not given by the action Minister of any action taken or not taken, the Environment Minister may promulgate the ICO.²⁰²

The second qualification regarding the EM's power to make an ICO is related to the second of the three types of conservation orders. Under section 58, the Minister must not make an ICO if he or she could make an immediate Impact Assessment Conservation Order (IACO) related to the same activity upon triggering the *Environment Protection (Impact of Proposals) Act 1974* (Cth). The IACO prohibits the same kind of activity as the ICO,²⁰³ and is to be promulgated on the same grounds as an ICO.²⁰⁴ Unlike an ICO, the Minister need not notify any person (including Commonwealth agencies) of his or her intention to make the order;²⁰⁵ but prior to making an IACO, the Minister must seek the advice of the Director, ANCA and the Advisory Committee as to whether it should be made.²⁰⁶ The order remains in effect until completion of the environmental impact assessment process mandated by

¹⁹⁹ *Id* at s.58(2).

²⁰⁰ Explanatory Memorandum, *above* n.192 at cl.57, par. 60(b).

²⁰¹ *ESPA* at s.58(2)(a) and (b) (emphasis added); and see also, Explanatory Memorandum, *above* n.192 at cl.57, par. 60(b)(1) and (2).

²⁰² Explanatory Memorandum, *above* n.192 cl.57, par. 60(b)(2).

²⁰³ *ESPA* at s.79(1).

²⁰⁴ *Id* at s. 80(1).

²⁰⁵ *Id* at s.82(2).

²⁰⁶ *Id* at ss.82(1)(a) and (b).

the *Impact of Proposals Act* or until revoked by the Minister, whichever occurs first.²⁰⁷

The third and final qualification on the Minister's power to make an ICO is less a condition on that power than a qualification on the order's duration. When the Director of ANCA is satisfied that the same level of protection provided by an ICO could be provided by a conservation agreement (CA), the Director is required to take all reasonable steps to negotiate an agreement.²⁰⁸ If a CA is successfully negotiated and the Minister is satisfied that it gives the same level of protection as embodied in an existing ICO, he or she is required to revoke the ICO.²⁰⁹

Conservation agreements are, in effect, habitat management and protection agreements. The Director of ANCA may enter into a conservation agreement for the management and conservation of listed species or ecological communities that occur in Commonwealth lands or waters with any person who has "an interest in a Commonwealth area".²¹⁰ A person holding an "interest" is defined as one who owns; occupies; possesses; manages; controls; or as a result of a licence, permit, or other authorisation, has a right to carry on a commercial activity in a Commonwealth area.²¹¹ These CA's are specifically envisioned to control, regulate, or prohibit activities that would adversely affect species, ecological communities, or their habitats.²¹² They may include provisions for financial assistance (subject to a Parliamentary appropriation).²¹³ CA's are binding on both the Commonwealth and the other

²⁰⁷ *Id* at s.83(a)-(b).

²⁰⁸ *Id* at s.66(1).

²⁰⁹ *Id* s.66(2)(a)-(d).

²¹⁰ *ESPA* at s.51(a) and (b). Note, a C.A. may also be negotiated to protect listed species habitat. *Id* at s.51(b).

²¹¹ *Id* ss.9(a)-(d).

²¹² *Id* at s.52(1)(a).

²¹³ *Id* at s.52(2).

party and his/her or their successors.²¹⁴ The Act is silent on the duration of conservation agreements.

In addition to ICO's and IACO's, the Minister may also promulgate permanent conservation orders (PCO) to prohibit or restrict activities in Commonwealth areas or require specific measures to protect listed species or ecological communities in those areas.²¹⁵ The grounds for promulgating a PCO²¹⁶ are identical to those for an ICO and IACO; and as with IACO's, the Minister is required to seek the advice of the Director, ANCA and the Advisory Committee.²¹⁷ While duration of PCOs is unspecified, the Minister is required to review each PCO at five year intervals and confirm, vary, or revoke it in writing.²¹⁸

The *ESPA* also contains provisions prohibiting unauthorised activities in relation to protected species and for permitting certain otherwise prohibited activities, as well as requiring a form of consultation by Commonwealth agencies for activities that might affect listed species. The Commonwealth Act prohibits the knowing or reckless taking, possession, or trading of listed species from a Commonwealth area.²¹⁹ The Act also prescribes the knowing or reckless contravention of any promulgated conservation order.²²⁰ The penalty for violating these provisions is a fine of \$50,000.²²¹ These prohibitions apply to any person, including State and local governments,

²¹⁴ *Id* at ss.53(a)-(c).

²¹⁵ *Id* at ss.68(a) and (b).

²¹⁶ *Id* at ss.69(1)(a)-(d).

²¹⁷ *Id* at ss.71(a) and (b).

²¹⁸ *Id* at ss.73(1)(a) and (b). The Minister must also seek the advice of the Director, ANCA prior to reviewing the PCO, and before revocation or variation, the Minister must be assured that the grounds for enacting the PCO have not changed. *Id* at s.73(2)(4).

²¹⁹ *Id* at ss.87(1) and (2). Take includes the killing, damaging, or collection of a protected species. *Id* at s.87(5). The accidental, ie., unknowing or non-reckless taking of a species must be reported to the Director, ANCA. Failure to do so in a timely manner results in a fine of \$10,000.

²²⁰ *Id* at ss.86(1)(a)-(c).

²²¹ *Id* at ss.87(1) and (2).

corporate bodies, and all Commonwealth agencies.²²² Exceptions to the prohibitions are provided for action taken under certain specified wildlife conservation statutes,²²³ for Commonwealth or State activities reasonably necessary for law enforcement,²²⁴ for actions permitted by the Director, ANCA under section 88,²²⁵ or for activities provided for in an approved recovery plan or threat abatement plan.²²⁶

The permit process is described in sections 87-97 of the Act. The Director may issue a permit for taking a protected species, including any conditions on activities described in the permit in four instances: (1) if the permitted activity will significantly contribute to the conservation of a protected species; (2) if the taking is incidental to other activities and will not appreciably reduce the survival or recovery of a species or be inconsistent with an adopted recovery plan; (3) if taking of the species is of particular significance to Aboriginal or Torres Strait Islander tradition and will not appreciably reduce species survival or recovery chances; or (4) to control pathogens in a manner that minimises the adverse impact on a listed species.²²⁷ The Director must make a decision on permit application within 90 days of receiving an application,²²⁸ and the Director must provide an opportunity for and consider all written comments on permit applications.

The Commonwealth agency "consultation" requirements, are contained in sections 102-105 of the Act. In addition to complying with those provisions, and subject to advice given by the Minister pursuant to the consultation provisions, Commonwealth agencies must not take any action that contravenes an approved recovery plan, threat abatement plan, or an IACO.²²⁹

²²² Person is defined in s.4(1).

²²³ *Id* at s.87(4)(c).

²²⁴ *Id* at s.87(4)(d).

²²⁵ *Id* at s.87(4)(a).

²²⁶ *Id* at s.87(4)(b).

²²⁷ *Id* at ss.89(2) and (3)(a)-(d).

²²⁸ *Id* at ss.90 and 91.

²²⁹ *ESPA* at ss.99 and 100.

The *ESPA* consultation provisions require that all Commonwealth agencies notify the Environment Minister in writing of any action they believe will violate an approved recovery plan, threat abatement plan, or IACO; and, refrain from that action pending the Minister's advice.²³⁰ Additionally, the Minister may self-initiate this section of the Act if he or she believes a proposed action will contravene the applicable sections of the *ESPA* or if the action is referred to the Minister to determine if it violates an ICO, IACO, or PCO.²³¹ These provisions broaden the consultation requirement to include private activities that might violate a conservation order, making these activities "eligible" for the Minister's advice.

Following written submissions to the EM, and referral to the Director, ANCA for his or her recommendation, the Minister is required to advise in writing, those parties concerned with the proposed activity subject to consultation.²³² The Minister must determine whether the proposed action will contravene an approved recovery plan or threat abatement plan or violate any conservation orders in place.²³³ "Advice" given to non-Commonwealth agency "persons" is reviewable under the *Administrative Appeals Tribunal Act 1975* (Cth).²³⁴ While the Act is silent with respect to the final outcome of conflicts between the Environment Minister and the Commonwealth agency proposing an activity, government agencies are precluded from seeking judicial review of the Environment Minister's decision.²³⁵

The scope of this article does not allow for a detailed discussion of all the enforcement provisions in the *ESPA*. Briefly, however, the Act does provide for the arrest of a suspected offender without a warrant in certain situations;²³⁶

²³⁰ *Id* ss.103(1) and (2).

²³¹ *Id* ss.104(1)(a)-(c). If the Minister takes independent action, he or she is required to notify the Commonwealth agency proposing an activity. *Id* at s.104(2).

²³² *Id* s.104(4).

²³³ *Id* s.105(1).

²³⁴ *Id* ss.105(2) and 106(1).

²³⁵ *Id* s.106(2).

²³⁶ *Id* s.120.

searches of vehicles, aircraft, and vessels;²³⁷ warrant and warrantless searches of land and premises;²³⁸ and upon conviction, the forfeiture of prohibited items seized and vehicles, aircraft, or vessels used during an offence.²³⁹ Jurisdiction under the Act is conferred anywhere within or outside Australia in relation to Australian nationals, aircraft or vessels, and their crew; and with respect to any person anywhere in Australia, its coastal sea, its continental shelf, or in the Australian fishing zone.²⁴⁰

One unique enforcement aspect of the Act, is its provision for restoration damages. The *ESPA* grants authority to the Director, ANCA to recover the costs of repairing, mitigating, or preventing damage to protected species and ecological communities, upon conviction of an offence.²⁴¹

Finally, the *ESPA* provides that injunctive relief may be granted by the Federal Court to restrain or compel both private and Commonwealth action. Power is granted to the Director, ANCA to apply to the Federal Court to compel or restrain action by persons other than Commonwealth agencies where a proposed action or the failure to undertake action will contravene *ESPA* provisions.²⁴² Standing is also granted “interested” individuals and organisations to compel or restrain Commonwealth agency action.²⁴³ However, this grant of standing is limited to contesting activities other than listing decisions (Part 2 of the Act) and promulgation of PCO’s (Part 5, Division 2 of the Act).²⁴⁴ Certain standards relating to the power of the Court to grant injunctions are contained in section 134 of the Act.

²³⁷ *Id* s.122.

²³⁸ *Id* at ss. 123 and 124.

²³⁹ *Id* at s.121.

²⁴⁰ *Id* at s.119.

²⁴¹ *Id* at ss.107 and 108.

²⁴² *Id* at ss.130(1) and (2).

²⁴³ *Id* at ss. 131(1) and (2). Interested person or organisation is defined as one who or which has engaged in activities (including research) related to the conservation of protected species or ecological communities. *Id* at ss.131(3)(a) and (b).

²⁴⁴ *Id* at s.131(1).

PART IV. A Critique of the *ESPA*

How effective will the Commonwealth *Endangered Species Protection Act* prove to be for protecting endangered species and for stemming the loss of Australia's biodiversity? The *ESPA* is in its earliest infancy, thus predictions of its efficacy can be only speculative at best. However, the fact that many of its provisions mirror those of the U.S. Endangered Species Act (*ESA*) which served as a model for the *ESPA*,²⁴⁵ as well as inclusion of some unique provisions makes such speculation possible.

Like the *ESA*,²⁴⁶ the *ESPA* provides for listing of protected species, prohibits both private and Federal government activities that threaten listed species survival or recovery, and requires consultation between the Environment Minister/Department Secretary and Federal agencies prior to approval of agency projects which may adversely affect protected species. Also, as with the U.S. Act,²⁴⁷ the Commonwealth Act extends its protection to threatened wildlife and fauna or species vulnerable to future extinction, as well as provides for the listing of sub-species, distinct population segments, and for species clearly resembling protected species. Both Acts, thereby cast their "protective nets" wide in an effort to ensure the greatest level of protection for listed species.

In the U.S., a recent General Accounting Office report noted that there were significant problems with the administration of the *ESA*, chief among them, the slow pace and inordinate delay of the species listing process.²⁴⁸ In response to these perceived shortcomings the *ESPA* listing process to protect species is designed to be more streamlined than its US counterpart.²⁴⁹ Moreover, while both Acts provide for recovery plans,²⁵⁰ the

²⁴⁵ See generally J.Lambert, *above* n.1.

²⁴⁶ See *ESA*, 16 USC ss.1533(a), 1536(a)(2), 1538, 1539, and 1536.

²⁴⁷ See 16 USC ss.1533(c), 1532(16), and 1533(e).

²⁴⁸ See A.Gibbons, "Mission Impossible: Saving All Endangered Species" (June 5, 1992) 256 *Science* 1386.

²⁴⁹ J.Lambert, *above* n.1 at 7.

²⁵⁰ See *ESA*, 16 USC s.1533(f) and *ESPA*, ss.31(1)(a) and (b).

Commonwealth's approach to recovery plans emphasises preventative action and "places greater emphasis on using the recovery plan as a framework for government decisions affecting endangered species".²⁵¹ Additionally, unlike *ESA* provisions,²⁵² under the *ESPA*, specific time-lines are mandated in the Act for the creation of those plans.²⁵³ Potentially, these elements make the Commonwealth recovery plan process stronger than its U.S. counterpart.

Two aspects of the Commonwealth listing process may prove to be particularly effective. First, the unique provision for listing multiple assemblages of species, or "ecological communities" is laudable because it acknowledges the interdependent nature of species survival. Second, the Act further emphasises a preventative or pro-active approach to species loss by providing for the listing of processes which threaten native species survival and the development of threat abatement plans. This aspect of the Act emulates provisions of the *Flora and Fauna Conservation Act 1988* (Victoria) which also provides for listing of threatening processes which potentially affect species protection and recovery efforts.²⁵⁴

Unlike the *ESA*,²⁵⁵ the *ESPA*, as noted earlier, does not provide for a specific designation of critical habitat. Instead, the Commonwealth is relying on a three-tiered conservation order system to prevent or avoid conflicts with development activities which might adversely affect the survival or recovery of protected species (including habitat modification).²⁵⁶ However, like critical habitat designation under the *Endangered Species Act*,²⁵⁷ promulgation of those conservation orders in contrast to species listing decisions, are subject to

²⁵¹ J.Lambert, *above* n.1 at 7.

²⁵² 16 USC s.1533(f).

²⁵³ *ESPA* at s.36.

²⁵⁴ See *Flora & Fauna Conservation Act 1988* (Vic) s.11(3).

²⁵⁵ See 14 USC s.1533(a)(3).

²⁵⁶ See *above* nn.192-198 and accompanying text.

²⁵⁷ 16 USC s.1533(b)(2).

consideration of their economic impacts and factors other than species survival and recovery.²⁵⁸

Prior to enactment of the *ESPA*, Dr Lambert noted that, “[o]ne of the most important concerns ... [about the Act is] how it will affect industry and resource development The objective of the legislation is to avoid situations where we are confronted with a choice of either desirable ... development or the continued survival of a unique and valuable species²⁵⁹ And yet, as the drafters of the U.S. Act declared, it is exactly this kind of conflict, the “result of economic growth and development untempered by adequate concern and conservation ...”, that has led to a species extinction crisis.²⁶⁰ Moreover, the conflict between species survival, and by necessity, habitat conservation and economic interests is, unfortunately, inevitable. The ultimate efficacy of the Commonwealth Act may well be judged on how successful its administration proves to be in negotiating a way through or avoiding these conflicts by overcoming the limits imposed on the Environment Minister to make conservation orders for listed species, particularly with respect to “commercial activities” on Commonwealth land.²⁶¹ The lack of a specific provision mandating critical habitat preservation, and more seriously, the ability of other Ministers to effectively overrule a decision of the Environment Minister to issue an ICO where commercial activity is involved,²⁶² are potentially gaping weaknesses in the Act.

The Commonwealth Act is flawed in another more subtle, but perhaps more fundamental manner. The protections of the Act extend only to listed species, thus the listing decision itself is critical. Section 18 provides only that “the Minister may ... amend any of the lists ...”, conditioned by the duty in section 24 to consider the advice of the Scientific Sub-Committee prior to adding a species, ecological community, or threatening process to any of the scheduled lists. Despite providing for citizen petitions for listing, and despite

²⁵⁸ *Above* n.180 and 192-93 and accompanying text.

²⁵⁹ J.Lambert, *above* n.1 at 8-9.

²⁶⁰ 16 USC s.1531(a)(1).

²⁶¹ See *above* nn.196-202 and accompanying text.

²⁶² *ESPA* at ss.58(2) and (3).

providing for citizen enforcement of selected provisions in the Act, the *ESPA* expressly excludes citizen suits to compel listing, even if the scientific data may justify an amendment to the schedule.²⁶³ Citizen enforcement of PCO's is similarly excluded.²⁶⁴ Moreover, listing decisions are subject to the disapproval of either House of Parliament,²⁶⁵ a clear "political" infringement on what should be a solely scientific decision. The discretion to list inherent in the Act, coupled with the ability of Parliament to block a listing decision and the lack of an effective public enforcement mechanism to compel the one duty that all other duties under the Act are contingent upon, subjects the entire species protection process to political pressure and abuse.

As the conflict over listing of the Northern Spotted Owl in the U.S. proves, strong public enforcement mechanisms are essential to ensure that government does not ignore scientific data nor back down from its "ethical promises" when confronted with economically powerful industries or labour organisations.²⁶⁶ The *ESPA* admittedly provides for more substantial citizen enforcement than, for example, the Commonwealth *Environmental Protection (Impact of Proposals) Act* 1974.²⁶⁷ But the failure of Parliament to ensure citizen enforcement of the *ESPA*'s most fundamental public duties,

²⁶³ See *above* nn.243-44 and accompanying text.

²⁶⁴ *Ibid.*

²⁶⁵ Section 18(2) of the *ESPA* provides that instruments made to amend the lists are disallowable instruments for the purposes of Section 46A of the *Acts Interpretation Act* (the "AIA") 1901 (Cth). That section of the AIA provides for a process in ss. 48, 48A, 48B, 49 and 50, that enables either House of Parliament to disallow an amendment to any of the *ESPA*'s scheduled lists.

²⁶⁶ See generally Old Growth, *above* n.118 for a review of the history of the conflict over listing the owl, which culminated only when the FWS was compelled by citizen initiate litigation to list the owl as a threatened species. And see also, K.E.Franzreb, "Perspectives on the Landmark Decision Designating the Northern Spotted Owl (*Strix occidentalis caucica*) as a Threatened Species" (1993) 17 (4) *Envmtl.Mgmt* 445.

²⁶⁷ See *Australian Conservation Foundation Inc v Commonwealth of Australia and Others* (1980) 28 ALR 257, in which the High Court held that the *Impact of Proposals Act* conferred no standing on individuals or public organisations to contest approvals of projects by the Government under the Act.

unfortunately undermines both its potential effectiveness and its future acceptance and involvement in its implementation by the public.²⁶⁸

Finally, restricting the applicability of the *ESPA* to Commonwealth lands and waters severely undercuts the Act's importance and effectiveness. As Dr Lambert noted, the *ESPA* does not override State and Territorial authority to achieve its objectives, rather it "aims for a cooperative approach ...", ie., an approach where the Federal Government acts in its limited sphere of influence and thereby leads by example to encourage the States to act.²⁶⁹ She goes on to comment that:

"[o]verriding provisions would ignore the fact that the State and Territory governments have the major constitutional power relating to land management...; [and] would of course be contrary to the cooperative approach of the intergovernmental agreement on the environment".²⁷⁰

However, the Commonwealth possesses considerable Constitutional authority of its own, and could have legitimately overridden State authority (and arguably, should have overridden state intransigence) to legislate a national endangered species conservation program under a number of Federal heads of power.²⁷¹

²⁶⁸ See B.J.Preston, "Public Enforcement of Environmental Laws in Australia" (1991) 6 *J.Env.L. & Litigation* 39, at 43 and 49-61, who notes that not only must effective environmental laws contain clear, non-discretionary direction to government officials, but that eliminating obstacles to standing requirements in Australia is a necessary precondition to increasing public enforcement of environmental laws.

²⁶⁹ J.Lambert, *above* n.1 at 6.

²⁷⁰ *Ibid.*

²⁷¹ See generally J. Crawford, "The Constitution and the Environment" (1991) 13 *Sydney L. Rev.* 11; and R. Fowler and P. Rutherford, "The Feds are coming!" (Aug. 1991) 16 *Legal Services Bulletin* 165-66 who in the process of cataloguing Commonwealth powers that support the institution of a federal environmental protection agency note that the long-standing view that the Commonwealth ought to defer to the States, primary legislative responsibility to protect the environment is outmoded and judicially untenable. They write that High Court jurisprudence over the last decade and a half has significantly challenged the view that the Commonwealth can not act unilaterally. They argue instead that the traditional

The existing Commonwealth approach completely contradicts sound principles of ecological science. Neither the range of various species nor the adverse impacts of human activity on species or their habitats is confined by political borders. The *ESPA* approach, limiting applicability of the Act to Commonwealth areas is fundamentally at odds with former Environment Minister Kelly's recognition that "endangered species do not recognise State boundaries", and that what is needed to preserve those species of native fauna and flora is a national perspective and nationally coordinated program.²⁷²

Will the *ESPA*, at a minimum, prove to be truly effective program for the conservation of Australia's endangered species? As noted at the outset of this section of the article, the Act is an unsatisfying compromise.²⁷³ The Executive Director of the Australian Conservation Foundation said of the *ESPA*: "The bottom line is [that] the essential elements still appear to be there for this legislation to protect species."²⁷⁴

The *ESPA* is at best a beginning. The Act may indeed encompass the essential elements for species conservation; but if endangered species legislation is to work effectively, the duties to list a species, list habitat, protect habitat, and prohibit harm to species (including adverse habitat modification)²⁷⁵ must be mandatory and non-discretionary. These duties need not be, and in all practical respects, cannot be absolute. There must be a measured and reliable process to grant exceptions for the limited taking of species or for modification of species habitat. But the exemption process must come after, not during the listing process. In this respect, the U.S. Endangered

view "is based on political expedience and bureaucratic practice rather than constitutional necessity".

²⁷² See *above* n.156 and accompanying text.

²⁷³ See *above* n.145 and accompanying text.

²⁷⁴ L.Taylor, *above* n.144.

²⁷⁵ See *Corkill v Forestry Commission (NSW)* (1991) 73 L.G.R.A. 126 in which the New South Wales court adopted a position similar to the *Palila* courts in interpreting species protection provisions of the *National Parks and Wildlife Act 1974 (NSW)* and held that proposed logging operations which would significantly reduce or modify species habitat, ie. which would disturb potential species habitat, amounts to a prohibited taking of the protected species.

Species Act provides an excellent model for amending the Commonwealth Act. Under the *ESA*, the failure to list nominated species is judicially reviewable; the Act's permit provisions are stronger and non-discretionary and it is only where jeopardy to species cannot be avoided, that a "political" decision is made by the Endangered Species Exemption Committee to approve or disapprove a particular project.²⁷⁶ Moreover, overriding a Committee decision requires new legislation, passed by both Houses of Congress and signed by the President.

The danger for the *ESPA* is that the Act's dependence on political will to enforce its provisions may render it more symbol than substance. However, if the US experience is a reliable guide, the twenty year history of the *ESA*, which has been amended (and adjudicated) over time, generally rendering that Act's enforcement provisions stronger, suggests the potential for a contrary conclusion. Only time will tell--for both our wildlife and flora and for the Australian public--whether Australia's *ESPA* offers symbolic gesture or substantive justice.

CONCLUSION: HOW EFFECTIVE IS THE *ESPA* FOR PRESERVING BIODIVERSITY

Judged against the standard of preventing biodiversity loss, most legislation in the U.S., Australia, and elsewhere designed to preserve endangered or threatened fauna and flora or to protect specific wildlife species

²⁷⁶ The exemption process is provided for in 16 USC s.1536, the same section that mandates consultation with FWS on any projects that may jeopardise a species. Thus, it is only after the consultation requirements are followed that an exemption may be granted.

Though constrained to grant an exemption only after determining that certain standards have been made (*Id* at s.1536(h)(1)(A) and (B)), we have characterised the process as essentially "political" given the makeup of the Committee, with all but one member representing the Executive Branch of government. These Presidential appointee members include: The Secretaries of Agriculture, Interior, and the Army, the Administrators of the Environmental Protection Agency and National Oceanographic and Atmospheric Administration, and the Chairman of the President's Council of economic advisers. The non-federal (but not necessarily non-political) member(s) are appointed as representative(s) of the state(s) where the proposed project is to take place. *Id* at s.1536(e)(3).

such as whales or migratory birds is structurally flawed.²⁷⁷ Often, as is the case with the Commonwealth *ESPA*, the flaw lies in providing too much “front-end” discretion, i.e., for the listing of species. Just as often, legislation like the *ESPA* fails to mandate habitat preservation as an integral component of species protection efforts, or subjects that duty, or similar duties such as the issuance of conservation orders, to potentially overriding considerations of economic and political factors, as in both the *ESA* and the *ESPA*, or fails to include adverse modification of habitat as a form of prohibited “harm” to species.²⁷⁸

More fundamentally, with respect to the preservation of biodiversity, endangered species legislation with its focus on a species-by-species approach to conservation is only one, and perhaps the least important approach to maintaining Earth’s biological heritage. Human science is increasingly revealing with growing precision both the impact of human activity on our planet’s natural systems and new means to protect or restore critical and

²⁷⁷ See eg the U.S. *Migratory Bird Treaty Act* (MBTA), 16 USC sec. 701 et.seq. (1988) which implements treaties between the US and Japan, Mexico, Canada, and Russia, and prohibits the unpermitted taking of protected species but fails to designate specifically protected habitat or prohibit the indirect taking of species through habitat destruction or modification; and the U.S. *Marine Mammal Protection Act* (MMPA), 16 USC s.1371 et.seq. (1988) which imposes a moratorium on the taking of marine mammals but also fails to protect those species with habitat protection measures.

Two notable exceptions on the international scene are, first, the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), done June 23, 1979, 19 I.L.M. 15 (entered into force, Nov. 1, 1983) which not only obliges its members to rigorously restrict the taking of protected species, but also obliges parties to conserve, appropriate, and restore species habitat. See G. Meyers, *above* n.12 at 553-56. The second treaty is the Convention on the Conservation of European Wildlife and Natural Habitats (Berne Convention) concluded under the auspices of the Council of Europe. E.T.S. No. 104, opened for signature, Sept. 19, 1979, (entered into force, June 1, 1982). The Berne Convention imposes a general obligation on its parties to maintain current population levels of all wild flora and fauna, and includes provision for specific conservation of habitat.

²⁷⁸ See *Id* at MBTA and MMPA.

sensitive ecosystems.²⁷⁹ In fact, we are now able to identify particular ecosystems (mega-systems), comprising masses of species, like areas of south-western Australia, the remnant forests of Queensland, or the Great Barrier Reef that are in need of immediate attention by government.²⁸⁰ A species-by-species approach to conserving the diversity of life in these regions is impractical.

Comprehending biological diversity as a process of relationships, that is as a mix of species diversity dependent upon and interacting with the diversity of natural systems paves the way for understanding how it is to be preserved. Biodiversity is important in Professor Fischman's words because it "represents a judgment about what is important to protect in the natural environment"²⁸¹ to support *all* life, and is "a framework for sorting what we know about nature."²⁸² He asserts that the preservation of biodiversity "is a hybrid objective that incorporates both biological principles and social aims ..."²⁸³ And, we would add that the preservation of biodiversity also represents an ethical judgment about how humanity constructs its relationship with the natural world and all the other species with whom we share this Earth.

This enlarged understanding of our relationship with nature and of biodiversity conservation as dependent upon the protection of natural systems suggests the method for its preservation. Edward Grumbine of the University of California notes that there is a consensus among conservation biologists that "current species-level approaches must be augmented by landscape-level strategies that recognise ecosystem patterns and processes".²⁸⁴ He writes, moreover, that most biologists agree that effective biodiversity conservation

²⁷⁹ See F.R.Anderson, "Of Herdsmen and Nation States: The Global Environmental Commons" (1990) 5 *Am.U.J.Int'l.L.&Pol'y.* 217, at 217-19; and see generally, E.O.Wilson, *The Diversity of Life*, Belknap Press of Harvard University Press, 1992.

²⁸⁰ E.O.Wilson, *above* n.279 at 259-72.

²⁸¹ R.L.Fischman, *above* n.25 at 436.

²⁸² *Ibid.*

²⁸³ *Ibid.*

²⁸⁴ E.Grumbine, "Protecting Biological Diversity Through The Greater Ecosystem Concept" (1990) 10 (3) *Natural Areas J.* 114.

depends upon an integrated system of nature reserves to preserve population, genetic, and ecosystem diversity.²⁸⁵ In Australia, Dr Bruce Walker, the director of CSIRO's Division of Wildlife and Ecology writes that biodiversity conservation must employ a functional community-level conservation approach,²⁸⁶ as a complement to species-by-species conservation strategies.²⁸⁷

In essence he notes, "that the best way to succeed in our efforts to reduce the decline in biodiversity is to focus initial attention on those aspects of biodiversity that are critical for maintaining the resilience of the ecosystem concerned".²⁸⁸ By maintaining ecosystem integrity, the chance of losing identified critical species, as well as species unidentified, and species unknown are minimised.²⁸⁹

In Australia, one potential model for a functional approach to biodiversity conservation, because it meets Walker's fundamental requirement of an inventory of an area's diversity prior to development in or management of an area,²⁹⁰ is the South Australian habitat conservation approach described by Bradsen.²⁹¹ Essentially, the *Native Vegetation Act* 1991 (SA) prohibits the clearance of all native habitat without a permit.²⁹² Permits for clearance of vegetation are issued only after a biological assessment of the area which must comply with specific land degradation and biological criteria.²⁹³ As Bradsen notes, "the fundamental legislative rule is not that no vegetation may be cleared without permission but rather, that vegetation having specified biological or biodiversity qualities (or certain land degradation benefits) may

²⁸⁵ *Ibid.*

²⁸⁶ B.H.Walker, "Biodiversity and Ecological Redundancy", (March, 1992) 6 *Conservation Biology* 18.

²⁸⁷ *Id* at 21-22.

²⁸⁸ *Id* at 20.

²⁸⁹ *Ibid.*

²⁹⁰ *Id* at 21.

²⁹¹ J.Bradsen, *above* n.8 at 177-78.

²⁹² *Id* at 178.

²⁹³ *Ibid.*

not be cleared".²⁹⁴ The advantage of this "functional approach" over a species-by-species conservation approach is that the:

"model strikes directly at the source of the major threat to biodiversity, namely, destruction of habitat [T]he vegetation or habitat approach applies the precautionary principle. The legislation, of itself, protects habitat, without the need for further legal action, until it is assessed and approval to clear or modify the vegetation is given".²⁹⁵

Whether one agrees with Dr Walker's functional approach (an approach which requires ranking of species),²⁹⁶ employs a strategy similar to that adopted in South Australia, or adopts a different ecosystem-based conservation strategy,²⁹⁷ some form of "community-level - habitat-based" approach to conserving biodiversity is essential.²⁹⁸ Conserving communities means conserving ecosystems-the essential habitat for animals and plants-and conserving natural systems will inevitably include preserving threatened species of fauna and flora.²⁹⁹

Habitat loss is the prime cause of species extinction,³⁰⁰ without maintenance of natural systems, species will continue to be lost. To the extent that endangered species legislation, like the *ESA* or the Commonwealth *Endangered Species Protection Act* imposes habitat conservation measures to

²⁹⁴ *Ibid.*

²⁹⁵ *Id* at 179.

²⁹⁶ While Dr Walker advocates a "ranking" of species importance, he does not advocate that such a ranking ought to lead to the deliberate extinction of "unimportant or redundant" species, rather, the ranking is necessary to focus policy implementation where both scientific and financial resources may be limited. *Ibid.*

²⁹⁷ See eg. the "greater ecosystem" approach suggested by E.Grumbine, *above* n.284 at 114-19.

²⁹⁸ R.F.Noss, "Can We Maintain Biological and Ecological Integrity" (Sept. 1990) 4 *Conservation Biology* 241.

²⁹⁹ *Ibid.*

³⁰⁰ M.E.Soule, *above* n.44 at 745.

protect threatened species, that legislation is a step in the right direction of preserving biodiversity.

But more is needed from government and other human institutions, and what is needed is the commitment to conservation measures, including legislation, which preserves entire ecosystems and their life giving processes from the continuing destructive encroachment of unregulated human activity. That is our responsibility to ourselves, future generations of humans, and equally important, to all life forms. As eco-ethicist Holmes Ralston notes, that responsibility flows from our evolution as both rational and ethical beings, an evolution that imparts a grander vision of the needs and requirements for the conservation of biological diversity, as well as engendering a responsibility on the part of humanity to meet these requirements and needs.³⁰¹

³⁰¹ H.Ralston III, "Biology Without Conservation: An Environmental Misfit and Contradiction in Terms" in D.Western and M.Pearl (eds.) *Conservation for the Twenty-First Century*, Oxford University Press, 1989, 232 and 239.