Washington International Law Journal

Volume 20 | Number 1

1-1-2011

Death by a Thousand Cuts: Incorporating Cumulative Effects in Australia's Environment Protection and Biodiversity Conservation Act

Jessica T. Dales

DEATH BY A THOUSAND CUTS: INCORPORATING CUMULATIVE EFFECTS IN AUSTRALIA'S ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT

Jessica T. Dales[†]

Abstract: The Environment Protection and Biodiversity Conservation Act 1999 ("EPBCA" or "the Act") is the Australian government's keystone piece of environmental legislation. The EPBCA provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities, and heritage places — defined in the Act as matters of National Environmental Significance ("NES"). The Act comes into play when a proposed action has the potential to have a significant impact on a matter of national environmental significance. Although it has played a vital role in protecting Australia's environment, the EPBCA does not explicitly address the cumulative impact of multiple actions on matters of national environmental significance. Further, environmental litigation in the federal courts has failed to broaden the scope of the Act to incorporate cumulative impacts. Consequently, many individually insignificant impacts escape regulation under the EPBCA despite their cumulative contribution to negative pressure on the environment. This comment argues that because many of the most serious threats to matters of NES in Australia result from the cumulative impact of many activities, a holistic or landscape approach to the environmental assessment process is vital to appropriate environmental management. A shift to an assessment process that explicitly requires consideration of cumulative environmental impacts is a feasible, equitable, and cost-effective way to address this significant loophole in the EPBCA.

I. INTRODUCTION

When Australia broke away from the supercontinent Gondwana over fifty million years ago it set the stage for a unique set of evolutionary forces to produce a land like no other.[1] The resulting continent includes stunningly diverse ecosystems and millions of species found nowhere else in the world.[2] Endowed with such an extraordinary natural environment, the

---

[†] Juris Doctor expected in 2011, University of Washington School of Law. The author would like to thank Professor William H. Rodgers for his invaluable help, Jake Phillips for his extraordinary guidance and patience, and the rest of the *Pacific Rim Law & Policy Journal* for their hard work and careful editing. She would also like to thank her family and friends for their tolerance and support throughout the writing process.

[1] Australia.com, Interesting Facts About Australia, http://www.australia.com/about/facts.aspx (last visited Oct. 25, 2010).

[2] *Id.* Australian Government: Department of Foreign Affairs & Trade, Australia in Brief, A Unique Environment, http://www.dfat.gov.au/aib/environment.html (last visited Oct. 25, 2010). *See also* Australian Government: Department of Sustainability, Environment, Water, Population and Communities, Australia's Biodiversity, http://www.environment.gov.au/biodiversity/index.html (last visited Oct. 25, 2010).

Australian government attempts to balance conservation and the growing pressures of human activity through legislation.[3]

However, the Australian government's central environmental legislation, the Environment Protection and Biodiversity Conservation Act 1999 ("EPBCA"),[4] is ill-equipped to achieve this balance. The legislation's overarching goal is to protect and manage nationally and internationally important flora, fauna, ecological communities, and heritage places, all defined in the EPBCA as matters of national environmental significance ("NES").[5] The EPBCA falls short of this goal because the environmental assessment process is narrowly focused on the environmental impacts of individual projects.[6] This failure ignores the broader environmental implications of any single proposed project. As a result, the environmental assessment process does not properly address environmental impacts at the more critical landscape and ecosystem scale.[7]

While individual effects may be insignificant on their own, impacts from one or more sources often result in the degradation of critical resources over time.[8] Indeed, evidence indicates that the most damaging environmental effects may result not from the direct effects of a discrete action, "but from the combination of the individually minor effects of multiple actions over time."[9] The successive, incremental, and combined

---

[3] *See generally* Australian Government: Department of Sustainability, Environment, Water, Population and Communities, Legislation, http://www.environment.gov.au/about/legislation.html (last visited on Oct. 25, 2010) (listing environmental legislature administered by the federal government).

[4] Environment Protection and Biodiversity Conservation Act, 1999 (Austl.).

[5] AUSTRALIAN GOVERNMENT: DEPARTMENT OF THE ENVIRONMENT, WATER, HERITAGE, AND THE ARTS, EPBC ACT — FREQUENTLY ASKED QUESTIONS 1 (2010), http://www.environment.gov.au/epbc/publications/pubs/epbc-act-fact-sheet.pdf.

[6] *See* Environment Protection and Biodiversity Conservation Act, 1999, Ch. 4 (Austl.).

[7] Traditionally conservation methods have focused on relatively small spatial scales, targeting individual species and generally addressing only those species' habitat requirements. Robert J. Lambeck, *Focal Species: A Multi-Species Umbrella for Nature Conservation*, 11 CONSERVATION BIOLOGY 849, 850 (1997). Unlike traditional species focused management, landscape level environmental management involves the consideration of broad scale interconnected ecological systems and processes. Therefore, the scale that is ultimately used is determined by the organism interactions or ecosystem processes that one desires to manage. Further, the true impact on an ecosystem of cumulative disturbances can often only be appreciated at the landscape level. When a landscape is subject to degrading cumulative effects or fragmentation it may lose its ability to fulfill important ecological functions, which in turn can lead to ecosystem collapse. Jerry F. Franklin, *Ecosystem Management: An Overview*, *in* ECOSYSTEM MANAGEMENT: APPLICATIONS FOR SUSTAINABLE FOREST AND WILDLIFE RESOURCES 21, 21-48 (Mark S. Boyce & Alan Haney eds., Yale University 1997).

[8] U.S. ENVIRONMENTAL PROTECTION AGENCY, OFFICE OF FEDERAL ACTIVITIES, CONSIDERATION OF CUMULATIVE IMPACTS IN EPA REVIEW OF NEPA DOCUMENTS 1 (1999), http://www.epa.gov/compliance/resources/policies/nepa/cumulative.pdf.

[9] COUNCIL ON ENVIRONMENTAL QUALITY, CONSIDERING CUMULATIVE EFFECTS UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT 1 (1997), http://ceq.hss.doe.gov/nepa/ccenepa/exec.pdf.

impacts of multiple actions on the environment are known as cumulative impacts.[10]

The EPBCA is triggered when a proposed project might have a significant impact on a matter of NES.[11] Under the current EPBCA, there is an unacceptable risk that individual projects will be considered safe for the environment, even though such projects may have very significant cumulative impacts. Cumulative impacts by definition cannot be addressed effectively in isolation.[12] This is an important environmental consideration not addressed under the current statutory framework. Therefore, the EPBCA should include a clear mechanism for assessing the likely cumulative impacts of a proposed development project over time and in conjunction with other projects. Further, where there is evidence that a project will have a significant cumulative impact on a matter of NES, there should be reasonable grounds to reject the project upfront. Under the current scheme, administrators cannot take action on a project with only cumulative effects until significant damage actually occurs. This risk exists because the EBPCA's assessment process does not clearly call for assessment of cumulative impacts.

As a result, the federal judiciary demonstrates confusion regarding the appropriate scope of environmental assessments under the EPBCA.[13] The courts have not consistently defined what constitutes a "significant impact" for the purposes of triggering the Act and have failed to extend the definition to encompass cumulative impacts.[14] Given the limits of judicial review under the EBPCA,[15] it is unlikely that the courts will ever expand the scope of the EPBCA to include those activities that are likely to have a significant cumulative impact.[16] Thus, the need for legislative action is even more critical.

This comment argues that the Act should be amended to shift the EPBCA's existing focus on traditional project-by-project based environmental assessment to an assessment process that explicitly requires consideration of cumulative environmental impacts. Strategic

---

[10] U.S. ENVIRONMENTAL PROTECTION AGENCY, CONSIDERATION OF CUMULATIVE IMPACTS IN EPA REVIEW OF NEPA DOCUMENTS 1 (1999), http://www.epa.gov/compliance/resources/policies/nepa/cumulative.pdf.

[11] Environment Protection and Biodiversity Conservation Act, 1999, Ch. 2, Part 3, Div. 1 (Austl.).

[12] CONSERVATION COUNCIL OF SOUTH AUSTRALIA INC., EPBC REVIEW SUBMISSION 6 (2009), http://www.environment.gov.au/epbc/review/submissions/pubs/191-conservation-council-of-south-australia.pdf.

[13] *See infra* Part IV.B & IV.C.

[14] *See infra* Part III.B.2.

[15] Administrative Decisions (Judicial Review) Act, 1977 (Austl.); Judiciary Act, 1903 (Austl.).

[16] *See infra* Part III.C.

Environmental Assessments ("SEA"), as opposed to project level environmental assessments, internalize landscape and ecosystem level impacts into the assessment process.[17] If implemented correctly, SEAs have the potential to prevent the degradation of matters of NES by forcing consideration of a project's cumulative impacts early on in the assessment process.[18]

Part II of this comment provides a detailed summary of the EPBCA and its requirements, including the project referral process and assessment acceptance processes available under the EPBCA. Part III discusses the ability of SEAs to address issues such as cumulative impacts, which are inadequately covered under current and alternative assessment mechanisms. Part IV discusses the 2007 amendment that expanded the definition of "significant impact" to include indirect impacts on matters of NES but failed to incorporate cumulative impacts. This section also details the expanding scope of "significant impact" assessments through judicial interpretation and suggests that the ability of the courts to expand the EPBCA's application is limited. Finally, Part V of this comment argues that the EPBCA should be amended to incorporate the effect of cumulative environmental impacts into the assessment process through the adoption of a more landscape-based approach to environmental assessments.

II. THE EPBCA AIMS TO PROTECT AUSTRALIA'S ENVIRONMENT AND BIODIVERSITY THROUGH COMMONWEALTH PROTECTION OF MATTERS OF NES

The adverse environmental consequences caused by the cumulative impacts of human activity in Australia are approaching a critical threshold. If crossed, it is possible that many of Australia's ecosystems and the important services they provide will not be able to rebound. In an attempt to quantify this serious threat to the nation, in 2006, the Australian government released a national report detailing the state of Australia's environment.[19] This report acknowledges that many of Australia's present environmental regulations are not targeted at the appropriate scale and that some incentives

---

[17] AUSTRALIAN GOVERNMENT: DEPARTMENT OF THE ENVIRONMENT, WATER, HERITAGE AND THE ARTS, STRATEGIC ASSESSMENT UNDER THE EPBC ACT 2 (2008), http://www.environment.gov.au/epbc/publications/pubs/strategic-assessment.pdf.

[18] *Id*.

[19] 2006 AUSTRALIAN STATE OF THE ENVIRONMENT COMMITTEE, AUSTRALIA STATE OF THE ENVIRONMENT 2006 (2006), http://www.environment.gov.au/soe/2006/publications/report/pubs/soe-2006-report.pdf.

encourage environmentally perverse results.[20] It also acknowledges that management at a landscape level is necessary to achieve broader environmental objectives, and that cumulative impacts threaten to further deteriorate the natural and cultural values of Australia.[21] Despite these findings, very little has been done to address the threat of cumulative impacts on Australia's fragile ecosystems.

The EPBCA was written to provide a legal framework for protecting and managing matters of NES.[22] There are eight matters of NES in the EPBCA: listed threatened species and ecological communities, migratory species protected under international agreements, Ramsar wetlands of international importance, the Commonwealth marine environment, World Heritage properties, National Heritage places, the Great Barrier Reef Marine Park, and nuclear actions. Additionally, the EPBCA covers actions that will have a significant environmental impact on Commonwealth land or are carried out by a Commonwealth agency.[23] This section provides background on how the EPBCA aims to balance the protection of these critical environmental and cultural resources with Australia's economic and social needs by creating an assessment process based on the guiding principle of ecologically sustainable development.[24]

A. Objectives of the Act

The Australian government enacted the EPBCA in recognition of the imperative need for a comprehensive environmental statute that would provide for the protection of those aspects of the Australian environment that are matters of national environmental significance. In this vein, the Act calls for ecologically sustainable development through the ecologically sustainable use and conservation of natural resources and biodiversity.[25] The Act's guiding principle of ecologically sustainable development commits those in charge of enforcing the Act to bear in mind both long-term and short-term economic, environmental, social, and equitable consideration.[26]

---

[20] 2006 AUSTRALIAN STATE OF THE ENVIRONMENT COMMITTEE, AUSTRALIA STATE OF THE ENVIRONMENT 2006: AT A GLANCE 15 (2006) http://www.environment.gov.au/soe/2006/publications/summary/pubs/summary.pdf.

[21] *Id*. at 11, 15.

[22] Environment Protection and Biodiversity Conservation Act, 1999, Ch. 1, Part 1, (Austl.). For a good analysis of the key provisions and concepts in the EPBCA and how they have been interpreted in Australian case law, *see generally* Chris McGrath, *Key Concepts of the Environment Protection and Biodiversity Conservation Act 1999 (Cth)*, 22 ENVT. & PLAN. L.J. 20 (2004).

[23] Environment Protection and Biodiversity Conservation Act, 1999, Ch. 2, Part 3, Div. 1 (Austl.).

[24] *Id*. at Ch.1, Part 1, Div. 3.

[25] Environment Protection and Biodiversity Conservation Act, 1999, Ch. 1, Part 1, (Austl.).

[26] *Id*. at Ch. 1, Part 1, Sec. 3A.

Ecologically sustainable development further mandates that the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making and supports consideration of the precautionary principle if there are threats of serious or irreversible environmental damage.[27] The Act purports to apply the overarching principle of ecologically sustainable development through an environmental assessment and approval process that is intended to ensure activities that are likely to have significant impacts on the environment are properly assessed.

B. The Structure of the EPBCA Creates a Strong Review Process, but Has Critical Gaps that Prevent It from Achieving Its Stated Goals

When a group or individual (including companies) wishes to engage in an action[28] that is likely to have a significant impact on a matter of NES they must comply with the EPBCA.[29] There are two key stages in the environmental assessment process required by the EPBCA:[30] the referral process[31] and the assessment process.[32] The referral process is the initial stage during which the Commonwealth Environment Minister ("Minister") will decide whether or not a proposed action is a controlled action.[33] If a person ("proponent")[34] of a project believes their action is likely to have a significant impact on a matter of NES then they must refer the action to the Minister.[35] In determining whether an action is likely to have a significant impact under the EPBCA, the proponent is instructed to consider the "sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude, and geographic extent" of the

---

[27] *Id.*

[28] "Action" is defined broadly in the EPBCA and includes: a project, a development, an undertaking, an activity or a series of activities, or an alteration of any of these things. This may include, but is not limited to: construction, expansion, alteration or demolition of buildings, structures, infrastructure or facilities; industrial processes; mineral and petroleum resource exploration and extraction; storage or transport of hazardous materials; waste disposal; earthworks; impoundment; extraction and diversion of water; agricultural; research activities; vegetation clearance; culling of animals; and dealings with land. Environment Protection and Biodiversity Conservation Act, 1999, Part 23, Div, 1, § 523 (Austl.).

[29] AUSTRALIAN GOVERNMENT: DEPARTMENT OF THE ENVIRONMENT, WATER, HERITAGE, AND THE ARTS, EPBC ACT — FREQUENTLY ASKED QUESTIONS 1 (2010), http://www.environment.gov.au/epbc/publications/pubs/epbc-act-fact-sheet.pdf.

[30] Environment Protection and Biodiversity Conservation Act, 1999, Ch. 4 (Austl.).

[31] *Id.* at Ch. 4, Part 7, Div. 1.

[32] *Id.* at Ch. 4, Part 8.

[33] *Id.* at Ch. 2, Part 4, Div. 2.

[34] A person proposing to take action is referred to as a "proponent" under the EPBCA. A proponent is "a person who puts forward a proposal; one who argues in favor of something." BLACK'S LAW DICTIONARY 1255 (8th ed. 2004).

[35] Environment Protection and Biodiversity Conservation Act, 1999, Ch. 2 (Austl.).

impact.[36] If the Minister decides that a proposed action will, or is likely to, have a significant impact on a matter of NES, then that action will be subject to the assessment and approval process under the EPBCA before it can proceed. This is called a "controlled action."

For "controlled actions," the Minister must specify the "matters of NES" potentially impacted,[37] which determines the particular impacts that must be considered in the subsequent assessment.[38] The assessment itself is undertaken by the proponent of the action, a detail that continues to illicit a great deal of controversy due to the proponent's inherent conflict of interest regarding the assessment and their motivation to move forward with the action.[39] After the chosen assessment method has been completed, the Minister makes a decision to approve, approve with conditions, or disapprove the proposed action. Essentially, where the EPBCA's assessment and approval process is triggered by a particular project's impact on "matters of NES," the Minister has the ultimate power to determine whether a proposal is approved or refused under the EPBCA.[40] Throughout these processes, neither the proponent of a project nor the Environment Minister is required to consider the likely cumulative impacts of a project on matters of NES.

III. CUMULATIVE IMPACTS NEED TO BE INCORPORATED INTO THE EPBCA'S ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Despite the dominance of traditional project-based Environmental Impact Assessments ("EIA") performed under the EPBCA,[41] they are not

---

[36] AUSTRALIAN GOVERNMENT: DEPARTMENT OF THE ENVIRONMENT, WATER, HERITAGE AND THE ARTS, MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE: SIGNIFICANT IMPACT GUIDELINES 1.1 3 (2009), http://www.environment.gov.au/epbc/publications/pubs/nes-guidelines.pdf.

[37] Environment Protection and Biodiversity Conservation Act, 1999, Ch. 4, Part 7, Div. 2, § 75 (Austl.). Most types of impact assessment required under the EPBCA involve: 1) the preparation and publication of draft environmental-impact assessment documentation; 2) a period of public comment; and 3) finalization of the terms of reference or scope of the assessment that incorporates those public comments.

[38] Environment Protection and Biodiversity Conservation Act, 1999, Ch. 4, Part 8, Div. 2 (Austl.).

[39] Lee Godden & Jacqueline Peel, *The Environment Protection and Biodiversity Conservation Act 1999 (Cth): Dark Sides of Virtue*, 31 MELB. U. L. REV. 106, 121 (2007).

[40] Environment Protection and Biodiversity Conservation Act, 1999, Ch 4, Part 9, Div. 1 § 133 (Austl.).

[41] There are five different levels of assessment, depending on the significance of the project and how much information is already available. These include 1) accredited assessment, Environment Protection and Biodiversity Conservation Act, 1999, Ch 4, Part 8, Div. 3, § 87 (Austl.); 2) assessment on referral information, *Id*. at Ch. 4, Part 8, Div. 3A; 3) assessment on preliminary documentation, *Id*. at Ch. 4, Part 8, Div. 4; 4) assessment by Environmental Impact Statement (EIS), *Id*. at Ch. 4, Part 8, Div. 6, or Public Environment Report (PER), *Id*. at Ch. 4, Part 8, Div. 5; and 5) assessment by public inquiry, *Id*. at Ch. 4,

conducive to the consideration of cumulative impacts. The ability of EIA's to adequately incorporate cumulative impacts is inherently limited by the characteristics of a project-based assessment process; this included the truncated spatial and temporal scales addressed[42] and the focus on direct, immediate impacts, rather than synergistic impacts, and important interconnections among ecosystem components.[43]

Even where cumulative impacts might be assessed, due to the narrow focus on the project itself, EIAs are often only able to address simple, linear cumulative effects and are not well equipped to deal with the complexity of cumulative effects issues, such as the interaction among projects.[44] Procedurally, project-based environmental assessments are concerned with the likely significant impacts of a proposed action and finding ways to mitigate those impacts so that they are deemed acceptable.[45] Project-based assessments do not address whether the proposed action is the most appropriate form of development, or whether the cumulative environmental effects of such actions are in conflict with broader environmental goals or desired future conditions.[46]

A. The True Impact of Any Action Can Not Be Accounted for Unless Cumulative Impacts Are Assessed

While a single action may be insignificant by itself, cumulative impacts accumulate over time, from one or more sources, and can cause the degradation of critical resources and environmental functions.[47] Matters of NES in any given area are frequently subject to multiple impacts. The effects of such multiple impacts may be simply additive, or the end effect may be more intense than the sum of the effects of each individual impact alone.[48] Thus, the cumulative impacts of multiple actions cannot always be

---

Part 8, Div. 7. Each level requires the Minister to consider technical information assembled by the proponent in their environmental impact assessment and comments made by the public.

[42] Jill H. Gunn, Integrating Strategic Environmental Assessment and Cumulative Effects Assessment in Canada 3 (2009) (unpublished Ph.D. thesis, University of Saskatchewan) (citing Elsa Joao, *How Scale Affects Environmental Impact Assessment*, 22 ENVTL. IMPACT ASSESSMENT REV. 289, 289-310 (2002)).

[43] *Id*. (citing R. Creasy, *Moving from Project-Based Cumulative Effects Assessment to Regional Environmental Management*, *in* CUMULATIVE EFFECTS MANAGEMENT TOOLS AND APPROACHES (Alberta Society of Professional Biologists 2002)).

[44] BRAM F. NOBLE, INTRODUCTION TO ENVIRONMENTAL IMPACT ASSESSMENT: A GUIDE TO PRINCIPLES AND PRACTICE 163 (Oxford University Press 2006).

[45] Gunn, *supra* note 42, at 89.

[46] *Id*.

[47] U.S. ENVIRONMENTAL PROTECTION AGENCY, OFFICE OF FEDERAL ACTIVITIES, CONSIDERATION OF CUMULATIVE IMPACTS IN EPA REVIEW OF NEPA DOCUMENTS 1 (1999), http://www.epa.gov/compliance/resources/policies/nepa/cumulative.pdf.

[48] DYANNE SHELDON ET AL., WETLANDS IN WASHINGTON STATE VOLUME 1: A SYNTHESIS OF THE

predicted by simply adding the effects of all the individual impacts.[49] As the EPBCA stands, proposed actions are often reviewed and approved without a legal authority or mechanism to assess how previous, relevant decisions may have impacted a matter of NES and caused cumulative impacts. It is for this reason that a project-by-project decision making process fails to accurately evaluate the potential impacts within the spatial and temporal scale of ecosystem functions.[50]

Because the EPBCA's environmental assessment process operates for the most part on a project-by-project assessment basis, it allows for substantial cumulative environmental impacts, which pose a significant threat to the environment and ecosystem services.[51] Cumulative impacts result when the effects of an action are added to or interact with other effects in a specific place and within a specific time.[52] It is the combination of these effects, and any resulting environmental degradation, that should be considered during the EPBCA's referral and environmental assessment stages. Evaluating cumulative disturbances provides an opportunity to reduce the negative consequences of taking further actions at a specific spatial or temporal location before the ecosystem has fully recovered from the effects of the previous disturbances.[53]

B. The EPBCA Currently Fails to Address Cumulative Impacts

Recent amendments attempting to clarify the term "impact" under the EPBCA run contrary to the concept of cumulative impacts. In 2006, the EPBCA was amended to include a new definition of "impact" that would be

---

SCIENCE 7-7 (2005), http://www.ecy.wa.gov/pubs/0506006.pdf (quoting Eric M. Preston & Barbara L. Bedford, *Evaluating Cumulative Effects on Wetland Functions: A Conceptual Overview and Generic Framework*, 12 ENVTL. MGMT. 565, 565–583 (1988)).

[49] *Id*.

[50] Eric M. Preston & Barbara L. Bedford, *Evaluating Cumulative Effects on Wetland Functions: A Conceptual Overview and Generic Framework*, 12 ENVTL. MGMT. 565, 565–583 (1988); Andrew Macintosh & Debra Wilkinson, *EPBC Act — The Case for Reform*, 10 AUSTRALASIAN J. NAT. RESOURCES L. POL. 139, 164 (2005).

[51] The Millennium Ecosystem Assessment defines ecosystem services as, "...the benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services, such as nutrient cycling, that maintain the conditions for life on Earth." CONCEPTUAL FRAMEWORK WORKING GROUP, MILLENNIUM ECOSYSTEM ASSESSMENT, ECOSYSTEMS AND HUMAN WELL-BEING: A FRAMEWORK FOR ASSESSMENT 49 (Island Press 2003).

[52] U.S. Environmental Protection Agency, *supra* note 47.

[53] COUNSEL ON ENVIRONMENTAL QUALITY, CONSIDERING CUMULATIVE EFFECTS UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT 7 (1997), http://ceq.hss.doe.gov/nepa/ccenepa/exec.pdf; *See generally* Jennifer Dixon and Burrell E. Montz, *From Concept to Practice: Implementing Cumulative Impact Assessment in New Zealand*, 19 ENVTL. MGMT. 445-56 (1995).

consistent with the Federal Court's 2004 Nathan Dam[54] decision, which extended the meaning of "impact" to include indirect impacts.[55] However, the new definition is convoluted and founded on tort theories of causation that are fundamentally contrary to expanding the scope of the assessment process to incorporate cumulative impacts process.[56]

Further, despite intentions to clarify the EPBCA by defining the term "impact," the concept of environmental significance, which is at the core of discretionary decision making in the environmental impact assessment process, remains largely undefined. Without a clear definition of what type of environmental impact constitutes a significant impact, proponents might fail to refer a project proposal to the Minister believing that the project does not fall under the jurisdiction of the EPBCA. Similarly, because there is no clear guidance on what constitutes a significant impact the Minister has a great deal of discretion when deciding whether a referred project constitutes a controlled action, and thus whether or not a project will be subject to the assessment and approval process.

1. Recent Amendments to the EPBCA Do Not Regulate Actions that Contribute to Cumulative Environmental Impact

In early October 2006, the House of Representatives introduced the Environment and Heritage Legislation Bill ("Bill"),[57] proposing over 800 amendments to the EPBCA.[58] The purposes of the amendments introduced by the Bill reflect the overall policy goal of making the EPBCA more developer-friendly.[59] Indeed, one of the aims of the Bill was said to be "reduc[ing] processing time and costs for development interests," although this was intended to occur "without weakening the protection that the Act provides for Australia's important biodiversity and heritage."[60] While the 2006 amendments may not "weaken" the Act's current protections, it is not surprising that changes to the Act that aim to reduce processing time and costs for development interests fail to address cumulative impacts.

---

[54] Minister for the Env't and Heritage v. Queensland Conservation Council Inc. (2004) 190 F.C.A.F.C. (Austl.).

[55] *Id*. at ¶ 53.

[56] The traditional tort rule for determining causation states that the actor's conduct must be a necessary factor in a set of conditions jointly sufficient to account for the given occurrence. JOHN G. FLEMING, THE LAW OF TORTS 171 (The Law Book Co. 6th ed. 1983) (1957). In other words, "but-for" the actor's tortious conduct, the harm would not have occurred. *Id*.

[57] Environment and Heritage Legislation Amendment Bill [No. 1], 2006 (Austl.).

[58] Environment and Heritage Legislation Amendment Act [No. 1], 2006 (Austl.).

[59] Explanatory Memorandum, Environment and Heritage Legislation Amendment Bill 1 [No 1], 2006 (Austl.).

[60] *Id.*

More specifically, the amended definition of the term "impact" appears to preclude consideration of an action's cumulative effects.[61] The amended definition reads:

> (1) For the purposes of this Act, an event or circumstance is an ***impact*** of an action taken by a person if:
>
> (a) the event or circumstances is a direct consequence of the action; or
>
> (b) for an event or circumstance that is an indirect consequence of the action—subject to subsection (2), the action is a substantial cause of that event or circumstance.[62]

Some argue that the new definition of "impact," although intended to incorporate the Nathan Dam decision, seems designed to constrain the notion of what amounts to an environmental impact in the context of environmental impact assessments.[63] The definition confines impacts to the *direct* consequences of an action, or where "the action is a *substantial cause* of that event or circumstance."[64] Consequently, the amendment effectively limits which events might be an indirect consequence of an action, which in turn significantly limits the scope of the EPBCA.[65]

Under the second subsection of the amended definition, a third party's action may be considered an indirect impact of the primary action.[66] With its emphasis on a substantial causal link and reasonable foreseeability of the consequences of an action, it has been suggested that the new standard is more akin to the strict causation tests one usually finds in the area of tort law.[67] Thus, the amended definition and its requirement of "substantial cause" have the practical effect of excluding many indirect impacts and all cumulative impacts from consideration.

---

[61] Environment Protection and Biodiversity Conservation Act, 1999, § 527E (Austl.).

[62] *Id.*

[63] Godden & Peel, *supra* note 39, at 122.

[64] Environment Protection and Biodiversity Conservation Act, 1999, § 527E (Austl.).

[65] Godden & Peel, *supra* note 39, at 122. Environment Protection and Biodiversity Conservation Act, 1999, § 527E(1)(b) (Austl.).

[66] Environment Protection and Biodiversity Conservation Act, 1999, § 527E(2) (Austl.).

[67] Godden & Peel, *supra* note 39, at 123.

2. Tort Theories of Causation Used in the EPBCA Fundamentally Contradict Consideration of Cumulative Impacts

Tort theories of causation are ill-equipped to assign liability in many environmental damage cases because environmental damage frequently results from the cumulative impacts of multiple projects. Generally, to be held liable, the actor's conduct must meet the legal test for having "caused" the plaintiff's harm. The traditional rule posits that the actor's conduct must be a necessary factor in a set of conditions jointly sufficient to account for the given occurrence.[68] That is, "but-for" the actor's tortious conduct, the harm would not have occurred.[69] A "but-for" analysis demands that there be a relationship between a cause and its effect, so that if the cause did not occur, the effect would not have occurred either.[70] Despite the prominence of the "but-for" test, there are some important circumstances where the test is ineffective. These include situations common to environmental degradation, such as where two separate acts of negligence combine to cause an injury to a third party and situations where an injury results from two separate acts, either of which would have been sufficient to cause the injury.[71]

In Australia, the High Court has recognized the limited applicability of the "but-for" test and have tempered it with common sense analysis.[72] As Chief Justice Mason stated in *March v. Stramere*,[73] "the test, applied as an exclusive criterion of causation, yields unacceptable results and… the results which it yields must be tempered by the making of value judgments and the infusion of policy considerations."[74] The Australian approach to questions of causation does not use a single common sense criterion for answering causal questions.[75] Rather, a holistic perspective, which incorporates an evaluation of the total body of scientific evidence before the Court in the light of value judgments and public policy considerations, is favored.[76]

---

[68] FLEMING, *supra* note 56, at 171; Joseph H. Guth, *Cumulative Impacts: Death-Knell for Cost-Benefit Analysis in Environmental Decisions*, 11 BARRY L. REV. 23, 38-39 (2008).

[69] FLEMING, *supra* note 56, at 171.

[70] *Id.*

[71] *Id.*

[72] Nicholas J. Mullany, *Common Sense Causation—an Australian View*, 12 OXFORD J. LEGAL STUD. 431, 431 (1992).

[73] March v. Stramare (1991) 171 C.L.R. 506 (Austl.).

[74] *Id.* at ¶ 22.

[75] JOSEPH SMITH & DAVID SHEARMAN, CLIMATE CHANGE LITIGATION: ANALYZING THE LAW, SCIENTIFIC EVIDENCE & IMPACTS ON THE ENVIRONMENT, HEALTH & PROPERTY 109 (Presidian Legal Publications 2006) (citing, Chappel v. Hart (1998) 195 C.L.R. 232 (Austl.)).

[76] *Id.*; Rosenberg v. Percival (2001) 2005 C.L.R. 434 (Austl.).

This approach has the potential to significantly complicate the process of establishing causation. Applying a holistic approach to causation in a case dealing with the cumulative impact of an action would be an enormous undertaking. A court would need to assess not only the total body of scientific evidence in relation to the action, but also the profound public policy consideration raised by environmental degradation, as well as any potentially subjective value judgments. The relatively new and incomplete body of scientific evidence regarding the nature of cumulative environmental impacts adds a further complication to the causation analysis. The inapplicability of these rules of causation to the mounting problem of cumulative small impacts has made many modern environmental problems incompatible with the decision making structure of causation law.

Due to these factors and the high stakes generally associated with EIA decisions, the meaning of "significant impact" has become a highly debated and litigated subject under the EPBCA.[77] However, given their limited ability to review the merits of decisions made under the EPBCA,[78] it is doubtful that the courts will be able to further expand the definition of "impact" to include those impacts that are strictly cumulative in nature.[79]

C. Federal Cases Provide Conflicting Interpretations as to Whether the Minister Must Consider Cumulative Impacts and What Constitutes Cumulative Impacts

The standard model of environmental impact assessment adopted by the EPBCA, coupled with various exemptions to the statutory regulations, provides the Minister with a great deal of discretion in determining whether a proposal is a controlled action. However, the exercise of this discretion is open to judicial review.[80] Ministerial decisions regarding whether a proposal is likely to have a significant environmental impact, decisions not requiring an EIA, and the adequacy of the content of the environmental impact statement, may all be legally challenged and are subject to judicial review by the Federal Court of Australia.[81]

---

[77] *See infra* Part III.C.

[78] In 2006, § 303GJ(2) was inserted into the EPBC Act. The effect of this amendment confined merits review to decisions made by a delegate of the Minister (that is, a bureaucrat, not an elected representative). Prior to this amendment, merits review was also available in respect of decisions made by the Minister.

[79] *See infra* Part III.D.

[80] Environment Protection and Biodiversity Conservation Act, 1999, § 391 (Austl.).

[81] Administrative Decisions (Judicial Review) Act, 1977 (Austl.); Judiciary Act, 1903 § 39B (Austl.).

Despite the availability of judicial review, its value is diminished by the fact that the court undertaking a judicial review may not substitute its own opinion for that of the Minister.[82] Rather, it is limited to determining whether the EIA procedures and decisions based on the information contained in the assessments have met legislative requirements.[83] If the decision was reasonable given the objective evidence available to the Minister, the court cannot interfere.[84] Consequently, it is unlikely that the courts will be able to use judicial interpretation to expand the requirements of environmental assessments to include cumulative impacts.

1. The Narrow Review Authority Granted to Federal Courts Under the EPBCA Results in Limited Consideration of Cumulative Impacts in Judicial Decision

Only a few environmental cases brought under the EPBCA have come close to suggesting that the courts are prepared to expand the requirements of EIAs to include recognition of the cumulative impact of an action. Two cases that provide examples of such progressive judicial decision making are The Nathan Dam[85] and Wielangta Forest Cases.[86] Nevertheless, these cases fall short of requiring assessment of cumulative impacts and indicate that environmental litigation is unlikely to be a complete remedy for preventing negative cumulative environmental impacts.

Often considered the test case of environmental impact assessment under the EPBCA, the Nathan Dam[87] case involved an application for judicial review regarding a decision by the Federal Environment Minister that concerned a proposal to construct and operate an 880,000 mega-liter dam in central Queensland.[88] The river upon which the proposed dam would have been constructed flows into the Great Barrier Reef World Heritage Area.[89] The Minister, however, refused to consider the impacts of the associated agricultural development when assessing the impacts of the dam

---

[82] G.M. BATES, ENVIRONMENTAL LAW IN AUSTRALIA 172-73 (3d ed. 1992).

[83] *Id.*

[84] *Id.*

[85] Minister for the Env't and Heritage v. Queensland Conservation Council Inc. (2004) 190 F.C.A.F.C (Austl.).

[86] Brown v. Forestry Tasmania (No 4) (2006) 1729 F.C.A. (Austl.).

[87] Minister for the Env't and Heritage v. Queensland Conservation Council Inc. (2004) 190 F.C.A.F.C. (Austl.).

[88] Chris McGrath, *Flying Foxes, Dams and Whales: Using Federal Environmental Laws in the Public Interest*, 25 ENVTL. & PLANNING L.J. 324, 342 (2008).

[89] *Id.*

on the Great Barrier Reef under the EPBCA.[90] Two conservation groups sought judicial review of the Minister's decision.[91]

The Minister's narrow construction of the dam's impacts was rejected in the first instance by Justice Kiefel of the Federal Court[92] as well as by the Full Federal Court on appeal.[93] In rejecting the Minister's reasoning, the Full Federal Court focused closely on the plain meaning of the relevant words used in the EPBCA.[94] Relying on the *Oxford English Dictionary,*[95] the Court concluded that the ordinary English meaning of the term "impact" includes "the influence or effect of an action," and further noted that this definition "can readily include the 'indirect' consequences of an action and may include the results of acts done by persons other than the principal actor."[96]

In addition, the Court stressed that "'all adverse impacts'[97] includes each consequence which can reasonably be interpreted as within the contemplation of the proponent of the action, whether those consequences are within the control of the proponent or not.[98] In the text of the proposed action the proponents spent a great deal of time detailing the agricultural industries in the vicinity of the proposed dam that would benefit from a reliable water source.[99] The Court therefore concluded that there was an "inescapable" inference that the developer contemplated the use of water downstream from the dam for agricultural purposes.[100]

While the decision was instrumental in incorporating indirect impacts into the assessment process, it is important to remember that the Full Federal Court's rulings in Nathan Dam were premised on the undertaking of a single

---

[90] Minister for the Env't and Heritage v. Queensland Conservation Council Inc. (2004) 190 F.C.A.F.C. ¶ 22 (Austl.).

[91] Nathan Dam, *Court Win Confirms Major Expansion of Federal Environmental Powers*, WWF-AUSTRALIA, July 30, 2004, http://www.wwf.org.au/news/n142/.

[92] Queensland Conservation Council Inc. v. Minister for the Env't and Heritage (2003) 1463 F.C.A. ¶¶ 36-41 (Austl.) (unreported, Kiefel J., 19 Dec. 2003).

[93] Minister for Env't and Heritage v. Queensland Conservation Council Inc. (2004) 139 F.C.R. 24 (Austl.).

[94] Minister for the Env't and Heritage v. Queensland Conservation Council Inc. (2004) 190 F.C.A.F.C. ¶ 53.

[95] OXFORD ENGLISH DICTIONARY 694-95 (2d ed. 1989).

[96] Minister for the Env't and Heritage v. Queensland Conservation Council Inc. (2004) 190 F.C.A.F.C. ¶ 52 (Austl.).

[97] When the Minister makes a decision that an action constitutes a "controlled action," the Minister must consider "all adverse impacts" the action has or will have; or is likely to have; on the specified matter of NES. Environment Protection and Biodiversity Conservation Act, 1999, § 75(1)-(2) (Austl.).

[98] Minister for the Env't and Heritage v. Queensland Conservation Council Inc. (2004) 190 F.C.A.F.C. ¶ 57 (Austl.).

[99] Minister for Env't and Heritage v. Queensland Conservation Council Inc. (2004) 139 F.C.R. ¶ 59 (Austl.).

[100] *Id*. at ¶ 60.

action and the likely indirect consequences of that action. The impacts test developed by the Court does not clearly extend to cumulative impacts, which are produced as the result of the compounded effect of multiple, discrete projects. The opinion does, however, support and elaborate upon the scope of "significant impact" inquiry developed in previous litigation under the EPBCA.[101] Further, although not explicit in the Court's decision, the opinion in the Nathan Dam case appears to be a move toward recognition of cumulative impacts in that it arguably reflects a sympathetic judicial stance to the idea that, in assessing the environmental impacts of anthropocentric activities, it is insufficient to consider one project in isolation from others to which it is inextricably linked.[102]

The Federal Court made an even clearer statement of the potential incorporation of cumulative impacts into the EPBCA's environmental assessment process in the *Wielangta Forest Case*.[103] The case involved an application by Senator Brown made under § 475 of the EPBCA concerning alleged violations of § 18(3) of the EPBCA by Forestry Tasmania.[104] Specifically, Senator Brown alleged that Forestry Tasmania's existing and proposed operations in the Wielangta State forest were prohibited in the absence of approval by the Environmental Minister due to the significant impacts on three threatened species.[105] Justice Marshall held that Forestry Tasmania's logging operations in the Wielangta forest were likely to have a significant impact on these species.[106]

In determining that there was a likely significant impact, Justice Marshall stressed that regard should be given to the species' endangered statuses and all other threats to them:[107]

---

[101] The primary case to consider the concept of "significant impact' under the EPBC Act before the *Nathan Dam Case* was Booth v. Bosworth (2001) 114 F.C.R. 39, 65 (Austl.). Commonly referred to as the Flying Fox Case, *Booth* involved an application for an injunction in the Federal Court of Australia under the EPBCA to restrain the killing of thousands of flying foxes on a lychee farm in North Queensland using a large electric grid. Justice Branson defined "significant impact" as an impact that was "important, notable or of consequence having regard to its context or intensity" and also interpreted "world heritage values" as inclusive of species that resided in, and therefore contributed to, a World Heritage site. In evaluating the relevant "context" of impacts on a world heritage area that derived from the removal of spectacled flying foxes, the court looked to factors such as international recognition of the significance of the 'deterioration' of natural heritage and the fact that outside of Australia the spectacled flying fox is found in only one other country.

[102] *See generally* Minister for the Env't and Heritage v. Queensland Conservation Council Inc. (2004) 190 F.C.A.F.C. ¶¶ 56-60 (Austl.); *see also* DE Fisher, *The Meaning of Impacts — The Nathan Dam Case on Appeal*, 21 ENVT. PLAN. L.J. 325-27 (2004).

[103] Brown v. Forestry Tasmania (No 4) (2006) 1729 F.C.A. (Austl).

[104] *Id*. at ¶ 2.

[105] *Id*.

[106] *Id*. at ¶ 8.

[107] *Id*.

> [T]he ecology and biology of [threatened species] means that actions in a given area will contribute to a cumulative impact on the species but are highly unlikely ever, on their own, to be capable of affecting the population as [a] whole. To have its intended protective effect, s 18 [of the EPBCA] must be able to deal with these differences in ecology and biology. It can only do that if the concept of impact includes not only indirect effects, as the Full Court has already found, but cumulative effects as well.[108]

While the Full Federal Court's discussion of the meaning of "impact" in the *Nathan Dam* case is present in Justice Marshall's reasoning, a wider ecological point of view addressing landscape-scale impacts is also evident. By considering the biology of the impacted species, the opinion appears to take into account the unique composition of Wielangta as a critical habitat for many animals. In finding for the applicant, the court recognized the importance of cumulative effects in any determination of "significant impact" and the impact assessment process. Justice Marshall noted that Forestry Tasmania's forestry operations throughout the forest both now and in the future constituted the relevant action for the purposes the EPBCA.[109]

Despite the sound ecological grounds that formed the foundation of Justice Marshall's decision, an appeal subsequently brought by Forestry Tasmania was ultimately successful;[110] and in February 2007, the Tasmanian State Government and the Australian Federal Government responded by changing the text of the State's Regional Forest Agreement and making further legal appeals futile.[111] Nevertheless, Justice Marshall's opinion resonated with individuals throughout the environmental community and could encourage a much broader approach to determining the scope of assessments made under the EPBCA.

---

[108] *Id*. at ¶ 95.

[109] Forestry Tasmania v. Brown (2007) 186 F.C.A.F.C. 63, 65 (Austl.).

[110] *Id*.

[111] The statutes' new clauses make it clear that the word "protection" relates only to whether the Australian Federal Government and the Tasmanian State Government deem a species to be protected rather than requiring any actual evidence of protection. Sue Neales, *Bob Brown Senate Threat*, MERCURY, June 09, 2009, http://www.themercury.com.au/article/2009/06/09/78191_todays-news.html.

2. The Federal Courts Have Consistently Declined to Expand their Interpretation of the EPBCA Environmental Assessment Requirements to Include Cumulative Impacts

Despite the logic of considering basic ecological principles, such as cumulative impacts in environmental assessments, as they came close to doing in cases such as *Nathan Dam* and *Wielangta Forest*, Federal Courts in Australia have, in large part, refused to take this step. In part, this hesitation to adopt a definition of "impact" that would require project proponents and the Minister to assess the cumulative impacts of a proposed action is due to the very limited scope of review afforded the courts.[112] Regardless of the reasons, with few exceptions, impact assessment litigation under the EPBCA has failed to adequately consider cumulative impacts.

The true scale of environmentally harmful activities that are able to pass under the EPBCA radar due to its failure to require assessment of cumulative impacts is evident in *Wildlife Whitsunday.*[113] The *Wildlife Whitsunday* case concerned a judicial review application in the Federal Court regarding decisions under the EPBCA that involved two coal mines in Queensland that produced greenhouse gas emissions equaling roughly 25% of Australia's national greenhouse emissions in a single year.[114] The Whitsunday branch of Wildlife Preservation brought the action challenging the Federal Minister's decisions that neither the Isaac Plains Coal Mine nor the Sonoma Coal Project were controlled actions under the EPBCA, and that it was unnecessary to impose conditions requiring them to reduce or offset their greenhouse gas emissions.[115] These decisions were based on an assessment that neither of the projects were likely to have a significant impact on matters of NES protected under the EPBCA.[116]

The Wildlife Preservation Society alleged that the Minister, in making the decisions, did not consider the effects of greenhouse gases generated by the mining, transportation, export, and burning of coal extracted from the

---

[112] Administrative Decisions (Judicial Review) Act, 1977 (Austl.); Judiciary Act, 1903 (Austl.). For an interesting counter opinion detailing the proactive role that the Australian courts have taken in expanding the scope of impact assessments under the EPBCA, particularly the issue of whether the EIAs require consideration of climate change and its intergenerational effects. *See* Tracy Bach & Justin Brown, *Recent Developments in Australian Climate Change Litigation: Forward Momentum from Down Under*, 8 SUSTAINABLE DEV. L. & POL'Y 39 (2008).

[113] Wildlife Pres. Soc'y of Queensland Proserpine/Whitsunday Branch Inc v. Minister for the Env't & Heritage & Ors (2006) 736 F.C.A. (Austl.).

[114] Chris McGrath, *Federal Court Case Challenges Greenhouse Gas Emissions from Coal Mines*, ENVTL. LAW PUBLISHING, June 18, 2006, http://www.envlaw.com.au/whitsunday19.pdf.

[115] Wildlife Pres. Soc'y of Queensland Proserpine/Whitsunday Branch Inc v. Minister for the Env't & Heritage & Ors (2006) 736 F.C.A. ¶ 8 (Austl.).

[116] *Id*. at ¶ 17.

mines over time.[117] Drawing and expanding upon the reasoning in the *Nathan Dam* case, the Wildlife Preservation Society made public submissions stating that the transportation and subsequent burning and consumption of coal extracted from the two projects was a consequence of the primary action,[118] as these steps were within the contemplation of the projects' proponents.[119] The Society alleged that greenhouse gases from these processes would have an indirect adverse effect on protected matters, such as the World Heritage, listed Great Barrier Reef and Wet Tropics areas due to global climate change.[120]

In refuting Wildlife Preservation Society's argument, the Minister's delegate[121] claimed that he had in fact looked at the likely impacts of the greenhouse gases likely to be released by the coal produced at the two mines.[122] Specifically, the delegate maintained that, when judged against the scale of past, present, and future global emissions, the greenhouse emissions from the mines would not be measurable or identifiable and, therefore, would not be likely to cause a significant impact to matters of NES protected under the EPBCA.[123] Justice Dowsett accepted the delegate's evidence and found that his approach was lawful.[124] He thus dismissed the application for judicial review, reasoning that the applicant had failed to demonstrate that "… the mining, transportation or burning of coal from either proposed mine would directly affect any such protected matter."[125] Justice Dowsett found that the threat posed by the cumulative impact of a large emitter of greenhouse gases is irrelevant under the EPBCA.[126] Instead, Justice Dowsett adopted the rule that, "[t]he relevant impact must be the difference between the position if the action occurs and the position if it does not."[127]

---

[117] *Id.* at ¶ 10-12.

[118] The primary action being the construction of the mines themselves.

[119] Wildlife Pres. Soc'y of Queensland Proserpine/Whitsunday Branch Inc v. Minister for the Env't & Heritage & Ors (2006) 736 F.C.A. ¶ 10 (Austl.).

[120] *Id.* at ¶ 10-11.

[121] Under § 515 of the EPBCA, the Minister may, by signed instrument, delegate all or any of his powers or functions under this Act to an officer or employee in the Department or to the Director. A delegate of the Minister is not an elected representative.

[122] Chris McGrath, *Federal Court Case Challenges Greenhouse Gas Emissions from Coal Mines*, ENVTL. LAW PUBLISHING, June 18, 2006, http://www.envlaw.com.au/whitsunday19.pdf.

[123] Wildlife Pres. Soc'y of Queensland Proserpine/Whitsunday Branch Inc v. Minister for the Env't & Heritage & Ors (2006) 736 F.C.A. ¶ 43 (Austl.).

[124] *Id.* at ¶ 44.

[125] *Id.* at ¶ 72.

[126] *Id.* at ¶ 55.

[127] *Id.* at ¶ 55.

Similar reasoning has been used in subsequent cases such as the *Anvil Hill Case*,[128] which involved a judicial review application in the Federal Court challenging a decision under the EPBCA reguarding the development of a mining operation that would extract an estimated 150 million metric tons of thermal coal from the largest intact stand of remnant vegetation in the Central Hunter Valley, was not a controlled action.[129] In response, the Anvil Hill Project Watch Association Inc., argued that under the EPBCA, the delegate should have taken a common sense approach to causation and looked to whether the proposed action is likely to have an impact on a protected matter that is, "important, notable, or of consequence having regard to its context not only in the total Australian and global emissions of greenhouse gases but in comparison to other actions that might reasonably be assessed under the EPBC Act."[130]

Justice Stone declined to use this common sense approach and dismissed the applicant's argument,[131] effectively rejecting consideration of Anvil Hill's potential cumulative contribution to global climate change and the associated negative consequences for Australia's environment, including matters of NES. Consequently, this case exemplifies the EPBCA's failure to adequately address the broad scope of the likely direct and indirect cumulative impacts on matters of NES.

The *Wildlife Whitsunday* and *Anvil Hill* decisions demonstrate that the emissions from burning coal are effectively unregulated under the EPBCA, which indicates an important gap in the ability of EPBCA to genuinely protect matters of NES. Ideally, an action that itself contributes to greenhouse gases in the environment should be considered cumulatively with other proposed contributors to global warming to determine if the cumulative effect of the action is likely to have a significant impact on matters of NES. If the Act does not require the Minister to consider the impact of a mining operation cumulatively with the construction and operation of other mining ventures, then no single mine will be considered a significant impact, and a situation analogous to the tragedy of the commons will arise.[132]

---

[128] Anvil Hill Project Watch Ass'n Inc v. Minister for the Env't and Water Res. (2007) 1480 F.C.A. (Austl.).

[129] Virginia Tice, *From Vermont's Maples to Wybong's Olives: Cross-Cultural Lessons From Climate Change Litigation in the United States and Australia*, 10 ASIAN-PAC L. & POL'Y J. 292, 311 (2008).

[130] Anvil Hill Project Watch Ass'n Inc v. Minister for the Env't and Water Res. (2007) 1480 F.C.A. ¶ 41.

[131] *Id*. at ¶ 44.

[132] The tragedy of the commons theory describes the situation in which multiple individuals, acting independently, solely, and rationally in their own self-interest, will ultimately deplete a shared limited

D. The Cost-Prohibitive Nature of Environmental Litigation in Federal Courts and the Limited Scope of Review Available Diminishes the Feasibility of Further Expansion of the EPBCA by the Courts

The cases noted above demonstrate the ease with which proponents may circumvent and undercut the EPBCA purposes and the strategies used in approving environmentally detrimental projects under the EPBCA. As the reasoning of the Federal Courts shows, many of these potentially damaging projects are not considered controlled actions under the EPBCA because of the fundamental difficulty of establishing causation where a measurable impact is not identifiable on a project-by-project basis. Currently, without any mechanism for considering the cumulative impacts of a project, the Act is vulnerable to the varying policy approaches of the individual judges and administrators. Consequently, the outcome of environmental litigation in Australia is varied and frequently unreliable. As one commentator remarked, "These cases are no substitute for strong legislation or sustained government action. They are far too piecemeal, much too confined in their reach."[133] Although many of the developments that have taken place in the interpretation of the EPBCA can be attributed principally to the willingness of environmental non-governmental organizations to test the bounds of environmental impact assessment in litigation,[134] due to the constraints inherent in judicial review, this is not the end all be all solution for achieving recognition of cumulative impacts under the EPBCA.

In undertaking judicial review,[135] courts cannot examine the merits of the decision, but must concern itself only with whether there has been an error of law or a breach of procedural fairness. Consequently, the effectiveness of judicial review as a mechanism for independent scrutiny of decisions made under the EPBCA is limited. As the Wilderness Society stated, "in practice this means that as long as the reasons for a decision are carefully written so that they tick all boxes and are not irrational, decisions are very difficult to challenge — even where they may lead to major environmental damage."[136]

---

resource despite the knowledge that depletion of the resource is not in anyone's long-term interest. *See generally* Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243-48 (1968).

[133] Tim Bonyhady, *The New Australian Climate Law*, in CLIMATE L. IN AUSTRALIA 8, 26 (Tim Bonyhady & Peter Christoff eds., 2007).

[134] Lee Godden & Jacqueline Peel, The Environment Protection and Biodiversity Conservation Act 1999 (Cth): Dark Sides of Virtue, 31 MELB. U. L. REV. 106, 125 (2007).

[135] In Australia, this common law right is also enshrined in legislation, namely the Administrative Decisions (Judicial Review) Act, 1977 (Austl.) and in the Judiciary Act, 1903, § 39B (Austl.).

[136] AUSTRALIAN GOVERNMENT: DEPARTMENT OF THE ENVIRONMENT, WATER, HERITAGE, AND THE ARTS, THE AUSTRALIAN ENVIRONMENT ACT — REPORT OF THE INDEPENDENT REVIEW OF THE

Despite the undeniable importance of public interest environmental litigation in enforcing the EPBCA and promoting good decision making by the government, the practical ability of public interest groups to further expand the scope and understanding of the EPBCA is limited. Public interest environmental litigation in Australia faces major obstacles such as adverse costs orders,[137] a general lack of financial resources,[138] and a lack of merits review,[139] all of which constrain the feasibility of public interest litigation under the Act and make litigation a poor choice for instigating an expansive change in enforcement under the EPBCA. Rather, mechanisms explicitly requiring analysis of cumulative impacts should be incorporated into the EPBCA to ensure the integration of cumulative impacts in the assessment process.

IV. THE EPBCA SHOULD BE AMENDED TO EXPLICITLY INCORPORATE CUMULATIVE IMPACTS

Ecosystem processes[140] at the landscape level have traditionally been overlooked, but are now considered among the resources most likely to be affected cumulatively by multiple activities.[141] Consequently, it is imperative that the focus and mechanisms available in the Act reflect fundamental ecological realities. A more fully developed strategic assessment system would create the necessary mechanism for protecting the environment in a holistic manner, instead of attempting to manage individual pressures on ecosystems. Management at the landscape or regional

---

ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999, 314 (2009), http://www.environment.gov.au/epbc/review/publications/pubs/final-report.pdf (quoting public comment submission from The Wilderness Society).

[137] In Australia, the basic costs rule states that the successful party receives costs from the unsuccessful party. This rule has proved to be one of the largest barriers preventing public interest environmental groups from bringing environmental cases in federal court. Chris McGrath, *Swirls in the Stream of Australian Environmental Law: Debate on the EPBC Act*, 23 ENVTL. PLAN AND L.J. 165 (2006).

[138] Jacqueline Peel, *Climate Change Law: The Emergence of a New Legal Discipline*, 32 MELB. U. L. REV. 922, 968-69 (2008).

[139] McGrath, *supra* note 88.

[140] Ecosystems supply the foundation for socio-economic development by providing a wide range of ecosystem services. Ecosystem services are the benefits people obtain from ecosystem processes. A short list of ecosystem services includes water and air purification, flood control, erosion control, generation of fertile soils, resistance to climate and other environmental changes, pollination, and aesthetic and cultural benefits. However, altered environmental conditions can result in substantial changes in ecosystem processes which in turn reduce an ecosystems' capacity to generate these essential services. Stockholm Resilience Center, Understanding Ecosystem Processes for Proactive Management, http://www.stockholmresilience.org/research/researchthemes/understandingecosystemprocesses.4.aeea46911a3127427980004034.html (last visited on 10.9.2010).

[141] U.S. Environmental Protection Agency, *supra* note 8, at 7.

ecosystem level is one feasible way to address cumulative and multiple-use impacts of development.

A. Strategic Environmental Assessments Are Effective Mechanisms for Incorporating the Cumulative Impacts of a Project into the Assessment Process

In contrast to project-based assessments, the less known and much less used[142] SEA process has the potential to provide an effective framework within which to address cumulative effects. The potential benefit of regional SEAs lies in the ability to require a broader assessment of the scope and intensity of development in a region, including significant environmental thresholds.[143] SEAs are also conducive to providing the Minister with a more complete picture of the broader, slower-moving, farther-reaching effects of an action.[144] Perhaps most importantly, a SEA may be a tool for identifying the more insidious trends of cumulative environmental effects.[145]

In practice, consideration of cumulative impacts is best achieved through explicit consideration of landscape-scale effects rather than through project-based approaches. SEAs accomplish this by providing for the assessment and potential approval of actions taken in accordance with a plan, policy, or program.[146] Plans, policies, or programs can include large-scale industrial developments, regional-scale development plans, and water extraction or use policies, with appropriate proponents including mining

---

[142] At the time of writing, only seven terrestrial strategic assessments have commenced. In February 2008, the Minister for the Environment signed an agreement with the Western Australian Government to undertake a strategic assessment under the EPBC Act of the impacts of actions under a plan for a proposed common-user liquefied natural gas precinct to service the Browse Basin gas reserves. Later that year, in September 2008, the Minister announced the development of a strategic assessment of the proposed Molonglo and North Weston structure plan. The structure plan sets out the planning and development guidelines and principles for urban development and associated infrastructure at Molonglo and North Weston. In March 2009, the Minister signed an agreement with the Victorian Government to undertake a strategic assessment under the EPBC Act of the expansion of Melbourne's urban growth boundary. Then, in November of 2009, the Minister, along with the New South Wales Government Minister for Climate Change and the Environment and Minister for Planning, signed an agreement to undertake a strategic assessment of the western Sydney growth centers. In the last year, the minister has signed off on three more strategic assessments, the most recent of which concerns the Mount Peter Master Planned Area and is the first strategic assessment agreement in Australia to be signed by all three levels of government. Australian Government: Department of the Environment, Water, Heritage, and the Arts, *Strategic Assessments*, http://www.environment.gov.au/epbc/assessments/strategic.html (last visited Nov. 3, 2010).

[143] Gunn, *supra* note 42, at ii.

[144] *Id.*

[145] *Id.*

[146] AUSTRALIAN GOVERNMENT: DEPARTMENT OF THE ENVIRONMENT, WATER, HERITAGE, AND THE ARTS, THE AUSTRALIAN ENVIRONMENT ACT — REPORT OF THE INDEPENDENT REVIEW OF THE ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999, 79 (2009), http://www.environment.gov.au/epbc/review/publications/pubs/final-report.pdf.

companies, developers and state and local governments.[147] In other words, when a project is implemented in accordance with an SEA, the Minister will consider the impacts of that project in the context of all the other projects proposed under the endorsed plan, policy, or program to ensure that the total acceptable impact is not exceeded. This mechanism has the potential to capture geographic, temporal, and landscape-level effects that limit proper conservation now.

The EPBCA currently contains mechanisms enabling the Minister to grant strategic assessments and bioregional planning.[148] As of 2006, if the Minister is satisfied that a plan will deliver acceptable environmental outcomes, then developments in accordance with the plan do not require further assessment by the government.[149] Ideally, a strategic assessment happens early in the planning process,[150] and the Department of Sustainability, Environment, Water, Population and Communities provides advice on the development of the policy, plan, or program during the entire process to ensure that significant impacts on matters of NES are avoided or mitigated.[151] Further, in determining whether or not to endorse a program, the Minister must consider the extent to which the program meets the objectives of the EPBCA. In particular, the Minister must be satisfied that the program protects the environment; promotes ecologically sustainable development; promotes the conservation of biodiversity; and provides for the protection and conservation of cultural heritage.[152]

The basis behind strategic assessment is that it provides a broad, "landscape-scale" assessment of environmental impacts. This method of

---

[147] Australian Government: Department of the Environment, Water, Heritage, and the Arts, Strategic Assessments, http://www.environment.gov.au/epbc/assessments/strategic.html (last visited Oct. 28, 2010).

[148] The Explanatory Memorandum, Environment Protection and Biodiversity Conservation Bill 1999 (Cth.) ¶ 280 states that a bioregion is, "an area of one whole or several interconnected ecosystems characterized by its landforms, vegetative cover, human culture, and history. In determining the boundaries of a bioregion account will be taken of administrative and other regional boundaries. A bioregional plan provides a 'blueprint' for the ecologically sustainable management of natural resources within a bioregion, taking into account social and geographic elements."

[149] AUSTRALIAN GOVERNMENT, s*upra* note 146, at 78.

[150] The SEA process generally includes the following stages: 1) The Minister enters into an agreement with a proponent to undertake a strategic assessment of the impacts of actions under a policy, plan, or program; 2) Terms of Reference are prepared for a report on the impacts relating to the agreement; 3) A draft report is prepared; 4) The draft report opens for public comment; 5) The Minister may recommend modifying the policy, plan or program; 6) The Minister may endorse the policy, plan or program if appropriate; and 7) The Minister may approve actions under the policy, plan or program if appropriate. AUSTRALIAN GOVERNMENT: DEPARTMENT OF THE ENVIRONMENT, WATER, HERITAGE AND THE ARTS, STRATEGIC ASSESSMENT UNDER THE EPBC ACT 2 (2008), http://www.environment.gov.au/epbc/publications/pubs/strategic-assessment.pdf.

[151] *Id.*

[152] Environment Protection and Biodiversity Conservation Act, 1999, Part 10 § 146 (1) (Austl.).

assessment allows the Minister to consider multiple impacts—including cumulative impacts—on all matters of NES inflicted by a single proponent's project and by different parties or projects.[153] Strategic assessment is also intended to be a proactive rather than reactive assessment of impacts and generally takes place prior to proposed developments, instead of in response to an existing proposal.[154] Conceptually, strategic assessments occur when a plan, policy, or program has been conceived and is being developed.[155] Early involvement of the Australian government in the assessment plan is important because it tends to increase the likelihood that the plan will deliver nationally focused outcomes.[156]

The ability to address concerns about cumulative impacts over a larger geographic area, and over a period of development, is the key feature differentiating SEAs from traditional, project-specific EIAs.[157] The ability of SEAs to incorporate cumulative impacts into the assessment process stems from three structural elements unique to SEAs.[158] First, proponents taking actions tailored to a policy, plan, or program approved under a strategic assessment can focus on the sources of cumulative effects.[159] Second, regional plans shift the attention toward effects, sensitivities, and capacities of the receiving environment.[160] Third, policy appraisals may benefit from taking a broad perspective of the interactions between development and environmental health.[161]

For these reasons, the Australian government needs to shift practice away from traditional environmental assessment methods to landscape-focused strategic assessments.[162] Additionally, given that endorsement and

---

[153] Paul Wilson, *Strategic Assessment under the EPBC Act — A Better Alternative?*, BLAKEDAWSON.COM, Dec. 1, 2009, http://www.blakedawson.com/Templates/Publications/x_article_content_page.aspx?id=57231.

[154] *Id.*

[155] AUSTRALIAN GOVERNMENT, *supra* note 146, at 79.

[156] *Id.*

[157] MANDY ELLIOT & IAN THOMAS, ENVIRONMENTAL IMPACT ASSESSMENT IN AUSTRALIA: THEORY AND PRACTICE 66 (5th ed., Federation Press 2009).

[158] BARRY SADLER, INTERNATIONAL STUDY OF THE EFFECTIVENESS OF ENVIRONMENTAL ASSESSMENT: EVALUATING PRACTICE TO IMPROVE PERFORMANCE 102 (1996), http://www.iaia.org/publicdocuments/EIA/EAE/EAE_10E.PDF.

[159] ELLIOT, *supra* note 151, at 66.

[160] *Id.*

[161] *Id.*

[162] AUSTRALIAN GOVERNMENT, s*upra* note 146, at 79. The 2006 amendments made strategic assessments a more accessible option for proponents subject to EPBCA regulations by providing that if the Minister is satisfied that a plan will deliver acceptable environmental outcomes, developments in accordance with the plan can be granted and will not require further Australian government assessment. Environment and Heritage Legislation Amendment Act, 2006, § 314-18 (No. 1) (Austl.). Despite these amendments, and although strategic impact agreements are a fairly well established management mechanism in the field of Commonwealth fisheries, the concept has only recently been applied to land-use

approval of actions under a proposed SEA plan, policy, or program removes the need for individual project assessment for those actions; it is essential that the strategic assessment process be carried out with the highest degree of rigor and transparency.[163] This potential pitfall, however, is outweighed by the ability of SEAs to ensure that broad, landscape-scale assessments influence decisions that shape development.[164] Consequently, SEAs can contribute to a more transparent planning and policy process and ultimately facilitate sustainable development by expanding the scope of the significant impact inquiry.[165]

B. Explicit Language Requiring Assessment of Cumulative Impacts Is Necessary to Limit the Accumulated Effects of Multiple Small Actions

Addressing cumulative environmental impacts is a critical step toward conserving a representative array of Australia's ecosystems. In a recent statutorily mandated independent review of the EPBCA,[166] Dr. Allan Hawke[167] noted that the EPBCA has made a significant positive difference in the protection of matters of NES.[168] Nevertheless, Hawke noted that EPBCA is a product of its time and proceeded to make 71 recommendations for its improvement.[169] A number of these proposals focused on amending the law in ways that would allow the Commonwealth to address cumulative

---

planning. AUSTRALIAN GOVERNMENT, s*upra* note 146, at 88. The relatively cold reception of SEAs so far is most likely due to a number of circumstances, including the disinclination of the States and Territories to adopt a process that they do not yet fully understand. *Id*. A number of more partisan motivations are also likely. *Id*. For instance, rivalry within State planning and conservation agencies and a perceived loss in efficiency for industry and government most likely have also contributed to the slow adoption of SEA's. *Id*.

[163] ENVIRONMENT DEFENDERS OFFICE, SUBMISSION IN RESPONSE TO STRATEGIC IMPACT ASSESSMENT REPORT FOR EPBCA 1999, 3 (2009), http://www.edo.org.au/edovic/policy/edo_vic_strategic_impact_assessment.pdf.

[164] ELLIOT, *supra* note 156, at 56.

[165] *Id*.

[166] The independent review of the Environment Protection and Biodiversity Conservation Act, 1999 (Austl.). was carried out in accordance with section 522A of the EPBC Act and was the first such review since its commencement on July 16, 2000. Stockholm Resilience Center, *supra* note 140.

[167] On October 31, 2008, the Federal Minister for the Environment, Peter Garrett, announced the first independent review of the EPBC Act and appointed Dr. Allan Hawke and a panel of experts to undertake the review. Dr. Allan Hawke has served with distinction in the Commonwealth Public Service from 1974 to February 2006 and has participated in major inquiries into the Public Service, including the Review of Commonwealth Functions, the Review of Commonwealth Administration and the Efficiency Scrutiny Unit.

[168] AUSTRALIAN GOVERNMENT, s*upra* note 146, at 54; *see also* McGrath, *supra* note 137, at 169-70 (arguing that there is no question the EPBC Act is a success and an important contribution to Australian environmental law). *But see* Andrew Macintosh & Debra Wilkinson, *Evaluating the Success or Failure of the EPBC Act; A Response to McGrath*, 24 ENVTL. PLAN & L.J. 81 (2007); Andrew Macintosh & Debra Wilkinson, *EPBC Act — The Case for Reform*, 10 AUSTRALASIAN J. NAT. RESOURCES L. POL. 139, 164 (2005).

[169] *Id*. at Part II.

environmental impacts by engaging on a landscape scale.[170] He expressed the opinion that this approach would focus the Australian government's efforts on practices that provide the most effective and efficient means of environmental protection.[171]

A shift to an ecosystem approach to land management by positioning strategic assessments as the default environmental assessment procedure in the EPBCA is an effective way to protect an array of ecosystems. This, in turn, allows matters of NES the best chance of survival in a changing climate. Strategic assessments can capture different combinations of underlying environmental pressures. This ability is critical in assessing the likely cumulative impact of an action. Aiming to protect diversity in the early stages of a plan, policy, or program endorsed through a SEA provides the best chance of conserving favorable conditions for matters of NES.[172] However, despite the potential advantages of SEAs, as the EPBCA stands it does not adequately ensure that the best environmental practices, including consideration of cumulative impacts, will be undertaken in the planning process.[173]

One potential method to ensure assessment of cumulative impacts would be to explicitly address the issue when considering the significant impacts of a policy, plan, or program. This can be achieved by fleshing out the definition of "significant" to include cumulative impacts. Currently, the Australian Government notes that "a 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity."[174] However, the guidelines do not direct the proponent to look at any cumulative impacts a project is likely to have. Rather, whether an action is likely to have a significant impact under the EPBCA depends upon the "sensitivity, value and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent" of the impact.[175]

---

[170] *Id*.

[171] *Id*. at 78.

[172] *Id*. at 54.

[173] *See generally* Andrew Macintosh, *Why the Environmental Protection and Biodiversity Conservation Act's Referral, Assessment and Approval Process is Failing to Achieve its Environmental Objectives*, 21 ENVTL. & PLAN L.J. 288 (presenting statistics on the operation of the referral, assessment and approval process and analyzing why this process is failing to achieve its environmental objectives).

[174] AUSTRALIAN GOVERNMENT: DEPARTMENT OF THE ENVIRONMENT, WATER, HERITAGE AND THE ARTS, MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE: SIGNIFICANT IMPACT GUIDELINES 1.1 3 (2009), http://www.environment.gov.au/epbc/publications/pubs/nes-guidelines.pdf.

[175] *Id*.

In contrast to this approach, in 1978, the Council on Environmental Quality ("CEQ")[176] advised that "significantly," as used in the United States' major environmental statute, the National Environmental Policy Act ("NEPA"), requires consideration of both context and intensity, or severity, of an impact.[177] In evaluating the intensity of an action under NEPA, one element to be considered is, "[w]hether the action is related to other actions with individually insignificant but cumulatively significant impacts."[178] "Significance" exists if it is reasonable to anticipate a cumulatively significant impact on the environment.[179] Therefore, unlike under the EPBCA, significance cannot be avoided by terming an action "temporary" or by breaking it down into smaller component parts. Thus, the definition of "significance" under NEPA explicitly recognizes the need to consider the potential cumulative or synergistic effects of an action.[180]

Australia should adopt similar language to ensure that the cumulative impact a proposed action will have on the environment is a mandatory consideration in any environmental analysis. While an SEA provides an appropriate vehicle and scale for addressing cumulative impacts, it is imperative that further measures, such as adopting language explicitly requiring consideration of cumulative impacts, be adopted. Although it is true that there is nothing in the EPBCA preventing the Minister from assessing cumulative impacts when deciding whether an action will have a significant impact on matters of NES, there are no formal requirements to ensure this will happen. Unless there is language requiring proponents to consider the cumulative effects of an action, it is unlikely to occur.

V. CONCLUSION

Although Australia has a strong history of commitment to both land use and conservation planning, the two have not been integrated effectively in natural resource management legislation due to the popular misconception that productive land use and conservation interests conflict.[181] However,

---

[176] The Council on Environmental Quality ("CEQ") coordinates Federal environmental efforts and works closely with agencies and other White House offices in the development of environmental policies and initiatives. CEQ was established within the Executive Office of the President by Congress as part of the National Environmental Policy Act of 1969 ("NEPA"), and additional responsibilities were provided by the Environmental Quality Improvement Act of 1970.

[177] 40 C.F.R. § 1508.27.

[178] 40 C.F.R. § 1508.27(b)(7).

[179] 40 C.F.R. § 1508.27(b)(7).

[180] 40 C.F.R. § 1508.27.

[181] David Robinson, *Strategic Planning for Biodiversity in New South Wales*, 26 ENVTL. & PLAN. L.J. 213, 213 (2009).

placing conservation at the heart of future land use planning would be an investment in Australia's long-term economic and environmental well-being. Aldo Leopold wrote, "a thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise."[182] By this basic standard, the EPBCA is not yet quite "right" because it is ill-equipped to guard Australia's irreplaceable biotic community against the increasingly complex land use pressures.

Australia's unique biodiversity, already stressed, now faces additional risks due to a rapidly changing climate, the effects of which are already discernible.[183] Emerging pressures demand adaptive responses and rethinking of legislative frameworks. Failure to adapt the law to curb actions that may have negative cumulative or synergistic effects on the natural environment is likely to have serious environmental, social and economic impacts.[184] To protect these assets, more needs to be done to ensure that landscape and ecosystem-focused methods of assessment are used as the default rather than the exception for referrals made under the EPBCA. The EPBCA should aim to facilitate positive biodiversity and environmental outcomes at an ecosystem level. To be effective in the long term, the EPBCA must focus on protecting whole ecosystems by explicitly requiring proponents and the Environmental Minister to assess cumulative impacts.

The environmental impact of a proposed project cannot truly be assessed in isolation. The natural environment is generally stabilized by dynamic self-correcting properties.[185] These same properties, if overstressed, can lead to a sudden collapse or ecosystem shift.[186] A small disturbance in one place may have large, distant, and delayed effects due to its cumulative impact.[187] Incorporating cumulative impacts into the EPBCA environmental assessment process would help bridge the current gap between law and science. The threat of ecosystem collapse[188] in Australia and around the globe demonstrates that resource extraction and human development activities often have much more complex, extensive, and pervasive environmental effects than we once perceived. This reality can be

---

[182] ALDO LEOPOLD, A SAND COUNTRY ALMANAC 224-25 (Oxford Univ. Press 1968) (1949).

[183] WILL STEFFEN ET AL., AUSTRALIA'S BIODIVERSITY AND CLIMATE CHANGE 1 (2009), *available at* http://www.climatechange.gov.au/~/media/publications/biodiversity/biodiversity-summary-policy-makers.ashx.

[184] AUSTRALIAN GOVERNMENT, s*upra* note 146, at 26.

[185] *Id*. at 88.

[186] *Id*.

[187] *Id*.

[188] WWF INTERNATIONAL, LIVING PLANET REPORT 22 (2008), http://assets.panda.org/downloads/living_planet_report_2008.pdf.

addressed and mitigated through the legislative implementation of cumulative environmental impact assessments into the EPBCA.