CONSERVING BIODIVERSITY ON PRIVATE LANDS

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The Biodiversity Convention

The United Nations Convention on Biological Diversity entered into force on December 29, 1993, upon ratification by thirty countries, including Australia. The United States is a signatory, but has not yet ratified. Most of the interest in the Convention has focused on those provisions which attempt to resolve the differences between developed and developing countries about access to genetic resources within developing countries for commercial purposes, and reciprocal access by developing countries to the resulting technology. Far less attention has been given to the extensive provisions which require all countries, including Australia and the United States, to take measures to conserve their own biodiversity.

These include obligations "as far as possible and appropriate" to:

- "regulate or manage biological resources (including genetic resources and populations) important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use";[2]
- identify types of activities likely to have significant adverse impacts on the conservation of biodiversity, monitor the effects of these activities and "regulate or manage" them;[3]
- adopt "economically and socially sound measures that act as incentives" for the conservation of biodiversity.[4]

The first point to note here is that these obligations relate not only to the conservation of diversity between species, but also to genetic diversity (diversity within species) and ecosystem diversity. Legislative initiatives which focus on endangered species will not suffice. Secondly, the Convention is concerned with the hard values of biodiversity as a "resource" for human use, as distinct from the soft values historically associated with the concept of nature conservation. Although, in these terms, the immediate value of biodiversity is diminished because of our lack of knowledge about many of its potential uses, it is necessarily enhanced by the fact that its destruction is irreversible. Thirdly, these obligations under the Convention require action to be taken not only through the creation and management of protected areas, such as national parks and nature reserves, but also on privately owned land. Fourthly, both the Australian and United States Governments will have no choice but to identify ecosystem destruction through agricultural activities and real estate development on privately owned land as activities having significant adverse impacts on the conservation of biodiversity. The obligation is then to "regulate or manage" both the activities and the biological resources which they destroy. Fifthly, within the unsatisfactory disjunction drawn between regulation

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[2]Article 8(c).

[3]Articles 7(c) and 8(l).

[4]Article 11.

and management, and the reference to incentives, there is the kernel of a recognition that command and control regulation alone is unlikely to be adequate. We are also going to have to look towards developing financial inducements, particularly when we move beyond restrictions on private land use to ongoing management of the land.

The inadequacy of land in public ownership

The increasing significance of privately owned land in any comprehensive strategy designed to address the issue of biodiversity conservation is implicit in the writings of conservation biologists. There are two prominent messages for the policy analyst in this literature.

- Existing areas of publicly owned land are currently not adequate when it comes to conservation of representative ecosystems.

The reasons for this are both historical and political. Land has been reserved or acquired on an ad hoc basis, with political factors playing a significant role and other objectives, such as recreation, competing with nature conservation in determining the precise areas to be set aside.[5] Although some conservation biologists remain confident that in the future we can remedy this situation by careful selection of areas to address gaps in coverage, the fact that unrepresented ecosystems are often located in fragments on privately owned land means that management by a centralized agency will be difficult. Apart from this, it will take a good degree of political will to purchase land compulsorily, if landholders refuse to go along with attempts to persuade them to part with their land voluntarily.

Where ecosystems have been set aside on public land, there is increasing concern that nature conservation is being compromised by other management objectives, such as recreation, grazing and timber production.[6] This is hardly surprising, given the fact that for most public land designations, nature conservation is either only one of a number of competing objectives identified by legislation, or is specifically given a lower priority. Even where land is ostensibly being managed for purposes of nature conservation, management may be influenced by competing considerations, as where a "hands off" management regime allows certain species popular with tourists or hunters to thrive in the absence of predators which have long since been driven out, producing fundamental distortions in ecosystems.[7]

- Even if existing areas of publicly owned land, and those to be acquired in the near future, adequately represented ecosystems, we can no longer rely on a ghetto approach to biodiversity conservation, but must move increasingly towards managing for biodiversity conservation on a landscape level, regardless of the tenure in which land is held.[8]

There are a number of themes here. Where ecosystems are represented on public land, the areas protected may not be large enough to maintain minimum viable populations of

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[5]See the review of the literature by R.L. Pressey, *Ad Hoc Reservations: Forward or Backward Steps in Developing Representative Reserve Systems?*, 8 CONSERV. BIOL. 662 (1994).

[6]For a critical analysis of policies and practices of agencies in relation to biodiversity conservation on Federal lands under their control, see KEYSTONE CENTER, BIOLOGICAL DIVERSITY ON FEDERAL LANDS, REPORT OF A KEYSTONE POLICY DIALOGUE (Keystone Center, 1991).

[7]A. CHASE, PLAYING GOD IN YELLOWSTONE: THE DESTRUCTION OF AMERICA'S FIRST NATIONAL PARK chapters 6-8 (Atlantic Monthly Press, 1986), discussing the application of the theory of "natural regulation" to elk management in the 1970s.

[8]Denis A. Saunders, Richard J. Hobbs and Chris R. Margules, *Biological Consequences of Ecosystem Fragmentation: A Review*, 5 CONSERV. BIOL. 18 (1991); Reed F. Noss, *A Regional Landscape Approach to Maintain Biodiversity*, 33 BIOSCIENCE 700 (1983).

wide ranging vertebrate species of large carnivores and herbivores in the longer term.[9] At the very least, there will have to be corridors over land in private ownership linking areas of protected land together, to allow species to migrate between them. Connecting corridors must also be provided when ecosystems are now found only in vegetation fragments, too small to support even minimum viable populations of smaller species. Beyond this, however, effective management of remnant vegetation will have substantial implications for the way in which land in commercial production surrounding it is managed. Where small remnants are involved, some literature suggests that management should be directed primarily at controlling external influences,[10] in contrast to traditional reserve management which stops at reserve boundaries. This demands integrated landscape management, based on cooperation with neighbouring landholders. It requires us to think in terms of conservation networks, where land managers, including private landholders, cooperate to conserve biodiversity.[11]

Even large protected ecosystems in public ownership will always be vulnerable to edge effects stemming from increased radiation loads and other spillovers from surrounding areas, unless substantial buffers are provided. These will frequently have to be on land in private ownership. The concept of a biosphere reserve, which originated in the UNESCO Man and the Biosphere Program, may be helpful in this context. This comprises a core conservation area of minimally disturbed and strictly protected ecosystems, a buffer zone around the core designed to protect it, while allowing certain kinds of resource use, and a transition area extending outwards from all directions, within which the full range of human resource use occurs.[12]

The provision of buffer zones around core areas and wildlife corridors connecting them, may, however, be a futile gesture in the longer term. There is increasing evidence that global warming will have dramatic effects on ecosystem boundaries as the relative speed of temperature shifts in comparison with changes in the past, leaving vegetation with insufficient time to adapt.[13] Because trees are long-lived and take a long time to reproduce, it is not easy for them to adjust quickly to change, although reproduction failure may not become apparent for many decades. Mobile animal species will find it easier to respond, provided that food sources are available and there are no human barriers blocking migration. In the words of Norman Myers, where there are such barriers, "[w]hat was once a sanctuary will become a trap". The implication of global warming is that we can no longer take a segmental approach to biodiversity conservation, with nature conservation ghettos interspersed within a landscape devoted to commercial production.

Others have argued that we need to cut our losses and to spend more resources on those species which show some ability to tolerate and adjust to human agricultural land use, as distinct from the current focus on fragments of remnant habitat and species which are on their last legs anyway. We may do better to divert scarce management resources

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[9]R. Edward Grumbine, *Viable Populations, Reserve Size, and Federal Lands Management: A Critique*, 4 CONSERV. BIOL. 127, 129 (1990).

[10]KEYSTONE CENTER, BIOLOGICAL DIVERSITY ON FEDERAL LANDS, REPORT OF A KEYSTONE POLICY DIALOGUE 63 (Keystone Center, 1991).

[11]Reed F. Noss, *Protecting Natural Areas in Fragmented Landscapes*, 2 NATURAL AREAS JOURNAL 2 (1987); Hal Salwasser, Christine Schonewald-Cox and Richard Baker, *The Role of Interagency Cooperation in* Managing for Viable Populations, in VIABLE POPULATIONS 147 (M. E. Soulé ed., 1987).

[12]Michael Batisse, *Developing and Focusing the Biosphere Reserve Concept*, 22 NATURE AND RESOURCES 1 (1986); Reed F. Noss and Larry D. Harris, *Nodes, Networks, and MUMs: Preserving Diversity at All Scales*, 10 ENVTL. MGMT. 299, 303-307 (1986).

[13]Norman Myers, *Questions of Mass Extinction*, 2 BIODIVERSITY AND CONSERVATION 2 (1993).

away, for example, from expensive reafforestation exercises designed to restore species which are unable to tolerate human modification of habitat, towards the active management of the variegated landscape, by providing for a range of grazing, disturbance and fertilization regimes.[14] Once again, the argument is that we need to move away from our obsession with reserves as isolated ghettos, and to look more closely at conservation on private land.

The upshot of these different perspectives is the need for societies to devise ways and means of modifying the behaviour of private landholders. It is with these ways and means - policy instruments - that I am concerned. For market forces generally provide private landholders with little incentive to conserve biodiversity, and where market incentives do exist, such as hunting or recreation, they may produce distortions in the way in which ecosystems are managed and end up actually diminishing diversity.

Conservation by consensus under the Farm Bills[15]

One approach is for governments to operate in the market place themselves, not by purchasing title to land but by purchasing land use restrictions designed to conserve biodiversity. These can take the form either of simple contractual agreements, or conservation easements which will bind all who obtain title to the land in the future. There are a number of examples of such schemes in the United States. The Environmental Conservation Acreage Reserve Program (ECARP) under the Farm Bills consists of the conservation reserve program (CRP) and the wetland reserve program (WRP). The CRP is by far the most significant government commitment to environmental programs in terms of resource allocation. Over 36,400 acres were enrolled in the first twelve sign-ups, representing a total financial commitment by the Federal Government of over $19.5 billion, and an annual commitment peaking at $1.9 billion in 1996. In Colorado there are 6,207 contracts covering nearly 2 million acres and involving a total financial commitment of nearly $1 billion. The largest CRP contract of all in financial terms is in Lincoln County, paying $5.6 million for 11,815 acres.[16]

The origins of the CRP lie in concerns about the overproduction of certain agricultural commodities and land degradation. It is only after 1990, with the expansion of eligible categories of land beyond highly erodible cropland to include croplands to be devoted to permanent wildlife habitat[17] that the program has become marginally more sensitive to the demands of biodiversity conservation, albeit perceived narrowly in terms of "wildlife" conservation.

The CRP is essentially a short-term land retirement program, and significant problems are anticipated when the first batches of enrolled land comes out of contract in 1995. It relies primarily on more vulnerable contracts, rather than easements. These are ordinarily for a period of ten years, although this can be extended to a period specified by the landholder of up to fifteen years where the land is devoted to hardwood trees, shelterbelts, windbreaks, or wildlife corridors.[18] Under the terms of the CRP contract, an approved conservation plan must be implemented, and this may include a requirement for the establishment of permanent wildlife habitat.[19] The original

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[14] S. McIntyre and G. W. Barrett, *Habitat Variegation, An Alternative to Fragmentation*, 6 CONSERV. BIOL. 146 (1992).

[15] Food Security Act of 1985, Pub. L. No. 99-198, 99 Stat. 1354; Food, Agriculture, Conservation and Trade Act of 1990, Pub. L. No 101-624, 104 Stat. 3359.

[16] KENNETH A. COOK, SO LONG CRP (Environmental Working Group, 1994), 4-5, 18, 22.

[17] 16 U.S.C. § 3831(b)(4)(C) (Supp. V 1993); 7 C.F.R. § 1410.103(d)(2) (1994).

[18] 16 U.S.C. § 3831(e) (Supp. V 1993); 7 C.F.R. § 1410.104 (1994).

[19] 16 U.S.C. § 3832(a) (Supp. V 1993); 7 C.F.R. §§ 1410.111, 1410.112(a)(1) (1994).

position was that land taken into the CRP after 1990 on the grounds that it was to be devoted to permanent wildlife habitat, as distinct from being highly erodible, had to be made subject to a useful life easement (defined as being for either 15 or 30 years) even though rental payments were only to be made for the first ten years. Because this acted as a disincentive to enrolment in the Program, the requirement was dropped in 1992,[20] although landholders are required under the contract to maintain the practice for its useful life. This will not, however, guarantee the permanency of the practice where the land changes hands.

The CRP suffers from all the shortcomings of a program which has had tacked on to it a thin veneer of concern with wildlife conservation, after starting out its life with very different objectives. The Wetlands Reserve Program, on the other hand, is more directly relevant to biodiversity conservation, although its impact is confined to a narrow category of ecosystems. The WRP is concerned with restoring to their original condition wetlands which have been modified by agricultural activity or completely converted, before December 23, 1985.[21] The likelihood and cost of restoration must be taken into consideration in deciding which areas to enrol.[22] The owner of the land must be prepared to grant a perpetual or 30 year easement, or for the maximum duration allowed by State law.[23] Priority is to be given to easements based on the value which they have for protecting and enhancing habitat for migratory birds and other wildlife.[24]

The focus of the CRP and the WRP is on converting existing intensive land uses to more environmentally sensitive uses by *restoring* land already in agricultural production, rather than seeking to dissuade landholders from converting land to more intensive uses in the first place. There is a powerful argument that, when it comes to biodiversity conservation, we would do better to concentrate limited resources on conserving relatively undisturbed land rather than attempting to restore degraded or even destroyed ecosystems. The retention of relatively undisturbed areas is addressed by the Sodbuster and Swampbuster provisions of the Farm Bill. Sodbuster threatens farmers with loss of agricultural program benefits where any agricultural commodity is produced "on a field on which highly erodible land is predominate", unless this is in accordance with an approved conservation plan.[25] The focus here is squarely on the prevention of land degradation (land conservation) rather than the conservation of biodiversity. The operating assumption is that highly erodible land can be brought into production, with biodiversity substantially destroyed in the process, as long as there is a conservation plan in place, designed to conserve the land base rather than its biodiversity. The much greater sensitivity of Swampbuster towards biodiversity conservation stems from the fact that there is no equivalent to the conservation plan exemption. Swampbuster also threatens landholders with loss of program benefits, the relevant event here being conversion of a wetland "for the purpose, or to have the effect, of making the production of an agricultural commodity possible".[26] The issue is whether destructive activities, such as clearing and draining, have made the production of an agricultural commodity possible, not whether there is an intention to do so, or whether it is in fact ever done.

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[20] Pub L. No. 102-324 § 1(a), July 22, 1992, 106 Stat. 447 (codified as amended at 16 U.S.C. § 3831(b)(4)(C) (Supp. V 1993)); 58 Fed. Reg. 4064 (1993) (codified as amended at 7 C.F.R. § 1410.103(d)(2) (1994)).

[21] 16 U.S.C. § 3837(c)(1) (Supp. V 1993); 7 C.F.R. § 703.7(a)(1)(i) (1994).

[22] 16 U.S.C. § 3837(c)(2) (Supp. V 1993); 7 C.F.R. §§ 703.2(f)(1), 703.7(a)(1)(ii), 703.7(e) (1994).

[23] 16 U.S.C. §§ 3837a(a), 3837a(e) (Supp. V 1993).

[24] 16 U.S.C. § 3837c(d) (Supp. V 1993).

[25] 16 U.S.C. §§ 3811, 3812(c)(1) (1988 & Supp. V 1993); 7 C.F.R. § 12.5(a)(2)(ii) (1994).

[26] 16 U.S.C. § 3821(b) (Supp. V 1993).

Nevertheless, Swampbuster, has fundamental shortcomings, which are shared equally by Sodbuster. In the first place, it has nothing to say to those converting wetland for purposes other than cropping. While a landholder may be discouraged from converting wetland from cropping by the threat of loss of program benefits, only the command and control provisions of section 404 of the Clean Water Act (see below) stand in the way of the same landholder selling the same land for real estate development, or putting it to pasture and destroying much of its biodiversity value in the process. The message that comes out of Swampbuster is not "don't develop wetlands", but "don't develop them for particular purposes", ultimately betraying its origins as a device for limiting agricultural production. Secondly, to the extent that landholders do not grow program crops or are prepared to forego program benefits, Swampbuster has no hold over them. Thirdly, if we look carefully at Swampbuster, what we should see beneath the rhetoric of command and control is the reality of an entirely voluntary program, offering program benefits on certain conditions, including the conservation of biodiversity in some areas. But this is not how landholders perceive it. It presents to landholders, accustomed to receiving program benefits and dependent upon them, as command and control regulation. The way in which the legislation is drafted reinforces the message that landholders will be *punished* if they are not sensitive to certain environmental concerns. The result is that Swampbuster has many of the disadvantages associated with command and control regulation, particularly landholder hostility and enforcement problems, and few of the advantages possessed by policy instruments which offer carrots rather than beat with sticks.

Finally, the imposition of restrictions on land use, such as those which exist under Swampbuster, only go part way towards addressing the issue of biodiversity conservation. In many situations, particularly where the area concerned is small, ongoing management of the land in relation to surrounding areas is likely to be crucial. Neither the Sodbuster nor Swampbuster provisions allow for the payment of incentives to landholders for ongoing management of ecosystems, even though fragments of relatively undisturbed vegetation may be as much in need of management as areas which have been restored. Both the CRP and the WRP, as well as offering compensation, provide for cost share in relation to the *initial establishment* of conservation measures. However, management payments are not contemplated under the CRP, except where land is to be set-aside for the production of hardwood trees, windbreaks, shelterbelts or wildlife corridors, when payments for maintenance can be made.[27] Only the WRP requires landholders to make long-term commitments in easements to manage restored wetlands in accordance with a conservation plan,[28] but the regulations make it clear that cost-share payments for ongoing management, as distinct from initial restoration, will be exceptional.[29]

Conservation through private agreement

Apart from government initiatives designed to influence land use through voluntary agreements with private landholders, activities on a growing area of land in the United States are regulated through agreements reached between landholders and private nonprofit organizations, such as the Nature Conservancy and land trusts. Legal requirements for a valid conservation easement vary from state to state. For present purposes, however, it can be taken as an agreement regarding land use, designed to protect natural resources, binding not only on the original landholder who agrees to the obligations, but also those who hold title to the land thereafter.[30]

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[27] 16 U.S.C. § 3834(b) (Supp. V 1993); 7 C.F.R. § 1410.118 (1994).

[28] 16 U.S.C. § 3837a(a)-(c) (Supp. V 1993); 7 C.F.R. §§ 703.12(a)(1)(ii), 703.12(a)(15) (1994).

[29] 16 U.S.C. § 3837c(a) (Supp. V 1993); 7 C.F.R. §§ 703.13(a)(4), 703.13(b) (1994).

[30] See, for example, the Uniform Conservation Easement Act of 1981, 12 U.L.A. 66.

Allowing conservation easements to be held by publicly non-accountable private organizations is said to conflict with the policy against dead hand ties on land, which demands that landholders should be able to shift land uses according to current market choices.[31] This ignores the fact that development places a frequently irreversible dead hand tie on land, by substantially confining the uses to which it can be put through *physical* modification of the land by degradation and destruction of ecosystems. Those who restrict development through easements actually keep open options for future generations, the reality always being that future law-makers cannot be bound by prior *legal* arrangements. Unlike physical modification, these are always reversible. Besides, private organizations can always place a dead hand on land by outright purchase of the fee simple.

On the other hand, the number of land trusts, with their disparate objectives,[32] taking conservation easements on an ad hoc basis, creates difficulties for any attempt to produce integrated and coordinated planning in this area. At present the only means by which these arrangements are made publicly accountable is through the tax system. Yet, many of them are being substantially paid for by public funds in the form of foregone taxes.[33] Land management objectives adopted by a particular trust may conflict with desirable land use from a public interest perspective. For example, an easement may be taken over land in order to gain or maintain public access, or even to preserve it as farm land, when the public interest could require restrictions on access, and restoration of ecosystems. Ultimately this could lead to conflicts between assumptions underpinning particular conservation easements and general obligations arising under command and control regulation, such as the Endangered Species Act or section 404 of the Clean Water Act.

In addition to adequate advance planning, provision for ongoing management of the land is another crucial issue. The imposition of land use restrictions is only the first step towards biodiversity conservation: especially where ecosystems comprise fragments, active management is required, particularly in relation to external impacts. It is entirely misleading to advance as one of the advantages of a strategy based on conservation easements, the argument that the landholder remains responsible for ongoing management, unless steps are taken in the agreement to clarify what management involves. The reality is that except in those limited situations where management for biodiversity conservation is compatible with productive activity, such as limited grazing, the land will not be managed in an appropriate manner unless the body taking the easement reserves access to the land and takes management responsibility itself, or unless the landholder agrees to do this and is paid for doing so. There is an argument that by handing over ongoing management responsibility to landholders we not only acknowledge their possession of a certain level of knowledge, but also provide them with a continuing stake in biodiversity conservation, initially through management payments, but in the longer term through association with the management process and developing expertise. Yet the Handbooks produced by the Land Trust Alliance emphasise the restrictive role of conservation easements, and do not appear to countenance substantial management obligations resting with either the

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[31]The case for and against allowing private, as distinct from public, organizations to enter into arrangements with private landholders which will bind future generations, has been well rehearsed by Gerald Korngold, *Privately Held Conservation Servitudes: A Policy Analysis in the Context of in Gross Real Covenants and Easements*, 63 TEXAS L. REV. 433 (1984).

[32]See generally, JOHN B. WRIGHT, ROCKY MOUNTAIN DIVIDE: SELLING AND SAVING THE WEST (University of Texas, Press 1993).

[33]A detailed consideration of the relevant tax law is beyond the scope of the present paper. The basic position is that the grant of an easement to a qualified organization exclusively for conservation purposes can be deducted as a charitable deduction for income tax purposes: I.R.C. §§ 170(f)(3)(B)(iii) and 170(h) (1988 & Supp. V 1993); Treas. Reg. § 1.170A-14 (1994).

easement holder or the landowner.[34] There is a danger that particular land trusts may end up focusing on getting land under conservation easement, with little attention paid to continuing stewardship responsibilities. Apart from this, small organizations will simply not have the expertise to set up and implement the detailed monitoring and management mechanisms required to promote biodiversity conservation.

Finally there is the matter of enforcement. Land trusts emphasize the voluntary nature of a strategy based on conservation easements. Formal legal proceedings are seen very much as a last resort. The fact that a program starts out life in the realm of consensus, however, does not mean that at a later point it may not confront the landholder as coercion. This becomes increasingly likely where the landholder who originally granted a conservation easement sells the land. Handbooks dealing with conservation easements emphasize the crucial importance of not neglecting the question of enforcement, both in terms of the initial drafting of the easement, and the setting aside of funds for monitoring and enforcement.[35] In practice, however, enforcement is likely to present a major problem. The Nature Conservancy emphasizes that if the issue comes up, it is already too late because the damage has been done, and restoration is extremely difficult or impossible. Although easements are monitored, this is usually only possible on an annual basis, and the main emphasis is placed on maintaining good relationships with landholders to forestall easement transgressions.[36]

The Nature Conservancy is in a special position because of its size and levels of expertise and the fact that its conservation easement program is squarely committed to the conservation of biodiversity. It currently holds nearly 600 conservation easements, generally designed to protect endangered species and natural communities which occur on privately owned land.[37] Unlike the CRP and the WRP, which focus on restoring land degraded by cultivation, the Conservancy concentrates its efforts on protecting areas which currently provide habitat for rare species, as well as natural communities (plant associations/assemblages). These areas are identified by using information from the Conservancy's Natural Heritage Programs - elaborate inventories of the biological and ecological features of a particular region - and selected for protection by an elaborate ranking system.[38] The primary aim of easements is to protect land from development pressures which will degrade or destroy existing ecosystems. To this extent, the approach has some similarities with the Sodbuster and Swampbuster programs under the Farm Bill, but unlike them, it is not restricted to reducing the threat of intensified agricultural land use. Easements are particularly concerned to restrict real estate development. In theory, there is no reason why attempts should not be made to negotiate restrictions on existing agricultural uses, such as grazing. In practice, it is relatively rare that the Conservancy manages to secure an agreement on fencing river banks or committing the landholder to a particular grazing regime. While conservation easements reserve a right of entry to the Conservancy to monitor ecosystems and compliance with the terms of the agreement, the issue of management arrangements

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[34]For example, BRENDA LIND, THE CONSERVATION EASEMENT STEWARDSHIP GUIDE: DESIGNING, MONITORING, AND ENFORCING EASEMENTS 8 (1991). In some states, there may be a legal obstacle because enabling legislation only contemplates the imposition of land use restrictions, but this is not the case in those states which have adopted a version of the Uniform Conservation Easement Act.

[35]JANET DIEHL AND THOMAS S. BARRETT, THE CONSERVATION EASEMENT HANDBOOK: MANAGING LAND CONSERVATION AND HISTORIC PRESERVATION EASEMENT PROGRAMS (1988).

[36]Correspondence with Will Murray, Director, Conservation Programs, Western Regional Office, The Nature Conservancy (June 28, 1994).

[37]Correspondence with Will Murray, Director, Conservation Programs, Western Regional Office, The Nature Conservancy (May 18, 1994).

[38]PERSPECTIVES ON SPECIES IMPERILMENT, A REPORT FROM THE NATURAL HERITAGE DATA CENTER NETWORK (Nature Conservancy, Revised Printing, 1993).

will generally be left to be negotiated on an ad hoc basis. The more active the management required, the more likely the Conservancy will be to purchase title to the land, as distinct from an easement.[39]

A private organization such as the Conservancy has the unique advantage of being able to negotiate with private landholders against the backdrop of government regulation, while still remaining committed to a philosophy of voluntariness and cooperation. The existence of command and control legislation, such as the Endangered Species Act, may, for example, play a vital role in bringing landholders to the bargaining table. By contrast, government will never be able to escape completely from being perceived in terms of its regulatory persona even where it approaches with offerings rather than threats. Currently, therefore, Nature Conservancy activities on private land provide a valuable adjunct to government initiatives. It is important to recognize, however, that they are precisely this - an adjunct to government initiatives. For significant difficulties exist which go to the root of any program which ultimately leaves the decision on whether to participate with the individual landholder. Ecosystems cut across property boundaries. Remnants are scattered across the landscape. By refusing to cooperate, one person with a strategic landholding can effectively destroy a wildlife corridor or leave a destructive gap in a buffer zone. Even those who are prepared to negotiate may hold out for more than an organization is prepared to pay. These difficulties are enhanced where the policy is to rely primarily on gifts of easements from those seeking tax benefits, rather than purchase.

For those who will not cooperate with voluntary initiatives, there will have to be a regulatory fall-back position. Apart from this, it is quite unlikely that there will ever be enough resources either from private of public sources to enable the demand for biodiversity conservation to be met through free market solutions. It remains crucial that regulations continue to set the parameters within which negotiations are conducted and bargains reached, and that they take a form which ensures that the focus of those negotiations goes beyond retention of natural areas and addresses the question of management.

The command and control alternative

In the United States, so-called "command and control" strategies have been extensively used by the Federal Government in areas relevant to biodiversity conservation on private land. Both the "take" provisions of section 9 of the Endangered Species Act, and the wetlands protection provisions of section 404 of the Clean Water Act set up regulatory systems based on command and control. These combine a broad prohibition backed up by a range of sanctions, the overall impact of which is substantially softened by permitted exceptions, available on a case by case basis.

Under the Clean Water Act, it is unlawful to "discharge ... dredged or fill material" into "navigable waters" without a permit. The Corps of Engineers has the primary responsibility for issuing permits, but in doing so, it is required to apply Guidelines developed by the EPA in conjunction with the Corps. On top of this, the EPA has a power of veto over the grant of permits.[40]

The EPA has attempted to develop section 404 as a tool for achieving biodiversity conservation on private land, and this becomes apparent in the detailed provisions of the Guidelines, which are based on a broad ecosystem conservation perspective.[41] Against consistent resistance from the Corps, the EPA has striven to have the ostensibly narrow wording of the prohibition interpreted generously so as to expand

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[39]Interview with Will Murray, Director, Conservation Programs, Western Regional Office, The Nature Conservancy, in Boulder, Co., (May 9, 1994).

[40]33 U.S.C. §§ 1311(a), 1344 (1988); 40 C.F.R. § 231 (1993)

[41]40 C.F.R. § 230.11(e) (1993).

both the areas and the types of activity covered. More recently it has met with considerable success in terms of extending the range of activities regulated. Under rules promulgated in August 1993, currently subject to legal challenge,[42] the essential position is that, apart from an exception for normal farming, silviculture, and ranching activities which do not involve conversion of wetlands to a new use, any land degrading activities which stir up the surface of wetlands and move it around will constitute a prohibited discharge of dredged material, even if this involves no more than soil and sediment from the roots of an uprooted tree falling to the ground.[43] This will cover, for example, such activities as mechanized landclearing, ditching and channelization. It does not cover the cutting or removing of vegetation above the ground, and this is a significant drawback from the perspective of biodiversity conservation, but it is nevertheless expansive.

So far as the range of areas covered is concerned, recent experience has been more mixed. On the one hand, it is increasingly accepted that this includes not only areas adjacent to rivers,[44] but also many so-called non-adjacent or isolated wetlands, such as prairie potholes, vernal pools and playa lakes, if it is proved that they represent potential habitat for migratory birds.[45] On the other hand, under a recent rule, section 404 no longer applies to 53 million acres[46] of wetland which was converted to cropping before December 23, 1985, and is regarded as having lost its wetland characteristics.[47] This is to be distinguished from "farmed wetland", which although modified to allow cropping, still retains such wetland characteristics.

The direct relevance of the Endangered Species Act to private landholders stems from the fact that section 9 makes it unlawful to "take" a species of fish or wildlife listed as endangered or threatened, anywhere in the USA, unless an incidental take permit has been granted under section 10.[48] From the perspective of biodiversity conservation, the most obvious shortcoming of this provision, apart from the narrow species focus, is that plants are not included. It is only unlawful to damage or destroy plants on private land where this involves a knowing breach of state law.[49]

Plants will be protected, however, to the extent that they form the habitat of listed species of fish or wildlife. For it has been held in decisions by the courts, with one recent notable exception,[50] that significant habitat modification or degradation will

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[42]American Mining Congress v. U.S. Army Corps of Engineers, CA 93-1754 (D.D.C. Aug. 24, 1993.

[43]33 C.F.R. § 323.2(d)(1)(iii) (1994); 40 C.F.R. § 232.2 (1993 as amended at 58 Fed. Reg. 45037). See generally 58 Fed. Reg. 45,018 (1993).

[44]United States v. Riverside Bayview Homes, Inc., 474 U.S. 121 (1985).

[45]Hoffman Homes v. EPA, 961 F. 2d 1310 (7th Cir. 1992), reh'g granted, 975 F. 2d 1554 (7th Cir. 1992), decision on reh'g, 999 F. 2d 256 (7th Cir. 1993). The Court, however, found no substantial evidence to support such a finding on the facts of the case.

[46]CLINTON ADMINISTRATION PROPOSAL ON PROTECTION OF U.S. WETLANDS, WHITE HOUSE OFFICE OF ENVIRONMENTAL POLICY Section V C (August 24, 1993), reproduced in 24 Env't Rep. (BNA) 793 (August 1993).

[47]33 C.F.R. §§ 328.3(a)(8), 323.2(a) (1994); 40 C.F.R. § 232.2 (1993 as amended at 58 Fed. Reg. 45038 (1993).

[48]16 U.S.C. § 1539(a) (1988). The prohibition on takings has been extended to most threatened species by regulation: 16 U.S.C. § 1533(d) (1988); 50 C.F.R. § 17.31(a) (1993).

[49]16 U.S.C. § 1538(a)(2)(B) (1988).

[50]Sweet Home Chapter of Communities for a Greater Oregon v. Babbitt, 1 F.3d 1 (D.C. Cir. 1994), decision on reh'g, 17 F.3d 1463 (D.C. Cir. 1994), reh'g denied, 30 F.3d 190 (D.C. Cir. 1994).

constitute a taking of a species because it amounts to "harm" under the definition in the regulations.[51] This potentially constitutes a significant limitation on private land use.

At first sight, the prohibitive commands of these two pieces of legislation look impressive indeed. Experience teaches us, however, that where the commitment of the community to a legal obligation is equivocal, as here, where land use regulation in the interests of environmental conservation clashes with deeply held values about the sanctity of private property, regulatory hernias will inevitably develop as agencies search for some level of "flexibility" to enable them to survive politically. What "flexibility" means in practice is allowing projects to go ahead with conditions designed to mitigate environmental impact attached, as distinct from simply saying "no". At present the focus of regulatory systems is on *how* we can manage to allow development to proceed, not on *whether* we should allow it to proceed.

This approach may be acceptable when we are addressing the need to prevent land degradation: for example, the threat of soil erosion can frequently be prevented by requiring land cleared of native vegetation to be immediately sown with pasture. The argument is that it will frequently not go far enough where our objective is conservation of biodiversity. In this context, we may be at the stage where there needs to be a paradigm shift, so that the question becomes what level of development is compatible with the conservation of biodiversity, not how can we retain the maximum level of biodiversity consistent with development.

Regulatory hernias under section 404

We have seen that under section 404 of the Clean Water Act, there has been, for the most part, a general movement in the direction of expanding the range of situations when a permit is needed. But it is one thing to draw the regulatory net wide. It is quite another to make sure that the holes are small enough to prevent everything slipping through. The crucial question is how the permit system operates in practice.

Although the Corps of Engineers has its own set of guidelines which it applies when making decisions, it must also apply the EPA Guidelines, and there has been an ongoing battle between the two agencies over what they mean. At first sight, a precautionary approach is built into the decision-making process. The EPA Guidelines pronounce in clear terms that the aim is to make sure that the activities covered do not go ahead:

> unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern.[52]

Under the Guidelines, a permit must be refused if there is a practicable alternative which would have less adverse impact on the aquatic ecosystem and would not have other significant adverse environmental consequences.[53] Where a project is not water-dependent, the burden of proof is actually reversed, so that it is presumed, "unless clearly demonstrated otherwise," that practicable alternatives not involving wetlands are available. It is also presumed that all practicable alternatives to discharge into a wetland will have less adverse impact on the aquatic environment than the discharge for which a permit is sought.[54] On top of this, it has recently been held by the Fourth Circuit

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[51] 16 U.S.C. § 1532(19) (1988); 50 C.F.R. § 17.3 (1993). See, for example, Palila v. Hawaii Department of Land and Natural Resources, 852 F.2d 1106 (9th Cir. 1988); Sierra Club v. Reuter, 926 F.2d 429 (5th Cir. 1991).

[52] 40 C.F.R. § 230.1(c) (1993).

[53] 40 C.F.R. § 230.10(a) (1993).

[54] 40 C.F.R. § 230.10(a)(3) (1993).

Court of Appeals that even where there are no practicable alternatives available (to satisfy a community's need for water, for example), the EPA can veto a permit solely on the basis of the unacceptability of the adverse environmental impact.[55]

In spite of these precautionary measures, however, there is sufficient flexibility built into the permit system to tolerate a good deal of regulatory failure when it comes to biodiversity conservation.[56] One prominent device invented by the Corps to enhance flexibility, for example, was the "mitigation-buy-down". This allowed it to take into account proposed compensatory mitigation in reaching the conclusion that because of the substitution of restored or created wetlands at another site, there was no practicable alternative that would have less adverse affect on the aquatic ecosystem.[57] In other words, complete avoidance or minimization of environmental impact were bypassed in the stampede to facilitate attempts at substitution.

This practice has now been abandoned as a result of a Memorandum of Agreement between the Corps and the EPA in 1990.[58] This commits the Corps to a sequencing process, whereby compensation of wetland values only becomes available as an option after potential impacts have been avoided to the maximum extent practicable, and those which cannot be avoided have been minimized. In spite of this apparent downgrading of mitigation through compensation, as well as comments in the MOA about the scientific uncertainty associated with wetland creation, the suspicion must remain that wetland compensation is going to provide the technological fix and the "flexibility" which will allow development to proceed in most cases. Provided that avoidance and minimization have been fully explored, there is a very strong suggestion in the MOA that the normal course of events will be to give the go-ahead on the basis that loss of wetland values and functions will be compensated, rather than to refuse a permit altogether. The possibility of outright refusal is discussed only in a footnote.[59]

This suspicion is reinforced by the Clinton Wetlands Plan of August 1993. This document is as much about protecting landholders from regulatory burdens as it is about protecting wetlands from landholders. The emphasis is on flexibility and compromise. In most situations "the Federal agencies can work with permit applicants to design projects that meet the requirements of the law and protect the environment and public safety, while protecting the property rights of the applicant".[60] The use of mitigation banks, comprising wetlands restored or created expressly for the purpose of providing compensation in the future, is endorsed.[61]

It is one thing to espouse the restoration of degraded wetlands, or even the creation of new ones, as a means of recovering in some small way the values and functions which have already been lost, with a view to moving toward a long-term goal of increasing the wetlands resource. It is quite another to advocate restoration and creation as devices to excuse and legitimate the continued destruction of wetlands in relatively undisturbed condition. The evidence is that the science of wetland's mitigation is still

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[55]James City County, Virginia v. Environmental Protection Agency, 12 F.3d 1330 (4th Cir. 1993).

[56]See, generally, Oliver A. Houck, *Hard Choices: The Analysis of Alternatives Under Section 404 of the Clean Water Act and Similar Environmental Laws*, 60 U. COLO. L. REV. 773 (1989).

[57]Robert Uram, *The Evolution of the Practicable Alternatives Test*, 7 NR&E 15 (1992).

[58]55 Fed. Reg. 9210 (1990).

[59]"It is important to recognize that there are circumstances where the impacts of the project are so significant that even if alternatives are not available, the discharge may not be permitted regardless of the compensatory mitigation proposed." 55 Fed. Reg. 9212, note 5 (1990).

[60]CLINTON ADMINISTRATION PROPOSAL ON PROTECTION OF U.S. WETLANDS, WHITE HOUSE OFFICE OF ENVIRONMENTAL POLICY Section V L (August 24, 1993), reproduced in 24 Env't Rep. (BNA) 793 (August 1993).

[61]Id. Section V F.

in its infancy, and the creation of wetlands substitutes are frequently not successful.[62] Common-sense suggests that some functions of wetlands may be more difficult to restore or create than others, and that vegetation and habitat would be prominent on this list.

Regulatory hernias under the Endangered Species Act

The permit system for allowing incidental takes of listed species under the Endangered Species Act is located in section 10. As under section 404 of the Clean Water Act, the provisions are framed in precautionary terms, including a requirement that the applicant must submit a conservation plan which specifies:[63]

- the likely impact of the taking;
- steps to be taken by the applicant to minimize and mitigate impact;
- funding available to implement such steps;
- procedures to be used to deal with unforeseen circumstances;
- alternative actions to the incidental take considered by the applicant, and the reasons why they are not being taken;
- any other measures required.

Rather than placing the burden of devising an adequate conservation strategy on the agency responsible for deciding whether to issue a permit, and imposing it through permit conditions, it is placed very firmly on the applicant through the conservation plan requirement. Before granting a permit, the Secretary of the Interior must be satisfied that the applicant will minimize and mitigate the impacts of the incidental take "to the maximum extent practicable", that adequate funding for the plan will be provided, and that there will be procedures to deal with unforeseen circumstances.

In this case, unlike section 404 of the Clean Water Act, the result has in fact been that the regulatory system has operated quite tightly. Very few conservation plans have been completed and, as of the beginning of 1994, only twenty-one incidental take permits have been issued,[64] although there is some suggestion that this situation is gradually changing. However, the legislation has built into it other opportunities for regulatory slippage, in particular the process by which a species gets on to the list in the first place.

Under section 404, Congress opted to apply controls directly to an amorphous and ill-defined class of wetlands, leading to all the problems of uncertainty associated with decisions about what constitutes a wetland. Nevertheless, the approach was precautionary insofar as all areas falling within what has eventually turned out to be an expansive definition were immediately subject to regulation, regardless of any prior assessment of their conservation significance through a detailed forward planning exercise. The approach taken under the Endangered Species Act is very different. Even though the prohibition on taking species bites like a pit bull when it does bite, the reality is that its protective bite is very selective. It impacts only on a narrow class of species which have been identified in advance and listed after a very cautious, careful and relatively lengthy forward planning exercise. In addressing the potential climate for regulatory failure which arises under section 404 of the Clean Water Act, stemming from uncertain coverage and lack of specific and detailed justification for conservation in particular instances, the Endangered Species Act produces another hernia in the regulatory system. This has led to "front-end" regulatory failure.

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[62] J. A. KUSLER AND M. E. KENTULA, WETLAND CREATION AND RESTORATION: THE STATUS OF THE SCIENCE (Island Press, 1990).

[63] 16 U.S.C. § 1539(a)(2)(A) (1988); 50 C.F.R. §§ 17.22(b)(1), 17.32(b)(1) (1993).

[64] Robert Melz, *Where the Wild Things Are: The Endangered Species Act and Private Property*, 24 ENVTL. L. 369, 382 (1994) citing a FWS source.

One argument is that because a failure to list may result in an irreversible effect, while a mistaken decision to list at worse means a delay in a project, it is better to put up with false positives, rather than false negatives. In other words, if we are dealing with a situation of potential irreversible loss, we should proceed cautiously and be prepared to carry out protective action even though the threat to the species concerned cannot be proved according to traditional cannons of scientific proof. This is neatly encapsulated in the moderate version of the so-called precautionary principle found in the Preamble to the United Nations Convention on Biological Diversity:

> where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat.

The Endangered Species Act simply requires decisions to be based on the "best scientific ... data available ... after conducting a review of the status of the species".[65] It does not address the question of what we do in the face of scientific uncertainty, where the best scientific data is inconclusive. It does establish a threshold test of "substantial" evidence to be produced by a petitioner before the Fish and Wildlife Service must conduct a formal review,[66] and this means that where little or no research has been carried out, a listing proposal will not get past first base. When it comes to the question of the standard of proof which must ultimately be satisfied before a species is to be listed, however, the legislation is silent. In the absence of a specific indication that a precautionary approach should be taken during the listing process, "common-sense" would suggest that, as we are clearly in an area of science, traditional cannons of scientific rigour should apply. This impression is reinforced by the legislation's provision of a time consuming procedural obstacle course which must be navigated before a species is listed. Tobin has written:[67]

> In short, the changes since 1966 have altered the burden-of-proof requirements associated with the listing process. ..... the evidentiary requirements have multiplied. Decisions are far more technically and procedurally elegant than they were in the past. In contrast, the additional listing requirements probably reduce the likelihood that many vulnerable species will receive the benefits of any doubt. When doubt exists or when sufficient information is unavailable, the existing listing requirements encourage delay or additional research. Having "sufficient" information is always desirable, but there never has been enough money to ensure that the requisite information will be available for all candidate species. As a consequence, a shortage of resources and the current listing procedures and their implementation will doom some species to extinction.

From the earlier discussion of mitigation under section 404 of the Clean Waters Act, it is instructive to recall that when it comes to facilitating the passage of development proposals through environmental regulatory systems, by allowing wetlands mitigation through creation and restoration projects, the standards of scientific certainty required are dramatically downgraded.

If a species is not listed as endangered or threatened because we are inclined to take risks rather than err on the side of caution, then the precautionary approach embodied in the permit system for incidental takes amounts to simply shutting the stable door after the horse has bolted.

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[65] 16 U.S.C. § 1533(b)(1)(A) (1988); 50 C.F.R. § 424.11(c) (1993).

[66] 16 U.S.C. § 1533(b)(3)(A) (1988).

[67] RICHARD J. TOBIN, THE EXPENDABLE FUTURE: U.S. POLITICS AND THE PROTECTION OF BIOLOGICAL DIVERSITY 135 (Duke University Press, 1990).

The effort and time required to produce the level of proof implicit in the listing provisions of the Endangered Species Act is by no means the only reason why species do not get listed as threatened or endangered. Even where a decision has been made that a listing is warranted, its formal processing through the rule-making process can still be delayed because other pending listing proposals are seen to be more urgent, and there are a significant number of species which currently fall into this category.[68] Nevertheless, the heavy burden of proof on the listing agency implicit in the time consuming procedural complexities of the listing process, taken in the context of inadequate resources, clearly plays a significant role in restricting the number of species listed, and provides a convenient cover for essentially political arguments against listing.

Ultimately, these difficulties of scientific proof stem directly from the narrow species focus on which the legislation rests. How can we, for example, expect to produce scientific proof of the conservation status of the many invertebrate species not yet known to science? Yet many of these may be playing vital roles in ecosystems. If the focus was on threatened and endangered ecosystems, it would be very much easier to satisfy even a very demanding burden of scientific proof.[69] In other words it is ultimately the level of the environmental unit on which science is expected to focus rather than the demand that science be allowed to play a role in the decision-making process which lies at the heart of the problem. To this extent, the flaw in the legislation is a genetic one. The failure of the Endangered Species Act lies not simply in a failure of administrative will but in its very structure. This can only be addressed by fundamental structural changes, involving a reconceptualisation of the problem to focus on ecosystems rather than individual species.[70]

Paying compensation?

This analysis of relevant provisions of the Endangered Species Act and the Clean Water Act raises the whole question of whether command and control regulation used in isolation can adequately address the issue of biodiversity conservation on privately owned land. What we need is a policy response which moves away from total reliance on a coercive approach, and seeks to attract greater cooperation from private landholders. On the other hand, the earlier analysis of strategies based on voluntary agreement between landholders and the public or private sector indicates that parameter-setting command and control regulation cannot be abandoned altogether. It is too late to leave biodiversity conservation to the whims of the marketplace, even where government is a player.

An alternative strategy involves combining regulation with the provision of compensation in those situations where controls actually bite. From one perspective, this is already the position in the United States.[71] Under the Fifth Amendment to the

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[68] 16 U.S.C. § 1533(b)(3)(B)(iii) (1988); 50 C.F.R. § 424.14(b)(3)(iii) (1993). See the discussion by Oliver A. Houck, *The Endangered Species Act and its Implementation by the U. S. Departments of Interior and Commerce*, 64 U. COLO. L. REV. 277, 285-286 (1993).

[69] See Malcolm L. Hunter, *Coping with Ignorance: The Coarse-Filter Strategy for Maintaining Biodiversity, in* BALANCING ON THE BRINK OF EXTINCTION: THE ENDANGERED SPECIES ACT AND LESSONS FOR THE FUTURE 266 (Kathryn A. Kohm, ed., Island Press, 1991).

[70] See Constance E. Hunt, *Creating an Endangered Ecosystems Act*, 6(3&4) ENDANGERED SPECIES UPDATE 1 (1989).

[71] This assumes that the theory of "partial regulatory takings", recently adopted by a majority of the Federal Circuit Court of Appeals in Florida Rock Industries v. U.S. 18 F.3d 1560, 1571-1572 (Fed. Cir. 1994), rehg denied, 1994 US App. LEXIS 16257 (Fed. Cir. June 21, 1994) over a vigorous dissent, ultimately prevails. According to this, once a regulatory taking is found to have taken place, the regulator does not have to purchase the whole fee and take the land in question into the public domain. Rather, the amount of compensation payable is measured by the loss in value attributable to

Constitution, private land use regulation at a certain level of impact must be accompanied by just compensation. But compensation is only available grudgingly, on an ad hoc basis through the courts, and the outcome is difficult to predict. The ultimate decision will depend on the weighing of factors such as the economic impact of the regulation on the applicant, particularly the extent to which it interferes with distinct investment-backed expectations, and the character of the government action.[72] The result is that the regulatory system loses all of the advantages associated with a system which explicitly provides for some form of financial inducement up front, softening the blows of the stick by offering an easily grasped carrot.

In Australia, there is no equivalent of the Fifth Amendment in relation to regulatory takings. Environmental and natural resources legislation bearing on private land emanates primarily from the states, rather than the Commonwealth Parliament, but there is nothing in any of the state constitutions which guarantees compensation for landholders, even in situations where they are totally excluded from their land by state action. The payment of compensation where land is resumed for public purposes is purely a matter of convention. Section 51(xxxi) of the Commonwealth Constitution does provide that any "acquisition" of property by instrumentalities of the Commonwealth Government must be made on just terms. However, in the Tasmanian Dam case[73], three of the four members of the High Court who dealt with the issue, made it clear that even the severe restrictions on land use in Tasmania imposed under the World Heritage Properties Conservation Act 1983[74] did not constitute an "acquisition" requiring the payment of compensation. According to Mason J, the Commonwealth had acquired no proprietary interest in the land in question, and therefore did not have to pay compensation, even though in terms of its potential use the property was sterilized in the same way as a dedicated park, subject only to the power of the Minister to consent to development on a case by case basis.

The absence of a constitutional guarantee of compensation for regulatory takings in Australia does not mean that there is no debate about whether compensation should be paid. It simply means that the primary forum is Parliament rather than the courts. If a decision is made to pay compensation, it will be the result of a general formula worked out in the context of particular legislation. This contrasts with the position in the United States where not only the question of the amount payable, but the prior issue of whether compensation should be paid at all, is addressed through case by case decisions, made ultimately by the highest court in the land after hearing argument from some of the highest paid lawyers.

Having said this, provision for compensation is rarely made in Australian land use legislation. At one stage, there was one significant exception to this of particular relevance to biodiversity conservation. The South Australian Native Vegetation Management Act 1985 prohibited land clearing and woodcutting on private land without consent from the Native Vegetation Authority, subject to a number of exemptions, including grazing by domestic stock and clearance of regrowth and shrub invasion in

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the regulation, and the landowner is left in possession of the land. If, on the other hand, the Fifth Amendment effectively forces governments to take land into the public domain, then it would, necessarily, cease to be relevant as a fiscal instrument for encouraging sensitive management of land in private hands.

[72]Penn Central Transportation Co. v New York City, 438 U.S. 104, 124-125 (1978); Connolly v. Pension Benefit Guaranty Corporation, 475 U.S. 211, 224-225 (1986). After Lucas v. South Carolina Coastal Council 112 S.Ct. 2886 (1993), we can at least be certain that there is a taking when regulation deprives a landowner of all economically beneficial or productive use of the land in question, unless the proposed use falls foul of background principles of nuisance or property law. But this situation is likely to be exceptional.

[73]Commonwealth v. Tasmania, 158 CLR 1 (1983).

[74]AUSTL. ACTS P. No. 5 of 1983.

certain carefully defined circumstances. Where an activity was not exempt, owners of land who were given a conditional approval or were refused consent, could generally insist on the Minister entering into a heritage agreement, and once this had been concluded, the landholder was entitled to the payment of "a sum of money" based on diminution in the market value of the land. The most notable effect of this approach was a significant tightening up in terms of the granting of permits. Of the total area for which applications were made between 1986 and 1989 involving broadacre clearing, about 94% was protected by outright refusals. Under the previous command and control regime, 80% of applications received approvals.[75]

This suggests that the availability of some form of recompense may make it easier for regulatory agencies to say "no" to development. The hypothesis might be that they are less likely to search for the "flexibility" which they have managed to find in the provisions of the Endangered Species Act and the Clean Water Act when they are in a position to soften the blow of outright refusal by offering something in return. This will reduce the risk of regulatory failure in terms of achieving biodiversity conservation goals.

In addition, the availability of a financial return in some shape or size will inevitably make landholders less hostile to regulation and make enforcement of land use restrictions easier. Besides, land use restrictions are only the first step in conserving biodiversity. Ongoing management is usually needed because ecosystems have been disturbed and are out of balance. They require human management to sustain them. When we are dealing with remnants threatened by external influences, this will have to be quite active. The reality is that disgruntled landholders will make poor land managers.

The issue, therefore, is not whether landholders should receive some form of financial payment in conjunction with command and control regulation, but what form that payment should take. By paying full *compensation* we actually put some landholders in a better position by negating the element of risk frequently associated with development, particularly agricultural activities. By paying *compensation*, we allow landholders to externalize the problem and deny that they have any responsibility for the conservation of biodiversity. Compensation is backward-looking and has nothing to say about the matter of future management of the land. Instead of landholders being given some degree of ownership of the issue of biodiversity conservation and a real stake in addressing it, we allow them to wash their hands of it.

To this the traditional response is that landholders who have land development proposals baulked are being treated inequitably in that they are being asked in effect to provide a benefit to the community at a cost to themselves. They should therefore be compensated.

Traditionally, it is true that the expectation has been that the state should pay for nature conservation on privately owned land through the purchase of land use restrictions or title to the land itself. Unlike pollution control where command and control regulation is regarded as legitimate, and where it is now widely accepted that the polluter must pay, the conservation of nature on privately owned land was a benefit provided by the landholder rather than a harm prevented. This led to a certain grey area where one of the objectives of retention of vegetation was the prevention of land degradation and non-source pollution, rather than nature conservation per se, but in practice society has had few problems in fudging the similarities between this and industrial pollution and avoiding any discussion of polluter pays in the context of land conservation. Indeed,

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[75] See David Farrier, *Regulation of Rural Land Use: Coercion or Consensus?* 2 CURRENT ISSUES IN CRIMINAL JUSTICE 95, 102-103 (1990).

we have been much more inclined to pay for land conservation than to regulate the forces leading to land degradation or to make the polluter pay.

It is now increasingly recognized that, when it comes to land use policy, there is no value-free basis for distinguishing between preventing harm to other members of society and conferring a benefit on them - that the distinction lies in the eyes of the beholder.[76] At the same time, the concept of nature conservation has undergone substantial changes. The soft aesthetic and recreational values with which it has been historically associated are now in the process of being replaced by much harder resource values. Increasingly when we talk about the values of biodiversity, we are talking about *life-support* rather than *life-style*. Viewed in this context, it is easier to see biodiversity conservation in terms of the prevention of harm, which must be regulated or paid for, rather than the provision of a benefit.

It may well be, however, that a crucial distinction ought to be drawn between regulations which prevent landholders from continuing existing uses, such as grazing or hunting, and those which merely interfere with speculative uses, such as real estate development. The approach traditionally taken in land use legislation has been to exclude existing uses from new regulations[77] (although the "take" provisions of the Endangered Species Act represents a significant exception to this). Where the conservation of biodiversity demands that an existing operation be shut down altogether, there is a strong argument that compensation should be paid *for the loss of that operation*. The disruption to lifestyle and expectations involved in terminating an existing activity is of a fundamentally different nature to the disappointment stemming from a lost opportunity to make speculative gain. To those who would counter that speculators may lose the premium that they have paid for land based on its development value, the response must be that the market will quickly adjust and factor into real estate prices what would become a significant risk that development will be restricted because of biodiversity considerations.

Even if the payment of compensation is conceded where constraints are placed on existing uses, there is a strong argument that, in determining the amount, the private benefit foregone, in terms of loss of market value, should be *discounted* to take into account the *public* costs which have been avoided by terminating an existing use (in terms, for example, of prevention of pollution and loss of biodiversity). This is simply an extrapolation of the polluter pays principle. As increasing recognition is given to the hidden subsidies represented by the currently unpaid for public costs resulting from activities carried out for private gain, and regulatory legislation moves towards adopting the principle of polluter pays, it will inevitably be reflected in adjustments to market values. In the interim, it is important to emphasize that the United States Constitution talks about "just compensation", not market value.

Paying for management

The Supreme Court has recently concluded in *Lucas v. South Carolina*[78] that compensation is payable under the Fifth Amendment where land use regulations such as those designed to conserve biodiversity deprive a landholder of all economically beneficial or productive use of the land in question. This situation would simply not arise if government was prepared to pay landholders to *manage* land for the purposes of

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[76]See, for example, Lucas v. South Carolina Coastal Council, 112 S.Ct. 2886, 2897-2899 (1992); Frank I. Michelman, *Property, Utility, and Fairness: Comments on the Ethical Foundations of "Just Compensation" Law*, 80 HARV. L. REV. 1165, 1196-1200 (1967) Joseph L. Sax, *Property Rights and the Economy of Nature: Understanding Lucas v. South Carolina Coastal Council*, 45 STAN. L. REV. 1433, 1452 (1993).

[77]See, for example, ROBERT R. WRIGHT AND MORTON GITELMAN, LAND USE: CASES AND MATERIALS 873-892 (West's, 4th ed., 1991).

[78]112 S. Ct. 2886 (1992).

biodiversity conservation, thereby supporting an alternative land use. Arguments based on economic hardship are also addressed if management payments are available. Indeed so far as some farmers are concerned, payments can be depicted as a response to existing hardship arising from low commodity prices.

Unlike compensation, management or stewardship payments are forward-looking and are based on work carried out by the landholder rather than the market value of the land. They are more equitable than compensation insofar as they constitute payment for work performed, as opposed to being based on what are frequently chance factors relating to the development value of land. A strategy which offers management payments to landholders will be particularly appropriate in situations where the conservation of remnant vegetation is at stake, and agricultural landholders want to remain on the land, even though their existing operations are marginal. Remnants will ordinarily require more intensive management than larger areas because of the impact of external spillovers. Management must take into account the singularities of each piece of land in light of the complexity of ecosystems and the fact that our current knowledge is very limited. From this perspective, building on to the knowledge base of individual landholders, advised and supported by the expertise of government, might prove to be a more efficient strategy than handing over complete management responsibility of scattered patches to government agencies. It effectively gives greater ownership of the issue of biodiversity conservation to those landholders who already have an ongoing relationship with the land.

Apart from this, paying farmers and pastoralists on marginal land to manage it for biodiversity conservation would currently be a very attractive political proposition. The approach will work best where the main objective of landholders is to remain on the land, and it is social policy to sustain them, even though their existing operations are economically marginal. It provides an alternative form of income support to agricultural price support schemes. Society is simply subsidizing the production of biodiversity as an alternative commodity.