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**Biodiversity and the Law of Nature
Conservation in Great Britain**

by

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The British have a well-deserved reputation for their love of birds and for being avid birdwatchers. Indeed, the Royal Society for the Protection of Birds, with more than one million members, is probably the most influential conservation organization in the country.¹ So it is not surprising that the editors of THE ECONOMIST, the leading weekly newsmagazine in Great Britain, recently lamented drastically declining numbers of British farmland birds. The magazine reported, for example, that corn bunting numbers are down by 41%, grey partridges by 18%, skylarks (established favourite of English poets) by 14%, and yellowhammers by 13% in just the last decade.² These declines are attributed to a single change in British farming practices: sowing grain and rapeseed in the autumn and winter rather than the spring. The result is less grain lying in farmers' fields for birds to eat and consequently fewer birds. What may be surprising is THE ECONOMIST's suggestion for fixing this problem. The magazine, with a longstanding and global disdain for government subsidies, especially in agriculture, suggests that the only remedy is to pay British farmers "to let more fields and field margins lie fallow" in the fall.³ That recommendation, in a nutshell, is a main topic of this paper.

This is the second in a series of articles that explores the connections between intensive agriculture, the loss of biodiversity, and agricultural policy. Here, the focus is on Great Britain, a country with considerably more experience in this area than the United States. There is no distinct set of legal rules that implements biodiversity policy in the United Kingdom. Because the law has developed by accretion over several decades, nature conservation law is blighted by acronyms and littered with schemes that embrace different goals, employ different legal techniques, and are implemented by different authorities.⁴ Because authority for the development and implementation of

¹ See Royal Society for the Protection of Birds, available at <http://www.rspb.org.uk>.

² *Deer Me: Why Deer Are Up and Birds Are Down*, THE ECONOMIST, February 14, 2004, at 53. THE ECONOMIST points out that ground nesting birds, like skylarks, are also affected by autumn planting because the grain is too tall in the spring for nesting to succeed.

³ *Id.*

⁴ The following inventory is a rough guide to the bureaucratic scene. The Secretary of State for the Environment has primary responsibility for the species protection provisions of the Wildlife and Countryside Act (WCA) of 1981, c. 39 (Eng.). The Ministry of Agriculture, Fisheries and Food (MAFF) is a cabinet-level agency that balances the interests of agriculture, conservation, and countryside recreation. MAFF designates Environmentally Sensitive Areas (ESAs). Because MAFF devises and implements most agricultural policy, it plays an important role in nature conservation. There are three nature conservancy councils: the Nature Conservancy Council for England (English Nature), the Countryside Council for Wales (CCW), and Scottish National Heritage (SNH). These bodies are independent agencies that establish and manage National Nature Reserves (NNRs) and Sites of Special Scientific Interest (SSSIs) in their areas, advise central government about nature conservation issues, and commission nature conservation research. National Parks and other protected scenic landscapes are comprised

nature conservation policy is highly fragmented, the administrative programs often overlap and sometimes conflict.⁵ Nevertheless, it is possible to offer a few generalizations about British efforts to protect biodiversity. This article contains two major parts that deal with (a) the protection of individual species and (b) the protection of their habitats, or the places where they live.

With respect to individual species, the basic approach is to list those deemed worthy of protection and to levy penalties against persons who harm them. The listing process is flawed, however, because it fails to follow *any* method of prioritization (such as focusing on keystone species) consistent with the strategies of conservation biology.⁶ It is essentially *ad hoc* and unaccountable. Furthermore, the penalties for harming listed species are small and applied only to harms that are direct (intentional killing), rather than to those that are more significant but diffuse (like degradation of habitat).

With respect to the protection of habitat, regulatory controls are limited. Protective orders are used only in exceptional circumstances in exceptional situations. Indeed, only a small percentage of important habitat is covered by the law that authorizes the issuance of protective orders. Instead, the basic tool of habitat protection is to offer landowners financial incentives to attract actions intended to achieve biodiversity goals. This approach, relying on voluntary participation, is not inherently unsound, but the incentives actually offered are usually washed away by larger subsidies provided for the intensive production of agricultural commodities. British nature conservation law contains both carrots and sticks, though the carrots are not exactly mouth-watering and the sticks are not very intimidating.

Protection of Species

The most straightforward approach to protecting threatened species is simply to punish people who harm them. The Wildlife and Countryside Act (WCA) prohibits anyone from intentionally killing, injuring, or taking wild fauna and flora listed in three schedules annexed to the statute. Although the WCA was enacted only in 1981, it has much deeper roots. The earliest statutes designed to protect wildlife were directed at deliberate persecution. The Night Poaching Act of 1828, for example, was intended to protect the great bustard (*Otis tarda*),⁷ a very large, slow-flying bird of open grasslands that presents an easy target for shooters. Many similar statutes followed. Prohibitions on direct, deliberate harm have a role in nature conservation law. The hen harrier (*Circus cyaneus*), a species listed under Schedule 5 of the WCA, is still persecuted by gamekeepers on Scottish moors leased for the hunting of red grouse (*Lagopus lagopus*).⁸ Like many other wildlife statutes before it, however, the WCA contains notable weaknesses.⁹ Gamekeepers have a strong financial incentive to rid grouse

mostly of privately-owned land subject to stringent planning controls. The composition of planning authority in National Parks varies from one unit to another.

⁵ See COLIN T. REID, NATURE CONSERVATION LAW 39 (1994) (administrative fragmentation has led to “the absurd situation of one official body offering grants to people to do things in the interests of agriculture or forestry while another official body offers payments in order to stop them in the interests of nature conservation.”).

⁶ The concept of keystone species and other principles of conservation biology are covered in the initial article in this series, [Biodiversity and Law: The Culture of Agriculture and the Nature of Nature Conservation](#). Although this article can be read independently, the reader is advised to read the initial article first.

⁷ See Night Poaching Act of 1828, 8 Geo. 4, c. 69, § 13, sched. 1 (Eng.).

⁸ See B. Etheridge et al., *The Effects of Illegal Killing and Destruction of Nests by Humans on the Population Dynamics of the Hen Harrier in Scotland*, 34 J. APPLIED ECOLOGY 1081 (1997) (noting that annual survival of female hen harriers bred on managed grouse moors is half that of females bred elsewhere, an outcome attributed to gamekeeper persecution).

moors of hen harriers that reduce game bags significantly by predation. The small risk of being caught is further mitigated by moderate punishment: The maximum penalty for harming listed animals is a moderate fine of £5,000 (about \$8,500), and for plants it is a fine of only £2,500 (about \$4,250).¹⁰ These small penalties are not, however, the WCA's only flaws.

Listing

Protection of threatened species under the WCA depends on their inclusion in one of the schedules of listed plants and animals.¹¹ The listing process appears to be *ad hoc* and not strongly scientific, but any confident assessment is problematic because the process is most certainly opaque. Section 22 authorizes the Environment Secretary to amend the schedules of protected species by adding animals and plants in danger of extinction or likely to become endangered and by removing any animal or plant no longer endangered. His duties are (a) to act upon a representation made jointly by the Joint Nature Conservation Committee (JNCC) that a species should be added or removed and (b) to comply with an international obligation to protect a species.¹² In dealing with representations of the JNCC, the Secretary *may* hold a public inquiry if he thinks fit. To date, he has never done so. The Secretary is required to give persons affected by an amendment of the schedules an opportunity to submit objections or recommendations, but in practice this has been limited.¹³ The 1992 revision of the animal and plant schedules, for example, was made with little public participation or even notice.¹⁴ Why particular animals and plants are or are not included in Schedules 5 and 8 is far from transparent. Indeed, no justification is offered in any of the Secretary's orders for additions and removals.¹⁵

⁹ The great bustard once nested widely in England, but the Night Poaching Act was too little, too late. The last bustard bred there four years after the Act's passage. Now the bird is a very rare vagrant in the British isles. See JÜRGEN NICOLAI ET AL., *BIRDS OF BRITAIN AND EUROPE* 86 (Ian Dawson trans., 1994).

¹⁰ See WCA, § 20(1)-(4). Compare the American Endangered Species Act, under which a knowing violator may be fined not more than \$50,000 and imprisoned for not more than one year. See 16 U.S.C. § 1540(b)(1) (1994).

¹¹ Protected birds are listed in Schedule 1 of the WCA, other protected animals are listed in Schedule 5; and protected plants are listed in Schedule 8.

¹² WCA, § 22(3)-(4). The JNCC is the body through which English Nature, CCW, and SNH act jointly. See EPA, § 128(4). It is to review the schedules every five years and advise the Secretary accordingly. See WCA, § 24.

¹³ WCA, § 26(4).

¹⁴ See WCA (Variation of Schedules 5 and 8) Order 1992, SI 1992/2350. The Secretary's order added eleven animals, two with restricted protection, to Schedule 5, added seventy-eight plants to Schedule 8, and removed three others. The order was announced on the first of October and came into force twenty-nine days later. The five-year recommendations of the JNCC are not always followed. After the first such review, for example, the Nature Conservancy Commission (predecessor of the JNCC) recommended the listing of the basking shark (*Cetorhinus maximus*) and freshwater pearl mussel (*Magaritifera margaritifera*). Neither species was included, apparently because both have limited commercial value, and listing was opposed by fisheries ministers. See Lynda M. Warren, *Conservation—A Secondary Environmental Consideration*, 18 J.L. & SOC'Y. 64, 69 (1991).

¹⁵ For example, one of the animals given restricted protection by the Secretary's most recent order is a pill beetle (*Curimopsis nigrita*), but it is protected only under section 9(4)(a) of the WCA, which prohibits damaging or obstructing access to an animal's place of shelter. The order does not prohibit, however, killing, injuring, or taking it directly. See *id.* at SI 1992/2350. If there is a rational justification for this peculiar distinction, it is not provided by the order. At any rate, *Curimopsis nigrita* would not seem to be a prime candidate for protection, since its status in Great Britain is known only from a single female sieved from a heather peat bog in Yorkshire in 1977. See NATURE CONSERVANCY COUNCIL, 2 BRITISH RED DATA BOOKS: INSECTS 180 (D.B. Shirt ed., 1987).

The results in many cases are puzzling. Schedule 5 currently contains only seven of the 226 beetles considered endangered or vulnerable in Great Britain.¹⁶ There is no official (or even unofficial) rationale given for including the seven beetles chosen from the large number of candidates. Perhaps the slight to beetles is based simply on the fact that the *Coleoptera* are not everybody's favorite animals. Certainly butterflies, no doubt the most popular insects, have fared much better. Of the fifty-six resident breeding butterflies in Britain, twenty-six are listed in Schedule 5. Only five of these, however, are considered endangered or vulnerable.¹⁷ The listed chequered skipper (*Carterocephalus palaemon*), for example, is neither endangered nor vulnerable in Britain but inhabits a large area of the Scottish highlands, where it is locally common.¹⁸ The JNCC classifies an invertebrate as endangered if it (a) is known as a single population in only one 10k square; (b) occurs only in habitats that are especially vulnerable; or (c) has declined continuously over the last twenty years and now exists in five or fewer 10k squares. The Committee classifies an invertebrate species as vulnerable if it is likely to become endangered under these criteria.¹⁹ Obviously, not all endangered and vulnerable species are listed under Schedule 5, and not all the species listed are endangered or vulnerable.

The Meaning of Harm

Before Brussels. Like the earliest wild game laws in the England, Scotland, and Wales, the WCA focuses on the intentional killing and capturing of wildlife.²⁰ The species protection provisions of the WCA prohibits the following actions:

- killing, injuring, or taking birds listed in Schedule 1, damaging or destroying their nests while being built or used, and taking or destroying their eggs;²¹
- killing, injuring, or taking other animals listed in Schedule 5, and damaging, destroying, or obstructing access to any structures or places they use for shelter or protection;²² and
- picking, uprooting, or destroying plants listed in Schedule 8.²³

Unfortunately, these provisions are directed at a narrow range of activities that amount to a small part of the biodiversity problem. They prohibit only intentional acts of the "A hit B" variety, such as the case

¹⁶ See *id.* at 109.

¹⁷ See *id.* at 75.

¹⁸ See J.A. Thomas, *The Butterflies of the British Isles* 41 (1992).

¹⁹ See NATURE CONSERVANCY COUNCIL, *supra* note 15, at 3.

²⁰ Cf. Statute for Preventing the Unlawful Destruction of Game, 1389-90, 13 Rich. II, ch. 13 (prohibiting men with land worth less than forty shillings a year from hunting game with certain devices like nets and hare-pipes). The WCA also bans the use of certain devices by hunters. There is a special penalty, for example, for killing or injuring a wild bird with a cross-bow or automatic weapon. See WCA, § 5(1)(c).

²¹ WCA, § 1(1).

²² See *id.* at § 9(1)-(4).

²³ See *id.* at § 13(1).

in which the estimable Squire of Hedgeside intentionally shoots or gathers the eggs of the hen harriers that have been harassing his grouse.

The species protection provisions do not prevent any act of habitat damage that would lessen the chance of survival of a listed species—though that is by far the principle cause of biodiversity loss. Although there is no case on point, because no prosecution has ever been brought on the theory that habitat damage is actionable, the informed view is that the terms “kill,” “injure,” and “take” are limited to the most direct forms of harm—that even the broadest of these (conceivably), the term “take,” means only to capture.²⁴ It is not an offence to kill or injure a listed species if the harm is committed in the course of an otherwise lawful activity and could not have been reasonably avoided, an exemption which immunizes most agricultural practices from the threat of regulation under the WCA’s species protection provisions.²⁵ Moreover, owners and occupiers of land are given express permission to kill, injure, or take a listed species when it can be shown that the action was necessary to prevent serious damage to livestock, livestock food, crops, fruit, and or other forms of agricultural property.²⁶

After Brussels. The absence of a link between species and their habitats in the WCA created a looming gap in the law of species protection, but one that could be filled under the United Kingdom’s obligation to implement the European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive), adopted in 1992.²⁷ The EC’s ultimate objective is to establish a network across the Member States of Special Areas of Conservation (SACs) known as Natura 2000. The sites to be selected fall into two categories: (a) those that host habitat types in danger of disappearance, of small extent for intrinsic reasons, or outstanding examples of the major biogeographic regions of the continent and (b) those that comprise the habitats of species that are endangered, vulnerable, rare, or endemic and require particular attention.²⁸ The goal is to maintain, and if necessary restore, these habitat types and species’ habitats for the foreseeable future. Member States are to take appropriate steps to prevent deterioration of SACs and the disturbance of the listed species that use them.²⁹ Although the Habitats Directive provides only general guidance on how this is to be accomplished, it has the potential to forge a link between species and habitats. Great Britain has begun the process of implementation.³⁰

²⁴ See REID, *supra* note 5, at 84. Cf. *Babbitt v. Sweet Home Chapter of Communities for a Greater Oregon*, 115 S.Ct. 2407 (1995) (upholding regulatory interpretation of the term “harm” as used in the ESA to include significant habitat modification where it actually kills or injures wildlife by impairing essential behavioral patterns).

²⁵ WCA, §§ 10(3)(c), 13(3). Cf. *Palila v. Hawaii Dept. of Land and Natural Resources*, 852 F.2d 1106 (9th Cir. 1988) (maintenance of sheep and goats violates the U.S Endangered Species Act (ESA) if their grazing would degrade vital habitat of listed species).

²⁶ WCA, § 10(4). Cf. *Christy v. Hodel*, 857 F.2d 1324 (9th Cir. 1988) (rancher prohibited by ESA from killing grizzly bear (*Ursus arctos*) to protect his sheep).

²⁷ Council Directive 92/43, 1992 J.O. (L 206) 7.

²⁸ See *id.* at arts. 1(c), (g).

²⁹ See *id.* at art. 6(2).

³⁰ A complete network of SACs is to be in place by 2000, but the deadline for completion of the first stage, in which Member States were to send the European Commission lists of proposed sites, was missed by most. See *Commission Takes Legal Action Against 13 Member States*, Info. Access Co., Oct. 28, 1997, available in 1997 WL 13047568, Eur. Rep. File. One of the tardy Member States is the United Kingdom. For discussion of the United Kingdom’s approach to implementation, see *infra* at notes 97-103. A case decided by the European Court

Recovery

Before Rio. The WCA species protection provisions say nothing about the recovery of endangered and threatened species. Perhaps this is understandable given the focus on harms (direct killing, injuring, and taking) that, by and large, have little to do with the underlying causes of biodiversity loss.

After Rio. Article 6a of the Biodiversity Convention³¹ obligates each Contracting Party to produce a strategy and action plan for the conservation and suitable use of biological resources. The United Kingdom, one of the first Contracting Parties to comply, did so by publishing individual action plans for 116 species.³² These plans, which establish a commitment to stabilize and recover these species are, however, thin to the point of vanishing. One example is typical of the rest: the early gentian (*Gentianella anglica*), endemic to England, has dramatically declined from loss of calcareous grassland and a reduction in grazing. The early gentian is listed in Schedule 8 of the WCA and Annex II of the Habitats Directive, and the sites of seven existing populations are candidate SACs under the Habitats Directive. The recovery plan is brief: (a) “restore ten populations to areas where they have been lost recently by 2004,” (b) “[e]nsure land owners and managers are aware of the presence and importance of conserving [the] species and appropriate methods of habitat management,” (c) “[e]ncourage further uptake of [environmentally sensitive area] management agreements . . . on and adjacent to threatened and recently lost *G. anglica* sites,” and (d) “ensure that ecological requirements of this species are taken into account on management plans with extant populations.”³³

Where recovery plans adopted under the United States Endangered Species Act are often hundreds of pages long, the most detailed British action plans take up two pages in the single document that sets them forth. Where recovery plans under the ESA have binding legal effect and are subject to challenge for insufficiency by judicial review, the British action plans have neither.³⁴ The ultimate success of the Biodiversity Convention depends on the good will of the parties. The Convention does not list species or habitats to be protected. Moreover, it subjects the principle of preservation to the greater objective of sustainable development through sustainable use. The Convention assumes that human use of biological resources is the fundamental reason for their conservation, rather than their intrinsic values. It is not self-executing.³⁵ Since the management plan

of Justice under the Wild Birds Directive suggests that Member States have a binding duty to protect habitats that fulfill the criteria of the Directives. See *Commission v. Spain*, 1993 E.C.R. I-4221 (*Santoña Marshes*) (Spanish government in breach of Birds Directive for failing to protect important wetlands for migratory birds).

³¹ United Nations Convention on Biological Diversity, June 3-14, 1992, 31 I.L.M. 818 (entered into force Dec. 29, 1993).

³² See BIODIVERSITY: THE U.K. S STEERING GROUP REPORT--ACTION PLANS (1995) [hereinafter BIODIVERSITY STEERING GROUP ACTION PLANS].

³³ See *id.* at 185.

³⁴ Compare section 4(f) of the ESA, which places a duty on the FWS to prepare a recovery plan for each listed species “unless [the Secretary of Interior] finds that such a plan will not promote the conservation of the species.” 16 U.S.C. § 1533(f)(1) (1994). The original recovery plan for the Mexican duck (*Anas diazi*) merely placed time and place restrictions on duck hunting, though the underlying causes of the Mexican duck’s near demise was loss of habitat through drainage of wetlands for agriculture. The plan was struck down by court order on the grounds that it’s focus on direct harms was arbitrary and contrary to law. This plan was challenged by hunters and found to be arbitrary and contrary to law in *Connor v. Andrus*, 453 F.Supp. 1037 (D.C. Tex. 1978).

for the early gentian—and every other species included in the recovery program—is based on existing habitat schemes, Britain’s commitment to the Convention is only as good as what it is already doing. This is also true of its commitment to Natura 2000.

The Protection of Habitats

Species protection alone cannot conserve biodiversity. It is also necessary to select and protect habitat. In Great Britain, a number of fragmented legal regimes protect natural and semi-natural habitat, though not all are established primarily to do so. For example, the main purpose of designating Areas of Outstanding Natural Beauty (AONBs) (England and Wales) and National Scenic Areas (NSAs) (Scotland) is to protect scenic landscapes.³⁶ The National Parks have also been established to protect scenic landscapes and, in addition, provide opportunities for outdoor recreation.³⁷ AONBs and NHAs are areas of such outstanding scenic beauty that it is thought desirable to significantly strengthen local planning controls that normally apply in rural areas. In the National Parks, this is taken a step further by creating a unified planning authority for all land within park boundaries. In all these designated areas, some development rights are withdrawn.³⁸ Although the primary purpose of these designations is not to safeguard biodiversity, restrictions on development, may have significant positive conservation effects, depending on how the discretionary powers of planning authorities are used. Many observers are critical of the National Park Authorities’ efforts to integrate conservation objectives into their programs,³⁹ but there is substantial potential for biodiversity management in these extensive landscapes.⁴⁰

Other legal regimes *do* protect sites for the primary purpose of promoting biodiversity conservation. The most important are National Nature Reserves, Sites of Special Scientific Interest, Special Areas of Conservation, and Environmentally Sensitive Areas. Although these schemes differ considerably in detail, each is based on the principle of voluntariness. The premises of this approach are that “nature” is the creation of farming and forestry,⁴¹ that the production of food and timber should

³⁵ Unlike the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), the Biodiversity Convention lacks a permanent secretariat for monitoring and inspection. See CITES, Mar. 3, 1973, 27 U.S.T. 1087 (entered into force July 1, 1975). For a commentary on the Convention, see Alan Boyle, *The Convention on Biological Diversity*, in *THE ENVIRONMENT AFTER RIO: INTERNATIONAL LAW AND ECONOMICS* 111 (Luigi Campiglio et al. eds., 1994).

³⁶ For Areas of Outstanding Natural Beauty, see National Parks and Access to Countryside Act (NPACA), 1949, § 87(1). For Natural Heritage Areas, see the Natural Heritage Scotland Act of 1991 (NHSA), § 1. This statute partially supersedes the Town and Country Planning (Scotland) Act of 1972, which established National Scenic Areas (NSAs). NSA designations still exist, though no more will be created. They will eventually be redesignated and subsumed by the NHA system. See NHSA, §§ 6(8), (9). NHAs and NSAs are not significantly different.

³⁷ For National Parks, see NPACA, § 1.

³⁸ See REID, *supra* note 5, at 175-88.

³⁹ See, e.g., ANDREW W. GILG, *Countryside Planning: The First Half Century* 205 (2nd ed. 1996) (asserting that national interests are diluted and farmers over-represented on the Authorities) and 231 (asserting that they are filled with people who do not wish to “rock the boat” by disrupting the National Park’s traditional mission of promoting tourism and outdoor recreation).

⁴⁰ Over 20% of England and Wales is within national park and AONB boundaries. See *id.* at 196. There are no national parks in Scotland, but over one million acres are given NSA/NHA designation. See *id.* at 220.

not be unduly restricted, that landowners should be free to manage their lands as they see fit, and, consequently, that conservation objectives should be pursued through voluntary agreements with landowners. The voluntary principle traces back to the National Parks and Access to the Countryside Act of 1949, which created the NNR and SSSI mechanisms.⁴² During this period, following the hard times of the Second World War, British policy put a high premium on food and timber self-sufficiency. This led to the intensification of agriculture, large production surpluses, and eventually to efforts to restrict production. For example, the ESA scheme, though still voluntary, has its origin in efforts to reduce agricultural overproduction. The protection of biodiversity is bolted onto the underlying policy of limiting the fiscal drain of production-oriented subsidies and agricultural surpluses.⁴³

The Voluntary Principle

A central function of the voluntary approach is to avert a head-on collision with traditional notions of personal property rights. The management agreements that maintain the habitat protection system are contracts between the nature conservancy councils (for NNRs and SSSIs) or MAFF (for ESAs) and owners and occupiers of land. In exchange for monetary payments from the government, owners and occupiers promise to manage their land in the interest of nature conservation. Each NNR and SSSI agreement is negotiated individually with the owner or occupier. In SSSIs, most management restrictions are negative; the government compensates the owner or occupier for *not* doing something harmful to biodiversity rather than for doing something beneficial. Payments to the owner or occupier are based on profits foregone by the acceptance of negative restrictions.⁴⁴ Agreements in ESAs, on the other hand, contain many positive restrictions and are administratively fairly simple. They are not individually negotiated, but instead incorporate standard rates of payment for the use of standard nature conservation practices. The menu of practices is specifically tailored, however, to the ecological demands of the landscape in which the land is situated.

⁴¹ No British landscape, for example, would be eligible for inclusion in something like the designated wilderness preservation system that exists in the United States. See Wilderness Act of 1964, 16 U.S.C. § 1131(c) (1994) (a “wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man”). Even the great highland moors are the product of land management. Much British moorland was once covered by wildwood that was destroyed by would-be farmers. In the Bronze Age, cultivation was at twice the elevation now possible. Not for long, however, because at such elevation the soils were quickly leached of soluble minerals. Arable fields became upland pastures eventually overrun by blanket peat. See OLIVER RACKHAM, *THE ILLUSTRATED HISTORY OF THE COUNTRYSIDE* 306-08 (1994).

⁴² Legal provisions pertaining to NNRs remain very much as they were when first enacted. See NPACA, § 16 (providing for conservation management agreements in NNRs). Legal provisions pertaining to SSSIs were substantially changed by the Countryside Act of 1968. See Countryside Act, § 15(2)-(4) (providing for conservation agreements in SSSIs).

⁴³ See Agriculture Act of 1986, § 18(3) (providing for conservation agreements in ESAs). For the policy issues related to the enactment of section 18 of the Act, see *infra* notes 67-71.

⁴⁴ See *generally* Christopher P. Rodgers & Jennifer M. Bishop, *Land Management Agreements and Nature Conservation: A Report to the Countryside Council for Wales and English Nature* (1998) (unpublished manuscript, on file with the author). A NNR may also be the subject of a management agreement, but this is uncommon. Usually, the relevant nature conservancy council purchases or leases the land and either manages it itself or turns management over to a conservation organization. There are more than 200 NNRs in England including over 80,000 hectares. They are considered to be the best examples of particular habitats with nationally important populations of species. See English Nature, *National Nature Reserves*, available at <http://www.english-nature.org.uk/special/nnr>.

Not surprisingly, conservationists disagree over the wisdom of relying on contractual monetary incentives to discourage undesirable and encourage desirable land uses. On one side, detractors argue that a voluntary approach to biodiversity conservation gives excessive advantage to private values at the expense of important public interests. Biodiversity protection then depends (first) on the willingness of landowners to cooperate and (second) on the nature conservancy councils having sufficient funds to establish a comprehensive habitat protection system.⁴⁵ In the end, since the landowner has the final authority to determine the land's future, there is no guarantee that even the most significant sites will be protected. Supporters respond that a command-oriented approach will so alienate landowners that no cooperation could be expected, and that even in a command-oriented system such cooperation is vital.⁴⁶ Even if it were possible to specify every detail of a biodiversity conservation plan for each significant site, the difficulties of monitoring and enforcement would be overwhelming. In the end, the only feasible means of protecting biodiversity is to convert landowners to the cause as willing allies.

Both these views have some merit, suggesting that there is a comprehensive solution. A coherent system to protect biodiversity would rely in the first instance on voluntary, contractual controls. It would provide financial incentives intended to encourage desirable and discourage undesirable land uses. It might also provide financial disincentives in the form of taxes on the excessive use of inputs like pesticides and fertilizers. Education and exhortation would be needed, especially to persuade landowners that measures to protect biodiversity do not necessarily conflict with their other interests. Program administration must be efficient and penalties against non-compliance and abuse must be effective. When all else fails, conservation agencies must be able to take strong and timely action to protect important resources. In the last instance, regulatory controls prohibiting or requiring certain land uses must be available. Biodiversity conservation requires a strategy that elicits landowner cooperation but also enables administrative agencies to take decisive action when cooperation is not forthcoming.

Sites of Special Scientific Interest

Protection of SSSIs is the primary mechanism of explicit biodiversity conservation in Great Britain. The goal is to “form a national network of areas representing in total those parts of Great Britain in which the features of nature, and especially those of greatest value to wildlife, are most highly concentrated or of highest quality.”⁴⁷ SSSIs now cover about 9% of the total land area of Great Britain. There are more than 6,500 designated sites, almost all on private land where commercial activities, usually farming, continue after notification.⁴⁸ In fact, farming of these sites in the past is

⁴⁵ The costs of a voluntary system are high. For example, English Nature's 2002-2003 budget for payments under SSSI management agreements was over £8.8 million. See English Nature Account 2002-2003 at 27, available at <http://www.english-nature.org.uk>. More than 4,000 landowners have enrolled more than 26,000 hectares. See English Nature, *Sites of Special Scientific Interest*, available at <http://www.english-nature.org.uk/special/sssi>.

⁴⁶ For a sample of the debate, see CAIRNGORMS WORKING PARTY, COMMON SENSE AND SUSTAINABILITY: A PARTNERSHIP FOR THE CAIRNGORMS 103-08 (1992) (a report to the Secretary of State for Scotland on alternatives for the future protection of the Cairngorms).

⁴⁷ NATURE CONSERVANCY COUNCIL, GUIDELINES FOR SELECTION OF BIOLOGICAL SSSIS 8 (1989) [hereinafter SSSI SELECTION].

⁴⁸ Some SSSIs are owned or managed by the nature conservancy councils as NNRs. The two designations overlap. NNRs can be thought of as a subset of SSSIs under direct government control. In addition, over 1,650 of the SSSIs in private hands are owned or managed by private conservation bodies like the Royal Society for the Protection of Birds and the Wildlife Trusts.

frequently the reason they are of special scientific interest. In regions of agricultural intensification, however, there are often sharp boundaries between protected sites and surrounding land uses. The sites, often quite small, with many under twenty hectares, are among the fragments of habitat remaining after the advent of industrialized farming.⁴⁹ Conservation biology teaches that biodiversity protection on these fragmented and isolated SSSIs is going to be problematic given the best intentions. Habitats must be big enough to be viable and, especially for species with small, dispersed populations, there must be means of interchange between them.

Selection and Notification. Selection criteria for SSSIs are complex, but the main factors can be summarized as size, degree of diversity, naturalness, rarity, fragility, and typicality.⁵⁰ If land is of special interest because of its biological resources, the nature conservancy councils have a duty to notify every owner and occupier of the land, the appropriate local planning authority, and the Secretary for State of that fact.⁵¹ The notification to owners and occupiers identifies the features that make the land eligible for inclusion in the SSSI network and also identifies any actions likely to damage those features.⁵² The list of “potentially damaging operations” may be lengthy.⁵³ The owner and occupier are given three months in which to lodge objections that the nature conservancy council is to consider in determining whether to withdraw or confirm the notification, with or without modifications.⁵⁴ While the notification is in effect, the owner or occupier is required to notify the nature conservancy council of any intention to carry out one of the listed operations.⁵⁵ These reciprocal notifications are the core of the statutory scheme. Owners and occupiers of land are no doubt daunted by the list of potentially damaging operations, but in fact they are not prohibited from undertaking them. Instead, the notice system is designed to allow the nature conservancy council to reach a management agreement with the owner or occupier.

Effect of Notifications. After notifying the nature conservancy council of a proposal to undertake a potentially damaging operation, the owner or occupier is prohibited from taking further action until

⁴⁹ For maps showing the location and size of SSSIs and other protected areas, see English Nature, *Nature on the Map*, available at <http://www.natureonthemap.org.uk>.

⁵⁰ See SSSI SELECTION, *supra* note 47, at 22.

⁵¹ WCA, § 28(1). The use of the term “duty” suggests that the power is not discretionary and that private persons with standing could bring suit to require the nature conservancy agencies to notify in appropriate circumstances. One decision has held that the councils’ duty to notify is not discretionary. See *R. v. Nature Conservancy Council, ex parte London Brick Co.*, 1996 ENVTL. L. REP. 1.

⁵² WCA, § 28(4).

⁵³ In an unreported case, for example, the listed operations included ploughing, rotavation, harrowing, reseeding, grazing, mowing or other methods of cutting vegetation, application of manure, fertilizers and lime; burning; the release into the site of any wild feral or domestic animal, reptile, amphibian, bird, fish or invertebrate, or any plant or seed; the storage of materials; the use of materials; and the use of vehicles or craft likely to damage or disturb features of interest. See J.D.C. Harte, *Sites of Special Scientific Interest: Sweet v. Secretary of State and Nature Conservancy Council*, 1989 J. ENVTL. L. 245, 246. The affected land was four and a half hectares of grazing marsh in the Somerset levels, rich in herbaceous plants and invertebrates, a scarce habitat between true mire and true grassland. The owner objected that many of the activities on the list are not “operations,” but the court held that that term was intended to have broad effect. See *id.* at 250.

⁵⁴ WCA, § 28(2).

⁵⁵ See *id.* at § 28(5).

either the council gives written consent or four months expire.⁵⁶ If the landowner damages the SSSI without consent of the nature conservancy council within this four-month period “without reasonable excuse,” the penalty is a maximum fine of £2,500⁵⁷—not a strong deterrent for many owners and occupiers. For the owner or occupier willing to wait through the four-month negotiating period, SSSI notification may be little more than an inconvenience. As the House of Lords put it in *Southern Water Authority v. Nature Conservancy Council*:

It needs only a moment to see that this regime is toothless, for it demands no more from the owner or occupier of an SSSI than a little patience In truth the Act does no more in the great majority of cases than give the council a breathing space within which to apply moral pressure, with a view to persuading the owner or occupier to make a voluntary agreement.⁵⁸

This begs some important questions: To what extent are the councils able to use this breathing space effectively, given its brevity and their budgetary constraints? How frequently does moral suasion, and the offer of compensation for profits foregone, fail? How much damage is done to SSSIs by owners and occupiers?

The answer seems to be that though there is little outright destruction, there is significant damage. In 1997, English Nature evaluated the overall condition of SSSIs in England. Of the sites surveyed, less than 2% were destroyed in whole or in part, but all conservation objectives were being met on only 55%. On 12% some objectives were being met, and conditions were considered to be improving but still unfavorable. On the remaining 31% of sites, conditions were characterized as either unfavorable but stable (22%) or unfavorable and declining (9%).⁵⁹ Moreover, much of the damage to these SSSIs is lawfully done either with the government’s consent or upon the expiration of the four-month waiting period. In 1992, the National Audit Office found that in one region only 21% of loss and damage to SSSIs broke the law.⁶⁰ This suggests that the system does demand little more than a bit of patience from owners and occupiers determined to have their way.

Systemic Flaws. The SSSI scheme is essentially reactive, focusing on potentially damaging operations rather than dealing with the significant problems of neglect and lack of maintenance. A large proportion of damage to SSSIs derives from sources that the system does not actually address. These are usually chronic, long-term activities like overgrazing and undergrazing that have severely damaged important habitat like moorlands and meadows.⁶¹ Although most damage to SSSIs is

⁵⁶ See *id.* at § 28(6). In other words, the effect of an SSSI notification is to make an owner or operator wait four months before damaging the habitat. On the other hand, the Countryside and Rights of Way Act of 2000 does give English Nature new powers to prevent SSSIs being neglected or damaged by increasing penalties. It also introduces requirements to restore damaged sites.

⁵⁷ See *id.* at § 28(7). Reasonable excuses are planning authority permission and the need to act in an emergency. See *id.* at § 28(8).

⁵⁸ [1992] 1 WLR 775, 778.

⁵⁹ See Health Check on SSSIs as the 4,000th Site is Notified, English Nature News Release (EN/97/17) (1997) (copy on file with the author). English Nature staff visited considerably fewer than half the notified sites during this period.

⁶⁰ See NATIONAL AUDIT OFFICE, PROTECTING AND MANAGING SITES OF SPECIAL SCIENTIFIC INTEREST 28 (1994).

caused by agriculture, it is often not caused by the agricultural operations that SSSI protection addresses. The focus of the law is on discreet incidents, like ploughing a meadow or draining a mire, that are enumerated in the lists of potentially damaging actions sent to owners and occupiers.⁶² Many habitat types (including hay meadows, heaths and moors, hedgerows, and some woodlands) depend on positive management for their continuing existence. In a voluntary system, abandonment and neglect, which allow the degradation of these managed habitats, can only be addressed through management agreements that compensate landowners for undertaking positive management obligations.⁶³ SSSI agreements, restricted to potentially damaging operations, fail to deal with these crucial aspects of biodiversity conservation.

In addition, SSSIs provide no protection for parcels of land that lack all the features required for selection and notification, though these parcels are often important to the overall conservation interest. For example, they may serve as buffers for high-quality, fragmented sites that are designated as SSSIs. This would be especially important for the many very small SSSIs, yet they are not only unprotected, the further intensification of surrounding parcels is implicitly encouraged. Most SSSIs are small parcels of larger farms on which the farmer can—and often does—simply shift production from the designated area to the undesignated.⁶⁴ The only way to deal with this problem is to focus on management of the whole farm rather than the part. One of the main lessons of conservation biology is that conservation management requires attention to the spaces between habitat fragments, but the SSSI system pays no attention to them whatsoever.

Finally, the SSSI scheme is undermined by the absence of regulatory control in instances in which especially recalcitrant landowners jeopardize particularly important sites. If owners and operators are unwilling to engage in voluntary, compensated efforts to protect biodiversity, the nature conservancy councils have nowhere to go.⁶⁵ The only alternative is for the Secretary of State to issue a so-called Nature Conservation Order, but this merely extends the period of negotiation by twelve months.⁶⁶ Of course, this in itself could be useful given the shortness of the original negotiating period and the complications of drafting farm management agreements. Even this, however, is available for only a small subset of SSSIs, since the habitat must have national or international importance, and the

⁶¹ Some British habitats damaged by inappropriate grazing regimes are important internationally as well as nationally. Dwarf-shrub heaths, for example, severely damaged by overgrazing, are largely confined to the British isles. See BIODIVERSITY STEERING GROUP ACTION PLANS, *supra* note 32, at 295.

⁶² See Health Check, *supra* note 59.

⁶³ For example, neutral grasslands, which once covered a large part of England and Wales, are created by particular agricultural practices. Traditionally, these meadowlands were grazed in the Spring and then “shut up” to be cut for hay in late summer for winter feed. See SSSI SELECTION, *supra* note 47, at 22. It is estimated that between 1930 and 1984, neutral grasslands decreased in area by 97% as a result of agricultural intensification on one hand and abandonment and neglect on the other. Neutral meadows are botanically rich and contain many species now rare, such as the green-winged orchid (*Orchis morio*) and adder’s tongue fern (*Ophioglossum vulgatum*). Abandonment and neglect lead to the succession of rank grasses dominated by false oatgrass (*Arrhenatherum elatius*) and eventually to scrub and secondary woodland. See BIODIVERSITY STEERING GROUP ACTION PLANS, *supra* note 32, at 280. Neutral meadows are now confined to small, scattered, and isolated sites that have survived in the hands of farmers who have maintained traditional agricultural practices. Their fragmentary status is reflected in the fact that in Wales 650 hectares of neutral meadow are found in 208 SSSIs. See *id.* SSSI management agreements cannot protect them, however, from management neglect.

⁶⁴ See Rodgers & Bishop, *supra* note 44.

⁶⁵ WCA, § 29(1).

⁶⁶ WCA, § 29(5).

order must be required to ensure the survival in Great Britain of a protected plant or animal. The House of Lords' observation in the *Southern Water Authority* case is undeniable. Beyond the power of moral argument and financial inducement, the SSSI scheme is toothless.

Environmentally Sensitive Areas

Two converging political forces led to the enactment of section 18 of the Agriculture Act of 1968, which provided for the designation of Environmentally Sensitive Areas in Great Britain.⁶⁷ One was increasing concern about large government expenditure on subsidies linked to agricultural intensification, and the resulting mountains of surplus commodities purchased by the government and sold at a loss overseas. Another was increasing concern about the number of SSSIs damaged and destroyed by the farmers who were enjoying these production subsidies.⁶⁸ The Nature Conservancy Council's relatively modest budget was under strain from government policies implemented by the Ministry of Agriculture, Fisheries and Food (MAFF). The Council was swimming against a heavy tide. As the Parliamentary Environment Committee put it, "[t]he illogicality of one part of government . . . offering financial inducement to someone to do something which another part of government . . . then has to pay him not to, is clear. The primary reason for the negative character of management agreements is . . . to control a farmer subsidised to damage the environment."⁶⁹ Section 18 of the Agriculture Act was intended to mitigate this conflict and to place the duty of implementation not on the nature conservancy councils, but on the agriculture ministry itself.⁷⁰ The ESAs scheme was established when "the Treasury recognized environmental arguments as an effective way of reining in the high and increasing level of public expenditure on agriculture."⁷¹

MAFF has drawn up criteria for selecting and designating ESAs that require each to be (a) of national environmental significance, (b) with conservation values dependent on the maintenance or adoption of particular farming practices, (c) in an area in which farming practices had changed or appeared likely to change. Finally, each Environmentally Sensitive Area must be a discrete and coherent environmental unit.⁷² This targeted approach allows MAFF to focus on biodiversity hotspots, particularly vulnerable suites of species, and other indicators of interest or concern. For each

⁶⁷ See Agriculture Act, § 18(1).

⁶⁸ See Martin Whitby & Philip Lowe, *The Political and Economic Roots of Environmental Policy in Agriculture*, in INCENTIVES FOR COUNTRYSIDE MANAGEMENT: THE CASE OF ENVIRONMENTALLY SENSITIVE AREAS 1, 2-9 (Martin Whitby ed., 1994).

⁶⁹ H.C. ENV'T COMM., FIRST REPORT, 1984-85, OPERATION AND EFFECTIVENESS OF PART II OF THE WILDLIFE AND COUNTRYSIDE ACT, Vol. 1, at xxx.

⁷⁰ Section 18 gave effect to a regulation of the European Union. See Council Regulation on Improving the Efficiency of Agricultural Structures, 797/85, 1985 O.J. (L 93) 1. The regulation conditions monetary grants to farmers in environmentally sensitive areas on the promise of no further intensification of crop production or livestock density. See Council Regulation 797/85, art. 19(c).

⁷¹ Peter Wathern, *Less Favoured and Environmentally Sensitive Areas: a European Dimension to the Rural Environment*, in AGRICULTURE, CONSERVATION, AND LAND USE 186, 201 (William Howarth & Christopher P. Rodgers eds., 1992).

⁷² See MINISTRY OF AGRICULTURE, FOOD AND FISHERIES, ENVIRONMENTALLY SENSITIVE AREAS: FIRST REPORT AS REQUIRED UNDER SECTION 18(8) OF THE AGRICULTURE ACT OF 1986 6 (1989). By the end of 1996, there were thirty-eight ESAs in England, Scotland, and Wales covering almost 1.5 million hectares. See HOUSE OF COMMONS AGRICULTURE COMMITTEE, ENVIRONMENTALLY SENSITIVE AREAS AND OTHER SCHEMES UNDER THE AGRI-ENVIRONMENT REGULATION: REPORT, TOGETHER WITH THE PROCEEDINGS OF THE COMMITTEE, 1996-97 Session, at xix [hereinafter ESAS REPORT].

designated area, MAFF specifies particular environmental objectives, farming prescriptions, performance indicators, and monitoring routines designed to enable ongoing assessment of the program. Farmers within the ESAs receive payments for entering into management agreements with MAFF. The agreements require them to manage their land in accordance with the prescriptions of each ESA, which are tailored to specific goals and environmental conditions.⁷³ Many of these are directly or indirectly related to biodiversity conservation.

Each ESA has two or more tiers, the highest having the most ambitious goals and exacting prescriptions. Farmers within the ESA have a right to participate in Tier 1, which has prescriptions designed to maintain the status quo and prevent further intensification. Agreements to enter higher tiers are at the discretion of MAFF, but are designed to reverse intensification and return to a more extensive farming regime. The Clun ESA, covering 22,000 hectares in a primarily pastoral landscape of rolling hills surrounding an elevated plateau on the Shropshire borders, is a good example. Previously, the plateau was an extensive heath, the valley sides were unimproved grassland, and the valley bottoms were enclosed meadows. In the past fifty years there has been much change. The heath, unimproved grasslands, and meadows have been largely replaced by improved grasses and arable crops.⁷⁴ The ESA has three tiers in which farmers can choose to participate. The top tier calls for the *reversion* of arable land on or near the plateau to unimproved grassland. In addition, farmers who establish conservation plans can obtain cash grants to undertake specific projects, including the *restoration* of wet meadows and the *creation* of species-rich hay meadows.⁷⁵ Payments are made annually, and their level depends on the tier, increasing significantly as the farmer moves up the hierarchy.⁷⁶ Since designation of the Clun ESA, there has been a 25% decrease in areas under cultivation and an 11% increase in grassland, though reversion to vegetation characteristic of floristically rich environments is likely to be a long-term process.⁷⁷

Positive, Whole Farm Agreements. The Environmentally Sensitive Areas program offers solutions to two of the systemic weaknesses of the SSSI system. First, the ESAs management agreements contemplate positive, conservation-oriented farming practices. The system provides incentives to farmers to work with MAFF to draw up conservation plans spelling out biodiversity goals and strategies for implementation.⁷⁸ Second, the ESA agreement may cover an entire farm, rather

⁷³ For a discussion of the origins of the ESAs program, and a description of the system, see David Baldock et al., *Environmentally Sensitive Areas: Incrementalism or Reform?*, 6 J. RURAL STUD. 143 (1990) (generally concluding that the ESAs program contains many positive features).

⁷⁴ The Clun ESA was designated in 1988 and since has been closely monitored. See, e.g., Agriculture Development and Advisory Service, Report to the Ministry of Agriculture, Fisheries and Food: Environmental Monitoring in the Clun ESA, 1988-96 (1997) (on file with the author) [hereinafter Clun ESA Report]. Monitoring is tailored to the environmental objectives and assessments are keyed to baseline conditions of the ESA when it was created.

⁷⁵ See *id.* at 27-31.

⁷⁶ For example, in the Somerset Levels and Moors ESA, Tier 1 payments are set at £130 per hectare under agreement, Tier 2 payments at £215 per hectare, and Tier 3 payments at £415 per hectare. See ESAS REPORT *supra* note 72, at xix. Obviously, the intention is to provide greater incentives for reversing intensification than for simply maintaining the status quo. In addition, the payment scale implicitly recognizes that reversal of intensification is likely to reduce farm income.

⁷⁷ See Agriculture Development and Advisory Service, Clun ESA Report *supra* note 74, at 11-13.

⁷⁸ In the Clun ESA REPORT, 30% of participating farmers as of the end of December 1996 had conservation plans in place. See *id.* at 4.

than a small parcel that is of special interest, and thus eliminate the halo effects associated with SSSIs that occur when extensification on one part of the farm is offset by further intensification elsewhere. This occurs, for example, when a farmer agreeing to a reduced stocking level on one part of the farm simply moves his animals—and attendant environmental problems—to another. Although MAFF has the flexibility to offer part-farm agreements in appropriate circumstances, most of the agreements reached so far are for the entire farm.⁷⁹ This enables MAFF to secure real reductions in intensification (desirable for economic as well as environmental reasons) rather than shifts of intensification from one place to another as often happens after SSSI notification.

Uptake. How have landowners responded? Farmers and farming organizations have welcomed the ESA approach. Farmers like being involved in the formulation of farm plans. They like the specification of objectives and the use of adaptive management to meet goals; they feel they are called upon to use their own expertise in making land use decisions and that they retain an important degree of managerial autonomy.⁸⁰ The agreements are detailed but less legalistic than the threatening lists of prohibited “potentially damaging activities” sent out with SSSI notifications. The level of uptake in some ESAs has approached or surpassed MAFF’s targets.⁸¹ In other ESAs, however, participation has been considerably less dynamic. In many, the great majority of agreements are confined to the Tier 1 level for maintenance of the status quo. This is partly the result of MAFF’s policy choice to stabilize rapidly deteriorating rural environments over relatively large areas, and certainly the ministry’s budget stretches further afield at the lower per hectare payment levels of Tier 1. Most disappointing, however, has been the program’s minimal impact on intensification in arable regions. Uptake has been low, for example, in the South Downs ESA, a place of intense arable production.⁸² Thus the results are mixed.

The relative lack of participation in higher tiers, especially in those designed to revert land from arable to grass, appears to reflect the fact that payments for those tiers were not pitched high enough in the first place. Farmers can be expected to participate only if ESA payments are high enough to offset the reduction in net income they would take by joining the program.⁸³ Choosing appropriate payment levels is, of course, one of the major problems of operating a voluntary scheme like the ESAs system, but to complicate matters the financial inducements of ESAs are caught in a larger web of agricultural support payments that point farmers in the direction of further intensification. In the spring of 1997, for example, a chalk grassland SSSI in the South Downs ESA, which contained at least eleven orchid species, plus nationally rare plants like bastard toadflax (*Thesium humifusum*) and round-headed rampion (*Phyteuma tenerum*), was plowed, quite legally. English Nature offered the farmer £345 per hectare (about \$585) in SSSI profits foregone for not damaging the site; the farmer understandably chose to take £591 per hectare (about \$1,000) of European subsidy payments to grow

⁷⁹ Interview with Christopher P. Rodgers, Professor of Law and Director of the Centre for Law in Rural Areas, University of Wales, in Aberystwyth, Wales (Apr. 2, 1998) [hereinafter Rodgers Interview].

⁸⁰ See Rodgers & Bishop, *supra* note 44. My own interviews with participating farmers in the Clun ESA bear these observations out.

⁸¹ The Clun ESA, for example, has been well-received. Targets for all three tiers have been achieved, and the target for Tier 1 has been substantially exceeded. Most targets are expressed as percentages of eligible hectareage placed under agreement. For example, the target for Tier 1B (maintenance of unimproved grassland and rough grazing) was to enroll 75% of eligible hectares. MAFF now has 98% under agreement. See Clun ESA Report, *supra* note 74, at 4.

⁸² See ESAS REPORT *supra* note 72, at xxxi.

⁸³ See Lucy O’Carroll, *Competition with Other Environmental Designations on a Lowland Heath: The Case of Breckland*, in INCENTIVES FOR COUNTRYSIDE MANAGEMENT: THE CASE OF ENVIRONMENTALLY SENSITIVE AREAS 61, 71 (Martin Whitby ed., 1997).

flax instead. The amount of money offered the farmer in the ESA's tier for maintaining chalk grassland on the Down was a virtually inconsiderable £40 per hectare (about \$68).⁸⁴ This is the tide against which the agri-environmental schemes must swim; not surprisingly, they often drown.

Problems Inherent in the Voluntary Approach

A central question about mechanisms like SSSIs and ESAs is whether public funds should be used to pay farmers to enhance biodiversity when the degradation of the environment that requires such enhancement was encouraged by the public subsidies that initially led to agricultural intensification. There are, of course, two ways to look at this question. From one perspective, it can be asserted that the public should not pay farmers to do nothing—as the SSSI program often does. Even the ESAs program, which has a more positive approach, pays farmers to undo what they were previously being paid quite generously to do. Indeed, these schemes provide more financial support for farmers who in the past adopted intensive practices than for farmers who, for whatever reason, retained the more environmentally-friendly practices of traditional, extensive farming.⁸⁵ Moreover, the SSSI scheme, and to a lesser extent the ESA scheme, allows farmers to hold the system hostage by threatening to undertake developments never really intended, just to obtain payments. In these cases, farmers are paid for doing what they would be doing anyway.

There is, however, another equally valid perspective: the ESA program does not pay farmers for doing nothing, but instead for producing public goods that are of substantial value. Protection and enhancement of biodiversity on working farms are classic public goods because, in the absence of government intervention, it would not be adequately provided. This market failure requires government to either adjust financial incentives, impose regulations, or do both in order to ensure that biodiversity is maintained at desirable levels. For several reasons, accomplishing this to the extent possible through the adjustment of financial incentives is simply pragmatic. First, individual farmers will usually know best about their own farms and have an incentive to select the least-costly methods of enhancing biodiversity. Second, farmers most able to adjust to incentives because they face the lowest costs of enhancing diversity will make the greatest adjustments. Finally, the incentives provided will stimulate the development of new methods of enhancing biodiversity.⁸⁶ Essentially, a system of contractual payments correctly established has the potential of producing environmental benefits at the least cost.

The most attractive agri-environment policy would be one with basic, minimal standards of biodiversity stewardship applicable to all landowners that would penalize those who fall below them and reward those who exceeded them. Such an approach would satisfy the objection that farmers should not be paid for *not* damaging the environment, since they would have no incentive to obtain compensation by merely threatening changes in farm practices that would degrade the environment. It would also address concerns about landowners simply unwilling to participate in a voluntary system of biodiversity protection, regardless of the financial incentives offered.⁸⁷ It of course raises the difficult

⁸⁴ Rodgers Interview, *supra* note 79.

⁸⁵ Farmers on the Isle of Islay, for example, argue that it is unfair that their retention of extensive farming practices makes them ineligible for conservation funding. Islay will not be designated as an ESA because its farmers did not join the movement toward intensification, but continued to farm in environmentally sensitive ways. See ESAS REPORT *supra* note 72, at xlii.

⁸⁶ For a discussion of these points in the context of rural environmental policy, see Ian Hodge, *Incentive Policies and the Rural Environment*, 7 J. RURAL STUD. 373 (1991).

⁸⁷ It should be apparent by now that this is *not* the way biodiversity is protected in Great Britain, nor is it the way biodiversity is protected in the United States. There are, however, models dealing with more discrete environmental

problem of identifying the appropriate standards, but the principles of conservation biology offer considerable assistance. These standards would tell policymakers, for example, that the maintenance of links between fragments of semi-natural and natural habitat or the protection of keystone species should be a minimal standard. Some issues inherent in any voluntary approach would remain, however, which further consideration of the ESAs program reveals. These issues include the choice between prescriptions and objectives and the problems of contract compliance, flexibility, and expiration.

Prescriptions and Objectives. In ESAs, farmers receive payments in exchange for adhering to a standardized set of management prescriptions. The Clun ESA's tier for maintaining unimproved grassland, for example, contains the following explicit, nonvariable prescription applied to every participating farmer: "[e]xclude livestock from meadows at least 7 weeks before the first cut of hay or silage and by 27 May at the latest. Do not cut hay before 16 July."⁸⁸ Compliance with this prescription is intended to yield environmental benefits, including the protection of the biodiversity of unimproved meadows. However, the payments made to farmers for adopting this prescription are not contingent on actually achieving these benefits. In other words, payments are made to farmers for following the rules laid down rather than for delivering the desired results. With this approach to contract management, there are two separate problems. First, given our current understanding of the way ecosystems function, there is no guarantee that following any given set of similar prescriptions will yield the desired result—hence conservation biology's reliance on adaptive management. Second, the farmer's ability to discover the least-cost means of achieving the desired results are stifled, which undermines the pragmatic rationale for contractual incentives.

With respect to the first, the ten-year ESA contracts that lock in detailed management prescriptions such as the one quoted above are the antithesis of adaptive management. Adaptive management would emphasize objectives, such as the protection of flourishing and floristically-rich hay meadows, and give farmers the freedom to determine how those objectives can best be met. This is recognized in principle by both agricultural and environmental organizations,⁸⁹ but is it possible

problems than biodiversity loss that are instructive. For example, in Great Britain, the legal mechanism to protect ground and surface water from nitrate pollution—primarily caused by the runoff of farm fertilizers—employs mandatory rules which farmers must observe, on pain of suffering penalty, and payments which they may receive if they voluntarily observe more stringent conditions on fertilizer use. For a discussion, see William Howarth, *Agricultural Pollution and the Aquatic Environment*, in *AGRICULTURE, CONSERVATION AND LAND USE* 51, 67-71 (William Howarth & Christopher P. Rodgers eds., 1992).

⁸⁸ See Clun ESA Report, *supra* note 74, at 28. This grazing and mowing regime is expected to enrich floristic diversity, thus attracting an enriched suite of invertebrates, and further into food webs, animals like the field vole (*Microtus agrestis*) and kestrels (*Falco tinnunculus*). The decline of the once common field vole, to a tiny percentage of historic population levels, has been swift and steep. The decline is due to the replacement of vole-rich rough pasture with reseeded leys, or temporary pastures, and increased livestock densities. The field vole is the principal prey of kestrels, barn owls (*Tyto alba*), and other predators. Kestrels and barn owls have declined as a result of the collapse of field vole populations. See ROGER LOVEGROVE ET AL., *SILENT FIELDS: THE CURRENT STATE OF FARMLAND BIRDS IN WALES* 19-27 (1995). The authors found that twenty-five bird species associated with farmland in Wales declined significantly between 1972 and 1991. See *id.* at 31. The use of grazing and mowing prescriptions to stabilize and reverse this trend is likely to be a longer-term process.

⁸⁹ Cf. HOUSE OF COMMONS AGRICULTURE COMMITTEE, *ENVIRONMENTALLY SENSITIVE AREAS AND OTHER SCHEMES UNDER THE AGRI-ENVIRONMENT REGULATION: MINUTES OF EVIDENCE AND APPENDICES*, 1996-97 Session, at 112 [hereinafter *ESAS EVIDENCE*] ("there should be greater flexibility and discretion in administering schemes, with more emphasis on . . . environmental outputs and less on specifying standard prescriptions—with more clearly defined goals, farmers can increasingly use their own ingenuity to produce and maintain these [goals]") (statement of the Countryside Commission) *with id.* at 69-70 ("the Government should give further consideration to . . . 'management by objectives' rather than 'management by prescriptions' to secure compliance while minimising costs (because

to state objectives so clearly that farmers have demonstrably achievable goals? In the Somerset Levels and Moors ESA, the tier structure aims primarily to support breeding waders against a background of persistent decline. Unfortunately, there is no evidence that the maintenance tier prescriptions have had any positive effect on these birds, though farmers are paid for following them and are bound by them for the duration of their agreements.⁹⁰ It would not be difficult to design a system that instead compensated farmers for actually helping waders by referencing outcomes to baseline habitat conditions and species populations on individual farms. This approach, relying on explicit output measures, could be easily extended to other biodiversity objectives. We might, for example, base payments on the basis of the number of wild flower species found in their meadows. The notion may seem fanciful, and the important thing is not the number of flowering species *per se* but the condition of their habitat, yet it does have the virtue of being a measurable goal.⁹¹

There are drawbacks, however, to any purely output-oriented approach. From the farmer's point of view, objective-based payments mean that some portion of his livelihood may depend on factors beyond his control. Agricultural intensification is far from the only threat to biodiversity. Farmers are used to dealing with contingencies like the weather, of course, and will probably learn to deal with global warming too, but asking them to move to more extensive agricultural systems, probably entailing some loss in income from production, is unlikely to appeal to many absent some certainty that they will be fairly compensated. One way around this potential obstacle to cooperation is the use of a three-step compensation schedule. On the bottom step, farmers would be required to adhere to specified minimum standards, such as protection of keystone species, without compensation. They would have minimum duties of environmental stewardship which they would fail to observe at the risk of incurring a penalty. At the next step, however, farmers would be fairly compensated for adopting agricultural practices likely to enhance biodiversity. Finally, at the top step, they would receive a premium for achieving specified biodiversity goals. This returns though to a problem said to be common of all voluntary policies: how do administrators establish prescriptions that are at once precise enough to facilitate measurable compliance and flexible enough to allow individual farmers to achieve objectives as best they can given their own peculiar circumstances?

The problem of compliance and the advantages of flexibility. From an administrator's point of view, explicit and nonvariable prescriptions have two attractions. First, they simplify the agreement process by establishing a standard set of practices that the farmer either does or does not opt to undertake. As there is no room for farm-by-farm negotiation on tailoring these practices to particular circumstances, the burden of administering the scheme is greatly reduced. In a time of strained government budgets, this is no small thing because the costs of program administration are also reduced, leaving more money for the acquisition of real biodiversity benefits. The only answer to this is

compliance will depend on results rather than adherence to prescriptions)" (statement of the Country Landowners' Association)).

⁹⁰ There is evidence that participation in the higher enhancement tiers would promote the ESA's bird objectives, but so far participation in them has been low. See *id.* at 165 (statement of the Royal Society for the Protection of Birds). Lapwings (*Vanellus vanellus*) and snipe (*Gallinago gallinago*) are just two of a host of waders that have declined precipitously as a result of the drainage and reseeded of rough, permanent pastures into temporary leys. They have also been affected by the destruction of their invertebrate prey nitrogenous fertilisers. Once abundant almost everywhere, lapwings are have declined so precipitously (an estimated 79% drop in the number of breeding pairs between 1987 and 1995) that they are likely to become extinct as breeders in much of Britain within the next decade. Never as numerous, snipe have already disappeared from large parts of their former range. See LOVEGROVE ET AL., *supra* note 88, at 24-25.

⁹¹ See K. Parker, *A Tale of Two Villages—The Integrated Rural Development Experiment in the Peak District*, in ENVIRONMENT AND ECONOMIC DEVELOPMENT IN THE REGIONS OF THE EUROPEAN COMMUNITY 103 (Frank E. Joyce & Gunter Schneider eds., 1988) (describing exactly such a pilot project in the Peak District National Park).

that if the public wants an optimal amount of a public good like biodiversity, then the public will have to pay for it. Indeed, a strong case can be made that the acquisition of biodiversity is seriously underfunded. In the United Kingdom, spending on agri-environmental schemes was only a third of the total amount of money transferred to farmers from the public treasury.⁹² This imbalance in itself is a threat to biodiversity as it undermines efforts to obtain farmer cooperation in voluntary biodiversity protection.

The second attraction of explicit and nonvariable prescriptions goes to the problem of compliance. In theory, the more precise the prescription, the easier and cheaper is compliance-checking. Date restrictions on cutting hay meadows, for example, can be easily monitored—with enough policemen. But in practice, many precise prescriptions, even numeric constraints, are almost impossible to monitor. Numeric constraints on inputs like fertilizer, for example, are extremely difficult to enforce.⁹³ Obviously, monitoring and enforcement are more difficult as prescriptions become less and less precise, but this is a matter of degree. To some extent, the supposed trade-off between precision and flexibility, in terms of enforceability, is illusory. It may be that most farming prescriptions, even the most precise, are enforceable only retrospectively. If this is true, the best and cheapest compliance mechanism may simply be a premium for meeting objectives. Without such a premium, farmers have no incentive to adhere to prescriptions, and in the absence of effective enforcement, they may not. If such a premium is sufficiently attractive, they are likely to comply.

Given this conclusion, the advantages of contract flexibility greatly outweigh the disadvantages. A central lesson of conservation biology is that protection of biodiversity must proceed through adaptive management—the self-correcting process of learning by trial and error. Our current understanding of the ecological effects of particular farming practices is limited but expanding. Although administratively expensive, flexible prescriptions addressed to the conditions of individual farms, in agreements with provisions for negotiated modification and derogation, would allow adaptive management to operate. Greater emphasis should be given to management plans that are tailored to individual sites and circumstances. More flexible agreements and prescriptions and objective-based planning would often lead to better conservation outputs. Fixed cutting dates in lowland wet meadows, for example, may create problems for farmers when unseasonable rains are heavy and they are unable to enter their fields without causing significant damage.⁹⁴ They would be more likely to participate if flexible agreements allowed them to deal with such contingencies, and biodiversity would also be benefited.

Preserving Biodiversity Capital. The basic promise of voluntary approaches to biodiversity conservation is that over time, while the land is subject to agreement, biodiversity benefits will accrue and accumulate. The most persistent infirmity of voluntary approaches is that after the investment of substantial public funds during the period of agreement to accumulate biodiversity capital, the landowner may decide to re-intensify agricultural production and destroy or degrade everything that has been gained. This problem is intractable in a purely voluntary system because the only complete solution is to abandon voluntarism if the agreement expires and mandate preservation of the biodiversity capital built up. On equitable grounds, this might be defensible given the fact that the capital in question is a public good paid for by a transfer of wealth from the public treasury, but pragmatically it makes little sense. The ultimate threat of coercion at the expiration of a voluntary

⁹² See ESAS EVIDENCE, *supra* note 89, at 274.

⁹³ See *id.* at 368 (reprinting a letter from a Cumbria ESA farmer arguing that numeric constraints are impossible to enforce and claiming that a neighboring farmer had applied two and a half tons of lime per acre on field subject to a zero lime restriction, without detection).

⁹⁴ See ESAS EVIDENCE, at 165.

agreement asks landowners to adopt management prescriptions in perpetuity—or face the consequences. This would discourage farmers from participating in the first place, however, and consequently undermine the voluntary approach.⁹⁵

What is to be done? At least three partial answers suggest themselves. First, in a three-step payment system such as the one described above, the presence of minimal standards of biodiversity stewardship, applied to all landowners regardless of their participation in the voluntary scheme, would at least mitigate the damage of re-intensification. Second, the overall structure of financial incentives must not continue to stimulate intensification at the risk of environmental harm. Just as the incentive structure of the Common Agricultural Policy currently discourages uptake, if unchanged it will encourage re-intensification when the first round of ten-year ESAs agreements expires. Finally, the voluntary system must inculcate a genuine spirit of biodiversity stewardship among participants. In the long run, this is the best hope for the protection and enhancement of biodiversity. Farming is a business and economics matter, which is why getting the incentives structure right is critically important, but it also seems possible to create a *culture* of environmentally-friendly farming. When farmers are given the opportunity to work with conservationists on conservation plans, to use their local knowledge to formulate conservation policies for their individual farms, and see the results, they may become enthusiastic partners in the conservation movement.⁹⁶ This is the most important promise of a voluntary approach.

Beyond Voluntarism?

The European Community's 1992 Habitats Directive requires Member States to "take appropriate steps to avoid, in the special areas of conservation ["SACs"], the *deterioration* of natural habitats [and] the *disturbance* of species for which the habitats have been designated."⁹⁷ In the United Kingdom, this Directive has been implemented by a statutory instrument, the Conservation (Natural Habitats, etc.) Regulations of 1994,⁹⁸ which goes *some* measure beyond pure voluntarism, but which essentially "continue[s] to work as far as possible under the voluntary principle, seeking the involvement and active co-operation of those involved who live and work in rural areas."⁹⁹ The United Kingdom has taken the minimalist approach of designating some existing SSSIs as SACs and relying on the protections provided by the SSSI scheme. Most of the gaps and weaknesses of the SSSI system, already clearly apparent, will also affect sites designated as units of the Natura 2000 network, supposedly sites of such major importance to biodiversity that they are of special interest to the entire

⁹⁵ Understandably, the longer the agreement period and the tighter the controls, the more cautious are landowners about entry. In another pilot conservation program in England, the Habitat Scheme, MAFF pays farmers to enter into twenty-year agreements to protect and enhance water fringes and coastal saltmarsh. Participation has been low because farmers have shied away from such lengthy agreements. See *id.* at 187.

⁹⁶ The attitudes of participating farmers vary widely from reluctant to enthusiastic adoption of conservation management. Presentation of conservation techniques on demonstration farms, training programs, and proactive (rather than reactive) dissemination of information and advice by conservation agencies appear to be very important factors in the recruitment of enthusiastic adopters. See Carol Morris & Clive Potter, *Recruiting the New Conservationists: Farmers' Adoption of Agri-Environmental Schemes in the U.K.*, 11 J. RURAL STUD. 51 (1995). Landowners are also engaged by the opportunity to draw up their own conservation plans. See Rodgers & Bishop, *supra* note 44.

⁹⁷ Council Directive 92/43, art. 6(2), 1992 J.O. (L206) 7 (emphasis supplied). For earlier discussion of this Directive, see *supra* text accompanying notes 27-30.

⁹⁸ See SI 1994/2716.

⁹⁹ Draft Conservation (Natural Habitats, etc.) Regulations, 1994: Compliance Cost Assessment, ¶ 34.

European Community. Instead of taking the opportunity to strengthen the SSSI system generally, the government chose to increase protection only marginally for sites of European importance.

First, the relevant nature conservancy council can extend protection by enlarging the original list of potentially damaging operations.¹⁰⁰ Second, additional structure is given to the process through which consent for potentially damaging operations is granted. If it appears that a proposed activity is likely to have a significant effect on the SAC, it must carry out an assessment and may give consent only upon determining the site's integrity will not be jeopardized.¹⁰¹ If it appears that the landowner or operator may undertake the activity without consent, the council must notify the Secretary of State, who may issue a Special Nature Conservation Order. The latter step has the potential to provide a backup for the voluntary approach. Unlike the original SSSI conservation order that merely lengthens the mandatory period for negotiating a management agreement, a special nature conservation order may stop a potentially damaging operation completely by ensuring that the activity cannot be carried out without either (a) the consent of the nature conservancy council or (b) the affirmation of a management agreement.¹⁰² Unless such an order is issued, however, there is no additional protection even for sites of European significance, and there is reason to believe that this step will be taken only as a matter of last resort. In fact, since the Conservation Regulations came into force in October 1994, only one special order has been issued.¹⁰³

The question remains whether the Conservation Regulations fully implemented the EC's Habitats Directive. In at least one respect, they clearly have not. The Directive's reference to "deterioration" of habitat strongly implies that the EC intended to reach processes of habitat degradation more diffuse and long-term than the discrete potentially damaging operations listed in SSSI notifications. The failure of SSSI protection to cover diffuse and long-term processes of degradation, such as abandonment and neglect, is a serious weakness of that scheme simply carried forward to the SACs. For this reason alone the Habitat Regulations make only minimal contributions to biodiversity protection, but every other weakness of the SSSI system is carried forward as well. Unless a special nature conservation is issued, for example, there is only a four-month temporary ban on potentially damaging operations. The maximum fine for violation of the ban is still a mere £2,500 pounds—a penalty likely to be substantially less to the farmer than the economic value of violating the ban, especially if it allows him to receive additional production subsidies. Ominously, the Conservation Regulations themselves state that they do not apply to operations directly connected with or necessary to management of the site.¹⁰⁴ What this means remains to be seen. If it excludes normal agricultural activities, the exceptions will soon swallow the rules.

A Final Observation

At a conceptual level, the British approach to biodiversity protection has considerable breadth. It utilizes direct regulatory measures, financial incentives and disincentives, and some systematic

¹⁰⁰ See SI 1994/2716, at reg. 18(2)-(3).

¹⁰¹ See *id.* at reg. 20(1)-(2).

¹⁰² See *id.* at reg. 23(2). If a special order is issued, the nature conservancy council must pay compensation to every person having an interest in land "comprised as an agricultural unit [who] shows that the value of his interest is less than it would have been if the order had not been made." *Id.* at reg. 25(1).

¹⁰³ Rodgers Interview, *supra* note 79. The order related to the unauthorized installation of drainage works on habitat important for breeding moorland birds, like lapwing and snipe, in England's Peak District.

¹⁰⁴ See SI 1994/2716, at reg. 20(1).

exhortation designed to encourage desirable and discourage undesirable land uses. Indeed, at a conceptual level the British approach is substantially more comprehensive than that of the United States, where fewer policy tools are employed. The devil is always in the details, however, and it is at this level that British schemes fall short. With respect to the protection of individual species, the listing process is opaque and *ad hoc*, and regulatory controls against harm to individual species are severely inadequate since they do not cover diffuse harms that are the most significant. With respect to the protection of habitat, the management-by-agreement approach—commendable in theory—contains serious defects. A few (such as the inherent impermanence of contractual protection) are intractable; but others (such as the rigidity of the agreements themselves) can be fixed. Conservation policymakers in the United States have much to learn from the British experience.