"Expanding the Toolbox: Use of Market Mechanisms to Effect Ecosystem Management"

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The emergence of ecosystem management as a strategy in science and in public policy as a means by which to reconcile economic and environmental objectives has necessitated the development of tools, which are better suited to this purpose than the existing regulatory framework. Although recent surveys affirm that ecosystem management has gained credence nationwide, and market-based incentives are being rapidly developed to meet a variety of local and regional needs, I am best able to discuss the recent experience of California in adapting this approach to some of its most vexing natural resource and environmental issues.

A couple of years ago, William Stevens of the New York Times' "Science Times" described California's attempt at ecosystem-scale habitat conservation as "(t)he nation's most ambitious attempt to reconcile the preservation of nature with urban development". That program-- the Natural Communities Conservation Planning initiative-- continues apace despite a change of gubernatorial administrations in Sacramento, and enjoys the indispensable support of Secretary of the Interior Bruce Babbitt.

NCCP and comparable ecosystem initiatives elsewhere have profound implications for environmental policy at all levels of government. Policy makers are challenged to find solutions which engage stakeholders, reflect balance between economic and environmental objectives and which offer opportunities for cooperative planning in lieu of the regulatory straitjacket. In California, we have as the test bed for such experimentation a region that Secretary Babbitt describes as "the 800 pound gorilla of urban development": intensely contested, enormously valuable, biologically rich, portions of five southern counties. In this region, conflict between land uses had resulted in paralysis, where neither regulation or litigation had been effective in protecting the environment on one hand or providing certainty of process for the private sector on the other. It has been California's experience that collaborative planning is effective in managing entire ecosystems if private landowners can be encouraged to participate, through use of appropriate incentives. It thus becomes possible to move from regulatory constraints,
which may protect a single listed species, such as the threatened California gnatcatcher, to focus on the entire coastal sage scrub natural community. This more proactive habitat-based approach makes possible the protection of the target species, together with a host of others--listed and unlisted--which also comprise the ecosystem. There are nearly 6,000 square miles of coastal sage scrub in the five-county NCCP planning area. Acting on advice of eminent conservation biologists, more than 30 local jurisdictions and countless private landowners are working on regional and subregional plans for management of this extensive resource. To date, more than 200,000 acres of the most productive habitat have been protected absolutely, through use of various techniques, including on-site mitigation, mitigation banking and conservation banking.

These tools have their legal origins in the mitigation requirements of the California Environmental Quality Act (CEQA) and, to a lesser extent, the Federal Endangered Species Act. Until recently, on-site mitigation has been utilized to compensate for specific development impacts, and for the protection of a single target species. This single site, single species approach is not well suited to the comprehensive planning requirements of ecosystem management. Typically, the result is a patchwork of habitat fragments, lacking in quality and connectivity. It is not unexpected, thus, that the use of mitigation has been expanded to more nearly reflect a planned approach, in which designated areas of specific habitat types are made to serve the purposes of ecosystem management. In the case of mitigation banking, a landowner is generally given incentive to acquire and manage habitat, which is remote (off-site) from the area of project impact. The "bank" can be drawn upon for "credits" to meet the landowner's mitigation needs, or as a source of "credits" for sale to similarly situated third parties. "Conservation banking" is a further refinement of this concept; a third party, such as a real estate or banking firm, without mitigation liability of its own, will acquire and re-sell for profit an area of habitat which has been "pre-qualified" to meet the specific requirements of an ecosystem plan, as occurs in the case of an NCCP regional preserve. The use of conservation banks is widespread in California, and additional variants are under development as a means to harness the profit motive in the service of effective resource management. In a 1996 catalogue, the California Department of Fish and Game identified 39 conservation banks in 12 counties, with an estimated aggregate value of $40 million. According to CDFG, these conservation banks "advance effective habitat conservation by encouraging the bundling of mitigation 'credits' at sites recognized to be high priorities for habitat protection and restoration (and) provide a mechanism that assigns a monetary value to habitat...."

The California experience with the development and use of such market-based incentives to conservation is not unique. In its national survey of ecosystem management projects in 1996, The Keystone National Policy
Dialogue on Ecosystem Management found that "...the bottom line is largely what motivates industry, private landowners, and the consuming public". "It is therefore essential", the Keystone Dialogue concluded, "to develop mechanisms that encourage private landowners and resource users to invest in healthy ecosystems through their market transactions". Nor is the use of these tools limited to terrestrial applications, such as endangered species habitat and wetlands. In fact, one of the earliest attempts to establish "environmental markets" in the United States took the form of emissions trading under the Clean Air Act. To cope with its prolonged drought in the early 1990's, California established a "drought water bank" to serve as a temporary clearinghouse for the sale of water rights at market prices. This use of the market mechanism to apportion scarcity, though not without problems, has set the stage in California for the establishment of a broader, more permanent water transfer policy. Among bidders for augmented supplies from the Drought Water Bank were environmental resource managers, including the California Department of Fish and Game and the United States Fish and Wildlife Service.

In its survey of ecosystem management practices, the Keystone Center identified other examples of market-based incentives. Not all of these entail payments or credits to private interests. Keystone notes that in the case of the Fieldstone Habitat Conservation Plan, a real estate developer was "compensated" for its commitment to a habitat conservation plan by assurances from USFWS that it had satisfied the Endangered Species Act requirements of 63 species for a period of 30 years. Such assurances to landowners are now sanctioned by the "no surprises" policies of Secretary Babbitt, and can represent a substantial cost avoidance to participating developers. Other incentives identified by Keystone include:

- **conservation banking**, as already noted, a means to assure that the designation of mitigation lands will conform to regional planning requirements;

- **forest certification**, in which timber harvesting and manufacturing is verified by independent authority to be ecologically sound and sustainable;

- **preferential tax treatment** for income, property and estate tax purposes, in which conservation uses are recognized and encouraged;

- **instream flow rights**, analogous to the purchase of water rights for environmental purposes, above, in which private and non-profit agencies are authorized to acquire water rights for non-consumptive uses;
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- **commercial and recreational use of species**, in which sustainable commercial utilization of non-threatened species serves to assure their protection, such as oaks in the south and Midwest and Pacific yew and ponderosa pine in the west;

- **effluent trading in watersheds** is authorized by the Environmental Protection Agency pursuant to the Clean Water Act, and has been utilized on a trial basis in the Tar-Pamlico watershed of North Carolina;

- **grass banking** permits ranchers of Arizona and New Mexico to rest overgrazed ranges and public allotments by moving cattle to a "grass bank" owned by a non-profit organization, in return for conveyance of conservation easements on ranchers' land;

- **emissions credit trading bank**, created by City of Chicago to stimulate economic development, facilitates trade and donation of excess emissions credits; and

- **individual transferable quotas**, in which holders of quotas have a legally defined right to catch a specific quantity and type of fish, have been used in New Zealand since 1986 to alleviate problems of over-capitalization and over-fishing.

The variety, flexibility and beneficial impact of these mechanisms argue for their use, as appropriate, to supplement— but not entirely supplant—our reliance on local, state and federal regulation to protect the public interest in environmental resources. In her new book, "The Morning After Earth Day", Mary Graham of the Kennedy School of Government at Harvard argues persuasively that "(s)uccessful accommodations between common environmental interests and private property rights are possible", if not imperative. We have come to appreciate that there are legal and practical impediments to our reliance solely upon regulatory constraints. The growing use of market mechanisms and financial incentives to effect ecosystem management and other environmental goals is ample evidence of Ms. Graham's thesis, and should be cause for optimism that the long-anticipated Fifth Amendment trainwreck can be averted.