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The Three Economies: An Essay in Honor of Joseph Sax

Zygmunt J.B. Plater

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The Three Economies: An Essay in Honor of Joseph Sax

Zygmunt J.B. Plater*

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INTRODUCTION

How does one evaluate the important public values and impacts of things that do not have a market price and then integrate them into the fabric of our system of social governance? That question lies within most or all of Joseph Sax’s work over the years.

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* Professor of Law, Boston College Law School; A.B. Princeton 1965, J.D. Yale 1968, L.L.M. Michigan 1974, S.J.D. Michigan 1981. My graduate work at Michigan was molded by Professor Sax's perceptive and unstinting guidance. Many of my subsequent academic and legal practice projects—including the notorious Snail Darter endangered species litigation noted herein, legal work for the State of Alaska after the Exxon-Valdez spill, and an environmental coursebook—have been described as deeply Saxist. This presentation was originally scripted as a slide show, then owing to time pressures it ultimately was presented as a slide-show-without-slides, an ambience which may linger in this text. The reader's indulgence is appreciated. I thank Patrick Nickler, Lance Davis, Scott Cernich, Harry Bader, Scott Cooper, and Laura Jensen for their help on this piece, and Joe and Ellie Sax for all they have given me over nearly 30 years.
This essay contains two very different parts. At the Association of American Law School's symposium on Professor Sax's work, so ably organized in San Francisco by Professor Lazarus, I was assigned the endangered species portfolio. Because Sax has written little that is specifically focused on endangered species, however, it seemed wise to range wider. The first Part of this Article represents an attempt to distill some of Joseph Sax's intellectual dimensions, beyond those already chronicled in the comments of other contributors to this symposium, with some linked themes and observations drawn from Sax beyond his writings.

The second Part, instigated by several of Sax's articles, presents "The Three Economies," a theoretical construct for understanding the interplay between the marketplace, nature, and the overarching public interest. As a new way to frame the classic elements of a long-running debate, the three economies construct suggests how nonmarket values and costs should be integrated into the political life of a society and be reflected in competent economic analysis. Built on well known concepts of environmental economics, the three economies proposition may help clarify ongoing analysis of what environmental law means, both for now and for the sustainable future.

I. JOSEPH SAX AS INTERGENERATIONAL EDUCATOR

A. Hiking With Sax Is Not Just Hiking: Ecophilosophical Quests

A characteristic moment in the outdoor life of Joseph Sax: he is backpacking on a rugged trail along an escarpment of the Bruce Peninsula high above Lake Huron's Georgian Bay, the vein of sandstone and marble that forms Niagara Falls and then runs two hundred miles northwest through Ontario before rising and plunging into the lake. Sax stands quiet on the high ledge, looking out at the blue lake stretching to the horizon and the water 200 feet below so crystal clear that he is not sure whether the two loons down there are flying slowly or swimming fast. The place is beautiful and desolate, but it's also hot and the black flies are fierce. Sax's companion has lagged behind, scratching unhappily at mosquito and black fly welts in every exposed place. When he catches up to Sax, the companion says, "Nice view . . . but this is miserable, this heat, these bugs." Sax ignores this. He turns and says: "You know, I've been wondering: Would this place feel any different to us if we knew that in the bedrock five hundred

feet below the lake, totally imperceptible to us, there was a high speed
tunnel carrying six lanes of traffic back and forth between Canada and
the US?”

This is not normal hiking banter. Many years later, I retain only a
vague memory of that Bruce Peninsula escarpment, and the loons,
and the heat, and the mosquitoes, and the black flies, but I vividly
recall Sax’s question. I have used it with my students, trying with
them to figure out what it is about wilderness that makes a society
want to protect it.2

The moment is quintessential Sax. He is interested in far more
than physical places; he invests place and time with probing questions.

B. Sax and Ecological Civics: Thinking Beyond the
Logic of the Marketplace

As one of the first environmental law professors in the United
States, Sax has repeatedly confronted the basic differences between
insider and outsider perspectives, between on one hand the economic
and political marketplace structures, which make the dominant daily
decisions for a society, and on the other the richly interconnected nat-
ural context of human society as seen by ecologists, environmentalists,
and other citizens to which the marketplace may pay no heed.3

Here is Sax on another hike, in the steep hills of Tennessee’s
Cumberland Plateau, standing with his wife Ellie on one of the
scalped “bench” cuts ringing the sides of Red Oak Mountain. Moun-
tains in this area stand like multilayered pyramidal chocolate cakes, in
which coal seams one to eight feet thick lie flat, one above the other,
separated by five to a hundred feet of shale and earth, covered with
lush mountainside ecosystems. Significant amounts of coal can be
taken cheaply with dynamite and bulldozers by carving benches
around the sides of the mountains atop the coal outcroppings, pushing
the tree and soil “overburden” over the side, and opening the way for
front-end loaders to shovel up the coal and drive it away.

After this lucrative, “low-tech” stripmining is finished, the moun-
tain is left a tortured moonscape, descending in ragged steps to the
valley below. Sulfuric shale, runoff water, and the rubble of soil and

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2. Walter Mitty-like, I belatedly have added my own responsive socratic question,
with a photograph of a stark, beautiful alpine desert plateau in the northern Rockies, rugg-
ed rocks, gnarled pinon pines, but with jet contrails traced in the sky above the wilderness
landscape: If you are a month out from civilization in a desert, or the Alaskan tundra, and
look up to see the jet contrails of the 6:00 TWA London-to-Tokyo executive flight, serving
martinis at nine hundred miles an hour, what effect does that have upon whatever you are
feeling there in the wilderness, and why?

3. The term “marketplace” is used here in the broad sense, to denote the complex
system of economics and politics that dominates the practicalities of the daily life of indi-
viduals and the nation.
trees slides down the hillside, filling the valley below, poisoning the streams, covering the bottomland agricultural fields of the mountain communities that remain, and swelling the seasonal floods.4

The companies that stripmined the mountain simply followed the dictates of the marketplace (including the neutralization of government regulatory controls). To the marketplace, prior to serious enforcement of federal laws, cut-and-run stripmining made economic sense, because it was not capital intensive and the coal could be sold at very high rates of profit above land and excavation costs.5 Full restoration of the mountain is impossible, but even the minimum remedial steps required by state and federal law are commonly evaded. As one miner said, "Hell, it costs $5,000 an acre to get a stripmine bench returned to contour with some vegetation on it, and but for coal that land wouldn't cost even $250 an acre in the first place." The marketplace inherently does not account for societal values that cannot be bought and sold. Instead, it seeks to avoid accountability for the wastes and externalized costs that flow from marketplace decisions. In market terms, then, the mountains of the Cumberlands become in effect a national sacrifice area, their only significant value lying in the hydrocarbons they contain for immediate consumption.

But when Sax looks out at Red Oak Mountain, he sees beyond the economic and political marketplace, to a society's long term needs for natural ecosystems, land, and energy.6 Sax notes the effects on the disrupted wildlife habitats, the decimated forests, and the few remaining trees and bushes slowly sliding downhill. In many areas, the waters of the Cumberland Plateau have been turned into acidic drains, fit for neither fish nor human. Sax talks about a calculus beyond the logic of the marketplace, shaking his head in disbelief that decisions can be made to destroy a place so completely when the externalized economic impacts are so dramatically negative and feasible alternatives exist.

4. The best chronicle of this sad process remains the late Harry Caudill's NIGHT COMES TO THE CUMBERLANDS (1963). Several of the local people who hiked up Red Oak with Sax that day had lived up on the mountain until stripping began in the 1950s, when whole ridgetop communities had to move down or away.

5. Before the passage of the Federal Surface Mining Control and Reclamation Act (SMCRA), 30 U.S.C.A. § 1201 et seq. (1977), coal sold as high as $75 a ton, with costs in some steep-slope, multiple-seam areas, like those Sax was observing, of less than $20 per ton. Law enforcement has substantially increased since the mid-1980s, and the price of coal has steadily declined. Interview with Benjamin Green, West Virginia Coal Association (June 3, 1998) and John Morgan, Kentucky Coal Consultant, (June 6, 1998).

6. After an outcrop coal seam has been stripped to the high walls (the point at which the overhang of an excavated slope is too unstable to be cut further inward), and the seams have been auger-drilled sideways further into the hill to salvage as much readily reachable coal as possible, the mountain is so unstable that underground mining is impossible, and seventy percent of a mountain’s coal may be permanently unreachable thereafter, at least with today’s technology.
It is a classic environmental perception: the marketplace will act on the logic of its own terms, circumscribed in terms of out of pocket costs and benefits directly received. If stripminers do not have to pay for the loss of forests and wildlife, for flooding and the disruption of mountain communities whose valleys and hills have been turned into barren wastelands, that's just the way it is. Standing on that stripmine in Tennessee, it is clear that the local coal industry, and the stripmining regulators with whom the industry works so closely, are not interested in the comprehensive ecological cost accounting of an intergenerational educator.

C. Sax as Rebbe

This is not to say that Sax cannot communicate with people in the marketplace. Consider the time he was invited to speak to a large group of old-line Michigan resource officials. These were state forest land managers, traditionally oriented fish and game commissioners and state outdoor recreation representatives, most of whom were deeply imbued with the ethic of snowmobiles and trail bikes, massive hatchery fish stocking, snagging, and other commercialized uses of the outdoors that bring hundreds of recreationists to the northland every weekend.

Sax talked to them, in what could have come across as a foreign language, about how publicly owned forests should be a haven of quiet contemplation. There's place enough elsewhere for importing the frenzy of the city to the outdoors. The pleasure and experience of a hundred quiet recreationists can be disturbed by just one kid blasting through streams and hills on a full throttle trail bike. But Sax didn't talk much about user conflicts. Instead, with these guys who normally talked about bag limits and local politics, Sax chose to speak of Aristotle—specifically, the Aristotelian notion that an individual's most rewarding self-investment comes in intensive direct personal integration with a thoughtful context—and of Ortega y Gasset, the Spanish philosopher of individualism who spoke of the enrichment that one gets from a quiet sport deeply experienced.

With this good-ol'-boys crowd, Sax spoke of the contrast between the economic and political pressures that dominate our daily lives and those quiet experiences that can give long term meaning to the life of individuals of all social strata and to a society. It worked. Many in that audience, having heard about Aristotle and Ortega, left the con-

7. Snagging is a form of fish-catching, still legal in some states, where large treble hooks weighted with lead are cast out into pools below dams and falls where migrating fish are concentrated and rapidly retrieved. The hooks snag fish in tail, back, belly, throat or head. It is not generally regarded as an aesthetic, humane, or sporting method of catching fish, but hundreds did it.
ference talking about themselves as guardians of a public trust, and some of the public lands they managed subsequently shifted away from a presumption of open door access to mechanized recreation.

Sax, perhaps like the rabbi he once studied to be, addresses his thoughts to his audience, whomever they are, as if they too hold a desire to make sense for the good of all. In his own mind and in his public thoughts, it seems that he tries to figure out what the optimal long term public interest in a situation may be and expects that the merits of such ideas will have force in the minds of those who hear. It is a perspective that implicitly expects more of society than the narrow, cynical tribalism that too often characterizes daily political and economic life. Even a group normally dominated by short term market pressures, like those state land managers, can be imbued with a sense of legacy and social responsibility because Sax so clearly holds himself to the same high inquiry, not attempting to build an empire in the tawdry daily world of political expediency.

D. Sax and Two Economies

Aristotle, Ortega y Gasset, ecophilosophy, and probing questions may have worked on the good-ol’-boys of Michigan’s land management agencies, but they don’t necessarily have much purchase on Justice Scalia and other devotees of the marketplace.

In 1993, convinced that Justice Scalia’s opinion in *Lucas v. South Carolina Coastal Commission* imposed an artificially narrow and rigid baseline for defining the constitutional takings balance, Sax set out an analytical construct of “two economies.” The balance between private and public rights, he argued, must take into account the realities of natural systems.

During oral argument in the *Lucas* case, Justice Scalia sarcastically derided regulatory programs designed to protect the nation’s disappearing wetlands and in his written opinion attempted to build a fortress around market based definitions of private property asserting that regulations depriving land of its “economic benefit” constitutionally require compensation unless the restrictions are those “that background principles of the state’s law of property and nuisance already place upon land ownership.” Sax, to explain how the realities of barrier beach and wetlands ecological systems deserved attention

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within the constitutional balancing process, counterposed the idea that there are *two* relevant economies, not just one. "There are two fundamentally different views of property rights: . . . land in the 'transformative [market place] economy,' and land in the 'economy of nature.'"\(^{11}\)

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11. *See generally, Sax, Economy of Nature, supra note 9, at 1442.* There, Sax refers to "the transformative economy," or what I prefer more simply to label "the marketplace economy." Private property rights are primarily defined with reference to the daily reality of marketplace ownership, and these property rights have driven what has become the greatest economy in the history of the world, powerfully shaping the daily governance of our lives and of the nation.

Why use the word "economy"? The concept of a natural "economy" functionally echoes Aldo Leopold's lyrical descriptions of how an ecosystem works and evolves:

Land, then, is not merely soil; it is a fountain of energy flowing through soils, plants, and animals. Food chains are the living channels which conduct energy upward; death and decay return to the soil. The circuit is not closed; some energy is dissipated in decay, some is added by absorption from the air, some is stored in soils, peats, and long-lived forests; but it is a sustained circuit, like a slowly augmented revolving fund of life.

The velocity and character of the upward flow of energy depend on the complex structure of the plant and animal community, much as the upward flow of sap in a tree depends on its complex cellular organization. Without this complexity, normal circulation would presumably not occur. Structure means the characteristic numbers, as well as the characteristic kinds and functions, of the component species. This interdependence between the complex structure of the land and its smooth functioning as an energy unit is one of its basic attributes.

When a change occurs in one part of the circuit, many other parts must adjust themselves to it. Change does not necessarily obstruct or divert the flow of energy; evolution is a long series of self-induced changes, the net result of which has been to elaborate the flow mechanism and to lengthen the circuit. *Aldo Leopold, A Sand County Almanac*, 214-220 (1968).

In today's terms an 'economy' is probably the most appropriate denotative concept to register that natural ecosystems deserve recognition as an equally intricate and decisive self-contained system for managing the inputs and outputs, adaptations and changes, of its constituent elements' progression and survival over time. Both 'economy' and 'ecology' come from the Greek root *oikos,* for "home." Garrett Hardin once argued that economics should be subordinated as a component of the greater sphere of ecology, rather than vice versa. *See Garrett Hardin, Sweet-Singing Economists,* in *Exploring New Ethics For Survival: The Voyage Of The Spaceship Beagle* Chap. 9 (Robert Boulting ed. 1972). One could therefore reverse fields and relabel the marketplace economy as the "materialistic ecology," but the phrase does not grab.
Sax presented a chart of the two economies as he conceptualized them:

<table>
<thead>
<tr>
<th>TRANSFORMATIVE [MARKET PLACE] ECONOMY</th>
<th>ECONOMY OF NATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tracts are separate. Boundary lines are crucial.</td>
<td>Connections dominate. Ecological services determine land units.</td>
</tr>
<tr>
<td>Land is inert/waiting; it is a subject of its owner’s dominion.</td>
<td>Land is in service; it is part of a community where single ownership of an ecological service unit is rare.</td>
</tr>
<tr>
<td>Land use is governed by private will; any tract can be made into anything. All land is equal in use rights (Blackacre is any tract anywhere).</td>
<td>Land use is governed by ecological needs; land has a destiny, a role to play. Use rights are determined by physical nature (wetland, coastal barrier, wildlife habitat).</td>
</tr>
<tr>
<td>Landowners have no obligations.</td>
<td>Landowners have a custodial, affirmative protective role for ecological functions.</td>
</tr>
<tr>
<td>Land has a single (transformative) purpose.</td>
<td>Land has a dual purpose, both transformative and ecological.</td>
</tr>
<tr>
<td>The line between public and private is clear.</td>
<td>The line between public and private is blurred where maintenance of ecological service is viewed as an owner’s responsibility.</td>
</tr>
</tbody>
</table>

“Traditional property law,” Sax wrote, “treats undeveloped land as essentially inert... in a passive state, waiting to be put to [direct human economic] use.

Insofar as land is “doing” something—for example, harboring wild animals—property law considers such functions expendable. Indeed, getting rid of the natural, or at least domesticating it, was a primary task of the European settlers for North America. An ecological view of property, the economy of nature, is fundamentally different. Land is not a passive entity waiting to be transformed by its land owner. Nor is the world comprised of distinct tracts of land, separate pieces independent of each other. Rather, an ecological perspective views

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12. Sax, supra, note 9, at 1445.
land as consisting of systems defined by their function, not by man-made boundaries.

By characterizing the demands of nature as "pressing private property into some form of public service," the Lucas Court fails to recognize that lands in a state of nature are already in public service, but to a purpose that the Court is unwilling to acknowledge. The Court should have asked whether notions of property law could be reformulated to accommodate ecological needs without impairing the necessary functions of the transformational economy.

Sax's analysis focuses on the legal qualities of land in those two different economies. A further set of functional ecological distinctions between the two economies may be added, as hypothesized independently in the work of a remarkable fisheries resources consultant from the Pacific Northwest, James Lichatowich. In Lichatowich's terms the two economies have these further ecological attributes:

<table>
<thead>
<tr>
<th>THE INDUSTRIAL ECONOMY</th>
<th>THE NATURAL ECONOMY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emphasis on production</td>
<td>Emphasis on reproduction</td>
</tr>
<tr>
<td>Large centralized production facilities (economies of scale and monocultures)</td>
<td>Dispersed production (stability through diversity)</td>
</tr>
<tr>
<td>Fossil fuel is the primary source of energy</td>
<td>Solar radiation is the primary source of energy</td>
</tr>
<tr>
<td>Linear and extractive</td>
<td>Renewable and cyclic</td>
</tr>
<tr>
<td>Improvements/changes are external (the market's 'invisible hand' drives adaptation)</td>
<td>Improvements/changes are internal (genetic diversity drives adaptation)</td>
</tr>
<tr>
<td>Independent spheres of economic activity (individualism)</td>
<td>Interdependent parts (contextual)</td>
</tr>
<tr>
<td>Waste</td>
<td>No waste, everything is recycled</td>
</tr>
</tbody>
</table>

Using the concept of two economies as a reminder of the concurrent needs of human and natural systems, some participants in the highly charged field of fisheries management began to negotiate consensus positions. They recognized the necessity for credible, enforceable regulatory controls over fisheries harvest quotas, dam and

13. See James Lichatowich et al., Oregon Business Council, A New Vision for Pacific Salmon, (1996); James Lichatowich, It's the Economies, Mr. President, 34 TROUT, Summer 1993, at 22-23. Lichatowich uses the phrase "Industrial Economy" for what Sax called the "Transformative Economy" and this essay calls the "Marketplace Economy."
irrigation operations, and timbercutting impacts on rivers and streams.14

"Two economies" usefully captures the reality of two coexisting systems of great complexity and emphasizes that marketplace disruptions of the economy of nature cause systemic harms, not just irrelevant isolated consequences. The conceptualization, however, understandably encounters trouble from devotees of marketplace economics, because there is no stated reason why the marketplace should feel inclined to accommodate itself to the needs of the economy of nature. Market focused thinkers might well accept the use of the word "economy" to describe the complex interconnections within the economy of nature, but nonetheless resist the relevance of the economy of nature to marketplace economics except on the latter's own terms. "Although the majority opinion recognizes the differences between a transformative economy and an economy of nature, it rejects the demands of the economy of nature as legitimate obligations of land and of landowners."15 Sax, for instance, points to the way the marketplace economy disrupts the delicate ecosystem of the economy of nature and asserts that the former should recognize the needs of the latter. He words it, however, as if the market should do so primarily for the sake of the economy of nature itself.

Lucas' property—coastal duneland—was performing an important ecological service to uplands by functioning as a storm and erosion barrier. Therefore, maintenance of the land in its natural condition might have been ecologically necessary.16

Thus, a wetland [is] an adjunct of a river, in service to the river as a natural resource. Beach dune land would be the frontal region of a coastal ecosystem extending far beyond the beach itself. A forest would be a habitat for birds and wildlife, rather than simply a discrete tract of land containing the commodity timber.17

Unless the economy of nature can be translated into a logically necessary element within every competent economic analysis, Sax's framing of the two economies is likely to be shrugged off by marketplace economists as one more romantic notion of nature appreciation.18 That is the challenge taken up in the second Part of this essay.

14. See id.
16. Id. at 1445 (emphasis added). Sax continues, "In an economy of nature the landowner's role is perforce custodial at the outset."
17. Id. (emphasis added).
18. Mr. Lichatowich, a respected consultant on fisheries management policy based in Sequim, Washington, however, reports that some industrial interests in the Pacific Northwest have given the "natural economy" analysis a surprisingly responsive reception, encouraging more cooperative approaches to regulatory data gathering and restrictions on activities that directly and indirectly impact natural resource systems. After a presentation
Paradoxically, it is endangered species law that suggests a broader context linking the two economies. Sax has published very little about endangered species or the public trust of wildlife endangerment. But his ecophilosophical and legal process ideas were fundamental to the classic endangered species case of the 1970s, *Tennessee Valley Authority v. Hill*, which has long been characterized as the extreme confrontation between practical economics and the abstractions of environmental protection.\(^{19}\)

The story of the contest between the endangered Snail Darter, and Tellico, Tennessee Valley Authority’s (TVA) last dam project, has been chronicled elsewhere.\(^{20}\) In short, the Tellico Dam case was a classic faceoff under the Endangered Species Act (ESA)\(^{21}\) between a public-works porkbarrel project and modern principles of environmental and social economic accounting. The TVA was pushing inexorably to build its last dam on the region’s last remaining major stretch at a business council forum, for example, one observer noted "If you had told me you’d walk out of here with a resolution cautioning against increased industrialization, I’d have said you’re crazy." Businessmen who had resisted comprehensive environmental resource regulations said to him that "Now I finally understand what this is all about." Telephone interview with James Lichatowich, (Dec. 15, 1997).

19. Many environmentalists miss this utilitarian justification of endangered species protections, falling back upon spiritual and ethical principles alone to justify the supposed "extremism" of the Snail Darter case:

One day in early June, Bobby Kennedy Jr. stands over the body of a decomposing fox, killed by one of his homemade traps that had been set after the rabid creature had menaced his children at his home in Mount Kisco, N.Y. Nature is his faith, and he recounts a conversation he'd had with a Catholic priest on a mountain top. "I kind of challenged him with the most difficult episode in the history of environmental advocacy, which was the snail darter case. I said, 'How did we allow this 2-inch fish with no economic significance to hold up a $ 1 billion dam project that would have provided energy and jobs to people? Why did we put fish before people?' And he said, 'That's not what happened. We know at our core, as Americans, that if we lose a single species, we lost part of our ability to sense the Divine, to understand who God is and therefore what our potential is, as human beings.' Then I understood that God reveals himself through many avenues, When we destroy those things, whether whole species or huge ecosystems, to me, it's the moral equivalent of tearing the last pages out of the last Bible on Earth."


of free flowing big river, despite overwhelming economic and ecological arguments against it. Given TVA’s internal momentum and regional power, there was no official forum, agency, or statute that would force the project to stand or fall on its objective merits.

The Little Tennessee River would have disappeared in 1973 had it not been for Hiram Hill, a law student of mine who needed a term paper topic. Earlier, while on an unplanned leave of absence from law school, he had joined a fish biology fieldwork class which discovered a small endangered perch in the middle of the Tellico Dam area, a fragile little fish that required clear, cool, flowing river conditions in order to survive. “This dam looks as if it may violate § 7 of the Endangered Species Act,” he said. “Do you think that’s enough for a twelve-page term paper?” I thought it was. The ESA’s § 7 prohibits federal agencies from jeopardizing the continued existence of endangered species or modifying their critical habitat, and the dam apparently did both. Three citizens, including Hill and me, in a bruising odyssey that got me fired, persuaded the Department of Interior to list the Snail Darter as endangered, drafted a complaint against the TVA, and went to court.

In preparing the litigation, we drew deeply upon what we had learned from Joe Sax, in legal process terms as well as ecophilosophy. And when Sax was asked for advice on whether the bombshell should be filed he tersely replied, “Sounds like a good idea to me.” He was in the minority.

Why should we protect this, or any, endangered species? This, of course, was the question brought into national debate when the Tel-

22. By 1973, TVA had impounded 2,500 linear miles of the Tennessee and Kentucky River systems, leaving the Little T’s thirty three miles as the last remaining stretch of un-dammed river.

23. Charles Schultze was the Chairman of the Council of Economic Advisors and a member of the Cabinet level endangered species committee created by the 1987 ESA Amendments. 16 U.S.C.A. § 1536(e) - (o) (often referred to as the “God Committee,” and more recently the “God Squad,” because of its power to authorize extinctions). At the conclusion of the economic analysis at the Committee’s Tellico hearing, he pointedly noted that even with 95% of the allocated money spent, the benefits of Tellico did not justify spending the last 5%, “which says something about the original design.” U.S. Dep’t of the Interior, Endangered Species Committee Hearing 26 (Jan. 23, 1979) (unpublished transcript of public hearing, available at Tellico Archives, Boston College Law School). Committee Chairman Cecil Andrus said, “I hate to see the Snail Darter get the credit for stopping a project that was ill conceived and uneconomic in the first place.” And in a penetrating study of the TVA archives, even after those archives had been vetted by TVA’s legal department, the internal institutional momentum was evident: the Tellico Dam project was an extremely important opportunity to show that the agency could push forward with major projects that were not justified by traditional agency economic justifications. See Wheeler and McDonald, supra note 20 at 3-6.

24. See 16 USCA § 1536(a)(2).
lico Dam filing produced a Sixth Circuit injunction. Sax's public trust concepts offered a somewhat helpful analogy, affirming the legacy of nature received from past generations, which should insofar as possible be passed on as legacy to future generations. There is, arguably, a moral and philosophical imperative, a sort of human noblesse oblige, to steward our planet and the creatures that inhabit it, harming them as little as possible.

But these rarefied moral and ethical abstractions, ranging from Taoist concepts of humans as part of nature to Judeo-Christian concepts of stewardship like Noah's Ark, do not resonate much with porkbarrel agencies, octogenarian chairmen of appropriations committees, or judges.

In pragmatic terms it is far more effective to argue, if one can, that endangered species protection has direct human utility. The reason that the ESA, almost alone in the parade of statutes from the 1970s, has still not achieved acceptance in the political marketplace and regularly faces attempts to repeal it in all but name, is that the human usefulness of protecting endangered species is far less tangible than the direct protections of health and property implicit in virtually all other major federal environmental statutes.

Proponents of endangered species protection regularly try to sound a utilitarian argument for protecting endangered species. In some cases, they claim that the species itself is directly physically important to human health and welfare. For instance, the Pacific Yew, an endangered plant on the California coastline, turns out to contain taxol, a chemical that is extremely useful in treating certain forms of cancer. We should therefore protect all endangered species because they are like books that we have not yet learned to read; the lessons they have for us may be critically important, but if we lose the book, the information is lost forever.

In far more cases, however, endangered species have no direct physical use, but may have great human utility as functional indicators or barometers of human welfare. The major cause of species endangerment is destruction and modification of habitat, and often this im-

25. See Hill v. TVA, 549 F.2d 1064 (6th Cir. 1977). (The suit was filed by Hill, the author, and Donald Cohen, and was later joined by the Association of Southeastern Biologists and the local chapter of the Audubon Society.)


27. I particularly like the example given by Dr. Mark Imlay, a malachologist who reported that when he was testifying at a House hearing on the ESA, one of the stolid, uninterested members of the committee sat up and started taking an avid interest in the ESA when it was mentioned that a substance derived from an endangered shellfish off Key West showed promise in curing genital herpes. Conversation with Dr. Mark Imlay, Malacologist, (Apr. 1976).
pact is detrimental to humans as well. When the Brown Pelican was threatened because pesticides interfered with its reproductive mechanisms, it was a warning for human health as well. Today, when frogs and raptors show the signs of excessive chemical exposures in the Great Lakes region, it is likewise a warning for human health and welfare.

Endangered species have a marked utility beyond direct physical uses. They act as "canaries in the coal mine." When the sensitive little birds carried into coal mines of old began to show the effects of invisible and odorless methane gas buildups, the miners' health and safety were imminently threatened.

In the Tellico Dam setting, the Snail Darter's canary-in-the-coalmine function operated beyond health and safety; the Darter, like the Spotted Owl and its other endangered colleagues, was a barometer of major economic and ecological human social interests in its environment.28 The Darter's last substantial population, found only in the last thirty-three undammed miles of the Tennessee River system, acted as both a vivid ecological indicator and a legal tripwire providing an otherwise nonexistent opportunity to survey and weigh the contending merits of the project in light of all the real public interests involved.

F. Sax and Legal Process: Pluralism and the Strategic Role of Citizen Litigation

The Tennessee endangered species litigation built upon another Saxian theory. Over the preceding years, Sax had repeatedly noted the strategic importance of active citizen enforcement of environmental laws, particularly in courtroom litigation. In the Tellico Dam setting, as in so many cases, it was clear that the official environmental agencies were unable or unwilling to enforce the statute against a potent defendant. ESA § 11, however, like so many federal environmental statutes, gives citizen environmentalists a right to file enforcement actions against statutory violations,29 thereby, Sax ar-

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28. The Spotted Owl, for instance, is an indicator of the long distance, cumulative, and dysfunctional consequences of subalpine clearcutting, which has caused flooding, mudslides and a crash in the commercial salmon fishery of Pacific Northwest, supported by billions of dollars of public subsidies. See, PLATER, ET AL., ENVIRONMENTAL LAW AND POLICY, 686-91.

29. Section 1540(g)(1) of the ESA, a typical citizen enforcement provision, provides: ... any person may commence a civil suit on his own behalf—
(A) to enjoin any person, including the United States and any other governmental instrumentality or agency (to the extent permitted by the eleventh amendment to the Constitution), who is alleged to be in violation of any provision of this chapter or regulation issued under the authority thereof; or
B) to compel the Secretary to apply, pursuant to section 1535(g)(2)(B)(ii) of this title, the prohibitions set forth in or authorized pursuant to section 1533(d) or
gued, also providing legal process leverage to force the merits of the project into a public forum. Sax’s book *Defending the Environment*, published in 1970, is a milestone in a period of dramatic change in the American system of governance from a bipolar to a multicentric pluralistic model. Beginning in the 1960s, American citizen activists instigated a shift within the legal system toward multi-polar, multi-centric initiatives bringing a plethora of different voices into daily governance, adding practical force to efforts to make agencies and the marketplace obey the laws. Professor Michael Axline, whose treatise provides an excellent study of the role and techniques of citizen litigation, has repeatedly acknowledged Sax’s pioneering role in charting out this quintessentially American legal process innovation. The importance of citizen enforcement is echoed today in the successes of many major federal statutes which never would have developed into credible regulatory systems without the citizen litigation Sax so energetically encouraged.

In the Tellico case, the citizen litigation initiative that won standing in the courts and forced an accounting on the merits was a Saxist effort, and, since the facts showed a violation of the ESA, the courts had little choice but to enforce the law. As the citizens’ brief, quoting Sax, reminded the Court, the job of the Court is not to take on the political balancing of such conflicts, but to enforce the law, which then in practical effect would result in a “remand to the legislature.”

1538(a)(1)(B) of this title with respect to the taking of any resident endangered species or threatened species within any State; or

(C) against the Secretary where there is alleged a failure of the Secretary to perform any act or duty under section 1533 of this title which is not discretionary with the Secretary.

Sax wrote the famous Michigan citizen suit statute, M.C.L.A. §§691.1201-1207 (1970), commonly called the “Sax Act” or “MEPA,” which provides standing to bring a new cause of action for protection of the environment and the public trust, and has spawned similar laws in more than half a dozen other states.


33. MICHAEL D. AXLINE, *ENVIRONMENTAL CITIZEN SUITS*.

34. The National Environment Policy Act (NEPA), which requires that before taking major actions one should carefully analyze the possibility that they may result in substantial externalities and net losses, has in effect been enforced only by citizens. Nevertheless, NEPA’s fundamental societal importance is indicated by the fact that state governments and international institutions have come to applaud its basic logic.

35. Brief for respondents at 44, TVA v. Hill, 437 US 153 (1978). In a legislative remand, “... the role of the courts is not to make public policy, but to help assure that public
Supreme Court bought that argument, and the controversy moved to Congress where the project finally received its first public scrutiny on the merits.

**G. Sax and Endangered Species: A Rebbe's Foray into the Thickets of the Political Marketplace**

The porkbarrel forces of the marketplace ultimately overwhelmed the little Snail Darter, in a noisy process of caricature and trivialization. The press never managed to deconstruct the public works lobby's merchandising of the classic false tradeoff, that here was another case where environmental protection had to be traded for economic progress, and a surreptitious appropriations rider overrode the injunction.

The brouhaha over the Snail Darter and alleged environmental extremism has continued in generalized attacks upon the ESA as a whole. The politics of endangered species protection has crescendoed into a volatile pitched battle, as a variety of industries, particularly ranching, timber, mining, and real estate development, recognized the constraints and the awkward revelations that can follow from the policy is made by the appropriate entity.” Sax, *Defending The Environment*, supra note 30, at 149.

36. See *TVA v. Hill*, 437 U.S. 153 (1978). When I travelled to Japan in 1980 to consult on a public interest campaign to save Lake Biwa (which also had involved a sensitive little endangered fish, the Biwa Royal Aiyu) from rampant industrial development, Sax had been there before me. “Ah!” the lake’s citizen defenders said, “Professor Sax! He came here! He spoke to us of Institutionalized Caution!” Sax had harvested this phrase from the *TVA v. Hill* majority opinion’s justification for protecting species whose utility may not be known.


38. See id. The course of the Tellico Dam project after the Supreme Court injunction was initially heartening, with the unanimous God Squad decision on economic as well as ecological grounds in favor of the darter and preservation of the river habitat, and the three congressional hearings likewise undercutting the project’s economics and supporting application of the ESA. But project supporters were able to capitalize on the media’s continued image of a small species stopping progress and ultimately overrode the citizens’ eight years of work with a 42-second floor vote on an appropriations rider. President Carter’s fear of press caricatures led him to sign the override with pilatian sadness. See Mark Reisner, *Cadillac Desert: The American West and Its Disappearing Water* 324-30 (1993). The river died a year later. Several small remnant populations of the fish have subsequently been found, and it is now listed as only a threatened species.

39. These industries have funded a national strike force, NESARC, the National Endangered Species Act Reform Coalition, to roll back the Act’s protections.
ESA's canary-in-the-coal-mine indicator function. In *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, Justice Scalia clearly was gunning for the ESA (especially ESA § 9 limits on private property developments which "take" or harm endangered species or their habitats), as well as coastal barrier beach and wetlands regulations. Under pressure from Wise Use industrial lobbying, the ESA has had its appropriations savagely cut, suffered a year long moratorium on its listing enforcement, lingered for six years without re-authorization, and in general been on a drastic defensive over the past decade and more.

Into this melee walked Joe Sax, on a two year leave from the halls of academe as Special Assistant and resident legal philosopher to Secretary of the Interior, Bruce Babbitt. At Interior, Sax took on a number of different projects. One hallmark assignment was to negotiate intellectual and bureaucratic compromises between the protection of endangered species under ESA § 9 and the phalanx of private property and corporate interests threatened by such protections. From this work came a much elaborated program of Habitat Conservation Plans (HCPs) under ESA § 10, allowing negotiated permits for "incidental taking" of endangered species so that private and corporate development projects can continue if they incorporate required mitigations.

Sax, the legal philosopher of private and public rights, must have felt himself transported into a bewilderingly uncongenial new ecosystem. Within the Beltway, Sax's work could not be shaped only by the public's long-term best interests. Instead he had to ride the volatile politics of endangered species protection where Congressional majorities were thought capable of gutting the entire ESA in the blink of an eye, backed by a chorus of Limbaughian invective characterizing species protections as foolish and destructive elitist whims.

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40. The so called "Wise Use" movement is a quasi-populist political initiative extensively funded by resource user industries to undercut state and federal regulation. See Plater et al., *Environmental Law and Policy*, supra note 20, at 83-84.
41. See Symposium on HCPs, 27 Env'tl Law 755 (1997).
42. Sax's regulatory takings articles were theoretical defenses of constitutional positions, incorporating concepts of public trust and "spillovers," which provided support against private and corporate attacks upon government regulations. Bureaucratic and legislative maneuvering constitute a completely different world.
43. "The militant environmentalist movement in America today is a new homosocialism, communism. What these people are [doing] is . . . trying to attack capitalism and corporate America in the form of going after timber companies. And they're trying to say that we must preserve these virgin trees because the Spotted Owl and The Rat Kangaroo and whatever live in them, and it's the only place they can live, the Snail Darter and whatever . . ." Rush Limbaugh, remarks on Rush Limbaugh radio show (December 7, 1993) (transcript available in Lexis, News Library, Script File.)
To negotiate a modicum of political defense against the focused attacks of the Wise Use industry coalitions, Sax helped refine a program of "no surprises" and "safe harbor" agreements, a program he briefly noted in a recent article. A development project, after funding biological assessments and planning for species conservation mitigation, can get a green light to alter habitats. These HCP regulatory compromises are undeniably risky. For an intergenerational educator the process must have conveyed the sour taste of short term pragmatic political expediency. Sax has noted, however, that under the pressure of the anti-endangered species industrial forces, the Clinton and prior administrations were almost not enforcing ESA § 9 at all. "Anyone who tells you that there is no risk in this HCP process doesn't know what they're talking about, but the risks are worth taking."

To some observers it appears that tendencies to moderate the ESA, in part through expedited incidental take provisions, are a sad retreat from Sax's principles of legal process pluralism (for example, in restricting the practical ability of citizens to enforce HCPs and statutory norms) and from his ideas of societal legacy (especially when the merits of so many development projects do not justify erosion of species protections). The threats to the ESA are real, however, and the public relations onslaught continues to roll on using shallow caricatures of endangered species as whimsical obstacles to solid economic projects. One suspects that Sax breathed a great sigh of relief upon returning to the classroom, where the long term public merits of an issue play a significant role in its discussion and resolution.

44. Sax, supra note 1, at 12-14
45. A few HCPs support Sax's hopes for thoughtful mediation between public and private interests and have won admiring praise from biologists and environmental analysts. Many HCPs negotiated to date, however, appear to be preemptive capitulations to market political pressures. See Plater et al., Environmental Law and Policy, supra note 20, at 705-08. Such political compromises, as in the HCP for the Red-cockaded Woodpecker in privately owned forests of the Southeast, or a current Alabama barrier beach condo project, often override the ESA's indicator function. The ESA needs a more thoughtful press in the marketplace of ideas and political debate if HCPs are to be more than political capitualtions.
46. Personal correspondence with Joe Sax (January 8, 1998). Sax further noted, "[t]he ESA would be a great study of what really happens when you enforce a law evolving over time. It will be years before we know whether the compromise we've drafted has worked."
How can we achieve an integration of important societal concerns that lie beyond the marketplace, including the intricacies of nature, into the processes of daily life and civic governance? Attempting to do so, Professor Sax and others have spoken of "two economies," the economy of nature existing concurrently with the human marketplace economy. They have provided no compelling explanation to skeptics like Justice Scalia, however, for why human economics must acknowledge nature's economics.47

Discerning the existence of two economies is helpful, but in order to construct a complete and comprehensive schematic structure of economic systems, it seems important to hypothesize one additional "economy." There is an important sphere of societal economic reality that exists in terms extending beyond nature and the marketplace. When we talk about the problem of environmental social cost externalizations, and other positive and negative public values beyond marketplace economics, aren't we really identifying a third economy, an overarching civic economics that incorporates the cumulative interests of society as they exist beyond the terms of the marketplace?

I propose that, analytically, we should talk in terms of three economies: a marketplace economy, an economy of nature, and a civic-societal economy.48

The marketplace economy is the well known mechanism of everyday economic and political behavior. It sits in the middle, dynamically churning out power, interlocking networks of motivations and institutions, property rights, goods, politics, and wastes. It dominates the daily life of most of human society.

The natural economy, as noted by Sax and others, is the intricate complex of living, geophysical systems that sustains dynamic planetary processes. It partly overlaps the two human economies—the human civic-societal economy, and the human marketplace economy—supplying vital resources and services to both, but in part lies outside them. The economy of nature processes everything, adapts to everything (though often with altered and diminished qualities of ecosystem health and diversity), absorbs wastes and other externalities from the marketplace, and passes the effects of many of these externality impacts onward to the civic economy.

47. See supra Part I.D.

48. As with the "marketplace economy," the phrase "civic-societal economy" could be denoted by various other smoother phrases. "Public economy," however, already has a different connotation to economists. Just saying "civic" economy implies too little, while "societal" economy is too amorphous. So for the time being, it remains here unmelodiously as the "civic-societal" economy.
The civic-societal economy contains the dynamic processes of the marketplace within its realm, but its terms and elements also extend much further beyond just those things that can be bought and sold. Externalized costs, for instance, go forth from marketplace actors and accumulate somewhere, even if they are invisible to the marketplace, and they have important consequences.

Costs externalized by marketplace enterprises, by factories, porkbarrel government agency projects and programs, or undertakings combining private and public entrepreneurs, exit the marketplace economy but do not thereby drop into oblivion. Instead, they are internalized into one or both of the other economies, into the fabric of the natural and societal economics in which we will continue to live. The civic-societal economy comprises the total reality of resources, energy, inputs, outputs, values, qualities and consequences that carries the life and welfare of a human society from day to day and into the future, whether the marketplace acknowledges them or not.

The theoretical importance of a comprehensive accounting for externalized costs has long been acknowledged by academic economists, but is overlooked in the day to day economic and political pressures of the marketplace. Economic analyses that ignore civic-societal economics, or natural economics that impinge on the civic sphere, however, are naïvely or disingenuously narrow, failing to account for substantial realities that inevitably will be felt by the society. The three economies offer a vehicle to force this economic and legal accounting.

If one were to do a schematic rendering of the three economies, showing their separateness but fundamental interrelatedness, it might look something like this:

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49. Since the dawn of environmental law, it has been evident that most environmental problems derive from human and societal actions driven by the dynamic, logical calculus of marketplace economics. Human nature and the corporate processes that reflect it resolutely focus upon internalizing benefits and externalizing costs. The result is that a vast array of real social costs, like the totality of the effects of stripmining, are diffused into the public and natural commons. Only with great difficulty, and against the strenuous and powerful resistance of marketplace politics, can the governance process acknowledge and account for environmental costs and other nonmarket civic concerns.
Charting out the three economies provides a structure for analyzing the interrelatedness and interdependence that lie at the heart of modern science and policy analysis. If natural economic and public values can be forced into marketplace economic processes, they are much more likely to be efficiently implemented. If civic and natural economics are acknowledged, marketplace economics will not be the preclusive standard of regulatory validity and other legal tests.

In the scheme of the three economies, environmental statutes, like most "public interest" laws, are designed to operate within the larger perimeter of the civic-societal economy, correcting the shortcomings of the marketplace. In reality, however, the regulatory agencies spend most if not all of their daily political lives within and dominated by the pressures and constraints of marketplace politics. Public interest organizations, most of them, are oriented primarily to-

50. Interdependence could mean the three are both receptors and contributors, but at least in the case of the natural economy, the interdependence tends to be one-way. The natural economy is predominantly a contributor of resources to the market economy, and a receptor of negative externalities. While marketplace and human societal economics often depend on the resources and life support supplied by the natural economy, natural systems generally would continue to thrive without a single human being on the planet. Adaptation and change are the essence of natural systems, and so long as the sun shines and the water cycle flows the natural systems would maintain an evolving biodiversity without humans. Exceptions where nature has some dependency on humans might include the limited instances where a particular species is given a respite from human disruptions by attentive biologists or endangered species law, or where a habitat is created or protected by human interventions.
ward civic-societal interests, but nevertheless spend most of their time attempting to counterweigh the dominant pressures of the marketplace. Scratch an environmental law controversy anywhere in the world and you are likely to find a natural value or a public value being destructively disregarded by the market's political and entrepreneurial forces.

Environmental law, if properly administered, directs itself toward all three economies. Its instrumental focus is almost always upon the marketplace economy, attempting to integrate appropriate external constraints and values into the marketplace in three separate settings:

a. Where marketplace externalities directly impact upon human welfare in the civic-societal economy, without reference to the economy of nature, as in direct human toxic exposures, urban transit, historic preservation, and the like;

b. Where marketplace externalities impinge upon natural systems so as to cause consequential harms to human welfare in the civic-societal economy, as with global warming, Forest Service clearcutting sales, and toxic discharges into the Nation's waters; and

c. Where environmental laws target marketplace externalities purely in terms of protecting the economy of nature itself, where there are few or no material consequences upon human welfare, as in those cases of endangered species protection where no substantial human utility is served, humane treatment cases, ecological preservation for moral, religious, aesthetic, or intellectual purposes, and the like.

The first two settings are by far the most frequent in environmental law, as market externalizations impact human welfare either directly or, as so often, disrupt the economy of nature causing consequential harms within the civic-societal economy. This logical connection between natural systems and societal interests provides the compelling utilitarian linkage that should force hardnosed eco-

51. Most citizen public interest groups, of course, must find ways of surviving beyond pure volunteer efforts and sometimes make very successful accommodations with fundraising and other practical organizational needs. Some self-styled "public interest" groups, on the other hand, like the array of "public interest law foundations" and Wise Use populist organizations, are in reality created and funded by marketplace enterprises to counteract the civic momentum of citizens groups. See Oliver A. Houck, With Charity for All, 93 Yale L.J. 1415 (1984), (noting how the Pacific Legal Foundation and its progeny consistently operate as tax deductible fronts promoting industry positions against environmental and other civic constraints); MacWilliams Cosgrove Snider, The Wise Use Movement: Strategic Analysis & Fifty State Review (1993); Montana AFL/CIO, Corporations Fund "People for the West" (1993).
nomics based legal and policy analyses to integrate environmental considerations, which Scalia sought so strenuously to avoid in *Lucas*.

In positive terms, the civic-societal economy receives the values and benefits that humans derive from natural systems, like the multi trillion dollar "natural capital" values that some resource economists say we annually receive "free" from nature, values unacknowledged by the marketplace economy. The civic-societal economy also absorbs negatives from the economy of nature's disruptions from market economy impacts. Some marketplace externalities may only affect natural systems, with no human consequences, but many others pass through the environment into the human welfare context of civic-societal economics. Toxic spills into watercourses, global warming, lost fisheries, eroded soils, wetlands destruction, pesticide loading, and a host of other environmental issues demonstrate important linkages between all three economies.

The analytical construct of three economies provides a potentially useful matrix for discussion of many issues of environmental law and policy, and beyond, which this essay can only begin to suggest. Here, leading off with issues noted in the first part of the essay, are a few policy applications that illustrate how the three economies can be analytically useful. Most of these applications have legal utility as well, (that is, the construct is helpful in legislative, administrative, and industrial policy arenas, and often in shaping legal arguments).

- **The value of wilderness**: The Reagan Administration Secretary of the Interior, James Watt, once famously said, "Are you just going to look at it, or are you going to use it?" The marketplace finds little value in wilderness designations, but the values of wilderness in terms of natural "islands" of genetic reservoirs and ecosystem preservation are scientifically tangible, and in societal terms constitute unique resources for scientific and human experiences, as well as utilitarian storehouses, representing opportunity costs that are incalculably large. As with the "Aristotelian" values of quiet contemplation identified by Sax, wildernesses too can accordingly be recognized as assets of societal enhancement.

- **Restoration of lands beyond their market value**: As with mountain stripmines, an identification of the extensive consequences of cut-and-run stripmining (to natural ecosystems, water tables, low

52. *See infra* note 56.
53. Sax implied these strategic linkages of the natural economy to human utility. "Land [in a natural state] is already at work performing important services.... For example, forests regulate the global climate, marshes sustain marine fisheries, and prairie grass holds the soil in place." Sax, *Economy of Nature, supra* note 9, at 1442, 1445. Each of these examples conveys direct human utilities, as well as the natural consequences Sax is chronicling.
income communities, and to potential future social needs for land and energy) reveals the dominant tendency of market decisions as dangerously narrowed and potentially socially dysfunctional.

- Balancing private versus public rights: As Sax argued after *Lucas*, in weighing the validity of land use restrictions like wetlands regulation, the natural economy constitutes an important system to be factored into the definition of contending rights in the regulation of private activities. By adding the third economy, the implicit balance in regulatory takings cases is clarified to require consideration of effects upon the civic-societal needs and public harms, and that will often incorporate consideration of the effects of disruptions of the natural economy.

- Benefit-cost assessment process: No development project or program can be rationally evaluated in a vacuum. With public works projects like TVA's Tellico Dam, program assessment requires comprehensive accounting of nonmarket civic costs and benefits over time. On the other hand, some of the same marketplace players who oppose benefit-cost reviews of porkbarrel projects rigorously support a form of benefit-cost analysis as a restriction on public interest regulations. Recent bills in Congress have sought to impose strict market oriented benefit-cost tests on agency rules, an initiative that even many economists think infeasible.

- Civic terms of reference for the administrative process: Too often agencies, not to mention legislators and judges, are constrained into short-term decisionmaking and evasion of civic mandates by the power and suasions of marketplace politics. The commensal relationships of the U.S. Forest Service and the Bureau of Land Management with the timber, livestock, and mining industries, for instance, reflect the eclipsing of the natural and societal economies by the power and blandishments of the marketplace economy. The hope is that a civic appreciation of the three economies, and public presentations invoking the broader

54. See Schultze & Gramlich, A Guide To Benefit-Cost Analysis 134-48 (2nd ed. 1990). The Tellico project is only one of many examples of the need to expand analysis beyond economic projections that often come from project promoters in the marketplace.

55. A group of economists has recently developed a set of principles for using and improving benefit-cost analysis in rulemaking, pointing out that congressional leaders need a better understanding of the uses and limits of benefit-cost analysis. "Republican proponents of using benefit-cost analysis have failed to state how imprecise the analysis can be in certain applications . . . . Democrats in Congress, on the other hand, need to learn that benefit-cost analysis is a tool that should be taken more seriously than it has been." Economists Release Principles For Use Of Benefit-Cost Analysis In Rule-Making, BNA NED (Jan. 29, 1996).
economic realities they represent, can introduce concepts of long term public interest into daily political behavior.

• "How safe is safe?": Risk assessment is likewise a rational process susceptible to reductionism: "Will this cause cancer"? The three economies can operate as a reminder that risk assessment must internalize indirect consequences to natural systems and civic economics beyond simple numbers of individual cases of illness.

• "Natural Capital" in operative terms: A significant new initiative in environmental policy analysis and resource economics is the attempt to estimate the value of "Natural Capital," the value to human economics (both marketplace and civic) of the services supplied by natural systems. The value to humans of Natural Capital has been estimated at $16 to 54 trillion per year.56 Threats to this fund can obviously pose drastic disruptions of human welfare. How can their importance be imposed upon the political marketplace, however, given that most natural services are provided free? The rubric of three economies can emphasize an economic imperative to do so.

• The limits of the marketplace: Law-and-economics adherents have developed a devotion to complex propositions of the superiority and omnicompetence of market mechanisms in societal ordering. In their world of marketplace dominance, the role of environmental policy is reduced to the goal of achieving efficiency in assuring that "resources [are] being used so as to maximize human satisfactions."57 The three economies can remind law-and-economics scholars that market-externalized social costs are internalized into the two other economies where they have very real consequences. Yet those economies lack the internal accounting, brokering, and self defense mechanisms of the marketplace economy. Human satisfactions reflected in marketplace

56. Robert Costanza and Herman Daly have led the Natural Capital analysis and come up with impressive numbers:
We have estimated the current economic value of 17 ecosystem services for 16 biomes, based on published studies and a few original calculations. For the entire biosphere, the value (most of which is outside the market) is estimated to be in the range of US $16-54 trillion per year. . . . Because of the nature of the uncertainties, this must be considered a minimum estimate. Global gross national product total is around $18 trillion per year.

terms may not be the most accurate gauge of societal needs. Natural systems and environmental quality have extraordinarily significant long term and indirect human importance that a truly "conservative" approach to human governance, concerned with societal survival, ignores at its peril.

- Resource depletion taxes, increased prices for public resources like timber and minerals, carbon taxes, and other nonmarket pricing mechanisms: When governments impose levies that are based on estimations of long term opportunity costs they face strong downward pressure from marketplace forces based on current market-set pricing. Rationales drawn from the natural and civic economies provide economic justification for pricing beyond the terms of current commodity markets.

- Market based regulatory approaches: It is important to affirm that performance standards should be set on civic criteria, not market expediency. In emissions trading systems and other market enlisting alternatives to command-and-control systems, for instance, participants sometimes forget that the market is the means rather than the end. Evaluating tradeable allowances in terms that consider the consequences on natural systems and the public welfare of the civic economy provides a necessary check on the tendency to manage market based schemes in narrow market terms.

- The perspectives of the contending forces in contemporary policy debates: The narrowed interests of marketplace arguments can be usefully distinguished from the merits of arguments based on civic-societal good, a distinction that is often occluded.\textsuperscript{58} "The bottom line" of individual marketplace players is very different from the society's "bottom line." The former are fractionalized and incomplete; the latter is cumulative, integrally complete, and shared. Political analysis should note this difference in the two perspectives.

- and so on . . . .

Charting out three economies provides an analytical and conceptual vehicle for focusing analysis upon the ultimate fundamental question of human governance: how are we to sustain human society on the planet with a satisfactory quality of life? The three economies present persuasive reasons for Justice Scalia and law-and-economics

\textsuperscript{58} Note, for instance, how some "public interest law firms" chronicled by Professor Houck, \textit{supra} note 51, are created and managed to serve marketplace interests, yet use the public interest label to imply that they, like most citizen public interest groups, are most concerned with the civic-societal realm.
theorists, if they truly wish to integrate the perceptions of economics into rules of law, to recognize logically necessary economic linkages between marketplace property rights and the economy of nature, and the legitimate demands of civic public interests beyond the narrow limits of common law.59

SUMMARY

How does one evaluate the important public values and impacts of things that do not have a market price and then integrate them into the fabric of our system of social governance? Joseph Sax's kaleidoscopic intellectual interests have led him to explore a remarkable range of legal and philosophical issues that extend that inquiry far beyond discrete subject matter topics of environmental law. When Sax takes on these questions—the experience of wilderness, the logic of human nature that leads to destructive development, the meaning of sustainable development, the public trust as society's legacy from past to future, the strategic role of citizen action in democratic governance, and the separate reality of natural systems coexisting with human systems—he is an intergenerational educator charting out paths to answers to important questions.

Building on Professor Sax's hypothesis of two economies, and classic perceptions from environmental economics, this essay proposes the theory that there are three economies that must be understood in order to achieve a realistic analysis of how society does and should function, now and for the future. The dominant marketplace economy is central to daily economic and political life. It exists, however, within the context of two other economies. The economy of nature is an intricate underlying system of natural systems, operating under its own rules, that supplies resources and a sustaining context to humans. The marketplace's frequent use of the natural economy as a cumulative receptor of externalized costs is often shortsighted and dysfunctional. The civic-societal economy encompasses the marketplace economy but also comprises the overarching public interest, the full comprehensive reality of societal costs, benefits, and conditions lying beyond the marketplace, including the impact of direct externalities, and externalities passed through the natural economy. If quality of life is to be sustained through future generations, human society cannot afford to be substantially dominated only by the daily economic and political machinery of the marketplace with its short term focus

59. In Lucas, Justice Scalia asserted that regulations depriving land of its "economic benefit" constitutionally require compensation unless the restrictions are those "that background principles of the State's law of property and nuisance already place upon land ownership." Lucas, 505 U.S. at 1029. This rule, as Sax notes, applies a purely market-based definition of economic benefit and property.
and narrowed scheme of values. Sustainability requires that social governance must integrate the functional realities of the natural and civic-societal economies as well.