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Whither Conservation Ethics?

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Abstract: *A review of the moral foundations of American conservation provides a historical perspective for formulating a twenty-first century conservation ethic. Building on the work of R. W. Emerson and H. D. Thoreau, John Muir formulated a Romantic-Transcendental Preservation Ethic that pitted the allegedly higher aesthetic and spiritual uses of nature against consumptive and extractive material uses. Gifford Pinchot formulated a more pedestrian and egalitarian Resource Conservation Ethic consistent with utilitarian and democratic ideals. Muir also adumbrated a more radical nonanthropocentric preservation ethic rhetorically cast in Biblical terms. Aldo Leopold articulated a similarly nonanthropocentric environmental ethic in evolutionary and ecological terms. A review of Leopold's large literary estate, however, reveals that he continued to advocate active management for a mutually beneficial human-nature symbiosis, in addition to the passive preservation of "wilderness." As the human population grows and more nations develop, the best hope for conservation biology lies in a generalization of Leopold's ideal of ecosystems which are at once economically productive and ecologically healthy. The principal intellectual challenge raised by such an ideal for conservation biology is the development of criteria of ecological health and integrity in an inherently dynamic, evolving, and human-saturated biota.*

Resumen: *Una revisión de las bases morales de la conservación en los Estados Unidos de Norte América, nos proporciona una perspectiva histórica para formular una ética conservacionista para el siglo 21. John Muir formuló una "Ética de la Preservación Romántico-Trascendental" basada en las obras de R. W. Emerson y H. D. Thoreau que contraponía el supuesto valor estético y espiritual de la naturaleza y su utilidad para el consumo y uso material extractivo. Gifford Pinchot formuló una "Ética de la Conservación del Recurso" más pedestre e igualitaria, consistente con los ideales utilitarios y democráticos. Muir también bosquejaba una ética preservacionista más radical y no antropocéntrica, retóricamente moldeada en términos bíblicos. Aldo Leopold articuló una ética ambiental no antropocéntrica en términos evolutivos y ecológicos. Una revisión del amplio caudal literario de Leopold, sin embargo, revela que él continuaba abogando el manejo activo de los recursos hacia una simbiosis hombre-naturaleza mutuamente beneficiosa, además de la preservación pasiva de la naturaleza silvestre. En la medida en que la población humana aumenta, y más naciones se desarrollan, la esperanza óptima para la "biología de la conservación," está en la generalización del ideal de "ecosistemas" de Leopold, los cuales son, a su vez, económicamente productivos y ecológicamente sanos. El principal reto intelectual planteado por semejante ideal para la "biología de la conservación," es el desarrollo de criterios de salud e integridad ambiental en una biota inherentemente dinámica, evolutiva y saturada por humanos.*

Today we face an ever-deepening environmental crisis, global in scope. What values and ideals, what vision of biotic health and wholeness should guide our response? American conservation began as an essentially moral movement and has, ever since, orbited around several

ethical foci. Here I briefly review the history of American conservation ethics as a context for exploring a moral paradigm for twenty-first century conservation biology.

Ralph Waldo Emerson and Henry David Thoreau were the first notable American thinkers to insist, a century and a half ago, that other uses might be made of nature than most of their fellow citizens had theretofore

supposed (Nash 1989). Nature can be a temple, Emerson (1836) enthused, in which to draw near and commune with God (or the Oversoul) (Albanese 1990). Too much civilized refinement, Thoreau (1863) argued, can overripen the human spirit; just as too little can coarsen it. In wildness, he thought, lay the preservation of the world.

John Muir (1894, 1901) made the Romantic-Transcendental nature philosophy of Emerson and Thoreau the basis of a national, morally changed campaign for the appreciation and preservation of wild nature. The natural environment, especially in the New World, was vast enough and rich enough, he believed, to satisfy our deeper spiritual needs as well as our more manifest material needs. Amplifying Thoreau's countercultural theme, Muir strongly condemned prodigal destruction of nature in the service of profligate materialism and greed (Cohen 1984). In Muir's opinion, people going to forest groves, mountain scenery, and meandering streams for religious transcendence, aesthetic contemplation, and healing rest and relaxation put these resources to a "better" — i.e., morally superior — use than did the lumber barons, mineral kings, and captains of industry hell-bent upon little else than worshiping at the shrine of the Almighty Dollar and seizing the Main Chance (Fox 1981).

Critics today, as formerly, may find an undemocratic and therefore un-American presumption lurking in the Romantic-Transcendental conservation ethic of Emerson, Thoreau, and Muir. To suggest that some of the human satisfactions that nature affords are morally superior to others may only reflect aristocratic biases and class prejudices (O'Connor 1988). According to Utilitarianism — a popular moral and political doctrine introduced by Jeremy Bentham (1823) — human happiness, defined ultimately in terms of pleasure and pain, should be the goal of both individual and government action. And one person's pleasure is not necessarily another's. Landscape painters, Romantic literati, and Transcendental philosophers may find beauty, truth, and goodness in pristine alpine heights, deep forests, and solitary dales, but the vast majority of workaday Americans want affordable building material and building sites, unlimited tap water, cheap food and fiber and good land to raise it on, industrial progress and prosperity generally — and, after all of this, maybe a little easily accessible outdoor recreation.

At the turn of the century Gifford Pinchot, a younger contemporary of John Muir, formulated a resource conservation ethic reflecting the general tenets of Progressivism, an American social and political movement then coming into its own. America's vast biological capital had been notoriously plundered and squandered, not for the benefit of all its citizens, but for the profit of a few. Pinchot bluntly reduced the Romantic poets' and Transcendental philosophers' "Nature" to "natural

resources." Indeed, he insisted that "there are just two things on this material earth — people and natural resources" (1947:325). Pinchot (1947:325–26) crystallized the Resource Conservation Ethic in a motto which he credits WJ McGee with formulating: "the greatest good of the greatest number for the longest time" — without making direct reference to John Stuart Mill (1863), Bentham's Utilitarian protégé, whose summary moral maxim it echoes.

The first moral principle of the Resource Conservation Ethic is equity — the just or fair distribution of natural resources among present and also future generations of consumers and users. Its second moral principle, equal in importance to the first, is efficiency — a natural resource should not be wastefully exploited. Just slightly less obvious, the principle of efficient resource utilization involves the concepts of "best" or "highest use" and "multiple use."

The "gospel of efficiency," as Samuel Hays (1959) characterized the Resource Conservation Ethic, also implies a sound scientific foundation. The Resource Conservation Ethic thus became wedded to the eighteenth- and nineteenth-century scientific world view in which nature is conceived to be a collection of bits of matter, assembled into a hierarchy of externally related chemical and organismic aggregates, which can be understood and successfully manipulated by analytic and reductive methods.

The Resource Conservation Ethic is also wedded to the correlative social science of economics — the science of self-interested rational monads pursuing "preference satisfaction" in a free market. However, because the market, notoriously, does not take account of "externalities" — certain costs of doing business, such as soil erosion and environmental pollution — and because standard economic calculations discount the future dollar value of resources in comparison with present dollar value, the free market cannot be relied upon to achieve the most efficient, and certainly not the most prudent, use of natural resources. Pinchot (1947) persuasively argued, therefore, that government ownership or regulation of natural resources and resource exploitation is a necessary remedy. Federal and state bureaucracies, accordingly, were created to implement and administer conservation policy as the twentieth century advanced.

Since the Resource Conservation Ethic was based so squarely upon Progressive democratic social philosophy and was rhetorically associated with the modern secular ethic of choice — Utilitarianism — it triumphed politically and became institutionalized in the newly created government conservation agencies. The nonconsumptive uses of nature by aesthetes, Transcendentalists, and wilderness recreationalists can be accommodated by assigning them a contingent market value or "shadow-price" (Krutilla & Fisher 1985). In some circumstances

such uses may turn out to be the highest or most efficient allocation of a given "resource." Thus, an occasional otherwise worthless wild sop might be thrown to the genteel minority.

The celebrated schism in the traditional American conservation movement — the schism between the Conservationists proper and the Preservationists, associated with the legendary names of Pinchot and Muir, respectively — was thus in the final analysis a matter of differing moral (and metaphysical) philosophies. Both were essentially human-centered or "anthropocentric." Both, in other words, regarded human beings or human interests as the only legitimate ends and nonhuman natural entities and nature as a whole as means. In the now standard terminology of contemporary environmental ethics, for both Conservationists and Preservationists, only people possess *intrinsic* value; nature possesses merely instrumental value (Norton 1986). The primary difference is that the Preservationists posited a higher Transcendental reality above and beyond the physical world and pitted the psychospiritual use of nature against its material use. And they insisted that the one was incomparably superior to the other. The Conservationists were more materialistic and insisted, democratically, that all competing uses of resources should be weighed impartially and that the fruits of resource exploitation should be distributed broadly and equitably.

Although Muir's public campaign for the appreciation and preservation of nature was cast largely in terms of the putative superiority of the human spiritual values served by contact with undeveloped, wild nature, Muir also seems to have been the first American conservationist privately to ponder the proposition that nature itself possessed intrinsic value — value in and of itself — quite apart from its human utilities (no matter whether of the more spiritual or more material variety).^{*} To articulate this essentially nonanthropocentric intuition, Muir (1916) turned, ironically, to Biblical fundamentals for the rhetorical wherewithal. Very directly and plainly stated, God created man and all the other creatures. Each of His creatures — man included, but not man alone — and the creation as a whole are "good" in His eyes (i.e., in philosophical terms they have intrinsic value). Hence, to eradicate a species or to efface nature is to undo God's creative work, and to subtract so much divinely imbued inherent goodness from the world — a most impious and impertinent expression of human arrogance.

More radically than most contemporary exponents of the by-now familiar Judeo-Christian Stewardship Envi-

ronmental Ethic, Muir insisted that people are just a part of nature on a par with other creatures and that all creatures (including ourselves) are valued equally by God, for the contribution we and they make to the whole of His creation — whether we can understand that contribution or not. In Muir's inimitable prose,

Why should man value himself as more than a small part of the one great unit of creation? And what creature of all that the Lord has taken the pains to make is not essential to the completeness of that unit — the cosmos? The universe would be incomplete without man; but it would also be incomplete without the smallest transmicroscopic creature that dwells beyond our conceitful eyes and knowledge. (Muir 1916:139)

Reading between the lines, we can, I think, easily see that there was another mind set animating Muir's moral vision — an evolutionary and ecological world view. Darwin had unseated from his self-appointed throne the creature Muir sometimes sarcastically called "lord man" and reduced him to but a "small part" of creation, and the likes of H. C. Cowles, S. A. Forbes, and F. E. Clements would soon validate Muir's intuition that there exists a unity and completeness — if not in the cosmos or universe at large, certainly in terrestrial nature — to which each creature, no matter how small, functionally contributes (McIntosh 1985). This world view held a profound but murky moral import. It fell to Aldo Leopold to bring the ethical implications of the ripening evolutionary-ecological paradigm clearly and fully to light.

Leopold began his career as a professional conservationist trained in the utilitarian Pinchot philosophy of the wise use of natural resources, for the satisfaction of the broadest possible spectrum of human interests, over the longest time (Meine 1988). His ultimately successful struggle for a system of wilderness reserves in the national forests was consciously molded to the doctrine of highest use, and his new technique of game management essentially amounted to the direct transference of the principles of forestry from a standing crop of large plants to a standing crop of large animals (Leopold 1919, 1921). But Leopold gradually came to the conclusion that the Pinchot Resource Conservation Ethic was inadequate, because, in the last analysis, it was untrue.

The Resource Conservation Ethic's close alliance with science proved to be its undoing. Applied science cannot be thoroughly segregated from pure science. Knowledge of ecology is essential to efficient resource management, but ecology began to give shape to a radically different scientific paradigm than that which lay at the very foundations of Pinchot's philosophy. From an ecological perspective, nature is more than a collection of externally related useful, useless, and noxious species furnishing an elemental landscape of soils and waters. It is, rather, a vast, intricately organized and tightly integrated *system* of complex *processes*. It is less like a vast

^{*} A Thousand Mile Walk to the Gulf was prepared by William Frederick Badè from Muir's journal of 1867–68 and published two years after his death. It was, in Badè's words, "the earliest product of his pen," and not originally intended for public consumption (Muir 1916:xxv).

mechanism and more like a vast organism. Specimens are its cells and species its organs. As Leopold (1939a) expressed it:

Ecology is a new fusion point for all the sciences. . . . The emergence of ecology has placed the economic biologist in a peculiar dilemma: with one hand he points out the accumulated findings of his search for utility, or lack of utility, in this or that species; with the other he lifts the veil from a biota so complex, so conditioned by interwoven cooperations and competitions, that no man can say where utility begins or ends.

Thus, we cannot remodel our natural *oikos* or household, as we do our artificial ones, without inducing unexpected disruptions. More especially, we cannot get rid of the Early American floral and faunal "furniture" (the prairie flora, bison, elk, wolves, bears) and randomly introduce exotic pieces (wheat, cattle, sheep, English sparrows, Chinese pheasants, German carp, and the like) that suit our fancy without inducing destructive ecological chain reactions.

Conservation, Leopold came to realize, must aim at something larger and more comprehensive than a maximum sustained flow of desirable products (like lumber and game) and experiences (like sport hunting and fishing, wilderness travel, and solitude) garnered from an impassive nature (Flader 1974). It must take care to ensure the continued function of natural processes and the integrity of natural systems. For it is upon these, ultimately, that human resources and human well-being depend.

The Pinchot Resource Conservation Ethic is also untrue on the human side of its bifurcation of people and natural resources. Human beings are not specially created and uniquely valuable demigods any more than nature itself is a vast emporium of goods and services, a mere pool of resources. We are, rather, very much a part of nature. Muir (1916) groped to express this bioegalitarian concept in theological terms. Leopold did so in more honest ecological terms. Human beings are "members of a biotic team," plain members and citizens of one humming biotic community (Leopold 1949:205). We and the other citizen-members of the biotic community sink or swim together. Leopold's affirmation that plants and animals, soils and waters are entitled to full citizenship as fellow members of the biotic community is tantamount to the recognition that they too have intrinsic, not just instrumental, value. An evolutionary and ecological world view, in short, implies a land ethic.

In sum, then, examining a core sample of the ethical sediments in the philosophical bedrock of American conservation, one may clearly discern three principal strata of laterally coherent moral ideals. They are the Romantic-Transcendental Preservation Ethic, the Progressive-Utilitarian Resource Conservation Ethic, and the Evolutionary-Ecological Land Ethic. American conservation policy and the conservation profession reflect

them all — thus giving rise to internal conflict and, from an external point of view, the appearance of confusion. The public agencies are still very much ruled by the turn-of-the-century Resource Conservation Ethic; some of the most powerful and influential private conservation organizations remain firmly rooted in the even older Romantic-Transcendental philosophy; while contemporary conservation biology is clearly inspired and governed by the Evolutionary-Ecological Land Ethic (Soulé 1985).

As we approach the end of the twentieth century, we face a situation analogous to that faced by our forebears at the end of the nineteenth. Then, the American frontier had closed and what had once appeared to be an effectively boundless and superabundant New World suddenly had palpable limits. Presently our generation is pressing hard against the ecological limits not just of the continent, but of the entire planet. We are witnessing the extension of the industrial juggernaut into every corner of the globe. Soils are washing into the sea; toxic chemicals are polluting surface and ground waters; chainsaws and bulldozers are wreaking havoc in tropical forests — and coincidentally exterminating a significant portion of the Earth's complement of species — while acid rain is withering the forests and sterilizing the lakes in temperate regions of the northern hemisphere; chlorofluorocarbons are eroding the planet's protective ozone shield and fossil fuel consumption is loading the Earth's atmosphere with carbon dioxide. Since Leopold's Land Ethic is fully informed by and firmly grounded in evolutionary and ecological biology, it ought to supplant its nineteenth-century antecedents as our moral anchor in the face of the second wave of the environmental crisis looming threateningly on the horizon — but we need to be very clear about its implications.

The word "preserve" in Leopold's (1949:224–225) famous summary moral maxim — "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise" — is unfortunate because it seems to ally Leopold and the Land Ethic with the Preservationists in the century-old Preservation versus Conservation conflict. We tend to think of Leopold as having begun his career in the latter camp and gradually come over, armed with new arguments, to the former. Leopold's historical association with the wilderness movement cements this impression. Bryan Norton (1989), however, has persuasively argued that Leopold was from first to last committed to active land management, not passive preservation. A review of Leopold's unpublished papers and published but long-forgotten articles confirms Norton's analysis. Leopold's vision went beyond the *either* efficiently develop *or* lock up and reserve dilemma of modern conservation. Leopold was primarily concerned, on the ground as well as in theory, with inte-

grating an optimal mix of wildlife — both floral and faunal — with human habitation and economic exploitation of land.

In a handwritten paper composed shortly after a four-month trip to Germany in 1935 — and ironically, but revealingly, entitled “Wilderness” — Leopold wrote,

To an American conservationist, one of the most insistent impressions received from travel in Germany is the lack of wildness in the German landscape. Forests are there.... Game is there.... Streams and lakes are there.... But yet, to the critical eye there is something lacking.... I did not hope to find in Germany anything resembling the great “wilderness areas” which we dream about and talk about, and sometimes briefly set aside, in our National Forests and Parks.... I speak rather of a certain quality which should be, but is not found in the ordinary landscape of producing forests and inhabited farms. (Leopold 1991)

In a more fully developed essay entitled “The Farmer as a Conservationist,” Leopold (1939*b*) regales his reader with a rustic idyll in which the wild and domesticated floral and faunal denizens of a Wisconsin farm-scape are feathered into one another to create a harmonious whole. In addition to cash and the usual supply of vegetables and meat, lumber and fuel wood, Leopold’s envisioned farmstead affords its farm family venison, quail and other small game, and a variety of fruit and nuts from its woodlot, wetlands, and fallow fields; its pond and stream yield pan fish and trout. It also affords intangibles — songbirds, wildflowers, the hoot of owls, the bugle of cranes, and intellectual adventures aplenty in natural history. To obtain this bounty, the farm family must do more than permanently set aside acreage, fence woodlots, and leave wetlands undrained. They must sow food and cover patches, plant trees, stock the stream and pond, and generally thoughtfully conceive and skillfully execute scores of other modifications, large and small, of the biota that they inhabit.

The pressure of growing human numbers and rapid development, especially in the Third World, implies, I think, that a global conservation strategy focused primarily on “wilderness” preservation and the establishment of nature reserves represents a holding action at best — and a losing proposition at last. I support wilderness and nature reserves — categorically — with my purse as well as my pen. But faced with the sobering realities of the coming century, the only viable philosophy of conservation is, I submit, a generalized version of Leopold’s vision of a mutually beneficial and enhancing integration of the human economy with the economy of nature — in addition to holding on to as much untrammelled wilderness as we can.

Lack of theoretical justification complements the present sheer impracticability of conserving biodiversity solely by excluding man and his works (Botkin 1990). Change — not only evolutionary change, but

climatic, successional, seasonal, and stochastic change — is natural. And “man” is a part of nature. Therefore, it will no longer do to say, simply, that what existed before the agricultural-industrial variety of *Homo sapiens* evolved or arrived, as the case may be, is the ecological norm in comparison with which all anthropogenic modifications are degradations. To define environmental quality — the integrity, stability, and beauty of the biotic community — dynamically and positively, not statically and negatively, is part of the intellectual challenge that contemporary conservation biology confronts.

Happily, Leopold’s conservation ideal of ecosystems that are at once productive and healthy is capable of generalization beyond the well-watered temperate latitudes and pastoral lifestyles characteristic of the upper Midwest. Charles M. Peters, Alwyn H. Gentry, and Robert O. Mendelsohn (1989) report that the nuts, fruits, oils, latex, fiber, and medicines annually harvested from a representative hectare of standing rainforest in Peru, for example, are of greater economic value than the saw logs and pulp wood stripped from a similar hectare — greater even than if, following clear-cutting and slash burning, the land is in addition converted to a forest monoculture or to a cattle pasture. They conclude that “without question, the sustainable exploitation of non-wood forest resources represents the most immediate and profitable method for integrating the use and conservation of Amazonian forests” (Peters et al. 1989:656). Arturo Gomez-Pompa (1987) has argued that the greater incidence of trees bearing edible fruits than would occur naturally in the extant remnants of Central American rainforest suggests that these “pristine” habitats may once actually have been part of an extensive Maya permaculture.

Of course we must remember David Ehrenfeld’s (1976) classic warning that we not put all our conservation eggs in the economic basket. It is too much to hope that a standard benefit-cost comparison will, in every case, indicate that the sustainable alternative to destructive development is more profitable. Certainly I am not here urging an unregenerate return to the economic determinism of the Resource Conservation Ethic. Rather, I am simply pointing out that it is often possible for people to make a good living — and, in some instances, even the best living to be had — coexisting with rather than converting the indigenous biotic community. And I am urging that we strive to reconcile and integrate human economic activities with biological conservation. Expressed in the vernacular, I am urging that we think in terms of “win-win” rather than “zero-sum.” Further, I would like explicitly to state — and thereby invite critical discussion of — Leopold’s more heretical, from the Preservationist point of view, implied corollary proposition, viz., that human economic activities may not only coexist with healthy ecosystems, but that they may actually enhance them. Citing Gary

Nabhan (1982), in a more recent discussion Ehrenfeld (1989:9) provides a provocative example,

In the Papago Indian Country of Arizona's and Mexico's Sonoran Desert ... there are two oases only thirty miles apart. The northern one ... is in the U.S. Organ Pipe Cactus National Monument, fully protected as a bird sanctuary, with no human activity except bird watching allowed. All Papago farming which has existed there since prehistory was stopped in 1957. The other oasis, ... over the border in Mexico, is still being farmed in traditional Papago style. ... Visiting the oases "on back-to-back days three times during one year," Nabhan, accompanied by ornithologists, found fewer than thirty-two species of birds at the Park Service's bird sanctuary but more than sixty-five species at the farmed oasis.

From this "modern parable of conservation," Ehrenfeld concludes that "the presence of people may enhance the species richness of an area, rather than exert the effect that is more familiar to us." Is species richness a measure of ecological health? What other standards of biological integrity can be formulated? How do these norms all fit together to form models of fit environments? Can we succeed, as the Papago seem to have done, in enriching the environment as we enrich ourselves?

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