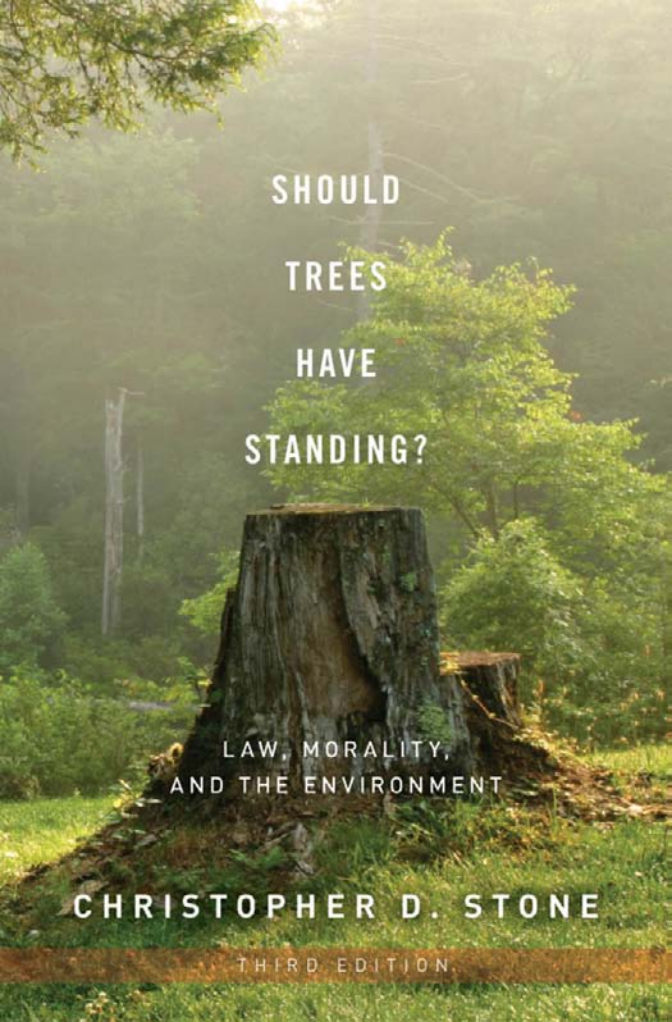
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CHRISTOPHER D. STONE
THIRD EDITION

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OXFORD
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Oxford University Press, Inc., publishes works that further Oxford University's objective of excellence in research, scholarship, and education.

Oxford New York
Auckland Cape Town Dar es Salaam Hong Kong Karachi Kuala Lumpur Madrid Melbourne Mexico City Nairobi New Delhi Shanghai Taipei Toronto

With offices in
Argentina Austria Brazil Chile Czech Republic France Greece Guatemala Hungary Italy Japan Poland Portugal Singapore South Korea Switzerland Thailand Turkey Ukraine Vietnam

Published by Oxford University Press, Inc.
198 Madison Avenue, New York, New York 10016

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Library of Congress Cataloging-in-Publication Data

Stone, Christopher D.
Should trees have standing? : law, morality, and the environment / Christopher D. Stone.—3rd ed.
p. cm.
Prev. ed. has sub-title: and other essays on law, morals, and the environment.
Includes bibliographical references and index.
Summary: "In this collection of essays, the author argues that natural objects, such as trees, should have legal rights through the appointment of guardians designated to protect them. It covers such areas as: agriculture and the environment; can the oceans be harbored; establishing a guardian for future generations; reflections on sustainable development; how to heal the planet; environmentalism, is it dead?—by the publisher."
ISBN 978-0-19-973607-2 (pbk. : alk. paper)
1. Nature conservation—Law and legislation—United States. 2. Environmental law—United States. 3. Nature conservation—Moral and ethical aspects. 4. Environmental protection—Moral and ethical aspects. I. Title.
KF5505.S86 2010
344.04'6—dc22 2009043658

1 2 3 4 5 6 7 8 9

Printed in the United States of America on acid-free paper

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(Based on the Declaration of Principles jointly adopted by a Committee of the American Bar Association and a Committee of Publishers and Associations.)

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INTRODUCTION
Trees at Thirty-Five

I. THE ROOTS OF *TREES*

It has been over thirty-five years since I wrote *Should Trees Have Standing?—Towards Legal Rights for Natural Objects*. It has since assumed a modest but apparently enduring place in contemporary environmental law and ethics, quite out of proportion to its actual impact on the courts. People have asked where I got the idea. I am not sure in what sense anyone ever "gets" any idea; and, at any rate I was later to be assured by readers—one should always be prepared to discover one's unoriginality—that the central notion had been floated about as far away as India[1] and as close to home as California.[2] The odd thing is that in this case I can assign a time, not much more than a moment, when the idea and I met up.

My thoughts were not even on the environment. I was teaching an introductory class in property law, and simply observing that societies, like human beings, progress through different stages of growth and sensitivity. In our progress through these stages, the law, in its way, participates, like art and literature in theirs. Our subject matter, the evolution of property law, was an illustration. Throughout history, there have been shifts in a cluster of related property variables, such as: what things, at various times were recognized as ownable (land, movables, ideas, other persons [slaves]); who was deemed capable of ownership (individuals, married women); the powers and privileges ownership conveyed (the right to destroy, the immunity from a warrantless search); and so on.[3] It was easy to see how each change shifted the locus and quality of power. But there also had to be an internal dimension, each advance in the law-legitimated concept of "ownership" fueling a change in consciousness, in the range and depth of feelings. For example, how did the innovation of the will—of the power to control our property after death—affect our sense of mortality, and thus of ourselves? Engrossing stuff (I thought). But we were approaching the end of the hour. I sensed that the students had already started to pack away their enthusiasm for the next venue. (I like to believe that every lecturer knows this feeling.) They needed to be lassoed back.

"So," I wondered aloud, reading their glazing skepticisms, "what would a radically different law-driven consciousness look like? . . . One in which Nature had rights," I supplied my own answer. "Yes, rivers, lakes, . . ." (warming to the idea) "trees . . . animals . . ." (I may have ventured "rocks"; I am not certain.) "How would such a posture *in law* affect a community's view *of itself*?"

This little thought experiment was greeted, quite sincerely, with uproar. At the end of the hour, none too soon, I stepped out into the hall and asked myself, "What did you just say in there? How could a tree have '*rights*'?" I had no idea.

The wish to answer my question was the starting point of *Should Trees Have Standing?* It launched as a vague, if heartfelt, conclusion tossed off in the heat of lecture. My initial motive was to restore my credibility. I set out to demonstrate that, whatever other criticisms might be leveled at the idea of Nature having legal rights, it was not incoherent.

But this was the hurdle: what were the criteria of an entity "having its own legal rights"? The question is complicated, because the law lends its mantle to protect all sorts of things, but not in a manner that would lead us to say that these things have rights. Under conventional law, if Jones lives next to a river, he has a property right to the flowing water in a condition suited for his domestic, or at least agricultural, use. If an upstream factory is polluting, Jones may well be able to sue the factory. Such a suit would protect the river indirectly. But no one would say the law was vindicating the river's rights. The rights would be Jones's. The suit would occur under conditions that Jones's interests in the river—its law-assured usefulness to him—were violated. Damages, if any, would go to Jones. If he were to win an injunction, he would have the liberty to negotiate it away—to release his claim against the factory for a price that was satisfactory to him (whatever the effect on the river's ecology).

So, then, what would be the criteria of a river having "its own" rights? One would have to imagine a legal system in which the rules (1) empower a suit to be brought against the factory owner in the name of the river (through a guardian or trustee); (2) hold the factory liable on the guardian's showing that, without justification, the factory changed the river from one state S to another state S* (for example, from oxygenated and teeming with fish to lifeless), irrespective of the economic consequences of the change on any human; and (3) the judgment would be for the benefit of the river (for example, if repairing the pollution—making the river "whole"—called for reoxygenating the river and restocking it with fish, the costs would be paid by the polluter into a fund for the river that its guardian would draw from).

I jotted down these three criteria on a yellow legal pad: (1) a suit in the object's own name (not some human's); (2) damages calculated by loss to a nonhuman entity (not limited to economic loss to humans); and (3) judgment applied for the benefit of the nonhuman entity. If the notion was ever to be more than a vague sentiment, I had to find some pending case in which this Nature-centered conception of rights might make a difference in the outcome. Could there be such?

I phoned my library reference desk, transmitted the criteria, and asked if they could come up with any litigation that fit this description. I did not expect a quick response. But within a half hour I got a call back: there was a case involving Mineral King in the California Sierra Nevada . . . Perhaps it might fit my needs?

II. SIERRA CLUB V. MORTON

The case the library had found, at the time entitled *Sierra Club v. Hickel*, had been recently decided by the Ninth Circuit Court of Appeals.[4] The U.S. Forest Service had granted a permit to Walt Disney Enterprises, Inc. to "develop" Mineral King Valley, a wilderness area in California's Sierra Nevada Mountains, by the construction of a $35 million complex of motels, restaurants, and recreational facilities. The Sierra Club, maintaining that the project would adversely affect the area's aesthetic and ecological balance, brought suit for an injunction. But the Ninth Circuit reversed. The key to the Ninth Circuit's opinion was this: not that the Forest Service had been right in granting the permit, but that the Sierra Club Legal Defense Fund had no "standing" to bring the question to the courts. After all, the Ninth Circuit reasoned, the Sierra Club itself

> does not allege that it is 'aggrieved' or that it is 'adversely affected' within the meaning of the rules of standing. Nor does the fact that no one else appears on the scene who is in fact aggrieved and is willing or desirous of taking up the cudgels create a right in appellee. The right to sue does not inure to one who does not possess it, simply because there is no one else willing and able to assert it.[5]

This, it was apparent at once, was the ready-made vehicle to bring to the Court's attention the theory that was taking shape in my mind. Perhaps the injury to the Sierra Club was tenuous, but the injury to Mineral King—the park itself—wasn't. If the courts could be persuaded to think about the park itself as a jural person—the way corporations are "persons"—the notion of Nature having rights would here make a significant operational difference—the difference between the case being heard and (the way things were then heading) being thrown out of court. In other words, if standing were the barrier, why not designate Mineral King, the wilderness area, as the plaintiff "adversely affected," let the Sierra Club be characterized as the attorney or guardian for the area, and get on with the merits? Indeed, that seemed a more straightforward way to get at the real issue, which was not what all that gouging of roadbeds would do to the club or its members, but what it would do to the valley. Why not come right out and say—and try to deal with—that?

It was October 1971. The Sierra Club's appeal had already been docketed for review by the U.S. Supreme Court under the name *Sierra Club v. Morton* (Morton being the name of the new Secretary of the Interior.). The case would be up for argument in November or December at the latest. I sat down with the editor-in-chief of the *Southern California Law Review*, and we made some quick estimates. The next issue of the *Review* to go to press would be a special symposium on law and technology, which was scheduled for publication in late March or early April. There was no hope, then, of getting an article out in time for the lawyers to work the idea into their briefs or oral arguments. Could something be

published in time for the Justices to see it before they had finished deliberating and writing their opinions? The chances that the case would still be undecided in April were only slim. But there was one hope. By coincidence, Justice William O. Douglas (who, if anyone on the Court, might be receptive to the notion of legal rights for natural objects) was scheduled to write the preface to the symposium issue. For this reason he would be supplied with a draft of all the manuscripts in December. Thus he would at least have this idea in his hands. If the case were long enough in the deciding, and if he found the theory convincing, he might even have the article available as a source of support.

We decided to try it. I pulled the thoughts together at a pace that, as such academic writings go, was almost breakneck, and the law review wedged it into a symposium in which it did not belong. The manuscripts for the symposium issue went to the printer in late December. Then began a long wait, all of us hoping that—at least in this case—the wheels of justice would turn slowly enough that the article could catch up with the briefs. It did.

The Supreme Court upheld the Ninth Circuit, a four Justice plurality affirming that "the 'injury in fact' test requires more than an injury to a cognizable interest. It requires that the party seeking review be himself among the injured."[6] But Justice Douglas opened his dissent with warm endorsement for the theory that had just then made its way into print:

> The critical question of 'standing' would be simplified and also put neatly in focus if we . . . allowed environmental issues to be litigated . . . in the name of the inanimate object about to be despoiled, defaced, or invaded . . . Contemporary public concern for protecting nature's ecological equilibrium should lead to the conferral of standing upon environmental objects to sue for their own preservation. See *Should Trees Have Standing*? . . . This suit would therefore be more properly labeled as Mineral King v. Morton.[7]

Justices Harold Blackmun and William J. Brennan favored a liberal construction of available precedent to uphold the Sierra Club on the pleadings it submitted; but in the alternative, they would have permitted the "imaginative expansion" of standing for which Douglas was willing to speak.[8]

III. EARLY REACTIONS

Boosted by Douglas's endorsement, the media got onto *Trees* overnight. It is not unusual for Justices to cite law review articles. But there was something, if not prophetic, at least amiably zany about a law professor who "speaks for the trees"—and gets a few Justices to listen. Writing in the *Journal of the American Bar Association*, one practicing lawyer took to verse for rejoinder:

> If Justice Douglas has his way—
> O come not that dreadful day—

We'll be sued by lakes and hills
Seeking a redress of ills.
Great mountain peaks of name prestigious
Will suddenly become litigious.
Our brooks will babble in the courts,
Seeking damages for torts.
How can I rest beneath a tree
If it may soon be suing me?
Or enjoy the playful porpoise
While it's seeking habeas corpus?
Every beast within his paws
Will clutch an order to show cause.
The courts, besieged on every hand,
Will crowd with suits by chunks of land.
Ah! But vengeance will be sweet
Since this must be a two-way street.
I'll promptly sue my neighbor's tree
for shedding all its leaves on me.[9]

The style—a reluctance to confront us natural object advocates head-on, prose to prose—spread. In disposing of a 1983 suit by a tree owner to recover from a negligent driver for injuries to the tree, the Oakland County Michigan Appeals Court affirmed dismissal with the following opinion in its entirety:

We thought that we would never see
A suit to compensate a tree.
A suit whose claim in tort is prest
Upon a mangled tree's behest;
A tree whose battered trunk was prest
Against a Chevy's crumpled chest;
A tree that may forever bear
A lasting need for tender care.
Flora lovers though we three
We must uphold the court's decree.[10]

On the tide of such interest, the *Trees* article was brought out in book form utterly without reedit[11]—essentially photocopied, in fact—and sold briskly.[12] Most reactions were favorable. The *Berkeley Monthly*, for one, took *Trees* as a sign of better times to come. Others were critical, either of my ideas, or of nearly unrecognizable mutations which the writers proceeded to connect, at their convenience, I thought, with my name. I might have expected to be considered a born again pantheist, but not, as one reviewer initiated, that my agenda was transparently communistic. (The gist, as I recall, was that if we could not own *things*—and, after all, what else was there?—the whole institution of ownership was done for.) My name and little chatty, uncritical versions of the idea began to

embellish the sort of journals that carry pictures. A revised mass-market paperback edition of the essay was issued by Avon Books, unsentineled by scholarly footnotes.[13]

I had not been an environmental lawyer, and the focus of my attentions soon settled back to other things. But the Nature-rights movement was rolling along and lawyers began to file suits in the name of nonhumans. Early named plaintiffs included a river (the Byram),[14] a marsh (No Bottom),[15] a brook (Brown),[16] a beach (Makena),[17] a national monument (Death Valley),[18] a town commons (Billerica),[19] a tree,[20] and an endangered Hawaiian bird (the Palila).[21]

But I am getting ahead of the story. I will return to the post-*Trees* developments in the epilogue.

1. SHOULD TREES HAVE STANDING? Toward Legal Rights for Natural Objects

I. INTRODUCTION: THE UNTHINKABLE

In *The Descent of Man*, Charles Darwin observes that the history of moral development has been a continual extension in the objects of his "social instincts and sympathies." Originally, each man had regard only for himself and those of a very narrow circle about him; later, he came to regard more and more "not only the welfare, but the happiness of all his fellow-men"; then "his sympathies became more tender and widely diffused, extending to men of all races, to the imbecile, maimed, and other useless members of society, and finally to the lower animals. . . ."[1]

The history of the law suggests a parallel development. Perhaps there never was a pure Hobbesian state of nature, in which no "rights" existed except in the vacant sense of each man's "right to self-defense." But it is not unlikely that so far as the earliest "families" (including extended kinship groups and clans) were concerned, everyone outside the family was suspect, alien, rightless.[2] And even within the family, persons we presently regard as the natural holders of at least some rights had none. Take, for example, children. We know something of the early right-status of children from the widespread practice of infanticide—especially of the deformed and female.[3] (Senicide,[4] as among the North American Indians, was the corresponding rightlessness of the aged.[5]) Maine tells us that as late as the *patria potestas* of the Romans, the father had *jus vitae necisque*—the power of life and death—over his children. *A fortiori*, Maine writes, he had the power of "uncontrolled corporal chastisement; he can modify their personal condition at pleasure; he can give a wife to his son; he can give his daughter in marriage; he can divorce his children of either sex; he can transfer them to another family by adoption; and he can sell them." The child was less than a person: an object, a thing.[6]

The legal rights of children have long since been recognized in principle, and are still expanding in practice. Witness, *In re Gault*,[7] which guaranteed basic constitutional protections to juvenile defendants. We have been making persons of children although they were not, in law, always so. And we have done the same, albeit imperfectly some would say, with prisoners,[8] aliens, women (especially of the married variety), the insane,[9] African Americans, fetuses,[10] and Native Americans.

Nor is it only matter in human form that has come to be recognized as the possessor of rights. The world of the lawyer is peopled with inanimate right-holders: trusts, corporations, joint ventures, municipalities, Subchapter R

partnerships,[11] and nation-states, to mention just a few. Ships, still referred to by courts in the feminine gender, have long had an independent jural life, often with striking consequences.[12] We have become so accustomed to the idea of a corporation having "its" own rights, and being a "person" and "citizen" for so many statutory and constitutional purposes, that we forget how jarring the notion was to early jurists. "That invisible, intangible and artificial being, that mere legal entity" Chief Justice Marshall wrote of the corporation in *Bank of the United States v. Deveaux*[13]—could a suit be brought in its name? Ten years later, in the *Dartmouth College* case,[14] he was still refusing to let pass unnoticed the wonder of an entity "existing only in contemplation of law."[15] Yet, long before Marshall worried over the personifying of the modern corporation, the best medieval legal scholars had spent hundreds of years struggling with the notion of the legal nature of those great public "corporate bodies," the Church and the State. How could they exist in law, as entities transcending the living pope and king? It was clear how a king could bind himself—on his honor—by a treaty. But when the king died, what was it that was burdened with the obligations of, and claimed the rights under, the treaty his tangible hand had signed? The medieval mind saw (what we have lost our capacity to see)[16] how unthinkable it was, and worked out the most elaborate conceits and fallacies to serve as anthropomorphic flesh for the Universal Church and the Universal Empire.[17]

It is this note of the unthinkable that I want to dwell upon for a moment. Throughout legal history, each successive extension of rights to some new entity has been, theretofore, a bit unthinkable. We are inclined to suppose the rightlessness of rightless "things" to be a decree of Nature, not a legal convention acting in support of sonic status quo. It is thus that we defer considering the choices involved in all their moral, social, and economic dimensions. And so the U.S. Supreme Court could straight-facedly tell us in *Dred Scott* that African Americans had been denied the rights of citizenship "as a subordinate and inferior class of beings, who had been subjugated by the dominant race. . . ."[18]

In the nineteenth century, the highest court in California explained that the Chinese had not the right to testify against White men in criminal matters because they were a "race of people whom nature has marked as inferior, and who are incapable of progress or intellectual development beyond a certain point . . . between whom and ourselves nature has placed an impassable difference."[19] The popular conception of the Jew in the thirteenth century contributed to a law which treated them as "men *ferae naturae*, protected by a quasi forest law. Like the roe and the deer, they form an order apart."[20] Recall, too, that it was not so long ago that the fetus was "like the roe and the deer." In an early suit attempting to establish a wrongful death action on behalf of a negligently killed fetus (now widely accepted practice), Holmes, then on the Massachusetts Supreme Court, seems to have thought it simply inconceivable "that a man might owe a civil duty and incur a conditional prospective liability in tort to one

not yet in being."[21] The first woman in Wisconsin who thought she might have a right to practice law was told that she did not, in the following terms:

> The law of nature destines and qualifies the female sex for the bearing and nurture of the children of our race and for the custody of the homes of the world . . . [A]ll life-long callings of women, inconsistent with these radical and sacred duties of their sex, as is the profession of the law, are departures from the order of nature; and when voluntary, treason against it . . . The peculiar qualities of womanhood, its gentle graces, its quick sensibility, its tender susceptibility, its purity, its delicacy, its emotional impulses, its subordination of hard reason to sympathetic feeling, are surely not qualifications for forensic strife. Nature has tempered woman as little for the juridical conflicts of the court room, as for the physical conflicts of the battlefield. . . . [22]

The fact is, that each time there is a movement to confer rights onto some new "entity," the proposal is bound to sound odd or frightening or laughable.[23] This is partly because until the rightless thing receives its rights, we cannot see it as anything but a *thing* for the use of "us"—those who are holding rights at the time.[24] In this vein, what is striking about the Wisconsin case discussed earlier is that the court, for all its talk about women, so clearly was never able to see women as they are (and might become). All it could see was the popular "idealized" version of *an object it needed*. Such is the way the slave-holding South looked upon African Americans.[25] There is something of a seamless web involved: there will be resistance to giving the thing "rights" until it can be seen and valued for itself; yet, it is hard to see it and value it for itself until we can bring ourselves to give it "rights"—which is almost inevitably going to sound inconceivable to a large group of people.

The reason for this little discourse on the unthinkable, the reader must know by now, if only from the title of the paper. I am quite seriously proposing that we give legal rights to forests, oceans, rivers, and other so-called "natural objects" in the environment—indeed, to the natural environment as a whole.[26]

As strange as such a notion may sound, it is neither fanciful nor devoid of operational content. In fact, I do not think it would be a misdescription of certain developments in the law to say that we are already on the verge of assigning some such rights, although we have not faced up to what we are doing in those particular terms.[27] I argue here that we should do so now, and explore the implications such a notion would hold.

II. TOWARD RIGHTS FOR THE ENVIRONMENT

Now, to say that the natural environment should have rights is not to say anything as silly as that no one should be allowed to cut down a tree. We say

human beings have rights, but—at least as of the time of this writing—they can be executed.[28] Corporations have rights, but they cannot plead the Fifth Amendment.[29] *In re Gault* gave 15-year-olds certain rights in juvenile proceedings, but it did not give them the right to vote. Thus, to say that the environment should have rights is not to say that it should have every right we can imagine, or even the same body of rights as human beings have. Nor is it to say that everything in the environment should have the same rights as every other thing in the environment.

What the granting of rights does involve has two sides to it. The first involves what might be called the legal-operational aspects; the second, the psychic and socio-psychic aspects. I shall deal with these aspects in turn.

III. THE LEGAL-OPERATIONAL ASPECTS

(1) What It Means to Be a Holder of Legal Rights

There is, so far as I know, no generally accepted standard for how one ought to use the term "legal rights." Let me indicate how I shall be using it in this piece.

First and most obviously, if the term is to have any content at all, an entity cannot be said to hold a legal right unless and until *some public authoritative body* is prepared to give *some amount of review* to actions that are colorably inconsistent with that "right." For example, if a student can be expelled from a university and cannot get any public official, even a judge or administrative agent at the lowest level, either (1) to require the university to justify its actions (if only to the extent of filling out an affidavit alleging that the expulsion "was not wholly arbitrary and capricious"), or (2) to compel the university to accord the student some procedural safeguards (a hearing, right to counsel, right to have notice of charges), then the minimum requirements for saying that the student has a legal right to his education do not exist.[30]

But for a thing to be a *holder of legal rights*, something more is needed than that some authoritative body will review the actions and processes of those who threaten it. As I shall use the term, "holder of legal rights," each of three additional criteria must be satisfied. All three, one will observe, go toward making, a thing count judicially—to have a legally recognized worth and dignity in its own right, and not merely to serve as a means to benefit "us" (whoever the contemporary group of rights-holders may be). They are, first, that the thing can institute legal actions *at its behest*, second, that in determining the granting of legal relief, the court must take *injury to it* into account; and, third, that relief must run to the *benefit of it*.

To illustrate, even as between two societies that condone slavery there is a fundamental difference between S1, in which a master can (if he chooses), go to court and collect reduced chattel value damages from someone who has beaten his slave, and S2, in which the slave can institute the proceedings himself, for his

own recovery, damages being measured by, say, his pain and suffering. Notice that neither society is so structured as to leave wholly unprotected the slave's interests in not being beaten. But in S2 as opposed to S1 there are three operationally significant advantages that the slave has, and these make the slave in S2, albeit a slave, a holder of rights. Or, again, compare two societies, S1, in which prenatal injury to a live-born child gives a right of action against the tortfeasor at the mother's instance, for the mother's benefit, on the basis of the mother's mental anguish, and S2, which gives the child a suit in its own name (through a guardian ad litem) for its own recovery, for damages to it.

When I say, then, that at common law "natural objects" are not holders of legal rights, I am not simply remarking what we would all accept as obvious. I mean to emphasize three specific legal-operational advantages that the environment lacks, leaving it in the position of the slave and the fetus in S1, rather than the slave and fetus of S2.

(2) The Rightlessness of Natural Objects at Common Law

Consider, for example, the common law's posture toward the pollution of a stream. True, courts have always been able, in some circumstances, to issue orders that will stop the pollution—just as the legal system in S1 is so structured as incidentally to discourage beating slaves and being reckless around pregnant women. But the stream itself is fundamentally rightless, with implications that deserve careful reconsideration.

The first sense in which the stream is not a rights-holder has to do with standing. The stream itself has none. So far as the common law is concerned, there is in general no way to challenge the polluter's actions save at the behest of a lower riparian—another human being able to show an invasion of his rights. This conception of the riparian as the holder of the right to bring suit has more than theoretical interest. The lower riparians may simply not care about the pollution. They themselves may be polluting, and not wish to stir up legal waters. They may be economically dependent on their polluting neighbor.[31] And, of course, when they discount the value of winning by the costs of bringing suit and the chances of success, the action may not seem worth undertaking. Consider, for example, that while the polluter might be injuring one hundred downstream riparians of $100,000 a year *in the aggregate*, each riparian separately might be suffering injury only to the extent of $1000—possibly not enough for any one of them to want to press suit by himself, or even go to the trouble and cost of securing co-plaintiffs to make it worth everyone's while. This hesitance will be especially likely when the potential plaintiffs consider the burdens the law puts in their way:[32] proving, e.g., specific damages, the "unreasonableness" of defendant's use of the water, the fact that practicable means of abatement exist, and overcoming difficulties raised by issues such as joint causality, right to pollute by prescription, and so forth. Even in states which, like California, sought to overcome these difficulties by empowering the attorney general to sue for abatement

of pollution in limited instances, the power has been sparingly invoked and, when invoked, narrowly construed by the courts.[33]

The second sense in which the common law denies "rights" to natural objects has to do with the way in which the merits are decided in those cases in which someone is competent and willing to establish standing. At its more primitive levels, the system protected the "rights" of the property-owning human with minimal weighing of any values: "*Cujus est solum, ejus est usque ad coelum et ad infernos.*"[34] Today we have come more and more to make balances—but only such as will adjust the economic best interests of identifiable humans. For example, continuing with the case of streams, there are commentators who speak of a "general rule" that "a riparian owner is legally entitled to have the stream flow by his land with its quality unimpaired" and observe that "an upper owner has, prima facie, no right to pollute the water."[35] Such a doctrine, if strictly invoked, would protect the stream absolutely whenever a suit was brought; but obviously, to look around us, the law does not work that way. Almost everywhere there are doctrinal qualifications on riparian "rights" to an unpolluted stream.[36] Although these rules vary from jurisdiction to jurisdiction, and upon whether one is suing for an equitable injunction or for damages, what they all have in common is some sort of balancing. Whether under language of "reasonable use," "reasonable methods of use," "balance of convenience," or "the public interest doctrine,"[37] what the courts are balancing, with varying degrees of directness, are the economic hardships on the upper riparian (or dependent community) of abating the pollution vis-à-vis the economic hardships of continued pollution on the lower riparians. What does not weigh in the balance is the damage to the stream, its fish and turtles and lower life. So long as the natural environment itself is rightless, these are not matters for judicial cognizance. Thus, we find the highest court of Pennsylvania refusing to stop a coal company from discharging polluted mine water into a tributary of the Lackawanna River because a plaintiff's "grievance is for a mere personal inconvenience; and mere private personal inconveniences . . . must yield to the necessities of a great public industry, which although in the hands of a private corporation, subserves a great public interest."[38] The stream itself is lost sight of in "a quantitative compromise between two conflicting interests."[39]

The third way in which the common law makes natural objects rightless has to do with who is regarded as the beneficiary of a favorable judgment. Here, too, it makes a considerable difference that it is not the natural object that counts in its own right. To illustrate this point, let me begin by observing that it makes perfectly good sense to speak of, and ascertain, the legal damage to a natural object, if only in the sense of "making it whole" with respect to the most obvious factors.[40] The costs of making a forest whole, for example, would include the costs of reseeding, repairing watersheds, restocking wildlife—the sorts of costs the U.S. Forest Service undergoes after a fire. Making a polluted stream whole would include the costs of restocking with fish, waterfowl, and other animal and

vegetable life, dredging, washing out impurities, establishing natural and/or artificial aerating agents, and so forth. Now, what is important to note is that, under our present system, even if a plaintiff riparian wins a water pollution suit for damages, no money goes to the benefit of the stream itself to repair its damages.[41] This omission has the further effect that, at most, the law confronts a polluter with what it takes to make the plaintiff riparians whole; this may be far less than the damages to the stream,[42] but not so much as to force the polluter to desist. For example, it is easy to imagine a polluter whose activities damage a stream to the extent of $100,000 annually, although the aggregate damage to all the riparian plaintiffs who come into the suit is only $30,000. If $30,000 is less than the cost to the polluter of shutting down, or making the requisite technological changes, he might prefer to pay off the damages (i.e., the legally cognizable damages) and continue to pollute the stream. Similarly, even if the jurisdiction issues an injunction at the plaintiffs' behest (rather than to order payment of damages), there is nothing to stop the plaintiffs from "selling out" the stream, i.e., agreeing to dissolve or not enforce the injunction at some price (in the example described earlier, somewhere between plaintiffs' damages—$30,000—and defendant's next best economic alternative). Indeed, I take it this is exactly what Learned Hand had in mind in an opinion in which, after issuing an antipollution injunction, he suggests that the defendant "make its peace with the plaintiff as best it can."[43] What is meant is a peace between them, and not amongst them and the river.

I ought to make it clear at this point that the common law as it affects streams and rivers, which I have been using as an example so far, is not exactly the same as the law affecting other environmental objects. Indeed, one would be hard pressed to say that there was a "typical" environmental object, so far as its treatment at the hands of the law is concerned. There are some differences in the law applicable to all the various resources that are held in common: rivers, lakes, oceans, dunes, air, streams (surface and subterranean), beaches, and so forth.[44] And there is an even greater difference as between these traditional communal resources on one hand, and natural objects on traditionally private land, e.g., the pond on the farmer's field, or the stand of trees on the suburbanite's lawn.

On the other hand, although there be these differences which would make it fatuous to generalize about a law of the natural environment, most of these differences simply underscore the points made in the instance of rivers and streams. None of the natural objects, whether held in common or situated on private land, has any of the three criteria of a rights-holder. They have no standing in their own right; their unique damages do not count in determining outcome; and they are not the beneficiaries of awards. In such fashion, these objects have traditionally been regarded by the common law, and even by all but the most recent legislation, as objects for man to conquer and master and use—in such a way as the law once looked upon "man's" relationship to African Blacks. Even where special measures have been taken to conserve them, as by seasons on

game and limits on timber cutting, the dominant motive has been to conserve them for us—for the greatest good of the greatest number of human beings. Conservationists, so far as I am aware, are generally reluctant to maintain otherwise.[45] As the name implies, they want to conserve and guarantee our consumption and our enjoyment of these other living things. In their own right, natural objects have counted for little, in law as in popular movements.

As I mentioned at the outset, however, the rightlessness of the natural environment can and should change; it already shows signs of doing so.

(3) Toward Having Standing in Its Own Right

It is not inevitable, nor is it wise, that natural objects should have no rights to seek redress in their own behalf. It is no answer to say that streams and forests cannot have standing because streams and forests cannot speak. Corporations cannot speak, either; nor can states, estates, infants, incompetents, municipalities, or universities. Lawyers speak for them, as they customarily do for the ordinary citizen with legal problems. One ought, I think, to handle the legal problems of natural objects as one does the problems of legal incompetents—human beings who have become vegetative. If a human being shows signs of becoming senile and has affairs that he is de jure incompetent to manage, those concerned with his well being make such a showing to the court, and someone is designated by the court with the authority to manage the incompetent's affairs. The guardian[46] (or "conservator"[47] or "committee"[48]—the terminology varies) then represents the incompetent in his legal affairs. Courts make similar appointments when a corporation has become "incompetent": they appoint a trustee in bankruptcy or reorganization to oversee its affairs and speak for it in court when that becomes necessary.

On a parity of reasoning, we should have a system in which, when a friend of a natural object perceives it to be endangered, he can apply to a court for the creation of a guardianship.[49] Perhaps we already have the machinery to do so. California law, for example, defines an incompetent as "any person, whether insane or not, who by reason of old age, disease, weakness of mind, or other cause, is unable, unassisted, properly to manage and take care of himself or his property, and by reason thereof is likely to be deceived or imposed upon by artful or designing persons."[50] Of course, to urge a court that an endangered river is "a person" under this provision will call for lawyers as bold and imaginative as those who convinced the Supreme Court that a railroad corporation was a "person" under the Fourteenth Amendment, a constitutional provision theretofore generally thought of as designed to secure the rights of freed-men.[51] (When this article was first going to press, Professor John Byrn of Fordham petitioned the New York State Supreme Court to appoint him legal guardian for an unrelated fetus scheduled for abortion so as to enable him to bring a class action on behalf of all fetuses similarly situated in New York City's 18 municipal hospitals. Judge Holtzman granted the petition of guardianship.)[52] If such an argument

based on present statutes should fail, special environmental legislation could be enacted along traditional guardianship lines. Such provisions could provide for guardianship both in the instance of public natural objects and also, perhaps with slightly different standards, in the instance of natural objects on "private" land.[53]

The potential "friends" that such a statutory scheme requires are hardly lacking. The Sierra Club, the Environmental Defense Fund, Friends of the Earth, the Natural Resources Defense Counsel, and the Izaak Walton League are just some of the many groups which have manifested unflagging dedication to the environment and which are becoming increasingly capable of marshalling the requisite technical experts and lawyers. If, for example, the Environmental Defense Fund should have reason to believe that some company's strip mining operation might be irreparably destroying the ecological balance of large tracts of land, it could, under this procedure, apply to the court in which the lands were situated to be appointed guardian.[54] As guardian, it might be given rights of inspection (or visitation) to determine and bring to the court's attention a fuller finding on the land's condition. If there were indications that under the substantive law some redress might be available on the land's behalf, then the guardian would be entitled to raise the land's right in the land's name, i.e., without having to make the roundabout and often unavailing demonstration, discussed later, that the "rights" of the club's members were being invaded. Guardians would also be looked to for a host of other protective tasks, e.g., monitoring effluents (and/or monitoring the monitors), and representing their "wards" at legislative and administrative hearings on such matters as the setting of state water quality standards. Procedures exist, and can be strengthened, to move a court for the removal and substitution of guardians, for conflicts of interest or for other reasons,[55] as well as for the termination of the guardianship.[56]

In point of fact, there is a movement in the law toward giving the environment the benefits of standing, although not in a manner as satisfactory as the guardianship approach. What I am referring to is the marked liberalization of traditional standing requirements. As early as the 1960s, environmental action groups began to challenge federal government action. *Scenic Hudson Preservation Conference v. FPC*[57] is a good example. There, the Federal Power Commission had granted New York's Consolidated Edison a license to construct a hydroelectric project on the Hudson River at Storm King Mountain. The grant of license had been opposed by conservation interests on the grounds that the transmission lines would be unsightly, fish would be destroyed, and nature trails would be inundated. Two of these conservation groups, united under the name Scenic Hudson Preservation Conference, petitioned the Second Circuit to set aside the grant. Despite the claim that Scenic Hudson had no standing because it had not made the traditional claim "of any personal economic injury resulting from the Commission's actions,"[58] the petitions were heard, and the case sent back to the Commission. On the standing point, the court noted that Section 313(b)

of the Federal Power Act gave a right of instituting review to any party "aggrieved by an order issued by the Commission;"[59] it thereupon read "aggrieved by" as not limited to those alleging the traditional personal economic injury, but as broad enough to include "those who by their activities and conduct have exhibited a special interest in the aesthetic, conservational, and recreational aspects of power development."[60] A similar reasoning has swayed other circuits to allow proposed actions by the Federal Power Commission, the U.S. Department of Interior, and the U.S. Department of Health and Human Services to be challenged by environmental action groups on the basis of, e.g., recreational and esthetic interests of members, in lieu of direct economic injury.[61] Only the Ninth Circuit has balked, and one of these cases, involving the Sierra Club's attempt to challenge a Walt Disney development in the Sequoia National Forest, was at the original time of this writing awaiting decision by the U.S. Supreme Court.[62]

Even if the Supreme Court should reverse the Ninth Circuit in the Walt Disney–Sequoia National Forest matter, thereby encouraging the circuits to continue their trend toward liberalized standing in this area, there are significant reasons to press for the guardianship approach notwithstanding. For one thing, the cases of this sort have extended standing on the basis of interpretations of specific federal statutes—the Federal Power Commission Act,[63] the Administrative Procedure Act,[64] the Federal Insecticide, Fungicide and Rodenticide Act, and others. Such a basis supports environmental suits only where acts of federal agencies are involved; and even there, perhaps, only when there is some special statutory language, such as "aggrieved by" in the Federal Power Act, on which the action groups can rely.[65] Witness for example, *Bass Angler Sportsman Society v. United States Steel Corp.*[66] There, plaintiffs sued 175 corporate defendants located throughout Alabama, relying on 33 U.S.C. § 407 (1970), which provides:

> It shall not be lawful to throw, discharge, or deposit . . . any refuse matter . . . into any navigable water of the United States, or into any tributary of any navigable water from which the same shall float or be washed into such navigable water . . . [67]

Another section of the Act provides that one-half the fines shall be paid to the person or persons giving information which shall lead to a conviction.[68] Relying on this latter provision, the plaintiff designated his action a *qui tam* action[69] and sought to enforce the Act by injunction and fine. The District Court ruled that, in the absence of express language to the contrary, no one outside the U.S. Department of Justice had standing to sue under a criminal act and refused to reach the question of whether violations were occurring.[70]

Unlike the liberalized standing approach, the guardianship approach would secure an effective voice for the environment even where federal administrative action and public lands and waters were not involved. It would also allay one of the fears courts—such as the Ninth Circuit—have about the extended standing concept: if any ad hoc group can spring up overnight, invoke some "right" as

universally claimable as the esthetic and recreational interests of its members and thereby get into court, how can a flood of litigation be prevented?[71] If an ad hoc committee loses a suit brought *sub nom.* the Committee to Preserve our Trees, what happens when its very same members reorganize two years later and sue *sub nom.* the Massapequa Sylvan Protection League? Is the new group bound by res judicata? Class action law may be capable of ameliorating some of the more obvious problems. But even so, court economy might be better served designating the guardian de jure representative of the natural object, with rights of discretionary intervention by others, but with the understanding that the natural object is "bound" by an adverse judgment. The guardian concept, too, would provide the endangered natural object with what the trustee in bankruptcy provides the endangered corporation: a continuous supervision over a period of time, with a consequent deeper understanding of a broad range of the ward's problems, not just the problems present in one particular piece of litigation. It would thus assure the courts that the plaintiff has the expertise and genuine adversity in pressing a claim which are the prerequisites of a true "case or controversy."

The guardianship approach, however, is apt to raise two objections, neither of which seems to me to have much force. The first is that a committee or guardian could not judge the needs of the river or forest in its charge; indeed, the very concept of "needs," it might be said, could be used here only in the most metaphorical way. The second objection is that such a system would not be much different from what we now have: is not the Department of Interior already such a guardian for public lands, and do not most states have legislation empowering their attorneys general to seek relief—in a sort of *parens patriae* way—for such injuries as a guardian might concern himself with?

As for the first objection, natural objects can communicate their wants (needs) to us, and in ways that are not terribly ambiguous. I am sure I can judge with more certainty and meaningfulness whether and when my lawn wants (needs) water, than the Attorney General can judge whether and when the United States wants (needs) to take an appeal from an adverse judgment by a lower court. The lawn tells me that it wants water by a certain dryness of the blades and soil—immediately obvious to the touch—the appearance of bald spots, yellowing, and a lack of springiness after being walked on; how does "the United States" communicate to the Attorney General? For similar reasons, the guardian-attorney for a smog-endangered stand of pines could venture with more confidence that his client wants the smog stopped, than the directors of a corporation can assert that "the corporation" wants dividends declared. We make decisions on behalf of, and in the purported interest of, others every day; these "others" are often creatures whose wants are far less verifiable, and even far more metaphysical in conception, than the wants of rivers, trees, and land.[72]

As for the second objection, one can indeed find evidence that the Department of Interior was conceived as a sort of guardian of the public lands.[73] But there are

two points to keep in mind. First, insofar as the department already is an adequate guardian it is only with respect to the federal public lands as per Article IV, section 3 of the Constitution.[74] Its guardianship includes neither local public lands nor private lands. Second, to judge from the environmentalist literature and from the cases environmental action groups have been bringing, the department is itself one of the bogeys of the environmental movement. (One thinks of the uneasy peace between Native Americans and the Bureau of Indian Affairs.) Whether the various charges be right or wrong, one cannot help but observe that the department has been charged with several institutional goals (never an easy burden), and has been looked to for action by quite a variety of interest groups, only one of which is the environmentalists. In this context, a guardian outside the institution becomes especially valuable. Besides, what a person wants, fully to secure his rights, is the ability to retain independent counsel even when, and perhaps especially when, the government is acting "for him" in a beneficent way. I have no reason to doubt, for example, that the social security system is being managed "for me"; but I would not want to abdicate my right to challenge its actions as they affect me, should the need arise.[75] I would not ask more trust of national forests, vis-à-vis the Department of Interior. The same considerations apply in the instance of local agencies, such as regional water pollution boards, whose members' expertise in pollution matters is often all too credible.[76]

The objection regarding the availability of attorneys general as protectors of the environment within the existing structure is somewhat the same. Their statutory powers are limited and sometimes unclear. As political creatures, they must exercise the discretion they have with an eye toward advancing and reconciling a broad variety of important social goals, from preserving morality to increasing their jurisdiction's tax base. The present state of our environment, and the history of cautious application and development of environmental protection laws long on the books,[77] testifies that the burdens of any attorney general's broad responsibility have apparently not left much manpower for the protection of nature. (Cf. *Bass Anglers*, earlier.) No doubt, strengthening interest in the environment will increase the zest of public attorneys even where, as will often be the case, well-represented corporate polluters are the quarry. Indeed, the U.S. Attorney General has stepped up antipollution activity, and ought to be further encouraged in this direction.[78] The statutory powers of the attorneys general should be enlarged, and they should be armed with criminal penalties made at least commensurate with the likely economic benefits of violating the law.[79] On the other hand, one cannot ignore the fact that there is increased pressure on public law-enforcement offices to give more attention to a host of other problems, from crime "on the streets" (why don't we say "in the rivers"?) to consumerism and school busing. If the environment is not to get lost in the shuffle, we would do well, I think, to adopt the guardianship approach as an additional safeguard, conceptualizing major natural objects as holders of their own rights, raisable by the court-appointed guardian.

(4) Toward Recognition of Its Own Injuries

As far as adjudicating the merits of a controversy is concerned, there is also a good case to be made for taking into account harm to the environment—in its own right. As indicated earlier, the traditional way of deciding whether to issue injunctions in law suits affecting the environment, at least where communal property is involved, has been to strike some sort of balance regarding the economic hardships on *human beings*. Even Mr. Justice Douglas, our jurist most closely associated with conservation sympathies in his private life, showed reticence to acknowledge the importance of the environment directly, deciding the propriety of a new dam on the basis of, among other things, anticipated *lost profits* from fishing, some $12 million annually.[80] Although he voted to delay the project pending further findings, the reasoning seemed unnecessarily incomplete and compromising. Why should the environment be of importance only indirectly, as lost profits to someone else? Why not throw into the balance the cost *to the environment*?

The argument for "personifying" the environment, from the point of damage calculations, can best be demonstrated from the welfare economics position. Every well-working legal-economic system should be so structured as to confront each of us with the full costs that our activities are imposing on society.[81] Ideally, a paper mill, in deciding what to produce—and where, and by what methods—ought to be forced to take into account not only the lumber, acid, and labor that its production "takes" from other uses in the society, but also what costs alternative production plans will impose on society through pollution. The legal system, through the law of contracts and the criminal law, for example, makes the mill confront the costs of the first group of demands. When for example, the company's purchasing agent orders 1000 drums of acid from the Z Company, the Z Company can bind the mill to pay for them, and thereby reimburse the society for what the mill is removing from alternative uses.

Unfortunately, so far as the pollution costs are concerned, the allocative ideal begins to break down, because the traditional legal institutions have a more difficult time "catching" and confronting us with the full social costs of our activities. In the lakeside mill example, major riparian interests might bring an action, forcing a court to weigh their aggregate losses against the costs to the mill of installing the anti-pollution device. But many other interests—and I am speaking for the moment of recognized homocentric interests—are too fragmented and perhaps "too remote" causally to warrant securing representation and pressing for recovery: the people who own summer homes and motels, the man who sells fishing tackle and bait, the man who rents rowboats. There is no reason not to allow the lake to prove damages to them as the prima facie measure of damages to it. By doing so, we in effect make the natural object, through its guardian, a jural entity competent to gather up these fragmented and otherwise unrepresented damage claims, and press them before the court even where, for legal or practical reasons, they are not going to be pressed by traditional class action plaintiffs.[82]

Indeed, one way—the homocentric way—to view what I am proposing so far, is to view the guardian of the natural object as the guardian of unborn generations, as well as of the otherwise unrepresented, but distantly injured, contemporary humans.[83] By making the lake itself the focus of these damages, and "incorporating" it so to speak, the legal system can effectively take proof upon, and confront the mill with, a larger and more representative measure of the damages its pollution causes.

So far, I do not suppose that my economist friends (unremitting human chauvinists, every one of them!) will have any large quarrel in principle with the concept. Many will view it as a trompe l'oeil that comes down, at best, to effectuating the goals of the paragon class action, or the paragon water pollution control district. Where we are apt to part company is here—I propose going beyond gathering up the loose ends of what most people would presently recognize as economically valid damages. The guardian would urge before the court injuries not presently cognizable—the death of eagles and inedible crabs, the suffering of sea lions, the loss from the face of the earth of species of commercially valueless birds, the disappearance of a wilderness area. One might, of course, speak of the damages involved as "damages" to us humans, and indeed, the widespread growth of environmental groups shows that human beings do feel these losses. But they are not, at present, economically measurable losses: how can they have a monetary value for the guardian to prove in court?

The answer for me is simple. Wherever it carves out "property" rights, the legal system is engaged in the process of *creating* monetary worth. One's literary works would have minimal monetary value if anyone could copy them at will. Their economic value to the author is a product of the law of copyright; the person who copies a copyrighted book has to bear a cost to the copyright-holder because the law says he must. Similarly, it is through the law of torts that we have made a "right" of—and guaranteed an economically meaningful value to—privacy. (The value we place on gold—a yellow inanimate dirt—is not simply a function of supply and demand—wilderness areas are scarce and pretty, too—but results from the actions of the legal systems of the world, which have institutionalized that value; they have even done a remarkable job of stabilizing the price.) I am proposing we do the same with eagles and wilderness areas as we do with copyrighted works, patented inventions, and privacy: *make* the violation of rights in them to be a cost by declaring the "pirating" of them to be the invasion of a property interest.[84] If we do so, the net social costs the polluter would be confronted with would include not only the extended homocentric costs of his pollution (explained earlier) but also to the environment per se.

How, though, would these costs be calculated? When we protect an invention, we can at least speak of a fair market value for it, by reference to which damages can be computed. But the lost environmental "values" of which we are now speaking are by definition over and above those that the market is prepared to bid for: they are priceless.

One possible measure of damages, suggested earlier, would be the cost of making the environment whole, just as, when a man is injured in an automobile accident, we impose upon the responsible party the injured man's medical expenses. Comparable expenses to a polluted river would be the costs of dredging, restocking with fish, and so forth. It is on the basis of such costs as these, I assume, that we get the figure of $1 billion as the cost of saving Lake Erie.[85] As an ideal, I think this is a good guide applicable in many environmental situations. It is by no means free from difficulties, however.

One problem with computing damages on the basis of making the environment whole is that, if understood most literally, it is tantamount to asking for a "freeze" on environmental quality, even at the costs (and there will be costs) of preserving "useless" objects.[86] Such a "freeze" is not inconceivable to me as a general goal, especially considering that, even by the most immediately discernible homocentric interests, in so many areas we ought to be cleaning up and not merely preserving the environmental status quo. In fact, there have been movements in Congress to press for the total elimination of all river pollutants,[87] notwithstanding that such a decision would impose quite large direct and indirect costs on us all. Here one is inclined to recall the instructions of Judge Paul Hays, in remanding Consolidated Edison's Storm King application to the Federal Power Commission in *Scenic Hudson*:

> The Commission's renewed proceedings must include as a basic concern the preservation of natural beauty and of natural historic shrines, keeping in mind that, in our affluent society, the cost of a project is only one of several factors to be considered.[88]

Nevertheless, whatever the merits of such a goal in principle, there are many cases in which the social price tag of putting it into effect are going to seem too high to accept. Consider, for example, an oceanside nuclear generator that could produce low-cost electricity for a million homes at a savings of $1 a year per home and spare us the air pollution that comes from burning fossil fuels, but which through a slight heating effect threatened to kill off a rare species of temperature-sensitive sea urchin: suppose further that technological improvements adequate to reduce the temperature to present environmental quality would expend the entire $1 million in anticipated fuel savings. Are we prepared to tax ourselves $1 million a year on behalf of the sea urchins? In comparable problems under the present law of damages, we work out practicable compromises by abandoning restoration costs and calling upon fair market value. For example, if an automobile is so severely damaged that the cost of bringing the car to its original state by repair is greater than the fair market value, we would allow the responsible tortfeasor to pay the fair market value only. Or if a human being suffers the loss of an arm (as we might conceive of the ocean having irreparably lost the sea urchins), we can fall back on the capitalization of reduced earning power (and pain and suffering) to measure the damages. But what is the

fair market value of sea urchins? How can we capitalize their loss to the ocean, independent of any commercial value they may have to someone else?

One answer is that the problem can sometimes be sidestepped quite satisfactorily. In the sea urchin example, one compromise solution would be to impose on the nuclear generator the costs of making the ocean whole somewhere else, in some other way, e.g., reestablishing a sea urchin colony elsewhere, or making a somehow comparable contribution.[89] In debate over the laying of the trans-Alaskan pipeline the builders are apparently prepared to meet conservationists' objections halfway by reestablishing wildlife away from the pipeline, so far as is feasible.[90]

But even if damage calculations have to be made, one ought to recognize that the measurement of damages is rarely a simple report of economic facts about "the market," whether we are valuing the loss of a foot, a fetus, or a work of fine art. Decisions of this sort are always hard, but not impossible. We have increasingly taken (human) pain and suffering into account in reckoning damages, not because we think we can ascertain them as objective "facts" about the universe, but because, even in view of all the room for disagreement, we come up with a better society by making rude estimates of them than by ignoring them.[91] We can make such estimates in regard to environmental losses fully aware that what we are doing is making implicit normative judgments (as with pain and suffering)—laying down rules as to what the society is going to "value" rather than reporting market evaluations. In making such normative estimates decision-makers would not go wrong if they estimated on the "high side," putting the burden of trimming the figure down on the immediate human interests present. All burdens of proof should reflect common experience; our experience in environmental matters has been a continual discovery that our acts have caused more long-range damage than we were able to appreciate at the outset.

To what extent the decision-maker should factor in costs such as the pain and suffering of animals and other sentient natural objects, I cannot say; although I am prepared to do so in principle.[92] Given, in all events, the conjectural nature of the "estimates" and the roughness of the "balance of conveniences" procedure where that is involved, the practice would be of more interest from the socio-psychic point of view, discussed later, than from the legal-operational.

(5) Toward Being a Beneficiary in Its Own Right

As suggested earlier, one reason for making the environment itself the beneficiary of a judgment is to prevent it from being "sold out" in a negotiation among private litigants who agree not to enforce rights that have been established among themselves.[93] Protection from this will be advanced by making the natural object a party to an injunctive settlement. Even more importantly, we should make it a beneficiary of money awards. If in making the balance requisite to issuing an injunction, a court decides not to enjoin a lake polluter who is causing injury to the extent of $50,000 annually, then the owners and the lake ought both to be awarded damages. The natural object's portion could be put into a

trust fund to be administered by the object's guardian, as per the guardianship recommendation set forth earlier. So far as the damages are proved, as suggested in the previous section, by allowing the natural object to represent damages to others as prima facie evidence of damages to it, there will, of course, be problems of distribution. But even if the object is simply construed as representing a class of plaintiffs under the applicable civil rules,[94] there is often likely to be a sizeable amount of recovery attributable to members of the class who will not put in a claim for distribution (because their pro rata share would be so small, or because of their interest in the environment). Not only should damages go into these funds, but where criminal fines are applied (as against water polluters), it seems to me that the monies (less prosecutorial expenses, perhaps) ought sensibly to go to the fund raiser than to the general treasuries. Guardians' fees, including legal fees, would then come out of this fund. More importantly, the fund would be available to preserve the natural object as closely as possible to its condition at the time the environment was made a rights-holder.[95]

The idea of assessing damages as best we can and placing them in a trust fund is far more realistic than a hope that a total "freeze" can be put on the environmental status quo. Nature is a continuous theater in which things and species (eventually man) are destined to enter and exit.[96] In the meantime, coexistence of man and his environment means that *each* is going to have to compromise for the better of both. Some pollution of streams, for example, will probably be inevitable for some time. Instead of setting an unrealizable goal of enjoining absolutely the discharge of all such pollutants, the trust fund concept would (a) help assure that pollution would occur only in those instances where the social need for the pollutant's product (via his present method of production) was so high as to enable the polluter to cover all homocentric costs, plus some estimated costs to the environment per se, and (b) would be a corpus for preserving monies, if necessary, until the feasible technology was developed. Such a fund might even finance the requisite research and development.

(Incidentally, if "rights" are to be granted to the environment, then for many of the same reasons it might bear "liabilities" as well—as inanimate objects did anciently.[97] Rivers drown people, and flood over and destroy crops; forests burn, setting fire to contiguous communities. Where trust funds had been established, they could be available for the satisfaction of judgments against the environment, making it bear the costs of some of the harms it imposes on other right-holders. In effect, we would be narrowing the claim of acts of God. The ontological problem would be troublesome here, however: for, when the Nile overflows, is it the "responsibility" of the river? The mountains? The snow? The hydrologic cycle?)[98]

(6) Toward Rights in Substance

So far we have been looking at the characteristics of being a *holder of rights*, and exploring some of the implications that making the environment a holder of rights would entail. Natural objects would have standing in their own right,

through a guardian; damage to and through them would be ascertained and considered as an independent factor; and they would be the beneficiaries of legal awards. But these considerations only give us the skeleton of what a meaningful rights-holding would involve. To flesh out the "rights" of the environment demands that we provide it with a significant body of rights for it to invoke when it gets to court.

In this regard, the lawyer is constantly aware that a right is not, as the layman may think, some strange substance that one either has or has not. One's life, one's right to vote, one's property, can all be taken away. But those who would infringe on them must go through certain procedures to do so; these procedures are a measure of what we value as a society. Some of the most important questions of "right" thus turn into questions of degree: how much review, and of which sort, will which agencies of state accord it when we claim our "right" is being infringed?

We do not have an absolute right either to our lives or to our driver's licenses. But we have a greater right to our lives because, if even the state wants to deprive us of that "right," there are authoritative bodies that will demand that the state make a very strong showing before it does so, and it will have to justify its actions before a grand jury, petit jury (convincing them "beyond a reasonable doubt"), sentencing jury, and, most likely, levels of appellate courts. The carving out of students' "rights" to their education is being made up of this sort of procedural fabric. No one, I think, is maintaining that in no circumstances ought a student to be expelled from school. The battle for student "rights" involves shifting the answers to questions such as: before a student is expelled, does he have to be given a hearing; does he have to have prior notice of the hearing and notice of charges; may he bring counsel (need the state provide counsel if he cannot?); need there he a transcript; need the school carry the burden of proving the charges; may he confront witnesses; if he is expelled, can he get review by a civil court; if he can get such review, need the school show its actions were "reasonable," or merely "not unreasonable," and so forth?[99]

In this vein, to bring the environment into the society as a rights-holder would not stand it on a better footing than the rest of us mere mortals, who every day suffer injuries that are *damnum absque injuria*. What the environment must look for is that its interests be taken into account in subtler, more procedural ways.

The National Environmental Policy Act is a splendid example of this sort of rights-making through the elaboration of procedural safeguards. Among its many provisions, it establishes that every federal agency must:

> (c) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, detailed statements by the responsible official on
>
> (i) environmental impact of the proposal action,
>
> (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,

(iii) alternatives to the proposed action,
(iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved. Copies of such statement and the comments and views of the appropriate Federal, State, and local agencies, which are authorized to develop and enforce environmental standards, shall be made available to the President, the Council on Environmental Quality and to the public as provided by section 552 of title 5, United States Code, and shall accompany the proposal through the existing agency review processes;

(d) study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources;

(e) recognize the worldwide and long-range character of environmental problems and, where consistent with the foreign policy of the United States, lend appropriate support to initiatives, resolutions, and programs designed to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's environment;

(f) make available to States, counties, municipalities, institutions, and individuals, advice and information useful in restoring, maintaining, and enhancing the quality of the environment . . . [100]

These procedural protections have already begun paying off in the courts. For example, it was on the basis of the Federal Power Commission's failure to make adequate inquiry into "alternatives" (as per subsection (iii), in *Scenic Hudson*, and the Atomic Energy Commission's failure to make adequate findings, apparently as per subsections (i) and (ii), in connection with the Amchitka Island underground test explosion,[101] that federal courts delayed the implementation of environment-threatening schemes.

Although this sort of control (remanding a cause to an agency for further findings) may seem to the layman ineffectual, or only a stalling of the inevitable, the lawyer and the systems analyst know that these demands for further findings can make a difference. It may encourage the institution whose actions threaten the environment to really *think about* what it is doing, and that is neither an ineffectual nor a small feat. Indeed, I would extend the principle beyond federal agencies. Much of the environment is threatened not by them, but by private corporations. Surely the constitutional power would not be lacking to mandate that all private corporations whose actions may have significant adverse affect on

the environment make findings of the sort now mandated for federal agencies. Further, there should be requirements that these findings and reports be channeled to the board of directors; if the directors are not charged with the knowledge of what their corporation is doing to the environment, it will be all too easy for lower level management to prevent such reports from getting to a policymaking level. We might make it grounds for a guardian to enjoin a private corporation's actions if such procedures had not been carried out.

The rights of the environment could be enlarged by borrowing yet another page from the Environmental Policy Act and mandating comparable provisions for "private governments." The Act sets up within the executive office of the President a Council on Environmental Quality "to be conscious of and responsive to the scientific, economic, social, esthetic, and cultural needs of the Nation; and to formulate and recommend national policies to promote the improvement of the quality of the environment."[102] The Council is to become a focal point, within our biggest "corporation"—the State—to gather and evaluate environmental information which it is to pass on to our chief executive officer, the President. Rather than being ineffectual, this may be a highly sophisticated way to steer organizational behavior. Corporations—especially recidivist polluters and land despoilers—should have to establish comparable internal reorganization, e.g., to set up a vice president for ecological affairs. The author is not offering this suggestion as a cure-all, by any means. But I do not doubt that this sort of control over internal corporate organization would be an effective supplement to the traditional mechanisms of civil suits, licensing, administrative agencies, and fines.[103]

Similarly, courts, in making rulings that may affect the environment, should be compelled to make findings with respect to environmental harm—showing how they calculated it and how heavily it was weighed—even in matters outside the present Environmental Protection Act. This would have at least two important consequences. First, it would shift somewhat the focus of courtroom testimony and concern; second, the appellate courts, through their review and reversals for "insufficient findings," would give content to, and build up a body of, environmental rights, much as content and body has been given, over the years, to terms like "due process of law."

Beyond these procedural safeguards, would there be any rights of the environment that might be deemed "absolute," at least to the extent of, say, free speech? Here, the doctrine of irreparable injury comes to mind. There has long been equitable support for an attorney general's enjoining injury to communal property if he can prove it to be "irreparable." In other words, while repairable damage to the environment might be balanced and weighed, irreparable damage could be enjoined absolutely. There are several reasons why this doctrine has not been used effectively (witness Lake Erie).[104] Undoubtedly, political pressures (in the broadest sense) have had an influence. So, too, has the failure of all of us to understand just how delicate the environmental balance is; this failure has

made us unaware of how early "irreparable" injury might be occurring, and, if aware, unable to prove it in court. But most important, I think, is that the doctrine simply is not practical as a rule of universal application. For one thing, there are too many cases like the earlier sea urchin example, where the marginal costs of abating the damage seem too dearly to exceed the marginal benefits, even if the damage to the environment itself is liberally estimated. For another, there is a large problem in how one defines "irreparable." Certainly the great bulk of the environment in civilized parts of the world has been injured "irreparably" in the sense of "irreversible"; we are not likely to return it to its medieval quality. Despite the scientific right to the term, judgments concerning "irreparable injury" are going to have to subsume questions both of degree of damage and of value—of the damaged object. Thus, if we are going to revitalize the "irreparable damages" doctrine, and expect it to be taken seriously, we have to recognize that what will be said to constitute "irreparable damage" to the ionosphere, because of its importance to all life, or to the Grand Canyon, because of its uniqueness, is going to rest upon normative judgments that ought to be made explicit.

This suggests that some (relatively) absolute rights be defined for the environment by setting up a constitutional list of "preferred objects," just as some of our Justices feel there are "preferred rights" where humans are concerned.[105] Any threatened injury to these most jealously-to-be-protected objects should be reviewed with the highest level of scrutiny at all levels of government, including our "counter-majoritarian" branch, the court system. Their "constitutional rights" should be implemented, legislatively and administratively, by, e.g., the setting of environmental quality standards.

I do not doubt that other senses in which the environment might have rights will come to mind, and, as I explain more fully later, would be more apt to come to mind if only we should speak in terms of their having rights, albeit vaguely at first. "Rights" might well lie in unanticipated areas. It would seem, for example, that Chief Justice Earl Warren was only stating the obvious when he observed in *Reynolds v. Sims* that "Legislators represent people, not trees or acres." Yet, could not a case be made for a system of apportionment which *did* take into account the wildlife of an area?[106] It strikes me as a poor idea that Alaska should have no more congressmen than Rhode Island primarily *because there are in Alaska all those trees and acres, those waterfalls and forests.*[107] I am not saying anything as silly as that we ought to overrule *Baker v. Carr* and retreat from one man–one vote to a system of one man-or-tree–one vote. Nor am I even taking the position that we ought to count each acre, as we once counted each slave, as three-fifths of a man. But I am suggesting that there is nothing unthinkable about, and there might on balance even be a prevailing case to be made for, an electoral apportionment that made some systematic effort to allow for the representative "rights" of nonhuman life. And if a case can be made for that, which I offer here mainly for purpose of illustration, I suspect that a society that grew concerned enough about

the environment to make it a holder of rights would be able to find quite a number of "rights" to have waiting for it when it got to court.

(7) Do We Really Have to Put It That Way?

At this point, one might well ask whether much of what has been written could not have been expressed without introducing the notion of trees, rivers, and so forth "having rights." One could simply and straightforwardly say, for example, that (R1) the class of persons competent to challenge the pollution of rivers ought to be extended beyond that of persons who can show an immediate adverse economic impact on themselves, and that (R2), "judges, in weighing competing claims to a wilderness area, ought to think beyond the economic and even esthetic impact on man, and put into the balance a concern for the threatened environment as such." And it is true, indeed, that to say trees and rivers have "rights" is not in itself a stroke of any operational significance—no more that to say "people have rights." To solve any concrete case, one is always forced to more precise and particularized statements, in which the word "right" might just as well be dropped from the elocution.

But this is not the same as to suggest that introducing the notion of the "rights" of trees and rivers would accomplish nothing beyond the introduction of a set of particular rules like (R1) and (R2), earlier. I think it is quite misleading to say that "*A* has a right to . . ." can be fully explicated in terms of a certain set of specific legal rules, and the manner in which conclusions are drawn from them in a legal system. That is only part of the truth. Introducing the notion of something having a "right" (simply *speaking* that way), brings into the legal system a flexibility and open-endedness that no series of specifically stated legal rules like R*1*, R*2*, R*3* . . . R*n* can capture. Part of the reason is that "right" (and other so-called "legal terms" like "infant," "corporation," "reasonable time") have meaning—vague but forceful—in the ordinary language, and the force of these meanings, inevitably infused with our thought, becomes part of the context against which the ''legal language" of our contemporary "legal rules" is interpreted.[108] Consider, for example, the "rules" that govern the question, on whom, and at what stages of litigation, is the burden of proof going to lie? Professor James E. Krier has demonstrated how terribly significant these decisions are in the trial of environmental cases, and yet, also, how much discretion judges have under them.[109] In the case of such vague rules, it is *context*—senses of direction, of value and purpose—that determines how the rules will be understood, every bit as much as their supposed "plain meaning." In a system which spoke of the environment "having legal rights," judges would, I suspect, be inclined to interpret rules such as those of burden of proof far more liberally from the point of the environment. There is, too, the fact that the vocabulary and expressions that are available to us influence and even steer our thought. Consider the effect that has had by introducing into the law terms like "motive," "intent," and "due process." These terms work a subtle shift into the rhetoric of explanation available

to judges; with them, new ways of thinking and new insights come to be explored and developed.[110] In such fashion, judges who could unabashedly refer to the "legal rights of the environment" would be encouraged to develop a viable body of law—in part simply through the availability and force of the expression. Besides, such a manner of speaking by courts would contribute to popular notions, and a society that spoke of the "legal rights of the environment" would be inclined to legislate more environment-protecting rules by formal enactment.

If my sense of these influences is correct, then a society in which it is stated, however vaguely, that "rivers have legal rights" would evolve a different legal system than one which did not employ that expression, even if the two of them had, at the start, the very same "legal rules" in other respects.

IV. THE PSYCHIC AND SOCIO-PSYCHIC ASPECTS

There are, as we have seen, a number of developments in the law that may reflect a shift from the view that nature exists *for humans*. These range from increasingly favorable procedural rulings for environmental action groups—as regards standing and burden of proof requirements, for example—to the enactment of comprehensive legislation such as the National Environmental Policy Act and the thoughtful Michigan Environmental Protection Act of 1970. Of such developments one may say, however, that it is not the environment per se that we are prepared to take into account, but that man's increased awareness of possible long-range effects on himself militate in the direction of stopping environmental harm in its incipiency. And this is part of the truth, of course. Even the far-reaching National Environmental Policy Act, in its preambulatory *Declaration of National Environmental Policy*, comes out both for "restoring and maintaining environmental quality *to the overall welfare and development of man*" as well as for creating and maintaining "conditions under which *man and nature can exist in productive harmony*."[111] Because the health and well-being of mankind depend upon the health of the environment, these goals will often be so mutually supportive that one can avoid deciding whether our rationale is to advance "us" or a new "us" that includes the environment. For example, consider the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) which insists that, e.g., pesticides, include a warning "adequate to prevent injury to living man and other vertebrate animals, vegetation, and useful invertebrate animals."[112] Such a provision undoubtedly reflects the sensible notion that the protection of humans is best accomplished by preventing dangerous accumulations in the food chain. Its enactment does not necessarily augur far-reaching changes in, nor even call into question, fundamental matters of consciousness.

But the time is already upon us when we may have to consider subordinating some human claims to those of the environment per se. Consider, for example,

the disputes over protecting wilderness areas from development that would make them accessible to greater numbers of people. I myself feel disingenuous rationalizing the environmental protectionist's position in terms of a utilitarian calculus, even one that takes future generations into account, and plays fast and loose with its definition of "good." Those who favor development have the stronger argument—they at least hold the protectionist to a standstill—from the point of advancing the greatest good of the greatest number of people. And the same is true regarding arguments to preserve useless species of animals, as in the sea urchin hypothetical. One *can* say that we never know what is going to prove useful at some future time. In order to protect ourselves, therefore, we ought to be conservative now in our treatment of nature. I agree. But when conservationists argue this way to the exclusion of other arguments, or find themselves speaking in terms of "recreational interests" so consistently as to play up to, and reinforce, homocentrist perspectives, there is something sad about the spectacle. One feels that the arguments lack even their proponents' convictions. I expect they want to say something less egotistic and more emphatic but the prevailing and sanctioned modes of explanation in our society are not quite ready for it. In this vein, there must have been abolitionists who put their case in terms of getting more work out of Blacks. W. Holdsworth says of the early English Jew that while he was "regarded as a species of res nullius . . . [H]e was valuable for his acquisitive capacity; and for that reason the crown took him under its protection."[113] (Even today, businessmen are put in the position of insisting that their decent but probably profitless acts will "help our company's reputation and be good for profits.")[114]

For my part, I would prefer a frank avowal that even making adjustments for esthetic improvements, what I am proposing is going to cost "us," i.e., reduce our standard of living as measured in terms of our present values.

Yet, this frankness breeds a frank response—one which I hear from my colleagues and which must occur to many a reader. Insofar as the proposal is not just an elaborate legal fiction, but really comes down in the last analysis to a compromise of *our* interests for *theirs*, why should we adopt it? "What is in it for 'us'?"

This is a question I am prepared to answer, but only after permitting myself some observations about how *odd* the question is. It asks for me to justify my position in the very anthropocentric hedonist terms that I am proposing we modify. One is inclined to respond by a counter: "couldn't you (as a White man) raise the same questions about compromising your preferred rights-status with African Americans?"; or "couldn't you (as a man) raise the same question about compromising your preferred rights-status with women?" Such counters, unfortunately, seem no more responsive than the question itself. (They have a nagging ring of "yours, too" about them.) What the exchange actually points up is a fundamental problem regarding the nature of philosophical argument. Recall that Socrates, whom we remember as an opponent of hedonistic thought,

confutes Thrasymachus by arguing that immorality makes one miserably unhappy! Immanuel Kant, whose moral philosophy was based upon the categorical imperative ("Woe to him who creeps through the serpent windings of Utilitarianism"[115]) finds himself justifying, e.g., promise keeping and truth telling, on the most prudential—one might almost say, commercial-grounds.[116] This "philosophic irony" (as Professor S.M. Engel calls it) may owe to there being something unique about ethical argument.[117] "Ethics cannot be put into words," L. Wittgenstein puts it; such matters "make themselves manifest."[118] On the other hand, perhaps the truth is that in any argument which aims at persuading a human being to action (on ethical or any other bases), "logic" is only an instrument for illuminating positions, at best, and in the last analysis it is psychological appeals to the listener's self-interest that hold sway, however "principled" the rhetoric may be.

With this reservation as to the peculiar task of the argument that follows, let me stress that the strongest case can be made from the perspective of human advantage for conferring rights on the environment. Scientists have been warning of the crises the earth and all humans on it face if we do not change our ways—radically—and these crises make the lost "recreational use" of rivers seem absolutely trivial. The earth's very atmosphere is threatened with frightening possibilities: absorption of sunlight, upon which the entire life cycle depends, may be diminished; the oceans may warm (increasing the "greenhouse effect" of the atmosphere), melting the polar ice caps, and destroying our great coastal cities; the portion of the atmosphere that shields us from dangerous radiation may be destroyed. Testifying before Congress, sea explorer Jacques Cousteau predicted that the oceans (to which we dreamily look to feed our booming populations) are headed toward their own death: "The cycle of life is intricately tied up with the cycle of water . . . the water system has to remain alive if we are to remain alive on earth."[119] We are depleting our energy and our food sources at a rate that takes little account of the needs even of humans now living.

These problems will not be solved easily: they very likely can be solved, if at all, only through a willingness to suspend the rate of increase in the standard of living (by present values) of the earth's "advanced" nations, and by stabilizing the total human population. For some of us this will involve forfeiting material comforts; for others it will involve abandoning the hope someday to obtain comforts long envied. For all of us it will involve giving up the right to have as many offspring as we might wish. Such a program is not impossible of realization, however. Many of our so-called "material comforts" are not only in excess of, but are probably in opposition to, basic biological needs. Further, the "costs" to the advanced nations is not as large as would appear from gross national product (GNP) figures. GNP reflects social gain (of a sort) without discounting for the social *cost* of that gain, e.g., the losses through depletion of resources, pollution, and so forth. As has well been shown, as societies become more and more "advanced," their real marginal gains become less and less for each additional

dollar of GNP.[120] Thus, to give up "human progress" would not be as costly as might appear on first blush.

Nonetheless, such far-reaching social changes are going to involve us in a serious reconsideration of our consciousness toward the environment. I say this knowing full well that there is something more than a trifle obscure in the claim: is popular consciousness a meaningful notion, to begin with? If so, what is our present consciousness regarding the environment? Has it been causally responsible for our material state of affairs? Ought we to shift our consciousness (and if so, to what exactly, and on what grounds)? How, if at all, would a shift in consciousness be translated into tangible institutional reform? Not one of these questions can be answered to everyone's satisfaction, certainly not to the author's.

It is commonly being said today, for example, that our present state of affairs—at least in the West—can be traced to the view that Nature is the dominion of Man, and that this attitude, in turn, derives from our religious traditions.

> Whatever the origins, the text is quite clear in Judaism, was absorbed all but unchanged into Christianity, and was inflated in Humanism to become the implicit attitude of Western man to Nature and the environment. Man is exclusively divine, all other creatures and things occupy lower and generally inconsequential stature; man is given dominion over all creatures and things; he is enjoined to subdue the earth . . . This environment was created by the man who believes that the cosmos is a pyramid erected to support man on its pinnacle, that reality exists only because man can perceive it, that God is made in the image of man, and that the world consists solely of a dialogue between men. Surely this is an infantilism which is unendurable. It is a residue from a past of inconsequence when a few puny men cried of their supremacy to an unhearing and uncaring world. One longs for a psychiatrist who can assure man that his deep seated cultural inferiority is no longer necessary or appropriate . . . It is not really necessary to destroy nature in order to gain God's favor or even his undivided attention.[121]

Surely this is forcibly put, but it is not entirely convincing as an explanation for how we got to where we are. For one thing, so far as intellectual influences are to be held responsible for our present state of affairs, one might as fairly turn on Darwin as the Bible. It was, after all, Darwin's views—in part through the prism of Herbert Spencer—that gave moral approbation to struggle, conquest, and domination; indeed, by emphasizing man's development as a product of chance happenings, Darwin also had the effect—intended or not—of reducing our awareness of the mutual interdependency of everything in Nature. And besides, as Professor Murphy points out, the spiritual beliefs of the Chinese and Native Americans "in the unity between man and nature had no greater effect than the contrary beliefs in Europe in producing a balance between man and his environment"; he claims that in China, *tao* notwithstanding, "ruthless

deforestation has been continuous."[122] I am under the impression, too, that notwithstanding the vaunted "harmony" between the American Plains Indians and Nature, once they had equipped themselves with rifles, their pursuit of the buffalo expanded to fill the technological potential.[123] The fact is that "consciousness" explanations pass too quickly over the less negative but simpler view of the situation: there are an increasing number of humans, with increasing wants, and there has been an increasing technology to satisfy them at "cost" to the rest of nature. Thus, we ought not to place too much hope that a changed environmental consciousness will in and of itself reverse present trends. Furthermore, societies have long since passed the point where a change in human consciousness on any matter will rescue us from our problems. More then ever before we are in the hands of institutions. These institutions are not "mere legal fictions" moreover: they have wills, minds, purposes, and inertias that are in very important ways their own, i.e., that can transcend and survive changes in the consciousness of the individual humans who supposedly comprise them, and whom they supposedly serve. (It is more and more the individual human being, with his consciousness, that is the legal fiction.)[124]

For these reasons, it is far too pat to suppose that a Western "environmental consciousness" is solely or even primarily responsible for our environmental crisis. On the other hand, it is not so extravagant to claim that it has dulled our resentment and our determination to respond. For this reason, whether we will be able to bring about the requisite institutional and population growth changes depends in part upon effecting a radical shift in our feelings about "our" place in the rest of Nature.

A radical new conception of man's relationship to the rest of nature would not only be a step toward solving the material planetary problems: there are strong reasons for such a changed consciousness from the point of making us far better humans. If we only stop for a moment and look at the underlying human qualities that our present attitudes toward property and nature draw upon and reinforce, we have to be struck by how stultifying of our own personal growth and satisfaction they can become when they take rein of us. G. Hegel, in "justifying" private property, unwittingly reflects the tone and quality of some of the needs that are played upon:

> A person has as his substantive end the right of putting his will into any and everything and thereby making it his, because it has no such end in itself and derives its destiny and soul from his will. This is the absolute right of appropriation which man has over all "things."[125]

What is it within us that gives us this need not just to satisfy basic biological wants, but to extend our wills over things, to objectify them, to make them ours, to manipulate them, to keep them at a psychic distance? Can it all be explained on "rational" bases? Should we not be suspect of such needs within us, cautious as to why we wish to gratify them? When I first read that passage of Hegel,

I immediately thought not only of the emotional contrast with Spinoza, but of the passage in Carson McCullers' *A Tree, A Rock, A Cloud*, in which an old derelict has collared a twelve-year-old boy in a streetcar cafe. The old man asks whether the boy knows "how love should be begun?"

> The old man leaned closer and whispered: "A tree. A rock. A cloud."
>
> . . . "The weather was like this in Portland," he said. "At the time my science was begun. I meditated and I started very cautious. I would pick up something from the street and take it home with me. I bought a goldfish and I concentrated on the goldfish and loved it. I graduated from one thing to another. Day by day I was getting this technique . . .
>
> "For six years now I have gone around by myself and built up my science. And now I am a master, Son. I can love anything. No longer do I have to think about it even. I see a street full of people and a beautiful light comes in me. I watch a bird in the sky. Or I meet a traveler on the road. Everything, Son. And anybody. All stranger and all loved! Do you realize what a science like mine can mean?"[126]

To be able to get away from the view that Nature is a collection of useful senseless objects is, as McCullers' "madman" suggests, deeply involved in the development of our abilities to love—or, if that is putting it too strongly, to be able to reach a heightened awareness of our own, and others', capacities in their mutual interplay. To do so, we have to give up some psychic investment in our sense of separateness and specialness in the universe. And this, in turn, is hard giving indeed, because it involves us in a flight backwards, into earlier stages of civilization and childhood in which we had to trust (and perhaps fear) our environment, for we had not then the power to master it. Yet, in doing so, we, as persons, gradually free ourselves of needs for supportive illusions. Is not this one of the triumphs for "us" of our giving legal rights to (or acknowledging the legal rights of) the Blacks and women?[127]

Changes in this sort of consciousness are already developing, for the betterment of the planet and us. There is now federal legislation which "establishes by law":[128]

> the humane ethic that animals should be accorded the basic creature comforts of adequate housing, ample food and water, reasonable handling, decent sanitation, sufficient ventilation, shelter from extremes of weather and temperature, and adequate veterinary care including the appropriate use of pain-killing drugs . . . [129]

The Vietnam War has contributed to this movement, as it has to others. A Los Angeles mother turned out a poster which read "War is not healthy for children and other living things."[130] It caught on tremendously—at first, I suspect, because it sounded like another clever protest against the war, i.e., another angle. But as

people say such things, and think about them, the possibilities of what they have stumbled upon become manifest. In its suit against the Secretary of Agriculture to cancel the registration of DDT, the Environmental Defense Fund alleged "biological injury to man and other living things."[131] Not long ago, the pollution of streams was thought of only as a problem of smelly, unsightly, unpotable water, i.e., to us. Now we are beginning to discover that pollution is a process that destroys wondrously subtle balances of life within the water, and also between the water and its banks. This heightened awareness enlarges our sense of the dangers to us. But it also enlarges our empathy. We are not only developing the scientific capacity, but we are cultivating the personal capacities *within us* to recognize more and more the ways in which nature—like the woman, the Black man, the Indian, and the alien—is like us (and we will also become more able realistically to define, confront, live with, and admire the ways in which we are all different).[132]

The time may be on hand when these sentiments, and the early stirrings of the law, can be coalesced into a radical new theory or myth—felt as well as intellectualized—of man's relationships to the rest of nature. I do not mean "myth" in a demeaning sense of the term, but in the sense in which, at different times in history, our social "facts" and relationships have been comprehended and integrated by reference to the "myths" that we are cosigners of a social contract, that the pope is God's agent, and that all men are created equal. Pantheism, Shintoism, and Taoism all have myths to offer. But they are all, each in its own fashion, quaint, primitive, and archaic. What is needed is a myth that can fit our growing body of knowledge of geophysics, biology and the cosmos. In this vein, I do not think it too remote that we may come to regard the earth, as some have suggested, as one organism, of which mankind is a functional part—the mind, perhaps: different from the rest of nature, but different as a man's brain is from his lungs.

> Ever since the first Geophysical Year, international scientific studies have shown irrefutably that the Earth as a whole is an organized system of most closely interrelated and indeed interdependent activities. It is, in the broadest sense of the term, an "organism." The so-called life-kingdoms and the many vegetable and animal species are dependent upon each other for survival in a balanced condition of planet-wide existence; and they depend on the environment, conditioned by oceanic and atmospheric currents, and even more by the protective action of the ionosphere and many other factors which have definite rhythms of operation. Mankind is part of this organic planetary whole; and there can be no truly new global society, and perhaps in the present state of affairs no society at all, as long as man will not recognize, accept and enjoy the fact that mankind has a definite function to perform within this planetary organism of which it is an active part.
>
> In order to give a constructive meaning to the activities of human societies all over the globe, these activities—physical and mental—should be understood

> and given basic value with reference to the wholesome functioning of the entire Earth, and we may add of the entire solar system. This cannot be done (1) if man insists on considering himself an alien Soul compelled to incarnate on this sorrowful planet, and (2) if we can see in the planet, Earth, nothing but a mass of material substances moved by mechanical laws, and in "life" nothing but a chance combination of molecular aggregations.
>
> . . . As I see it, the Earth is only one organized "field" of activities—and so is the *human person*—but these activities take place at various levels, in different "spheres" of being and realms of consciousness. The lithosphere is not the biosphere, and the latter not the . . . ionosphere. The Earth is not *only* a material mass. Consciousness is not only "human"; it exists at animal and vegetable levels, and most likely must lie latent, or operating in some form, in the molecule and the atom; and all these diverse and in a sense hierarchical modes of activity and consciousness should be seen integrated in and perhaps transcended by an all-encompassing and "cosmic" planetary Consciousness.
>
> . . .
>
> Mankind's function within the Earth-organism is to extract from the activities of all other operative systems within this organism the type of consciousness which we call "reflective" or "self"-consciousness—or, we may also say to *mentalize* and give meaning, value, and "name" to all that takes place anywhere within the Earth-field. . . .
>
> This "mentalization" process operates through what we call culture. To each region of, and living condition in the total field of the Earth-organism a definite type of culture inherently corresponds. Each region is the "womb" out of which a specific type of human mentality and culture can and sooner or later will emerge. All these cultures—past, present and future—and their complex interrelationships and interactions are the collective builders of the Mind of humanity; and this means of the *conscious Mind of the Earth*.[133]

As radical as such a consciousness may sound today, all the dominant changes we see about us point in its direction. Consider just the impact of space travel, of worldwide mass media, of increasing scientific discoveries about the interrelatedness of all life processes. Is it any wonder that the term "spaceship earth" has so captured the popular imagination? The problems we have to confront are increasingly the worldwide crises of a global organism: not pollution of a stream, but pollution of the atmosphere and of the ocean. Increasingly, the death that occupies each human's imagination is not his own, but that of the entire life cycle of the planet earth, to which each of us is as but a cell to a body.

To shift from such a lofty fancy as the planetarization of consciousness to the operation of our municipal legal system is to come down to earth hard. Before the forces that are at work, our highest court is but a frail and feeble—a distinctly

human—institution. Yet, the Court may be at its best not in its work of handing down decrees, but at the very task that is called for: of summoning up from the human spirit the kindest and most generous and worthy ideas that abound there, giving them shape and reality and legitimacy.[134] Witness the school desegregation cases which, more importantly than to integrate the schools (assuming they did), awakened us to moral imperatives which, when made visible, could not be denied. And so here, too, in the case of the environment, the Supreme Court may find itself in a position to award "rights" in a way that will contribute to a change in popular consciousness. It would be a modest move, to be sure, but one in furtherance of a large goal: the future of the planet as we know it.

How far we are from such a state of affairs, where the law treats "environmental objects" as holders of legal rights, I cannot say. But there is certainly intriguing language in one of Justice Hugo Black's last dissents, regarding the Texas Department of Transportation's plan to run a six-lane expressway through a San Antonio park.[135] Complaining of the Court's refusal to stay the plan, Black observed that "after today's decision, the people of San Antonio and the birds and animals that make their home in the park will share their quiet retreat with an ugly, smelly stream of traffic . . . Trees, shrubs and flowers will be mown down."[136] Elsewhere he speaks of the "burial of public parks," of segments of a highway which "devour parkland," and of the park's heartland.[137] Was he, at the end of his great career, on the verge of saying—just saying—that "nature has 'rights' on its own account"? Would it be so hard to do?

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2. DOES THE CLIMATE HAVE STANDING?[1]

I. THE CLIMATE AS CLIENT

Climate change has emerged as the world's most pressing environmental issue. Efforts to rein in emissions have failed to stanch the accumulation of greenhouse gases in the atmosphere. The Kyoto Protocol, the central mechanism in international efforts, is stalling, unable to collar any of the three major polluters, the United States, China, and India. The latter two, which are rapidly overtaking the United States as the worst offenders, have joined the agreement, but without assuming any commitments to curtail their own growing emissions. The United States, which, as a developed country, would be subject to immediate costly reductions if it joined, refuses to ratify at least until China and India assent to some, even if only future, cuts.

The present standoff might be broken. But the very architecture of the protocol is off-putting. There are 182 parties, mostly minor polluters not required to curtail emissions, but each with a vote that can potentially frustrate consensus. Targets for individual developed nations are allocated by reference to prior national usage, with different greenhouse gases (GHGs) "indexed" to carbon dioxide equivalents by reference to relative radiative-blocking power.[2] The national allowances so calculated are then fit into a Byzantine trading scheme—those parties "over" their allowances can purchase rights from those "under"—riddled with qualifications. To account for "learning," the regime is designed to be reconsidered and redrawn periodically (the first commitment period expires at the end of 2012), prompting uneasiness about stability and continuity of obligations across subsequent time periods. If the Kyoto Protocol, as some predict, effectively collapses from the weight of its own ambitions and gadgetry, what measures can put the global effort back on track?

I have been asked, in the course of preparing this edition, to say something about the potential application of the *Trees* thesis to climate change: "Would it help if the climate had standing?"

One senses immediately that the notion is far-fetched. But pursuing the question for a moment—to clarify *why* it is far-fetched—provides insight that carries over into the evaluation of standing's role in more modest climate change challenges that are already working their way into the courts, and others that are on the horizon. These suits range from litigation on behalf of species, and of inhabitants whose environments are imperiled by climate change, to suits to force agencies to regulate greenhouse emissions, even to force a country to honor its obligations under the Kyoto Protocol. Each avenue is promising but problematic.

The problems begin with the fact that "the climate" makes for a shifty client—"it" is more a set of parameters than a thing. And even if it is some sort of "thing," it stretches the imagination to provide a coherent account of how "it" would be "injured" as distinct from injuries to some climate-dependent things—be they plants, men, or beasts.

Even if we put definitional problems aside, recall the circumstances from which *Trees* grew. The allegations in *Sierra Club v. Morton* were brought against a uniquely situated "wrongdoer," (Morton, as Secretary of the Interior) for his failure to exercise lawful restraint on the one entity (Walt Disney Company) whose planned actions threatened the ecology of one locale (Mineral King Valley). By contrast, the risks of climate change fall everywhere on everyone, globally. And we are all, as well as prospective complainants, prospective defendants. Who among us has not cast our own emissions? Don't we all have "unclean hands"?

If there is a court that can identify a culpable wrongdoer in all this, there arises the question of remedy. Curbing emissions across the United States, for instance, is not like curbing invasive goats on a small island, as in the *Palila* case.[3] A court cannot "remedy" GHG impacts without balancing the costs and benefits, presumably even unto future generations, of different levels of restriction. Courts are not uncongenial to cost-benefit and risk analysis: these factors have long been examined in elemental tort litigation. But in those cases, we are ordinarily looking back upon a realized injury that arose from familiar, oft-repeated circumstances (auto brakes and icy roads) and asking in hindsight what we can reasonably expect a particular defendant to have done to have avoided the damage ex ante. In the case of climate change, causality is conjectural and controversial; we have had no massive melting from which to make probabilistic inductions. And questions of acceptable levels of risk and discount become a matter of concern, not to a particular driver and pedestrian, or to a polluting factory and its neighbors, but to virtually everyone as a community, worldwide.

If these are not political questions, ill-suited for courts, then what are? Congress is certainly better positioned than the judiciary to take the nation's pulse on communal risks.[4] Moreover, the federal agencies presumably have superior capacities to gather facts and to supervise. And litigation in this area is rife with conflict over the executive's foreign policy prerogatives. Some judges have already expressed concern that judicial intervention—even in a partial area of concern, such as auto emissions—would undercut the executive's bargaining hand in multilateral negotiations.[5]

Moreover, it would have made little difference to almost anyone whether Walt Disney had gone ahead and developed Mineral Valley, or whether the feral goats had triumphed over the endangered Palila. But for a court to entertain a suit on behalf of the climate to, say, enjoin fossil fuel power generation, would present risks of a huge social error if the court should get it wrong. A decision that throttled down hard on the use of energy would affect everyone's livelihood, even way

of life. Too light a restriction, and we (and our descendants) face avoidable catastrophes. My impression is that some reduction in fossil fuel usage would almost certainly be a move in the *right direction*. But how much reduction and accomplished by what devices? And would it be *right* to leave these questions to a court to decide, in a proceeding between who knows what scattering of adversaries?

In addition, no country has jurisdiction over all major polluters. The processes of U.S. courts can reach U.S. car makers, but cannot reach (and if they could reach, probably could not enforce a judgment against) the coal mines of China. The Chinese courts, in turn, cannot address the Canadian oil shale operators, who are prospective emitters on a major scale.

And there is another nagging twist. Suppose these hurdles were overcome and a court in some country did entertain a suit, based perhaps in public nuisance law, *Climate v. [naming the world's heaviest greenhouse gas emitters]*. Suppose further that the climate *lost* this suit, on the merits. I presume that once the climate had lost, relitigation in the name of the Climate as plaintiff in any other forum would be barred, as res judicata. One can even imagine some sort of issue preclusion, for example, a bar on relitigating the original court's conclusion that further reductions in fossil fuel usage would not be cost-beneficial on a global scale. In other words, there is a possibility that those disfavoring restrictions could maneuver litigation into a single antienvironmentalist (or highly skeptical) jurisdiction, which would have power to foreclose comparable actions globally.[6]

II. THE LAW OF STANDING: AN OVERVIEW

While the climate makes for an improbable client, climate change can make an appearance in indirect ways, in many of which issues of standing are crucial. To see why, we do well to review the present state of standing jurisprudence.[7]

Standing, broadly understood, is the authority of someone to initiate an action. The term in its narrower common use is probably limited to the right of nongovernmental parties to institute judicial review, which will be our principal focus. That is, we do not usually speak of the "standing" of a district attorney. But we shall have here reason to consider the right to institute action and review, judicial and otherwise, by nations and governmental agencies. And it is good to keep in mind that to achieve *standing* does not imply *winning*. Standing is only one of a number of justiciability issues that a party has to satisfy to get through the courthouse door. From there on, the plaintiff has to make its way "on the merits."

The term "standing" makes no appearance in the Constitution. Article III gets no closer than to implicitly limit the reach of the federal judicial power to "cases" and "controversies." What is required to constitute a "case or controversy" is not defined. But there is broad agreement that if, for example, the

Senate were to send to the federal courts a question about the constitutionality of a bill it was considering, the courts could not hear the issue because it had yet to become seated in a real dispute, complete with an actual victim to plead and an alleged wrongdoer to answer. Standing restrictions are thus part and parcel of the same process by which, for various reasons—a case may not be "ripe" or it may be a "political question"—the judiciary filters its caseload and shows respect for its limitations.

The elements of standing did not originate in the Constitution. Rules of justiciability—standing and other judicial restraint mechanisms—evolved under common law and in state codes. The state rules vary, among states and from their federal counterpart. For example, the states are not bound by whatever restrictions may radiate from the U.S. Constitution. Some states exploit this latitude by permitting their legislatures or administrative bodies to certify to their courts abstract legal questions absent any semblance of case or controversy: cases in which parties just want to know what the law is. There being potentially fifty-odd jurisdictions to canvas, I will restrict the scope of this paper to federal court actions, which is not inappropriate in light of the fact that, at least thus far, most of the cutting-edge litigation has involved federal questions under federal laws.[8]

Contemporary attention to standing has probably been most strongly influenced by Justice Antonin Scalia. While his constitutional analysis has been unfavorably dissected by Cass Sunstein[9] and Evan Lee,[10] I do not find much reason to assert that Scalia's formulation is not a fairly accurate representation of current federal law.

To achieve standing, a plaintiff must show that: (1) through breach of a duty owed by defendant to it;[11] (2) plaintiff has suffered an "injury in fact" that is, a legally recognized harm that is both (a) concrete and particularized, and (b) "actual or imminent, not 'conjectural' or 'hypothetical'"; (3) the injury is fairly traceable to the challenged action of the defendant ("causation"); and (4) it has to be "likely," as opposed to merely "speculative," that the injury will be redressed by a favorable decision ("redressability").[12] Scalia goes further than to list these elements. Interpreting Article III and the case law in the light of Separation of Powers Doctrine, he has opined that while some of the traditional elements of standing can expand and contract in response to "prudential" concerns of best managing the judiciary's case flow, other elements, or perhaps levels, are constitutional in origin, and therefore fall beyond Congress's power to modify by statute. In fact, the breadth of nonmalleable, Constitutional restrictions on standing remains somewhat undefined: the Court has yet to strike down an act of Congress on the grounds that a law went facially too far in purporting to extend the judicial power, but it has made clear that it will not apply acts of Congress in circumstances where application would require illicit stretching of the constitutional standing constraints.

(1) Duty Owing and Zone of Interests

Duty owing and zone of interests do not appear on Scalia's list of standing elements, since technically they go to the *merits* of a plaintiff's claim, rather than to whether the plaintiff is empowered to sue on those merits. As such, their reformulation by legislative and judicial bodies lies outside whatever constraints Article III imposes on the true standing elements. Nonetheless, whether the defendant breached a duty, and whether the plaintiff was in the "zone of interests" that the duty-establishing rule was designed to protect are often comparably fundamental. Indeed, cases raising the one set of issues commonly glide seamlessly from one set to the other.

Played out in the environmental arena, the considerable threshold significance of the duty principle is evident. For example, one cannot sue a government agency simply because some action or inaction has caused an injury. The plaintiff has to show that under some law, such as the Animal Welfare Act, the Clean Air Act, or the Marine Mammal Protection Act, the defendant agency had a duty (e.g., to prepare an environmental impact statement or to consult with other agencies before acting), which it did not perform. That is why in *Massachusetts v. Environmental Protection Agency (EPA)*, discussed later, it was crucial to determine whether Congress, through the Clean Air Act, had included greenhouse gases to be within the agency's mandate to regulate "air pollutants."

The closely-linked zone of interest element is equally elementary. The defendant must have a duty *to the plaintiff*. The statutory conflicts are not fundamentally different, in this regard, from the rules of torts. Suppose you drive your car recklessly along a road and strike Smith, a pedestrian, injuring her. I witness the incident while looking out the window, and fall. Smith has an action against you because she, as a pedestrian, was within the zone of interests protected by the duty to exercise care in driving. I, on the other hand, probably have no suit on the grounds that I, as mere spectator, was not in the zone of interests the drive-carefully rule was designed to protect. In the environmental realm, Congress constitutionally may, and has, expanded the zone favorably to environmentalists by expressly dilating those who are to be deemed protected by various statutory duties. For example, under the Marine Mammal Protection Act (MMPA), which governs permits to "take" marine mammals,[13] standing to review is available not only to the party awarded/denied the permit, but also "to any party opposed to such permit." (This will lead to the questions, raised later: could a whale be interpreted as a party "opposed"? Could Congress grant whales standing within the constitutional limitations?)

Animal Legal Defense Fund v. Glickman illustrates how the zone of interests requirement has come into play as an impediment to plaintiffs.[14] In *Glickman*, several individuals and Animal Legal Defense Fund (ALDF), a prominent animal rights group, argued that a U.S. Department of Agriculture regulation concerning the treatment of primates in human custody failed to comply with the

requirements of the Animal Welfare Act (AWA). Individual plaintiffs alleged that they suffered "aesthetic and recreational injuries" while witnessing the physical and emotional conditions of captive primates.[15] Of course it is only by some stretch that Congress can be thought to have intended the AWA to protect persons from the injuries of seeing animals suffer. The AWA was more plausibly written to protect animals. The animals not having been parties, however, a panel of the U.S. Court of Appeals for the District of Columbia determined, 2–1, that all plaintiffs lacked standing on several grounds (some of which are discussed later).[16] But Judge Patricia Wald's dissent marked the significance of the "zone" barrier. She observed, first, that the zone of interests test "is not meant to be especially demanding."[17] Then she proceeded to observe:

> Twenty-five years ago, Justice Douglas argued in dissent that "[t]he critical question of 'standing' [in environmental cases] would be simplified and also put neatly in focus if we fashioned a federal rule that allowed environmental issues to be litigated before federal agencies or federal courts in the name of the inanimate object about to be despoiled, defaced, or invaded by roads and bulldozers." Sierra Club, 405 U.S. at 741 (Douglas, J., dissenting). This case hardly requires us to recognize the independent standing of animals; Mr. Jurnove's allegations [as an affiant for ALDF] fall well within the requirements of our existing precedent. But it is striking, particularly in a world in which animals cannot sue on their own behalf, how far the majority opinion goes toward making governmental action that regulates the lives of animals, and determines the experience of people who view them in exhibitions, unchallengeable.[18]

Significantly, after the defeat by the three-judge panel, the plaintiffs were accorded a rehearing en banc. While the panel's decision to deny ALDF standing remained in effect,[19] the court granted standing to the one of the individuals, Jurnove, on the basis of his personal aesthetic and recreational injury.[20] This time, Justice Wald wrote for the majority.[21] On the zone of interests issue, she opined, citing Supreme Court precedent, that, "[T]he zone of interests test is generous and relatively undemanding. '[T]here need be no indication of congressional purpose to benefit the would-be plaintiff.'" Judge Wald continued to emphasize that the interest to be protected need only be "*arguably* within the zone of interests to be protected by the statute."[22]

(2) Injury in Fact

To constitute a legally cognizable injury, the plaintiff seeking standing will ordinarily have to show a loss of welfare. But not all welfare losses are legally cognizable. Some losses may be de minimis—too trivial for the courts to bother with. Others may not injure the plaintiff in a manner that is adequately particularized or concrete. The requirement that the plaintiff's injury be particularized is not peculiar to environmental litigation. The Supreme Court has

denied standing to a taxpayer seeking to challenge the secrecy of the CIA's budget because, "the impact on [plaintiff] is plainly undifferentiated and 'common to all members of the public.'"[23] On similar grounds the Court rejected a citizen suit to prevent a condemned criminal's execution on the basis of "the public interest protections of the Eighth Amendment."[24]

Sierra Club v. Morton, where we began, illustrates denial of standing based mainly on plaintiff's failure to plead concrete injury. The Sierra Club, sought to rely on its conservationist expertise alone for standing in its suit challenging the U.S. Department of the Interior's approval of the Disney proposal, dispensing with any allegations of injury either to the association itself or to its members. This posture reportedly irritated Justice Byron White, prompting him to ask, "Why didn't the Sierra Club have one goddamn member walk through the park and then there would have been standing to sue?"[25] Indeed, that is essentially what the club proceeded, successfully, to replead, citing the looming frustration of named hikers.

Concreteness (as well as the other elements of injury in fact) received its most notable examination in *Lujan v. Defenders of Wildlife*.[26] This case involved the Endangered Species Act (ESA), which obliges every federal agency to consult with the Secretary of the Interior to ensure that no action taken is "likely to jeopardize the continued existence of any endangered species or threatened species."[27] Although the Act was originally unlimited in geographic scope, a revised joint regulation reinterpreted the Act to require consultation only for actions taken in the United States or on the high seas. As a result, federal cofunding of the Aswan High Dam in Egypt, a project which carried risks to the endangered Nile crocodile, was allowed to proceed without consultation. Several organizations dedicated to wildlife conservation and other environmental causes sought a declaratory judgment that the revised regulation was in error.

To secure standing, a member of one group testified that she had, in 1986, "'observed the traditional habitat of the endangered Nile crocodile there and intend[s] to do so again, and hope[s] to observe the crocodile directly,' and that she 'will suffer harm in fact as the result of [the] American . . . role . . . in overseeing the rehabilitation of the Aswan High Dam.'"[28]

Before flagging the Constitutional issues we have recited, Justice Scalia introduced a somewhat novel variable. He says, uncontroversially, that one challenging the government action, or inaction, bears the burden of showing standing. Scalia continues by stating, "the plaintiff is himself an object of the action (or forgone action) . . . there is ordinarily little question that the action caused him injury, and that a judgment preventing or requiring the action will redress it."[29] It is otherwise when a plaintiff's asserted injury "arises from the government's allegedly unlawful regulation (or lack of regulation) of *someone else*."[30] In those circumstances, "much more is needed."[31] Scalia then elaborates, "In that circumstance, causation and redressability ordinarily hinge on the response of the

regulated (or regulable) third party to the government action or inaction—and perhaps on the response of others as well."[32]

To illustrate, if a licensing agency refuses to grant a permit to the proponent of a coal-fired plant, the rejected applicant has clear standing to obtain review. But if a neighbor affected by a decision favorable to the proponent seeks review, "standing is not precluded, but it is ordinarily 'substantially more difficult' to establish."[33] In general, the suggestion is that the more that the affected interest is only collateral to the objects of the regulatory scheme, the more concrete the injury has to be.

Justice Scalia's argument for placing a doctrinal "concrete and particularized" requirement on a constitutional foundation is drawn from separation of powers considerations. The issue to him, as he states it in *Lujan*, is:

> [W]hether the public interest in proper administration of the laws (specifically, in agencies' observance of a particular, statutorily prescribed procedure) can be converted into an individual right by a statute that denominates it as such, and that permits all citizens (or, for that matter, a subclass of citizens who suffer no distinctive concrete harm) to sue.[34]

His answer is that:

> If the concrete injury requirement has the separation-of-powers significance we have always said, the answer must be obvious: To permit Congress to convert the undifferentiated public interest in executive officers' compliance with the law into an "individual right" vindicable in the courts is to permit Congress to transfer from the President to the courts the Chief Executive's most important constitutional duty, to "take Care that the Laws be faithfully executed," Art. II, § 3. It would enable the courts, with the permission of Congress, "to assume a position of authority over the governmental acts of another and co-equal department," and to become "'virtually continuing monitors of the wisdom and soundness of Executive action.'"[35]

Without engaging whatever the wisdom (and consistency) of Justice Scalia's plea for judicial restraint, the lower courts do not appear to have allowed the concrete and particularized requirements to bar environmental cases that appear colorably meritorious. In 1971 a group of George Washington law students calling themselves SCRAP (Students Challenging Regulatory Agency Procedures) challenged the Interstate Commerce Commission's failure to perform an analysis of the environmental impact of certain railroad rates. SCRAP maintained that the rates discriminatorily favored the transport of raw materials over recycled materials, thereby dampening recycling efforts. Creative, certainly. But where was the concrete and particularized injury? The Supreme Court was willing to find it in SCRAP's claim that each of its members "'(u)ses the forest, rivers, streams, mountains, and other natural resources of the Washington Metropolitan area and at his legal residence, for camping, hiking, fishing, sightseeing, and

other recreational (and) aesthetic purposes,' and that these uses have been adversely affected by the increased freight rates. . . ."[36]

In fact, even Scalia, in his *Lujan* opinion, preserved an expansive notion of concrete harm, acknowledging, "[i]t is clear that the person who *observes* or works with a *particular* animal threatened by a federal decision is facing perceptible harm"[37] and "[of] course, the desire to use or observe an animal species, even for purely esthetic purposes, is undeniably a cognizable interest for purpose of standing."[38]

The *Glickman* case, discussed earlier, further illustrates how permeable the "concrete and particularlized" barrier can be. The original panel's 2–1 majority had ruled that "ALDF has failed to make the case that it has suffered a concrete injury as distinguished from the abstract procedural right to submit comments to USDA. Its articulated 'injury' amounts to no more than 'a "general interest [in the alleged procedural violation] common to all members of the public."'"[39] But the subsequent, en banc ruling on the issue (with respect to the individual plaintiff) was otherwise. The Court now said "Mr. Jurnove has alleged far more than an abstract, and uncognizable, interest in seeing the law enforced."[40] "[T]he desire to use *or observe* an animal species, even for purely esthetic purposes, is undeniably a cognizable interest for purpose of standing."[41] "[T]he fact that many may share an aesthetic interest does not make it less cognizable, less 'distinct and palpable.'"[42]

More recent (2007) is *Massachusetts v. Environmental Protection Agency (EPA)*,[43] which is discussed in more detail later. In this case, a number of environmental groups and the attorneys general for several states filed a petition to force the EPA to regulate greenhouse gases as an "air pollutant" under the Clean Air Act. But given the fragmentary evidence of where climate-change-driven injuries will fall, whose interest in stopping it could be viewed as sufficiently concrete and particularized to have standing? The Supreme Court majority, without reaching the standing of other plaintiffs (one party's good standing is enough to keep a case alive) found that Massachusetts qualified because as a state it had a special "stake in protecting its quasi-sovereign interests."[44] Moreover, Massachusetts' argument had special force as a coastal state with actual ownership of (not merely sovereignty over) "a great deal of the 'territory alleged to be affected'" by the risk of rising coastal waters on beachfront.[45]

The requirement that the injury be "actual and imminent, rather than conjectural or hypothetical" has undergone a restrictive turn since *Trees* was first published. In the past, I pointed to the 1977 case of *Animal Welfare Institute v. Kreps* as the most "striking illustration of the improving climate for conventional, human-based standing."[46] In that case, several animal welfare groups sought to force the Secretary of Commerce to deny permits to import sealskins from the South African Cape, where the seals were slaughtered in conditions violating the Marine Mammal Protection Act.[47] To satisfy the standing requirement, the groups alleged—in lieu of injury to the seals—injury to the recreational,

aesthetic, scientific, and educational interests of individual group members.[48] As to "imminence," the Court of Appeals, reversing the District Court's rejection, accepted an affidavit by one of the groups' members expressing a plan to go to South Africa in the indefinite future. The court found in this "plan" an acceptable nexus, even though the area of the Cape that the seals inhabited was then accessible only with the special permission of the Apartheid South African government, permission not likely to be given to U.S. seal-watchers.

A shift in the climate of standing jurisprudence since *Kreps* is suggested by a contrast with the Supreme Court's decision in *Lujan* fifteen years later. In *Lujan*, the plaintiffs had similar indefinite plans to travel abroad to observe species. But now Scalia wrote for the plurality:

> [T]he affiants' profession of an "inten[t]" to return to the places they had visited before—where they will presumably, this time, be deprived of the opportunity to observe animals of the endangered species—is simply not enough. Such "some day" intentions—without any description of concrete plans, or indeed even any specification of *when* the someday will be—do not support a finding of the "actual or imminent" injury that our cases require.[49]

As is often the case, while the Justices nominally agreed on the elements of standing in *Lujan*, they differed widely—and significantly—on the application to the facts. Justice John Paul Stevens, for example, while concurring in the judgment (by finding that Congress had never intended to extend the EPA's influence to foreign lands), took strong exception to Scalia both on "imminence" and "redressability" (as discussed later). On imminence, Stevens demanded no more than demonstration that the plaintiff's interest was "genuine."[50] For Scalia, Stevens's proposal would engage the Court in an unworkable task, distinguishing the genuine from the nongenuine.[51]

(3) Causation

Causation will demand as much attention as injury in fact when we turn to climate change. The *Glickman* case, once more, serves as a good illustration.[52] No one disputes that standing requires the plaintiff's injury to be "caused" by a defendant's action or inaction. Application of this requirement is relatively clear-cut in my example of a motor vehicle accident. But in the cases we are examining, at least where the suit is brought by, essentially, a third party—ordinarily not the suffering animal but the suffering witness of the animal's suffering—causation is more complex. It seems to depend on an uncertain counterfactual: if an agency, here the U.S. Department of Agriculture (USDA), had dutifully issued rules in the right way and of the right substance, the plaintiff would not have been injured (suffered). Thus, the USDA "caused" the plaintiff's injury by not dutifully preventing it. Judge Wald did not frame it quite like this. She understood the plaintiff to claim that the conditions that caused him injury

complied with current USDA *regulations*, but would have been eliminated had the regulations been conformed to the AWA itself.[53]

(4) Redressability

Redressability requires that the plaintiff "must show 'substantial likelihood' that the relief requested will redress" the injury complained of. In *Lujan*, Scalia called it "the most obvious problem in the present case."[54] It was true that the "lead agencies" funding the Egyptian water project had failed to consult with the U.S. Secretary of the Interior as appeared to be required by the Endangered Species Act (assuming *arguendo* that the ESA's provisions applied to U.S. agency actions in Egypt). Scalia found the redressability obstacle could not be scaled for two reasons.

First, Scalia reasoned that even if a court should order the Secretary of the Interior to re-revise the regulations, "this would not remedy respondents' alleged injury unless the funding agencies were bound by the Secretary's regulation, which is very much an open question."[55] In other words, if the agency chose not to follow the Court's orders, what could the judiciary do about it? Scalia noted that the "action agencies," for example, the Agency for International Development, "cannot be required to undertake consultation with petitioner Secretary [of the Interior], because they are not directly bound as parties to the suit and are otherwise not indirectly bound by being subject to petitioner secretary's regulation."[56] But this point required apparent disregard (so said the dissenters) of the secretary having "officially and publicly taken the position that his regulations regarding consultation . . . *are* binding on action agencies."[57]

Scalia's second argument seems no more persuasive. Even if there were to be consultation, and that consultation resulted in withdrawal of U.S. funds for the dam project, "the [action] agencies generally supply only a fraction of the funding for a foreign project."[58] So, the Nile crocodiles (and their potential watchers) would be at risk either way. The dissenters rejoined:

> Even if the action agencies supply only a fraction of the funding for a particular foreign project, it remains at least a question for the finder of fact whether threatened withdrawal of that fraction would affect foreign government conduct sufficiently to avoid harm to listed species.[59]

I cannot conclude this section with any tidier summary of where the law of standing, generally, now stands—or does one say, sprawls? Different Justices and different courts are applying the same nominal elements to the facts in different ways. The *Lujan* decision has not, as Sunstein feared in 1992, come to rank "among the most important in history in terms of the sheer number of federal statutes that it apparently has invalidated."[60] I do not construe the Court to have *invalidated* any faux-standing statute in *Lujan*, or since.[61] Certainly it was premature to read that opinion as sounding the death knell of the citizen suit. In *Lujan*, Justice Scalia actually firms up several strategies in a way that

works to the advantage of environmental plaintiffs. Consider the tentative concession:

> It is even plausible—though it goes to the outermost limit of plausibility—to think that a person who observes or works with animals of a particular species in the very area of the world where that species is threatened by a federal decision is facing such harm, since some animals that might have been the subject of his interest will no longer exist . . . [62]

In fact, the citizen suit, and other mechanisms we shall examine to protect the environment, have in many ways become more readily available than when I wrote *Trees*. Ironically, intervening liberalization of standing requirements have made a suit in the name of a nonhuman less crucial than I imagined it might be in 1972, at the time of *Morton*.

On the other hand, suits designed to dampen greenhouse gas (GHG) emissions face considerable headwind, in whomever's name the suit is brought. The plaintiff will have to contend with defenses (depending on how the suit is cast) based upon sovereign immunity; "political question"; causality; "zone of interest"; "injury in fact"; "concrete and particularized"; and redressability.

III. STANDING TO FORCE DISCLOSURES

Thus, before we address plaintiff efforts to challenge emissions head on, it is worth reviewing the standing problems that arise in cases with goals less ambitious than enjoining GHGs. The plaintiff can challenge the manner in which the government is reacting to climate change threats.

This is a strategy that takes its cue from a favorable footnote in Scalia's *Lujan* opinion. There, Scalia suggested that a party whose complaint is aimed at vindicating a *procedural* right has an especially low hurdle to clear to achieve standing. The "injury" is complete when the right to the procedure is violated.

> The person who has been accorded a procedural right to protect his concrete interests can assert that right without meeting all the normal standards for redressability and immediacy. Thus, under our case law, one living adjacent to the site for proposed construction of a federally licensed dam has standing to challenge the licensing agency's failure to prepare an environmental impact statement, even though he cannot establish with any certainty that the statement will cause the license to be withheld or altered, and even though the dam will not be completed for many years.[63]

Scalia thus holds out the possibility of a "low barrier" standing for advocates who want, for example, to force a government agency to consult with more environmentally sensitive agencies, or to account for climate change impacts in evaluating federal agency actions. The strategy has limits, as we shall see.

"Winning" presumably consists in sending the lead agency back to do the job over, according to the right procedures, whatever they may be.[64] That is not as successful as achieving a favorable substantive outcome, such as removal of the goats (*Palila*), or dimming the lights on turtle nesting beaches (*Loggerhead*). Incidentally, both of those cases, and others, cast doubts on Scalia's generalization: standing was not any easier to achieve in those cases, as witnessed by the court's allowing animals standing. Be that as it may, procedure-correcting suits have been easy to file and can be useful. The additional and broader input, the increased public attention, the additional time, and even the prospect of delays, can lead to more environment-friendly outcomes.

The impact statement requirements of the National Environmental Policy Act (NEPA) constitute the most powerful procedural strategy.[65] Under NEPA, all federal agencies and anyone needing federal agency approval, permitting, or action that may "significantly [affect] the quality of the human environment" must submit an environmental impact statement (EIS), subject to public review, which assesses:

> (i) the environmental impact of the proposed action, (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented, (iii) alternatives to the proposed action, (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.[66]

An agency can avoid the cost of preparing an EIS if it makes a preliminary environmental assessment (EA) that supports a Finding of No Significant Impact (FONSI).[67] Under existing law, courts have held that the proponent:

> should normally be required to review the proposed action in the light of at least two relevant factors: (1) the extent to which the action will cause adverse environmental effects in excess of those created by existing uses in the area affected by it, and (2) the absolute quantitative adverse environmental effects of the action itself, *including the cumulative harm that results from its contribution to existing adverse conditions* or uses in the affected area.[68]

NEPA does not expressly provide for "citizen suits," as the ESA does, but allows challenges to FONSIs to be mounted under the "arbitrary and capricious" standard of the Administrative Procedure Act (APA) by any person who can attest to a relatively undemanding notion of "injury."[69] As a result, environmental advocates have seized upon these rules as a basis for forcing the government to determine and consider the GHG emission impact of alternative proposals, as part of the EA-EIS procedures.

A number of environmental challenges mounted under NEPA have failed, not from want of standing, but because, for example, even experts could not

"reasonably forecast" long-term impacts of noise and air pollution of a proposed new runway.[70] Interestingly, one of the decisive factors in that case was the unknowable effect of investments in noise and air pollution research "which are likely to significantly reduce engine noise in new aircraft" in coming decades.[71]

In one other suit of particular interest, *Greenpeace v. National Marine Fisheries Service (NMFS)*,[72] it was not the environmentalists but industry—specifically, the fishing industry—that raised a failure of the EIS to account adequately for climate change. There, the NMFS, whose Office of Protected Resources is de jure "trustee" for marine mammals (discussed later) was required to prepare a broad programmatic environmental impact statement to identify and evaluate the pressure imposed on Steller sea lion populations by North Pacific ground-fisheries. The sea lions' principal prey are pollock, whose numbers have been declining. The NMFS proposed drastically restricting the catch on the grounds that sea lions and the fisheries "compete[d]" with each other for their "catches." The industry objected, maintaining that the NMFS had neglected to give due weight to either the "environmental changes and the resulting lack of appropriate prey," or the "growing agreement in the scientific community that [the] general collapse is not associated with fishing activities but is due to a reduced 'carrying capacity' of the North Pacific ecosystem as a whole," resulting from climate change.[73]

In other litigation, *Western Land Exchange Project v. U.S. Bureau of Land Management*, in which the issue was the likely impact of desert groundwater pumping on four endangered species, the fact that these effects were "mostly unknown or inadequately known" required further studies to determine the exact extent of what was unknown.[74] The agency could not make a FONSI based simply on the claim that the effects of the groundwater pumping were unknown or difficult to predict.[75]

Both the "successes" and the limitations of NEPA-driven cases are illustrated by *Border Power Plant Working Group v. Department of Energy* (2003).[76] There, plaintiffs complained that the U.S. Department of Energy (DOE), in approving the building of a transmission line between the United States and Mexico, had failed to consider carbon dioxide emissions that would be generated from the Mexican power plants being constructed to transmit energy along the proposed power lines.[77] The court held that, although carbon dioxide is not a "criteria pollutant" under the Clean Air Act (CAA), it is an emission which has a potential environmental impact, and therefore should have been considered.[78] For this and other reasons, the court found the DOE filing a FONSI to have been improper.[79]

But to say that GHG emissions must be considered does not necessarily mean that the *impacts* of GHGs (i.e., global warming and its consequences) must be evaluated—much less abandoned. After the court's rebuff, the DOE went to the

expense of preparing a full EIS which, while noting that carbon dioxide would be emitted on all studied alternatives including the "no-action alternative," found that the "power plants would produce an estimated 5,186,000 tons of CO_2 per year, which would be a very small fraction of total U.S. (0.088 percent) and global emissions (0.023 percent)."[80] Based on this, the EIS concluded that the impacts on global climate change from all alternatives "are expected to be negligible."[81] The plaintiffs did not challenge the revised EIS on GHG emissions or their impacts.[82]

This illustrates the limitations of challenges to environmental reviews. Standing requirements may be relaxed, but NEPA's aim is to eliminate (as the Supreme Court has put it) "uninformed—rather than unwise—agency action."[83] That does not mean that such suits are bootless exercises in delay. The review process can contribute to the "carbon footprint" sensitivity both of the public and of the agencies themselves. Certainly the impact should not be judged by the number of successes in court; agencies undoubtedly make many decisions—selections of alternatives—with an eye toward avoiding environmental challenges.

There is one other "information"-forcing context into which climate change is being drawn. Aside from impacts on the environment, climate change may have, for some companies, adverse effects on share value. A heavy GHG-emitter could conceivably face some loss of reputation if it is exposed as anonymously backing climate change denials in public media. More tangibly, a heavy emitter faces the financial risk of a stronger regulatory environment which, through cap-and-trade or tax mechanisms, would raise costs and lower profits. There is even a low-probability prospect (discussed more fully later) that the firm could be liable for GHG-attributable damages.

One way for environmentalists to exploit the financial risks of climate change is through the federal securities laws, which apply to all firms with securities "listed" on the stock exchanges.[84] Under the proxy rules, a shareholder may demand that the board circulate to the other shareholders a proposal, for example, to require the company to identify and publish its carbon imprint.[85] The proponent has "standing" if a stockholder continuously held at least $2000 in market value, or 1 percent, of the company's voting securities for at least one year prior. The law governing whether the board can in turn refuse to include the proposal is too complex to explain in detail here.[86] If the corporation excludes the proposed disclosure, the proponent can appeal to the U.S. Securities and Exchange Commission (SEC), but the SEC's decisions regarding climate change shareholder proposals during the years 1998–2005 have been called "inconsistent and even contradictory."[87] Even if the proposal is included, and thus brought to a shareholder vote, there is no certainty that the other shareholders will back it. One study reviewing climate change–linked shareholder proposals at 81 U.S. corporations during the years 2000–2003 found that they received an average support of 13 percent.[88] And finally, even if some proposal does pass, the effects

on corporate behavior are uncertain. Having, for example, inventoried its "footprint," will the corporation reduce it? That does not mean that the process would not, in some hard to gauge manner, produce more environmentally sensitive corporate behavior. In May 2005, 14 leading investors and other organizations worldwide launched a new effort, the Climate Risk Disclosure Initiative, to improve corporate disclosure of the risks and opportunities posed by global climate change.[89] It remains to be seen what impact the initiative will have.

The more viable leverage of the securities laws is to raise the specter of liability for omitting or even misstating the corporation's financial position in the face of prospective climate change regulation. This could become increasingly worrisome for corporate managers, who have to consider their own personal (not merely the firm's) exposure to litigation. Specifically, in certain circumstances a shareholder has standing to sue a corporation in which it holds shares, or even corporate officers, for omissions or misleading representations in various corporate "statements," such as prospectuses for sale of its securities, or quarterly reports. If, for example, I buy shares in a mining company in reliance on a claim in the firm's prospectus that the company had discovered a commercially viable deposit, there are both federal and state laws under which I may be able to recover damages if that representation was material, false or misleading, and reasonably relied on by me in my decision to purchase. To bring such a case based on climate change misrepresentation would not be easy. A plaintiff would have to show that she purchased shares at an inflated price as a result of the false or misleading claims that understated potential climate impact. The prices of a firm's shares reflect myriad likelihoods, and I am not aware of any shares that would be diminished materially if the "full story" of their vulnerability to regulation and subsidized competition were to be taken fully into account; with or without such disclosures, the market is presumably accounting for those possibilities already.

Significantly, the leading corporate disclosure case to date was brought by the state of New York, under New York law. Attorney General Andrew M. Cuomo sued four major emitters—including Xcel, a major energy company with $6 billion in sales—to increase "transparency and full disclosure of global warming financial risks to investors. Selectively revealing favorable facts or intentionally concealing unfavorable information about climate change is misleading and must be stopped."[90]

Xcel settled on terms which included an agreement to provide, in its federal Form 10-K filings (annual summary report on a company's performance required by the SEC), detailed disclosure of financial risks from climate change related to:

- present and probable future climate change regulation and legislation;
- climate-change-related litigation; and
- physical impacts of climate change.

Additionally, the agreement commits Xcel to a broad array of climate change disclosures, including:

- current carbon emissions;
- projected increases in carbon emissions from planned coal-fired power plants;
- company strategies for reducing, offsetting, limiting, or otherwise managing its global warming pollution emissions and expected global warming emissions reductions from these actions; and
- corporate governance actions related to climate change, including whether environmental performance is incorporated into officer compensation.

The state attorney general's investigation of the remaining companies is ongoing. It remains to be seen whether laws designed to protect the investment community will not play as large a role as those framed to protect the environment.

IV. STANDING'S MANY FRONTS

Thus far I have tried to review the law of standing generally, and to examine its workings in federal cases aimed at holding agencies to the procedural, most frequently disclosure-related, requirements of the environmental laws. But standing can be an issue in many ways. Among others, it can be vested in the executive; in an independent agency, as designated "trustee" of a protected resource; or in the entities themselves (the *Trees* notion), through guardians, seeking relief from their "own" injuries. (If *no one* has standing, the gate to courts and other adjudicative bodies is closed, and the problem is left to the discretion of legislatures, without possibility of judicial review.) The standards for standing are not the same in each setting. For example, counsel for the Inuit and Maldives in the cases pending before the Inter-American Commission on Human Rights (IACHR) (discussed later) inform me the Court appears to operate without any defined standing jurisprudence.

Let me illustrate the many circumstances under which standing can arise, with special attention to its relevance to climate change, by reference to the regulation of whale populations.

The United States is party to the International Convention on the Regulation of Whaling (ICRW). In 2008, the principal issue that came before its functioning body, the International Whaling Commission (IWC), was a proposal by Denmark for a strike limit of 10 humpback whales annually for the period 2008–2012.[91] The Scientific Committee had agreed that that level of activity would not harm the population. However, the Scientific Committee is also undertaking a study of, but has yet to issue a report on, the controversial impact of climate change on cetaceans. Some argue that, in the face of climate change uncertainty, any level of harvest must be considered a threat to stocks.[92]

This is where standing comes in. Who might challenge this hypothetical decision to disregard the threat of climate change on whales and authorize the petitioned hunt? And what do the possibilities tell us about the prospect of other climate-change-affecting litigation?

(1) Ordinary Standing for "Ordinary" Economic Injury

Before pressing ahead to examine more complex strategies, the most straightforward suit to stop whaling would be by someone claiming economic damages from the tortious acts of another. For example, the owner of a whale-watching business that took people to watch humpback whales that were in the affected stock could almost certainly demonstrate imminent concrete financial losses—and of course causality—adequate to support allegations against Denmark. The suit would likely lose on a number of grounds, however, including sovereign immunity, and even were that waived, on grounds that the harvest having been approved by the IWC, Denmark had no duty to plaintiff.

Straightforward torts suits have also been brought in the climate change area. There are all sorts of impediments—standing is but one frustration. One is that, even if the plaintiff can get into court, there are daunting problems of proof. Efforts to establish causal links and prove climate-change-driven damages draws us into probabilities. It is true that the Intergovernmental Panel on Climate Change (IPCC) and its experts deal with probabilities as a regular matter. But the probabilities a court requires to meet a plaintiff's burden of proof go beyond those the world's leaders, and lawmaking bodies need, which are hard enough to provide. The plaintiff in a lawsuit has to demonstrate the risk or damage she faces are attributable to the named defendants. It is one thing to show, with a high level of confidence, that continuing emissions pose a high risk of net damage to property, globally, and perhaps even in identified regions. But it is quite another matter—still beyond the reach of our most powerful computer simulations—to say with confidence what the law ideally wants—that the contributions of this defendant *over there* put at risk the plaintiff *here*.

Public nuisance suits have been tried.[93] In *Connecticut v. American Electric Power Company*, environmental groups and several states' attorneys general brought suit against electric power companies, including the five largest polluters in the United States, alleging that the defendants' GHG emissions contributed to the "public nuisance" of global warming.[94] But among the other problems plaintiffs ran into, public nuisance—like almost all common-law torts, including private nuisance, negligence, trespass, and their statutory embodiments—require the plaintiff to prove that, in one phrasing or another, the defendant acted *unreasonably*.[95] Deployed in the GHG context, a plaintiff is hard put to demonstrate that the marginal damage of a power plant's production is greater than the marginal benefit. And even if the plaintiff can show unreasonableness, there is a monumental challenge of remedy. In *Connecticut v. American Electric*

Power Company the United States District Court explained its reticence to order an abatement:

> Such relief would, at a minimum, require this Court to: (1) determine the appropriate level at which to cap the carbon dioxide emissions of these Defendants; (2) determine the appropriate percentage reduction to impose upon Defendants; (3) create a schedule to implement those reductions; (4) determine and balance the implications of such relief on the United States' ongoing negotiations with other nations concerning global climate change; (5) assess and measure available alternative energy resources; and (6) determine and balance the implications of such relief on the United States' energy sufficiency and thus its national security—all without an "initial policy determination" having been made by the elected branches.[96]

The district court ultimately—in 2004—dismissed the claim on the basis that it presented a nonjusticiable political question—no one had standing.[97]

Three years later, in California, a public nuisance suit brought by the State of California against major auto companies under state law, *California v. General Motors Corporation*, was dismissed on many of the same grounds.[98] The evasive "balancing of utilities" was never even reached.

These important issues, however, are far from settled. In September 2009, a panel of the United States Court of Appeals for the Second Circuit unanimously reversed the district court in *Connecticut v. American Electric Power Company*, rejecting virtually all the defendants' arguments.[99] The case is almost certain to go to the U.S. Supreme Court.

(2) Rights-Based Claims

There is one way to avoid the task of identifying and balancing costs and benefits: for the plaintiff to ground its claim on violated *rights*. A judge cannot deny a criminal defendant's request for a jury trial because the costs outweigh the benefits. The accused has a right under the Constitution, which means that the government's cost-benefit arguments to the contrary are irrelevant. In the whaling context, the Makah tribe of the Pacific Northwest showed the benefit of playing a rights card. The Makah are the only tribe within the United States that can evidence a right to whale based on a treaty—in this case a treaty with the Franklin Pierce administration in 1855. Although by the 1990s the Makah had ceased whaling for seventy years, making their "need" for whales doubtful, the tribe was able to parlay its unique treaty-based right into a quota of up to five grey whales at the 1997 meeting of the IWC. Essentially, while the Makah could not themselves negotiate before the IWC, they prodded their treaty partner, the United States, to get the IWC to honor the Makah's right under the 1855 agreement.

At least two rights-based claims have been made in the climate change context. In 2005, Earthjustice and the Inuit Circumpolar Conference (ICC), with

support from the Center for International Environmental Law (CIEL), filed a petition on behalf of the Inuit before the Washington, D.C. based Inter-American Commission on Human Rights (IACHR), one of two bodies within the Organization of American States (OAS) authorized to oversee the operation of the OAS Inter-American Human Rights System.[100] The petition seeks unspecified relief from global warming impacts alleged to infringe, among other rights recognized in the American Declaration of the Rights and Duties of Man, the right to residence and movement, the right to inviolability of the home, the right to preservation of health and well-being, and the rights to benefits of culture. The other suit, similar in nature but technically a "submission," was filed in 2008 by the Republic of the Maldives, before the U.N. Commission on Human Rights (UNCHR), in response to a UNHRC request for examination of the relationship between human rights and climate change. (The Maldives consists of approximately 1200 low-lying islands, and is expected to experience severe impacts.)

The Inuit suit is audacious. It names as respondent the United States, at the time of filing still the largest emitter of GHGs. Redressability, should the case go that far, is of course highly problematic: how much time would even shutting down the U.S. economy buy the Maldives or Inuit villages? But as a way of getting climate change into court, including the court of public opinion, there is much to be said in favor of the strategy adopted.[101]

First, the suit broadcasts the impacts of climate change in the language of rights, thereby skirting, hopefully, cost-benefit analyses. Second, suing on behalf of the Inuit makes a lot of sense. Nowhere on Earth has global warming had a more severe impact than the Arctic. And there is no other group (of humans) as vulnerable to global warming: their homes and culture are at risk, may one not say, "imminently"? Their property and culture are melting away *now*. As the petition recites:

> Like many indigenous peoples, the Inuit are the product of the physical environment in which they live. The Inuit have fine-tuned tools, techniques and knowledge over thousands of years to adapt to the arctic environment. They have developed an intimate relationship with their surroundings, using their understanding of the arctic environment to develop a complex culture that has enabled them to thrive on scarce resources. The culture, economy and identity of the Inuit as an indigenous people depend upon the ice and snow.[102]

Third, the IACHR appears to be a relatively inviting forum, making up in liberalized standing what it may lack in ultimate clout. Most international tribunals recognize standing for nations exclusively. The Inuit are not, in that parlance, a "nation," but an indigenous people whose sovereignty has been taken away and parceled out among "real" nations. The IACHR, however, has opened its doors to the grievances of indigenous and other local communities, including the Awas Tingni in Nicaragua, the Mapuche/Pehuenche in Chile, the Sarayaku

in Ecuador, the Maya in Belize, and the San Mateo de Huanchor in Peru. The actions of the Commission and Court have helped protect those communities from practices, such as large-scale logging, mining, oil development, and damming of rivers.[103]

The IACHR rejected the petition without prejudice in November 2006 on the cryptic grounds that "the information provided does not enable us to determine whether the alleged facts would tend to characterize a violation of rights protected by the American Declaration [of the Rights and Duties of Man]."[104] In January 2007 the ICC requested a hearing with the IAHCR, which was granted and has taken place. The suit, although not likely to result in an order enjoining the United States, must be considered still in limbo, and thus part of the continuing pressure to keep climate change remediation visible in many fronts and in many venues.

By far the most important rights-based area—although it is not often thought of as such—is generated by the ESA. The effect of listing a species as "endangered" or "threatened" is akin to providing the species a "right," that is, an interest that can be infringed, if at all, only on the strongest showing of necessity. As a model, think of suspending the writ of habeas corpus. To put it another way, just as the First Amendment establishes your right that the government not interfere with your speech, assembly, or religion, so the ESA provides a listed species a right that the government do nothing likely to jeopardize its existence or modify its critical habitat. In fact, the ESA goes beyond establishing negative liberties by creating an affirmative government duty to protect the species from third parties and to take positive measures to ensure the species' survival, such as to prepare a recovery plan. These rights are not absolute; nor are any ordinary human rights. The point is that further endangerment cannot be defended on utilitarian grounds, such as that protecting the Xs costs "more than it is worth." In the famous snail darter case, a major dam-centered project had to be halted, without any consideration of the economic impact of the decision, because it threatened the endangered snail darter. Exceptions can be made, but the burden is strongly in favor of the species. (The issue of standing in the ESA cases is one we will turn to shortly.)

(3) Executive Standing in International Affairs

If some courts shy away from controversies as too "political" for adjudication, there is always the alternative power of the executive to consider. To continue with the whaling illustration, the president, represented at the IWC meeting by the authorized delegates, has the authority exclusive of other U.S. interests to vote on the Danish proposal. Suppose the proposal had been approved by the Commission, notwithstanding the United States' determination to table it until after a report had been received on climate change impact.[105] In those circumstances, if the United States could ground its position on an interpretation of the Whaling Convention that the majority had rejected, or if it could portray the

Commission's action as in some manner in conflict with the U.N. Convention on the Law of the Sea, the United States, through its executive branch, has standing to institute review in a number of venues. These might include the International Tribunal for the Law of the Sea (ITLOS), a specialized arbitral tribunal, or the International Court of Justice (ICJ).

(4) Citizens' Standing to Force the Executive's Hand in Foreign Affairs

Suppose that the Danish humpback whale proposal had been approved. And further suppose that the United States had elected not to appeal. Would an interested individual or group have standing to sue in U.S. courts to require the government to take further action, either to seek reconsideration within the IWC or to appeal to some global tribunal—in other words, to force the executive's hand in this climate-affecting matter?

The answer is, "not likely." In 1977 the IWC, alarmed by the decline of the bowhead whale, voted to ban the fall hunt and impose a zero quota for 1978. When the United States was formally notified, the Secretary of State announced that the United States would not exercise its right to object but would seek "reconsideration" at the next IWC meeting, a course of action approved by the president. The Inuit sued in U.S. District Court to compel the secretary to file an objection, citing U.S. obligations under U.S. treaties and laws to the act as "trustees" for natives' interests. The District Court granted the Inuit's request for relief. But the Court of Appeals reversed, based on a judicial unwillingness to invade "core concerns of the executive branch," particularly via a mandatory injunction when the executive was "in the very midst of delicate negotiations."[106]

The United States Supreme Court responded similarly in its 1986 decision in *Japan Whaling Association v. American Cetacean Society*.[107] That case arose out of congressional legislation that said the Secretary of Commerce "shall" certify to the president when any nation's whaling practices are found to be undermining the effectiveness of the ICRW, such certification then to trigger trade sanctions.[108] A consortium of wildlife conservation groups sued to force the secretary to certify Japan, whose harvest exceeded its IWC quota. Standing was allowed the organizations on the claim that the "whale watching and studying of their members [would] be adversely affected by continued whale harvesting . . ."[109] The Supreme Court even rejected the government's contention that judicial review was barred by the "political question" doctrine. But the Court ultimately held against the conservation groups on the grounds that the Secretary of Commerce's decision to negotiate an executive agreement between the United States and Japan, and to secure Japanese concessions on future whaling in the process, constituted a reasonable alternative means of meeting the secretary's statutory obligations.[110]

Assuming these cases reflect the current law, could a citizen sue to force the executive to exercise climate-improving rights under a treaty? Something of the

sort may be tested in Canada—although not to exercise rights, but to honor duties. Unlike the United States, Canada has signed the Kyoto Protocol, and its legislature has enacted a Kyoto Protocol Implementation Act (KPIA). The Canadian branch of Friends of the Earth (FOE) has filed lawsuits against the Canadian Governor in Council and Ministry of the Environment to compel compliance with the KPIA. But at least formally, the actions, which are currently pending, rest on Kyoto only indirectly, insofar as the Kyoto obligations have been embraced by the KPIA. However the case comes out, I doubt the suits would have gotten far if they had to rest on Kyoto, directly. Nor am I confident that a contrary outcome would hold for environmentalists a positive advantage on balance. If such suits were permitted, countries considering whether to join international environmental agreements such as the Kyoto Protocol, or to toughen up the terms, would be all the more hesitant to do so.

(5) Citizens' Standing to Force the Executive's Hand in Domestic Affairs

When we turn to purely domestic matters, the presumption in favor of the executive is less of a barrier, particularly where the plaintiff is basing the claim on legislation. We have already reviewed cases in which a citizen sought to force one particular form of government action, the preparation of an EA or an EIS that the lead agency in the area has not delivered, such as via a FONSI.[111] In those cases, standing is fairly easily established. The ESA provides for challenge by "any person" to any action (or inaction); under NEPA, alleged EIS and EA deficiencies can be challenged under the not unfavorable review standards of the Administrative Procedure Act. But those cases do not produce, of their own force, what we are considering here: a plaintiff who wants some result beyond further investigation, assessment of alternatives, or interagency consultation.

Some indication is to be found in the highly publicized 2007 Supreme Court decision in *Massachusetts v. Environmental Protection Agency (EPA)*[112] The case arose in 1999, when a number of environmental groups filed an administrative rulemaking petition requesting that the Environmental Protection Agency (EPA) set GHG emission levels for new automobiles, as they were allegedly obliged to do under the Clean Air Act (CAA). The CAA reads:

> The Administrator *shall* by regulation prescribe . . . standards applicable to the emission of *any air pollutant* from any class or classes of new motor vehicles or new motor vehicle engines, which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.[113]

The CAA defines *air pollutant* as:

> . . . *any* air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive (including source material, special nuclear material, and byproduct material) substance or matter which is emitted into or otherwise enters the ambient air.[114]

The EPA denied the petition, and the original plaintiffs, joined by attorneys general for various states and local governments as intervenors, demanded review. On the standing issue, the EPA argued that none of the state plaintiffs could demonstrate an injury adequately *particularized*, that is, of "such a personal stake in the outcome," as to satisfy the adversarial demands of Article III.[115]

The Supreme Court majority drew considerable public attention by weighing in on the scientific issue. The majority, through Justice Stevens, stated that, "The harms associated with climate change are serious and well recognized," and that the "EPA does not dispute the existence of a causal connection between man-made greenhouse gas emissions and global warming."[116] It then ruled that Massachusetts (at least) had standing to force the EPA to consider whether GHGs were "pollutants." For one thing, as a state, it had a special "stake in protecting its quasi-sovereign interests," and even had actual ownership of "a great deal of the 'territory alleged to be affected'" by the risk of rising coastal waters.[117] In addition—in a gloss of broader implication, not limited to a state as plaintiff—the Court said that "a litigant to whom Congress has 'accorded a procedural right to protect his concrete interests,'"—here, the right to challenge agency action unlawfully withheld—"can assert that right without meeting all the normal standards for redressability and immediacy."[118]

The actual impact of the holding has not been well grasped. When all was said and done, the Court held only that auto GHG emissions being "pollutants," the EPA *had to decide* whether the emissions, in the language of the CAA, "may reasonably be anticipated to endanger public health or welfare" through climate change.[119] If the EPA should say "no," that there is not enough evidence, or that the evidence is too conflicting, it need not regulate GHGs (at least pending further litigation). Worse, one available option is for the EPA to decide that they do have the power to regulate auto emissions, and to regulate them only "lightly." The light federal regulation would then raise the specter of preempting, that is, blocking efforts by more activist states, such as California, to institute potentially more ambitious limitations.

Interestingly, while the Supreme Court suggests in *Lujan*, *Massachusetts v. EPA*, and elsewhere that plaintiffs seeking standing to right a procedural wrong face a lower burden, the cases, at least in the environmental area, display no consistent pattern. The generalization may be borne out in comparing *Connecticut v. AEP* (seems substantive—no standing) with *Massachusetts v. EPA* (procedural—standing found). But as reported in the Introduction and Epilogue, a number of cases brought in the name of threatened or endangered species have resulted in substantive relief. In the *Palila* case, the birds wanted, and got, the goats removed. Similarly, *Marbled Murrelet* sought successfully to enjoin lumbering operations. In *Loggerhead*, the Eleventh Circuit left no doubt that the turtles could force the beachfront municipalities to come up with turtle-friendly regulation of artificial lighting in the nesting areas. In none of these cases did the courts suggest they were raising the barrier because something beyond information or some other "procedure" was at stake.

(6) Standing by a Designated Trustee

Thus far I have emphasized standing by individuals and environmental defense groups. But there is another way to provide for standing. Congress can authorize a "trustee" for nonhumans, with express power to take legal or administrative action to protect their beneficiaries. Current law does just that, requiring the president to designate those federal officials who are to act on behalf of the public as trustees for "natural resources" that fall under federal sovereignty. Where damage occurs to natural resources, the trustee may be empowered to carry out damage assessments, and to devise and carry out a plan for restoration, rehabilitation, replacement, or acquisition of equivalent natural resources.[120]

The practice is not limited to the environmental arena—lawyers themselves are stand-ins, often guardians ad litem, for those unable to speak in court; in various types of claims, trustees speak on behalf of dead, unborn, minority, or even future claimants. In the Piper Aircraft bankruptcy, the court even appointed an attorney as the legal representative to advocate assets to be set aside to satisfy the estimated claims of future, yet to be identified claimants who might be injured (as in an air accident) after the proceedings had otherwise closed.[121]

Whales and their supporting ecosystems fall under the trusteeship of the National Oceanic and Atmospheric Administration (NOAA). For example, if whale-watchers harass migrating whales, NOAA has express standing to institute administrative action (civil penalties). If toxic releases damage the whale-supporting ecosystem, it would be in the province of NOAA to refer the matter to the Department of Justice to litigate.

To illustrate the operation of the system, as evidence mounted that the Atlantic Right whale population was suffering from collision with ships, it was NOAA, as trustee, that came to the rescue.[122] NOAA has devised a Ship Strike Reduction Rule (2008) that would impose a 10-knot speed limit applicable to Right whale feeding and calving grounds.[123] If, closer to our climate change hypothetical, a stock of whales appeared to be threatened by climate change, or perhaps if hunting quotas (as permitted by the IWC for the Alaska Inuit) appeared excessive in the light of climate change pressures, it would be NOAA's job, in the first instance, to take action: recommending the "listing" under the Endangered Species Act, or recommending to the U.S. delegation to the IWC that it back a reduced quota.

(7) Citizens' Standing to Force the Trustee's Hand

If the trustee with standing fails to act, then the standing issue shifts to the eligibility of someone to challenge the trustee. As we have seen, one of the most crucial contexts involves the "listing" of a species as threatened or endangered under the ESA. (A species is listed as "threatened" when it is at risk of becoming "endangered" within the foreseeable future throughout all or a significant portion of its range; a species is "endangered" when it is currently in danger of extinction throughout all or a significant portion of its range.) The listing is a government function, ordinarily via consultation among a number of agencies,

coordinated by the "lead" agency, which acts as trustee. But challenges by environmentalists to nonlisting (as well as to listing, by landowners and developers) are common.

For example, in 2003 NOAA (through its National Marine Fisheries Service [NMFS]) refused to list the Cook Inlet Beluga whale population as endangered under the ESA, maintaining that regulation on native hunts would be adequate to arrest the decline. By 2006, with a new limit on native hunting in place, and there having been no slowing of population pressure, a number of conservation organizations and one individual petitioned for a listing. In 2007, NMFS, prodded by the U.S. Marine Mammal Commission (another layer of "guardian" charged with overseeing the adequacy of marine mammal protection by the first-line responsible agencies) reconsidered, agreeing to the listing. If NMFS had *not* agreed, then a petition for judicial review might have been brought, governed by the standing rules discussed earlier. For example, a scientist whose lifetime work was involved in studying Belugas would likely have standing, even in Justice Scalia's eyes, to raise the issue whether climate change consideration ought to have been given more weight.

By far the most dramatic case of this genre is still unfolding, and it bears directly on climate change. In 2005, the nonprofit Center for Biological Diversity (CBD) filed a petition to force the U.S. Fish and Wildlife Service (FWS) to list the polar bear under the ESA. The species' well-documented decline has been attributed principally to the increasingly rapid, and increasingly early, melting of the perennial marine sea ice habitats that serve as a platform for hunting, feeding, traveling, resting, and occasionally denning. If Alaskan development expands, dangers from oil exploration constitute another threat.[124] When the FWS declined to act, the CBD, joined by other groups, brought suit. In 2008, frustrated by continued foot dragging by the government, the U.S. District Court for the Northern District of California ordered the Department of the Interior (DOI) to publish the final determination on whether the polar bear should be listed as an endangered or threatened species by May 15, 2008.[125]

In a dramatic announcement on May 14, the day before expiration of the period to comply, Secretary of the Interior Dirk Kempthorne capitulated, announcing the decision to list the bears as "threatened."[126] At the accompanying press conference, Secretary Kempthorne reiterated President George W. Bush's statement that the ESA was never intended to regulate global climate change. "Listing the polar bear as threatened can reduce avoidable losses of polar bears. But it should not open the door to use of the ESA to regulate greenhouse gas emissions from automobiles, power plants, and other sources . . . That would be a wholly inappropriate use of the ESA law. The ESA is not the right tool to set U.S. climate policy."[127]

Notwithstanding the administration's not unfounded policy sentiment—the ESA *is* hardly the tool of choice—it is not clear how to avoid climate change implications entirely. Under the ESA, once a species is listed, federal agencies normally

must ensure that any action they authorize, fund, or carry out will not jeopardize the animal's existence or adversely modify their critical habitat, based on—in terms of the ESA—"the best scientific and commercial data available."[128] One might think the best available science to be represented by the Intergovernmental Panel on Climate Change (IPCC), which goes a step further back in the causal chain than "increased temperatures" noted by the DOI, unambiguously linking the increased melting to the increased temperature to the increased GHG emissions.[129] Then, what about federal agency action in the licensing of a fossil-fuel-burning power plant? One might think that the provision to consider "commercial data" might open the window to cost-benefit analysis. But the snail darter case suggests otherwise, that the listing of a species can halt construction of a dam—cost/benefit analysis be damned.[130] In addition, listing will require the FWS to prepare a recovery plan for the polar bear. How can the polar bear possibly "recover" without severe limits on production of hydrocarbons, probably worldwide? Indeed, how can a court or an agency create a plan for recovery without ordering global sources of emissions—sources over which the court has no jurisdiction—to cease emitting? Or at least to know what their emissions will be? The DOI has pointed out that for many of the risks, such as oil spills, hunting, and "trophies," there are already regulatory mechanisms in place, which can be modified even more favorably to the species. But the DOI goes on to say:

> We have also determined that there are no known regulatory mechanisms in place, and none that we are aware of that could be put in place, at the national or international level, that directly and effectively address the rangewide loss of sea ice habitat within the foreseeable future . . .[131] We also acknowledged that there are some existing regulatory mechanisms to address anthropogenic causes of climate change, and these mechanisms are not expected to be effective in counteracting the worldwide growth of GHG emissions within the foreseeable future.[132]

The implication seems to be that unless the listing is reversed, the Kyoto Protocol, or something more effective, has to be fashioned. Most likely it is an extended standoff. No wonder suits have been filed to delist the polar bear and to throw out even some modest requirements in the initial and still fragmentary regulations.[133]

(8) Citizens' Standing without Statutory Basis (Public Trust Doctrine)

The argument for citizen standing becomes more difficult when there is no explicit statutory basis for judicial review, such as the ESA's empowering "any person" to sue. Imagine, in terms of our continuing illustration, that there was reason to believe that a stock of whales (let us simplify by saying unregulated) that migrates through U.S. waters and was being depleted by pollution—say, water discharges or GHG excesses. If the government fails to take measures—even to make a FONSI—could the citizen sue the polluters?

A case currently before the California courts provides a good illustration. Plaintiffs, Center for Biological Diversity and its conservation director, sued the owners and operators of wind turbine electric generators in the Altamont Pass Wind Resource Area for killing and injuring birds; since the 1980s the death toll was alleged to have mounted to between 17,000 and 26,000 raptors—falcons, owls, hawks, and more than a thousand golden eagles.[134] There were a number of laws that the taking of these birds may have violated, including the Migratory Bird Treaty Act of 1918; but uncorrected violations of that Bird Treaty were for, say, Canada, to complain of. As a consequence, plaintiffs leaned on the Public Trust doctrine.[135] The trial court dismissed on the grounds that "[n]o statutory or common law authority supports a cause of action by a private party for violation of the public trust doctrine arising from the destruction of wild animals."[136]

On appeal, the Appellate Division rejected the defendants' claim that the public trust doctrine was limited (as under Roman and earlier U.S. law) to protection of navigable waters and tide lands.[137] The state's wildlife is also to be included in its scope, and citizens, as well as the government, have the right to sue under it. But the court ruled that the proper party for the plaintiffs to have sued was not the operators of the windmills—those harming the property—but Alameda County, the trustee with responsibility to protect the trust property. It described the plaintiff's suit against the operators as an attempt to "bypass" the expertise that has been brought to bear on the subject in the permit proceedings, open to public participation, before the Alameda County authorities.

The outcome of Public Trust–based litigation is thus unsurprisingly similar to emerging law where a government agency, such as NOAA, is trustee of the natural resource. A window for citizen standing is open—but essentially limited to questioning whether the "lead" agency with coordinating authority and expertise is acting in a procedurally correct manner.

(9) Standing of Noncitizens

Although examples are thus far sparse, there is a potential for foreign citizens to challenge U.S. action abroad in federal courts. In *Okinawa Dugong v. Gates*, three Japanese citizens and six environmental groups brought suit against Secretary of Defense Robert Gates and the U.S. Department of Defense (DOD) for approving plans for a military air station off the coast of Okinawa without taking into account the effect on the Okinawa dugong, a "critically endangered" marine mammal of historical significance to the Japanese.[138] Plaintiffs relied on the Administrative Procedure Act and the National Historic Preservation Act (NHPA), which, amended to accord with the Convention Concerning the Protection of World Cultural and National Heritage, requires that:

> [p]rior to the approval of any Federal undertaking outside the United States which may directly and adversely affect a property which is on the World Heritage List or on the applicable country's equivalent of the National Register,

> the head of a Federal agency having direct or indirect jurisdiction over such undertaking shall take into account the effect of the undertaking on such property for purposes of avoiding or mitigating any adverse effects.[139]

Although there existed reports providing scientific knowledge on the dugong's behavior, feeding patterns, and migratory patterns, the available data was deemed insufficient to satisfy the NHPA.[140] The DOD was ordered to suspend the project pending submission of additional documentation adequate to a proper assessment of the impacts.

V. SUITS IN THE NAME OF NATURAL OBJECTS

To return now to where this all started, what about supplementing those various strategies with suits in the name of a "natural object" itself? The question raises three issues. First, are such suits presently possible under existing law? Second, as a constitutional matter, could they be provided for more robustly? And, if so, third, would reliance on them offer any marginal strategic advantages at this point, in light of the alternatives we have seen earlier?

(1) Existing Law

First, as to the state of the law: There is a conflict in the federal circuits. The Ninth Circuit, in *Cetacean Community v. Bush* (2004), unambiguously disowned the expansive language in *Palila*, labeling it "nonbinding dicta."[141] Although *Palila* had been invoked by the Ninth Circuit earlier in the *Marbled Murrelet* litigation,[142] this retraction had been foreshadowed in *Coho Salmon v. Pacific Lumber Company* (1999).[143] In *Coho*, the district court allowed standing, but based it expressly on the claims of the human co-plaintiffs with the jibe, "the court notes that, to swim its way into federal court in this action, the coho salmon would have to battle a strong current and leap barriers greater than a waterfall or the occasional fallen tree."[144]

In the Eleventh Circuit, *Loggerhead* remains unchallenged.[145] There, the court clearly relied on the turtles for standing. The court not only cited *Palila*, it permitted the complaint to be amended to add the Leatherback Sea Turtle as a party, which would have been doubtful had the court not considered that the turtles merited independent standing on their own flippers.[146] Moreover, in disposing of the defendant's challenge to the individual human plaintiffs—that they were really motivated by their own interests in keeping motor vehicles off the beach nesting areas—the court said that "[s]ince both the Loggerhead sea turtle . . . and the Green sea turtle . . . are named Plaintiffs in this action, the case will proceed regardless of the motivations of the human plaintiffs."[147]

The Third Circuit, in *Hawksbill Sea Turtle v. FEMA*, refused to consider the status of animal plaintiffs, dismissing the claims of the Hawksbill and Green

Sea Turtles for procedural reasons (failure to give proper notice), but opining "in passing" that "the standing to sue of the animals protected under the ESA is far from clear."[148]

Even in this meager precedent, there is less than meets the eye. All the nonhuman naming federal cases that have passed through the courtroom door thus far have captioned a human as "insurance," one presumes, against dismissal of the nonhuman. The same "backup" existed in the Israeli Supreme Court's recent decision invoking the Israeli Gazelle as co-plaintiff. (The scattering of state cases filed without benefit of human co-plaintiffs are reviewed in the Introduction.) Even in *Loggerhead* there were individual plaintiffs; although the court disavowed reliance on them,[149] their presence might be cited by future courts to narrow the case's precedent value. Moreover, all these federal exotic plaintiff cases, just to get as far as they did—through the courthouse door—were based on the ESA.[150] They thus have to be viewed as favorably broad interpretations of the statutory language of the ESA, which vests standing in *any person* and *entity*. Neither the analogous standing provision of the APA ("a person")[151] or of the MMPA ("any party opposed to such permit")[152] has been accorded similar breadth. In *Animal Suffering and Exploitation v. New England Aquarium*, conservation organizations joined with Kama, a dolphin, to challenge Kama's transfer from the New England Aquarium to the Navy, presumably for naval training.[153] The court rejected the argument to fit Kama within the meaning of "any party opposed to such permit." However, the Court went on to say:

> If Congress and the President intended to take the extraordinary step of authorizing animals as well as people and legal entities to sue, they could, and should, have said so plainly.[154]

(2) Could Standing for Nonhumans Be Expanded?

Was the *Kama* court right? Could Congress legislate animal standing? A number of objections could be raised, from incoherence to a violation of the Constitution.

The incoherence argument leans less on whether a dolphin could be fitted to a "party" than whether it could be "opposed." In other words, even if Congress were explicitly to provide standing to "any person or animal opposed, etc.," there would be a question of how the trier (or even its guardian) could know whether the dolphin would prefer a life in the confines of an aquarium to a life in the Navy?[155] (I actually raised the question with Kama's counsel at the time.) But I don't think the issue of an animal's, or even a species' *interests* are problematical in all circumstances. Marine biologists do know, from what whales eat, many actions we can safely say whales *oppose*. And while I've confessed I have no idea what a mountain wants, I have no such hesitation stating on the polar bears' behalf many things they are opposed to, starting with the loss of prey and habitat.

The constitutional argument is more problematic than the *Kama* court's breezy dictum suggests. Congress has, constitutionally, considerable leeway under Article I to contract or expand the "Cases" or "Controversies" that are justiciable under Article III. Congress could quite likely reduce the class of those with standing by eliminating the "any person" provision of the APA, as it could to curtail the Eleventh Circuit's expansive reading of the same term in the ESA. How far could Congress go in the expansive direction—not, as it were, to deny whales standing but to give it to them expressly?[156]

Cass Sunstein suggests as a possible objection that:

> what qualifies as a "case or controversy" should be based on an inquiry into what the founding generation understood to count as such. To say the least, the founding generation did not anticipate that dogs or chimpanzees could bring suit in their own name. Ideas of this kind have been used to limit the class of disputes that Congress can place in an Article III court . . .[157]

But Sunstein goes on to offer his own refutation:

> A central problem with this objection is that Congress is frequently permitted to create juridical persons, and to allow them to bring suit in their own right. Corporations are the most obvious example. But legal rights are also given to trusts, municipalities, partnerships, and even ships. . . . In the same way, Congress might say that animals at risk of injury or mistreatment have a right to bring suit in their own name. Nothing in the requirement of a "case or controversy" should be read to forbid Congress from treating animals as owners of legal rights. . . . To be sure, the framers anticipated that plaintiffs would ordinarily be human beings. But nothing in the Constitution limits Congress' power to give standing to others.[158]

I am not as sure as Sunstein is that the Court would accept a law expressly providing for nonhuman plaintiffs. One could rejoin to Sunstein that suits in which corporate bodies, trusts, ships, and so on were parties are of long standing and must have been well known to the Founders. If the meaning of the constitution is confined to what the Founders most likely believed ("originalism," or some variant of this interpretational theory), it could relevantly be said that standing by animals would never have occurred to them. On the other hand, the same could be said of quite a number of modern practices that have found haven under language written in 1789. Did the authors who vested Congress with powers over "interstate commerce" picture federal regulation of airplanes and television? One could take up the issue, as Scalia does, from Separation of Powers considerations and ask whether any power of the executive would be infringed if Congress *did* empower the courts to hear cases brought by whales.[159] If Congress has the power to make NOAA a virtual trustee, why not, at least as a constitutional matter, countenance the Congress providing for guardians ad litem?

(3) Would Expanded Standing in the Name of Nonhumans Make Any Difference?

On the other hand, even if standing were expanded to increase the range of cases in which nonhumans could be captioned plaintiff, would it make any difference? From the perspective of the environmental advocate, it is unclear that a suit in the name of a nonhuman presents any strategic advantages over a suit brought in the name of an individual under the fairly liberal rules for demonstrating injury in fact.

The whale sonar cases provide good illustration. In *Cetacean Society v. Bush*, Larry Sinkin, the attorney challenging the Navy, named "the Cetacean Community" as sole plaintiff, and was rebuffed. In *NRDC v. Winter*, however, a number of conservation groups, seeking to fight essentially the same battle, sued in their own names and that of a few group members—and succeeded on the standing issue by providing affidavits of individual member interests. A sampling of the individuals' affidavits provides a glimpse into how easily standing requirements have come to be satisfied in federal environmental cases.

The first declarant says:

> 5. I have been diving in southern California for about fifteen years. I generally dive in the Channel Islands or elsewhere off the coast . . .
> 6. One aspect of diving that I find particularly fulfilling is the opportunity to observe and interact with marine species. . . .
> 11. My enjoyment of the marine environment is harmed by the failure of the Navy to follow the mandatory procedures established by the National Environmental Policy Act, the Endangered Species Act, and the Coastal Zone Management Act in undertaking these exercises . . .

The second declares:

> 4. Visiting the beach to swim, tidepool and bird watch are staple activities in my daily life. I normally walk on the beach once or twice a week, and greatly enjoy beach-walking as an opportunity to observe shorebirds, seabirds, and other marine species. . . . I regularly see the seals at the Children's Pool in La Jolla, and occasionally see sea lions as well. In the past, I observed whale spouts from shore relatively frequently, but find that I no longer see whale spouts as often.
> 5. I am also a regular docent on whale-watching trips off the San Diego coast. . . . As part of my duties as a docent, I educate passengers about the gray whales' migration, behavior, and biology. Out of 20 whale-watching outings on the Hornblower last season, I saw gray whales during at least 18 of the outings. The opportunity to observe whales on a regular basis is one that I greatly value. Besides my own enjoyment, I find it extremely rewarding to share my knowledge of marine mammals with visitors from all over the U.S. and from abroad, especially since many of them have never seen whales before . . .

There were altogether nineteen declarants. But these "injuries" are not unrepresentative of the "injuries" alleged, successfully, as far as standing is concerned, all the way to the Supreme Court.[160]

In fact, there are circumstances in which it may be possible, using Scalia's broad "wildlife observer" test, to get an observer standing when it is unavailable for the natural object or wildlife itself. Imagine that the Navy conducts sonar exercises in foreign waters, endangering cetaceans there. Even if the cetaceans had been given explicit standing by Congress, and such legislation been upheld as constitutional, the right of foreign cetaceans to sue in U.S. courts might be more problematical than a suit by a U.S. citizen "injured" as a would-be human observer. Recall that the plaintiffs in *Lujan* failed despite their asserted plans to go abroad to eye-witness the crucial events, because their travel plans were vague. The court ruled that "[s]uch 'some day' intentions—without any description of concrete plans, or indeed even any specification of *when* the some day will be" were not enough.[161] But as Justice Anthony Kennedy stated in his concurring opinion, this call for concrete plans may be little more than an "empty formality."[162] One of NRDC's affiants—say, a Californian dolphin-watcher—could overcome the failure of the plaintiffs in *Lujan* by purchasing an airplane ticket and perhaps making a hotel reservation for good measure. A whale-watcher who resides in the United States so ticketed, or, at least, a U.S. resident who conducts cetacean research in a U.S. university who has her lodging abroad so booked, probably has a clearer route to the courthouse than a foreign whale suing for an injury in foreign waters.

Nonetheless, there are reasons for which it remains useful to put nonhuman standing in the environmentalists' tool box.

(4) Filing Suits on Behalf of Nature Is a Better Fit with the Real Grievances

I have never thought, and still don't consider, my view to be the strained or silly one or the (in some unflattering way) "ingenious" one. What is strained, silly, and "ingenious" is the theory of lawyers (!) that a suit to stop the Navy from killing whales is on behalf, not of the whales who may disappear, but of people piqued about no longer getting the thrill of "see[ing] whale spouts as often." How grotesque. The beach-walker's affidavit having been filed, she is thereafter forgotten, never to take the stand with her lost thrill, or in any other way reappear. It is the whales the court is going to focus on. Commentators on the criminal law have remarked that the law has, among its other functions, an educative one. What is the education value of environmental law, when it so twists what should be our real thinking? We should be looking for occasions to make Nature plaintiff. Cases in which *she really is* the interest at stake seem like a good start.

(5) Suits on Behalf of Nature Are Better Suited to Moral Development

The law's tortured reasoning gets worse. In a number of cases including *Gilman*, earlier, founded on the inhumane way in which animals were being caged, the

courts granted standing to Jurnove, the animal welfare groups' individual plaintiff, but did so based on his *aesthetic injury*. I do not doubt that Jurnove *suffered* from seeing the animals pained and degraded. But no one can seriously believe that Congress was motivated to pass the Animal Welfare Act by concern for aesthetics. The frailty of the argument inspired the dissenters to rejoin with a hypothetical counter-plaintiff, "a sadist with an interest in seeing animals kept under inhumane conditions." The law was inspired by a widespread intuition that mistreating animals is *immoral*. The court system has not shied away from trying to help the society to draw out other moral intuitions—"fundamental fairness" and such—to see where they lead and to give them shape. Courts have cited Jeremy Bentham and John Stuart Mill and John Rawls. There are more than a handful of philosophers, most eminently Peter Singer, whose writings are similarly available to draw upon. As I argue in the original *Trees*, the law has not merely an educative, but a spiritualizing role in our society.

(6) Is Legal Representation on Behalf of Animals and Nature Really Feasible?

Yes. We know that because *we already have it*. Right now the government's representation of protected resources comes *just about* as close to representation of the protected resources as would be provided by a good house counsel. By that I mean the "lawyer" is not there just for litigation, but also to negotiate. In seeking protection of Atlantic whales, NOAA sought out and negotiated changes in dangerous practices without suit. The Fish and Wildlife Service's biological assessment of the polar bear's jeopardy, and its tenacity in face of tough political opposition, is of a quality unlikely to be equaled by all but the nation's most pricey law firms. And when suit has been brought, as in the case of protected species or harassment of individual marine mammals for "taking" (usually harassment), the cases might as well be, or, I would say, would better be, captioned NOAA *ex rel* Beluga Whales v. so and so. In other words, we already have, in everything but name, de facto permanent guardians in the form of certain "resource protecting" agencies.

(7) The Advantages of Special, Statutorily Provided Guardians and Trustees

Trees suggested that advocacy for an animal or natural object might start with the advocate seeking appointment of himself as the object's legal guardian. Such an appointment, followed by the guardian filing a suit on the object's behalf, might be able to proceed without benefit of any special new legislation. That is because each state's general laws already contain provisions for the appointment of someone to represent a person, such as a minor or someone mentally incompetent, who cannot give legal direction or otherwise manage his affairs. The appointment can be for purposes of a single litigation only ("guardianship ad litem"), or it can be to represent the ward in all matters that may arise ("permanent guardianship" or trusteeship). I do not doubt the feasibility of extending such general laws to establish a statutory guardian for a nonhuman. To illustrate,

consider a situation that arose in San Francisco a few years back. The owner of a dog, presumably worried that no one would be available to care for her pet after her passing, had willed that it be "put down" on her death. It seems to me that a third party, or even her executor ought to have been empowered to move the probate court to appoint him the dog's permanent guardian to protect the dog for the duration of its natural life. To grant the motion would have required no more of the court than that it fit the dog within the definition of a "person" who "is incompetent to manage . . . his affairs by reason of age. . . . mental illness or other cause." I considered the argument for appointment to be strong. The executor was apparently willing to take care of the dog. And a decision in favor of the appointment would have provoked little objection; indeed, I suspect that most people who cared at all would have supported the judge, some of them on the theory that the owner had so provided only from concern, now proven unwarranted, that the dog would be uncared for.[163]

Consider how much weaker the case would be, were the application for guardianship to be made, under the same general statutory language, on behalf of a stand of trees. Suppose the moving party's intention had been to proceed to challenge greenhouse gas emitters on the grounds that the warming climate is rendering the stand vulnerable to beetles that have been, heretofore, eliminated by freezing temperatures. As distinct from the dog case, conflict looms—and complicates the judge's decision. If the court permits a spokesperson for the trees, need she grant a guardianship to hear the beetles out? And looking ahead, if standing is granted to both petitioners, how will a court possibly come down on the one side or the other, for the trees or the beetles?[164] These are extraordinarily difficult questions nested in ontological quandaries: Is the proper judicial person a particular tree, the stand, the species, tree DNA, or the ecosystem of which the tree stand is a part (which we presume includes the beetles)? In some conceivable circumstances a case for an individual organism and that for the species may conflict: What if we can sustain rhinoceroses, as a species, only by jailing certain individuals in zoos?

All this bespeaks the wisdom of entrusting the crucial determinations to legislatures and administrative agencies. That way, when courts are confronted with a motion for guardianship or suit on the merits, they at least have some orientation as to the appropriate ontology and prioritizations. This, of course, is the pattern that has been emerging. I can provide no ultimately convincing reason why marine mammals should be preferred to cod, nor would I expect a court to be able to do so. That is a judgment—the prioritization of marine mammals—that has been made by Congress, where consensus-making on such value judgments is lodged. Without some such structure and direction, the courts would simply be left at sea.

The trusteeship system, such as Commerce's Office of Protected Resources and the U.S. Marine Mammal Commission can be viewed as model mechanisms for advancing the law along these lines. Reliance on such institutions has,

however, two shortcomings. First, some "objects" environmentalists regard as rights-worthy may fall outside the "beneficiaries" for which the legislature had the foresight to protect institutionally. That is always a counter-argument for a certain amount of generality in the law. As I have said, some generality would be preserved if courts would deploy a generous but sensible reading of "any person" in the state's guardianship laws.

The second drawback is that government trustees might not be steadfast. At its worst, an antienvironmental administration might systematically appoint unsympathetic or inept trustees.

If the calculated undermining of government trusteeships is a concern, there is a third alternative to government trustees on the one hand, and ad hoc judicial proceedings to establish a guardian, on the other. That is to adopt and expand the German system in which qualified environmental nonprofit associations (*altruistische Verband*), designated by the government, enjoy wide-ranging opportunities to participate in environment-affecting activities beginning with the planning stage and carrying over into litigation.[165]

(8) The Guardian Approach May Be Superior to the Alternative Standing Strategies from the Perspective of Subsequent Preclusion Doctrines

There is a potential problem with "animal nexus" and similar approaches to standing that has yet to be crystallized. The Supreme Court has rightly demanded that a plaintiff display an injury that is concrete and particularized. Without that, a party is less likely to make a strong advocate. This is particularly important when we take into account potential collateral effects of the litigation, most particularly res judicata. To illustrate, imagine that a suit brought in the name of polar bears against major carbon emitters was to lose. That suit clearly bars on res judicata grounds another suit in the name of the same plaintiffs against the same defendants on the same matters. But what if after the final judgment against the whales, another group comes along to mount a challenge to the same activities, but in the name of different plaintiffs—say, the sea lions—with their allegations of *their* injury arising from the same facts? I am not sure how that would be dealt with; the best arrangement would probably be for the original court to notify all potential plaintiffs other than the bears, barring nonjoining parties from further litigation under "compulsory joinder" rules. The animal plaintiff approach presents no more difficulty, and probably less, than trying to apply the same rules to a potentially unlimited class of people filing under the "animal nexus" theory.

(9) Advance Warning: The "Canary in the Mine" Rationale

Many people suppose that awarding legal rights for nonhumans has to stand or fall on the credibility of the claim that these "things" have moral rights, underneath the law as it were, which the legal system then adopts. The idea gains support from the fact that many of our most fundamental rights, such as the

constitutional rights to freedom of religion and speech, are often plausibly portrayed as the law's instantiation of pre-constitutional rights. And, indeed, much support for the legal protection of Nature does look for support in literature propounding its moral standing. But not all legal rights are constructed on top of moral rights. No one claims that we have provided corporations, trusts, and other intangible bodies legal rights because they morally deserve them. We arrange for lawyers to argue "their" cases because doing so simply produces a better legal system from a predominately utilitarian point of view. The same reasoning may support giving legal rights to certain objects—because it is the most sensible way of promoting our own ends—without ever reaching questions about whether the thing possesses an independent "moral right."

To illustrate, suppose that Congress wants to establish an early-warning system to guard against major collapse of the life support system. I am not thinking of the loss of a charismatic species, but more likely the collapsing of some relatively unnoticed thing like phytoplankton or even colonies of anaerobic bacteria. If Congress were persuaded that some such life forms were the equivalent of miners' canaries, it would make sense, as part of the response, to give them legal rights—to make it possible for lawyers to argue *their* case. When I suggest this, the immediate reaction is usually: Isn't such a move designed simply to benefit humans, and doesn't it therefore create human legal rights? The answers are yes, but no. Yes, the congressional motive would be to protect humans, not phytoplankton. But no, the legal right would be that of the phytoplankton in an important sense. To get relief, the phytoplankton's counsel would not have to prove that the harm to the plankton would cause harm to human populations: that would have been predetermined as an irrebuttable presumption, by the legislature. In other words, a precautionary law might provide that proof of damage to some x was enough for the law to intercede, without finding a plaintiff who could show that his fishing business faced imminent financial threat, or that phytoplankton-watching was a hobby.

(10) Protecting Third-Party Interests in Negotiations and Settlements

It is worth recalling here an illustration from *Trees*. Suits among rights-holders may operate to the advantage in a derivative way. Providing the slave owner standing to sue someone who has beaten her slaves benefits the slaves as "third parties" outside the litigation. Allowing owners of riverside (riparian) properties to sue an upstream polluter benefits the river's turtles. But in neither case is it the same as giving the third party its own rights. The slave owner may accept a gentlemanly settlement if the slave beater apologizes to her (the owner). The riparians will ordinarily settle for something less than their full damages, much less the turtles, who have no one to speak for them in the negotiations. And so on. Such third-party benefits exist even when there is a designated government agency speaking for the third parties, such as we now have for protected resources. There is at least a slight conflict of interest in that situation

that can be repaired by making available either the designated environmental group, as under the German *Bundesnaturschutzgesetz* provisions, discussed earlier, or via an ad litem guardianship that relies on an expansive notion of "incompetent."

VI. SO, WHERE DO WE STAND ON CLIMATE CHANGE?

This brings us back to the beginning. What can, or must, be done about climate change? And where do these exotic litigation strategies fit into the larger picture of regulatory options?

Nothing we have seen alters my original declaration: No litigation, of any sort, is going to have a major impact on climate policy—certainly not any suit on behalf of the "climate." The bulk of the efforts will require concerted and cooperative action among nations, of a sort that can be achieved only through diplomacy, legislation, and administrative action. But progress on diplomatic efforts at the highest and most inclusive level—through the Kyoto process, on which so much else hinges—has been hard to achieve. To understand (A) why this is so provides a background for understanding (B) the potential role of climate related lawsuits.

(1) Why Has Progress Seemed So Slow?

The efforts to negotiate a diplomatic solution have produced a commentary that is imaginative, rigorous, and hardened by the mounting experience. What has emerged is considerable consensus, not on the solutions, but at least on the challenges. A sampling of the unresolved issues and barriers that have been identified includes:

(1) *Strategy*. Strategic questions include how much to emphasize prevention (emission reduction) and how much, mitigation of impacts (geo-engineering) and adaptation to unmitigated changes (seawalls and irrigation systems).

(2) *Targets*. Annual GHG emissions, and the consequent accumulated atmospheric stock of GHGs, are on the increase. Reductions come with a price tag. How much reduction are we willing to pay for? Is elimination of a marginal metric ton of carbon worth $100 or $300?

(3) *Distributional issues*. Obviously the "target," whether expressed in quantities or costs, will vary from country to country. This is because countries vary with respect to discount rate, vulnerability to climate change damage, and resources available to fend off their risks. Distributional issues also arise from conflicts over who is to blame for the current condition, and how it should matter. Do we adopt a "bygones are bygones" policy, or account for the historical contributions? Should national allowances

be apportioned to size of population (per capita) or size of the economy (per $ value added)?

(4) *Mechanisms.* Insofar as emission reduction is the strategy of choice, there is the question whether to achieve the desired reduction by raising the price of emissions (through a carbon tax), or by putting a lid on the permissible quantity emitted (through cap and trade), or through some hybrid combination of taxes and tradable emissions permits that enables midcourse corrections. Cap and trade is emerging as preferred over taxes, but there remain numerous issues. How many permits (each entitling the holder to a stated permissible level) are going to be issued? The decision involves sobering risks of error. If too many permits are issued, the cost of eliminating GHGs will be too low, and emissions will not be dragged down to the justified level. On the other hand, if the original issuance turns out to be "too low," the price of permits (costs of production) will soar, imposing a serious and excessive strain on the global economy. "Errors," moreover, probably especially on the too-low side, increase the likelihood that major parties will pull out of the agreement—and that other countries will follow.[166] How are permits to be allocated? Should trading be unrestricted worldwide, or made subject to some percentage and territorial restrictions? Suppose that a firm *X* that holds permits to emit 10 tons sells 5 tons worth to *Y* in another country, but continues to emit 10: How should excesses over the permitted level be enforced, and against whom: the nation of *X*'s domicile that was derelict in monitoring and enforcement? *X*, the derelict polluter (seller) that neglected to cut back, as promised in the sale? Or *Y*, the holder of the permit that is in violation? Good arguments for each of these positions exist.[167]

(5) *Overcoming strategic behavior.* Even if a large number of prospective parties could agree on the value of curtailing emissions, and on the ideal strategy and mechanisms for achieving the curtailment, they still might be unable to come to the "ideal" agreement. Each country has some incentive to "free ride" on the efforts of others. The atmosphere is a public good, whose benefits are enjoyed by cooperators and noncooperators, alike. If nations *A* and *B* each agree to cut their emissions in half, the benefits are enjoyed by *C*, whether or not *C* contributes. By the same token, *C*'s unrestrained emissions of *q* tons will impose costs on *A* and *B*, no less than on *C*. One must keep in mind, too, that, any limitation by *A* and *B* on their emissions, whether driven by a domestic carbon tax or by caps, will put their carbon intensive industries at a competitive disadvantage against the firms of *C*, if *C* is less stringent. *C* might even hold itself out as a carbon haven, offering regulatory laxness to attract migration of investments in carbon intensive industries. These and other like strategic policies make cooperation difficult to achieve and sustain.

(6) *Conflicts with other multilateral agreements (with trade law in particular).* There are easily imagined counterstrategies to support cooperation. For example, nations *A* and *B* could deter *C* from gaining competitive advantage for its products by imposing on C's exports a Border Tax Adjustment (a sort of tariff) equal to the cost advantage the exporters realized by dint of *C*'s laxness. *A* and *B* might even want to impose trade sanctions on *C* until *C* imposes comparable regulations, thereby stanching recruitment of heavily polluting industries. The problem with deploying these and other similarly motivated countermeasures is that they are likely to get entangled with, and probably violate, the WTO agreement, triggering countermeasures by countries targeted.[168] Thus existing trade law is an obstacle to the devices that would most effectively give "teeth" to multilateral climate efforts. The obvious response is to undertake a parallel campaign to make it more accommodating to climate-related trade measures. But numerous developing countries, most significantly China and India, have already signaled their opposition to "antidevelopment" measures within the WTO—an opposition that is virtually dooming, given the requirement of consensus to make the necessary amendments. And even if that resistance could be overcome, many worry that the availability of such exceptions would provide cover for disguised protectionism and lead to a series of tit-for-tat retaliations on a scale that would derail the progress of global trade.

(7) *Institutional design.* These complex and controversial problems raise issues of institutional architecture. It seems premature to write off the Kyoto Protocol as "collapsed"; an enormous investment of effort has gone into getting it in place, and it has continuing services to provide. But Kyoto's grand vision of all nations engaging in one big emissions trading market has certainly been called into question. Would it be better to put less hope in a single, universal membership structure, hobbled by the need to garner consensus among a large number of parties before any action can be taken? There are a number of supplementary options. Options at the international scale include fostering the growth of more flexible groupings of similarly situated countries much as, in the trade area, we have the WTO side by side with smaller, regional pacts. In fact, as David Victor points out, we are already witnessing the evolution of at least six different carbon markets, each with its own rules and prices.[169] Victor encourages this trend, supporting a more extensive use of nonbinding targets and timetables, and vesting more power in nation states and "clubs" of states, and less in traditionally feeble global institutions. On this view, the locus of power might move back up toward Kyoto, but the source of regulation, at least in transition, would be distinctly bottom-up rather than top-down. A surprisingly strong case can be made even for trading on a bilateral level, between, for example, China and the United States,

or India and Japan.[170] The argument goes that the direct pairing of a low abatement cost country with a high abatement cost country has special advantages for the parties. With the appearance of a new, well-heeled buyer, the low cost abater can anticipate higher prices for its credits; the high cost abater gets more risk reduction per dollar than it can either through unilateral domestic reductions or by searching out bargains with Kyoto members under Kyoto limitations.

(8) *"Upstream" versus "downstream" responses.* By far, most of the regulatory effort, and literature, has emphasized bringing the costs of activities more in line with their climate change impact. The dominant assumption is that as a carbon tax or cap and trade system raises the "price" of GHG emissions (to reflect their full social costs) consumers will modify their choices accordingly. This approach fits neatly with the top-down conception. Nations agree to limit their emissions; the nations, in turn, tax or permit producers in select sectors, such as energy production; and then, at the next level, energy consumers, reading their bills, conserve or switch to more climate friendly alternatives. But the case for bidirectional attacks turns out to be quite strong. Consider, for example, the potential for action at the municipality level. One might imagine the influence of cities to be slight and fragmentary, and that "downstream" regulation that enlisted municipal governments would even undermine development of better coordinated upstream mechanisms. But it turns out that residential and commercial structures consume 68 percent of the electricity used in the United States, a demand that creates 38 percent of U.S. carbon dioxide emissions.[171] Municipalities have considerable sway over these figures in their traditional role as authors and enforcers of building codes, which deal with matters such as insulation; indeed, cities have a direct impact as major proprietors of buildings in their own right. Moreover, in their roles as city planners and zoning administrators, municipalities can deploy transportation affecting strategies, such as mixed (non-Euclidean) use districts, and improved municipal transit, so as to reduce vehicle miles traveled by reducing urban-suburban sprawl. In other words, rather than to wait for upstream mechanisms to be established, and for the adjusted price signals to work their way downward through the economy, municipalities can, and many already are, promoting existing efficient technology. Below municipalities, there is growing interest in measures that individuals, spurred by the hike in gas prices, can take at the household level. Michael Vandenbergh et al. identify a number of simple "low-hanging fruit" opportunities that they claim have the potential to achieve large reductions at less than half the cost of the leading current federal legislation, require limited up-front government expenditures, and generate net savings for individuals.[172]

(2) What Role Could Climate-Related Litigation Play?

In sum, the regulatory mechanisms are still taking shape in the face of a considerable range of options and barriers. We can fairly assume that, at least over the foreseeable near term, much of the progress of climate change regulation will not emanate downward from Kyoto, at an apex, but from nations, states, cities, socially conscious corporations, and greening individuals at the base. It is easy to identify ways in which this fragmented tableau is less than ideal, even as an interim measure. Patchy lower-level efforts may forestall the gelling of upstream components and reduce pressure on the noncooperators to pitch in. In fact, the smaller the number of cooperators and the smaller the scale of cooperation, the harder it will be to coax parties into making deep commitments which, by their very nature, are likely to put the cooperators at competitive disadvantage. On the other hand, an ideal solution, whatever it may be, will continue to be elusive. What we must settle for are *improvements at the margin*.[173] And in this process of marginal improvements, climate-related litigation—suits alleging climate-induced impact or risk—have significant roles to play.

To begin with, dependence on grassroots support increases the importance of an educated public, in its capacity as both elector and consumer. The various sorts of GHG-related suits—and the publicity they generate—educate, even when they lose.[174] (Refer to the *Seehunde* case in Germany discussed in Chapter 7: the seals lost, but in reaction to public exposure the dumping of heavy metals ceased.)[175] The suits give environmental groups a chance to cast a light on low visibility risks. Second, such suits, particularly those brought in the interests of endangered people and other creatures, put a face and an immediacy on the abstract and sober path comparisons of the Intergovernmental Panel on Climate Change (IPCC) scenarios. Consider as an illustration *Kivalina v. ExxonMobil*, now pending in California federal court.[176] The *village* (not the villagers) is suing.[177] In 2006, the U.S. Army Corps of Engineers concluded that the Arctic village of Kivalina, inhabited by 400 Inuit, would be uninhabitable in as few as 10 years. Global climate change, the Corps concluded, had shortened the season during which the sea was frozen, leaving the community more vulnerable to winter storms. The first charge, brought against 24 oil, coal, and electric companies, claims that their emissions are partially responsible for the coastal destruction. The second charge alleges conspiracy among eight of the companies:

> to cover up the threat of man-made climate change, in much the same way the tobacco industry tried to conceal the risks of smoking—by using a series of think tanks and other organizations to falsely sow public doubt in an emerging scientific consensus.[178]

By adding the conspiracy count, the plaintiff's lawyers (not incidentally including veterans of the tobacco wars) hope to get around many of the difficulties we

have reviewed, such as a balancing of the social costs and benefits of defendants' emission levels. A victim of conspiracy—if the plaintiffs can provide legal proof—can prevail without being subject to any weighing of utilities. Win or lose, such suits cart into public consciousness a victim identified, a position taken, a challenge issued. They become not only part of the information dynamic, but in their own way they dramatize, motivate, and cut channels for new-found energies.

An energized public, in turn, is more likely not only to watch its own footprint, but to reward action groups and politicians who deliver on climate change.[179] But there is more to these suits than publicity and electoral reward. Some of the filings, remember, win in court. Victories have come across a broad front. *Border Power Plant Working Group v. Dept of Energy* (discussed earlier) suggests that licensing authorities may have to take climate change impacts into account before they make a FONSI.[180] Stockholder litigation is destined to give impetus to mounting pressures on corporations to disclose emissions data and control plans.[181] The 2008 settlement of the polar bear litigation provides for the government to designate a "critical habitat" for the bears off Alaska's coast, a decision that adds constrictions to offshore petroleum exploration and drilling,[182] and could even spell trouble for major GHG-emitting projects in the lower 48—not an easily defensible permanent prospect.[183] The whales, courtesy of the Natural Resources Defense Council, managed to take their sonar grievances all the way to the Supreme Court, tying up naval maneuvers in a time of war. At less dramatic levels, suits by environmental activists have kept developers and permitting authorities on their guard to minimize environmental impact. This impact cannot be measured solely in the cases won, such as *Palila*, *Marbled Murrulet*, and *Leatherback*.[184] For each courtroom victory, there must be dozens of other situations that never resulted in reported court filings because projects were modified satisfactorily at design and review stages in reaction to or anticipation of environmental objections.

Exotic, cutting-edge suits, like the *Kivalina* litigation and the suit over the polar bear listing may have another advantage: a lower bar to meeting elements of a suit, such as the "imminence of threat" needed for a tort and the "irrevocability of harm" required for a temporary restraining order. True, for some remote damage we can construct a present value. The distant prospect of rising seas may cause coastal landowners, such as Massachusetts, to suffer present damage in the form of an uptick in property insurance premiums. Farmers in regions that suffer increased droughts will see land values decline and crop insurance rise. Those may suffice as "injuries in fact" qualifying for *standing* under some law or other. But even a plaintiff who can clear the damage requirements to get into court still faces proof of damages necessary to support a tort, or the irreparability required to obtain a temporary restraining order. That is why a coastal resident, say, a Malibu beachfront homeowner, may not be in as good a legal position as an Inuit village or a stock of bears. The Malibu homeowner can move (and

probably will when the property becomes uninsurable). For the others, the damage is real, immediate, and not something the plaintiffs can as easily avoid or be compensated for. The villagers can pull up stakes,[185] but it is less clear that the *village*, with its culture and connection to place, can survive.

This suggests still another role for suits on behalf of prospective victims of climate change. I argued in *Trees* that there may be good reason to establish trust funds to manage the damages suffered by an ecosystem, to "make it whole," as best we can. In fact, today that would not be considered unusual practice. The response to the wreck of the oil tanker *Exxon Valdez* in 1989 is a prime example. Roughly 11 million gallons of oil were spilled into Prince William Sound and the Gulf of Alaska, devastating fish and wildlife.[186] Exxon was forced to place $900 million into a repair fund to be administered by a Trustee Council, consisting of state and federal trustees.[187] Under the Oil Pollution Act of 1990, the party responsible for a discharge of oil is responsible for natural resource damages that result from the incident.[188] The mechanism has been expanded to fund restoration even when the precise damager, or damagers, cannot be identified.

For example, in August 2000 oil tar balls and oil mats began to appear on beaches from North Miami Beach northward to near Pompano Beach, impacting natural resources including threatened and endangered sea turtles and their habitats as well as fish and birds.[189] Although no wrongdoer could be identified, NOAA and the Florida Department of Environmental Protection applied to the Oil Spill Liability Trust Fund, whose primary source of revenue is a five-cents-per-barrel fee on imported and domestic oil. Other revenue sources include interest on the fund, cost recovery from parties responsible for the spills, and any fines or civil penalties collected for oil spills.[190] It seems to me that climate change might incline us to take one further step. We could establish a fund from charges on emissions, one that would not only help defray damages ex post, but which would be available *to defend* against damages *before* they occurred.[191] Such defensive measures may loom as more crucial than ex post damages, because, across the world, there is increasing likelihood that mitigation and adaptation policies are going to dominate prevention. We may have to face some large-scale triage endeavors, in which many biological populations can be saved only at reduced levels, and even then only if protected areas are established and maintained through funds underwritten by user charges and lawsuits.

And finally there are the symbols these cases reinforce. For one, the fact that we can bring a suit on behalf of loggerheads and leatherbacks is an affirmation of who we are, or may become, as a people. Then, too, there are the images. The climate change movement has found its most valuable icon in the haunting photos of polar bears trying to keep a grip on dwindling ice floes; the listing litigation has helped deliver these images into public consciousness. Even those not moved (from their SUVs) by reports of the bears cannibalizing their cubs care at least for themselves. We are not *there* beside the bears and Inuit, yet.

But these happenings, together with the collapsing glaciers and vanishing frogs, are offered to us the way a sly God scatters omens—black cats and thunderclaps—to test whether a people is really worth saving, offering them a final chance, if they will only make the right interpretation, to mend their ways. It should not take an oracle to read the signs.

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3. AGRICULTURE AND THE ENVIRONMENT
Challenges for the New Millennium[1]

I. BACKGROUND

Those who are concerned about the future of the environment have no shortage of reasons to be worried. Atmospheric accumulations of carbon and chlorofluorocarbons are threatening the climate and ozone shield. Other by-products of modern existence, from sewage to spent nuclear fuel, from ubiquitous plastic containers to auto exhaust and persistent organic pollutants, each raise their own risks.[2]

(1) The Historical Impact of Agriculture

But no human activity has had so far-reaching and pervasive an effect—nothing has so transformed the landscape—as agriculture. It cannot be said that prior to agriculture, when humans were in the hunter-gatherer stage, mankind lived in perfect harmony with its environment. Primitive, pre-agricultural societies employed landscape-transforming fires to flush game and stimulate growth of edible plants.[3] The disappearance of mega-fauna in North America and elsewhere, contemporaneous with colonization by humans, raises suspicions that mankind's extinction of other species started early.[4] There is evidence that the domestication of farm animals was partially in response to the reduction of overhunted wild prey, such as gazelles.[5]

But none of these disturbances in the hunting-gathering stage matched the transformations that would be wrought by agriculture, introduced a mere 8,000 to 10,000 years ago. With the advent of agriculture, forests and grasslands were pushed back to make way for an expanded reliance on crops and grazing. Across the globe, natural landscapes were burned off, tilled, terraced, and dug up for irrigation canals.[6]

Today, about 39 percent of the world's land surface has been converted to cropland and grazing—that is, dedicated to food supply.[7] (In South and Central America, even with the region's extensive jungles, the figure is over 50 percent.) Ten to fifteen percent of the planetary land surface has been given over to row-crop agriculture alone.[8]

The impact of agriculture on the environment goes well beyond the percentage of the earth's surface that has been converted to feed humanity. Humans have reconfigured not only the landscape but the forms of life. Mutant plants and animals that would have stood no chance to survive in a humanless Nature, but which, from the human point of view, are more reliable, adaptable, or nutritious, have been anointed for dominance across large areas of the planet's surface.[9]

Through selective breeding, traits deemed useful have been exaggerated, the unuseful genes suppressed. Today's corn and cows would be unrecognizable to their ancestors. Undesired species, labeled "weeds" and "pests," were targeted for elimination or restriction. Even ecosystems not directly invaded by humans have been transformed; fragmentation and boundary activities alter the composition and functioning of "isolated" ecosystems even without direct touching. The world's biological diversity has been impaired directly through breeding and overhunting, and obliquely through incursions of habitats and the introduction of alien species.

Indeed, if we are to assess agriculture's impact on the environment, it is impossible to know where to stop. Higher crop yields fostered dense and sedentary populations. Dense and sedentary populations became the basis, in turn, for modern civilization and all its associated two-edged wonders, from ransacking the earth for minerals to paving it over for roads. Agriculture made all these things—not to mention the explosion of human population—possible.

(2) Aquaculture

When we hear the term agriculture we think of food supply from land. But about 16 percent of the animal protein in humankind's diet—6 percent of its total protein—comes from the 70 percent of the planet that is covered by water.[10] The path of development mankind went through on the terrestrial share is now being replicated in the seas, and so a Conference on Agriculture and the Environment must not overlook the environmental implications of agriculture's cousin, aquaculture. Originally, and until the past few decades, fishing was almost entirely an activity for hunter-gatherers. Fishermen stalked fish in commons areas, ownership of the catch being awarded to the first occupant, just as primitive peoples foraged for and took ownership of berries on landscapes that were open to all.

But the modern trend is to farm the seas and inland waters, much as we farm the land. Across the world, fisheries managers are experimenting with the assignment of property rights, sometimes to areas, sometimes to a percentage of the catch. Globally, farmed (and ranched) fish now constitute 23 percent of the total fish harvest by weight.[11] And because much of aquaculture is weighted towards the more desirable, higher-priced species, it is possible that it now accounts for nearly 30 percent of the world's marine and inland catch in terms of value.

To continue with the agriculture-aquaculture parallels, selective breeding has been less of a factor under water than on the land. But the introduction of genetically modified species—a subject on which more will be said—is poised to begin. A U.S. company has developed a salmon that, implanted with foreign genes, reportedly grows to maturity twice as quickly as ordinary salmon. As of 2000, the company had already received orders for 15 million eggs.[12] However, genetically engineered salmon is still awaiting FDA approval.[13]

Thus we are witnessing in water a recapitulation, and a parallel process, of what has been taking place on land. And incidentally, many problems in the control of agribusiness have their counterparts in the sea, with small artisanal fishers frequently trying to hold their own in the face of competition from modern industrial fleets, even, in some areas, from highly subsidized foreign fleets fishing within or adjacent to national economic zones.

II. THE CHALLENGES

That is the background. What are the challenges? I divide them into five related areas.

(1) Feeding Humanity

The foremost priority is to feed humanity. The global population, notwithstanding widespread reductions in birth rates, continues to rise. The population, moreover, is becoming wealthier, which signals a shift towards foods such as meat and shrimp that are often found to be "tasty"—but relatively inefficient from the standpoint of converting primary energy to nutrition. More acres are required to feed a population corn-fed beef than to feed it corn directly. So the first question is: Can we meet the nutritional needs and tastes of an expanding, wealthier global population?[14]

There are—and long have been—prophets of famine. They have some alarming data to support them. Across the world, fabulous quantities of topsoil are simply disappearing: washing away into rivers or blowing off in the wind. Other arable land is degrading through waterlogging, acidification, and salinization.[15] Water resources are strained—and subjects of contention—almost everywhere.[16]

All these factors are cause for concern, and I will return to them in a moment. But it seems to me that, overall, the statistics do not warrant fears of collapse in the world's food supply. Global agricultural production is more than keeping pace with population.[17] Between 1962 and 1995 food supplies rose from less than 2400 to over 2800 calories per capita.[18] While regional islands of malnutrition remain a grave problem, redressing famine may be less a question of agricultural policy than of political reform and stability. The World Resources Institute reports that if all the global food supply were converted to calories and divided among the human population equally, there would be 12 percent excess.[19] Pessimists greet each year's freshly reassuring figures with counterarguments: ravenous China is about to snatch away the rest of the world's grain, or declining rates of increase evidence that we have reached a "yield plateau" in major crops and that a downturn is looming. Perhaps, but I doubt it. My impression is that barring some unforeseeable catastrophe, there is no food shortage imminent for us or for our progeny.

(2) Making Farmland Sustainable

But putting food on plates is not the only issue. What worries the environmental community—putting the longer term issue of climate change to the side—is less meeting demand than avoiding the by-products of feeding the world. Can we do so without excessive sacrifices of environmental (and, some would add, *social*) quality?

The first risk concerns the sustainability of the 39 percent of our terrestrial environment that is the food production land itself. Inputs to agriculture, including soil and water, are under widespread stress. Across the world, farmland is being degraded by loss of topsoil and poor management. Each year between 5 and 6 million hectares have to be totally withdrawn from production.[20] As mentioned, in spite of these losses, aggregate productivity has been—and can continue to be—sustained and even improved. Insofar as the offsetting gains have come from better management and superior seeds, there are no objections. But productivity offsets are being achieved largely by two more worrisome routes. One is intensified application of synthetic fertilizers and pesticides.[21] Overapplication of these chemicals takes its toll on beneficial soil organisms and may be exacerbating the viability of farmlands in the long run. The second trend is to carve out fresh agricultural and grazing sites from the shrinking inventory of yet-untouched, biologically rich lands.

(3) Reducing Agriculture's Environmentally Damaging Spillover Effects

Aside from the prospect of more highly taxed lands collapsing from abuse and being taken out of production, intensified agriculture is already causing widespread damage in the form of off-farm spillovers. The yield-boosting chemicals, together with animal waste from factory farms, invade surrounding lands, permeate groundwater, and run off into wetlands and the seas. Particularly worrisome are the biologically active chemicals in major pesticides. They typically have long residence times in the environment, bio-accumulate in the food web, and pose threats to farm workers, consumers, and ecosystems.[22]

(4) Tempering Conscription of the Nonagricultural Landscape

Recruiting new farm and grazing land to replace or augment the impaired inventory is doubly disturbing. First, the available, yet-to-be-recruited land is predominantly the marginal and least productive. Thus, expanding supply will often require more yield-boosting inputs to produce the same per-acre yield as the land it is supplementing or replacing. Second, in many cases the acreage that is the leading candidate for recruitment will be forestland, which is already under pressure in many regions for land development and wood products. These forestlands (and, indeed, grasslands recruited for expanded grazing and wetlands for expanded rice production and aquaculture) are frequently highly valued as habitats for wildlife and for various environmental services, such as sequestration of carbon. Thus, there is a second environmental threat: to

sustain agriculture, we may find ourselves impoverishing our legacy for future generations.

Let me observe that this concern holds even if (as has been recently proposed in a paper by Paul Waggoner and Jesse Ausubel), the increase in farm productivity, per hectare, has become so dramatic that we should be able to meet global food demands over the next fifty years with 10 percent less cropland.[23] Indeed, while the definition of "forest" is controversial, the data supports the remarkable claim that agricultural improvements have already enabled the developed world to undergo a turnaround, to experience a net *reforestation* over the past few decades—even without the support of the new millennium's anticipated genetic technologies.

Yet, the figures will also show that tropical forests, the forests with the richest store of biodiversity, continue to be ravaged. Whatever the overall prospects of reforestation, species-rich tropical forests are ironically and tragically the least capable to recover from their wounds. Hectare for hectare, their loss is hardly to be compensated by restoring forests in the temperate zones.

(5) The Promises and Threats of Technology

Another option is to relieve pressures on the environment through technology. The worry here is whether the cures are worse than the disease.

There are many technological avenues. For example, fast-growing, high-density "plantation forests" can, on an acre-for-acre basis, meet demand for wood products and sequester carbon far more efficiently than natural forests. While environmentalists commonly react with hostility to proposals for such plantations because they are nearly barren in their biodiversity offering, plantations can possibly divert logging pressure away from, and thereby offer some reprieve to, true wilderness inventories.

Of all the technologies that concern us here, the most dramatic, and controversial, is genetically modified food. A "gene gun" can transfer desired traits from one species to another. Some environmentalists find the very idea of tinkering with nature's DNA as deplorable as chainsawing nature's rain forests. The fast-maturing salmon referred to earlier is popularly dubbed "frankensalmon" by its opponents—in echo of Dr. Frankenstein's engineered monster. However, such objections are embarrassed by the fact that all our domesticated plants and animals reflect the deliberate intervention of humankind. Bioengineering, on this view, does nothing more than to affect (some would say "improve") the speed and accuracy of 10,000 years of selective breeding and grafting.

This rejoinder of the biotech companies, that they are doing nothing more than breeders have done, is as oversimplified as the protests against them: the "gene gun" can span and revamp genetic distances that selective breeders could not bridge. This is a cause for concern. Nonetheless, the promise of technological fixes is too bountiful to be rejected on airy ideological grounds. The prospect is not merely crops that are more affordable. We are at the threshold of plants

that require lower inputs of fertilizer, water, and (perhaps most important) pesticide—crops that are, in other words, preferable both from the human health and environmental perspectives.[24] The goal is mainly to produce the same tomato or the same corn, albeit at lower economic and environmental costs. However, there are possibilities of product improvement as well. A British firm claims that by implanting rice with genes from a daffodil and a bacterium, it has produced a vitamin A–enriched "golden rice." To some, it will be "frankenrice." But vitamin A deficiency is a plight so dreadful that an offer to counteract it (royalty-free, incidentally) cannot honorably be dismissed with mockery. Each year the condition contributes to the death of 2 million children under the age of 5, and to blindness of perhaps 500,000 others.[25]

There are, indeed, practical worries that have to be entered into the balance. The first and most clamorous concern is one of food safety: that genetically engineered food will have harmful health effects on consumers. The second concern is that genetically engineered organisms—the fast growing salmon or pest-resistant cereal—will "escape" from its controlled setting and disrupt the environment. The salmon, if not sterile as the producers claim, may out-breed and thereby eradicate native salmon;[26] genes implanted in corn to resist corn predators may "leap" to other, undesirable plants, giving them armor against their own pests and touching off some unfortunate cascading disequilibrium.

Both problems certainly warrant institutional responses, such as monitoring and labeling—to which I shall turn in a moment. Regarding the food safety issue, from what I have read, the claimed danger of eating genetically modified (GM) foods remains wholly unsubstantiated in fact or theory. There is a sense that the yet-to-materialize risks to the environment, such as mischievous "escapes" are, according to the circumstances, less easy to dismiss. Yet, certainly where the genetic modification is aimed at pest control (and not "merely" cheaper crops), the slender speculative risk of unintended environmental damage has to be balanced against the demonstrated perils of the alternative: of high levels of crop loss and repeated dousing with chemical pesticides that we know to pose hazards both for farm workers and ecosystems.

III. SOME PROPOSED RESPONSES

In this short space, I provide only a flavor of our history and challenges. And I can only, in closing, sketch a few measures that policymakers and lawmakers may wish to consider.

(1) Sustaining Farmland

Sustaining existing farmlands—and thereby reducing pressures for abusive intensification and expansion—lies in the interests of agriculturists themselves. Most of them, one assumes, are already motivated to preserve the viability of

the holdings. Therefore, the government's role in this area is largely to find and analyze facts bearing on good soil and water practices, and make these known to farmers and grazers. There are already many local and global agencies engaged in this effort. And there are many associated issues: are small-holding, family farmers using organic low-impact techniques superior to the highly diversified, professionally managed agri-businesses? If so, in what ways?

(2) Off-Farm Damage

When we turn to off-farm damage, the incentive structure shifts. The burden of the farmer's off-farm pollution is foisted off onto strangers. To put it otherwise, we cannot expect farmers to undertake the costs of controlling spillovers to the benefit of others, without some intervening source of motivation. In this area, the problem is one of internalizing externalities—that is, making farmers, fishers, and grazers bear, and build into product prices, the costs of the damage they are causing others. In the first instance, this is the task of environmental laws proper. Polluters should be forced to pay. That will require stiffer and more expansive antipollution laws, and, of course, more determined monitoring and enforcement. A less satisfactory, but possibly supplementary, approach is what the Organisation for Economic Cooperation and Development (OECD) calls "cross-compliance measures": where, as is often the case, farm support programs are in place, eligibility for support can be conditioned on the farmer taking certain containment measures.[27] This should be regarded only as a compromise or fallback approach in that it may encourage inefficient incentives, including maintenance of objectionable levels of agricultural support and unwillingness of farmers to modify their harmful practices "unless you pay me."

(3) Reducing Pressure to Conscript the Nonagricultural Landscape

It is not only tropical rain forests that are at risk from human expansion. Agriculture, understood to include aquaculture, is a potential competitor for (depending on crop and locale) irrigated lowlands, grasslands, wetlands, and mangrove swamps. Many policies have potential to retard further colonization by agriculture, such as improvements in soil and water management, already mentioned.

But two socio-legal forces are of particular interest in this heading. The first is *trade*, and the second is *subsidies*.

The liberalization of trade enters the picture in two ways, as a force for good, and as a force for bad. The reduction of trade barriers is potentially good for the environment because nations that discriminate against foreign agriculture have to conscript their own most marginally productive land in order to meet domestic demand. This is the land likely to require the heaviest applications of fertilizers and pesticides. Hence, the opening of trade, by reallocating production to lands that need less chemical "boost," ought to result not only in welfare gains for consumers, but in a net reduction of chemical inputs globally, as well as a lower aggregate demand for land conversion.

The bad side is this: the theoretical promise of free trade is that production of each good and service will shift to the nation that enjoys comparative advantage in its production. But sometimes the "advantage" is only the illusory advantage of underpriced input. To illustrate, imagine two countries, one, *Poor*, in which property rights in resources are ill defined (*Poor*'s forests may be owned in common or unmanaged) and the other, *Rich*, in which property rights in resources are well defined (the forests are privatized or nationalized with rational pricing). Even if we assume that as between *Poor* and *Rich* all the other variables that drive trade (wealth, endowments, etc.) are fixed in such a manner that would otherwise lead to a nontrade equilibrium, (1) the difference in property rights alone will drive production to move from *Rich* to *Poor*; (2) *Poor* will overconsume its forests; (3) *Rich* will underconsume its forests; and (4) the entire global economy will suffer inefficiencies that will impair it in the long run. In short, as trade barriers fall, there are all the more reasons to correct market failures at local levels. If we fail, production will shift toward nations that have the least efficiently priced inputs, with adverse inducement of agriculture and grazing to encroach on forests.[28]

The problem of subsidies is related and equally complex. Across the world, agriculture—on land and in the oceans—is highly subsidized. Whatever the justifications (or, perhaps, *explanations*), there is no doubt that many subsidies have perverse effects not only on economies and national budgets, but on the environment. The destruction of virgin forests for valid economic claims is sad enough. But how can anyone not object to destruction promoted by government subsidies to conflicting land uses, such as agriculture and logging? The parallels on the sea are mammoth, mindless subsidies to vessel construction and fishing operations, which have become a major factor intensifying the depletion of stocks worldwide.[29] Other subsidies are only by a degree more subtle, but equally objectionable; market-distorting financial support can take the form of national governments undercharging users of public lands, for example, through grazing, fishing, and stumpage charges that fall short of the true value of the reduction in resource base.

All such environment-depleting subsidies should be challenged, both at the level of domestic politics and, in appropriate circumstances, before the World Trade Organization (where the effect of the subsidy is to cause competitive injury in violation of the GATT's rules on Subsidies and Countervailing Measures).[30]

A full critique of subsidies is more complex, however. Some subsidies can be calculated to have the opposite effect—not of accelerating destruction of the environment, but of retarding it. The need for such "green" subsidies is critical, because even if the entire suite of environment-impairing subsidies were withdrawn, conversion of the environment would be driven by market signals, which fail to reflect the many "public" goods and services that are not priced by markets, including the harboring of wildlife and portfolios of genetic diversity, and, indeed, the existence value of unspoiled wilderness.[31]

Hence, a strong case can be made for transfer payments to holders of biologically valuable areas to encourage their maintenance in the face of demands for agricultural conversion. The mechanism for such payments can be institutionalized in many ways. For example, the Global Environment Facility has proposed a new operational window for "integrated ecosystem and natural resource management." In deciding which conservation projects to underwrite, special consideration would be given to areas that offer multiple nonmarket benefits in joint supply, e.g., carbon sequestration, biodiversity, watershed services, recreation, and homesites to indigenous peoples.[32]

(4) Responding to Technological Innovation

Finally, much of the hope for reprieve from environmental stress comes from technology. And advances in technology inevitably bear, along with their promises, their risks.[33] More precisely, any innovation that appears appreciably novel, such as genetically modified organisms, comes to us with no (or only a limited) history. To take a genetically modified organism (GMO) food as one of many illustrations, we can with only limited confidence conjecture a full set of *outcomes* of the world for each introduced GMO. Will it incite some presently insignificant form of algae to overwhelm life in the seas? Or blindside us with some peril unthought of even in science fiction? Nor can we with confidence assign a *probability* even to those outcomes we can foresee. These conditions—not having confidence either in the outcomes or the probabilities to assign to outcomes—bedevil both the assessment and management of the risks of our most promising remedies. Moreover, to the extent the relevant new technologies affect what people eat, the livelihood of small farmers, the future of globalization and national sovereignty, the complications go beyond those of risk theory into the landscape of politics and public perceptions.

My own view is that genetically modified foods gradually will be accepted, and the tumult will pass. That does not mean, however, that there is no room for environmental nongovernmental organization (NGO) vigilance. But environmentalists and NGOs concerned with third-world poverty, fronts on which there is so much to gain, owe it to themselves and their clients not to roadblock progress on the basis of slogans. If there are legitimate fears—and we can agree that there are—they ought to be soberly weighed against the benefits. Intoning "the Precautionary Principle" is of little assistance, particularly where the innovation of an uncertain risk is designed to alleviate a known risk: on which side does "precaution" lie?

More specifically, we should be considering, together, what sorts of institutional mechanisms are appropriate to each of the various risks and to the public's apprehensions. For example, to ease consumer qualms, labeling, at least on an interim basis, is almost certainly warranted.[34] At the production level, where field "releases" are a concern, sensible regulations and monitoring are in order. In this area, as in others, we can anticipate a further expansion of

World Trade Organization (WTO) authority—it is unavoidable—since bans on imports of GMO food raise issues of disguised restraints on trade. The WTO will have no easy task distinguishing between cynical protectionism and bona fide trepidation.

(5) Conclusion

Where are we heading? We are, after all, at the start of a millennium, no less certain of our way—and probably as misguided in our guesses, as those who might have gathered to consider comparable questions in the year 1000. I will venture to make only this one closing observation. Humanity's domination of the earth and its ecosystems is so pervasive, that it is no longer a question whether we will "play God." That issue was sealed when Homo sapiens took up agriculture. The question now is, will we play that role with humility, and with—how shall we measure it?—success?

4. CAN THE OCEANS BE HARBORED?

I. A FOUR-STEP PLAN FOR THE TWENTY-FIRST CENTURY[1]

The oceans, which comprise over 70 percent of the planet's surface, are in trouble. The omens are everywhere. Marine catches have stagnated in almost every region, even in the face of intensified harvest efforts.[2] The wetlands and coastal nurseries vital to maintain the stocks are vanishing under the pressures of commercial development and a siege of sewage and waste. We are dousing the seas with chemicals, and seasoning them with millions of tons of stubbornly persistent litter. Periodic red tides, kelp and coral afflictions, and major die-offs of marine mammals such as harbor seals and dolphins, may be early warning signs of worse to come.[3]

All of these ills and threats have been well documented. The question to which we must turn is: What is to be done?

What follows is a four-step program that, if the political will could be found, would go a long way toward rehabilitating the ocean's potential. The steps include, first, the removal of subsidies that underwrite and thereby accelerate ransacking of the ocean environment and its resources; second, the imposition of charges for rivalrous uses of the oceans; third, establishment of an oceans trust fund, financed through the use-charges, designed to maintain and repair the ocean's health; and, fourth, the establishment of an Oceans Guardian to give voice to the ocean in legislative and judicial fora.

I will begin by illustrating how these measures would work in the fisheries context, and then extend the framework to other ocean uses.

(1) The Fishing Sector

As I have already indicated, there is widespread consensus that the yield from marine capture fisheries (the dominant sector) is showing signs of stagnation. Annual catches, after decades of increase, appear to be leveling off.[4] The situation is worse than the plateau in catch figures indicates. First, expressing the vitality of fisheries in terms of tonnage landed masks the expanded effort that has been required to hold the catch steady. The landing rate per gross ton of fishing vessel has fallen to less than a third of what it was in 1970. The gross ton index of effort does not even account for advances in fishing technology, such as spotter planes and sonar, which renders each modern ton of vessel considerably more effective.[5] In fact, in the past few decades technical advances have probably been far more important as a driver of fishing pressures than the build up of the capital stock. Electronics give fishers eyes for the first time. The fish can run but they cannot hide. We are working harder, and more "efficiently," to stay

in the same place. Second, even the appearance of staying even is misleading. The statistics that display stagnant tonnage mask a worrisome shift in the composition of the catch, toward an increasing portion of juveniles and away from mature members of traditionally desirable species. The entire increase in catch since between 1983 and 1994 could be attributed to five low-value species, only one of them eaten by humans (the rest being used for animal feed and fertilizer).[6] The way we are going, any hope for an appreciable expansion in catch is misplaced.[7]

Pressure on the world's fisheries is a worry not just for the growing population of consumers. Across the world, an estimated 200 million people make their living off the fishing industry—as fishermen, dock workers, processors, etc.[8] For many nations, fish is the primary source of animal protein.

But in the sea of somber fishery statistics there is one provocative, even startlingly hopeful figure: the U.N. Food and Agriculture Organization (FAO) has calculated that if fishing pressures were relaxed, allowing stocks to rehabilitate, the catch of capture fisheries, rightly managed, could stabilize at a level 20 million tons higher globally, at less cost to the industry and to the environment.[9]

The implications are striking. The value of the current global catch is about US $90 billion ex vessel. If we assume this stream is sustainable, and capitalize it at 3 percent, the world's open capture stocks can be assigned an asset value of over $3 trillion.[10] However, if a temporary reprieve in fishing effort were to result in a 20 percent rise in global catch levels, that would translate into an $800 billion expansion in asset value. And even that huge gain does not account for potential cost savings—the fact that "denser" fisheries, rationally managed, could be exploited at lower cost per unit effort (CPUE).[11] Indeed, if we slowed down, we could probably be catching more fish at lower absolute cost. We presently have, on many accounts, far more fleet capacity than we need.[12] Less would be more. The World Bank and Food and Agriculture Organization (FAO), in a recent analysis from another than mine, found that the difference between the potential and actual net economic benefits from marine fisheries is in the order of $50 billion per year. They conclude that improved governance of marine fisheries could capture a substantial part of this $50 billion annual economic loss.[13] How did we get in this situation?

(a) The Fundamental Model: What Is Going Wrong? Let us start with the model fisheries managers have traditionally employed. Drawing on fishery data, the managers posit for each stock of fish, in each fishery (for example, for halibut in the Northern Pacific) a theoretically optimal level of fishing activity, usually termed the maximum sustainable yield (MSY). MSY is the highest level of catch that can be sustained over the years. If the intensity of fishing is at a lower level that that corresponding to MSY, the catch is being underutilized: we could take out more without affecting optimal replacement. But if the intensity is greater—if there are too many boats chasing too few fish—the stock is being overutilized: the costs of pursuing the ever-thinning stock exceeds the value of the catch.

MSY represents a peak of biomass, and efforts that extract more fish do so only by lowering the peak. Indeed, economists have long pointed out that the ideal level of fishing should be even less than the level producing the maximum sustainable biological yield. That is because at some more modest level of fishing, the maximum economic yield (MEY), each additional fish caught costs society, in terms of labor, fuel, and vessels, is more than the fish is worth.[14]

This is because there are costs to fishing, which increase with the intensity of exploitation. The fewer fish there are in the sea, the further vessels have to travel, and the more water has to be "strained" through the nets, to catch another fish.[15]

But as environmentalists, there is something else we must account for. Overfishing represents a loss not only of the targeted resources, but of all the nonmarketable life that is taken out in the process, as well. The devastation ranges from the over 25 million tons of discarded "bycatch" to vast numbers of sharks, seabirds, cetaceans, and turtles.[16] Indeed, a full accounting for the indirect consequences of fishing has to account for less publicized but potentially more damaging marring of "lower" elements in the marine food web, such as that caused by near-shore trawling.[17] Assuming that ecosystem damage is positively correlated with general level of fishing, the optimum effort from an ecological perspective—one that respects biodiversity and other nonmarketable features of the environment—is even below MSY; call it OBY, for optimum biological yield.[18]

In other words, we are failing to suppress fishing to the classic MSY target, when, in fact, even that level is too robust, and the target should be an OBY that is more restrictive than both MSY and MEY. Why are we so far off target?

The problem begins with the fact that capture fisheries are fundamentally common pool resources. Fish are not owned until caught. With large numbers of rivalrous fishers (assured by the open entry condition), efforts to dampen fishing through various cooperative and mandatory measures are almost universally frustrated. As a consequence, fishing effort has a tendency to expand until the least efficient fishers are earning revenues just equal to their private opportunity costs (which equates with the level at which economic rent is thoroughly dissipated).[19] To put it another way, while a single owner of the fishery would rationally fish to the point of rent maximization (MEY), open access extends extraction efforts beyond the environmentalist's preferred target, OBY, beyond the economic target MEY and all the way out to a level of effort at which the catch, dominated by thinned schools of juveniles (because few fish escape to maturity), reaches a shriveled equilibrium.[20]

Moreover, as if the much-vaunted "tragedy" of open access competition were not bad enough, the situation is exacerbated by subsidies. Across the world, when nations should be coordinating to draw fishing efforts inward, they do the opposite: they encourage more intensive fishing by absorbing, in various degrees, the operators' costs of fuel, vessel construction, insurance, access fees,

and port facilities. Subsidization moves fishing in exactly the wrong direction, undercutting the efforts of managers to put together already fragile alliances of responsible fishers.

The magnitude of existing subsidies is almost unbelievable.[21] The first comprehensive effort to assess the level of global subsidy—that prepared for the FAO in 1992—estimated that as of 1989 the world was paying $124 billion to land $70 billion worth of fish.[22] The authors drew the conclusion that the difference, $54 billion, was the amount of subsidization that governments—meaning taxpayers—spent on (over)fishing. There are reasons to criticize the FAO's methodology and to deflate the implied level of subsidy.[23,24] On the other hand, while some subsidy components appear to have been overstated, and to require downward revision, other arguable subsidizations (including many soft, unbudgeted government commitments) were uncounted, which would warrant, in some eyes, a revision upward.[25] Subsequently, Matteo Milazzo of the U.S. National Marine Fisheries Service came up with a revised estimate of $14–20 billion a year worldwide[26]—not as large as the FAO's, but nonetheless substantial, as it amounts to about 25 percent of the value of reported landings. A recent World Bank–FAO study drew the estimate at just over $10 billion.[27]

(b) Step 1: Eliminate or Reduce Harvest-Increasing Subsidies Whatever the exact magnitude of global subsidies (much depends upon which government programs are counted as "subsidies), it is clear that subsidization is considerable and has been a major culprit in overfishing.[28] At a time when we should be reducing effort, we are pouring money into amplifying it. Hence, the first step in restoring the health of the oceans is to wean the industry from subsidies.

How can this be accomplished? Subsidies—as we know from experience with U.S. and European Union (E.U.) farm policies—get to be addictive. Once in place, they empower their own lobbies. To some extent, fisheries subsidies are challengeable under existing trade law. The author has elsewhere outlined how a legal challenge could be mounted before the World Trade Organization (WTO) claiming violation of the Agreement on Subsidies and Countervailing Measures (SCM).[29] A challenge before the WTO would have the advantage of removing the dispute from domestic political arenas. On the other hand, the fishing subsidies are really a conservation measure, only obliquely related to trade, and thus in some ways trade laws are clumsy tools for advancing what are essentially conservationist goals.[30] Many government actions and inactions, most significantly the widespread failure to charge fishers resource rents and to forego taxes and other charges, are hard to bring under the SCM's definitions of subsidy. And the WTO has neither the institutional inclination nor the expertise to make many of the judgments that are entailed, such as distinguishing the "bad" (effort-increasing subsidies, such as vessel construction grants) from the possibly "good" (effort-decreasing and stock enhancement measures, such as underwriting wetlands restoration and artificial reefs). Some of the growing movement to reduce subsidies will have to be dealt with outside the WTO. Asia-Pacific Economic

Cooperation (APEC) (through its Fisheries Working Group), the Commission on Sustainable Development (CSD), and the FAO, as well as the WTO have initiated formal consideration of the fishing subsidy issues. Nonetheless, corrective action has thus far proven elusive. These efforts deserve the fullest—and broadest—support of the conservationist communities.

(c) Step 2: Improve and Extend Resource Management Eliminating subsidies would reduce pressure on stocks. But even if all subsidies were eliminated, fishing would still be economically and ecologically excessive, just from the open access, common pool features of capture fisheries.[31] Further reductions are in the province of fisheries managers, who have developed a broad array of regulatory techniques over the years. These include deferring the age at which fish can be caught (by requiring minimum mesh size),[32] restricting entry (by reducing vessel licenses and restricting catch [as by establishing total allowable catches (TACs)]). There is a vast literature on the relative strengths and weaknesses of each of the techniques—an exchange far too complex to engage here. But this much needs to be said. First, it is apparent to all that the current management techniques have been unable to stanch overfishing. Second, part of the blame lies not with the managers, but with the artificial (subsidy-driven) excess of capital and other inputs. As long as investment in harvest capacity is excessive—beyond the level required for efficient attainment of fisheries objectives—those threatened by effort reduction will marshal forces to frustrate regulatory efforts at both rule-making and enforcement levels.[33] The elimination of subsidies, by reducing interest-group pressures in the political and regulatory environment, would enable the managers better to do their jobs.

There is much more to be said as to what might improve the situation. For example, the powers of regional fisheries management organizations (RFMOs), which govern nation-straddling and highly migratory stock, have to be strengthened. At present, their power to, for example, halt the decimation of tuna is notoriously in question. There is a whole medley of challenges. The members have to have the political will to establish conservationist targets, monitoring has to be improved, and the interloping by nonmembers (often flying "flags of convenience" provided by nations that do not participate in the RFMO) are all major challenges. A major effort to close ports, worldwide, to illegal and unreported catches would go a long way to reducing mutual suspicion of widespread "free-riding" and stabilize the RFMOs' powers. One of the major RFMOs, the International Commission for the Conservation of Atlantic Tuna (ICCAT) has shown this is possible by effectively cajoling measures against noncontracting parties (Belize, Honduras, Panama) that had been flagging vessels that were undermining ICCAT conservation measures. The General Agreement on Tariffs and Trade (GATT)/WTO position on trade-related (port closing) measures remains to be clarified.[34]

(d) Step 3: Charge for Use I have no doubt that managers, relieved by subsidy reform of some of the political pressures of excess industry-specific capital

and labor, would be better able to dampen harvest levels through regulatory techniques. Even the elimination of subsidies would not be enough, however. There are just too many problems with the traditional command and control techniques. The elimination of subsidies would not of itself eliminate the excess capacity, because much of the excess is an unintended consequence of the traditional techniques. For example, restricting catch to seasons, as reasonable as it sounds, has commonly lead to "fishing Olympics" in which fishers respond to the shortened period of access by confronting the stock with larger and ever more lethal vessels "to get while the getting is good." Output limits such as total allowable catches (TACs) are difficult to administer without having the same perverse effect. Not only are TACs difficult to "get right," particularly in multispecies fisheries, but even if they should be set at the correct level, they give each fisher an incentive to catch what he can before the TAC is exhausted. To get what one can before the TAC is met, capacity expands and unit costs rise.[35]

These and other inefficiencies in the command and control techniques invite attention to the use of market incentives. Market incentives may take the form of intervening either in quantity or in price. There are varieties of each. For example, under a quantity route, ownership shares (labeled ITQs [individual tradable quotas]) are created in the TAC and allocated among fishers. Each share represents a market-transferable entitlement to a specified percentage of the TAC, backed by the power of government to exclude interlopers.

The theory behind the ITQ is clear and laudable, and professors regularly demonstrate its virtues on the blackboard. Market transactions establish the price for a unit of quota, and opportunities for cost reduction are fostered because a group of fishermen can combine effort to reach their joint ITQ ceilings at lower aggregate cost than if they fished competitively. The cost-reducing combination can be achieved either through cooperation of rights-holders or, via transfers, concentrating ITQs in vessels of optimum scale and scope, e.g., owners of high-cost vessels selling their rights to owners of low-cost vessels. Moreover, each fisherman holding such an investment has a stronger incentive to internalize the long-term consequences of his activities than he does under conditions of free access. Any depletion of the asset works not merely to his contingent and fractional disadvantage (as one of many competing fishermen with a hope of capturing stock in future seasons) but more directly erodes his investment in his own "property," his tradable share. Cooperation with managers is, if not assured, fostered. In fact, one of the most striking advantages ITQ systems have displayed is increased revenues (even more than decreased costs). Relieved of the pressure to accelerate catches, fishers in these systems can select for quality and stretch out the landings of fresh fish, getting far higher unit prices than fishers receive under more traditionally managed fisheries.

There need be no time-cramped "fishing derbies" with their colliding hulls, entangling nets, and peak landings, which can overwhelm processing facilities.

ITQs, however, present their own problems. Both the initial distribution of the "rights" and establishing the underlying TAC at an ideal level have proven highly contentious in many areas. There are also practical problems of implementation, particularly in the typical multispecies fishery.[36] These various drawbacks explain why in the United States, while the equivalent of ITQs are authorized by the Magnuson Stevens Fisheries Conservation and Reauthorization Act, utilization has been hesitant and spotty. Nonetheless, while progress meets resistance, the considerable benefits are worth persistent efforts.

The major alternative to adopting ITQs is to enlist price signals. Under a price-reliant system, instead of setting volume limits the administrator charges fishers a fee—for example a landings tax or a royalty. A charge raises the cost of fishing to the fisher (of effort, if it is a tax on effort; of a unit of fish, if the tax is on fish landed). If the ambition of the manager is to reduce the level of harvest to the MEY target, then the tax would be set according to whatever rate schedule made fishing beyond that level unprofitable. The aim is to create cost conditions that result in the fleet extracting fish at the revenue-maximizing level of effort that would be employed by a sole owner, who would be expected to maximize net return over time. Such a sole owner would rationally stop fishing when the landed value of a marginal stock reduction equaled the marginal cost of catch (including congestion costs and any impairment in future yield).[37]

As with ITQs, the demonstration works more easily in theory than in practice. To get the tax "right" requires more knowledge of fishery dynamics, the ever-shifting environment, and catch costs than any manager can possibly have. And tax systems, too, can have perverse effects. To avoid a landing tax, the fisher may on the one hand wastefully dispose of caught fish, or, on the other, make landings illicitly. While the taxes raise revenue, they increase monitoring costs and impair the gathering of reliable fishery statistics.

Special problems arise if we should try to tax to achieve the ecologically sensitive OBY level, rather than the traditional MEY. We might agree in principle that any tax on tuna taken by long line should be less than tax for tuna caught at the expense of dolphins, and it is likely that shrimp come to the table at a high environmental cost. But we do not know for certain *how much* physical "damage" any level and technique of fishing does to the nontarget environment, nor, indeed, how we would *monetize* the damage for tax purposes, so that the marginal cost of each level of activity, tax included, equated with marginal benefit.

(e) Step 4: An Oceanic Trust Fund Notwithstanding the political unlikelihood of drawing up a "tax" high enough to exclude inefficient catches, there may be virtue in a lower tax, with more modest ambitions. Specifically, a tax (or other charges) on fishing would not only, if slightly, dampen the level of inefficient fishing, it could at the same time produce funds that could be profitably applied to ocean maintenance, through a trust fund. License fees, a form of tax, are widely accepted. And several Organisation for Economic Co-operation and

Development (OECD) countries charge taxes as a means of recovering management fees.[38] New Zealand's approach is particularly instructive.[39] A nominal tax could go a long way. If the value of high seas catches (catches beyond Exclusive Economic Zones [EEZs]) amount to $10 billion annually, a mere.05 percent tax would generate $50 million annually. Poured into a fund, this (or whatever the amount) could support:

- monitoring of fishing regulations; this could include expansion of satellite tracking programs, onboard inspectors, and video cams;
- defense, restoration, and even purchase of wetland and nursery areas;
- carryover payments for investors and workers to compensate for tie-up losses required by stock rehabilitation periods;
- gathering and analysis of stock data;
- fisheries health services, including monitoring health effects of mariculture on coastal quality and safeguarding against incursions of exotic species; and
- carrying out high-seas relevant obligations under the U.N. Convention on the Law of the Sea (UNCLOS), the Agreement on Straddling and Highly Migratory Stocks, and the Convention on Biological Diversity.[40]

There is the undoubted problem that each increment in charges makes accurate monitoring more difficult (because it raises the incentive to evade). But there is some countervailing benefit, in that some of the revenues would be invested in improvements in monitoring, perhaps with radical new technologies.[41] In view of the widespread deficit in monitoring now, it is conceivable that over some range, a $1 investment in monitoring (with new satellite programs, for example) would yield, say, a $2 increase in fund revenues—as well as increased supplies of fish. Moreover, a system of charges, even if initiated at a modest level, would stimulate increased revenues over time by expanding the fisheries base. And there is no reason why such a fund (or funds) could not be seeded from resources of the Global Environment Facility (GEF) or the World Bank.[42]

II. NONFISHING EXTRACTION SECTORS

Fish are not the only valuable extracted from ocean space and which might be taxed There are also minerals, which will presumably become more accessible as extraction technology improves and the more accessible onland sites get worked out. The 1982 Law of the Sea Convention (UNCLOS) anticipated both hard rock and petroleum mining of the deep ocean bed and floor (generally, two hundred nautical miles from the coast). The measures provided were, however, fatally objectionable to anyone seriously considering exploiting those frontiers. The objections were manifold, but centered on the power of a deep-sea authority, the Enterprise, to which were assigned vague and extensive powers. For example,

it was to have power to levy a royalty—but not required to specify it in advance of production: hardly an inducement to investors.

However, to levy a royalty on undersea mineral production would not raise eyebrows. All coastal nations extract royalties from offshore producers. The objection to the Enterprise was not to a royalty in principle, but to the unaccountability and arbitrariness.

A royalty on offshore oil and gas production is therefore not unthinkable. As a tax base, the figures are magnificent. Thirty-five percent world oil production and 26 percent of world gas comes from offshore.[43] But presently, most of the offshore production comes from continental shelves that are within the jurisdiction of the connected nation. That oil and gas is already taxed by the coastal state.

Even if production from ultradeep, global commons areas becomes feasible, the case for a tax is not as strong as a tax on highly migratory fish. In fact, the argument for taxing minerals extracted from ocean space faces the same objections that can be made to the proposed tax on ocean liners.[44] True, the ocean is a benefit enjoyed by the liner and its passengers. But (barring congestion and deferring the question of pollution, addressed later) the liner imposes no *cost* on anyone. To tax the liner's passenger is thus inefficient: it triggers a welfare-reducing shift in the demand for transport from water carriers to air carriers. Politically, it raises money (for good causes), but not from the right people and activities, and is therefore, not wrong, but doubtful—as would be a severance tax on high seas minerals.

III. OCEAN INPUTS

Thus far we have regarded the exploitation of ocean space by extracting resources of value, or using it in nonharmful, nonrivalrous ways, such as transport and recreation. But the ocean also serves as a sewer and garbage dump. Whereas taking oil out of the sea is beneficial and (if done well) harmless, marine pollution threatens the marine environment, fish productivity, ecological services, and perhaps even human health.

At the start, one has to note that the impact of most land-based ocean pollution falls on the inner coastal areas of the responsible nation, which therefore has an incentive to limit damage according to its own tastes and welfare preferences. But the dynamics of the seas and the transboundary movement of sea life give the entire global community an interest in every nation's ocean wastes, even those of land-based and coastal origins. Poured into a local stream, inadequately treated liquid wastes wend a poisonous path through imperiled wetlands and fragile coastal feeding zones down to the commons region of open sea. It is a legitimate global concern.

As a consequence, there is a wide range of conventions that address marine pollution in its various forms. These include the London Convention

on Dumping, and various Regional Seas Programs operated under the U.N. Environment Program (UNEP). UNEP has developed guidelines for land-based discharges (LBDs), but they are nonbinding.[45] There is the 1971 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage,[46] the 1974 Paris Convention for the Prevention of Marine Pollution from Land-based Sources[47] (amended in 1986 to rectify the original failure to deal with the vast quantities of pollution that reach the sea via the atmosphere).[48]

How well have these conventions worked? It is not easy to say. As technology "advances" and global population swells (most pronouncedly along the world's coastal zones) the oceans face an onslaught of agents many of which were unknown or inconsequential fifty years ago: not merely agricultural runoff, sewage, and dredge spoilings but DDT, PCBs, CFCs, heavy metals, petroleum, long-lived plastic litter, and potential endocrine disruptors.[49] In this context, what would a good program aim for—and how would one measure success?

Oil spills are a good place to begin. From 1965 to 1996 the total amount of oil deposited in the world's seas from major spills (greater than 10 million gallons) was 1.8 billion gallons. The amended 1992 Convention on Civil Liability for Oil Pollution Damage is the current mechanism to address this situation, wisely establishing strict liability for tanker owners and creating a system of compulsory liability insurance.[50] Claims for damage (including the costs of cleanup) may be brought against the tanker owner or the owner's insurer.[51] But the system is far from perfect. First, the tanker owner is normally entitled to limit its liability to an amount linked to the tanker's tonnage, so that the liability of the owner of an oil super tanker is capped at US $115 million.[52] Second, liability for damage to the environment is limited.[53] Third, tanker construction is subject to widespread governmental benefits in the form of construction grants, guaranteed loans, and so on.[54] Each of these three benefits underwrite an excessive level of oil-spill risk, particularly to the extent that the compensation program and insurance programs do not cover the full expected costs.[55] Another way to put it is that the vessel owners are externalizing risks onto the global public.

A theoretically ideal response would be to internalize the full costs onto the owners through a tax that internalized onto the operator the expected damages over and above the prospective judgments and penalties of the existing liability mechanisms. Rightly calibrated, the tax would induce the owner to take efficient precautions and to establish a level of operations that equated the marginal benefit of the polluting activity with the marginal cost.

But as in taxing fish harvests, the difficulty is in locating the right level of tax and putting it into practice. To institute a tax at the broadest level—on land-based sources of ocean pollution as well as on vessels—we would have to identify which of the many substances we put into the seas—through water runoff, direct deposit, and air current—are damaging, and to what degree. These are not easy judgments. Some of the waste of human activities is nutrient for fish, hence creating positive, not negative, externalities.[56] With more data, we

could levy a flat tax; for example $\$x$/ton for PCBs, and $\$y$ for dredge spoils, and so on.[57] But a flat per-unit tax would be right only in those limited circumstances where the damage attributable to each pollutant was flat—in other words, where we knew that each ton of discharge caused $10 damage over every range of output. That is not likely to be typical. Damage is more often locale-dependent, fluctuating with seasonal variables, and even discontinuous. Over some range of discharge the damage is apt to be negligible; then, with additional levels of pollution, the harm "spikes." Beyond that level, additional pollution may make little difference because all the fish are dead.

In other words, an ideal tax would require data on marginal net damage beyond the reach of what science can provide. Worse, the ideal (Pigovian) tax requires a knowledge that goes beyond present levels of damage. We should know the cost of the activity when those injured are taking optimal defensive measures. If, for example, some ocean pollutant is causing $10 damage today, but in the long run, with the right tax on the polluter and efficient adjustments by the "victims," the marginal cost is $5, then $5 is the right tax. But if we are uncertain as to the present costs of a polluting activity, how much more uncertain need we be when we are projecting the marginal costs into the future?[58]

What can we do in this context—that is, lacking the ideal data? One approach is to make a list of substances that one either can or cannot put into the sea—roughly the approach of the London Dumping Convention, with its white, grey, and black lists.[59] But this approach accepts its own gross errors. Another response would be the approach advocated in the fisheries context, as described earlier. We could begin by deploying flat taxes set at a crude, even intuitive approximation of the right level originally. The funds so generated would be available to underwrite research aimed at developing increasingly accurate damage estimates for each waste and dumpsite. Another option would be to start by taxing the most suspect but as of yet unbanned chemicals as a way of building taxing institutions from the bottom up. It may be more feasible to tax some dangerous substances at the point of production and initial discharge than at the stage of entering the sea. This is a particularly attractive option where the points of deposit are widespread and even clandestine.

"Rough justice" pollution taxes are not unheard of, for example, the German *Abwasserabgabe*.[60] Indeed, some roughness appears all the more justified when we consider, along with the alternative of the status quo, the uses to which the funds generated could be put. Specifically, regarding ocean pollution, there is a great deal to be done:[61]

- studying the physical and chemical properties of the substances of concern;
- identifying synergistic and antagonistic effects in an ocean environment;
- assessing the risks of different levels of toxicity and exposure;
- improving approximations of monetary damage from different levels of input at different locales.

The fund could be used for other purposes, including:

- regarding major spills, a worldwide emergency response team could be organized to mitigate damages with latest techniques;
- regarding aquaculture, which has exploded to account for some 30 percent of product for human consumption, to advance studies and methodologies to understand and reduce the level of wounds to the environment.

The subject of ocean pollutants is vast and complex. But a warning of Ed Goldberg's is no less ominous today than thirty years ago:

> "The slow but continuous alteration of the open-ocean waters can offer future generations the legacy of a poisonous ocean. It is most unreasonable to titrate the seas with man's wastes to the endpoint of a world-wide mass mortality of organisms. Yet, such an event is today not inconceivable. The time might be a century or longer. Today, we are adding megaton quantities of synthetic halogenated hydrocarbons to the ocean system. Surface water values today are on the order of nanograms per liter. . . . If these substances follow the water in mixing with the deep ocean, they will be transferred within a decade to zones below the mixed layer, where they may remain for thousands of years, the residence time of the persistent naturally occurring organic molecules. At what level might they irreversibly damage the ecosystem?
>
> "It is concerns of this type (and others can be orchestrated in similar detail) that are within the provenance of international organizations. The potential pollution of the open ocean will result from the contribution of many nations, all of whom have some stake in the loss or restricted use of these resources. Yet, it appears that the economic and scientific resources of any single nation are insufficient to engage in the appropriate and adequate surveillance activities concerning the state of the ocean's health."[62]

A user charge system would help support the underfinanced network of institutions seeking to address these problems. At the same time the charges would dampen the level of misuse; they would serve as a symbolic reminder that the ocean is not—cannot continue to be—humankind's free waste receptacle.

IV. A GUARDIAN FOR THE OCEANS

The final proposal is a reform in institutional structure. We all recognize that the root of the ocean's problems is that they are commons areas, the coastal zones only by a degree less than the high seas. The state of the commons is a public good, and efforts to provide for the public good are notoriously dogged by the maneuvers of those who wish to "free ride" on those who contribute to the costs of care. User charges (taxes) address this difficulty. But we need more. When the

sea is degraded—particularly the open sea beyond national jurisdiction—who is keeping watch? Are heavy metals or potential endocrine disruptors working their way into the food chain?[63] If so, who is charged with bringing the situation to the attention of those who can stop it? To address these tasks I have proposed an institutional Guardian for the Oceans.[64] The Guardian would be authorized:

- to monitor the health of the ocean;
  - gathering facts relevant to damage in a scientifically and internationally credible way;
  - establishing the sources and causes;
- to monitor compliance with applicable laws and treaties;
  - augmenting the "self-monitoring," which typifies most international marine agreements;
- to exercise a legislative advisory function;
  - appearing before national legislative and rule-making bodies to help clarify ocean impacts of proposed actions, such as dams and projects affecting wetlands.

These functions of the Guardian should be supplemented with a legal role. Even if the Guardian could identify substantial and worrisome changes in the environment, and pin down their source, redress in court systems may require overcoming doctrinal obstacles of legal interest and standing. The need arises from the open access status of the commons areas. If a stranger should come into your back yard and steal your pet turtle from your pond, you would have a suit because it would be a trespass and injury to your property. On the seas, however, where thousands of turtles are slain, it is unclear that anyone has the legal interest the law requires to complain; the turtles are no one's *property*. Besides, what is the market value (the law would want to know) of turtles and dolphins and such? Attempts to rectify the situation through trade disciplines have proven of limited success.[65] No less than any of us, the life of the sea could use its own counsel. The Guardian would provide it.

In its counsel capacity, the Guardian's legal staff would appear as a special intervenor-counsel for the unrepresented "victim" in a variety of bilateral and multilateral disputes. Perhaps most important, international treaties would endow the Guardian with standing to initiate legal and diplomatic action on the ocean ecosystem's behalf in appropriate situations—to sue at least in those cases where, if the ocean were a sovereign state, the law would afford the state some prospect of relief.

V. CONCLUSION

None of this, we will be told, is practical. Each of the elements has been put forth, from time to time, in classrooms and at conferences. But practical

people, we will hear, should not expect any of the proposals to be adopted in real life.

On the contrary, what is impractical is to suppose humankind can continue as it has. We are living foolishly, probably dangerously. We should welcome the opportunity of this exposition to say so, and to offer the world of statecraft a sounder vision.

5. SHOULD WE ESTABLISH A GUARDIAN FOR FUTURE GENERATIONS?[1]

I. BACKGROUND: THE MALTESE PROPOSAL

In 1992, in preparation for the Rio Earth Summit (U.N. Conference on Environment and Development [UNCED]), the delegation of Malta submitted to the Preparatory Committee a proposal (hereinafter the Proposal) that the world community go beyond the vague declarations of responsibilities toward future generations that are appearing in international documents with increasing frequency,[2] and actually institute an official Guardian to represent posterity's interests.[3] Although visionary, and bedeviled by problems, it is well worth our attention.

As the Proposal contends, just as conventional legal systems typically provide representation for infants, the mentally impaired, and others who cannot adequately speak for themselves,[4] so the world order should provide for:

> [a]n authorized person ('guardian') to represent future generations at various international fora . . . whose decisions would affect the future . . . to argue the case on behalf of future generations, hence bringing out the long-term implications of proposed actions and proposing alternatives. His role would not be to decide, but to . . . plead for future generations, [and to counter] the firmly established attitude of our civilization [to discount] the future."[5]

The Proposal was clearly intended as an invitation to a dialogue on the practical substance and concrete form that a Guardianship might take. In that spirit, this essay raises several overlapping issues that the Proposal inspires, issues that range from considerations of economics and institutional design to fundamental questions of moral philosophy.

(1) Are Future Persons Really Voiceless?

The proposal is based on the widespread assumption that present generations will deeply discount or even disregard the welfare of their descendants, particularly those whose lives will take place relatively remote in time. This conforms to a social choice perspective, which suggests a tendency of political institutions to slight the unborn, since they lack representation in the legislatures. But the voicelessness of the unborn, even of remote descendants, is easy to exaggerate. There is an impressive body of theoretical and empirical literature, much of it generated by analysis of taxation and public finance, indicating that each generation's empathy for its own immediate successors—its children—provides something like an "infinite horizon."[6] I save (and exercise my political voice to

conserve key resources) in order to improve the legacy of my daughters, who will save for their children, and so on. What this suggests is that the function of the Guardian (described later) might perhaps be less to affect motivation, as to uncover and publicize information about future perils that would otherwise go unnoticed.

(2) For Whom (or What) Should a Guardian Speak?

The Proposal contemplates that the Guardian would represent future generations of *humans*.[7] Those concerned with the state of the future are not, however, restricted to focusing directly on the well-being of persons. One might consider (as I have proposed) a group of Guardians, one for each of several natural objects—for example, a legal spokesperson for marine mammals, another for Antarctic fauna, perhaps others for various great cultural artifacts such as the Sphinx.

Of course, the condition in which we pass along these various nonhuman objects affects the well-being of future generations of persons indirectly. Presumably our progeny would want to receive and enjoy whales as part of their legacy. But in specific contexts the position that might be taken by the Future Generations Guardian would not be expected to coincide with that which would be taken by a Guardian for whales or some other object. A great social project which hazards a species or cultural artifact may appear on balance calculated to improve the welfare of future generations, even allowing for the probability-discounted loss of the object. In those circumstances, a Future Generations Guardian might consent to the project as acceptable for his human principals, while a Guardian for, e.g. whales, might steadfastly oppose it as too risky for her cetacean clients.

One might argue that where conflicts exist between the welfare of future persons and the preservation of nonhuman creatures and objects, our choice has to be governed by human preferences. But there is no such easy way out from under our responsibilities. The tastes of future generations are not only unformed; it is our choices that will form them. The value that persons remote in time place on the existence of, say, songbirds, is not a *given*, but will be a function of the legacy we leave them. I personally would regard the eradication of all songbirds as a terrible loss for my remote progeny. But they may find the electronic sounds they will be able to create an entirely adequate substitute, particularly if they never have the opportunity to hear live songbirds. In other words, we cannot consistently appeal to their wants in making the very decisions that will, inescapably, form those wants.

One implication is to reinforce the case for Guardians for natural objects and human artifacts (rather than future persons), since our decisions on whether to make, e.g., whales and songbirds planetary heirlooms will strongly influence—we might say, is logically prior to—the value future persons will place on those *things*; and the decisions regarding those things might most appropriately be made through decisions informed by thing-specific Guardians.

In all events, none of these remarks is intended to undermine the notion of a Guardian for Future Generations (of Persons). But we should remember that such a Guardian is not inconsistent with Guardians pleading for other interests and values, whose contributions will in some instances carry our concerns along tangent lines of thinking.

(3) Are the Moral Arguments Disparaging the Rights of Future Generations Critical to the Guardianship Proposal?

There is a wide-ranging and impressive body of literature regarding the moral status of future generations. The central inquiry is whether ethics provide any compelling reasons that we sacrifice our welfare in the interests of persons unborn. The answers are controversial and complex. A considerable body of opinion suggests that it is incoherent that we can have a duty toward any person not in being, or alternatively, that such a person can be said to "hold" (at most, "will hold") a right against us.[8] It does, indeed, seem to deform the ordinary concept of "right" to suppose that rights (that we not store nuclear waste in vulnerable deposit sites, for example) will spring into the hands of those who will live in the year 2200, long after the possibility of a remedy against us, the violators, has been mooted by our deaths.[9]

One rejoinder is that rights and duties are not the only fabric of which a morality can be woven. Whether or not a starving person in Somalia has a *right* that I aid her, and whether or not I have a *duty* to aid, the state of affairs in which she is aided by me is surely morally superior to the state in which I do not aid her. The Proposal well-advisedly speaks not in terms of our posterity's rights, but of our *responsibilities*, which are typically viewed to run wider, and be less inflexible and imperative, than rights and duties.[10] Those advocating a Guardianship for Future Generations can thus locate a moral grounding for their position without miring in some of the most daunting conundrums that the future generations literature debates.

Indeed, let me go a step further. It is quite possible for the Proposal to go forward entirely independent of the moral status of future persons. That is, whether or not posterity possesses moral rights against us, and whether or not we have moral responsibilities toward them, the establishment within the international legal system of a Future Persons Guardian can be defended without ranging beyond the welfare of those presently living. Specifically, imagine that most living people will regard ensuring the well-being of future persons as a positive public good (in their own welfare functions). Put otherwise, just as people get benefit from assurances that their homes will not be robbed, so they get benefit from assurances that their descendants will be provided for. In the first instance, because we are happier if public safety is provided, through collective action we establish guardians called police officers; in the second, being happier contemplating a snug posterity, we designate a guardian to speak for them.

Now, this is not to overlook that special moral pleadings in regard to posterity, e.g., an argument that the unborn hold (will hold) rights, or that we have strong

duties toward them, will strengthen the argument for establishing a Future Generations Guardian, and will be available to expand the powers with which the Guardian ought to be invested. The point is merely that the Guardianship notion need not stand or fall on—or be postponed until resolution of—the most perplexing philosophical objections to rights of the unborn.

(4) Which "Future Generation" Is the Guardian's Principal?

Even if we adopt (from consideration of our own interests or of theirs) the Proposal's aim to safeguard future generations directly, and other things—species of animals, cultural artifacts, etc.—only indirectly, ambiguities remain. Most of the discussions that invoke "future generations" use the term loosely and not with much consistency. Sometimes it is used to refer to the members of successive, roughly overlapping "waves" of populations twenty-five or thirty years apart; sometimes, to what we might call "remote generations"—people who will not come into existence for hundreds of years. One virtue of a dialogue focused on institutionalizing a Guardian for Future Generations is that it compels us to undertake a more precise identification of whose interests, exactly, are to be protected.

To begin with—the point is obvious, but bears underscoring—we ordinarily imagine individuals, rather than generations, as foci of our deliberations. Welfare, rights, duties, etc., pertain, in ordinary nonmetaphorical parlance, to persons. What we call "generations" are constructed of lives that are continuously overlapping. People die and others are born to replace them. It may be possible to give the term "generation" a special independent status, not reducible to expressions about individuals. But even so, a number of questions would remain about which future generation we were talking about.

To illustrate, consider one credible climate change scenario which (rightly or not) has it that relatively unconstrained use of carbon and other greenhouse gases will, on net, benefit humankind for the next several generations. Our near descendants will gain more in economic growth than they will lose in environmental period. But at some more remote period—after two hundred years, say—the accumulated congestion will trigger a host of nonlinear positive feedback mechanisms with dire consequences for populations then living.

Where such conflicts among future generations are possible—our near descendants pitted against our remote ones—which should the Guardian consider his principal?

(5) Who Should Serve as Guardian?

The Proposal contemplates appointment of ". . . an eminent person, without known prejudices, and having practical wisdom, integrity, moderation and humility, with an ability to feel the pain and share the joy of people who will live at a great distance from us in time."[11]

Obviously there is a problem of obtaining international concordance on which candidate best (or simply suitably) displays these agreeable qualities. And there

is the obvious question whether a single individual, rather than an agency or series of agencies (described later) would be better suited to the task. But we also might ask which would be more desirable, specific expertise or the wider vision of each epoch's generalists. The answer turns on the anticipated functions we expect the guardianship to provide.

If the function is simply to speak for the *general* welfare of future persons, the opinions of a generalist are not inappropriate. Such a person, in authority, might aim to moderate present-future wealth imbalances through economic and fiscal measures, such as tempering the effective social rate of discount.[12] But if the function were to be more specific, such as selecting techniques for long-term storage of nuclear waste, highly technical, area-specific questions are raised. One would accordingly desire more specific scientific expertise. To illustrate, my own analogous proposals, favoring a number of distinct Guardians for distinct objects (the tropical rain forests, oceans, whales, etc.), place heavier reliance on scientific expertise inasmuch as each "object" requires distinct bodies of knowledge. In the case of the oceans, one strong candidate would be the U.N. Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP), with lawyer staffing. Such recognized institutional bodies have several advantages. They concentrate and mobilize knowledge; their opinions are therefore authoritative, and readily enjoy a credit that may be denied the speculations of a well-respected generalist. Considering the concern over the long-term effects on human life of specific assets and activities, future persons might wish that those who spoke for them had more than practical wisdom and humility.

(6) Where Should a Guardian Be Situated?

The Proposal appears to contemplate a Guardian housed within the United Nations. But there are other options for where a Guardian might be housed. The United Nations provides a prestigious base of operations. Both for reasons of acquiring immediate authority and for symbolic reasons, the United Nations would seem to be the right spot (probably for the United Nations as well as for the Guardian).

But another alternative is to house the Guardian independent of any existing institution. Such a freestanding Guardian might be an international body—that is, appointed by and responsible to nation-states. But there would be a weakness. Because the actions that the Guardian would presumably call into question are often those of nation-states, a strong argument can be made for establishing the Guardian as a nongovernmental organization (NGO), thereby providing it a freer hand to criticize and supplement official activities. The Guardian would gain in independence, but lose, probably, in influence.

And, of course, there need not be a single Guardian. One could arrange a cluster of expert but institutionally freestanding Guardians. Another alternative would be to establish a number of Guardians, each separately housed within such agencies as the central banks,[13] the World Bank, the International Atomic

Energy Agency, the Global Environmental Facility, etc. There is, indeed, much to be said for structuring Guardians into vital slots in such existing bureaucracies. Doing so would promote the Guardians' access to the flow of critical information and put them in direct contact with those who are making the decisions they will want to influence. These are strategic advantages that might outweigh the risk that "in-house" Guardians would be co-opted.

But the most important question that emerges when we put the issue this way is, what, other than a name, might a Guardian add to these institutions? The question is not rhetorical, but it is worth keeping in mind that those who run, for example, the World Bank, or the U.N. Commission on Sustainable Development, would be bewildered by the suggestion that they should "start thinking about future generations." It would be a useful exercise for the proponents of a Guardian or Guardians to review the performance of such agencies and to indicate the decisions the Guardian, had there been one somewhere on hand, would have done differently.[14]

As a practical matter, the question of Guardian location is less likely to be settled by ideal organizational theory than fortuitously, on a case-by-case basis. We are not likely to see the question of creating a single Guardian with plenary jurisdiction brought to a vote imminently. But as international law takes shape gradually, we have the more realistic prospect of providing guardianship functions through a series of incremental proposals, convention by convention, and institution by institution, as new ones are formed and reformed. Such negotiations provide the opportunity to create context-specific Guardians. To illustrate, the question of a special future Guardian might be posed initially in furthering any of the numerous conventions that already invoke "future generations" terminology, such as the 1991 Arctic Environmental Protection Strategy, that aims to "safeguard the Arctic environment for future generations . . ."[15], or in the context of establishing or reshaping an institutional arrangement, such as under the North American Free Trade Agreement (NAFTA), perhaps as an integral part of the Commission for Environmental Cooperation, or in the context of a UNEP Regional Seas Program.

(7) What Official Functions Should the Guardian Serve?

As concerns official functions, the Proposal is clear that nothing beyond "the power of advocacy" is contemplated. "His role would not be to decide but to promote enlightened decisions . . . to put forward arguments on behalf of future generations . . . at various international fora, particularly the United Nations."[16]

As an alternative, the functions of a Guardian might be further specified and expanded. For example, the Guardian might be authorized (1) to appear before the legislatures and administrative agencies of states considering actions with pronounced, long-term implications; (2) to appear as a special intervenor-counsel in a variety of bilateral and multilateral disputes, and, (3) perhaps most important, even to initiate legal and diplomatic action on the future's behalf in

appropriate situations.[17] An example is when there is a threat to a world cultural heritage, e.g., the Pyramids Plateau, and no signatory to the UNESCO Convention for the Protection of the World Cultural and Natural Heritage[18] steps forward to pursue redress. In other words, at another extreme, the Guardian might be empowered to range outside a particular agency, beyond even the U.N. system, even to the point of suing to enjoin activities that damaged the global patrimony.

And there are certainly other possible entry points for the Guardian. Hungary's justification for terminating its international obligations to Czechoslovakia to build a joint canal system included the claim that reforestation and preservation of animal species were not only of "national value," but their preservation for the *future generations* is a "moral obligation."[19] Perhaps in a dispute of this sort, destined for a hearing in the World Court, the Guardian could be available as a Master to make special findings.

Another important question involves the Guardian's power to waive rights of its ward. Suppose, for example, that a collective decision has been made that a certain species of whale is to be transmitted to posterity. Its continued existence has been made a "right" of future generations, invocable by the Guardian. It subsequently appears that that species hosts a virus, which, if not eliminated, will imperil all marine mammals. The whales must be sacrificed in order to save more of Nature. Will the Guardian be empowered, on certain conditions, to waive the right—the way in which the guardian for an infant may, in some circumstances, waive a right of the child?

(8) What Should Be the Guardian's Objectives?

Let us put aside how the Guardian is to be initiated, where he is to be housed, and so on. What is the Guardian *to aim for*? One might say that the Guardian, like any hardy advocate, is to urge the living to pass forward to future generations as much wealth, and as few risks, as he can persuade us of. But even special counsel appointed to patrol the interests of an unascertained, unborn beneficiary under a trust is constrained to appeal to certain legal guidelines. In what circumstances will a Guardian be authorized to challenge the living in the presumed interest of his unborn wards?

One might advance as the guiding principle to further equity among all persons, born and unborn, across all generations.[20] But what "equity" demands across generations is controversial even in philosophy, and thus far too open-ended to serve in law.[21] What might the Guardian turn our attention to, as more specific constraints on future-affecting activities?

(a) Resource-Regarding Standards It has been suggested that the Guardian could aim to leave future generations a fair share of the earth's *resources*.[22] If a per capita share of each conventional natural resource is meant, the proposal is simply silly. Technology (as well as demand) is continuously shifting the value and even the stock of accessible resources. Increased rates of consumption of

many nonrenewable resources has been continually more than offset by improved methods of prospecting, recycling, mining (bio-mining), etc.[23] We may be leaving—effectively—more key resources than we inherited. Moreover, in a generation or two, many of these resources that we value—such as coal and copper—may have faded into worthlessness.

(b) Utility-Regarding Standards Rather than to demand an intergenerational sharing of the earth's physical assets, it would be better to direct the Guardian to monitor *welfare* in some form. After all, whether a stock of resources is or is not a *shortage* depends on the utility the resource represents to those to whom it is available. Thus, if there is to be a Guardian training our thoughts on future persons, the better guide would be to apportion utility, or some near proxy, e.g., wealth, or basic goods, across all persons born and unborn. The implicit equity argument would be that, just as (people in) richer countries might be expected to pay more for safeguarding the atmosphere than (people in) poor countries, so rich generations would be expected to pay more than poor generations. Even more specifically, the Guardian might conceive its role as to forecast trends and to:

(a) raise average utility;
(b) equalize opportunities (according to some appropriate opportunities index);[24]
(c) disregard averages, but put a floor under basic needs.[25]

(c) Efficient Level of Harm and Harm-Avoidance Another approach would be to focus on the *effects* of our *activities*. The Guardian's assignment would not be to equalize wealth or utility among generations—he would be willing to let those fall out where they may—but to internalize (negative) externalities that we the living were otherwise shouldering off on the future persons. Analysis of intertemporal conflict between the living and the unborn would be assimilated to the familiar modeling of economic conflict between contemporaries, say, two neighboring nations that are polluting across boundaries.

The literature is replete with analyses of the policy instruments available to assure that the long-term social costs of an activity are at the right level. But some of the devices we can deploy to moderate intertemporal disputes, such as tradable emissions permits,[26] are hard to fit to the intergenerational conflict. (Present and future generations cannot "trade" as straightforwardly as can neighbors, e.g., the United States and Canada.) On the other hand, the Guardian might regard a tax as an appropriate way to temper intergenerational externalities (no doubt favoring investment of tax proceeds in long-term capital projects).

But, once more, the complications are daunting. One might well object to the Guardian's efforts to disaggregate our economy into distinct activities, selectively internalizing the negative externalities of those (such as our coal-fired plant), that cast a burden forward, and disregarding the benefits we send along with them. After all, partly because of the "savings" on pollution abatement we are

leaving richer legacies of infrastructure, libraries, technology, and so on. How can we be sure that they will not value the marginal benefits of added technology over the marginal costs of the unabated carbon?

(d) Precaution Against Selected Calamities and Safeguarding Specific Assets

As we consider lives increasingly remote from our own, it becomes difficult, not only to identify with them morally, but also even to form an opinion about what to desire for them. Considering the complications that would confront a Guardian whose province was general (to patrol resources generally, or the general level of welfare) it makes sense to focus the Guardian's mandate.

One focused role would have the Guardian restrict his efforts to assuring that future generations are not deprived of the stock of planetary goods and services requisite for an acceptable (somehow defined) human existence. As Joel Feinburg once put it, we have a moral obligation not to leave our progeny the moral equivalent of a used-up garbage heap.[27] An institutional implication is that a Guardian so charged would have to mull not merely questions of science, but genuine wisdom: what is a good life?

Another possibility is to protect the remote unborn from clear peril where the discounted cost/benefit ratios are most compelling. An illustration is the U.S. Department of Energy study examining strategies to warn our remote progeny (whose language may no more resemble ours than ours does that of the ancient Sumerians), away from highly dangerous storage sites.[28] The costs of some such simple measures may be modest; the benefits, if we only have the ingenuity and (prompted by a Guardian) conscience, great.

Alternatively, the Guardian might promote only such sacrifices as are calculated to avoid the most cataclysmic events. For example, what future generations might most like from us, is that we would have started work on an emergency defense system capable of destroying earth-bound asteroids or comets.[29] Such a project, incidentally, may illustrate the purest form of intergenerational sacrifice: some imagine that the construction and deployment of a defense system would take so long that all of the costs would be borne by, but none of the benefits accrue to, those who built it.[30]

One way to conceive the selected calamities approach is as safeguarding specific assets. We would not oblige ourselves to share all resources ratably, in the sense that we would have to turn over the same amount of cropland, or cropland per capita, as we inherited—or anything as problematical as that. But we would be constrained not to invade, and indeed, to defend, if need be, the corpus of some very critical endowments: including an atmosphere and ozone shield congenial to life, a healthy ocean ecosystem, and so on. It might be under the "and so on" that we would commit to preserve and pass along great cultural artifacts, such as the Sphinx.

Each focusing of Guardian function would help clarify institutional variables, such as staffing, and incidentally simplify the Guardian's task by restricting the number of "causes" in which he would be required to appear.

(e) Avoiding "Irreversible Harm" Merely to avoid gross, life-hobbling calamities may be too modest an objective. The Guardian might take a special stand against measures that are "irreversible" (or "irreparable"). On inspection, this concept, too, is unclear. All change is irreversible in the sense that time runs in one direction. A disturbed ecosystem does not "reverse"; it evolves in other ways than, but for our tampering, it would have.

This is not to say that all courses are practically or ethically equivalent. It only underscores that what we are disposed to label an "irreversible harm" must be some sort of change we imagine future generations will deeply regret and ought not to be permitted. But that does little to answer our original question, which considered which harms are impermissible.[31]

A helpful way to clarify the intuition that (some) irreversible changes should trigger Guardian intervention comes from the notion of *option value*. A social choice displays option value in circumstances where (1) one of the choices is impossible (or extremely costly) to undo and (2) it is reasonable to anticipate, at some future time, improvements in knowledge of the benefits and costs of the outcomes.[32]

Consider, for example, a biological "hot spot" in a rain forest. Its present value converted to farmland is $1000/acre. Its expected present value as a "library" of genetic material for medicinal and industrial purposes is only $700/acre. The highest economic use of the forest is apparently to transform it to agriculture. However, we also know that someday, as our ability to "read" the library and synthesize and exploit the forest's material improves, the forest *may* have a large benefit that present conversion to farmland will make impossible to realize. Option value is the value of not extinguishing that prospect; to put it otherwise, the facial cost of forgoing conversion ($300/acre) may be merited as a sort of "flexibility premium." We bear the costs of postponing development, to "purchase" an option to exploit the possible benefits of a biological "hot spot" if, at some later time, with the advance of knowledge and technology, substantial benefits should materialize. Of course, in any particular case, the price we pay for the option may or may not prove to have been merited. Nonetheless, this could be one of the services the Guardian would perform: to illuminate and speak for the option value of select assets.[33]

II. CONCLUSION

Just as human activities generate externalities among contemporaries through space, so they produce externalities among generations through time. Some of the intertemporal externalities are negative: nuclear waste, an imperiled ozone shield, a burgeoning population (concentrated among the poor), long-term debt, a pillaged biodiversity portfolio, expanded deserts, and a carbon-congested atmosphere. Some other externalities are certainly positive, however. We are leaving

those who follow us great libraries, monuments, infrastructure, and technology. If the past is an indication, our progeny, barring calamity, will lead on average better lives than those now living, even with some considerable increase in population. If our munificence can be expanded, I would be hard put to make a stronger case for our temporally remote progeny, who may come off quite well, than for our spatially remote, wretched contemporaries, whose wretchedness is certain.

Despite my misgivings, I join those who wish to provide a "well-insured" safeguarding of the interests of those trillions who will follow us, if we are not reckless. Yet, even then—even supposing we are inclined to lean over backwards to safeguard the future trillions from profound perils—we do not know what form their perils will take. Many contemporaries worry, on our progeny's behalf, about the risks of global warming. But we are as unlikely to foresee correctly what will be progeny's highest perils, as our forbearers would have been trying to foresee ours. (Our descendants may be more worried about global cooling, as leading Jeremiads were a few decades ago.)

In these circumstances, the best "insurance" we can write for future persons has to include, as a central element, enhancing their flexibility to deal with risks presently unforeseen. Fortuitously, this means that if we devote added resources to eliminating many of the problems that bother us—including racism, poverty, nuclear weapons, illiteracy, unrestrained population, and excessive nationalism—we will go a long way to helping them. One of the best legacies we could leave our descendants would be, aside from (but it should be said) *wealth*, a more flexible and adaptable set of economic and social institutions.[34] For example, global arrangements that could overcome barriers to the movement of commodities, people, and capital would be one "insurance" against regional crop loss and famine. An improved World Health Organization, with early-warning capabilities, would mitigate the risks of fast-moving lethal viruses.

Even as these institutional improvements are implemented, however, there will linger a residue of concerns. The fact that we have the increasing power to project long-range benefits on our descendants does not nullify our increasing power to cast an ever-lengthening shadow of risk. It is a shadow that increasingly falls across populations who have no say in the decisions that affect them—at least, no electoral voice nor bargaining power nor sword to rattle. Aside from the shield of our extended self-interest (which should not be underrated), they are at the mercy of our well-informed concern—well-informed morally and scientifically. In this context, the Maltese proposal is absolutely right, and should go forward.

But we need to remember this. Most of the perils that face the remote future—the perils of a nuclear holocaust, and so on—are also problems for the living, which the living already have some (albeit, from the future's perspective, somewhat imperfect) motivation to resolve from simple self-interest. In a way, this makes formulating a role for a Future Generations Guardian easier. It means

that the emphasis of the Guardian (or Guardians) might at least initially be concentrated on a relatively narrow range of long-term needs most apt to be overlooked politically—for example, long-fuse "time bomb" risks not calculated to marshal an effective constituency among the living.

The Guardian might also wish to emphasize development of a corpus of assets, such as well-secured waste storage sites, that no future generation will be tempted to invade. As the Proposal moves forward, it may be useful to keep this relatively modest and manageable model in mind. Building on the idea would be time well spent. Not the less so, because our progeny will never be able to thank us for it.

6. REFLECTIONS ON "SUSTAINABLE DEVELOPMENT"[1]

"Sustainable development" is being put forward as a central aspiration in international law and diplomacy. With increasing frequency it is invoked in speeches and declarations, and enshrined in international agreements. The 1992 Earth Summit at Rio gave birth to a new U.N. Commission on Sustainable Development. Yet, for all the tribute, the meaning remains unsettled.

The 1987 Brundtland Report, *Our Common Future*,[2] which thrust the term "sustainable development" into prominence, defined the goals along an axis of intergenerational equity: "Sustainable development is development which meets the needs of the present without compromising the ability of future generations to meet their own needs."[3] The language intended to give voice to the unborn. But almost immediately a tension emerged over the correct interpretation, or emphasis, that was to be given the term, one that pitted the Poor (South) countries against the Rich (North) countries.

In general, the diplomacy of the Rich, if not always their actions,[4] puts more emphasis on the long term, such as sustaining the global-life support system: the ozone layer, atmosphere, biodiversity, and ocean environment. They (particularly North-led nongovernmental organizations [NGOs]) also stress preservation of environmental amenities such as endangered species, wild lands, and unsullied polar regions.

The Poor, for their part, can only wish they had the luxury to fret over menaces half a century off, and beyond. Their national priorities are typically on local and immediate challenges such as eradicating poverty, reducing illiteracy, and building infrastructure. Accordingly, the environment, when it does enter policy equations, is more apt to enter as part of the near-term economic worries—as a factor in improving health and productivity. Hence, insofar as the Poor's agenda is environmental, it tends to emphasize such problems as dirty water and desertification. Preserving forests appears less attractive than converting them to grazing land and ready cash.

I have no doubt that, in the tug-of-war over the meaning of the term, the Poor have been prevailing. At the 1995 World Summit for Social Development, for example, developing country negotiators insisted on recognizing "sustained economic growth" as on a par with "sustainable development."[5] In 2000, the U.N. General Assembly adopted eight Millennium Development Goals (MDGs), all of which emphasize poverty eradication, education, child mortality, and so on, without the least reference to sustainability of the environment. Was the concept being altered, or merely clarified? In this chapter I want to identify some

of the conflicts and confusion that the term may artfully or unwittingly suppress, which may account, in part, for its modest impact as a guide.

I. THE UNDERLYING GEOPOLITICAL STRAINS

The rhetoric between Rich and Poor is heated and not always consistent. The Rich, having savaged their own flora and fauna in the course of growing rich, now appear to be lecturing the Poor against traveling the same economically rewarding path. The Poor scoff that, as regards the global-scale problems which the North stresses, there is only the North, with its opulent lifestyles, to blame. After all, the inhabitants of the developed countries, who make up about 23 percent of the global population, consume about 80 percent of the world's papers, metals, and energy.[6] In the Poor's eyes, it is the North that is not developing sustainably.

From this one might imagine that the South would be clamoring for the North to consume *less*, perhaps even that "sustainable development" is an endorsement of zero-growth coupled with redistribution. But there is no such unified message coming out of the South. The states that produce the raw materials—the copper and oil—are less agreed that we reduce our profligacy, as that we pay a higher price for it.[7] At Rio, let us remember, the offensive against deforestation came from the timber-devouring North and was resisted by the South.

Not all the conflicts between (roughly) development and preservation are insoluble.

For example, everyone, I trust, agrees on the need for improved environmental accounting such as the United Nations has recommended, which debits resource consumption against conventional indices of national productivity. In some countries such an accounting will illuminate an imbalance that is grave in all eyes.[8] Measures can be taken to arrest further deterioration. For example, we know from sad experience that massive water projects can be a setback for local economies at the same time that they are devastating the environment.[9] Both sides can profitably ally in rejecting the worst of such lose-lose proposals.

And there are win-win opportunities to be identified. For example, carefully managed game preserves, with incentives properly structured for local peoples, promise to draw a steady stream of tourists and hunters to underwrite the conservation of otherwise endangered game animals for the benefit both of impoverished local peoples and of posterity.

No doubt, we should be on the alert to identify and capitalize on such win-win opportunities. But many problems are not really win-win: the conflicts of interest are real and hard to adjust with side-payments. Having a realizable policy option that is best for everyone—optimal to the wealthy countries, the poor

countries, and our remote descendants—is one we will not often have. To prioritize in these cases of conflict, we are forced to examine the normative choices more closely.

II. WHAT ARE OUR OBLIGATIONS TO THE FUTURE?

The argument that the unborn are "voiceless" is not self-evidently true. The interests of the unborn work their way into the calculations of contemporaries in several ways. For one, if markets are working well, the future value of natural resources (through their projected scarcity) manifests itself in present prices: it is false to suppose that present generations will deplete their stock with no accounting for their value to the unborn.[10] Markets aside, even in voting behavior, the welfare of future persons is not outside any current generation's thinking. Each of us, during our own lifetimes, is presumably concerned for how our children's future will unfold after our deaths, and concern for our children's well-being incorporates their concern for the welfare of their children, and so on. To look at it from another angle, each generation knows that to savage the environment is to erode the value of its own estates. These factors have been said (a trifle optimistically) to introduce an "infinite horizon" in our thinking without entering the morass of issues that stem from endowing nonexisting persons with moral claims against us.

Let us adopt, however, the stance of the considerable body of environmental literature which does assume (1) that we have obligations to future generations, and (2) that our fulfilling those obligations consists in leaving certain natural resources (and perhaps icons of world culture) as our legacy to succeeding generations.[11] This is not quite right. Even if we accept (1), that we have future-regarding obligations, it is not clear that they are to be measured in a legacy of natural resources, rather than one simply of wealth.

To begin with, natural resources are only one form of capital stock—only one of several bases of human well-being. It is not at all clear that a future-regarding policy, if it is to privilege any form of capital at all, should reflexively privilege natural resources, such as coal, forests, and fish, over the others, such as:

- manmade capital, including the Internet, railroads, roadways, and so on;
- human capital, including accumulated education and skills;
- institutional capital, including safeguards for public order and liberty.

No one (certainly not I) is arguing that we should carelessly continue to run roughshod over nature. But a commitment to the future cannot disregard the fact that advances in well-being have rested on a continuous conversion of the natural resource base into the other forms of capital: cutting forests and damming rivers to build schools and power factories. This raises the question how

far sustainable development, in its environment-conserving mood, aims to retard this historical path.

To analyze, it is useful to distinguish two claims. The first is a duty to leave future generations no less than a certain general level of welfare; the second, a duty to leave them a legacy that includes certain specific assets—global heirlooms—even if the opportunity and maintenance costs of preserving and endowing them reduces the wealth not only of ourselves, but of the unborn "them." The first position (sometimes labeled "weak sustainability") is welfarist; the second, ("strong sustainability"), preservationist.[12] By analogy to familiar legal models, the first approach places the living in the position, roughly, of trustees managing a portfolio of assets for unborn beneficiaries. Each generation is charged with husbanding the value of the portfolio, but can, and is expected to, sell and reinvest proceeds from various holdings as conditions change and prudence dictates. (If the value of GM stocks is slipping, we expect the trustees to sell GM and reinvest in, say, treasuries.) The second approach views the living as enjoying, roughly, a life estate in certain property; we were "left" the Grand Canyon for life, then to our heirs, in perpetuity. Our obligations are to pass along—not to "waste," alter, or convert the favored asset, even if doing so, and reinvesting the proceeds, would produce a more bountiful per capita wealth.

Let us examine the options more closely.

(1) Sustainable Development as a Welfare-Transfer Constraint

Welfarist arguments define our obligations to the future in terms of some proxy for the unborn's general welfare. There are several variants. Ernest Phelps's "golden rule of capital accumulation" would have each generation leave to its successor as much capital (per effective labor unit) as it received from its predecessor.[13] John Rawls invokes a "just savings principle," which, while derived and calculated in a more complex manner,[14] produces much the same constraint termed as "a fair equivalent in real capital." Other versions would oblige each generation to retain and pass along equivalent "productive capacity," to live off the earth's "earnings" without invading its "capital," or to maintain "a standard of living at least as good as our own,"[15] or to equalize opportunities.

The wisdom in privileging wealth over specific assets has a strong historical appeal. Assets highly prized in one epoch (frankincense, whale oil, myrrh) are subject to devaluation as tastes and needs and substitutes evolve. We might curtail our consumption of copper, for *their* sakes, only to have the population of 2100 find that they had little use for it. Indeed, they might well wish we had run through it more quickly and productively, amassing that much more (general) capital to deposit in their legacy of wealth.

Then, too, the fragility of many specific assets will often strengthen the case for slanting a legacy toward wealth. A forest "tagged" for a privileged existence may, despite our best efforts, be ravaged by fire or flood or blight. On the other

hand, by disinvesting in the forest, the wealth produced can be reinvested into various forms of manmade capital.

Whichever of the wealth-oriented formulae is adopted, the point, under this view, is to impose no constraints as to the identity of the assets to be passed along, only as to some minimum level of capital. Each generation is free to pillage natural resource capital such as coal and trees, as long as it substitutes enough capital in other forms (technology, infrastructure, social institutions, education, and so on) so that the succeeding generation can maintain the requisite floor level of well-being.[16]

It is worth observing that, if history provides a good guide, such a limitation appears too unrestrictive to merit much controversy. Between 1000 and 1820 real income per head increased 50 percent. Between 1820 and 1998, a period in which world population increased six-fold, global gross domestic product (GDP) increased forty-nine-fold.[17] Against the background of this historical velocity, and assuming a declining utility of wealth, one might presume to shift attention away from the remote poor and toward the contemporary poor, save for the intergenerational shifting of some cataclysmic risks.

Also in favor of such wealth-transferring constraints, we have no clear idea what problems the future will face, as they will define them. For example, it is common to worry on their behalf about global warming. But their prime worry may be global cooling—or an AIDS-like virus or asteroids. A general policy of building wealth, and aiding the present through transfers, finds support in the fact that the best way to prepare the future for these unforeseen challenges is to give them the flexibility of wealth—in other words, to pursue a course of development that does not sacrifice the amount of wealth transferred on account of self-imposed, well-intentioned but quite possibly misguided limitations on the form of the wealth conveyed.

Matters are barely clarified if we shift from a discourse of wealth and utility to that of "rights." Even if we can conceive of not-yet-existent persons bearing "rights" against us (rather than to speak of our nonreciprocal duties, or of what is best on the whole), we still have to determine *how much* and to *what* has the future a right? How are we to reconcile conflicting claims of unfulfilled rights by others, in particular, the contemporary needy?

To illustrate, imagine that in some generation, highly improbable circumstances have caused a deep setback in the global economy. The generation in which this occurs finds itself unable to transfer to the next succeeding generations the wealth base that it inherited. It anticipates a shortfall. But the then-living face not only the claims of the yet unborn; they will also face the claims ("rights") of their own least well off. Suppose that to resolve the conflicts the wealthier nations establish a Beneficence Commission (BC). In essence, the BC is funded with a fixed endowment—say, $100 billion—and told to consider two classes of beneficiaries: strangers in space (Spatial Strangers, or SSs) and strangers in time (Temporal Strangers, or TSs). In disbursing the $100 billion on

behalf of these two groups it is to do "the (morally) best it can." All strangers, present and future, are to be regarded as inherently worthy of equal respect; and in making the distributions, the donors' own self (and national) interests are not to be considered a factor.

My sense is the commissioners would do well, in a "rights" standoff, to prioritize their contemporaries.

First, if, in the hypothetical economic setback, their least well off are as destitute as our own—millions dying annually of dirty water, dirty air, and malaria—they might fairly conclude that even if the most wretched of the future are equally bad off, they cannot be worse off than contemporary needy, or they would be dead. Therefore, they should give to the living, at least to the point where the least well off have been relieved.

Moreover, because wealth on earth, even per capita, has been increasing with time, they might presume that the downturn they are experiencing is a "correction" that precedes a strong recovery. In all likelihood, the utility level of any lowest group that follows them (say the bottom 5 percent) is not likely to be lower than that of the lowest 5 percent of their contemporaries. In addition, assuming marginal utility of wealth, each dollar distributed to a poor person represents more utility than the same dollar placed in the hands of a richer recipient. Hence, the BC should distribute to the living.

Other arguments for favoring contemporary over future needy derive from practical considerations. Any generation (take our own) will *know* with a certainty that their needy are needy; as regards any future, there is only some risk less than certainty. Then, too, we simply have less ability to *monitor and control* dispositions to the temporally distant than we do to spatially remote strangers. True, we have a hard time delivering relief to contemporary nations in civil turmoil, such as Somalia. Our would-be deliveries of aid are often intercepted and exploited by war lords. But just imagine the problems some future BC would have trying to assure delivery to the wretched of 2200. They could set up an escrow, with instructions to compound the interest, etc., and to distribute it in 2200 among those who fall below the designated level. But they can have no confidence that the intended beneficiaries will receive it, particularly in view of the fact that they can have no confidence that the leaders of 2200 will share their taste for succoring the wretched. They may be, if not thieves, elitists. In sum, no generation can be assured that if it honors its obligation to pass along the required real investment, a succeeding, more profligate, and dishonorable successor generation will not run through the legacy before it reaches the third.[18]

Moreover, if the BC concludes that some share of our beneficence is available and should go to the wretched among the unborn, transferring funds to Spatial Strangers may be the best way to benefit the future. The reason is that the most likely group of ill-off in the near term are the progeny of the neediest SSs. Hence, any transfers of wealth to them that are not expended in immediate consumption will be a good way to boost investment in the infrastructure and in doing so advance the well-being of the future neediest.[19]

It seems therefore (1) that our obligations to the future are ordinarily best discharged in whatever mix of capital assets will be found most valuable to our descendant, rather than in kind; and (2) that if some distant generation finds itself in an unforeseen pinch, in which the legacy for the future is destined to fall beneath the wealth-transfer constraint,[20] we would be well advised to give priority to destitute strangers in space over those who may (but may not) be destitute in time.

(2) Sustainable Development as Preservationism

The case for a wealth constraint—for weak sustainability—is strong. The more trying position is its rival: under what circumstances is there a basis to privilege certain assets (or other descriptors) by "tagging" them for specially prolonged existence, even where reinvestment would be tantamount to a sacrifice in the amount of the wealth transferred?

Many have argued for preserving such assets as are critical to life support. Those claims are valid—assuming that such factors are within our power literally to *destroy*—but not really relevant to what we are after here. Such awesome and awful acts would already be barred under weak sustainability (as described earlier), without recourse to any special preservationist qualification. That is, we could not intelligibly claim to a future person, "We have left you an environment that is *unlivable*, but we're leaving you better off—wealthier—than we were."[21] Closer to the mark would be leaving them a dystopia in which human life *can* survive, but has been so savaged that all of human activity is concentrated on environmental threats and deficits, in conditions of incessant warfare. Humans could *live* in such conditions, but with all its attention monopolized by the exigencies of survival, humankind could not *flourish*. Certainly we could not claim them to be compensated whatever their inheritance of roads and Rembrandts and robust troves of gold, literature, and know-how.

The realistic debate concerns features of the world less crucial than life-support variables, such as iconic species, a certain amount of wilderness, and biodiversity. Robert Solow, for example, while emphasizing a substitution-permitting welfare constraint (equivalent "productive capacity") would nonetheless insist on the preservation of "certain unique and irreplaceable assets," offering as illustrations Yosemite National Park and the Lincoln Memorial.[22] But he offers these illustrations intuitively: can we extract from the intuition any helpful guidelines?

To begin with, there are, as Solow says, uniqueness and irreplaceability to consider. But these two conditions, if necessary, are not sufficient to conclude that something should be preserved. (Consider the smallpox virus.) We need to consider both the value to the recipients of the item being evaluated and the costs to the preserving generations of preserving it.

In predicting the value future persons will attach to an environmental legacy, under-estimation is at least as much of a trap as over-estimation. The benefit we attach to most of the goods in question are underpriced (or are not priced at all)

by markets. Species, for example, are not bought and sold. Thus, their social value has to be constructed from various crude sampling techniques. ("How much would you be willing to contribute to save penguins?") But consider how much more difficult it is to construct the value future persons will attach to these things. Will they opt to pass their time playing video games with their robots, and consider us fusty for having preferred a walk through an actual (not a virtual) woods? This is just one illustration of the many ways in which the utility they will derive is so highly dependent on the state of the world they will find themselves in—the social and environmental context in which the woods, whales, and so on are situated. These contextual factors are simply beyond our ken.

There are, however, several reasons to believe future generations might attach a higher price to some of these assets than we do. For one, there is a suggestion that as societies have grown wealthier, they have become willing to pay more to improve environmental quality.[23] A certain level of income having been attained, attention turns to the environment. In this vein, it is quite possible that future generations will have so much basic wealth relative to our own, that they would gladly pay us—had they the choice—huge sums to preserve wildlife and wilderness areas.[24]

We should remember, too, that the "price" of an environmental amenity is apt to increase, not only with per capita income, but with a diminution it its supply and with conceivable advancements in technology. Think of the exotic life that has been discovered flourishing in "hot spots" on the ocean floor. The genetic distance between life around these hydrothermal vents and terrestrial life is so great, that the preserved vent area may host compounds of enormous option value to the future. Indeed, foreseeable technology of underwater touring is likely to increase geometrically the demand for a clean and vibrant ocean from floor to surface.

Moreover, we should not overestimate the other side of the ledger: the costs that are involved in preserving many of the assets. It is true that the costs of, say, preserving the carbon dioxide congestion of the atmosphere at its present level (385 parts per million) are not inconsiderable. But most of the items on the preservationist agenda involve relatively trivial expenditures. Protecting whales and wolves are not big-budget items. Saving them is as much a matter of political will and imagination as of foregone economic opportunities.

In the main, the preservationist's agenda self-imposes low costs, and potentially disproportionate pay-offs to our descendants. Moreover, preservationists may be able to augment their arguments from utility based on the weight of the potentially countless numbers of yet-to-be-born, but likely, beneficiaries. To illustrate, each person on earth may get only slight utility from the continued existence of whales—either through the thought of their existence or through whale-watching. A mass slaughter of whales would feed many people (either directly or as feedstock and fertilizer). Let us imagine that the utility of the

additional meals would dominate the disutility of contemporary whale-lovers. But the preservationist can point out that if humankind can maintain the whale stocks (or the Sphinx) for an additional thousand years, the aggregate satisfaction of all the generations that will enjoy their existence might well outweigh the considerable present suffering of the underfed.[25] That sort of reasoning undoubtedly underlies the World Heritage Convention, which is designed to foster the intergenerational transfer of major environmental and cultural assets.

(3) The Rights of the Living

I think we can come at the issue of preservationism from another angle, one that skirts the difficulties of deciding what *they* shall want: from the perspective of our rights, not theirs. Each generation might maintain that, with respect to these heirloom assets, it is entitled to preserve and endow them (with hortatory admonition not to convert), even if the contrary, convert-and-invest policy would leave their successors (as they would have it) "better off."

Such a position smacks of what lawyers have debated for years under the heading of "Dead Hand Control": Ought we to honor wills that attempt to restrict the control of descendants in perpetuity, such as "I leave my Vermont house to my daughter Mary and the issue of her body forever." This is a form of devise disfavored and, in Anglo-American law, ordinarily disallowed by the rule against perpetuities.[26] Should we react otherwise when the perpetuity in issue arises in what might be called generational estate planning?

The contexts can be distinguished. If an entire generation singles out certain species or statues or forests to leave its progeny, there is no way to assure that *their* institutions will honor the restriction as much as courts can be counted on to honor restrictions in, say, charitable trusts. The most we can do is to furnish some of our progeny with a portfolio of options and a recommendation (in law a "hortatory," nonbinding request that the "wish" be carried out. No future person is forced to go to a rain forest or pyramid. And of course collectively they are free (within the limits of our taste-control over them) to liquidate whatever we leave them.

The argument that we have a morally justifiable prerogative to shape the lives of our descendants might start with the endogenicity of tastes. The value persons remote in time place on the existence of marine mammals and tropical birds is not a *given*, but will be a function of the legacy we decide to leave them, which constitutes part of what they shall *know*. I personally would regard the eradication of whales and parrots as a terrible loss for my remote progeny. On the other hand, one must grant that if we (to put it again this ugly way) accelerate our disinvestment in these natural biological resources and reinvest in accelerating advances in electronics, our progeny will have, if fewer wild creatures, more electronic stimulation. We have to face the fact they may be as "happy" with their enhanced electronic stimulation as they would be with the wildlife. But the reverse preference—their preference for wildlife—is also more likely, too, the

more robust their legacy of "natural" options. Hence, we can never simply defer to conjectures of their preferences. We have an inescapable responsibility to decide (within some range) what those preferences will be, i.e., what sort of people they will be. The fact that our actual influence is, from a practical standpoint, limited, may be viewed as further support for our liberty to nudge civilization along the track we like—-at least absent a strong counterargument, as that certain moves leave them in peril.

But peril is not the issue under this heading. Preservationism calls upon us to perpetuate the continued existence and appreciation of many of those things that are constitutive of human identification and flourishing. They are among the "keepsakes" that connect each generation to, and constructs of us all, a true family of Humankind.

7. HOW TO HEAL THE PLANET[1]

I. INTRODUCTION

Across the world, the environment is in peril. Forests are being stripped, stressed and burned. Natural habitats are vanishing. Deserts are advancing. Croplands suffer from water logging in some regions, overgrazing, and salinization in others. The atmosphere and ozone shield are under assault. The oceans are being loaded with pollutants and swept of marine life. We are sullying the polar regions, perturbing the climate, and eradicating species.

All these alarms, and more, have been widely sounded. There is no reason to belabor them. What we need now are answers. I have two proposals to put forward: a system of Global Guardianships, and a Global Commons Trust Fund. They alone will not *solve* our complex environmental predicaments;[2] but together they would constitute a major stride forward, a foundation for an appreciable "greening" of international law.

To understand these proposals, a good start is to mark the distinction in outlook between the scientist, on the one hand, and the international lawyer and statesperson, on the other. Scientists—at least, geophysicists, geochemists, and the like—have the luxury of contemplating the planet from the grand panorama of astronauts. From that remove, national boundaries fade and the mind can be struck by the marvelous wholeness of the Earth and the interconnectedness of the globe-spanning phenomena that sustain its tenants: the one great swirling envelope of atmospheric gases, the great body of ocean, and the broad globe-spanning belts of weather and vegetation.

International lawyers and statespersons operate from a more cramped and mundane vista. Ours is an inherited world in which all that grand unity has been disrupted into political territories. We all know that most of these penciled borders have little to do with the great natural processes that the scientist is drawn to, that they fluctuate, that they are often the legacies of chance, intrigue, vanity, avarice, and military battles that could have gone either way. But for all their caprice and impermanence, the boundaries that mark the diplomats' world, hardened, as they commonly are, by pronounced cultural, religious, and socio-economic differences, are no less to be reckoned with than carbon.

Broadly speaking, the diplomat's maps (the foundation for received international law) divide the world into two sorts of regions: those that fall under *territorial sovereignty*, and those that lie outside the political reach of any nation state, the *global commons*.

In this view of things, the territorial sovereignty each nation enjoys is co-extensive with its geographic boundaries, extends upwards through its air

traffic space, and, in the case of the many nations with coastal borders, extends across an Exclusive Economic Zone (EEZ) running two hundred nautical miles seaward.

The *global commons* refers to those portions of the planet and its surrounding space that lie above and beyond the recognized territorial claims of any nation. That includes the atmosphere, outer space, and the high seas, together with the potentially valuable sea beds and subsurfaces that have yet to be "enclosed" by any coastal state as part of its territorial extension. On some accounts, much the same commons status does or should apply to the resource-rich Antarctic, which comprises 10 percent of the planet's land mass, and whose ownership is currently in limbo.

Viewed within the constraints of traditional international law, this two-fold division into national territories and commons areas has crucial significant for all efforts to defend the environment. Within its sovereign territory, a nation can (by and large, and absent its consent through some international treaty) do whatever it wants. Each nation, and it exclusively, has the right to pull up its forests, bulldoze habitats, wipe out species, fish, farm, and mine—without having to answer to any "outside" authority for the repercussions on its own environment.[3]

If the "outside" world wishes to influence some country's internal behavior—to constrain deforestation, for example—its recourse is limited. International organizations can try to persuade a developing country's leaders of the long-term benefits of a scale and pace of development that is environmentally benign. Funding sources, preeminently the World Bank, can withhold support from massive projects that are environmentally disruptive. Wildlife groups have been known simply to pay a country to set aside an exotic habitat as a wildlife reserve, often arranging so-called "debt-for-Nature swaps." But as long as a nation is chewing up only its own insides, it is not, in the eyes of international law, doing anything it can be sued over. It is true there are *declarations* that all the environment, including internal environments, are to be valued;[4] but they are consistently undermined by conflicting declarations that a nation's use of its own resources is a matter of sovereign prerogative.[5] The standoff could be resolved in a "green" direction: that is, conceivably, grave insults to internal environments could someday come to be considered a sort of "ecocide," and, likened to human rights violations, made a violation of international law. But such a development does not appear imminent. In the meantime, "outside" influence is constrained to such tactics as bargaining, loan conditions, and perhaps trade pressures. And as we know all too well—desertification and deforestation continue—thus far neither these tactics nor any others have been able to arrest the degradation of internal environments.

As frustrating as one finds it to affect the "internal" scenarios, the situation in the commons areas is in many regards even worse. All the nations of the world are faced with deterioration of their internal environments, so that resources

required for cleaning up the commons have to compete for resources required to clean up at home. This is a competition in which the domestic demands have a clear advantage. When a country's interior deteriorates—as urban areas become smoggy, or fish die in lakes—there is at least a political constituency of directly aggrieved voters to focus pressure on whichever government, state, federal, or local, can provide relief. By contrast, when we turn to the commons, the areas lack, by definition, their own "citizens" to complain, and, in all events, those who do have complaints cannot locate an authority with competence to complain to.

However, the plight of the commons reflects more than the jurisdictional vacuum. Important economic and bargaining considerations reinforce the inclination to give the commons short shrift. When a nation turns its attentions inward, it can select the most pressing problem on its own political agenda, be it water quality or soil treatment. And because a nation has full control over its domestic programs, it can arrange to fund only those projects for which it receives at least a dollar benefit for each dollar it spends. But suppose we ask the same nation to invest a million dollars in mending the commons—to restrict carbon emissions, for example, and thereby reduce the risks of climate change. In expenditures to clean up the commons it stands to capture *some fraction* of the benefits (the reduced risks of climate change). But most of the benefit will be diffused among all 180 or so members of the world community, some of whom will fail to shoulder their proportionate share of the burden.

One can put the point in familiar public finance terms: the maintenance of the commons is a public good, and efforts to provide for the public good are notoriously dogged by the maneuvers of those who wish to "free ride" on those who contribute. Of course, domestic governments face the same problem when they undertake any public finance project: parks, police, and so on. The problem is that combating strategic behavior and securing cooperation in the international arena is considerably more difficult than overcoming the analogous obstacles in domestic contexts. In domestic democratic societies subject to majority rule, dissenters—potential free-riders—can be simply forced to pay their share by law. But in the international community, a corollary of sovereignty is that no nation can be forced into any agreement to which it does not assent: in essence, unanimity, not majority, is the collective choice rule. As a consequence, every country is leery of getting drawn into a fragile multilateral agreement in which it may find itself under pressure to pay out a larger share of the costs than its benefits warrant. (This is one basis for the United States' reluctance to put teeth into a climate change convention.) Each nation may incline to mend its own local disorders even when it would make more sense, overall (if cooperation could be ensured), for all the nations of the world to turn their joint attention to more ominous problems they face in common.

This "no man's land" feature of the commons has important implications for the design of institutional remedies. The fact that the degraded area lies outside

anyone's exclusive jurisdiction presents impediments to *monitoring* deterioration, and even more serious obstacles to securing legal and diplomatic *relief*.

(1) Invasion of Territories

Speaking realistically, international law does not enter the picture until something a nation does—releasing a radioactive cloud, for example—sweeps across its boundaries and damages a neighboring country. In those circumstances it is generally agreed—at least it is universally verbalized—that the injured neighbor has grounds for diplomatic and legal remedies. In the 1940s the United States successfully sued Canada over sulfur fumes from a Canadian lead smelter that were wafting across the boundary into the state of Washington.[6] The United States once even acquiesced to a Mexican diplomatic demand that we eliminate offensive transboundary odors that were blowing south from a U.S. stockyard.[7] Such results in the transboundary context are frankly rare; but relief is at least a theoretical option that would-be polluters have to consider in the design of factories, etc.

When, however, fumes blow across a frontier, not into a neighboring nation, but up into the commons region of higher atmosphere, or out across the sea, however many soft declarations may denounce it,[8] resort to law becomes appreciably more problematic. In a typical nation-to-nation transboundary conflict, such as the United States–Canada case referred to, one can assume there are officials of the injured state on hand at the site of the harm to inspect the damage and determine where it is coming from. In that dispute, the fumes could be characterized as an "invasion" (however modest) of U.S. sovereignty, the sort of thing international law has customarily sought to mend.

By contrast, when the open sea or the atmosphere is degraded, who is on hand to keep watch? Are significant loadings of heavy metals working their way into the deep seas and seabed? If so, are the levels dangerous—are they insinuating their way into the food cycle?—and who is responsible for cleaning them up? To answer these questions, even to gather the relevant facts in a scientifically and internationally credible way, goes beyond any single nation's ordinary motivation and competence; it practically necessitates a multinational coordinated effort.

Even then, if the appropriate institution could be established, and the monitors could identify substantial and worrisome changes in the environment and pin down their source, there would remain judicial obstacles of legal interest and standing. If someone should come onto your yard and steal your pet turtle from your pond, you would have a suit because it would be a trespass and injury to your property. But if some nation's fleet of fishing vessels, sweeping the high seas with nets, obliterates scores of rare sea turtles or dolphins, customary international law (that is, international law as it stands absent some specially tailored treaty) is unlikely to grant a remedy to any nation that objects.[9] Who can prove that the destroyed creature would have been captured by the objecting nation?

On the high seas, because the turtles are no one's, it is unclear that anyone has the legal interest the law requires to complain. Besides, what is the market value (the law would want to know) of turtles and dolphins and such? Where was the legal damage?

(2) Who Is Responsible?

One should understand that the liberty of each state to impair the commons is not a positive principle that is anywhere proudly declared. There are in fact any number of lofty declarations of international conferences and commentators which solemnly (although usually with double-speak qualifications) renounce abuse of the commons areas. There are even scraps of legal doctrine from which a suit to protect the commons areas might be constructed. Some government could argue that a country responsible for a massive injury to the commons had committed a wrong *erga omnes* (crime against the community of nations), a notion historically invoked to legitimate the power of any nation to punish piracies on the high seas. But the fact is, aside perhaps from the special case where the complaining nation was able to show that the wrongdoer violated an express agreement (such as a treaty), no claim arising out of commons despoliation has yet to be pressed, and the prospects of such a suit would have to be regarded at present as rather doubtful.[10]

Thus, whatever lip service environmental diplomats will pay the commons areas at great earth summits, nations still find it expedient to let vast proportions of their pollutants simply blow away into the global atmosphere or run off untreated into the open sea. Each year, humankind pumps into the atmosphere over eight billion tons of carbon, together with hundreds of millions of tons of nitrogen oxides, sulfur dioxide, particulate, and other such airborne junk. Into the oceans, their marine life already pillaged by modern fishing technology, go hundreds of millions of tons of sewage, dredge spoils, agricultural runoff, and industrial wastes. To this we add millions of tons of marine litter—no longer your ordinary biodegradable garbage, either. Each year, tens of thousands or marine mammals, turtles, and seabirds die from entanglement with or ingestion of plastics and abandoned fishing gear ("ghost nets"), some of which will not disintegrate for centuries.

Some of the stuff that has been dumped is even worse. Sitting on the seabed right now are hundreds of thousands of tons of World War II munitions, including unfired chemical weapons,[11] to which we have more recently added untold canisters of nuclear waste that were deposited in the sea for "safe storage," and are already showing signs of fatigue.[12] An ex-Soviet recently admitted that for nearly thirty years the Soviet military had been jettisoning its nuclear wastes (including thousands of canisters, twelve old reactors, and one damaged submarine) into the Arctic Sea in the most heedless way imaginable.[13] Unfortunately, it appears that no one is responsible for—or willing to take on—cleaning up the whole mess.

This does not mean that the commons are utterly undefended. While no nation can be compelled to protect the commons without its consent, various protective conventions and declarations have garnered the cooperation of enough countries to check the rate of deterioration. The 1985 Vienna Convention on Substances that Deplete the Ozone Layer is achieving a dramatic reduction in the release of ozone-depleting agents. The U.N. General Assembly resolutions on large-scale pelagic drift-net fishing are, technically, no more than that—nonbinding "resolutions." Yet, the announced willingness of the major driftnetting nations, Japan, Taiwan, and Korea, to respect it is a promising development of some significance. And there is a whole patchwork of other conventions in other areas, each with its own aspirations and attainments. These include the ban on weapons-testing in space, the International Convention for the Regulation of Whaling (ICRW), the Antarctic treaty system, and the London Convention on the Prevention of Marine Pollution by Dumping of Wastes.

The present picture, as best as can be summarized, is this: if one looks behind the various lofty declarations and examines the prevailing practices—the law in action—one finds that, aside from a few areas provided for by special treaty, much of the commons is at best only partially and feebly protected. In essence, just as the commons are unowned for purposes of wealth exploitation—anyone can sweep it for fish or scoop up deep seabed minerals, without answering to the world community—questions about the pollution of the commons are going unanswered. What is to be done?

(3) A Voice for the Environment: Global Commons Guardians

One approach is to negotiate more and stronger multinational treaties specially tailored to protect designated portions of the commons, along the lines of the ozone agreements, and the more recent, still nebulous framework conventions on climate change that emerged from the Earth Summit in Rio. Those efforts deserve further support.

Yet, there is another approach—in some ways bolder, in some ways integral and supplementary to the treaty efforts. As we saw, one of the reasons for overexploitation of the commons is the lack of a plaintiff clearly qualified to demonstrate both standing and injury. Hence, the first proposal: to establish a system of Guardians who would be legal representatives for the natural environment. The idea is similar to the concept of legal guardians (sometimes "conservators") in familiar legal systems. Presented with possible invasions of the interests of certain persons who are unable to speak for themselves, such as otherwise unrepresented infants, the insane, and the senile, courts are empowered to appoint a legal guardian to speak for them. So, too, guardians can be designated to be the legal voice for the otherwise voiceless environment: the whales, the dolphins, important habitats, and so on.

The Guardians could either be drawn from existing international agencies that have the appropriate focus, such as the U.N. Environment Program (UNEP)

and the World Meteorological Organization (WMO), or from the many nongovernmental organizations (NGOs) such as Greenpeace or the World Wide Fund for Nature (WWF). Certainly the Guardians would not be given plenary and unreviewable powers to halt any activity they disapproved of. Rather, the Guardians would be built into the institutional process to ensure that environmental values were being identified and accounted for. Take the oceans, to illustrate. To assure that oceanic ecosystems were being adequately accounted for, an Ocean Guardian might be designated, perhaps GESAMP (Joint Group of Experts on the Scientific Aspects of Marine Pollution), with supplementary legal staffing.

The Guardian's first chore would be to *monitor*. He would review ocean conditions not just to gather facts "scientifically," but with a specific eye toward assuring compliance with conventions already in place. One of the weaknesses of the 1972 London Dumping Convention (LDC) and many fishing agreements is that compliance depends almost entirely on "self-monitoring," without any independent effort to survey the activities of the signatories. The Guardian could provide it. By doing so, he would improve the willingness of every state to comply, for each country will be less hesitant in thinking that if it observes the rules, it will just be the one nice, law-abiding "sucker." Everyone would benefit from the mutual assurances.

Second, the Guardian would exercise *legislative functions*, not as a legislative body, but as part of the complex web of global policymaking institutions. In exercising the monitoring function, the Guardian would undoubtedly come across problems uncovered by existing agreements, which would prompt him to recommend and stimulate formation of new multinational agreements. The Guardian could appear before international agencies and even the domestic legislatures and administrative agencies of nations considering ocean-impacting actions to counsel moderation and to suggest alternatives on behalf of his "client."

Third, the Guardian could be authorized to appear as a special *intervenor-counsel* for the unrepresented environmental "victim" in a variety of bilateral and multilateral disputes. For example, whenever there is a proposal to dam an international river, one or more of the nations along the river may initiate international negotiations to assure the fair division of the water flow, electric and irrigation benefits, etc. But we have learned—often too late and to our chagrin—that such dam projects inevitably affect the environment, including life in the oceans to which they feed. The Ocean Guardian would appear as a "third party" before the appropriate body to assure, not necessarily that the viability of ocean environment was the conclusive issue, but at least that it was raised in the most strenuous and effective manner possible.[14]

The final function of the Guardian simply takes the intervenor concept one step further. International treaties should endow the Guardian with standing to initiate legal and diplomatic action on the ocean ecosystem's behalf in

appropriate situations—to sue at least in those cases where, if the ocean were a sovereign state, the law would afford it some prospect of relief. The law could be arranged so that, even if a violating nation refused to appear, the Guardian could secure a declaratory judgment that the conduct in question was indeed unlawful. Such a judicial pronouncement is far less steely than an injunction, but is not the sort of thing members of the world community would simply brush off, either.

The notion of legal standing for nature is hardly far-fetched. Indeed, many guardianship functions are currently recognized in U.S. environmental laws on a more modest scale. For example, under the Superfund Legislation, the National Oceanic and Atmospheric Administration (NOAA) is designated a trustee for fish, marine mammals, and their supporting ecosystems within the U.S. fisheries zone. NOAA has authority to institute suits to recover restoration costs against any party that injures its "ward."[15] In a landmark lawsuit in California, the government used these powers in suing Montrose, a major chemical company, for years of dumping DDT and PCBs into the ocean off Los Angeles, damaging the food web. The case was settled by the company and the other defendants agreeing, among other things, to pay $64 million to the Natural Resource Trustees to establish a restoration program to restore the wetlands and ocean as best as could be done.[16] There is no reason such a system could not be replicated internationally.

(4) A Case for Seals

A case in Germany invoked the guardianship concept in a case with global commons implications.[17] In 1988, approximately 15,000 dead seals mysteriously washed up on the beaches of the North and Baltic Seas. Widespread alarms were sounded, amid considerable concern that the massive deaths were a portent of an impending ecological disaster. The most flagrant insult to the North Sea's chemistry was widely considered to be titanium and other heavy metals that were being produced by incineration and dumping on the high seas by permit of the West German government.

Conceivably, any of the states bordering the sea might have tried to challenge Germany's actions. But recall that, so long as the harm was being done on, or affecting life only in, the high seas, the authority of any nation to sue was (and is) doubtful. For Poland, say, to trace through a legally compensable injury would have been nearly hopeless. From the point of view of national fishing interests, the reduction—even elimination—of the seals might even have been regarded as an economic *benefit*. (The harbor seals involved, unlike fur seals, are themselves commercially valueless but compete with fishermen for commercial fish stocks.) Moreover, all the sea-bordering nations were contributing to the pollution, and thus, had any of them objected their case might have been met by Germany with an "unclean hands" defense: "you can't complain, because you're as guilty as we are."

Who, then, was to speak for the seals—and, in so doing, represent all the elements of the ecological web whose hazarded fortunes were intertwined? In comparable situations in the United States, courts have shown willingness to interpret the Administrative Procedure Act and other laws as giving a public interest group standing to challenge the government's actions. German law, however, is much more stringent about allowing "citizen's suits."

The solution was for a group of German environmental lawyers (with the encouragement and advice of the author) to institute an action in which the North Sea seals were named the lawsuit's principal plaintiffs, with the lawyers appearing essentially as guardians, speaking for them. And what better plaintiffs? No one could accuse the seals, surely, of unclean hands (or flippers). And the injury to them did not appear as problematical as—it was one step less removed from—the harm that the other littoral nations might have raised.

The German administrative law court rejected the seals' standing on the grounds that seals were not "persons" and no specific legislation had authorized standing on their behalf. There were two lessons. First, the very filing of the case and attendant news media coverage was considerable and favorable. When the time came for the government to renew the ocean dumping permit, the authorities who initially gave their permission were forced by a kindled public opinion to revoke it. Germany has committed to constrict or phase out disposal of heavy metals in the North Sea. The seals lost the battle in court, but won the war.

Second, the seals lost because the guardianship application was ad hoc. Any system for commons Guardians should be institutionalized in advance. When local (*Länder*) statutes so provide, even German courts will allow specially designated environmental groups to challenge forest-threatening actions. In the international context, formal recognition of Commons Guardians could be achieved through reforms within existing legal frameworks—for example, appropriate amendments of the charters of the United Nations and of the International Court of Justice.

The institutionalization of Guardians would have the virtue of designating one responsible voice for each part of the environment. There is at least one drawback that grows out of that virtue, however. The more power a Guardian were to have, and the more exclusively his voice were made to be the voice that counted, the greater would be the political pressures to compromise his scientific and legal integrity.

Furthermore, while a system of Commons Guardians would be a step forward, it would be no panacea for biosphere degradation. Those commons areas that were placed under guardianships, such as living ocean resources, would be elevated to a legal and diplomatic standing or a par with a sovereign. But, unfortunately, under present law the powers even of sovereign states are limited when it comes to protecting themselves from transfrontier pollution. Hence, the success of a guardianship regime would depend not only upon legitimating and institutionalizing Guardians as legal representatives, but upon significant

changes in the substantive law which the Guardians would be empowered to invoke—for example, conventions proscribing levels of pollution hazardous to sea life. The oceans not only need their own independent voice; they need the world community to adopt more diligently protective standards.

(5) Financing the Repair: The Global Commons Trust Fund

Supporting a system of guardianship—indeed, any counterattack on global degradation—will cost money. Where will it come from? I have already observed the understandable inclination of political leaders to give priority to their hard-pressed domestic agendas before they address the commons areas. If any nation unilaterally and voluntarily lays out a hundred million dollars to clean up the ocean floor or atmosphere, it just relieves the pressure on other nations to ante up, if they can count on getting a "free ride" from the expenditures of those nations that do pick up their fair shares of the tab. Meager or noncooperation becomes a dominant strategy.

Of course, as noted earlier, problems of "free-riding" confront any domestic society when it plans the provision of any public goods, such as the payment for police and fire protection, and the maintenance of public parks. But the difference, once more, is this: domestic democratic societies have the power to tax. When the majority decides on a program for general welfare, it can compel raising needed funds. The world community enjoys no comparable power to levy a "world tax" for world public welfare. While One World idealists have proposed such a tax, it is not presently a viable alternative.

There already exists one financial mechanism to tackle the job without appeal to taxes: the Global Environment Facility (GEF). The GEF is a pilot program originally conceived to support energy conservation, preserve ecological diversity, arrest depletion of the ozone shield, and protect the marine environment. By the end of the 2006 fiscal year, its trust fund (administered by the International Bank for Reconstruction and Development) had reached $3.7 billion in voluntary financial commitments from the industrialized countries. That is no mean figure, but well short of global needs. Moreover, as a financial mechanism, purely voluntary contributions are not a dependable basis on which to build a stable, much less a strong infrastructure.

(6) Implementing a Global Commons Trust Fund

These considerations suggest the advantages of a fund that is not wholly dependent on voluntary giving. More specifically, a financial mechanism that sought levies in legal obligations would both make the flow of funds relatively dependable from year to year, and, by removing the present element of "largesse," perhaps deflate the governance quandaries that arise out of donor-beneficiary frictions. That is what my proposed Global Commons Trust Fund (GCTF) aims to achieve. The idea is that to finance the repair of the global commons, we look to levies on uses of the commons areas themselves.

Let us expand on how this might be accomplished. As I have already observed, under present practice all the commons areas can be used and abused with relative impunity—free of charge. If we were to rectify this practice, and charge even a fraction of the fair worth for the various uses to which nation-states put the global commons, we would advance two goals at once. The charges would dampen the intensity of abuse, and at the same time underwrite the costs of providing public order, such as marine resources management and the repair of environmental damages. Because the resources raised would not be grounded on "largesse" but on what could be presented as legitimate obligations, the supply of funds would be relatively more stable from year to year.

The revenue, while difficult to estimate, is potentially enormous. Consider some rough projections.

(7) The Oceans

The world harvests 185 billion pounds of marine fish annually. A tax of a mere one-tenth of one percent the commercial value would raise approximately $200 million for the proposed fund.[18] The same token rate on oil and gas produced in the EEZs would add perhaps $80 million more.[19] As for the use of the oceans as a dump-site, the official figures, almost certainly underreported, amount to 212 million metric tons of sewage sludge, industrial wastes, and dredged materials yearly.[20] A tax of only a dime a ton would raise an additional $20 million. And a charge on ocean transport—particularly uses such as tanker traffic that imperil waters and beaches—would swell the fund further.[21]

(8) The Atmosphere

By burning fossil fuels and living forests, humankind thrusts 22 billion metric tons of carbon dioxide into the atmosphere annually.[22] A CO_2 tax of only 10 cents a ton would raise $2.2 billion each year, thirty times the current budget of the U.N. Environmental Program (UNEP). Taxing emissions of other greenhouse gasses (GHGs) such as nitrous oxides at a comparably modest (dime-a-ton) rate, indexed to their "blocking" equivalent to CO_2, would bring the total to $3.3 billion.[23] The same ten-cents-a-ton tax could be levied on other (non-GHG) transfrontier pollutants; a sulfur dioxide levy, for example, would produce $16 million more.

(9) Space

Tapping the wealth of the planets may still be far off, but the rights to "park" satellites in the choice slots is a potential source of enormous wealth right now. Most valued are points along the "geostationary orbit," the volume of space 22,300 miles directly above the earth's equator in which a satellite can remain in a relatively fixed point relative to the surface below. The number of available points is restricted by minimal distances required between satellites to avoid interference. Rights to spots directly above the earth's equatorial belt are also

valued because they are exposed to exceptionally long hours of sunlight, and are therefore ideally situated for production of energy from solar radiation, as a support for special operations such as high-tech gravity-free manufacturing, and perhaps ultimately for commercial redirecting to earth.

These positions, and ancillary frequencies in space, "the most precious resource of the telecommunication ages"—worth to their users an estimated $1 trillion over a decade—are now parceled out free of charge in a system that can only be labeled as absurd. The tiny island nation of Tonga, after being awarded 3–6 orbital positions gratis, turned right around and put them up for auction, recently striking a deal with a satellite company for $2 million a year "rental." And it is reportedly seeking more such deals. Why should the rights to any of these slots and spectrum positions, a limited resource that is the legacy and province of all humankind, and potentially worth billions of dollars to users, be doled out like free lottery tickets, while those who would mend the planet are severely limited by a lack of resources? An auction of slots and frequencies would yield several hundred millions annually.

(10) Biodiversity

I am a little more ambivalent about including biodiversity as part of the Common Heritage of Humankind in the sense of making it a tax base for the fund. While tuna are (often) in the high seas, beyond any nation's jurisdiction, most biological riches lie within the territories of nations. Of course, when we talk of biotechnological potential, we are not talking about seizing physical matter from those forests, trees, and so on, as much as copying and exploiting *genetic information*. But that presumably makes small difference to the biologically rich nations such as Columbia and Brazil, who would regard global demands to share the good luck of their biological wealth about the same way the Saudis would react to arguments that the world should co-own its oil. The proposal may simply intrude too far into their sovereign space and prerogatives, which is why the Rio negotiators rejected labeling biodiversity part of the Common Heritage in favor of the limper "common concern."

On the other hand, perhaps a compromise could be worked out whereby the industrial world's pharmaceutical companies, which will presumably manage the exploitation of the potential, would pay a royalty into the GCTF.

Even if we do not include biological diversity in the base, the total thus far is about $4 billion a year. And that is before adding the yield of a surcharge on uneliminated ozone-depleting agents, on toxic incineration at sea, or on the liquid wastes that invade the oceans from rivers. Consider also fees on the minerals that someday will be harvested from the sea and seabed, and, perhaps, depending upon the staying power of the conservation movement, which is fighting the efforts, the Antarctic.[24]

Another way to bolster the fund would be to make it the receptacle for legal judgments assessed under various commons-protecting treaties. For example,

the oil spills conventions could easily be amended to provide that some measure of ecological damages to the high seas (and not merely local waters) be paid into the trust fund and marked for the benefit of the environment. There are precedents. The Exxon Corporation established an environmental repair fund in the wake of the *Exxon Valdez* disaster in Alaska. After the spill of the highly dangerous pesticide Kepone into the James River in the United States, Allied Chemical, which was responsible, agreed to establish such a fund for the James River, and Sandoz Corporation did the same in the wake of the catastrophic 1986 accident in Basel, Switzerland, which devastated marine life in the Rhine.

(11) Areas in Need of the Global Commons Trust Fund

That brings us to the functions of the GCTF: what would the funds raised be used for? To begin with, the GCTF would pay the costs of the Guardianship system I have described. Any number of potentially critical treaties, including the 1972 London Dumping Convention, the 1973 Convention on International Trade in Endangered Species, and the 1987 Basel Convention on the Control of Transboundary Movements of Wastes, are simply underpoliced; the GCTF would make policing viable. The monies would support improved scientific monitoring and modeling of the common areas, and underwrite the transfer of environment-benign technology to developing nations. They could also promote institutional readiness to respond to various sorts of crises with the global equivalent of "fire fighters." To illustrate, no single nation anticipates enough incidents in its own waters to warrant keeping on alert a full-time staff trained and equipped to contain oil spills with oil-eating bacteria, etc. But a force with global responsibilities, financed out of the fund, might well be cost-justified. It has been estimated that $150 million a year would underwrite an effective worldwide system to ensure early detection of major new viral diseases—so that the next AIDS-type epidemic does not catch us off guard.

Notwithstanding the mutual and widespread value of such measures, not every country would blithely submit. One can anticipate resistance among the already struggling developing nations, in particular. But they do not face the highest levies, and the fund therefore does not depend on them. Indeed, the developed countries are more apt to be beneficiaries.

Some countries will object to any tax on activities within their territories, or, in the case of the coastal states, within their self-proclaimed Exclusive Economic Zones (EEZs). However, the charges are not for what nations do within their sovereign "territories"; they are levied largely for the effects of their activities on the "outside" world.[25] Moreover, many noncoastal, landlocked nations continue to regard semi-legitimate, at best, doling out an extra two hundred miles seaward to the coastal states as part of their sovereignty. That is why I would incline to tax activities such as fishing and oil production undertaken anywhere beyond the traditional territorial boundaries of three or twelve miles from the coastline, even if it was within their newly acquired EEZs.

Many environmentalists will object to the pollution charge component of the proposal, calling it offensive to permit pollution-for-pay. The answer is that some pollution is inevitable, and it is more of an outrage that we let the polluters get away with it, as they presently do, free of charge.

Indeed, if there is a real objection to the proposed GCTF, it is that the initial rates I have suggested are probably too paltry. One can argue that, viewed as a strategy for reducing environmental damage, the levels advanced for discussion—ten cents a ton for carbon usage—are unlikely to confront the polluting nations with the full costs of the damage they are causing, and therefore will fall short of inducing the "right" amount of conservation and pollution control.[26] Viewed from the reverse side, as a strategy for maximizing revenues for the environmental infrastructure, the proposed rates will often fall short of extracting the full value of what users would pay if they were required to bid for restricted rights at an internationally conducted auction.

It is true that superficially similar proposals have been advanced in the past, without making much political headway. But the GCTF can be distinguished from some other like-sounding plans—distinguished in ways that make the GCTF both more effective and more "salable" politically.

First, the GCTF can be differentiated from a host of plans, such as that put forward by the late Rajiv Gandhi of India, to tax each developed nation a fraction of its gross national product and to distribute the funds to less-developed countries. While Gandhi called his proposal a Planet Protection Fund, the transparent intent was to redistribute wealth from rich countries to poor. The aim may be noble. But it ought not to be confused with the GCTF, which would link levies not to each nation's wealth per se, but to its *use of the commons*, and would restrict application of the revenue raised to the *maintenance and repair of the commons*.

Second, most proposals have been limited to a single source or activity. Recently the focus has been on carbon use. Years ago, during the Law of the Sea, negotiations were advanced, unsuccessfully, to tax users of ocean space. While the ocean tax proposals failed, the public atmosphere, in terms of environmental consciousness, is more sympathetic today than twenty years ago. The proposed ocean taxes, moreover, were designed to pay off Third World countries, rather than being earmarked to repair the ocean environment. And by contrast both with the carbon and ocean tax, the idea of the GCTF is comprehensive: to bring all economic uses of the commons under an overall plan, from uses of the ocean to uses of the atmosphere and of space.

II. CONCLUSION

It is true that the GCTF, by focusing on the global commons, would leave unaffected many pressing problems that occur wholly within sovereign boundaries.

The answer is that these "internal" problems, bad as they are, are better attended to by existing institutions. In fact, the International Development Agency (a subsidiary of the World Bank) has had no trouble collecting a $3-billion "earth increment" to provide virtually free grants to help poor nations protect their internal ecological systems.[27] To some extent, the relative disadvantage of the commons is a question of out of sight, out of mind. And partly, while dolphins may have friends in Greenpeace, they don't vote or form potentially irksome alliances. For both reasons, the commons goes, once more, to the end of the line.

The guardianship proposal would help fill the void. It would establish a "police" mechanism for the global commons areas—an international public service for an international public good. The GCTF is the mechanism to pay for it. The Global Commons Trust Fund is not merely a roundabout scheme to take wealth from the rich nations and redistribute it to the poor. It simply seeks from uses of the Global Commons a reasonable fee so as to apply it back to the commons, for their maintenance and repair. What could be more reasonable? Or, given the afflictions of our planet, more crucial?

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8. IS ENVIRONMENTALISM DEAD?[1]

I. INTRODUCTION

Allegations have recently circulated that the environmental movement has run out of steam and "must die, so that something else," unspecified, "may live."[2] The charge, however hyperbolic, deserves attention. While there have been gains on some fronts, many aspects of the environment continue to degenerate. Looking back across three or four decades, how does the movement stack up, in terms of its own ambitions and priorities? How does it compare with, and what can it learn from, other social movements, from abolitionism to women's rights? This chapter reviews the criteria according to which the success/failure of environmentalism might be evaluated, and concludes that, overall, reports of its death are "greatly exaggerated."

The authors' basic claim is that after initial successes in public and legislative arenas, the movement has had strikingly little to show over the past fifteen years.[3] Much of the critique is driven by the continued failure to get the United States to move forward on climate change. But the authors consider the failure to deliver on climate change to be symptomatic of a deeper, terminal malady. They cite environmentalists for trafficking in "the fantasy of technical fixes," such as pollution-control devices and higher vehicle mileage standards, when they should aptly be providing "an inspiring vision."[4] There is a need, they say, "to rethink everything," while "letting go of old identities, categories, and assumptions."[5] The authors decline to specify what the "something else" they want to make room for will be, only that it will emerge from teams, not individuals, in the course of the dialogue that the authors intend to inspire.[6]

Each chapter is introduced with its own portentous epigraph, mainly about death. These include: "To not think of dying is to not think of living";[7] "Death is not the greatest loss in life. The greatest loss is what dies inside us while we live";[8] and "To be empty of a fixed identity allows one to enter fully into the shifting, poignant, beautiful and tragic contingencies of the world."[9]

While criticism is always to be welcomed, one expects more constructive detail before writing off the whole movement—presumably including the leadership, the organizations, the broad agenda—especially when the death certificate is based so largely on the failure to deliver on climate change. Climate may be a crucial issue, but it is certainly not environmentalism's only vital sign.[10] There is evidence of lingering life, even strength, in the successful campaigns to sustain the oil drilling moratoria in the Arctic National Wildlife Refuge and the Western Gulf of Mexico, even in the face of public clamor over rising gas prices.[11] The International Whaling Commission's (IWC) moratorium on commercial

whaling, widely regarded as an environmentalist trophy, remains intact, even against mounting assault.[12]

Domestically, on the negative side, the United States' total carbon dioxide (CO_2) emissions, largely unregulated at the federal level, were seventeen percent higher in 2006 than in 1990.[13] On the other hand, CO_2 emissions in 2006 were lower than they had been in 2005.[14] And, between 1980 and 2008, sulfur dioxide emissions were cut by 71 percent nationally; nitrogen oxides declined by 25 percent in the 1990–2005 period.[15] Encouraging reductions have been recorded in emissions of other air pollutants.[16] Environmentalists have hardly appeared bedridden—either in Congress[17] or in the courts[18]—in holding off efforts by the Bush administration to lessen emissions controls.

Moreover, some consideration has to be given to the fact that in fighting climate change, environmentalists have had to take on an especially well-financed, well-entrenched opposition.[19] Dirty water never marshaled such powerful patrons. And, the fact is, the keystone of the climate change movement, the Kyoto Protocol, *is* subject to legitimate criticism.[20] Climate change is a worthy fight, but a distinctly hard one, not likely to be budged by any grand, undefined "vision."[21] In fact, the movement is not skimping in the supply of visions—of drowning polar bears, melting icecaps, and storm-battered coasts.[22] If those visions will not work, what will? We should be no quicker to bury the environmental movement for the failure to stanch greenhouse emissions than to bury the human rights movement for the failure to stanch genocide.

Nor can an imminent death be foretold by a flight of resources.[23] While environmental group membership and focus varies from country to country, on a global scale membership is thriving.[24] One study concludes that in 18 countries for which the authors collected longitudinal data beginning in the early 1980s, membership had more than doubled.[25] Between 1990 and 2004, philanthropic giving to environmental and wildlife groups in the United States increased from $2.5 billion to $7.6 billion, a pace faster than the average of all recipient categories.[26]

On the other hand, one cannot reliably read proof of *success* from fluctuations in interest group *membership*.[27] Standing alone, membership and contribution figures are ambiguous. A decline in membership of any nonprofit sector may signal the groups' collective failure, or it may indicate that the originally motivating circumstances have been brought under control, reducing the demand; presumably contributions to suffragettes dried up with passage of the Nineteenth Amendment. Conversely, an increase in membership is not inconsistent with, and might even be fueled by, organizational shortcomings. It might indicate that a worsening environment is falling behind the public's demand; hence, the critics might say, a sign that the groups are not doing their job.

As a result, one cannot dismiss the critics' challenge that the movement's leaders should have more to show for the added bucks, although the authors might have done themselves a service by phrasing the charge more temperately: Is environmentalism *misguided* or *faltering*?

But however we phrase the charge, the appropriate starting point is to ask: what are the criteria of success and failure by reference to which the movement should be judged? My response takes the form of identifying a set of specific goals activists appear to have embraced. I ask, for each, whether the goal is worthy, and if so, can we say, based on the available data, whether it is being reasonably met. I do not claim thoroughness. Hopefully, this small effort will help steer the dialogue along more productive lines. It does not reach conclusions on a number of issues that have rightly been raised, but may clarify them. These include: have environmentalists been pitching the wrong cases in wrong ways to wrong audiences? Should they seek more alliances with other interest groups? Should they work within existing political parties, or break away as American Greens? Does the movement have an image problem? Should environmentalists be fostering new technology or a new vision of the human spirit?

II. WHAT MOVEMENT, EXACTLY, IS FALTERING, AND WHAT SHOULD OUR EXPECTATIONS BE?

First, what is the "*environmental movement*," the state of which we are to examine? There is no monolithic environmental movement. Even the boundaries are unclear. Do we count the campaign against malaria in the environment column or in the health column? Is the banning of nuclear weapons tests in the atmosphere to be chalked up to the environment or the peace lobby? Anywhere we draw the boundaries of environmentalism, the "movement" is destined to include an assortment of factions, including various conservationists (each with its own potentially conflicting clients), sportsmen, animal rights advocates, and people whose primary concern is with resource sustainability or public health. The conservationist-hunters wing is destined to clash with the animal rights wing. Those who set out to save seals also menace fish stocks.[28] Indeed, why should anyone expect *unity* on such controversial issues as nuclear energy (given nuclear's advantages carbon-wise)[29] or genetically modified crops (given the advantages of reduced pesticide applications)?[30] We should therefore not be surprised to find different—even conflicting—goals, agenda, and tactics.

Even if, for purposes of discussion, we postulate a general, overall movement, those who judge it a failure ought to consider: *a failure relative to what?* A thorough evaluation of environmentalism would have to draw comparisons with other progressive social movements; for example, the labor and civil rights movements, abolitionism, universal suffrage, tax reform, and abortion. Among the insights, one would discover a number of reasons to judge environmentalists with some lenience.

To begin with, all these movements vary in *the clarity of the goal sought*. Both the suffragettes and the abolitionists enjoyed the advantage of rallying for well defined and realizable endpoints. Because the finish line was more or less clear,

the advocates knew when they had succeeded and could turn their efforts elsewhere.[31] By contrast, environmentalism's goals typically have no finish line. The fight to preserve species and glaciers has to be sustained forever,[32] and is fated therefore to deal with distraction and fatigue.

The comparison with the suffragettes and abolitionists reveals another comparative advantage of the predecessor movements: *the moral clarity of discourse*. Both projects could be advocated in the appealing language of universal rights. By contrast, the movement to decarbonize the global economy cannot really rest on an appeal to rights and therefore must face up to complex and fractious issues of risk, relative costs and benefits, and the allocation of burdens.[33] Indeed, one might recall that even with all the moral clarity on the side of the suffragettes and abolitionists,[34] neither battle was won without considerable pain, and, indeed, in the case of slavery, bloody uprisings and war. There is no "other side" to genocide. But environmentalism is full of other sides. Preserving lions and owls often threatens the livelihoods of blameless and struggling humans.[35]

Furthermore, environmental proposals typically implicate public goods, and thus coordination of effort among many independent actors. A movement aimed at ending the death penalty has only one target: the state. But not so for pollution, which faces many targets with many different sovereigns. The United States might make further cuts in mercury emissions from its own factories,[36] only to find domestic progress simply overwhelmed by airborne pollutants floating in from China and elsewhere.[37]

This is not to dismiss the charge that we should be doing something better. But considering the handicaps environmentalism (in its various branches) faces, is it really doing *so badly* that it ought to be taken out and shot?

Comparative studies would have other things to teach, perhaps on tactics. The global economy two hundred and fifty years ago was as addicted to slavery as we are to oil.[38] The abolitionists had their own vested interests and disinformers to contend with.[39] Anyone who took up the cause of slaves faced hostile "swift-boating"[40] and the widely mouthed claims of plantation owners and traffickers that slaves were happy with their lot. To overcome the opposition, a seemingly hopelessly small band of British abolitionists developed tactics many of which have since become standard strategies for social movements even today. Their first job was to make sure Britons understood what horrors lay behind the sugar they ate, the tobacco they smoked, the coffee they drank.[41] They organized consumer boycotts[42] and gave voters report cards on how their representatives voted on the issues they championed.[43] These are all measures the environmental movement, could well be, and probably already is, emulating.

III. INDICATORS OF SUCCESS AND FAILURE

Putting aside questions as to exact boundaries and internal divisions within environmentalism, there are several aims they all seem to embrace in common.

We can ask whether each goal, given available data, is being carried out well or poorly. The goals may include: educating the public (environmental literacy), changing tastes and preferences, changing individual behavior, fostering favorable legislation, increasing private donations, increasing public funding, successful litigation, miscellaneous environmental front activities, and (the bottom line) improving the physical environment.[44]

Evaluating progress in these areas yields, at best, only a partial basis for evaluating the movement, because the advancement of each is subject to independent factors. For example, what the public knows about environmental issues—and how it feels and votes—is swayed not by environmentalists alone, but by other groups (consider evangelicals),[45] and media, including films and books, often for children.[46] The public even gets an environmental message from manufacturers who tout the eco-friendliness of their products.[47] One savvy study of environmental attitudes cites fluctuations in economic conditions, including energy costs, as *a* or perhaps *the* primary determinant of the success of environmental referenda.[48] With that caveat, let me offer some comments on each of the movement's presumed goals and highlight representative data that may influence a critique of the movement's performance.

(1) Indices of Public Knowledge: Environmental Literacy

Most environmental groups seek to emphasize particular perils and values when educating the public on environmental issues.[49] To judge whether they have succeeded, one might consult polls reflecting the public's environmental literacy. An example is *Environmental Literacy in America*, published by the National Environmental Education and Training Foundation.[50] The report suggests that only 1 to 2 percent of Americans could be considered "environmentally literate,"[51] and that despite the environmental movement, the public's knowledge since the 1970s has not kept pace.[52]

The latter conclusion—that there has been a failure to advance the public's knowledge about the environment since the 1970s—is hard to substantiate.[53] We can compare the relative popularity of presidents over decades, because there are standard, widely used questions that are stable over time ("Do you approve or disapprove of the job X is doing as President?"). But in the environmental area, both the items we expect people to be literate about (DDT, smog, ozone depleting agents) and the polling questions keep shifting over time.[54]

Nonetheless, public literacy on major contemporary issues appears impressive. Notwithstanding the well-financed denial campaign, between 2004 and 2007, the percentage of Americans who said global warming was a "serious problem" rose from 70 to 83 percent;[55] those who would label it "very serious" rose from 40 to 56 percent over the same period.[56] Surely the movement deserves some credit for this.

As a general matter, such literacy polls might provide environmentalists useful cues for focusing their efforts. For instance, such polls can identify public misperceptions that are particularly germane to political action. We need not

brood to discover how few Americans (13 percent) know what portion (1 percent) of the earth's water is potable.[57] Such data might be classed with quiz-show factoids. Truly worrisome, however, is that only 17 percent of Americans know that in the past ten to fifteen years, the average miles per gallon achieved by motor vehicles has decreased,[58] a misperception that has a direct bearing on legislative and administrative action. In a like vein, it would be helpful to find out how many people can identify the principal anthropogenic sources of and threats from greenhouse gases, and name the most dangerous pollutants.[59] Such studies could help identify what education is needed to achieve environmental literacy and what past public presentations have been most effective in accomplishing that goal.

(2) Indices of Attitudes and Preferences

The environmental movement aims not just to gather and disseminate information, but also to shift public tastes and priorities. It is not enough that the public knows that species are vanishing. People also have to care. Until very recently, public opinion polls consistently ranked the environment low relative to other societal challenges, and this has been interpreted as a mark against the movement. As late as 2004, less than 10 percent of Americans included the environment among what they consider to be the top three most important issues, well below the number who included terrorism and health care, and slightly below taxes, crime, and drugs.[60] A welter of polls report similar conclusions, but these findings are not always easy to evaluate.[61] For example, the failure of people to identify a problem as the worst or to include it within the three worst facing the country is not inconsistent with considering the problem extremely serious. AIDS, for example, got approximately half the responses the environment did.[62] (I consider myself an environmentalist, but am not sure I would include the environment among the three most urgent problems we face.)

However, the most recent polls appear to indicate significant shifts in concern. As recently as 2003 only 27 percent of those polled had heard "a lot" and only 39 percent "some" about global warming.[63] By 2007, the numbers had risen to 42 percent and 47 percent, respectively.[64] Forty-seven percent of those who believe we are experiencing "stranger than usual weather" (three-quarters of those polled) attribute the change to global warming.[65] In another 2007 poll, 63 percent agreed that America was in as much danger from environmental hazards as it is from terrorists.[66] In an April 2007 ABC News/Stanford poll, 70 percent believed the federal government should do more to deal with global warming.[67] Global warming, not long ago a trailing environmental issue, emerged as the single biggest environmental problem, over air pollution (33 percent to 13 percent).[68] Notwithstanding the well-financed campaign to deny climate change, 76 percent have come to agree that global warming is occurring,[69] and 80 percent consider it "important."[70] As already indicated, not all of the public's concerns can be credited to environmentalists, given the influence of so

many sources. On the other hand, it is hard to come away from this data concluding that the movement has left the public unconcerned.

Particularly helpful in determining the success of the movement would be data that reveals not merely what topics the public cares about, but *how much* they care.[71] For instance, it would be helpful to know how answers have changed to questions like "what would you be willing to spend, through higher taxes or utility bills, to reduce the risks of climate change?"[72] Such a question would not only measure the change in attitudes over the years, it would inform policy debates over how far the public is willing to go to eliminate carbon emissions. The answer may be "not very." In a 2007 poll, only 20 percent were willing to pay higher taxes (unspecified level) on electricity in order to restrain use, and 79 percent were opposed to the tax.[73] Additionally, while 32 percent of respondents were in favor of a tax on gasoline, 67 percent were opposed.[74]

(3) Indices of Willingness to Contribute to Environmental Groups

As already noted,[75] the amounts that U.S. environmental groups are capable of raising—$7.6 billion in 2004—and the fact that this fundraising rose faster than the average giving category, is surely significant. In 2006, donations to the Sierra Club increased by 23 percent from 2005, to $22.9 million.[76] The groups appear to be opening purses.

(4) Indices of Environmentally-Sensitized Individual Action

A person inclined to make sacrifices for the environment has the choice to pay her marginal green dollar, not to a group, but in the form of eco-friendly consumption, such as buying a hybrid car, eating only wild-caught fish, and selecting the right diapers. In the parlance of the movement, the aim is to get individuals to limit their personal ecological footprint.[77]

Has the movement failed in this aspect of its agenda? Once again, there is some data, but the picture it paints is blurry. When asked which of the following environment-friendly behavior respondents had engaged in the prior year, 90 percent had recycled; 83 percent reported having avoided certain environmentally harmful products, and the same number used less water and energy.[78] By comparison, 9 percent bought or sold stock based on the issuer's environmental record.[79]

The problem with using these data as a basis for evaluation is that, as a start, we do not know how many responders (1) actually chose to pay a premium and (2) if they did, whether they did so in consideration for the reduced demands on the earth rather than for some other reason. In some areas recycling is not a choice, but is mandated.[80] And even when one pays a premium for environmentally benign products, it may not be the result of a commitment to the environment. The consumer may consider organic food to be safer and wild fish to be tastier, and therefore worth the added price. Similarly, cutting back on water and energy presumably saves money. To gauge the commitment *to the environment*

of those who made cuts in water and energy consumption, one would have to know how much they sacrificed in comfort (i.e., a well-heated house or more showers) for which they would have gladly paid were it not for the environmental benefits. As for "green" stock, if one believes in the random walk theory of securities markets,[81] it is unclear that those who bought and sold stock based on environmental records were committing to lower returns on their investments; some "green" fund managers even claim they outperform the market.[82]

Even if we credit environmentalists for purchases the movement has influenced, my impression is that the ambitions to influence consumer choice have been thus far disappointing. On balance, the impact of those who, for instance, buy hybrid cars in the face of higher net costs continues to be overwhelmed by those who buy big cars, big refrigerators, and big houses.[83] Indeed, as we will see later, it seems quite possible that over the past decades environmentalists have had less success impacting ordinary people in their ordinary lives than they have had impacting Congress.

Of course, the fact that environmentalists could be doing better does not mean that they have "failed." Even if the ecological footprint campaigns have yet to gain strong traction, they are still nascent, and it is likely that absent their pleas, environmental quality would be even worse.

Moreover, it may be more difficult to persuade people to sacrifice for some cause on an individual voluntary basis than to donate through coerced governmental action. I am less inclined to pay $100 for a cleaner environment (say, to eliminate a ton of carbon) on my own than to support a tax or utility bill hike under which I and my 100,000 neighbors each agree mutually to pay $100 to eliminate 10 million tons. The latter seems both a fairer and a more effective plan.

Yet, even if we can understand the reasons why voluntary individual action is harder to motivate, there are strong reasons to invigorate the effort. For one thing, many environmental actions do not command enough consensus to authorize government action. There may be no majority to authorize public expenditures for a biodiversity reserve or the mandating of carbon- clean fuel. In those circumstances, progress requires voluntary action, rather than legal compulsion. Moreover, given all that has been done to bring industrial pollution under control, a growing share of uncurtailed emissions can now be traced to individuals and households.[84] Unfortunately, there are so many households (relative to farms and factories) that efforts to regulate at the household level may encounter increased costs of monitoring and enforcement per unit of emission brought under control. At these "lower" levels, efforts to change behavior have to rely less on legal commands and more on moral aspirations.

What can the movement do to facilitate a reduced footprint? Behavior modification can be promoted by making opportunities available (such as weatherization subsidies),[85] and by informing people how and where to do lots of little things, such as where to dispose of motor oil, paints, and old batteries.

Even more ambitiously, groups have established Internet markets where people can purchase "carbon footprint" offsets.[86] At these sites people can calculate the amount of emissions they are responsible for and counterbalance those emissions by underwriting the planting of CO_2-absorbing trees.[87]

(5) Indices of Influence on Lawmaking

Whatever the impact of environmentalists on market choices, one would like to know more about their influence in the political arena.[88] Have activists succeeded in making political contests turn on the candidates' environmental stances? The answer is hard to pick out from amidst all the noises of political campaigns. Some commentators maintain that the environment is a salient issue in candidate contests at various levels in California.[89] But even if that impression about California could be substantiated, there is some skepticism that the environment has become a strong factor generally.[90] For the environment to be a factor in switching votes, it is not enough that the voters have been made to care about the environment; most do. They have to discern a material distance between the candidates on issues that they can understand and which matter to them. In this light, it is easy to see why abortion, for example, becomes salient: candidates can easily identify themselves (or be identified) as being on one side or the other. But no candidate self-identifies as anti-environment, and the issues on which they divide are, or can be, muddied in detail. Analyses of the 1996 and 2000 presidential elections confirm how hard it is to make the environment count.[91] It is particularly striking that in 2000 George W. Bush is believed to have neutralized the environment as a swing issue,[92] even though his opponent, Al Gore, was almost certainly more "environmental."[93] One's "symbolically perfect" speeches became a standoff against the other's "language of parts per million [and of] emissions control technologies."[94] President Bush does not seem to have paid a price in 2004, when his record and message on the environment had become presumably more difficult to package sympathetically.[95]

A failure of the public to make sharp and significant distinctions among candidates might be cited as a failure of the movement. But to evaluate the charge one has to take campaign finance law into account. Contributions to nonprofit groups are tax-deductible as long as the funds are used to promote issues.[96] Thus, the movement can finance ads warning against global warming or species loss. But a group that placed ads that sought to guide swing voters to the "right" candidate would risk forfeiting its charitable status.[97] In other words, the movement's hands are not exactly tied in influencing elections, but the groups have a restricted space in which to maneuver.[98]

Arguments that the movement is losing its grip more often allege the environmentalists' declining influence in the Congress than at the ballot box. Specifically, it is common to contrast the spate of legislation that passed in the 1970s, including, in 1970 to 1973 alone, the National Environmental

Policy Act,[99] the Coastal Zone Management Act,[100] the Marine Protection, Research and Sanctuaries Act,[101] the Ocean Dumping Act,[102] the Clean Water Act,[103] and the Endangered Species Act.[104] The 1980s saw the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA),[105] and few narrower undertakings, including the Nuclear Waste Policy Act,[106] and the Asbestos School Hazard Abatement Act.[107] The 1990s gave us little beyond the Clean Air Acts Amendments[108] (which were material in the fight against acid rain) and the National Environmental Education Act.[109]

This undeniable petering out of federal legislation might reflect popular dissatisfaction with environmentalism or strategic miscalculations among its leaders. The authors of *Death of Environmentalism* cite as "[p]erhaps the greatest tragedy of the 1990s" the inability of the environmental community to "come up with . . . a legislative proposal . . . that a majority of Americans could get excited about."[110]

A more plausible explanation than declining imagination or clout is a shrinking pool of urgently needed and pragmatically passable legislation. The first laws to be driven through Congress, such as acts cleaning water and air, were those that commanded the strongest consensus.[111] Proposals still unenacted are those for which there is a lower demand and more concentrated resistance.[112]

A review of the Congressional Record substantiates the dwindle. Of the forty-odd bills relating to the environment proposed in the 108th and 109th Congresses, only three passed, two of which were appropriations for existing agencies,[113] and the other an amendment to an existing program regarding the U.S.-Mexican Border Environment Cooperation Commission.[114] Thirty-four of the bills were referred to committee and allowed to die without further action, including such symbolic gestures as proposals for a constitutional amendment assuring a clean environment.[115] Not all of the unsuccessful proposals can be dismissed as undeserving of environmental lobbying. They included the Mercury Emission Act of 2005[116] and a Freedom to Establish State High Air Quality (Fresh Air Quality) Act,[117] which would enable states to set their own standards regardless of actions by the Environmental Protection Agency (EPA). But the impact of most of the proposals would have been marginal. For instance, a bill to amend the Federal Insecticide, Fungicide, and Rodenticide Act would have required local educational agencies and schools to implement integrated pest management systems.[118]

Granted, there is little in these proposals that could be considered dramatic. Yet the diminished flow of environment-protecting legislation can be portrayed as a sign of success: unless the shift to the Barak Obama administration sweeps in extremely sympathetic allies, much of what realistically can be expected from Congress (outside, perhaps, of a cap-and-trade scheme to combat climate change), the environmentalists have already gotten. Moreover, some of Congress' own influence has migrated to the White House, given presidential leadership (or nonleadership) over the treaty-making powers and the agencies (principally

the Environmental Protection Agency). With the most crucial federal laws already on the books, and the current White House beyond their reach, some of the activists' time and resources has redeployed toward states and localities, with an eye toward making progress selectively, in the most congenial jurisdictions.[119] Even with the redeployment, however, there remains resistance at both local and state levels.[120]

(6) Public Sector Funding

The number of environmental bills legislatures pass is perhaps less indicative of environmentalist influence on those bodies than the levels of appropriations for environment-protecting activities. The budget record, however, like much else, is ambiguous. Critics have pointed out that over the past forty years federal support for natural resources and the environment (NRE) fell nearly in half, which is true when viewed as a *percentage* of the total budget.[121] On the other hand, there were increases over this period both in *total* appropriations for NRE (from $14.5 to $27.8 billion),[122] and in NRE's share of the proportionately declining *discretionary* budget (from 2.8 percent to 4 percent).[123] Moreover, there are environmental-benefiting appropriations which are not included in the budget's NRE tabulation. Much of the spending on climate change, for example, is spread among many agencies, and is independently reported by the Office of Management and Budget to have increased 55 percent, from $3.28 billion to $5.09 billion (adjusted for inflation) between 1993 and 2004.[124]

If we focus directly on the EPA, as the key agency, we find that in its first ten years (1971 to 1980) its budget rose from $700 million to $5.6 billion, and gradually worked up to $7.2 billion in 2000. After some declines during the administrations of President George W. Bush, the administration of Barack Obama has slated $10.5 billion for fiscal year 2010.[125]

I am not sure what to make of these figures. Relative to other claims on funds, are they "too high" or "too low"? Should we expect some tapering off of budget outlays as air and water quality have improved? Perhaps rather than examining gross budget trends, environmentalists should try to identify and publicize particular areas that are most credibly under funded.

(7) Litigation

A shift toward the courts has proven fruitful. The number of citizen suits, many instigated by environmental groups,[126] has had a far-reaching and expanding influence. One study reports that:

> Since 1995, citizens have filed . . . about one lawsuit a week, and have earned 315 compliance-forcing judicial consent orders, under the CWA and CAA alone. During the same period, under all environmental statutes, citizens have submitted more than 4,500 notices of intent to sue, including more than . . . 4,000 against agencies and members of the regulated community. . . .

> This is an astonishing pace over eight years of about two notices of intent to sue every business day, which easily outpaces EPA referrals for enforcement to the U.S. Department of Justice (DOJ).[127]

The author of this report associates the increased flow of private suits with a diminishing flow from the government.[128]

This certainly jibes with my own impression that environmental groups are increasingly watchdogging the efforts to purge emissions, protect species, and safeguard environmentally sensitive areas. Environmental litigators have been consistently vigilant, professional, and creative. If this view is mistaken, it demands correcting; but it should be up to the critics to point out the good cases that are not being brought, or the failures in litigating.[129]

(8) Indices of Miscellaneous Actions

Environmental groups do not seek merely to foster preferences and to influence laws and their enforcement. Their activities extend to a wide range of miscellaneous functions around the world. These include reducing uncertainty around science, proposing solutions, disseminating technological options, and capacity building: training cadres of environmental lawyers, organizing workshops and clinics, and supporting the proliferation of like-minded groups. Nor have the environmental groups neglected the Internet in gathering and transmitting data.[130] Efforts have been made to reach out and gain support among shareholders and industry leaders.[131] No one can claim that each of these activities has been conducted optimally. Each should be appraised with a critical, constructive eye. But anyone who would dismiss the environmental movement as moribund is brushing aside quite a slew of current activities.

(9) Actual (Direct) Indicators of Environmental Health

Of course, the most important criterion of success is the bottom line. Putting aside the tallying of laws passed and budgets appropriated, has the environment gotten better or worse? What has the movement got to show for itself? There are some prominent deteriorations. In the atmosphere, the congestion of greenhouse gases is continuing.[132] In the oceans, coral is dying,[133] pollution accumulating,[134] and fish stocks deteriorating.[135] On land, deserts are expanding,[136] tropical forests shrinking,[137] habitats disappearing,[138] and species vanishing.[139] As against these losses, the thinning of the ozone shield has been checked.[140] Some highly valued species, such as the American Bald Eagle and gray whale, have been removed from endangered lists.[141] But overall, from 1980 to 2009 the number of species listed as endangered or threatened has increased significantly.[142] Forest cover in temperate zones has increased.[143] In the United States, the principal indicators of air quality have generally improved over the past three decades.[144] The same is probably true of water quality, overall, although inventorying of water conditions is not as thorough as with air, and different pollutants, such as

Percent Change in U.S. Air Quality

	1980 vs. 2008	1990 vs. 2008
Carbon Monoxide (CO)	-79	-68
Ozone (O_3) (8-hr)	-25	-14
Lead (Pb)	-91	-62
Nitrogen Dioxide (NO_2)	-46	-40
PM10 (24-hr)	—	-31
PM2.5 (annual)	—	-19
PM2.5 (24-hr)	—	-19
Sulfur Dioxide (SO_2)	-71	-59

http://www.epa.gov/airtrends/aqtrends.html

pesticides and mercury, undoubtedly present different, and not consistently comforting, biographies.[145]

No signs of the feared regulatory "rollback" have shown up in the EPA data. In 2000 to 2006, the agency's benchmark of six principal air pollutants declined fourteen percent even in the face of increased domestic product, energy use, and vehicle miles traveled.[146]

Even were we able to combine the various gains and losses into a single index of "environmental quality," we would be hard pressed to draw an unambiguous evaluation of the movement's influence. There are simply too may inputs determining policy outcomes to allocate credit or blame among environmentalists and other actors and forces. Even where there have been setbacks, one can only surmise how much worse the situation would have been had environmentalists not been agitating for improvement. Is anyone claiming that there are risks the environmentalists have *missed*?

(10) Efficient Pollution

One could want more of the movement than a reduction in the quantity of pollutants emitted (and wildlands converted, species lost, and so on). A more rigorous demand would be for the environmentalists to persist in their efforts until the efficient levels have been attained. The theory is clear enough. As more and more units of pollution are removed, the marginal benefits of any further reductions goes down (assuming that the worst stuff has been taken out first); at the same time, the marginal costs of incremental removal go up (assuming that the stuff that is least costly to remove has already been eliminated). Even the environmental skeptic will grant that abatement should be pursued until the marginal costs of any further reductions equate with the marginal benefits.[147]

As a basis for critiquing the movement, efficiency is unfortunately a hard indicator to track. Measuring physical qualities, such as tons emitted or accumulated in the air, is fairly straightforward. But figuring the marginal costs and benefits of moving away from those figures is inevitably conjectural. What will it really cost, in the long term, to eliminate a gigaton of carbon (much less to restore emissions to 1990 levels)? And how can we put a price on the benefits one can expect in return, which relate to such things as discomfort, wilderness areas, species, and the welfare of remote descendants?

With so much uncertainty, no one can say with confidence that various emissions should be cut further, more wetlands protected, and so on. It may well be that certain pollutants have already been reduced to efficient levels—that is, to a point where the social benefits of further reductions would not be warranted by the costs. Wherever this is so, environmentalism is alive as long as the gains are protected. But there is reason to suspect present levels are inadequate, if only because of the strength of industry's hands in, for example, formulating energy policy[148] and in installing allies into key government roles.[149] Opinions of scientists supporting further regulation have been ignored or rewritten.[150] The government's own cost-benefit analysis procedures, increasingly managed from within the shadows of the Office of Management and Budget (OMB), have drawn scathing charges of regulatory capture.[151]

Nonetheless, it is not easy to substantiate the hunch that the government, even in adopting industry positions, is straying far from what most people would in fact prefer (as distinct from the more presumptuous but conjectural standard, the policies the public would select if fully informed). When asked "how willing would you be to pay much higher prices to protect the environment," nearly half (47 percent) were "willing," but slightly more were either "neutral" (24 percent) or "unwilling" (28 percent).[152] Thirty-four percent would be willing to pay "much higher taxes" and 32 percent would "accept cuts in [their] standard of living" to protect the environment.[153] But on the same issues, about 22 percent were "neutral" and 45 percent were "unwilling."[154] In other words, those who want to go further in protecting the environment are pretty fairly balanced against those who do not. If these figures are reliable and remain valid today (the poll was taken in 1994), it would suggest that the level of environmental regulation is not far from the level the public is willing to pay for and that the government, therefore, is not being unresponsive.[155]

IV. SELF-PRESENTATION

Not all criticism of environmentalism alleges misconceived goals or flubbed efforts. Some criticism goes to style—not so much to what the environmentalists are doing but to how they go about it.

(1) Alarmism

One common charge is that environmentalists have undermined their credibility by adopting alarmism as their basic strategy;[156] the "politics of chicken little" it has been called.[157] I am not sure that is fair. Most of the literature I receive from the environmentalist camps, while designed to warn (that is, after all, their job), are nonetheless sober. Certainly, one can find a few calamitous predictions, going back to Thomas Malthus, that have proved, thankfully, overly pessimistic (thus far?). Every forecast that fails to pan out makes it harder to hold public attention. But there are several things to consider.

First, while the record may be marred, I would guess there have been far more right calls than wrong. Among the many-heralded perils that have not materialized there must be a substantial number that were headed off precisely because the warnings were heeded. Consider ozone-depleting agents—indeed, someone might try to determine how many dangers were underestimated by their first alarm-sounders and turned out to be *worse* than predicted.

Second, of course, no one should make charges recklessly. Stridency has gained ground in every corner of the public arena. Environmentalists, who are continually faced with galvanizing diffuse interests, may be no exception. But sounding alarms—if that means accentuating high magnitude events, even if of a low probability—is an important part of the environmentalists' watchdog function. Of course, they should not be irresponsible. But I no more want environmentalists to be "balanced" than I want civil liberties advocates to be balanced in providing early warnings about losses of liberty. There is no shortage of balancers from outside the movement to step in and give their side.

Third, some of the threats environmentalists point to, including climate change, invasive species, and toxic and nuclear waste, merit a degree of alarm.[158]

(2) Image

If being thought "alarmist" were the sum and substance of the image problem, the movement, and environmentalists as individuals,[159] could probably mount a defense. But some critics claim that the environmentalists labor under a public image that is more multifaceted, more negative, and harder to overcome than just being "alarmist." The charge here is that the leaders of U.S. environmental groups are strikingly unrepresentative of the general population they are trying to move. One commentator complains that most of the leaders are wealthy white males who style themselves "politically liberal" (63 percent of environmentalists, as compared with 18 percent of the population, adhere to this label).[160] The author continues:

> Asked whether "I would fight for my country, right or wrong," 57 percent of all Americans but only 9 percent of environmentalists say yes. Environmental activists support causes like race preference, easy abortion, and gay rights

> at rates of 70–80 percent, versus 34–40 percent among the public at large. And fully 47 percent of environmental activists say they have "no" religion—compared to 6 percent of all Americans.[161]

Some might imagine from such poll results that environmentalists, especially the most active, would be widely regarded negatively, or at least as out of step. Indeed, the author of the paragraph quoted earlier proceeds to depict the movement as a sort of playground in which "disaffected," "anti-growth," and "counterculture" citizens can "act out opposition to modern society and technology."[162] Granted, some share of the public probably connects the movement to the 1960s and 70s, and thus to flaky hippies and impractical, preachy idealists. But there is considerable evidence undercutting claims that environmental activism is associated with markers of "elitism," such as income and education. Support for environmental causes appears to be strikingly broad-based and populist.[163] In fact, public opinion polls are hard to square with calls for a major image face-lifting. When asked, "[Do] you think [environmentalists] are having mainly a good influence on the ways things are going in this country or mainly a bad influence[?]," 75 percent responded "good influence" and only 15 percent responded "bad influence."[164] Eighty-one percent believe the movement has had "a large positive impact on the values and beliefs of people today," and only 13 percent answered negative.[165] A 2002 Gallup Poll asked, "Do you think of yourself as an active participant in the environmental movement; sympathetic towards the movement, but not active; neutral; or unsympathetic towards the environmental movement?"[166] The results were striking: 19 percent answered "active participant;" 51 percent said "sympathetic, but not active;" 25 percent "neutral;" and only 5 percent reported themselves "unsympathetic."[167] Surveys that reveal affective feelings of warmth or coolness (as distinct from cognitive judgments) are similarly positive.[168]

Thus, while environmentalists might do well to keep image in mind, I doubt they have an image they need run away from, or for that matter could run away from, without sacrificing much of what they offer as our preachy, nervous, and noisy lot of "backpacking tree huggers."

V. CONCLUSION

The environmental movement continues to apprise, train, advise, motivate, and sue. To label the whole operation dead is silly. But asking environmental activists to consider what they might be doing better, or may be underemphasizing, is not. Such an evaluation, however, is difficult. The "movement" consists of a wide range of independent groups with understandably varying aims, tactics, and competencies. The standards of success are often hard to define, and when defined, hard to prove one way or the other.

As far as "educating" the public is concerned, apparently the U.S. public, on which this chapter concentrates, is getting the message. Most people agree that we face serious environmental problems and know what they are. Getting people to change their behavior is more challenging. To change course we have to amend "lifestyle," a formidable obstacle; consider how hard it is to change preferences and behavior even in the face of AIDS. And to the general public, the environment is one bundle of problems among many others that command higher priority, including health care and a sputtering war. Moreover, even people who want to take action on the environment are unsure what they can do about it. If we cut back on carbon, but China and India do not, will our sacrifices make any material difference? Indeed, the movement, in its totality, warns about so many dangers that many people must be saturated, particularly where the warnings are broadcast with no practical solutions attached.

As we have seen, solutions—or, at any rate, steps in the right direction—need not take the form of collective action, such as general laws and regulations. People are being advised on measures they can take at the household level. These efforts have not taken the hold one might wish, but they are a start. And worsening weather could prove to be a significant motivator.

No one doubts, however, that substantial progress will require more than bad weather and heart-wrenching photographs of polar bears. There have to be changes in "values"—in how we assess out impact on drought-stricken lives on the other side of the world; on future generations; on the other living things with which we share the planet. Such changes entail reforms of the spirit that are rightly part of many environmentalists' aspirations. But there is no reason to believe that the particular competencies of environmentalists make them best or even well suited to take the lead. Accordingly, they need not berate themselves for coming up short. Their barrage of facts and warnings and action plans lay a foundation. Beyond that, transformations may simply lie in the province of (broadly speaking) literature. When it comes to spiritual reform, what scientific study or legal brief can compete with *Free Willy* or *March of the Penguins*?[169]

Environmentalists? They are at their best doing the many things they do (more or less uniquely) well, from educating to suing. To me they appear very much alive.

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EPILOGUE
Trees Revisited

I. . . . CONTINUING

As I said in the Introduction, I had not been an environmental lawyer when *Trees* came out, and the focus of my energies turned to other things, including the control of organizational behavior and energy policy. But the environmental movement was swinging into high gear. A number of lawyers began to file suits in the name of nonhumans, including, in a fairly short space of time, the Byram River, No Bottom Marsh, and Death Valley National Monument.

In New York, a woman sued as "next friend and guardian for all livestock animals now and hereafter awaiting slaughter," to challenge as "inhumane" and unconstitutional an exemption to the Humane Slaughter Act in favor of the orthodox Jewish ritual which prescribes that cattle be conscious when knifed, shackled, and hoisted.[1] In Hawaii, a young laboratory assistant "liberated" two dolphins from the university's tanks into the Pacific Ocean so that they could "exercise their freedom of choice" whether to return to captivity. Tried for first degree theft, the assistant defended on the grounds that the dolphins were jural "persons" whom he was saving from slavery—a defense that won him considerable sympathy, though slightly tarnished by testimony about marijuana use and the opinions of marine biologists that, left to fend for themselves in the open seas, the bred-in-captivity dolphins were as good as dead. The liberator wound up with six months in jail and five years' probation.[2]

II. THE AFTERMATH IN LAW

If young lawyers I meet in airports are to be believed, *Trees* continues to pop up in colleges and the law schools, perhaps to inspire. But what has been the impact *within* the law, if not of *Trees* itself (for the environmental movement had an inertia of its own well before and quite independent of my own little contribution) at least of the "Nature's own rights" thesis for which it spoke? Let us take the original three elements of legal personhood that *Trees* set forth: (1) that suit be permitted in the object's own name and interest; (2) that the calculation of damages (or balance of equities where damages were inappropriate) include an accounting for the interests of, or nonintrinsic value of, the object (not limited to commercial economic value); and (3) that judgment be applied for the benefit of the object. To what extent have these three elements been realized?

(1) "Standing in its own name and right . . ."

Cases continue to be brought, sporadically, in the interest, and often the name, of nonhumans. One group of cases names endangered species as plaintiffs, alleging failures to protect their habitat as required by the Endangered Species Act (ESA). This group begins with the *Palila* litigation (1979–1988),[3] and runs through the *Northern Spotted Owl* (1988, 1991),[4] the *Mount Graham Red Squirrel* (1991),[5] the *Hawaiian Crow ('Alala)* (1991),[6] the *Florida Key Deer* (1994),[7] and the *Marbled Murrelet* (1994).[8] In all these cases except *Hawaiian Crow ('Alala)*, standing was granted (and indeed, the plaintiff continued to meet some success on the merits). But in no case was the species the sole plaintiff. Plaintiffs' counsel typically cover their bets with one or more conventional plaintiffs whose standing is less vulnerable to challenge. As a consequence, the species' standing in its own right has usually gone unchallenged by the defendant and is not dwelt upon by the court.

In *Hawaiian Crow ('Alala)*, in which the defendant did make a specific objection to the species' appearance as named plaintiff, the suit in the name of the species was dismissed.[9] The *'Alala* court took note of the Ninth Circuit's statement that the Palila "'also has legal status and wings its way into federal court as a plaintiff in its own right'"[10] but labeled the statement mere dictum in light of the presence there of conventional plaintiffs. The judge also observed that there was no reason why the Audubon Society and other conventional plaintiffs could not press ahead for the relief sought and thus dismissed the 'Alala, holding that the bird was not a "person" as that term should be understood in the ESA's citizen suit provision.[11] By contrast, the district court in *Marbled Murrelet*, in the course of enjoining the challenged logging operation, took the species-standing language of *Palila* as more authoritative, expressly declaring that the Marbled Murrelet, as a protected species under the Endangered Species Act, "has standing to sue 'in its own right.'"[12] The Ninth Circuit Court of Appeals took no issue with this in affirming;[13] but there was a backup associational plaintiff in *Marbled Murrelet*, the Environmental Protection Information Center. In a more recent Ninth Circuit case challenging the harm to whales from the Navy's sonar testing, *Cetacean Society v. Bush*, the court disassociated itself from the language of *Palila*, labeling the earlier court's declaration that the birds had standing to sue "in its own right" to be "nonbinding dicta."[14]

Yet, having said that, the court proceeded to make a dramatic and potentially far-reaching concession. While it was "obvious that an animal cannot function as a plaintiff in the same manner as a juridically competent human being . . .we see no reason why Article III prevents Congress from authorizing a suit in the name of an animal, any more than it prevents suits brought in the name of artificial persons such as corporations, partnerships or trusts, and even ships, or of juridically incompetent persons such as infants, juveniles, and mental incompetents. *See, e.g., Cruzan by Cruzan v. Director*, Missouri Dept. of Health, 497 U.S. 261 (1990) (plaintiff Nancy Cruzan was in "persistent vegetative state"); *see also* Christopher D. Stone, Should Trees Have Standing?-Toward Legal Rights for

Natural Objects . . . ("The world of the lawyer is peopled with inanimate rights holders: trusts, corporations, joint ventures, municipalities, Subchapter R partnerships, and nation-states, to mention just a few.").

"If Article III does not prevent Congress from granting standing to an animal by statutorily authorizing a suit in its name, the question becomes whether Congress has passed a statute actually doing so. We therefore turn to whether Congress has granted standing to the Cetaceans under the ESA, the MMPA, NEPA, read either on their own, or through the gloss of Section 10(a) of the APA." 386 F.3d 1169, 1176 C.A.9 (Hawai'i), 2004. The judges proceeded to find that Congress had not in fact provided standing for the cetaceans, but left the ball in Congress's court to so provide if it wished.

The *Bush* decision had in fact been foreshadowed by a district court opinion in the same circuit, *Coho Salmon v. Pacific Lumber Company*, in which nonprofit organizations filed suit to enjoin logging operations which modified the Coho salmon's habitat and affected its population, naming the fish as lead plaintiff.[15] The court unambiguously dismissed the plaintiffs' claim that the ESA granted the species standing, while making no objection to hearing the case on the basis of associational standing. In a footnote, the court stated, "to swim its way into federal court in this action, the coho salmon would have to battle a strong current and leap barriers greater than a waterfall or the occasional fallen tree."[16] The Third Circuit, as far as it has spoken, is in accord with Ninth. In *Hawksbill Sea Turtle v. FEMA*, plaintiffs sued under the ESA to enjoin the construction of a temporary housing project harmful to the endangered Hawksbill Sea Turtle, Green Sea Turtle, and Virgin Islands Tree Boa species. While the court was willing to hear the case on the theory of associational standing, and therefore did not need to consider the standing of the named animals, the court "note[d] in passing, however, that the standing to sue of the animals protected under the ESA [was] far from clear."[17]

The Eleventh Circuit, by contrast, seems more receptive, as reflected in the *Loggerhead* litigation. That case arose as a challenge to a lighting ordinance affecting turtle nesting areas on county beaches. Individual human plaintiffs and the Loggerhead Turtles were joined. When the defendant county moved to dismiss based on alleged procedural infirmities of the human plaintiffs, the court continued the proceedings on the basis of the species' own standing (whatever the merit of the alleged bar to the humans) and granted a partial preliminary injunction.[18] On appeal, the Eleventh Circuit did not challenge—and thus, accepted—the district court's reliance on the turtles, exclusively, for standing.[19]

Another group of cases has involved particular animals (as distinct from the species), and originates with what might be called the animal rights bar, as distinct from environmental law bar. Unsurprisingly, the cases that include, or come closest to including, animals as parties in interest appear limited thus far to "higher" mammals, viz., dogs, monkeys, and dolphins.

No dog, to my knowledge, has yet appeared as plaintiff. But the notion of rights-like treatment for them, once ridiculed, has successfully been raised in

actions in which the dogs were in jeopardy—defendants, as it were. In Detroit, authorities impounded a prize sheep dog with plans to destroy it for having killed an 87-year-old woman. The dog's owners rejoined that the woman had died of a massive heart attack. The dog was tried, even allowed "character witnesses" to testify about its "gentle disposition." After a hearing that, according to press reports, took on "all the trappings of a murder trial" the dog was ordered defanged, neutered, and confined to home.[20] In Virginia, a dog sentenced to death for barking was reportedly given a reprieve by an appeals court, the death penalty being considered too harsh a punishment.[21] My sense, however, is that, technically speaking, such protections as dogs have received in these and similar cases derived not from the dogs' own due criminal due process rights, but from the owners' right not to be deprived of *their property* without due process of law.

As far as (nonhuman) primates are concerned, the closest approximation to a test of animal personhood arose in a complex series of lawsuits known as the Silver Spring Monkey Case. The case grew out of revelations that a group of research monkeys had been subject to shockingly abusive conditions.[22] Several animal welfare organizations, including People for the Ethical Treatment of Animals (PETA), the International Primate Protective League (IPPL), and the Animal Law Enforcement Association (ALEA), filed a complaint in Montgomery County alleging violations of various animal cruelty laws. In the original complaint the plaintiffs claimed that they spoke not just for their own and class interests, but also as next friends of seventeen nonhuman primates (macaque monkeys).[23] The cause was removed to U.S. District Court for the District of Maryland. The defendant, Institute of Behavioral Research, moved to dismiss for lack of standing. The federal court granted the dismissal, ruling that the plaintiffs had failed to demonstrate that they had personally suffered any actual or threatened injury as a result of the putatively illegal conduct of the defendant. Additionally, the court held that the Animal Welfare Act did not authorize private suits (presumably regardless of the plaintiff's species).[24] In light of the disposition, no specific attention was given to the "best friend" theory, which was the closest approximation to an argument that the animals had their own legal interests.

The plaintiffs having failed to gain custody in Maryland, the monkeys were transferred by court order to the National Institutes of Health (NIH), which lodged them at Tulane University. In 1988, when the NIH announced that it was going to euthanize three of the monkeys, essentially the same organizations filed state law claims in Louisiana to prevent the killing and assume custody of the monkeys, alleging standing, inter alia, as attorneys for the monkeys. The state court issued a temporary restraining order halting the euthanasia, whereupon the NIH removed the cause to federal court. The U.S. District Court continued the state court's temporary restraining order, and NIH appealed to the Fifth Circuit.

On appeal, the Fifth Circuit rejected all the plaintiffs' theories of standing, including a claim that the handling of the monkeys imperiled their mission as advocates for the rights of the Silver Spring Monkeys, who had no means of protecting themselves.[25] To the court, this boiled down to arguing that the

plaintiffs should be allowed standing because to deny it would leave the monkeys unprotected. "'The assumption that if respondents have no standing to sue, no one would have standing, is not a reason to find standing.' . . . [T]he mere fact that the monkeys would be left without an advocate in court does not create standing where it otherwise does not exist."[26]

Two cases naming marine mammals as plaintiffs have been brought in U.S. District Court in Boston. Both were precipitated by efforts to transfer dolphins from the New England Aquarium to naval centers; in both, the crux of the complaint was the alleged failure of all parties concerned to acquire the permits that the federal law allegedly required to make the transfers lawful.[27] The first case, in 1992, was filed when the Navy sought to transfer Rainbow, an 11-year-old bottlenose, to the San Diego Naval Center, where dolphins were being trained for naval warfare. Rainbow's "own" resistance was joined with objections of a group called Citizens to End Animal Suffering and Exploitation (CEASE), a Massachusetts nonprofit corporation. CEASE's claim was that among its 4000 members were many patrons of the New England Aquarium who would, if the Navy were to take Rainbow from the aquarium, "be unable to observe Rainbow further." The case was settled with the Navy and aquarium calling off the transfer by stipulation.[28] Thus, no opinion was ever issued in the Rainbow matter.

But in 1993 continuing disagreement among the parties came to a head over another New England Aquarium dolphin, Kama, who had been born in captivity (in Sea World) in 1981, and transferred to Boston in 1986. Kama, the aquarium maintained, never "fit into the social climate at the Aquarium,"[29] and he was transferred, without permits, to a naval station in Hawaii to be studied for his sonar capabilities. CEASE, once more joined by its animal client, Kama, sued to nullify the transfer. This time, however, the aquarium and Navy fought back.[30]

On the issue of Kama's standing, could Kama be, legally, "a person" suffering legal injury, as federal law would appear to require for him to appear in court in his own right?[31] U.S. District Court Judge Mary L. Wolf began by noting the parallel efforts to designate species as "persons" under the Endangered Species Act (ESA).[32] The *Palila* opinion, she granted, had favorable language, but the defendants there had not challenged the species' standing. But she correctly noted that in the only ESA case in which the species' claim was contested, *Hawaiian Crow ('Alala)*, the species was dismissed. Turning to the Marine Mammal Protection Act, on which Kama's claims were based, the court would "not impute to Congress or the President the intention to provide standing to a marine mammal without a clear statement in the statute."[33] In essence, a dolphin could be made into a (legal) person with standing; it was at least an open question. But Congress would have to expressly provide before the Court would entertain such a claim.

The movement for extended standing has spread outside the United States and continues to appear in a variety of contexts. In 1988, when harbor seals of the North Sea began dying off in huge numbers, a suit was instituted in Germany in the name of the seals to arrest the flow of toxic metals into their environment.

The administrative law court in Hamburg dismissed it with the pithiest opinion.[34] In Japan, a suit was filed in 1994 in the name of an endangered rabbit, the Amami, whose sole surviving habitat was being threatened by construction of a golf course; as in the U.S. cases, an environmental group and several individuals were named as additional plaintiffs.[35] The court, noting that only humans were permitted to file suit, demanded that counsel supply the names and addresses of the plaintiffs to assure they were humans; counsel could not comply, and the suit in the name of the species was dismissed.[36] In 1995, another suit was filed in Japan in the name of rare migratory bean geese (among the world's largest geese) to force the government to declare its choice wetlands a sanctuary. The complaint was marked with a goose's webbed footprint; it, too, was rejected.[37]

In Israel in 2008, the Israeli gazelle appeared as plaintiff along with individuals in a petition to the Israeli Supreme Court challenging a housing development that would have impacted the gazelle's habitat (as well as nearby residents). The judge who entertained the interim suit for injunction opined that animals might have standing under Talmudic law, but not under the laws of Israel, and warned that if the gazelles weren't dropped, the plaintiffs could bear legal fees.[38] Plaintiffs' counsel persisted in including the gazelle on hearing before the full court, which held for the plaintiffs without engaging the status of the gazelles.[39]

At the time of this writing, a chimpanzee named Matthew was petitioning the European Court of Human Rights to have a guardian appointed for him because the sanctuary where he lives may be forced to close. Donors have expressed a willingness to pay for his care, but under Austrian law, only a human can receive personal gifts. A lower court dismissed the request to appoint Matthew a guardian, stating that he was neither mentally disabled nor in danger as required by applicable law.[40]

Soon after *Trees* was published, several correspondents raised the question of standing for the unborn. After all, like animals, future generations are unrepresented in the processes that are shaping the world they will inherit.[41] In a landmark case in the Philippines, plaintiffs, all minors, sued on their own behalf *and on behalf of unborn generations* to cancel timber licensing agreements so as to (in the terms of the complaint) "[p]revent the misappropriation or impairment [of Philippine rainforests and] arrest the unabated hemorrhage of the country's life support systems and continued rape of Mother Earth."[42] The Philippines Supreme Court upheld the complaint on a basis that included the infringement of the rights of the unborn. In 2008, Ecuador amended its constitution to provide that nature "has the right to exist, persist, maintain and regenerate its vital cycles, structure, functions and its processes in evolution."[43] While the provision cannot be applied retroactively to join nature itself as a party in the ongoing litigation between native people in Ecuador and the oil companies, it may reflect a shift, in Ecuador at least, from an exclusively homocentric view of the environment to one in which some consideration of Nature itself constrains permissible levels of "resource" exploitation.[44]

III. WHERE DO WE STAND ON THE STANDING ELEMENT, THREE DECADES AFTER TREES?

While it is fascinating (and gratifying) to follow these developments, the sum of cases is insubstantial and the substance unclear. Only a scattering of claims have been brought on behalf of a nonhuman (animal, species, or nonsentient natural object), and of these few, fewer still have been filed in the name of a "thing" only, unjoined by a natural person or association of humans as backup co-plaintiff. That is to say, though a lawyer may name a river lead plaintiff, so that in the official reporters the case bears a title like *Byram River v. Village of Port Chester* or *Marbled Murrelet v. Babbitt,* the lawyers instigating them are understandably leery of placing all their chips on the unconventional plaintiff. There have been exceptions. Exclusive reliance on nonhuman plaintiffs evolved unintentionally during the course of litigation in *Loggerhead Turtle v. County Council of Volusia County,* and succeeded before the Eleventh Circuit—a position that *no* circuit has yet to overrule.[45] But more often, exclusive reliance on animal plaintiffs has proved unrewarding. In *Cetacean Society v. Bush*, an attorney challenging the Navy's use of whale-damaging sonar exercises named "the Cetacean Community" as sole plaintiff, and was rebuffed. In sharp contrast, in *NRDC v. Winter,* a number of conservation groups, seeking to fight essentially the same fight, sued in their own names and that of a few members—and succeeded on the standing issue by providing affidavits of individual members proclaiming their interests in enjoying and studying whales.[46]

As a consequence of the tendency to join humans and nonhumans (and even to rely on humans exclusively under liberalizing rules of standing), it remains somewhat unclear how the courts would presently decide cases where standing rested on a nonhuman plaintiff exclusively. Indeed, to judge from the author's communication with counsel in most of the cases cited, favorable media attention has been as significant as any other consideration in the decision to list the natural object as lead plaintiff (targeting the press and bloggers) and then to throw in some humans as insurance for the courts.

There are several reasons for the paucity of litigation in the name of nonhumans—whether exclusively or joined with natural persons or associations, such as environmental groups. Even those who get over the first impression—that the idea is simply wacky—move on to raise practical objections. A common worry is that voiced by our lawyer-poet (as quoted in the Introduction):

> *Our brooks will babble in the courts,*
> *Seeking damages for torts.*

This problem, that standing for natural objects will clog the courts to a standstill, is all too easily exaggerated. Lawyers value their time too much to throw it away on a brook—certainly not on a brook that has nothing to babble about on the merits. Worse, brooks cannot cover the copying costs of modern litigation,

much less the hours.[47] Moreover, the range of permissible guardians can be limited, so that not every lawyer in all the land is qualified to besiege the courts on every hand. Unique guardian-ward relationships, peculiar to certain "objects," may develop de facto. The Hudson River has a "Riverkeeper" who is the client of the Pace University Law School Litigation Clinic; the clinic at Widener University Law School has taken on the Delaware Bay Keeper as its principal client; a Boalt Hall (University of California, Berkeley) law school clinic represents the San Francisco Baykeeper.[48]

In addition, statutes can be drafted (and treaties negotiated) that authorize standing in the name and interests of certain designated nonhumans. Such provisions can also circumscribe, in advance, the group authorized to represent them. In Germany, some of the states (*Länder*) have, by special regulation, approved environmental groups to serve as in effect as designated guardians for certain forests.[49] More recently, German federal law has arranged for certain qualified nonprofit associations (*altruistisches Verbanden*) to enjoy a wide range of opportunities to participate in activities affecting the environment, beginning with the planning stage and carrying over into litigation.[50]

In the United States, the National Oceanic and Atmospheric Administration (NOAA) is the designated trustee for fish, marine mammals, and their supporting ecosystems within the U.S. fisheries zone. Under this setup, NOAA has authority to institute suits against any party that injures its "ward."[51] For example, if whale-watchers harass migrating whales, NOAA has express standing to institute administrative action (civil penalties). If toxic releases damage the whale-supporting ecosystem, it is in the province of NOAA to refer the matter to the U.S. Department of Justice to litigate.[52] The notion of having guardians for natural resources has become so familiar, that under the Superfund Acts the president is authorized to appoint, from among governmental and state agencies, "natural resource trustees" with power to sue wrongdoers for restoration costs.[53]

As I've said, the supposed "practical" problem of court-clogging strikes me as exaggerated. There remain, of course, philosophical objections. "The only stone which could be of moral concern, and thus have legal rights, and thus deserving of legal rights," one Canadian commentator gibed, "is one like Christopher."[54] But this challenge is based on a common error, to suppose that a thing's having *legal rights* (being a person in a legal system) has to stand or fall on the thing possessing *moral rights* underneath. (We assign corporations independent status in the legal system, such as the capacity to sue and be sued in their own name, but we do not do so because anyone believes that corporations are moral agents).

Thus, I do not believe that the commonly cited practical and philosophical conundrums are anything near fatal. I suspect that the principal reason why *Trees* has had so mixed an impact has been, ironically, the growth and the success of environmental law. Throughout the seventies, as the social climate grew more sympathetic to the environment (even in face of the "energy crisis"),

several developments reduced the value of *Trees*' "standing" thesis as a tactic for environmental lawyers.

Most important was judicial liberalization of standing, in which the courts, by relaxing the traditional standing requirements (such as that the plaintiff have suffered "injury in fact"), made it easier for humans to bring cases in their own names on the homocentric theory that the damage to the environment was a cognizable injury to *[human] individuals*. Environmental lawyers were thus provided an alternate, and in most cases an equally satisfactory key to the courthouse door. In the *Mineral King* controversy, the Sierra Club Legal Defense Fund simply redrafted its complaint to accentuate how injury to the area would infringe the club's "associational interests" and be detrimental to individual members' interests in hiking and aesthetics. It was a pithy amendment, but the trial court bought it.

There is no more striking illustration of the improving climate for conventional, human-based standing than the South African seal litigation. In 1976 several animal welfare groups joined in an action to restrain the U.S. Secretary of Commerce from issuing permits for U.S. firms to import baby fur sealskins from South Africa. They charged that the methods employed to separate the seals from their skins (for transference to humans whose needs for the pelts was in all events quite less urgent) violated the Marine Mammal Protection Act of 1972.[55] To satisfy the standing requirement, the groups alleged—in lieu of injury to the seals!—injury to the recreational, aesthetic, scientific, and educational interests of individual group members. The U.S. District Court dismissed the action on the basis of *Sierra Club v. Morton*, noting that, like the Sierra Club, the groups before it, however great their interests, were not "on any different footing from any other concerned citizen."[56] In fact, one might say that their homocentric claims were weaker than those of the Sierra Club in *Morton*. In the seal case, South Africa was not only so far away that the chances of any plaintiff ever traveling there were frankly remote: the area of the Cape that the seals inhabited was accessible only with the special permission of the South African government, a permission not likely to be given to U.S. seal-watchers!

Hence, considering itself bound by the standards the Supreme Court had laid down in *Morton* (1971), the District Court felt bound to reject jurisdiction. But by the time the seal case reached the Court of Appeals (1977), the court, "in the wake of rapidly developing case law," seized upon an affidavit by one of the groups' expressing a plan to go to South Africa in the future to uphold standing and invalidated the permits.[57] Indeed, in 1973 the U.S. Supreme Court had upheld the power of an unincorporated group of law students to challenge the Interstate Commerce Commission's approval of freight rate increases without filing an impact statement examining the impacts of the new rates on the environment.[58]

In *American Cetacean Society v. Baldridge*, the society, to thwart Japanese whale hunting, sued to compel the United States to invoke trade sanctions against Japan for "undermining the effectiveness" of the International Whaling Convention.[59] The defendant, insinuating (not without merit) that a suit essentially on behalf of

whales was a doubtful mechanism for plunging the judicial system into imbroglios of foreign relations that are best left to the executive, invited the courts to invoke the society's tenuous connection to the controversy as a basis for extricating themselves. In an editorial titled *Do Whales Have Standing?*, *The Wall Street Journal* opined: hopefully not.[60] But the courts did not rise to the bait, ruling that the plaintiffs were "sufficiently aggrieved" because the harvesting of whales interfered with their interests in whale-watching.[61] Clearly, liberalized (human) standing was entering a golden age—one in which the need to persuade courts to hear suits on behalf of Nature itself was becoming less crucial. Just about any human or human group, with any plausible connection, would do.[62]

While courts were extending human standing through expansive interpretations, legislatures were engaged in a parallel process at the rule-making end. With increasing frequency, new enactments were drawn to include provisions for "citizen suits," in which courts were expressly authorized to hear challenges to environment-disrupting actions by parties whose own personal injury, if any, would have been otherwise inadequate to receive standing. Other legislation has fortified and expanded the government's right to sue private environment-despoilers through a revival of ancient public trust concepts.

(1) ". . . accounting for its own interests or damages . . ."

For me, the second element is the most problematic (and interesting) condition of legal personhood: having the law account for the nonhuman's "own 'injury.'" In an ordinary lawsuit—one arising, say, out of a car accident, measurement of the plaintiff's damages invites no serious theoretical challenges: the owner of the wrongfully wrecked car is entitled to $X, viz., the amount of money required to make her indifferent between (1) being owner of an undented car and (2) being owner of a badly dented car plus an extra $X in the bank (the damages). In other words, by orienting ourselves to the imagined interests of the plaintiff (or of a reasonable person in the plaintiff's position), the law makes the defendant compensate to a point that restores the victim to her original welfare level.

But when we venture to admit into the law nonhumans (even unborn generations of Homo sapiens), fundamental notions of *interests* and *equivalent welfare* become difficult to apply, even all but incoherent, depending upon the particular "thing" bringing suit. The difficulties need not derail the extension of legal protection of individual animals—particularly of higher animals such as nonhuman primates and marine mammals.[63] And of course as we move downward through the "chain of being," passing through creatures possessing decreasing degrees of sentience, and onto inanimates (such as mountains and lakes), one is inclined to become increasingly leery of our ability to fit the object into the legal system.

To illustrate, a Florida electric utility diverted the flow of a small river through its plant for cooling purposes. The water was then reintroduced into the river no dirtier than before, but somewhat warmer (referred to as thermal pollution).

The elevated river temperature turned out to be blissful for the manatees, who multiplied as the population of marine plants, the manatees' choice diet, exploded. But other populations declined. If we imagine now that the river, through a guardian, was to sue the utility, what would she argue: is the elevated temperature good or bad for her client, the river?[64] There is a large and fascinating amount of literature on conservation biology dealing with ecosystems that might give courts good guidance in some cases. But the guidance it offers is subtle and often ambiguous. The long-term health of an ecosystem, measured for example by its resilience, and even the proliferation of species, may depend on exposing ecosystems to (certainly not buffering them from) stresses.[65] And in all events, the argument cannot be grounded on what the client *prefers*. *Humans* prefer, not rivers.

How can the law respond to the challenge of interestless plaintiffs? My answer has been this: as in any situation in which a guardian or trustee is empowered to speak for a ward, what she argues will depend upon what the legal rules provide. In relevant cases in "ordinary" law, such as child custody matters, the rules are linked to the ward's "best interests." But inasmuch as an inanimate object like a river can neither be benefited nor harmed in any ordinary sense, the state of the river for the preservation or attainment of which the guardian speaks, will have to be some state the law *decrees* to be the legally mandated one, defined without reference to the river's own best interests.

The best proof that we can, meaningfully, assign legal rights to interestless things is that the law has already done so. It is done in civil recovery actions. Units of the federal or state governments are authorized to sue polluters as trustees for the environment, to recover and apply the costs of restorations, *even if those costs exceed real market value*. For example, when a mismanaged oil tanker ravaged a Puerto Rican mangrove swamp, the operators had to pay what was liberally estimated as the cost necessary to "make the swamp whole."[66]

And we have done so as a matter of property law. What "having a property right" comes down to, in the ordinary case, is that others cannot trespass upon our land or oust us of our possession simply because they can put the property to a more socially beneficial use. This is just what the Endangered Species Act does for a species, every time it protects a critical habitat from invasion: it is giving the species a property right, much as the law gives each of us a property right in our houses. Society as a whole might value the timber of some forest acreage more highly than it values the owls that depend on it. But once the owls are "listed," the owls prevail. And note that the law is not merely protecting the endangered creatures from *harm*. The Supreme Court rejected such an argument in *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, emphasizing that their habitat is protected (as are our homes and lawns) from having *modifications* imposed upon them.[67]

This idea of nonhumans enjoying a strict property right (without any balancing of interests) has found explicit expression under the Marine Mammal

Protection Act (MMPA). In a challenge to the government curtailment of purse seining for tuna, the D.C. Court of Appeals observed:

> We accept as sufficiently demonstrated that the tuna fleet would be seriously harmed by such a ban. The arguments, however, properly should be addressed to Congress rather than to the courts. Balancing of interests between the commercial fishing fleet and the porpoise is entirely a legislative decision, dictated at present by the terms of the Act.[68]

While the court's allusion to the "interests" of the *porpoise* might be assailed as problematic (an individual porpoise may have interests which fall outside what is optimal for the porpoise population as a whole), we have no trouble following the court's rejection of any balancing between fisher and fish. That is what rights do: the rights-holder wins. On the other hand, to say it is *coherent* to assign such entities legal interests protectable by rights mechanisms is not to say in what circumstances to do so would be *wise* or *right*. To illustrate, suppose we give owls "property rights" to have their habitat remain as it is. This is a much more solemn step than assigning property rights to humans. If we make the wrong assignments initially to humans—if you inherit an apartment building that I can manage more efficiently than you—our capacity to trade interests with one another keeps the allocation moving in the direction of the community's greater needs. But when rights are assigned to the owls, some institutional arrangements are required if we are to avoid a worrisome inflexibility.

Indeed, lots of problems are introduced that the law must address. Giving the owls rights would presumably oblige us humans to refrain from deliberate interference, such as clear-cutting. But what about changes that occur independent of identifiable human agency? For example, if an exotic predator invades on a wind current, threatening to upset the area's balance of life, are we obliged to intercede to eliminate the intruder? If, in the face of drought, the habitat began to go perilously dry, can the Owl Guardian sue for more water? Similarly, and for similar underlying reasons, there are complications, and understandable resistance, to forcing the defendant to pay for full restoration when the costs of doing so exceed the lost market value occasioned by the injury. The U.S. Department of the Interior (DOI) proposed regulations that would have limited compensation to the "lesser of: restoration or replacement costs; or diminution of use values."[69] This is a solution that would have conformed to the way the common law treats ordinary injuries to property: if your car worth $15,000 is "totaled," the person who did it does not have to pay you $100,000 to restore it piece by piece. But the DOI's "lesser of" rule for natural resource damages was challenged. The court envisioned the critical issue as follows:

> [I]magine a . . . spill that kills a rookery of fur seals and destroys a habitat for seabirds . . . The lost use value of the seals and seabird habitat would be measured by the market value of the fur seals' pelts (which would be approximately $15 each) plus the selling price per acre of land comparable . . . to . . . the spoiled bird habitat . . . [70]

Reviewing the legislative history, the court found that "Congress established a distinct preference for restoration cost as the measure of recovery."[71] Nice for Nature! But what if the costs of restoring the habitat are far out of line with its robustly estimated value, not just its use value but its "existence" value and "bequest value," too?

In the essays that preceded this, I addressed such questions—with what success, I leave it to the reader to judge. Here, in the course of surveying the path the law has taken, my claim is only that the second element is not only intelligible, it has gained a solid foothold.

(2) ". . . recovery to go to its own benefit"

Of all three elements, the third, the creation of environmental repair and mitigation funds, has become the most commonplace. The authority for the funds has derived from a variety of legal sources. An early basis was for courts to arm-twist "charitable contributions" out of convicted wrongdoers, as a condition of mitigating their sentences. In 1976, Allied Chemical Company was convicted for its role in discharging tons of the pesticide Kepone into the James River. The judge announced a fine of $13.24 million—but reduced it to $4.5 million on condition that Allied make a (presumably tax-deductible!) contribution of $5 million to the Virginia Environmental Endowment Fund that in turn would, among other things, monitor the wounded river.[72]

Today, as the notion of trusts has become more familiar, an increasing number (perhaps 5 to 10 percent) of Environmental Protection Agency (EPA) enforcement actions are settled on condition that the defendant or respondent undertake a "supplemental environmental project" (SEP).[73] Under EPA guidelines, the purposes may include restoration and improvement of the affected ecosystem.[74] In 1991, in the wake of the wreck of the *Exxon Valdez* in Prince William Sound—which released millions of tons of petroleum into the ecosystem—the federal government and the State of Alaska settled the natural resource claims for $1.15 billion, payable over eleven years.[75] Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), amounts recovered by the presidentially appointed natural resource trustees are earmarked "only to restore, replace or acquire the equivalent" of the damaged environment.[76]

But the most prevalent route to environmental funds has almost certainly been through privately negotiated settlements of citizen suits, principally under the Clean Water Act (CWA). There have to be at least a thousand cases instituted under the CWA's citizen suits provision in which the plaintiff sought a "consent decree" in lieu of the civil penalty provided.[77] These decrees, in turn, often involve payments for some sort of environmental mitigation, ordinarily managed by some existing institution, such as the environmental group plaintiff or a university, that agrees to apply it to environmental purposes.[78]

Although widespread, the practice of having defendants pay damages into a fund to be managed for the benefit of the environment is not uncontroversial. Environmentalists of course favor "returning the purse to the victim."[79] But the

Department of Justice has objected that, absent specific congressional authorization, anything that looks like a fine or penalty should (like a penalty for narcotics violation) go to the general treasuries. Presumably deficit reduction is a concern, of course. But government officials have also argued that courts are poorly equipped to monitor, over time, whether the funds (and interest) are being expended for the intended purposes. And there are fears that environmental groups may institute suits with an eye toward funding pet projects they cannot underwrite through contributor donations.[80]

IV. WHERE DO WE GO FROM HERE?

The past thirty-five years have shown steady if slow progress toward giving the environment its own legal voice and status. Most dramatically, the liberalization of citizen suit standing, and the creation of public trusteeship powers for natural resources suggest that some of *Trees'* original agenda have been either adopted or overtaken by events. But progress has been only partial. The successes should enable us to get a better fix on areas that remain to be addressed.

(1) Entities Remaining Voiceless

First, there are situations in which nature may be in peril, but there are no citizen suit or equivalent mechanisms in place. Generally, standing via citizen suits hinges, at a minimum, on a federal or state statute that can be construed as touching the controversy, preferably a specific law, such as the Endangered Species Act. In many circumstances no such provision will be applicable. When the Navy proposed slaughter of the goats on Catalina Island where the military had an installation, an animal rights group raised a challenge. The goats, however, were neither members of a "listed" species nor marine mammals, and the would-be plaintiffs could not show themselves to be persons "adversely affected," the key term of the Administrative Procedure Act. Suit was rejected for want of standing.[81] If protection of animals in such circumstances is to go forward, it will likely require a legislatively authorized expansion of permissible "citizen suits," legislation which is not likely in the present atmosphere.[82]

To my mind, the most significant total "gaps" in coverage are areas of the global commons, especially the high seas. These are the areas outside any national jurisdiction, and which therefore are most vulnerable to unprotected and excess exploitation. In the essays in this book, I propose a system of guardianships for critical global commons areas. I am chary of empowering any would-be guardian of a global commons resource to step forward and bring suit before the World Court or other agencies. What I suggest instead is a system in which an existing international agency or institution with special competence over living marine resources, etc., be designated guardian in advance. This has the advantage of assuring continuous and expert monitoring; it also mitigates

the dilemmas of legal ontology (are we to protect every sea worm, a species, an ecosystem?), and adds some valve on the flow of potential litigation.

Another gap in the law's coverage involves representation for the interests of future generations. The vaunted "voicelessness" of future generations is easy to exaggerate. The overlapping of generations, and intergenerational empathy, assure a certain guardianship of interests "naturally"; and any qualified accountant would suggest we are primed to leave our descendants, as our ancestors left us, a pretty nice legacy on balance. But just as there are externalities in space (U.S. utilities spew pollutants with little accountability into Canada), so too there are undoubted externalities through time. We, the living, are projecting risks on the unborn, in the form of nuclear waste and an uncertain climate. In the essay, *Should We Establish a Guardian for Future Generations?*,[83] I examined this proposal and assessed the institutional qualities that a Future Generations Guardian would have to have.

(2) The Implications of *Lujan*

A second gap is reopening closer to home. I have referred to the liberalization of citizen suits. Certainly the courtrooms opened wider in the 1970s and early 80s. But then, in 1992, came the U.S. Supreme Court decision in *Lujan v. Defenders of Wildlife*,[84] which questions protection of animals and natural resources even where there is a citizen suit in place. *Lujan* arose as a challenge by environmental groups to the Department of the Interior's failure to issue guidelines ensuring that U.S.–funded actions did not imperil endangered species outside the United States. The Department of the Interior responded by challenging the standing of the groups and their members to question regulations that would affect animals on other continents; its argument rested on the unlikelihood of the plaintiffs suffering any cognizable injury.

A majority of Justices agreed. The several opinions in *Lujan*, while somewhat cloudy in detail, sent a distinct signal that a plurality of the Justices were prepared to arrest, even to constrict, liberalization. The Court labeled as "novel" and rejected several theories of standing that did not appear inconsistent with rulings in some of the earlier cutting edge cases, such as *Kreps* (the South African seal case) and *American Cetacean Society* (the Japan whaling case). Justice Antonin Scalia, speaking for the Court, specifically ridiculed several grounds of standing including:

> the 'animal nexus' approach, whereby anyone who has an interest in studying or seeing the endangered animals anywhere on the globe has standing; and the 'vocational nexus' approach, under which anyone with a professional interest in such animals can sue. Under these theories, anyone who goes to see the Asian elephants in the Bronx Zoo, and anyone who is a keeper of Asian elephants . . . has standing to sue because the Director of Agency for International Development (AID) did not consult with the Secretary [of Interior] regarding the AID-funded project in Sri Lanka.[85]

To Justice Scalia, moreover, standing was not merely a matter for Congress to decide—to confer standing on this sort of plaintiff or not, as it chooses; Congress, he maintains, is subject to constitutional constraints. Most pertinently, Article III, which is the ultimate source of judicial authority, bars Congress from empowering the courts to entertain cases in which the purported plaintiff's injury is so remote and conjectural that there is no constitutional "controversy." To put it otherwise, "injury in fact" is a limitation on congressional power.[86]

Lujan did not close the door to citizen suits. But it looms as a sort of double-gatekeeper—constitutional and statutory—for which environmental organizations have to find the right "nexus." Indeed, the effort to find a qualified plaintiff (which means, to get the "right affidavit") leads, repeatedly, to ironic if not downright contorted arguments.

Consider the post-*Lujan* efforts of the Animal Legal Defense Fund (ALDF), an outstanding animal rights group, to challenge the actions (inactions) of the U.S. Secretary of Agriculture under the Animal Welfare Act. The law provides that the secretary must promulgate regulations to improve the treatment of certain animals, where

> "animal" means any . . . dog, cat, monkey (nonhuman primate mammal), guinea pig, hamster, rabbit, *or such other warm blooded animal, as the Secretary may determine is being used, or is intended for . . . research . . .* (emphasis added).[87]

In promulgating regulations implementing the provision, the secretary expressly excluded birds, rats, and mice, even though they are, obviously, warm-blooded.

Another provision of the law provides for such matters as exercise regimes for dogs and cages for monkeys. The secretary, rather than to promulgate federal minimum standards, chose to leave it to each research facility to adopt its own "written standard procedures" for dog exercise, and to develop its own plans for housing nonhuman primates. ALDF and other organizations brought two cases against the Secretary of Agriculture. The first (rats and mice)[88] sought to force a judicial ruling on the secretary's interpretation of the ambiguous language: were not mice, as clearly warm-blooded animals, within the statute, so that the only discretion the secretary had (as indicated by the italics in the previous excerpt) was to determine which of them were intended for research, etc.? The second case (dogs and monkeys)[89] challenged the delegation to individual research institutions of the power to make up their own exercise and housing rules.

In both cases, the federal district court reached the merits to set aside the secretary's interpretations. In both cases, however, the secretary appealed on the basis of plaintiffs' failure to tender adequate basis for standing. Indeed, the plaintiff's evidence of personal "injuries" required some stretching. One retired

lab psychobiologist alleged that "the inhumane treatment of these animals will directly impair her ability to perform her professional duties as a psychologist," in part because "she will be required to spend time and effort" to convince the facility, should she return to one, "of the need for humane treatment." Another plaintiff, a lawyer and member of a research facility's animal care and use committee (mandated by federal law) complained that the secretary's failure to promulgate standards "left him without guidance." And so on. In both cases, the D.C. Court of Appeals reversed, dismissing the plaintiffs for failure to have satisfied *Lujan*'s standards for standing.

I find these cases troubling. It is not so much that I fault the D.C. Court of Appeals (or Scalia and the Supreme Court in *Lujan*) for being dubious about escalating thin claims into law suits. Indeed, what strikes me is that none of the affiants *was* appreciably harmed by the secretary's actions. The "persons" who were *really* harmed—who deserved, at any rate, a day in court—were the mice and monkeys. Surely *someone* should be able to secure judicial review of these clearly shaky administrative interpretations. Why shouldn't such suits be brought in the name of the animals, given that the object of judicial focus is their welfare, and their pain and suffering? Why must the courtroom conversation turn to the discomfort and inconvenience of the researchers? The D.C. Court of Appeals had reason to doubt there was "a congressional intent to benefit the organization," that is, ALDF. But there was a relevant intent of Congress—it is an Animal Welfare Act, after all—to benefit the animals. If the researchers are outside, or only peripheral to, the "zone of interest," this is a situation in which the animals are clearly within it. Why isn't this the clearest opportunity to talk about *them*? Indeed, in an intriguing (if slightly enigmatic) hint, Chief Judge Abner Mikva, concurring in *Espy* (the dogs and monkeys case), wrote separately to emphasize his view that "had the public interest organizations . . . alleged an interest in protecting the well-being of specific laboratory animals (an interest predating this litigation), I think [they] would have had standing to challenge these regulations as providing insufficient protection to the animals."[90]

V. BACK TO *TREES*: DOES NATURE COUNT?

Let me persist. ". . . [I]nsufficient protection to the animals." What I believe Chief Judge Mikva had in mind is something like the difference between suing in your own (strained) right and—what is being lost sight of—suing as a true Guardian. Even if the courts were to cabin the application of *Lujan* and "reliberalize" standing by relaxing the requirements of "causality," "injury-in-fact" and so on for humans, the result would not be the same as creating standing for Nature. *Baldridge* was "liberal" in that it recognized the right of a group to go to court and at least raise the appropriate response of the United States to Japan's undermining of the International Whaling Convention. But to force a decision on whether

Japan is abiding the convention—the human community of nations' agreement among themselves as to the rate and conditions under which whales can be killed—is not the same as empowering someone to speak to the issue of *how the whales view whaling*.

In a case challenging the Secretary of Agriculture's failure to promulgate adequate guidelines for zoos under the Animal Welfare Act,[91] one affiant, Roseann Circelli, explained that in 1995, when she went to the local zoo:

> "[a]ll the cages of the primates were inside a small building . . . with absolutely no access to any larger outside cages with bars," and that . . . there was absolutely no other stimulus or activity for [the monkeys] . . . She "was particularly upset by 'Rusty,' the orangutan," who "was completely [alone and] could neither see nor hear other primates. Rusty did not once raise his eyes."
>
> Ms. Circelli stated that what she saw "severely impaired [her] enjoyment of the animals who were living there," and that she was "overcome with sympathy for those animals, particularly Rusty, with whom [she] formed an emotional bond, after watching him in his cage." . . . She further explained that she "would very much like to revisit the animals [she] observed . . . particularly Rusty," but she "cannot bear to see the animals treated the way they are treated."[92]

When I read these pleadings, pitched in terms of "the plaintiff's aesthetic enjoyment," my mind went back to one of the passages I wrote so many years ago: that when people "argue this way" so as "to play up to and reinforce anthropocentric perspectives, there is something sad about the spectacle. I suspect the environmentalists want to say something less egoistic and more empathic but the prevailing and sanctioned modes of explanation in our society . . . are not quite ready for it."[93]

I wish someone would sue on behalf of the orangutan. Even if they would lose.[94] I have personal sympathy for the distraught would-be plaintiff who witnessed these things (but to whom the law will undoubtedly answer that she can stay away from zoos), and I have professional sympathy for the wonderful lawyers who are forced, in the face of their better feelings, to talk the law's language, not their own. But I am still waiting to live in a society in which the courts will lend themselves to a conversation about Rusty's life, not ours.

So: what has it all come to? Things could be better. But are they better than they were when *Trees* was first published, over thirty-five years ago? I do not know what part *Trees* played in all of this. I am happy to imagine that the essay has given students and the front line lawyers and environmental lobbyists a little lift. And of course hopeful it will continue to do so.

Los Angeles, December 2009

NOTES

INTRODUCTION: *TREES* AT THIRTY-FIVE

1. Rod Macdonald, then Dean of Magill Law School, wrote to tell me I had missed *Mullick v. Mullick,* L.R. 52 Ind. App. 245 (Privy Council 1925) (family dispute in India regarding custody of an idol reversed with orders that, on retrial, counsel be appointed for the idol).

2. It turns out that the idea of a dog having "rights" had made an early appearance in two California cases, although neither case put the dog's standing in issue, and in both the court took the suggestion as an invitation to humor. One judge noted: "It may be that 'every dog has his day'; but if so, it is only a 'dog-day' and does not entitle him to claim the rights of persons." *People v. Fimbres,* 228 P. 19, 20 (1930). The other said of the claim: "though rather *dog*-matically asserted, we think no one of ordinary experience in the common, all-around affairs of this mundane sphere will hesitate to con-*cur*." *Ex parte Ackerman,* 6 Cal. App. 5, 13; 91 P. 429, 433 (1907) (emphasis by court).

3. Even in these observations I was quickly to learn that I was a late second. A law student at Chicago introduced me to Aldo Leopold's wonderful text, A Sand County Almanac, which traces out a comparable extension of ethics, beginning with "god-like Odysseus returning from the wars in Troy," to hang "all on one rope a dozen slave-girls of his household whom he suspected of misbehavior during his absence. This hanging involved no question of propriety. The girls were property. The disposal of property was then, as now, a matter of expediency, not of right and wrong." Aldo Leopold, Charles W. Schwartz, & Robert Finch, A Sand County Almanac 201 (1989).

4. *Sierra Club v. Hickel,* 433 F.2d 24 (9th Cir. 1970), *aff'd sub nom. Sierra Club v. Morton,* 405 U.S. 727 (1972).

5. *Id.* at 32.

6. *Sierra Club v. Morton, id.* at 734–35.

7. *Id.* at 741–42 (Douglas, J., dissenting).

8. *Id.* at 757 (Blackmun, J., dissenting).

9. John M. Naff, Jr., *Reflections on the Dissent of Douglas, J., in* Sierra Club v. Morton, 58 A.B.A. J. 820 (1972).

10. *Fisher v. Lowe,* 333 N.W. 2d 67, 67 (Mich. Ct. App. 1983).

11. William Kaufmann, the first publisher of *Trees* (1st ed. 1974), arranged for a gracious foreword by the biologist Garret Hardin.

12. *LawScope Briefs: No Worse for the Verse,* 69 A.B.A.J. 436 (1983).

13. Christopher D. Stone, Should Trees Have Standing? Towards Legal Rights for Natural Objects (Avon Books 1975).

14. *Byram River v. Village of Port Chester,* 394 F. Supp. 618 (S.D.N.Y. 1975). This suit was brought in name of a river and other plaintiffs to enjoin pollution by a municipal sewage treatment plant, which was originally filed in the District of Connecticut but dismissed for lack of in personam jurisdiction. The suit was then transferred to S.D.N.Y., with no reservations expressed, however, regarding the river's designation as party plaintiff. Ultimately, a stipulation of settlement was approved, 6 E.L.R. 20467 (S.D.N.Y. Jan. 8, 1976) (defendant undertaking to conduct and monitor the project in environmentally protective manner).

15. *Sun Enterprises v. Train*, 394 F. Supp. 211 (S.D.N.Y. 1975), *aff'd*, 532 F.2d 280 (2d. Cir. 1976) (suit in the name of Brown Brook and No Bottom Marsh, among others, unsuccessfully challenging Environmental Protection Agency's issuance of sewage disposal permits).

16. *Ibid.*

17. Complaint, *Life of the Land, Inc. v. Bd. of Water Supply* (2d Cir. Hawaii) (filed Nov. 24, 1975) (complaint listing Makena Beach as one of several plaintiffs in action against Water Supply Board for failure to assess the environmental impact of the construction of water storage and transmission facilities and violation of state environmental policy).

18. Complaint, *Death Valley Nat'l Monument v. Dept. of the Interior* (N.D. Cal.) (filed Feb. 26, 1976) (complaint filed by environmental groups in name of national monument, and other plaintiffs, alleging failure to fulfill a trust obligation to protect the monument by permitting strip mining operations by private concerns within the Death Valley Monument in violation of the Wilderness Act of 1964 and the National Environmental Policy Act of 1969).

19. *Hookway, Whelan et al. v. United States Department of Transportation (D.C. Mass.)* (complaint to enjoin road realignment that would affect town common in violation of NEPA the action was not filed after press conference and threat of suit persuaded department to modify its plans).

20. *Ezer v. Fuchsloch*, 160 Cal. Rptr. 486 (Ct. App. 1979). Strictly speaking, the tree was not here a party plaintiff. The action was by landowners for injunctive relief against a neighbor based on a restriction recorded by their predecessors in interest providing that no shrub, tree, or other landscaping would obstruct any lot's view. The trial court granted a mandatory injunction requiring both defendants to trim their pine trees to afford their neighbors a view of the ocean. On appeal, the defendants argued that the trial court failed to consider the rights of the pine trees to exist untrimmed independent of the inter-human rights created by the restrictive covenant. Judge Jefferson ultimately rejected the argument, invoking a passage from *Trees* at 457–58 as consistent with the court's action: "to say that the environment should have rights is not to say that it should have every right we can imagine, or even the same body of rights that human beings have. Nor is it to say that everything in the environment should have the same rights as every other thing in the environment." *Id.* at 483.

21. *Palila v. Hawaii Dept. of Land & Natural Res.*, 471 F. Supp. 985 (D. Haw. 1979) (suit in name of endangered bird species and others, against state resources agency for allowing feral sheep and goats to endanger birds' critical habitat in which declaratory and injunctive relief was granted).

CHAPTER 1. SHOULD TREES HAVE STANDING?: TOWARD LEGAL RIGHTS FOR NATURAL OBJECTS

1. CHARLES DARWIN, THE DESCENT OF MAN 119, 120–21 (2d ed., 1874). *See also* R. WAELDER, PROGRESS AND REVOLUTION 39 *et seq.* (1967).

2. In THE DESCENT OF MAN Darwin expands, at 113–14:

> ". . . No tribe could hold together if murder, robbery, treachery, etc., were common; consequently such crimes within the limits of the tame tribe 'are branded with everlasting infamy'; but excite no such sentiment beyond these limits. . . . In a rude state of civilization the robbery of strangers is, indeed, generally considered as honorable."

See also Elman R. Service, *Forms of Kinship, in* MAN IN ADAPTATION 112 (Y. Cohen ed., 1968).

3. *See* Darwin, *supra* at 113. *See also* E. Westermarck, 1 The Origin and Development of the Moral Ideas 406–12 (1912). The practice of allowing sickly children to die has not been entirely abandoned, apparently, even at our most distinguished hospitals. *See Hospital Let Retarded Baby Die, Film Shows*, Los Angeles Times, Oct. 17, 1971, sec. A, at 9, col. 1.

4. There does not appear to be a word "gericide" or "geronticide" to designate the killing of the aged. "Senicide" is as close as the Oxford English Dictionary comes, although, as it indicates, the word is rare. 9 Oxford English Dictionary 454 (1933).

5. *See* Darwin, *supra* note 1, at 386–93. Westermarck, *supra* note 3, at 387–89, observes that where the killing of the aged and infirm is practiced, it is often supported by humanitarian justification; this, however, is a far cry from saying that the killing is requested by the victim as his right.

6. H. Maine, Ancient Law 153 (Pollock ed., 1930). Maine claimed that these powers of the father extended to all regions of private law, although not to the *jus publicum*, under which a son, notwithstanding his subjection in private life, might vote alongside his father. *Id.* at 152 Westermarck, *supra* note 3, at 393–94, was skeptical that the arbitrary power of the father over the children extended as late as into early Roman law.

7. 387 U.S. 1 (1967).

8. *See Landman v. Royster*, 40 U.S.L.W. 2256 (E.D. Va., Oct. 30, 1971) (Eighth Amendment and Due Process clause of the Fourteenth Amendment require federal injunctive relief, including compelling the drafting of new prison rules, for Virginia prisoners against prison conduct prohibited by vague rules or no rules, without disciplinary proceedings embodying rudiments of procedural due process, and by various penalties that constitute cruel and unusual punishment). *See* note, *Courts, Corrections, and the Eighth Amendment: Encouraging Prison Reform by Releasing Inmates*, 44 S. Cal. L. Rev. 1060 (1971).

9. *But see* Thomas Szasz, Law, Liberty, and Psychiatry (1963).

10. The trend toward liberalized abortion can be seen either as a legislative tendency back in the direction of rightlessness for the fetus—or toward increasing rights of women. This tension is not unique in the law of course; it is simply support for W. Hohfeld's scheme that the "jural opposite" of someone's right is someone else's "no-right." W. Hohfeld, Fundamental Legal Conceptions (1923).

Consider in this regard a New York case in which a settlor, S, established a trust on behalf of a number of named beneficiaries and "lives in being." Desiring to amend the deed of trust, the grantor took steps pursuant to statute to obtain "the written consent of all persons beneficially interested in [the] trust." At the time the grantor was pregnant and the trustee Chase Bank advised it would not recognize the proposed amendment because the child *en ventre sa mere* might be deemed a person beneficially interested in the trust. The court allowed the amendment to stand, holding that birth rather than conception is the controlling factor in ascertaining whether a person is beneficially interested in the trust which the grantor seeks to amend. *In re Peabody*, 5 N.Y.2d 541, 158 N.E.2d 841 (1959).

In 1970, the California Supreme Court refused to allow the deliberate killing of a fetus (in a nonabortion situation) to support a murder prosecution. The court ruled fetuses not to be denoted by the words "human being" within the statute defining murder. *Keeler v. Superior Court*, 2 Cal. 3d 619, 87 Cal. Rptr. 481, 470 P.2d 617 (1970).

Some jurisdictions have statutes defining a crime of "feticide"—deliberately causing the death of an unborn child. The absence of such a specific feticide provision in the California case was one basis for the ruling in *Keeler*. *See* 2 Cal. 3d at 613 n.16, 87 Cal. Rptr. at 489 n.16, 470 P.2. at 625 n.16.

11. Int. Rev. Code of 1954, § 1361 (repealed by Pub. L. No. 89-389, effective Jan 1, 1969).

12. *For example, see United States v. Cargo of the Brig Malek Adhel*, 43 U.S. (2 How.) 210 (1844). There, a ship had been seized and used by pirates. All this was done without the knowledge or consent of the owners of the ship. After the ship had been captured, the United States condemned and sold the "offending vessel." The owners objected. In denying release to the owners, Justice Joseph Story cited Chief Justice John Marshall from an earlier case: "This is not a proceeding against the owner; it is a proceeding against the vessel for an offense committed by the vessel, which is not the less an offense . . . because it was committed without the authority and against the will of the owner." 43 U.S. at 234, quoting from *United States v. Schooner Little Charles*, 26 F. Cas. 979 (No. 15,612) (C.C.D. Va. 1818).

13. 9 U.S. (5 Cranch) 61, 86 (1809).

14. *Trustees of Dartmouth College v. Woodward*, 17 U.S. (4 Wheat) 518 (1819).

15. *Id.* at 636.

16. Consider, for example, that the claim of the United States to the naval station at Guantanamo Bay, at $2000-a-year rental, is based upon a treaty signed in 1903 by Jose Montes, for the president of Cuba and a minister representing Theodore Roosevelt; it was subsequently ratified by two-thirds of a Senate no member of which is living today. *Lease [from Cuba] of Certain Areas for Naval or Coaling Stations*, July 2, 1903, T.S. No. 426; C. BEVANS, 6 TREATIES AND OTHER INTERNATIONAL AGREEMENTS OF THE UNITED STATES 1776–1949, at 1120 (U.S. Dep't of State Pub. 8549, 1971).

17. O. GIERKE, POLITICAL THEORIES OF THE MIDDLE AGE (Maitland transl., 1927), especially at 22–30. The reader may be tempted to suggest that the "corporate" examples in the text are distinguishable from environmental objects in that the former are comprised by and serve humans. On the contrary, I think that the more to learn about the sociology of the firm—and the realpoıitik of our society—the more we discover the ultimate reality of these institutions, and the increasingly legal fictiveness of the individual human being.

18. *Dred Scott v. Sanford*, 60 U.S. (19 How.) 396, 404–05 (1856). In *Bailey v. Poindexter's Ex'r*, 56 Va. (14 Gratt.) 132, 142–43 (1848) a provision in a will that testator's slaves could choose between emancipation and public sale was held void on the ground that slaves have no legal capacity to choose.

> "These decisions are legal conclusions flowing naturally and necessarily from the one clear, simple, fundamental idea of chattel slavery. That fundamental idea is, that, in the eye of the law, so far certainly as civil rights and relations are concerned, the slave is not a person, but a thing. The investiture of a chattel with civil rights or legal capacity is indeed a legal solecism and absurdity. The attribution of legal personality to a chattel slave—legal conscience, legal intellect, legal freedom, or liberty and power of free choice and action, and corresponding legal obligations growing out of such qualities, faculties and action—implies a palpable contradiction in terms."

19. *People v. Hall*, 4 Cal. 399, 405 (1854). The statute there under interpretation provided that "no Black or Mulatto person, or Indian shall be allowed to give evidence in favor of, or against a white man," but was silent as to Chinese. The "policy" analysis by which the court brings Chinese under "Black . . . or Indian" is a fascinating illustration of the relationship between a "policy" decision and a "just" decision, especially in light of the exchange between H. L. A. Hart, *Positivism and the Separation of Law and Morals*, 71 HARV. L. REV. 593 (1958) and Lon Fuller, *Positivism, and Fidelity to Law—A Reply to Professor Hart*, *id.* at 630.

20. Frank I. Schechter, *The Rightlessness of Medieval English Jewry*, 4 JEWISH Q. REV. 121, 135 (1914) quoting from M. BATESON, MEDIEVAL ENGLAND 139 (1904). Schechter also quotes Henry de Bracton to the effect that "a Jew cannot have anything of his own, because whatever he acquires he acquires not for himself but for the king . . ." *Id.* at 128.

21. *Dietrich v. Inhabitants of Northampton*, 138 Mass. 14, 16 (1884).

22. *In re Goddell*, 39 Wisc. 232, 245 (1875). The court continued with the following "clincher":

> "And when counsel was arguing for this lady that the word, person, in sec. 32. ch. 119 [respecting those qualified to practice law], necessarily includes females, her presence made it impossible to suggest to him as *reductio ad absurdum* of his position, that the same construction of the same word . . . would subject woman to prosecution for the paternity of a bastard, and . . . prosecution for rape."

Id. at 246.

The relationship between our attitudes toward woman, on the one hand, and, on the other, the more central concern of this article—land—is captured in an unguarded aside of our colleague, Curt Berger: ". . . after all, land, like woman, was meant to be possessed. . . ." Land Ownership and Use 139 (1968).

23. In one case, a group of prison inmates in Suffolk County tamed a mouse that they discovered, giving him the name Morris. Discovering Morris, a jailer flushed him down the toilet. The prisoners brought a proceeding against the warden, complaining, *inter alia*, that Morris was subjected to a discriminatory discharge and was otherwise unequally treated. The action was unsuccessful, on grounds that the inmates themselves were "guilty of imprisoning Morris without a charge, without a trial, and without bail," and that other mice at the prison were not treated more favorably. "As to the true victim the Court can only offer again the sympathy first proffered to his ancestors by Robert Burns . . ." The judge proceeded to quote from Burns' "To a Mouse." *Morabito v. Cyta*, 9 Crim. L. Rep. 2472 (N.Y. Sup. Ct. Suffolk Co. Aug. 26, 1971).

The whole matter seems humorous, of course. But what we need to know more of is the function of humor in the unfolding of a culture, and the ways in which it is involved with the social growing pains to which it is testimony. Why did people make jokes about the women's liberation movement? Is it not on account of—rather than in spite of—the underlying validity of the protests, and the uneasy awareness that recognition of them is inevitable? Arthur Koestler rightly begins his study of the human mind, Act of Creation (1964), with an analysis of humor, entitled *The Logic of Laughter*. And cf. Sigmund Freud, *Jokes and the Unconscious,* 8 Standard Edition of the Complete Psychological Works of Sigmund Freud (J. Strachey transl., 1905). (Query too: what is the relationship between the conferring of proper names, e.g., Morris, and the conferring of social and legal rights?)

24. Thus it was that the Founding Fathers could speak of the inalienable rights of all men, and yet maintain a society that was, by modern standards, without the most basic rights for African Americans, Native Americans, children, and women. There was no hypocrisy; emotionally, no one felt that these others were fully *people*.

25. "The second thought streaming from . . . the older South [is] the sincere and passionate belief that somewhere between men and cattle, God created a *tertium quid*, and called it a Negro—a clownish, simple creature, at times even lovable within its limitations, but straitly foreordained to walk within the Veil." W.E.B. DuBois, The Souls of Black Folk 89 (1924).

26. In this article I essentially limit myself to a discussion of nonanimal but natural objects. I trust that the reader will be able to discern where the analysis is appropriate to advancing our understanding of what would be involved in giving "rights" to other objects not presently endowed with rights—for example, not only animals (some of which already have rights in some senses) but also humanoids, computers, and so forth. Cf. The National Register for Historic Places, 16 U S.C. § 470 (1970), discussed in *Ely v. Velde*, 321 F. Supp. 1088 (E.D. Va. 1971).

As the reader will discover, there are large problems involved in defining the boundaries of the "natural object." For example, from time to time one will wish to speak of that portion of a river that runs through a recognized jurisdiction; at other times, one may be concerned with the entire river, or the hydrologic cycle—or the whole of nature. One's ontological choices will have a strong influence on the shape of the legal system, and the choices involved are not easy.

On the other hand, the problems of selecting an appropriate ontology are problems of all language—not merely of the language of legal concepts, but of ordinary language as well. Consider, for example, the concept of a "person" in legal or in everyday speech. Is each person a fixed bundle of relationships, persisting unaltered through time? Do our molecules and cells not change at every moment? Our hypostatizations always have a pragmatic quality to them. *See* D. HUME, *Of Personal Identity*, *in* TREATISE OF HUMAN NATURE bk. I, pt. IV, sec. VI, *in* THE PHILOSOPHICAL WORKS OF DAVID HUME 310–18, 324 (1854); T. MURTI, THE CENTRAL PHILOSOPHY OF BUDDHISM 70–73 (1955). In LOVES BODY 146–47 (1966) Norman O. Brown observes:

> "The existence of the 'let's pretend' boundary does not prevent the continuance of the real traffic across it. Projection and introjection, the process whereby the self as distinct from the other is constituted, is not past history, an event in childhood, but a present process of continuous creation. The dualism of self and external world is built up by a constant process of reciprocal exchange between the two. The self as a stable substance enduring through time, an identity, is maintained by constantly absorbing good parts (or people) from the outside world and expelling bad parts from the inner world. 'There is a continual "unconscious" wandering of other personalities into ourselves.'
>
> "Every person, then, is many persons; a multitude made into one person; a corporate body; incorporated, corporation. A 'corporation sole;' every man a parson-person. The unity of the person is as real, or unreal, as the unity of the corporation."

See generally, W. BISHIN & C. STONE, LAW, LANGUAGE, AND ETHICS Ch. 5 (1972).

In different legal systems at different times, there have been many shifts in the entity deemed "responsible" for harmful acts: an entire clan was held responsible for a crime before the notion of individual responsibility emerged; in some societies the offending hand, rather than an entire body, may be "responsible." Even today, we treat father and son as separate jural entities for some purposes, but as a single jural entity for others. I do not see why, in principle, the task of working out a legal ontology of natural objects (and "qualities," e.g., climatic warmth) should be any more unmanageable. Perhaps someday all mankind shall be, for some purposes, one jurally recognized "natural object."

27. The statement in text is not quite true, cf. Earl Finbar Murphy, *Has Nature Any Right to Life?* 22 HAST. L. J. 467 (1971). An Irish court, passing upon the validity of a testamentary trust to the benefits of someone's dogs observed in dictum that "'lives' means lives of human beings, not of animals or trees in California." *Kelly v. Dillon*, 1932 Ir. R. 255, 261. (The intended gift over on the death of the last surviving dog was held void for remoteness, the court refusing to "enter into the question of a dog's expectation of life," although prepared to observe that "in point of fact neighbor's [sic] dogs and cats are unpleasantly long-lived . . ." *Id.* at 260–61).

28. Four cases dealing with the constitutionality of the death penalty under the Eighth and Fourteenth Amendments are pending before the U.S. Supreme Court. *Branch v. Texas*, 447 S.W.2d 932 (Tex. 1969), *cert. granted*, 91 S. Ct. 2287 (1970), *Aikens v. California*, 70 Cal.

2d 369, 74 Cal. Rptr. 882, 450 P2d 238 (1969), *cert. granted.* 91 S. Ct. 2280 (1970); *Furman v. Georgia,* 225 Ga. 253, 167 S.E.2d 628 (1969), *cert. granted.* 91 S. Ct. 2282 (1970); *Jackson v. Georgia,* 225 Ga. 790, 171 S.E.2d 501 (1969), *cert. granted,* 91 S. Ct. 2287 (1970).

29. *See George Campbell Painting Corp. v. Reid,* 392 U.S. 286 (1968); *Oklahoma Press Pub. Co. v. Walling,* 327 U.S. 186 (1946); *Baltimore & O.R.R. v. ICC,* 221 U.S. 612 (1911); *Wilson v. United States,* 221 U.S. 361 (1911); *Hale v. Henkel,* 201 U.S. 43 (1906).

30. *See Dixon v. Alabama State Bd. of Educ.,* 294 F.2d 150 (5th Cir.), *cert. denied,* 368 U.S. 930 (1961).

31. *For example, see People ex rel. Ricks Water Co. v. Elk River Mill & Lumber Co.,* 107 Cal. 221, 40 Pac. 531 (1895) (refusing to enjoin pollution by an upper riparian at the instance of the attorney general on the grounds that the lower riparian owners, most of whom were dependent on the lumbering business of the polluting mill, did not complain).

32. The law in a suit for injunctive relief is commonly easier on the plaintiff than in a suit for damages. *See* J. Gould, The Law of Waters § 206 (1883).

33. However, in 1970 California amended its Water Quality Act to make it easier for the attorney general to obtain relief, e.g., one must no longer allege irreparable injury in a suit for an injunction. Cal. Water Code § 13350(b) (West 1971).

34. To whomsoever the soil belongs, he owns also to the sky and to the depths. *See* W. Blackstone, 2 Commentaries 18.

At early common law, the owner of land could use all that was found under his land "at his free will and pleasure" without regard to any "inconvenience to his neighbour." *Acton v. Blundell,* 12 Meeson & *Welsburg* 324, 354, 152 Eng. Rep. 1223, 1235 (1843). "He [the landowner] may waste or despoil the land as he pleases . . ." R. Megarry & H. Wade, The Law of Real Property 725 (1971).

35. *See* note, *Statutory Treatment Industrial Stream Pollution,* 24 Geo. Wash. L. Rev. 302, 306 (1955); H. Farnham, 2 Law of Waters and Water Rights § 461 (1904); Gould, *supra* note 32, at § 204.

36. For example, courts have upheld a right to pollute by prescription, *Mississippi Mills Co. v. Smith,* 69 Miss. 299, 11 So. 26 (1882), and by easement, *Luama v. Bunker Hill & Sullivan Mining & Concentrating Co.,* 41 F.2d 358 (9th Cir. 1930).

37. *See Red River Roller Mills v. Wright,* 30 Minn. 249, 15 N.W. 167 (1883) (enjoyment of stream by riparian may be modified or abrogated by reasonable use of stream by others); *Townsend v. Bell,* 167 N.Y. 462, 60 N E. 757 (1901) (riparian owner not entitled to maintain action for pollution of stream by factory where he could not show use of water was unreasonable); *Smith v. Staso Milling Co.,* 18 F.2d 736 (2d Cir. 1927) (in suit for injunction, right on which injured lower riparian stands is a quantitative compromise between two conflicting interests); *Clifton Iron Co. v. Dye,* 87 Ala. 468, 6 So. 192 (1889) (in determining whether to grant injunction to lower riparian, court most weigh interest of public as against injury to one or the other party). *See also Montgomery Limestone Co. v. Bearder,* 256 Ala. 269, 54 So. 2d 571 (1951).

38. *Pennsylvania Coal Co. v. Sanderson,* 113 Pa. 126, 149, 6 A. 453, 459 (1886).

39. Hand, J. in *Smith v. Staso Milling Co.* 18 F.2d 736, 738 (2d Cir. 1927) (emphasis added). *See also Harrisonville v. Dickey Clay Co.,* 289 U.S. 33.1 (1933) (Brandeis, J.).

40. Measuring plaintiff's damages by "making him whole" has several limitations. These and the matter of measuring damages in this area generally are discussed more fully on 16–17 and *infra.*

41. Here, again, an analogy to corporation law might be profitable. Suppose that in the instance of negligent corporate management by the director, there was no institution of the stockholder derivative suit to force the directors to make *the corporation* whole; and the only actions provided for were direct actions by stockholders to collect for damages *to themselves qua* stockholders. Theoretically and practically, the damages might come out

differently in the two cases, and not merely because the creditor's losses are not aggregated in the stockholders' direct actions.

42. And even far less than the damages to all human economic interests derivatively through the stream; *see* 21–22 *infra*.

43. *Smith v. Staso*, 18 F.2d 736, 738 (2d Cir. 1927).

44. Some of these public properties are subject to the "public trust doctrine," which, while ill defined, might be developed in such fashion as to achieve fairly broad-ranging environmental protection. *See Gould v. Greylock Reservation Comm'n*, 350 Mass. 410, 215 N.E.2d 114 (1966), discussed in Joseph Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 69 MICH. L. REV. 471, 492–509 (1970).

45. By contrast, for example, with humane societies.

46. *See, e.g.*, CAL. PROB. CODE §§ 146–62 (West Supp. 1971).

47. CAL. PROB. CODE § 1751 (West Supp. 1971) provides for the appointment of a "conservator."

48. In New York State the Supreme Court and county courts outside New York City have jurisdiction to appoint a committee of the person and/or a committee of the property for a person "incompetent to manage himself or his affairs." N.Y. MENTAL HYGIENE LAW § 100 (McKinney 1971).

49. This is a situation at which the ontological problems discussed in the text become acute. One can conceive a situation in which a guardian would be appointed by a county court with respect to a stream, bring a suit against alleged polluters, and lose. Suppose now that a federal court were to appoint a guardian with respect to the large river system of which the stream were a part, and that the federally appointed guardian subsequently were to bring suit against the same defendants in state court, now on behalf of the river, rather than the stream. (Is it possible to bring a still subsequent suit, if the one above fails, on behalf of the entire hydrologic cycle, by a guardian appointed by an international court?)

While such problems are difficult, they are not impossible to solve. For one thing, pretrial hearings and rights of intervention can go far toward their amelioration. Further, courts have been dealing with the matter of potentially inconsistent judgments for years, as when one state appears on the verge of handing down a divorce decree inconsistent with the judgment of another state's courts. *Kempson v. Kempson*, 58 N.J. Eg. 94, 43 A. 97 (Ch. Ct 1899). Courts could, and of course would, retain such natural objects in the res nullius classification to help stave off the problem. Then, too, where several "objects" are interrelated (as is always the case), several guardians could all be involved, with procedures for removal to the appropriate court—probably that of the guardian of the most encompassing "ward" to be acutely threatened. And in some cases subsequent suit by the guardian of the more encompassing ward, not guilty of laches, might be appropriate. The problems are at least no more complex than the corresponding problems that the law has dealt with for years in the class action area.

50. CAL. PROB. CODE § 1460 (West Supp. 1971). THE N.Y. MENTAL HYGIENE LAW (McKinney 1971) provides for jurisdiction "over the custody of a person and his property if he is incompetent to manage himself or his affairs by reason of age, drunkenness, mental illness or other cause . . ."

51. *Santa Clara County v. Southern Pac. R.R.*, 118 U.S. 394 (1886). Justice Black would have denied corporations the rights of "persons" under the fourteenth amendment. *See Connecticut Gen. Life Ins. Co. v. Johnson*, 303 U.S. 77, 87 (1938) (Black, Dissenting): "Corporations have neither race nor color."

52. *In re Byrn*, LOS ANGELES TIMES, Dec. 5, 1971, sec. 1, at 16, col. 1. A preliminary injunction was subsequently granted, and defendant's cross-motion to vacate the guardianship was denied. Civ. 13113/71 (Sup. Ct. Queens Co., Jan. 4, 1972) (Smith, J.). Granting

a guardianship in these circumstances would seem to be a more radical advance in the law than granting a guardianship over communal natural objects like lakes. In the former case there is a traditionally recognized guardian for the object—the mother—and her decision has been in favor of aborting the fetus.

53. The laws regarding the various communal resources had to develop along their own lines, not only because so many different persons' "rights" to consumption and usage were continually and contemporaneously involved, but also because no one had to bear the costs of his consumption of public resources in the way in which the owner of resources on private land has to bear the costs of what he does. For example, if the landowner strips his land of trees, and puts nothing in their stead, he confronts the costs of what he has done in the form of reduced value of his land; but the river polluter's actions are costless, so far as he is concerned—except insofar as the legal system can somehow force him to internalize them. The result has been that the private landowner's power over natural objects on his land is far less restrained by law (as opposed to economics) than his power over the public resources that he can get his hands on. If this state of affairs is to be changed, the standard for interceding in the interests of natural objects on traditionally recognized "private" land might well parallel the rules that guide courts in the matter of people's children whose upbringing (or lack thereof) poses social threat. The courts can, for example, make a child "a dependent of the court" where the child's "home is an unfit place for him by reason of neglect, cruelty, or depravity of either of his parents . . ." CAL. WELF. & INST. CODE § 600(b) (West 1966). *See also id.* at § 601: any child "who from any cause is in danger of leading an idle, dissolute, lewd, or immoral life [may be adjudged] a ward of the court."

54. The present way of handling such problems on "private" property is to try to enact legislation of general application under the police power, *see Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393 (1922), rather than to institute civil litigation which, though a piecemeal process, can be tailored to individual situations.

55. CAL. PROB. CODE § 1580 (West Supp. 1971) lists specific causes for which a guardian may, after notice and a hearing, be removed.

Despite these protections, the problem of overseeing the guardian is particularly acute where, as here, there are no immediately identifiable human beneficiaries whose self-interests will encourage them to keep a close watch on the guardian. To ameliorate this problem, a page might well be borrowed from the law of ordinary charitable trusts, which are commonly placed under the supervision of the attorney general. *See* CAL. CORP. CODE §§ 9505, 10207 (West 1955).

56. *See* CAL. PROB. CODE §§ 1472,1590 (West 1956 and Supp. 1971).

57. 354 F.2d 608 (2d Cir. 1965), *cert. denied, Consolidated Edison Co. v. Scenic Hudson Preservation Conf.*, 384 U.S. 941 (1966).

58. 354 F.2d 608, 615 (2d Cir. 1965).

59. Act of Aug. 26, 1935, ch. 687, Title II, § 213, 49 Stat. 860 (codified in 16 U.S.C. § 8251(b) (1970).

60. 354 F.2d 608, 616 (2d Cir. 1165). The court might have felt that because the New York–Jersey Trail Conference, one of the two conservation groups that organized Scenic Hudson, had some 17 miles of trailways in the area of Storm King Mountain, it therefore had sufficient economic interest to establish standing: Judge Hays' opinion does not seem to so rely, however.

61. *Road Review League v. Boyd*, 270 F. Supp. 650 (S.D.N.Y. 1967). Plaintiffs who included the Town of Bedford and the Road Review League, a nonprofit association concerned with community problems, brought an action to review and set aside a determination of the Federal Highway Administrator concerning the alignment of an interstate highway. Plaintiffs claimed that the proposed road would have an adverse effect upon

local wildlife sanctuaries, pollute a local lake, and be inconsistent with local needs and planning. Plaintiffs relied upon the section of the Administrative Procedure Act, 5 U.S.C. § 702 (1970), which entitles persons "aggrieved by agency action within the meaning of a relevant statute" to obtain judicial review. The court held that plaintiffs had standing to obtain judicial review of proposed alignment of the road:

> I see no reason why the word "aggrieved" should have different meaning in the Administrative Procedure Act from the meaning given it under the Federal Power Act . . . The "relevant statute," *i.e.*, the Federal Highways Act, contains language which seems even stronger than that of the Federal Power Act, as far as local and conservation interests are concerned.

Id. at 661.

In *Citizens Comm. for the Hudson Valley v. Volpe*, 425 F.2d 97 (2d Cir. 1970), plaintiffs were held to have standing to challenge the construction of a dike and causeway adjacent to the Hudson Valley. The Sierra Club and the Village of Tarrytown based their challenge upon the provisions of the Rivers and Harbors Act of 1899. While the Rivers and Harbors Act does not provide for judicial review as does the Federal Power Act, the court stated that the plaintiffs were "aggrieved" under the Department of Transportation Act, the Hudson River Basin Compact Act, and a regulation under which the Corps of Engineers issued a permit, all of which contain broad provisions mentioning recreational and environmental resources and the need to preserve the same. Citing the *Road Review League* decision, the court held that as "aggrieved" parties under the Administrative Procedure Act, plaintiffs similarly had standing. Other decisions in which the court's grant of standing was based upon the Administrative Procedure Act include: *West Virginia Highlands Conservancy v. Island Creek Coal Co.*, 441 F.2d. 231 (4th Cir. 1971); *Environmental Defense Fund, Inc. v. Hardin*, 428 F.2d 1093 (D.C. Cir. 1970); *Allen v. Hickel*, 424 F.2d 944 (D.C. Cir. 1970); *Brooks v. Volpe*, 329 F. Supp. 118 (W.D. Wash. 1971); *Delaware v. Pennsylvania N.Y. Cent. Transp. Co.*, 323 F. Supp. 487 (D. Del. 1971); *Izaak Walton League of America v. St. Clair*, 313 F. Supp. 1312 (D. Minn. 1970); *Pennsylvania Environmental Council, Inc. v. Bartlett*, 115 F. Supp. 238 (M.D. Pa. 1970).

62. *Sierra Club v. Hickel*, 433 F.2d 24 (9th Cir. 1970), *cert. granted sub nom. Sierra Club v. Morton*, 401 U.S. 907 (1971). The Sierra Club, a nonprofit California corporation concerned with environmental protection, claimed that its interest in the conservation and sound management of natural parks would be adversely affected by an Interior permit allowing Walt Disney to construct the Mineral King Resort in Sequoia National Forest. The court held that because of the Sierra Club's failure to assert a direct legal interest, that organization lacked standing to sue. The court stated that the Sierra Club had claimed an interest only in the sense that the proposed course of action was displeasing to its members. The court purported to distinguish *Scenic Hudson* on the grounds that the plaintiff's claim of standing there was supported by the "aggrieved party" language of the Federal Power Act. (The outcome of the appeal to the U.S. Supreme Court is addressed in the introduction to this volume.)

63. 16 U.S.C. §§ 791 (a) *et seq.* (1970).

64. 5 U.S.C. §§ 551 *et seq.* (1970).

65. 7 U.S.C. § 135 *et seq.* (1970). Section 1351(d) affords a right of judicial review to anyone "adversely affected" by an order under the Act. *See Environmental Defense Fund, Inc. v. Hardin*, 428 F.2d 1093, 1096 (D.C. Cir. 1970).

66. 324 F. Supp. 412 (N.D., M.D. & S.D. Ala. 1970), *aff'd mem., sub nom. Bass Anglers Sportsman Soc'y of America, Inc. v. Koppers Co.*, 447 F.2d 1304 (5th Cir. 1971).

67. Section 13 of Rivers and Harbors Appropriation Act of 1899.

68. 33 U.S.C. § 411 (1970), reads:

> "Every person and every corporation that shall violate, or that shall knowingly aid, abet, authorize, or instigate a violation of the provisions of sections 407, 408, and 409 of the title shall . . . be punished by a fine . . . or by imprisonment . . . in the discretion of the court, one-half of said fine to be paid to the person or persons giving information which shall lead to conviction."

69. This is from the Latin, "who brings the action as well for the King as for himself," referring to an action brought by a citizen for the state as well as for himself.

70. "These sections create a criminal liability. No civil action lies to enforce it: criminal statutes can only be enforced by the government. A qui tam action lies only when expressly or implicitly authorized by statute, to enforce a penalty by civil action, not a criminal fine." 324 F. Supp. 412, 415–16 (N.D., M.D. & SD. Ala. 1970). Other *qui tam* actions brought by the Bass Angler Sportsman Society have been similarly unsuccessful. *See Bass Anglers Sportsman Society of America v. Scholze Tannery*, 329 F. Supp. 339 (E.D. Tenn. 1971); *Bass Anglers Sportsman's Society of America v. United States Plywood Champion Papers, Inc.*, 324 F. Supp. 302 (S.D. Tex. 1971).

71. Concern over an anticipated flood of litigation initiated by environmental organizations is evident in Judge Trask's opinion in *Alameda Conservation Ass'n v. California*, 437 F.2d 1087 (9th Cir.), *cert. denied*, *Leslie Salt Co v. Alameda Conservation Ass'n*, 402 U.S. 908 (1971), where a nonprofit corporation having as a primary purpose protection of the public's interest in San Francisco Bay was denied standing to seek an injunction prohibiting a land exchange that would allegedly destroy wildlife, fisheries, and the Bay's unique flushing characteristics:

> "Standing is not established by suit initiated by this association simply because it has as one of its purposes the protection of the 'public interest' in the waters of the San Francisco Bay. However well intentioned members may be, they may not by uniting create for themselves a super-administrative agency or a parens patriae official status with the capability of over-seeing and of challenging the action of the appointed and elected officials of the state government. Although recent decisions have considerably broadened the concept of standing, we do not find that they go this far.
>
> "Were it otherwise the various clubs, political, economic and social now or yet to be organized could wreak havoc with the administration of government, both federal and state. There are other forums where their voices and their views may be effectively presented, but to have standing to submit a 'case of controversy' to a federal court, something more must be shown."

417 F.2d at 1090.

72. Here, too, we are dogged by the ontological problem. It is easier to say that the smog-endangered stand of pines "wants" the smog stopped (assuming that to be a jurally significant entity) than it is to venture that the mountain, or the planet Earth, or the cosmos, is concerned about whether the pines stand or fall. The more encompassing the entity of concern, the less certain we can be in venturing judgments as to the "wants" of any particular substance, quality, or species within the universe. Does the cosmos care if we humans persist or not? "Heaven and earth . . . regard all things as insignificant, as though they were playthings made of straw." Lao-Tzu, Tao the King 13 (D. Goddard transl., 1919).

73. *See Knight v. United States Land Ass'n*, 142 U.S. 161, 181 (1891).

74. Clause 2 gives Congress the power "to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States."

75. *See Flemming v. Nestor*, 363 U.S. 603 (1960).

76. *See* the Los Angeles Times editorial *Water: Public vs. Polluters* criticizing:

> ". . . the ridiculous built-in conflict of interests on Regional Water Quality Control Board. By law, five of the seven seats are given to spokesmen for industrial, governmental, agricultural or utility users. Only one representative of the public at large is authorized, along with a delegate from fish and game interests."

Feb. 12, 1969, Part II, at 8, cols. 1–2.

77. The Federal Refuse Act is over 70 years old. Refuse Act of 1899, 33 U.S.C. § 407 (1970).

78. *See* Hall, *Refuse Act of 1899 and the Permit Program*, 1 Nat'l Res. Defense Council Newsletter I (1971).

79. To be effective as a deterrent, the sanction ought to be high enough to bring about an internal reorganization of the corporate structure which minimizes the chances of future violations. Because the corporation is not necessarily a profit-maximizing "rationally economic man," there is no reason to believe that setting the fine as high as—but not higher than—anticipated profits from the violation of the law, will bring the illegal behavior to an end.

80. *Udall v. FPC*, 387 U.S. 424, 437 n.6 (1967). *See also* Holmes, J. in *New Jersey v. New York*, 283 U.S. 336, 342 (1931): "A river is more than an amenity, it is a treasure. It offers a necessity of life that must be rationed among those who have power over it."

81. To simplify the description, I am using here an ordinary language sense of causality, *i.e.* assuming that the pollution causes harm to the river. As Professor Ronald Coase has pointed out in *The Problem of Social Cost*, 3 J. Law & Econ. 1 (1960), a harm-causing can be viewed as a reciprocal problem, i.e., in the terms of the text, the mill wants to harm the river, and the river—if we assume it "wants" to maintain its present environment quality—"wants" to harm the mill. Coase rightly points out that at least in theory (if we had the data) we ought to be comparing the alternative social product of different social arrangements, and not simply imposing full costs on the party who would popularly be identified as the harm-causer.

82. I am assuming that one of the considerations that goes into a judgment of "remoteness" is a desire to discourage burdensome amounts of petty litigation. This is one of the reasons why a court would be inclined to say—to use the example in the text—that the man who sells fishing tackle and bait has not been "proximately" injured by the polluter. Using proximate cause in this manner, the courts can protect themselves from a flood of litigation. But once the guardian were in court anyway, this consideration would not obtain as strongly, and courts might be more inclined to allow proof on the damages to remotely injured humans (although the proof itself is an added burden of sorts).

83. *Cf.* Martin P. Golding, *Ethical Issues in Biological Engineering*, 15 U.C.L.A. L. Rev. 443, 451–63 (1968).

84. Of course, in the instance of copyright and patent protection, the creation of the "property right" can be more directly justified on homocentric grounds.

85. *See* Peter Schrag, *Life on a Dying Lake*, *in* The Politics of Neglect 167, at 173 (R. Meek & J. Straayer eds., 1971).

86. One ought to observe, too, that in terms of real effect on marginal welfare, the poor quite possibly will bear the brunt of the compromises. They may lack the wherewithal to get out to the countryside—and probably want an increase in material goods more acutely than those who now have riches.

87. On November 2, 1971, the Senate, by a vote of 86–0, passed and sent to the House the proposed Federal Water Pollution Control Act Amendments of 1971, 117 Cong. Rec.

S17464 (daily ed., Nov. 2, 1971). Sections 101(a) and (a)(1) of the bill declare it to be "national policy that, consistent with the provisions of this Act (1) the discharge of pollutants into the navigable waters be eliminated by 1985." S2770, 92d Cong., 1st Sess., 117 CONG. REC. S17464 (daily ed., Nov. 2, 1971).

88. 354 F.21 608, 624 (2d Cir. 1965).

89. Again, there is a problem involving what we conceive to be the injured entity.

90. N.Y. TIMES, Jan. 14, 1971. § 1, col. 2, and at 74, col. 7.

91. Courts have not been reluctant to award damages for the destruction of heirlooms, literary manuscripts or other property having ascertainable market value. In *Willard v. Valley Gas Fuel Co.*, 171 Cal. 9 151 Pac. 286 (1915), it was held that the measure of damages for the negligent destruction of a rare old book written by one of plaintiff's ancestors was the amount which would compensate the owner for all detriment including sentimental loss proximately caused by such destruction. The court, at 171 Cal.15,151 Pac. 289, quoted approvingly from *Southern Express Co. v. Owens*, 146 Ala. 412, 426, 41 S. 752, 755 (1906):

> "Ordinarily, where property has a market value that can be shown, such value is the criterion by which actual damages for its destruction or loss may be fixed. But it may be that property destroyed or lost has no market value. In such state of the case, while it may be that no rule which will be absolutely certain to do justice between the parties can be laid down, it does not follow from this, nor is it the law, that the plaintiff must be turned out of court with normal damages merely. Where the article or thing is so unusual in its character that market value cannot be predicated of it, its value, or plaintiff's damages, must be ascertained in some other rational way and from such elements as are attainable."

Similarly, courts award damages in wrongful death actions despite the impossibility of precisely appraising the damages in such cases. In affirming a judgment in favor of the administrator of the estate of a child killed by defendant's automobile, the Oregon Supreme Court, in *Lane v. Hatfield*, 173 Or. 79, 88–89, 143 P.2d 230, 234 (1943), acknowledged the speculative nature of the measure of damages:

> "No one knows or can know when, if at all, a seven year old girl will attain her majority, for her marriage may take place before she has become twenty-one years of age . . . Moreover, there is much uncertainty with respect to the length of time anyone may live. A similar uncertainty veils the future of a minor's earning capacity or habit of saving. Illness or a non-fatal accident may reduce an otherwise valuable and lucrative life to a burden and liability.
>
> "The rule, that the measure of recovery by a personal representative for the wrongful death of his decedent is the value of the life of such decedent, if he had not come to such an untimely end, has been termed vague, uncertain and speculative if not, conjectural. It is, however, the best that judicial wisdom has been able to formulate."

92. It is not easy to dismiss the idea of "lower" life having consciousness and feeling pain, especially since it is so difficult to know what these terms mean even as applied to humans. *See* J. L. Austin, *Other Minds, in Logic and Language* 342 (S. Flew ed., 1965); Arthur Schopenhauer, *On the Will in Nature, in* TWO ESSAYS BY ARTHUR SCHOPENHAUER 193, 281–304 (1889). Some experiments on plant sensitivity—of varying degrees of extravagance in their claims—include George L. Lawrence, *Plants Have Feelings, Too . . .*, ORGANIC GARDENING & FARMING 64 (April 1971 C. B. Woodlief, L. H. Royster, & B. K. Huang, *Effect of Random Noise on Plant Growth* 46 J. ACOUSTICAL SOC. AM. 481 (1969); Cleve Backster, *Evidence of a Primary Perception in Plant Life*, 10 INT'L J. PARAPSYCHOLOGY 25 (1968).

93. *See* note 16 *supra* and note 21 *supra*.

94. *See* FED. R. CIV. P. 23 and note 13 *supra*.

95. This is an ideal, of course—like the ideal that no human being ought to interfere with any other human being. *See* Charles Dyke, *Freedom, Consent, and the Costs of Interaction*, and Christopher D. Stone, *Comment*, in IS LAW DEAD? 134–67 (E. Rostow ed., 1971). Some damages would inevitably be *damnum absque injuria*. *See* note 93 *supra*.

96. The inevitability of some form of evolution is not inconsistent with the establishment of a legal system that attempts to interfere with or ameliorate the process: is the same not true of the human law we now have against murder?

97. Oliver Wendell Holmes, *Early Forms of Liability*, *in* THE COMMON LAW (1881), discussed the liability of animals and inanimate objects in early Greek, early Roman, and some later law. Alfred's Laws (AD 871–901) provided, for example, that a tree by which a man was killed should "be given to the kindred, and let them have it off the land within 30 nights." *Id*. at 19. In Edward I's time, if a man fell from a tree the tree was deodand. *Id*. at 24. Perhaps the liability of nonhuman matter is, in the history of things, part of a paranoid, defensive phase in man's development; as humans become more abundant, both from the point of material wealth and internally, they may be willing to allow an advance to the stage where nonhuman matter has rights.

98. *See* note 6 *supra*. In the event that a person built his house near the edge of a river that flooded, would "assumption of the risk" be available on the river's behalf?

99. *See Dixon v. Alabama State Bd. of Educ.*, 294 F.2d 150 (5th Cir.), *cert. denied*, 368 U.S. 930 (1961); Comment, *Private Government on the Campus—Judicial Review of University* Expulsions, 72 YALE L. J. 1362 (1963).

100. National Environmental Policy Act, 92 U.S.C. § 4332 (1970).

101. *See Committee for Nuclear Responsibility Inc. v. Schlesinger*, 40 U.S.L.W. 3214 (Nov. 5, 1971) (Douglas, J. Dissent to denial of application for injunction in aid of jurisdiction).

102. 42 U.S.C. § 4342 (1970).

103. As an indication of what lower-level management is apt to do, *see* Barbara Ehrenreich & John Ehrenreich, *Conscience of a Steel Worker*, 213 THE NATION 268 (1971). One steel company's "major concession [toward obedience to the 1899 Refuse Act], was to order the workers to confine oil dumping to the night shift. 'During the day the Coast Guard patrols. But at night, the water's black, the oil's black; no one can tell.'" An effective corporation law would ensure that the internal information channels within a corporation were capable of forcing such matters to the attention of high-level officials. Even then, there is no guarantee that the law will be obeyed—but we may have improved the odds.

104. In the case of Lake Erie, in addition to the considerations that follow in the text, there were possibly additional factors such as that no one polluter's acts could be characterized as inflicting irreparable injury.

105. *See for example* Justice Stanley Reed's opinion for the Court in *Kovac v. Cooper*, 336 U.S. 77 (1949) (*but see* Mr. Justice Frankfurter's concurring opinion, 336 U.S. at 89–96), and *United States v. Carolene Products*, 304 U.S. 14.1, 152 n.4 (1938).

106. Note that in the discussion that follows I am referring to legislative apportionment, not voting proper.

107. In point of fact, there is no reason to suppose that an increase of congressmen from Alaska would be a benefit to the environment. The reality of the political situation might just as likely result in the election of additional congressmen with closer ties to oil companies and other developers.

108. *See* A. W. B. Simpson, *The Analysis of Legal Concepts*, 80 LAW Q. REV. 535 (1964).

109. James E. Krier, *Environmental Litigation and the Burden of Proof*, *in* LAW AND THE ENVIRONMENT 105 (M. Baldwin & J. Page eds., 1970). *See Texas East Trans. Corp. v. Wildlife Preserves*, 48 N.J. 261, 225 A.2d 130 (1966). There, where a corporation set up to maintain

a wildlife preserve resisted condemnation for the construction of plaintiff's pipe line, the court ruled that ". . . the *quantum* of proof required of this defendant to show arbitrariness against it would not be as substantial as that to be assumed by the ordinary property owner, who devotes his land to conventional uses." 225 A.2d at 137.

110. *See* Stone, *Existential Humanism and the Law*, *in* Existential Humanistic Psychology 151 (T. Greening ed., 1971).

111. National Environmental Policy Act, 42 U.S.C. § 5 4321–47 (1970).

112. U.S.C. §§ 135 et seq. (1970).

113. W. Holdsworth, History of English Law 45 (5th ed., 1931).

114. Note that it is in no small way the law that imposes this manner of speech on businessmen. *See Dodge v. Ford Motor Co.*, 204 Mich. 459, 499–505, 170 N.W. 668, 68283 (1919) (holding that Henry Ford, as dominant stockholder in Ford Motor Co., could not withhold dividends in the interests of operating the company "as a semi-eleemosynary institution and not as a business institution").

115. I. Kant, Philosophy of Law 195 (Hastie transl., 1887).

116. I. Kant, *The Metaphysics of* Morality, *in* The Philosophy of Kant § 1 at 230–31 (J. Watson transl., 1908).

117. S.M. Engel, *Reasons, Morals, and Philosophical Irony*, *in* Language and Illumination 60 (1996).

118. L. Wittgenstein, Tractatus Logico-Philosophicus §§ 6.421, 6.522 (D. Pears & B. McGuinness transl., 1961).

119. Jacques Cousteau, *The Oceans: No Time to Lose*, Los A. Times, Oct. 24, 1971, § (opinion), at 1, col. 4.

120. *See* J. Harte & R. Socolow, Patient Earth (1971).

121. Ian McHarg, *Values, Process, and Form*, *in* The Fitness of Man's Environment 213–14 (1968).

122. Murphy, *supra* note 27, at 477.

123. On the other hand, the statement in text, and the previous one of Professor Murphy, may be a bit severe. One could as easily claim that Christianity has had no influence on overt human behavior in light of the killings that have been carried out by professed Christians, often in its name. Feng shui has, on all accounts I am familiar with, influenced the development of land in China. *See* Freedman, Geomancy, 1968 Proceedings of the Royal Anthropological Institute of Great Britain and Ireland 5; March, *An Appreciation of Chinese Geomancy*, 27 J. Asian Studies 253 (1968).

124. The legal system does the best it can to maintain the illusion of the reality of the individual human being. Consider, for example, how many constitutional cases, brought in the name of some handy individual, represent a power struggle between institutions—the NAACP and a school board, the Catholic Church and a school board, the ACLU and the Army, and so forth. Are the individual human plaintiffs the real moving causes of these cases—or an afterthought?

When we recognize that our problems are increasingly institutional, we would see that the solution, if there is one, must involve coming to grips with how the "corporate" (in the broadest sense) entity is directed, and we must alter our views of "property" in the fashion that is needed to regulate organizations successfully. For example, instead of ineffectual, after-the-fact criminal fines we should have more preventative in-plant inspections, notwithstanding the protests of "invasion of [corporate] privacy."

In-plant inspection of production facilities and records is presently allowed only in a narrow range of areas, e.g., in federal law, under the Federal Food, Drug, and Cosmetic Act, 21 U.S.C. § 374 *et seq.* (1970), and provisions for meat inspection, 21 U.S.C. § 608 (1970). Similarly, under local building codes we do not wait for a building to collapse

before authoritative sources inquire into the materials and procedures that are being used in the construction; inspectors typically come on site to check the progress at every critical stage. A sensible preventive legal system calls for extending the ambit of industries covered by comparable "privacy invading" systems of inspection.

125. G. Hegel, Hegel's Philosophy of Right 41 (T. Knox transl., 1945).

126. C. McCullers, The Ballad of the Sad Café and Other Stories 150–51 (1958).

127. Consider what Schopenhauer was writing about women, about the time the Wisconsin Supreme Court was explaining why women were unfit to practice law, 4–5 *supra*:

> "You need only look at the way in which she as formed, to see that woman is not meant to undergo great labour, whether of the mind or of the body. She pays the debt of life not by what she does, but by what she suffers; by the pains of childbearing and care for the child, and by submission to her husband, to whom she should be a patient and cheering companion. The keenest sorrows and joys are not for her, nor is she called upon to display a great deal of strength. The current of her life should be more gentle, peaceful and trivial than man's without being essentially happier or unhappier.
>
> "Women are directly fitted for acting as the nurses and teachers of our early childhood by the fact that they are themselves childish, frivolous and short-sighted; in a word, they are big children all their life long—a kind of intermediate stage between the child and the full-grown man, which is man in the strict sense of the word . . .
>
> "However many disadvantages all this may involve, there is at least this to be said in its favor: that the woman lives more in the present than the man, and that, if the present is at all tolerable, she enjoys it more eagerly. This is the source of that cheerfulness which is peculiar to women, fitting her to amuse man in his hours of recreation, and, in case of need, to console him when he is borne down by the weight of his cares.
>
> ". . . [I]t will be found that the fundamental fault of the female character is that it has *no sense of justice*. This is mainly due to the fact already mentioned, that woman are defective in the powers of reasoning and deliberation; but it is also traceable to the position which Nature has assigned to them as the weaker sex. They are dependent, not upon strength, but upon craft; and hence their instinctive capacity for cunning, and their ineradicable tendency to say what is not true. . . . For as lions are provided with claws and teeth and elephants and boars with tusks, bulls with horns, and the cuttle fish with its cloud of inky fluid, so Nature has equipped woman, for her defense and protection, with the arts of dissimulation; and all the power which Nature has conferred upon man in the shape of physical strength and reason, has been bestowed upon women in this form. Hence, dissimulation is innate in woman, and almost as much a quality of the stupid as of the clever."

A. Schopenhauer, *On Women*, in Studies in Pessimism 105–10 (T.B. Saunders transl., 1893).

If a man should write such insensitive drivel today, we would suspect him of being morally and emotionally blind. Will the future judge us otherwise, for venting rather that examining the needs that impel us to treat the environment as a senseless object—to blast to pieces some small atoll to find out whether an atomic weapon works?

128. Of course, the phase one looks toward is a time in which such sentiments need not be prescribed by *law*.

129. The "Purpose of the Legislation" in H.R. Rep. No. 91-1651. 91st Cong., 2d Sess., to the "[Animal] Welfare Act of 1970," 3 U.S. Code Cong. & Admin. News 5103, 5104 (1970).

Some of the West Publishing Co. typesetters may not be quite ready for this yet; they printed out the title as "Annual Welfare Act of 1970."

130. *See* McCall's, May 1971, at 44.

131. *Environmental Defense Fund, Inc. v. Hardin*, 428 F.2d 1093, 1096 (D.C. Cir. 1970). Plaintiffs would thus seem to have urged a broader than literal reading of the statute, 7 U.S.C. § 133(z) (2) (d) (1970), which refers to ". . . living man and other vertebrate animals, vegetation, and useful invertebrate animals." E.D.F. was joined as petitioners by the National Audubon Society, the Sierra Club, and the West Michigan Environmental Action Council, 428 F.2d at 1094–95 n.5.

132. In the case of the bestowal of rights on other humans, the action also helps the recipient to discover new personal depths and possibilities—new dignity—within him or her self. I do not want to make much of the possibility that this effect would be relevant in the case of bestowing rights on the environment. But I would not dismiss it out of hand, either. How, after all, do we judge that a person is, say, "flourishing with a new sense of pride and dignity?" What we mean by such statements, and the nature of the evidence upon which we rely in support of them, is quite complex. A tree treated in a "rightful" manner would respond in a manner that, when described, would sound much like the response of a person accorded "new dignity."

133. F.D. Rudhyar, Directives for New Life 21–23 (1971).

134. *See* Stone, note 111 *supra*.

135. *San Antonio Conservation Soc'y v. Texas Highway Dep't, cert. denied*, 400 U.S. 968 (1970) (Black, J. dissenting to denial of certiorari).

136. *Id.* at 969.

137. *Id.* at 971.

CHAPTER 2. DOES THE CLIMATE HAVE STANDING?

1. The author would like to thank his many colleagues for their comments, especially David Cruz and Dan Klerman, and, for research and editing assistance, Brian Rothschild and Grace Tse.

2. There are also complex and controversial provisions whereby each nation's "net" output of GHGs can be calculated by accounting for its "removal" of CO_2 from the atmosphere via its croplands and forests.

3. In *Palila v. Hawaii Dept. of Land & Natural Resources*, a suit was brought in the name of the Palila, an endangered bird species, and others, against the state resources agency for allowing feral sheep and goats to endanger the birds' critical habitat. 471 F. Supp. 985, 987 (D. Hawaii 1979). The district court granted declaratory and injunctive relief, without objection to the species as plaintiff. On appeal, Judge O'Scannlain wrote, "As an endangered species under the Endangered Species Act . . . the bird . . . has legal status and wings its way into federal court as a plaintiff in its own right." 852 F.2d 1106, 1107 (9th Cir. 1988).

4. We shall see later, [51–53], that this is one reason why some climate change litigators are framing their complaints in the language of "human rights" violations: one's rights (think of the right to a jury trial or to vote) are not "trumped" by majority preferences.

5. *See Central Valley Chrysler-Jeep v. Witherspoon*, 456 F. Supp. 2d 1160, 1183 (E.D. Cal. 2006):

> "Nothing in the Supreme Court's foreign policy preemption jurisprudence forecloses the possibility of preemption of a generally applicable law that interferes with

> foreign policy. The focus is on whether the practical effect of the state law is to disturb foreign relations or impair a proper exercise of Presidential authority. . . . Plaintiffs have demonstrated that current Executive Branch policy is to negotiate with other nations to reach agreements regarding greenhouse gas emissions reductions. . . . [T]he California regulations, by unilaterally reducing such emissions, potentially undercut the Executive's ability to pursue such agreements. Accordingly, Plaintiffs have stated a claim for preemption of the regulations based on foreign policy."

See also American Ins. Ass'n v. Garamendi, 539 U.S. 396. In this case, the Court held that a California law requiring insurance operators who had conducted business in Europe during the Holocaust to make certain disclosures about these policies as a condition of doing business in the state "impair[ed] the effective exercise of the Nation's foreign policy." *Id*. at 419.

6. If this appears far-fetched, a growing tactic of antienvironmental groups is to bring preemptive challenges to certain environmental regulation that favor developers, and then to enter into "sweetheart settlements" that leave the regulations in place, and bar further, more demanding review. Michael C. Blumm, *The Bush Administration's Sweetheart Settlement Policy*, 34 Envtl. L. Rep. 10397 (2004).

7. I focus in this section almost exclusively on U.S. federal law; the relative liberality of state standing laws means that many of them could probably more easily fit natural objects into their existing rights frameworks. Also, I do not enter into the nuances of the special requirements of "associational standing," which offers slightly different stratagems than the issues discussed. *See* David Hoch, *Stone and Douglas Revisited: Deep Ecology and the Case for Constructive Standing*, 3 J. Envtl. L. & Litig. 131, 135–40 (1988).

8. I cannot vouch, however, that some interstate differences as to justiciability, added to advantages on substantive issues, such as public nuisance doctrine, will not gradually lead to forum shopping away from federal courts and toward the more favorable states.

9. As discussed later, "*Lujan* holds that the requirement of an 'injury in fact' is a limitation on congressional power." Cass Sunstein, *What's Standing After Lujan? Of Citizen Suits, "Injuries," And Article III*, 91 Mich. L. Rev. 163, 166 (1992). But Sunstein argues that "an 'injury in fact,' as the Court understands it, is neither a necessary nor a sufficient condition for standing. The relevant question is instead whether the law—governing statutes, the Constitution, or federal common law—has conferred on the plaintiffs a cause of action. An inquiry into 'injury in fact' will both allow standing where it should be denied and deny standing where it should be granted. More fundamentally, the very notion of 'injury in fact' is not merely a misinterpretation of the Administrative Procedure Act and Article III but also a large-scale conceptual mistake." *Id*. at 166–67. While I generally agree with Sunstein, I believe that he was premature in sounding the death knell of citizen suits (as discussed later).

10. Evan Tsen Lee, *Deconstitutionalizing Justiciability: The Example of Mootness*, 105 Harv. L. Rev. 603 (1992). Although Lee focuses on mootness, he notes that his arguments also undermine the constitutionalizing of standing and ripeness. *Id*. at 649–50. On standing and its constitutional foundation or lack thereof, one classic is William A. Fletcher, *The Structure of Standing*, 98 Yale L. J. 221 (1988).

11. Strictly speaking, as is expressed later in the text, duty owing and zone of interests go to the *merits* of a plaintiff's claim, rather than to whether the plaintiff is empowered to sue on those merits (standing, technically). Nonetheless, it is a distinction without much difference from our perspective: an environmental claim can be derailed by the one flaw as well as the other.

12. The language, although appearing originally in Justice Scalia's opinion in *Lujan* in 1992 is quoted nearly verbatim as the law in *Friends of the Earth, Inc. v. Laidlaw Environmental Systems (TOC), Inc.*, written by Justice Ginsburg, and joined by Rehnquist, C. J., and Justices Stevens, O'Connor, Kennedy, Souter, and Breyer. 528 U.S. 167, 180–81 (2000). There is considerable disagreement on the application of these rules to the facts that are being presented. *See, for example*, the opinions of Justices Kennedy and Souter in *Lujan*. As explained, the duty element is one I have inserted for expository convenience.

13. "The term 'take' means to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal." Marine Mammal Protection Act of 1972, 16 U.S.C. 1362 (2006).

14. Technically, the majority did not go off on "zone of interests" as such, but emphasized the slightness of injury. *Animal Legal Def. Fund, Inc. v. Glickman*, 130 F.3d 464 (D.C. Cir. 1997), *rev'd*, 154 F.3d 426 (D.C. Cir. 1998).

15. *Animal Legal Def. Fund, Inc. v. Glickman*, 130 F.3d 464, 468 (D.C. Cir. 1997), *rev'd*, 154 F.3d 426 (D.C. Cir. 1998).

16. *Id.* at 471.

17. *Id.* at 475 (citing *Akins v. Fed. Election Comm'n*, 101 F.3d 731, 739 (D.C. Cir. 1996) (en banc)). "[I]n cases where the plaintiff is not itself the subject of the contested regulatory action, the [zone of interests] test denies a right of review if the plaintiff's interests are *so marginally related* to or inconsistent with the purposes implicit in the statute that it cannot reasonably be assumed that Congress intended to permit the suit. The test is not meant to be especially demanding; in particular, there need be no indication of congressional purpose to benefit the would-be plaintiff."

18. *Glickman*, 130 F.3d at 476.

19. *Id.* at 471.

20. After finding that Jurnove had standing to sue, the court declared, "We have no need to consider the standing of the other individual plaintiffs." *Glickman*, 154 F.3d at 445.

21. *Glickman*, 154 F.3d at 445.

22. *Id.* at 444.

23. *United States v. Richardson*, 418 U.S. 166, 177 (1974).

24. *Whitmore v. Arkansas*, 495 U.S. 149, 160 (1990).

25. Peter Manus, *The Blackbird Whistling—The Silence Just After: Evaluating the Environmental Legacy of Justice Blackmun*, 85 Iowa L. Rev. 429, 442 (2000).

26. *Lujan v. Defenders of Wildlife*, 504 U.S. 555 (1992).

27. Endangered Species Act, 16 U.S.C. § 1536(a)(2). The ESA was passed with an intent to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in subsection (a) of [the ESA]." Endangered Species Act, 16 U.S.C. § 1531(b) (2006). To promote enforcement of the ESA, "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 . . . who is alleged to be in violation of [the ESA] . . . (B) to compel the Secretary to apply . . . the prohibitions set forth in or authorized . . . 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 . . . which is not discretionary with the Secretary." Endangered Species Act, 16 U.S.C. § 1540(g) (2006).

28. *Id.* at 563 (quoting the affidavit of Joyce Kelly).
29. *Id.* at 561.
30. *Id.* at 562.
31. *Id.*
32. *Id.*
33. *Id.* (citing *Allen v. Wright*, 468 U.S. 737, 758 (1984)).
34. *Lujan*, 504 U.S. at 576.
35. *Id.* at 577.
36. *United States v. Students Challenging Regulatory Agency Procedures*, 412 U.S. 669, 678 (1973).
37. *Lujan*, 504 U.S. at 566.
38. *Id.* at 562 (citing *Sierra Club v. Morton*, 405 U.S. 727, 734 (1972)).
39. *Animal Legal Def. Fund, Inc. v. Glickman*, 130 F.3d 464 (D.C. Cir. 1997) (quoting *Fla. Audubon Soc'y v. Bentsen*, 94 F.3d 658 (1996)).
40. *Id.* at 432.
41. *Id.* at 473 (quoting *Allen v. Wright*, 469 U.S. at 73, 751 (1998).
42. *Id.* (quoting *Lujan*, 504 U.S. at 562–63).
43. *Massachusetts v. Environmental Protection Agency (EPA)*, 127 S. Ct. 1438 (2007).
44. *Id.* at 1454.
45. *Id.*
46. Christopher D. Stone, Earth and Other Ethics 8 (1988).
47. *Animal Welfare Institute v. Kreps*, 561 F.2d 1002 (D.C. Cir. 1977).
48. *Id.* at 1007.
49. *Luja*n v. Defenders of Wildlife, 504 U.S. 555, 564 (1992).
50. Id. at 583 (Stevens, J., concurring).
51. *Id.* at 567.
52. *Animal Legal Def. Fund, Inc. v. Glickman*, 154 F.3d 426 (D.C. Cir. 1998).
53. *Glickman*, 154 F.3d at 438 (Sentelle, J., dissenting). Judge Sentelle declared, "I find frightening at a constitutional level the majority's assumption that the government causes everything that it does not prevent," but this seems to distort the majority's causation analysis. His argument leans heavily on the majority's use of "authorize" in its analysis, a term the majority does not in fact employ. *Id.* at 452.
54. *Lujan*, 504 U.S. at 568.
55. *Id.*
56. *Id.* at 595.
57. *Lujan*, 504 U.S. at 595 (Blackmun, J. dissenting). Blackmun continues: "I find myself unable to agree with the plurality's analysis of redressability, based as it is on its invitation of executive lawlessness, ignorance of principles of collateral estoppel, unfounded assumptions about causation, and erroneous conclusions about what the record does not say." *Id.* at 601.
58. *Id.* at 571.
59. *Id.* at 599 (Blackmun, J., dissenting).
60. Cass R. Sunstein, *What's Standing After Lujan? Of Citizen Suits, "Injuries," and Article III*, 91 Mich. L. Rev. 163, 165 (1992).
61. That is, the Court has not invalidated any statutes on their face, although it may have refused, on constitutional grounds, to enforce some laws with the reach the Congress may have intended.
62. *Lujan*, 504 U.S. at 566.

63. *Lujan*, 504 U.S. at 573 n.7. The footnote is quoted by the majority in *Massachusetts v. Environmental Protection Agency (EPA)*, 127 S. Ct. 1441 (2007). In addition to *Massachusetts v. EPA*, *see, for example*, *Sierra Club v. US Army Corps of Engineers*, in which the court addressed this issue when granting the Sierra Club standing to appeal a Finding of No Significant Impact (FONSI). The Court stated in *Sierra Club* that, "Injury under NEPA occurs when an agency fails to comply with that statute, for example, by failing to issue a required environmental impact statement. The injury-in-fact is increased risk of environmental harm stemming from the agency's allegedly uninformed decision-making." 446 F.3d 808, 816 (8th Cir. 2006).

64. Scalia is implying that the burden is otherwise in suits seeking to compel a final substantive outcome. "Final" is the key term here, since the immediate objective of the complainant is often a temporary injunction while the remedy, such as the failure to undertake an environmental impact assessment (EIA), is corrected. I doubt that the line between procedural and substantive issues is any sharper here than in other fields of law. But the idea is that in some circumstances, where the agency has failed properly to consult with other agencies as prescribed, or has wrongly failed to account for something or other, a "victory" does not imply substantive relief. On Scalia's account, the plaintiff seeking procedural relief—these sorts of corrections—faces a less burdensome standing requirement than does a party seeking to force a different substantive outcome.

65. A biological opinion prepared pursuant to the ESA can be challenged in much the same way that an EA or an EIS prepared pursuant to NEPA can be. The issuance of the biological opinion is considered final agency action and thus subject to judicial review under the APA. *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 481 F.3d 1224, 1231 (9th Cir. 2007). As we saw in *Lujan*, the ESA imposes a procedural consultation duty whenever a federal action may affect an ESA-listed species, whereby the agency planning the action ("action agency") must consult with a "consulting agency." *Id.* at 1230.

66. 42 U.S.C. § 4332(C).

67. *Border Power Plant Working Group v. DOE*, 260 F. Supp. 2d 997, 1018 (S.D. Cal. 2003).

68. *Hanly v. Kleindienst*, 471 F.2d 823, 830–31 (2d Cir. 1972) (emphasis added).

69. "An action is arbitrary and capricious if the agency fails to consider an important aspect of the problem, it offers an explanation that is contrary to the evidence, if the agency's decision is so implausible that it could not be ascribed to a difference in view or be the product of agency expertise, or if the agency's decision is contrary to the governing law." *Nw. Envtl. Advocates v. Nat'l Marine Fisheries Serv.*, 460 F.3d 1125, 1132 (9th Cir. 2006).

70. *E.g.*, *City of Des Moines v. Puget Sound Reg'l Council*, 988 P.2d 27, 37 (Wash. Ct. App. 1999).

71. *Id.*

72. *Greenpeace v. Nat'l Marine Fisheries Serv.*, 55 F. Supp. 2d 1248 (W.D. Wash. 1999).

73. *Id.* at 1261.

74. *W. Land Exch. Project v. U.S. Bureau of Land Mgmt.*, 315 F. Supp. 2d 1068, 1094 (D. Nev. 2004) (brought under the Endangered Species Act).

75. *Id.*

76. *Border Power Plant Working Group v. Dept. of Energy*, 260 F. Supp. 2d 997 (S.D. Cal. 2003).

77. *Id.* at 1028.

78. *Id.* at 1028–29.

79. The EA-FONSI failed to review the project's effects on the increased salinity of the Salton Sea, consider the project as controversial, disclose and analyze the significance of the carbon dioxide emissions from the electrical plant, and consider the cumulative impact of the permits. *Border Power Plant Working Group v. Department of Energy*, 260 F. Supp. 2d 997, 1028–29 (S.D. Cal. 2003).

80. Record of Decision and Floodplain Statement of Findings; Imperial-Mexicali 230-kV Transmission Lines, 70 Fed. Reg. 21, 189, 21193 (Apr. 25, 1005).

81. *Id.*

82. *Border Power Plant Working Group v. Dep't of Energy*, 467 F. Supp. 2d 1040 (S.D. Cal. 2006).

83. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 322, 333 (1989).

84. Analogous arguments could be made under state securities and fraud laws.

85. Rules and Regulations Under the Securities Exchange Act of 1934, 17 C.F.R. § 240.14a-8.

86. For example, a company may exclude shareholder proposals that deal with matters relating to the company's "ordinary business operations." 17 C.F.R.§ 240.14a-8(i)(7). Mining coal might be such, for a coal company, which might refuse to circulate a shareholder proposal to inventory its carbon footprint on those grounds.

87. Sung Ho (Danny) Choi, *It's Getting Hot In Here: The SEC's Regulation of Climate Change Shareholder Proposals under the Ordinary Business Exception*, 17 DUKE ENVIRONMENTAL LAW & POLICY FORUM 165, 167 (2006).

88. Robert Monks et al., *Shareholder Activism on Environmental Issues: A Study of Proposals at Large U.S. Corporations (2000–2003)*, 28 NAT. RESOURCES F. 317, 319 (2004).

89. More information on the Climate Risk Disclosure Initiative is available at http://www.calpers-governance.org/alert/initiatives/global-framework.asp.

90. US States News, *Attorney General Cuomo Reaches Agreement with Major Energy, Xcel Energy, to Require Disclosure of Financial Risks of Climate Change to Investors*, Aug. 28, 2008, *available at* http://www.accountability-central.com/single-view-default/single-view-lexis-nexis/article/attorney-general-cuomo-reaches-agreement-with-major-energy-xcel-energy-to-require-disclosure-of-fi/?tx_ttnews[backPid]=1&cHash=df8cda37d0.

91. That is, they wanted the right to strike a harpoon into up to 10 whales, whether or not the animal was successfully landed.

92. *International Whaling Commission Meets in Adelaide*, (2000), http://www.abc.net.au/rn/science/earth/stories/s153279.htm.

93. Jonathan Zasloff, *The Judicial Carbon Tax: Reconstructing Public Nuisance and Climate Change*, 55 UCLA L. REV. 1827 (2008).

94. *Connecticut v. Am. Electric Power Co.*, 406 F. Supp. 2d 265, 267 (S.D.N.Y. 2005).

95. "Where an act is one which a reasonable man would recognize as involving a risk of harm to another, the risk is unreasonable and the act is negligent if the risk is of such magnitude as to outweigh what the law regards as the utility of the act or of the particular manner in which it is done." RESTATEMENT (SECOND) OF TORTS, § 291.

96. 406 F. Supp. 2d 265, 272–73.

97. *Connecticut v. Am. Electric Power Co.*, 406 F. Supp. 2d 265, 274 (S.D.N.Y. 2005). Technically the court would ordinarily be said to have denied jurisdiction rather than standing.

98. *California v. Gen. Motors Corp.*, No. C06-05755 MJJ (N.D. Cal. Sept. 17, 2007).

99. *Connecticut v. American Electric Power*, 2009 WL 2996729 (C.A. 2 (N.Y.)).

100. *Petition to the Inter American Commission on Human Rights Seeking Relief from Violations Resulting from Global Warming Caused by Acts and Omissions of the United States* (Dec. 7, 2005), *available at* http://www.ciel.org/Publications/ICC_Petition_7Dec05.pdf.

101. At least one argument *against* conscripting human rights treaties into the defense of the environment should be noted. Courts and tribunals may turn down environmentalists' complaints in such a manner as to build a "bad body" of holdings that will come back to frustrate human rights lawyers in their efforts to achieve the intended core objective of these agreements: the great task of protecting human civil and political rights.

102. *Id.* at 1.

103. Donald Goldberg, CIEL Senior Attorney, testimony before the Inter-American Commission on Human Rights (Mar. 1, 2007), *available at* http://www.ciel.org/Publications/IACHR_Goldberg_Mar07.pdf.

104. The American Declaration of the Rights and Duties of Man was the world's first international human rights instrument of a general nature, predating the Universal Declaration of Human Rights by more than six months. American Declaration of the Rights and Duties of Man, Dec. 10, 1948, G.A. Res. 217 A (III), *available at,* http://www.un.org/Overview/rights.html.

105. Denmark's proposal was rejected on the grounds that it had failed to demonstrate a "need" for the whales.

106. *Adams v. Vance,* 570 F.2d 950, 954–55 (D.C. Cir. 1977).

107. *Japan Whaling Ass'n v. Am. Cetacean Soc'y,* 478 U.S. 221 (1986).

108. Restriction on Importation of Fishery or Wildlife Products from Countries which Violate International Fishery or Endangered or Threatened Species Programs, 22 U.S.C. § 1978(a)(1).

109. *Japan Whaling Ass'n,* 478 U.S. at 240 n.4.

110. *Id.* at 241.

111. For definitions of EA, EIS, and FONSI, *see* page—above

112. *Massachusetts v. Environmental Protection Agency (EPA),* 127 S. Ct. 1438 (2007).

113. Clean Air Act, 42 U.S.C. § 7521(a)(1) (2006) (emphasis added).

114. *Id.* at § 7602(g) (2006) (emphasis added).

115. *Massachusetts v. Environmental Protection Agency (EPA),* 127 S. Ct. at 1453.

116. *Id.* at 1455, 1457.

117. *Id.* at 1454.

118. *Id.* at 1441.

119. *Id.* at 1463.

120. Responsibilities of Trustees, 40 C.F.R. § 300.615. This applies to damages under CERCLA.

121. The bankruptcy court defined this class to include: "All persons, whether known or unknown, born or unborn, who may, after the date of confirmation of Piper's Chapter 11 plan of reorganization, assert a claim or claims for personal injury, property damages, wrongful death, damages, contribution and/or indemnification, based in whole or in part upon events occurring or arising after the Confirmation Date, including claims based on the law of product liability, against Piper or its successor arising out of or relating to aircraft or parts manufactured and sold, designed, distributed or supported by Piper prior to the Confirmation Date." *Epstein v. Official Comm. of Unsecured Creditors of the Estate of Piper Aircraft Corp.,* 58 F.3d 1573, 1575 (11th Cir. 1995).

122. *Defenders of Wildlife v. Gutierrez,* 484 F. Supp. 2d 44 (D.C. Cir. 2007).

123. "The new rule requires vessels to travel at ten knots or less during the seasons whales are expected to be present, in designated areas along the East Coast. It will be up for renewal in five years, after scientists assess its effectiveness . . . In the mid-Atlantic area, the 10-knot speed restrictions will extend out to 20 nautical miles around major ports . . . The rule is part of NOAA's broader ship strike reduction efforts. Existing protective actions include surveying whale migration routes by aircraft and mandatory ship reporting." Press Release, National Oceanic and Atmospheric Administration, *Ship Strike Reduction Rule Aims to Protect North Atlantic Right Whales* (Oct. 8, 2008), *available at* http://www.nmfs.noaa.gov/pr/pdfs/shipstrike/finalrule_pressrelease.pdf.

124. "Polar bears are particularly vulnerable to oil spills due to their inability to effectively thermoregulate when their fur is oiled, and to poisoning that may occur from ingestion of oil while from grooming or eating contaminated prey." Final Rule, Department of the Interior Fish and Wildlife Service, *Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Polar Bear (Ursus maritimus) Throughout Its Range*, 307, *available at* http://www.interior.gov/issues/polar_bears/Polar%20Bear%20Final%20Rule_to%20FEDERAL%20REGISTE%20-Final_05-14-08.pdf. To the industry's credit, only two bears have been killed in industry encounters in U.S. territory over the many years, both in self-defense. This is only a fraction of the total human lethal impact across the bears' entire range, which includes killings from sport hunting and cultural requirements, as well as subsistence allowances, almost entirely for Inuit and Cree living in Canadian territory. *Id.* at 258–259.

125. *Center for Biological Diversity v. Kempthorne*, No. C 08-1339 CW, slip op. at 3 (N.D. Cal. ordered Apr. 28, 2008).

126. Proposed Rule to List the Polar Bear (Ursus maritimus) as Threatened Throughout Its Range, 72 Fed. Reg. 1064-01 (proposed Jan. 9, 2007) (codified at 50 C.F.R. § 17.40(q)).

127. Press Release, U.S. Dept. of the Interior, *Secretary Kempthorne Announces Decision to Protect Polar Bears under Endangered Species Act* (May 14, 2008), *available at* http://www.doi.gov/news/08_News_Releases/080514a.html. The secretary also noted that Canada, with two-thirds of the world's population of polar bears, has not listed polar bears as threatened. *Id.*

128. Endangered Species Act, 16 U.S.C. 1533(b)(1)(A).

129. Bert Metz et al., Intergovernmental Panel on Climate Change Fourth Assessment Report, Mitigation of Climate Change, 226 (2007).

130. In *Tennessee Valley Authority v. Hill*, 437 U.S. 153 (1978), the Supreme Court agreed that a nearly completed dam on the Little Tennessee River had to be put on hold when it appeared that the project would endanger the snail darter, protected under the ESA. Chief Justice Berger wrote that "Congress has spoken in the plainest words, making it clear that endangered species are to be accorded the highest priorities. Since that legislative power has been exercised, it is up to the Executive Branch to administer the law and for the Judiciary to enforce it when, as here, enforcement has been sought." *Id.* at 155. A month after the decision, the ESA was amended by Congress to include a process by which economic impacts could be reviewed and projects exempted from the restrictions that otherwise would apply.

131. Final Rule, Department of the Interior Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants; *Determination of Threatened Status for the Polar Bear (Ursus maritimus) Throughout Its Range*, 147, *available at* http://www.fws.gov/home/feature/2008/polarbear012308/pdf/FR_notice.pdf.

132. *Id.* at 395.

133. Kari Lydersen, *Oil Group Joins Alaska in Suing to Overturn Polar Bear Protection*, Washington Post, Aug. 31, 2008, A04.

134. *Center for Biological Diversity, Inc. v. FPL Group, Inc.*, 83 Cal. Rptr. 3d 588, 591–92 (Ct. App. 2008).

135. The Public Trust doctrine, which dates to Roman law, holds that certain resources, such as beaches, are not subject to private ownership, but are the responsibility of the government to maintain and preserve for use by the public.

136. *Id.* at 592 (quoting *Center for Biological Diversity*, No. RG04-183113 (Cal. Super. Ct. Oct. 12, 2006)). For information on the Public Trust Doctrine, *see* Joseph L. Sax, *Liberating the Public Trust Doctrine from Its Historical Shackles*, 14 U.C. Davis L. Rev. 185 (1980).

137. *Center for Biological Diversity*, 83 Cal. Rptr. 3d at 595–96.

138. *Okinawa Dugong v. Gates*, 543 F. Supp. 2d 1082, 1083–84 (N.D. Cal. 2008). The Dugong itself was captioned as plaintiff, but counsel conceded that its standing conflicted with *Cetacean Community v. Bush*, and was dismissed accordingly.

139. *Okinawa Dugong v. Gates*, 543 F. Supp. 2d 1082, 1088 (N.D. Cal. 2008) (quoting Act to Amend the National Historic Preservation Act of 1966, Pub. L. 96-515, 94 Stat. 2987).

140. *Id.* at 1111 (quoting 16 U.S.C. § 470a-2).

141. *Cetacean Cmty. v. Bush*, 386 F.3d 1169, 1173 (9th Cir. 2004).

142. *Marbled Murrelet v. Babbitt*, 83 F.3d 1060 (9th Cir. 1996).

143. *Coho Salmon v. Pacific Lumber Company*, 61 F. Supp. 2d 1001 (N.D. Cal. 1999).

144. *Id.* at 1008 n.2.

145. *Loggerhead Turtle v. County Council of Volusia County, Fla.*, 148 F.3d 1231 (11th Cir. 1998).

146. *Id.* at 1255–58.

147. *Loggerhead Turtle v. County Council of Volusia County, Fla.*, 896 F. Supp. 1170, 1177 (M.D. Fla. 1995).

148. *Hawksbill Sea Turtle v. FEMA*, 126 F.3d 461, 466 n.2 (3d Cir. 1997).

149. *Loggerhead*, 896 F.Supp. at 1177.

150. In *Marbled Murrulet*, the plaintiff also relied on the California ESA (CESA), the state equivalent. *Marbled Murrelet*, 83 F.3d at 1107 (9th Cir. 1988). Other cases based principally on the ESA include *Northern Spotted Owl v. Hodel*, 716 F. Supp. 479 (WD Wash 1988); *Northern Spotted Owl v. Lujan*, 758 F. Supp 621 (WD Wash 1991); *Mt. Graham Red Squirrel v. Yeutter*, 930 F.2d 703 (9th Cir 1991). *Citizens to End Animal Suffering and Exploitation v. New England Aquarium*, 836 F. Supp. 45. (D. Mass. 1993) (based principally on the MMPA but referring to ESA case law).

151. 5 U.S.C. § 702 (2006) ("A person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action within the meaning of a relevant statute, is entitled to judicial review thereof").

152. 16 U.S.C. 1372(d)(6) (2006) ("Any applicant for a permit, or any party opposed to such permit, may obtain judicial review of the terms and conditions of any permit . . .").

153. *Citizens*, 836 F. Supp. at 46.

154. *Id.* at 49.

155. Christopher D. Stone, *Does a Dolphin Have Rights?* Boston Globe, Sept. 16, 1990.

156. Justice Kennedy's basis for concurrence in *Lujan* is not discouraging. "In my view, Congress has the power to define injuries and articulate chains of causation that will give rise to a case or controversy where none existed before, and I do not read the Court's

opinion to suggest a contrary view. In exercising this power, however, Congress must at the very least identify the injury it seeks to vindicate and relate the injury to the class of persons entitled to bring suit." *Lujan*, 504 U.S. at 580 (citations omitted).

157. Cass R. Sunstein, *Standing for Animals*, 29 (Chicago Public Law and Legal Theory Working Paper No. 06, 2000), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=196212.

158. *Id.* at 30.

159. *Lujan*, 504 U.S. at 572.

160. In November 2008, the Supreme Court held for the Navy on the merits, on the grounds that the judiciary could not maintain, against declarations of the military, that any injury to the whales "is outweighed by the public interest and the Navy's interest in effective, realistic training of its sailors." *Winter v. NRDC*, 129 S.Ct. 365 (2008). Notwithstanding the loss, the environmental groups supporting the action believe the decision has not precluded whale protecting measures. *See* Adam Liptak, *Justices Back Navy in Fight with Environmentalists on Sonar Training*, N.Y. Times, Nov. 13, 2008, A24.A.

161. *Id.* at 564.

162. *Id.* at 592 (Kennedy, J., dissenting).

163. The dog was eventually saved by a special bill in the California legislature.

164. We are assuming here that neither species has been determined to be endangered under the ESA.

165. Associations that have been granted recognition by federal *Länder* (states) are permitted to participate prior to the granting of exemptions from prohibitions and orders relating to the protection of *Naturschutzgebiete* ("nature conservation areas"), *Nationalparke* ("national parks"), and *Biosphärenreservate* ("biosphere reserves") and other protected areas. In certain circumstances they enjoy special guardian power to sue, viz., to challenge decisions of "plan establishment procedures" relating to projects involving intervention in nature and landscape as well as "plan approvals" where the involvement of the general public has been provided for in relevant provisions. *See Bundesnaturschutzgesetz*, Articles 58–61 from *Institut für Naturschutz und Naturschutzrecht*, *available at* http://www.naturschutzrecht.net/naturschutzgesetze.htm. For a review of the proceedings that have been initiated under these provisions, *see* Alexander Schmidt, *Verbandsklagen im Naturschutzrecht und Realisierung von Infrastrukturmassnahmen—Ergebnisse einer empirischen Untersuchung*, 30 Natur und Recht 544 (2008), reporting that between 2002–2006 130 cases were brought; the environmental associations counted 28 cases as won or successfully finished, 24 as partial victories, and 78 (60 percent) as lost.

166. David G. Victor, *Fragmented Carbon Markets and Reluctant Nations: Implications for the Design of Effective Architectures*, *in* Architectures for Agreement 142 (Joseph E. Aldy and Robert N. Stavins eds., 2007)

167. For a strong argument favoring buyer liability, *see* Robert Keohane and Kal Raustiala, *Toward a Post Kyoto Climate Change Architecture: A Political Analysis* in Joseph E. Adley and Robert Stavins, eds., Post-Kyoto International Climate Policy (Forthcoming 2009).

168. The most thorough and incisive treatment is Steve Charnovitz, Gary Clyde Hufbauer, & Jisun Kim, Reconciling GHG Limits with the Global Trading System (2009).

169. Victor, *Fragmented Markets* at 133.

170. Carraro C.; Buchner B. (2006), *U.S., China, and the Economics of Climate Negotiations*, 6 Rivista International Environmental Agreement: Politics, Law and Economics 63 (2006).

171. *See* Katherine Trissolini, *All Hands on Deck: Local Governments and the Potential for Bidirectional Climate Change Regulation*, *citing* U.S. EPA, *Why Build it Green?*, *available at* http://www.epa.gov/greenbuilding/pubs/whybuild.htm.

172. Michael Vandenbergh, Jack Barkenbus, & Jonathan Gilligan, *Individual Carbon Emissions: The Low-Hanging Fruit* 55 UCLA L. Rev. 1701 (2007).

173. Robert O. Keohane & Kal Raustiala, *Toward a Post Kyoto Climate Change Architecture: A Political Analysis* (UCLA Sch. of Law Law & Econ. Research Paper Series, Research Paper No. 08-14), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1142996.

174. Conservation groups, whose resources are limited, have to keep in mind that lawsuits are only one way, and not necessarily the most effective way, dollar for dollar, to educate the public. Moreover, the title of the case—whether in the name of a bird rather than a bird-lover—is not likely to reach most of the general public. After all, the name of the case gets scant coverage in the media. Thus the educational value of suits on behalf of Nature has to be evaluated as one benefit among others, at the margin.

175. See the discussion of *Seehunde v. Bundesrepublik Deutschland*, (Verwaltungsgericht, Hamburg, August 15, 1998), in the present volume, PP. 132–133.

176. Complaint, *Native Vill. of Kivalina and City of Kivalina v. ExxonMobil Corp.*, 2008 WL 2951523 (C.D. Cal. 2008), *available at* http://www.climatelaw.org/cases/country/us/kivalina/Kivalina%20Complaint.pdf.

177. The complaint states, "This challenge is brought pursuant to Kivalina's independent constitutional, common law, and statutory authority to represent the public interest of the Kivalina community." Complaint at 4, *Native Village of Kivalina v. ExxonMobil Corp.*, 2008 WL 2951523 (C.D. Cal. 2008), *available at* http://www.climatelaw.org/cases/country/us/kivalina/Kivalina%20Complaint.pdf.

178. Stephan Faris, *Conspiracy Theory: Climate-Change Litigation Is Heating Up. Will the Legal Strategy that Brought Down Big Tobacco Work against Big Oil?* Atlantic Monthly, June 1, 2008, at 32, *available at* http://www.theatlantic.com/doc/200806/conspiracy.

179. A recent poll of polls conducted around the world showed that in 15 out of 21 countries, majorities felt that it was necessary to take "major steps, starting very soon" to address climate change. In the other six countries polled, opinion was divided over whether "major" or "modest steps" were needed. Only small minorities thought no steps were necessary. The data antedate the market decline of 2008. WorldPublicOpinion.org, *International Polling on Climate Change,* Dec. 6, 2007, http://www.worldpublicopinion.org/pipa/pdf/dec07/CCDigest_Dec07_rpt.pdf.

180. Page 55 *supra*.

181. Pages 47–48 *supra*.

182. Associated Press, *U.S. to Designate "Critical Habitat" for Polar Bears*, Los Angeles Times, Oct. 7, 2008, *available at* http://latimesblogs.latimes.com/unleashed/2008/10/us-to-designate.html.

183. The implication might be that every project could be delayed pending inquiry into the impact on all 1900 threatened and endangered species, animals and plants, domestic and foreign. For a summary of endangered and threatened species worldwide, *see* http://ecos.fws.gov/tess_public/TESSBoxscore. I assume Congress would find that unacceptable and could initiate an unraveling of the whole ESA framework.

184. One has to grant that none of the cases in the United States thus far has accounted for climate change in framing substantive outcome.

185. The U.S. Army Corps of Engineers and the U.S. Government Accountability Office have both concluded that Kivalina must be relocated due to global warming and have estimated the cost to be from $95 million to $400 million. Complaint at 1,

Native Village of Kivalina and the City of Kivalina v. ExxonMobil Corp., 2008 WL 2951523 (C.D. Cal. 2008), *available at* http://www.climatelaw.org/cases/country/us/kivalina/Kivalina%20Complaint.pdf.

186. Exxon Valdez Oil Spill Trustee Council, *History: Details of the Settlement*, *available at*, http://www.evostc.state.ak.us/History/settlement_detail.cfm.

187. Exxon Valdez Oil Spill Trustee Council, *People*, http://www.evostc.state.ak.us/People/index.cfm. For more information on the spill and the trust created, *see* Exxon Valdez Oil Spill Trustee Council, http://www.evostc.state.ak.us/.

188. Oil Pollution Act of 1990, PL 101-380, 104 Stat 484 (1990).

189. Florida Department of Environmental Protection, Press Release (Jan. 8, 2003), *NOAA and Florida Department of Environmental Protection Submit $2.2 Million Claim for South Florida Oil Spill*, *available at* http://www.dep.state.fl.us/secretary/news/2003/january/0108.htm.

190. *Id.*

191. There is an additional benefit of relying on taxes over a fund generated by damage awards against major polluters. Emissions taxes would fall on each polluter, ratably. But suits against even the worst polluters would not fall on those actors accounting for most the pollution. Damage-generated funds in this area thus appear unfair and inefficient.

CHAPTER 3. AGRICULTURE AND THE ENVIRONMENT: CHALLENGES FOR THE NEW MILLENNIUM

1. Prepared for delivery at the 4th International Conference on Environmental Law, Sao Paulo, Brazil, June 4–7, 2000. An original version published in AGRICULTURA E MEIO AMBIENTE (A.H. Benjamin and J.C.M. Sicoli eds., Imprensa Oficial, Sao Paulo 2000). Statistics were recently updated with the assistance of Grace Tse.

2. The author's evaluation of global environmental challenges is set out in CHRISTOPHER D. STONE, THE GNAT IS OLDER THAN MAN 3–32 (1993).

3. *See* Omer C. Stewart, *Fire as the First Great Force Employed by Man*, *in* MAN'S ROLE IN CHANGING THE FACE OF THE EARTH 115–33 (William L. Thomas Jr. ed., 1955).

4. JARED M. DIAMOND, GUNS, GERMS, AND STEEL: THE FATES OF HUMAN SOCIETIES 42–47 (1997).

5. ROBERT J. WENKE, PATTERNS IN PREHISTORY: HUMANKIND'S FIRST THREE MILLION YEARS 239–40 (1990).

6. The impact of agriculture is well reviewed in Thomas ed., *supra* note 2, at 567–804.

7. This figure is the sum of all arable and permanent cropland and permanent pasture, as of 2002. WORLD RESOURCES INSTITUTE, ET AL., WORLD RESOURCES 2005: THE WEALTH OF THE POOR 216 (2005).

8. Peter M. Vitousek, Harold A. Mooney, Jane Lubchenco, & Jerry M. Maelillo, *Human Domination of the Earth's Ecosystems*, 277 SCIENCE 494, 494–95 (July 25, 1997).

9. JARED DIAMOND, GUNS, GERMS, AND STEEL, *supra* note 3, at 114–30 (1997).

10. Food and Agricultural Organization of the United Nations (FAO), Fisheries Circular No. 821 Revision 4, Fish and Fishery Products: World Apparent Consumption Statistics Based on Food Balance Sheets (1961–1995) (Rome: FAO, November 1998).

11. *See* Food and Agricultural Organization of the United Nations (FAO), World Review of Fisheries and Aquaculture, http://www.fao.org/docrep/w9900e/w9900e02.htm#P0_0.

12. *See* Carol Kaesuk Yoon, *Redesigning Nature: Altered Salmon Leading way to Dinner Plates, but Rules Lag*, N. Y. TIMES, May 1, 2000, at A1.

13. *Locally Produced Fish Feed Could Save State Money*, Anchorage Daily News, Feb. 15, 2009, *available at* 2009 WLNR 3177785.

14. Paul E. Waggoner & Jesse H. Ausubel, *How Much Will Feeding More and Wealthier People Encroach on Forests?*, http://greatrestoration.rockefeller.edu/jha_pw_encroachment/WaggonerAusubeltextfigs.PDF.

15. Food and Agriculture Organization, World Agriculture: Towards 2015/2030, An FAO Perspective 331–33 (Jelle Bruinsma ed., 2003).

16. *Id.* at 20, 138–42.

17. *Id.* at 136–37.

18. *Id.* at 387.

19. World Resources Institute et al., World Resources 1998–99: Environmental Change and Human Health 154 (1998).

20. *Id.* at 157.

21. *Id.* at 41–48.

22. *Id.*

23. Waggoner and Ausubel, *supra* note 12, at 11.

24. *See* David Barboza, *AstraZeneca to Sell a Genetically Engineered Strain of Rice*, New York Times, May 16, 2000, at C8; Robert Paarlberg, *The Global Food Fight*, 79 Foreign Affairs 24 (May/June 2000).

25. Barboza *supra* note 22.

26. Yoon, *supra*, note 11.

27. OECD, Agriculture and the Environment: Issues and Policies 32 (1998).

28. *See* Graciela Chichilnisky, *North-South Trade and the Global Envirionment*, 84 Am. Econ. Rev. 851 (1994), *available at* http://www.chichilnisky.com/pdfs/papers/95.pdf.

29. Christopher D. Stone, *Too Many Fishing Boats, Too Few Fish: Can Trade Laws Trim Subsidies and Restore the Balance in Global Fishing?* 24 Ecology L. Q. 505 (1997).

30. General Agreement on Tariffs and Trade, *Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations: Agreement on Subsidies and Countervailing Measures* (Apr. 1994).

31. Christopher D. Stone, *What to Do About Biodiversity: Property Rights, Public Goods, and the Earth's Biological Riches*, 68 S.Cal. L. Rev. 577 (1995).

32. Global Environment Facility, Operational Program # 12, *Integrated Ecosystem Management*, Apr. 20, 2000, http://www.gefweb.org/Operational_Policies/Operational_Programs/OP_12_English.pdf.

33. Interestingly, too, as a means of correcting pollution externalities, the efficiency of technology R&D, relative to a conventional (theoretical) "Pigovian" tax, has recently been questioned. *See* Ian W.H. Parry, William A. Pizer, & Carolyn Fischer, *How Important Is Technological Innovation in Protecting the Environment?*, http://papers.ssrn.com/paper.taf?abstract_id=231107.

34. C. Ford Runge & Lee Ann Jackson, *Labelling, Trade, and Genetically Modified Organisms: A Proposed Solution*, 34 J. of World Trade 111 (2000).

CHAPTER 4. CAN THE OCEANS BE HARBORED?

1. Original delivered at the conference, "Towards the International Protection of the Oceans: From Rules to Compliance"; Lisbon September 17–19, 1998. The author would like to acknowledge the comments of Eric Talley and Dale Squires, and the research assistance of Steven Bush, and of Grace Tse, who helped update the original with more recently available data.

2. "Global marine capture fisheries production is relatively stagnant, producing 85 million tonnes in 2004, about the same quantity as in 1992." U.N. Food and Agriculture Organization, *The State of World Fisheries and Aquaculture* 66 (2008) [hereinafter FAO, State of World Fisheries 2008].

3. Richard Stone, *Dioxins Dominate Denver Gathering of Toxicologists*, 255 SCIENCE 1162 (1994) (evidence suggesting that polychlorinated biphenyls (PCBs), dioxins, and other organochlorine chemicals may have abetted a virus that killed 20,000 harbor seals in the North and Baltic seas in 1988).

4. While world capture production was at over 95mmt in 2000, it fell to just over 90mmt in 2003. Although production rose in 2004 and 2005, it again fell in 2006 to just under 92mmt. U.N. Food and Agriculture Organization, *World Capture Production, available at* ftp://ftp.fao.org/fi/stat/summary/a1a.pdf.

5. S.M. Garcia & C. Newton, *Current Situation, Trends, and Prospects in World Capture Fisheries, in* GLOBAL TRENDS: FISHERIES MANAGEMENT 20 (Ellen K. Pikitch et al. eds., 1997). Recent work suggests that the impact of technological change on regenerative common resources is more complex than has been appreciated and may distort management decisions. Dale Squires & Niels Vestergaard, *Technical Change and the Commons*, Working Paper 09-01, Center for Environmental Economics, Department of Economics, University of California, San Diego (2009).

6. Anne Swardson, *Fishing Crisis in World's Oceans: 90 Nations at U.N. Conference to Consider Limits*, INT'L HERALD TRIB., Aug. 15, 1994. Note however that tastes shift continuously; and a shift in fishing practices that led to food exploitation of "lower" species could conceivably produce the same protein, ton for ton, as the current mix of catch (discussed later).

7. The FAO's annual *Yearbook of Fishery Statistics* shows that after peaking at just over 95.5 mmt in 2000, world capture has dipped and slowly recovered, with little indication that a large expansion is impending. FAO, *Yearbook of Fishery Statistics 2008*, 21 t.A-1(a).

8. Garcia & Newton, *supra* note 5 at 3.

9. FAO, *Special Chapter: Marine Fisheries and the Law of the Sea: A Decade of Change, in* THE STATE OF FOOD AND AGRICULTURE 29–30 (1992) [hereinafter SOFA 1992] (using the 1989 global fisheries data). In a separate study, the U.S. Department of Commerce has estimated that rational fisheries management, including a rehabilitation-permitting reduction in pressure, would increase domestic fishing revenues $2.9 billion a year in U.S. waters alone. *See* U.S. Department of Commerce, NOAA STRATEGIC PLAN: A VISION FOR 2005 89 (May 1996).

10. My calculation treats as an annuity an estimated value of the catch that could be sustainably harvested on an annual basis from the optimal (rehabilitated) stocks at the level of their maximum economic yield.

11. The increased supply would be expected to dampen the price per unit, so that the projected revenue increase might be viewed as exaggerated. But studies indicate that with rational management, revenue gains through superior quality and market delivery should more than offset additions to supply. J. Wilen and F. Homans, *Unraveling Rent Losses in Modern Fisheries: Production, Market, or Regulatory Inefficiencies?, in* Pikitch et al, *supra* note page [2], at 256. Of course, many other factors will influence fish prices in the long term, including changes in income, shifts in taste, and changes in supply and demand for terrestrial agricultural products.

12. Gareth Porter estimates that the world's fleet has three times the capacity that would be required to harvest the optimal catch under optimal conditions. Gareth Porter,

Estimating Capacity in the Global Fishing Fleet (1998) (noting a possible 150 percent excess). However, estimating the "right" capacity involves complex, problematic calculations. FAO, *Report of the FAO Technical Working Group on the Management of Fishing Capacity* (Apr. 15–18, 1998); FAO Fisheries Report No. 586 (Rome 1998).

13. World Bank–FAO, The Sunken Billions: The Economic Justification for Fisheries Reform ix (Advance Edition 2008). On their estimate, the last three decades have witnessed a cumulative global loss of potential economic benefits in the order of $2 trillion. *Ibid.*

14. I adopt in the text that follows the classic fisheries model attributed to H. Scott Gordon, *The Economic Theory of the Common Property Resource: The Fishery*, 62 J. Pol. Econ., 124 (1954), and elaborated by Matthew Schaefer, *Some Considerations of the Population Dynamics of and Economics in Relation to the Management of the Commercial Marine Fisheries*, 14 J. of the Fisheries Board of Canada, 669 (1957). The model had been honored by considerable fine-tuning over the years, and oversimplifies the relations in a dynamic multispecies fishery with mobile factors and multiple alternate fisheries. But it is not misleading to serve the illustrations for which it is here conscripted. For a more recent and richer treatment, quite congenial to my position in the text, *see* Equation 7.21, G. Cornelis van Kooten & Erwin H. Bulte, The Economics of Nature: Managing Biological Assets 191 (2000). Van Kooten and Bulte assume that utility is separable into harvesting and conservation, which leads to an additional term in the classic equations representing the benefits to society of holding one extra unit of the stock in situ as a direct source of future utility for conservationists, as well as the conventional allowance of holding a larger resource stock in the water than MSY in order to reduce future harvesting costs.

15. Technically, MEY is the equilibrium achieved when the revenue from the marginal fish caught equals the marginal costs of capture.

16. An estimated 100 *million* sharks and rays are caught and discarded each year, and 300,000 cetaceans (whales, dolphins, and porpoises). Birds diving for the bait planted on long fishing lines, swallow it (hook included) and are pulled underwater and drowned. Around 100,000 albatrosses die this way every year, with many species facing extinction. *See* Greenpeace International, *Bycatch*, http://www.greenpeace.org/international/campaigns/oceans/bycatch.

17. *Extinction on the High Seas*, 277 Science, 486, 488 (1997).

18. For an alternate route to the parameter I designate OBY, *see* Dale Squires, *Opportunities in Social Science Research*, *in* The Future of Fisheries Science in North America 678 (R. Beamish & B. Rothschild, eds., 2009): "As fisheries, especially in developed countries, evolve from purely commercial interests to concerns over the public good components—as fisheries in these countries are increasingly viewed as an environmental, ecological, and biodiversity issue rather than simply an extractive industry—the locus of research . . . will follow suit. Environmental and public economics, ecology, and conservation biology will increasingly serve as the defining intellectual framework in what is known as ecosystems management and conservation."

19. Terry Heaps & John F. Helliwell, *The Taxation of Natural Resources*, *in* Handbook of Public Economics, 430 (Alan J. Auerbach & Martin Feldstein eds., 1985). Lee G. Anderson observes more comprehensively that "a biological and economic equilibrium occurs if, at the existing level of effort, catch equals growth so the population will not change and at the same time revenue equals costs so the amount of effort will not change. If either of these conditions does not hold, then the population size or the level of effort will change." Lee G. Anderson, The Economics of Fisheries Management 31 (1986).

20. The objection goes not to the dissipation of rent—of producer surplus—per se, but to the suboptimal catch. The distributional issue—how to divide any "rent" between government and catchers—is not obvious. There is in my view good reason for the government to retain some of the rent through a tax or equivalent device (discussed later), perhaps even to apply some of the funds to a widely radiating public use (beyond fisheries management), such as marine pollution control.

21. These subsidies become believable when they are viewed in the context of developed country agricultural subsidies generally. The same elements of power politics are at work.

22. SOFA 1992, *supra* note 9, at 145, 159–60 (using the 1989 global fisheries data). In the U.S., the Department of Commerce at one point estimated that rational fisheries management, including a rehabilitation-permitting reduction in pressure, would increase domestic fishing revenues $2.9 billion a year. *See* U.S. Department of Commerce, NOAA Strategic Plan: A Vision for 2005 89 (1996).

23. Christopher D. Stone, *Too Many Fishing Boats, Too Few Fish: Can Trade Laws Trim Subsidies and Restore the Balance in Global Fisheries*, 24 Ecology L. Q. 505, 517–18 (1997).

24. *Id.*

25. Heaps & Helliwell, note 11, *supra* at 518.

26. Matteo Milazzo, *Subsidies in World Fisheries: A Reexamination* 73 (World Bank, Technical Paper No. 405, 1998).

27. World Bank–FAO, Sunken Billions, note 13 *supra* at 18.

28. I refer here to the largest portion of subsidies, those such as grants for vessel construction that underwrite excess levels of harvest. Other subsidies that are effort-reducing (vessel buy-backs) or stock-enlarging (artificial reefs) are not necessarily subject to the same criticisms, although the failure to impose the costs on the industry, rather than on the public purse may be suspect.

29. *See* Stone, *supra* note 23, at 523–37.

30. Whether a nation's fishing policies will be affected by trade disciplines depends upon the fortuity of whether it does or does not engage in significant imports or exports.

31. As distinct from aquaculture, in which the producer has a protected property interest in its inventory, it "owns" the fish even prior to capture. This has been a major factor in aquaculture having grown to approximately 50 percent of food fish production. World Bank–FAO, Sunken Billions, note 13, at 37.

32. Increasing the mesh dimension both reduces the number of fish that will be caught at suboptimal size and increases the percentage that will reach sexual maturity and reproduce.

33. Mike Holden, The Common Fisheries Policy: Origin, Evaluation, and Future 113 (1994) (indicating how interest group-driven "political expedience" has been known to overrule scientific recommendation for lowered catch levels).

34. *See* Communication from the Secretariat of the International Commission for the Conservation of Atlantic Tuna, WT/CTE/W/87, 16 July 1998 (98-2822).

35. As if that were not bad enough, once a species' TAC has been reached, further landings of the species are illegal and have to be discarded as bycatch in a multispecies fishery with unexhausted quotas remaining.

36. Some of the difficulties in implementing ITQs in New Zealand are reviewed in Andrew R. Branson, *An Industry Perspective on New Zealand's Experience with ITQs*, *in* Global Trends: Fisheries Management 270 (Ellen K. Pikitch et al, eds., 1997) (generally supportive of the concept).

37. Heaps & Helliwell, *supra* note 11, at 435.

38. Christopher Newton, quoted in William D. Moltanbano, *Fishing for Solutions to Depletion of Seafood Stocks*, Los Angeles Times, March 11, 1995.

39. *See generally*, Rory McLeod, Market Access Issues for the New Zealand Seafood Trade, 88 (1996) (1994 legislation provided full-cost recovery of fisheries management services, fisheries research, conflict resolution, and detection of fisheries offences; revenues expected to approximate $34 million in first year). Barry Kaufmann and Gerry Green examine the subject in *Cost Recovery as a Fisheries Management Tool*, 12 Marine Resource Econ. 57 (1997). An argument can certainly be made that while threats of free-riding require the government to provide these services, the costs should be placed back on the industry (and passed along to consumers). In fact, the industry, bearing the costs and holding the expertise, is likely to do a better job monitoring the outlays (the "public" works programs will be more cost-beneficial) than if the costs are drawn from the public purse. In the latter case might we not expect a more successful "capture" of the budget by constituents with an interest in selling satellites, repairing wetlands, etc.—indeed, in alliance with the fishing industry?

40. Among other relevant duties, the Convention on Biological Diversity obliges parties to cooperate for conservation and sustainable use of biological diversity beyond national jurisdiction (Art. 5), and to establish ecosystem conservation (Art. 8).

41. During the Clinton administration, the U.S. Navy turned over its $16 billion "Deep Ears" ocean monitoring to civilian uses. President Bill Clinton indicated that detection of illegal fishing was one possible application. William J. Broad, *Scientists Gain Access to the Navy's "Deep Ears" on the Oceans*, N.Y. Times, 28 July 28, 1998, at B10.

42. Mauritania has received assistance, including from development banks, to enhance its monitoring system. World Wide Fund for Nature's Endangered Seas Campaign, The Footprints of Distant Water Fleet on World Fisheries 36 (1998). An additional investment in monitoring would not only dampen overfishing, but it would probably pay for itself through increased license revenues. It has been estimated that in Mauritania in 1989 only 50 percent of the total fees owing and perhaps 33 percent of the fees owed by distant water fleets were actually collected. *Id.* at 37.

43. Anonymous, *World Offshore Oil, Gas Production Has Risen "Steadily,"* Oil & Gas Journal., Apr. 12, 2004, 30.

44. Elisabeth M. Borgese, The Future of the Oceans: A Report to the Club of Rome, 63 (1986).

45. *Montreal Guidelines for the Protection of the Marine Environment Against Pollution from Land-Based Sources*, reprinted in Final Report of the *Ad Hoc* Working Committee of Experts on the Protection of the Marine Environment from Land-Based Sources, U.N. Doc. UNEP/WG.120/3 (1988).

46. *Protocol of 1992 to Amend the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971*, IMO Doc. LEG/CONF. 9/16 Nov. 27, 1992.

47. *1974 Paris Convention on the Prevention of Marine Pollution from Land-Based Sources*, reprinted in 13 I.L.M. 352 (1974).

48. Jan Schneider, World Public Order of the Environment 38 (1979). *See* R. T. Scully, *International Regulation of Pollution from Land-Based Sources*, 3 Marine Aff. J. 84–107 (1975). *See also* U.N. Convention on the Law of the Sea, U.N. Doc. A/CONF 62/122, 21 I.L.M. 1261 (1982), § 207.

49. On the hazards of endocrine disruptors, *see* Theo Colborn, Dianne Dumanoski, & John Peterson Myers, Our Stolen Future (1996). The U.S. Environmental Protection Agency, after reviewing nearly three hundred case studies, has found no evidence linking

low-level environmental exposure to any human ailment. *See EPA Finds No Chemical Disruption; Environmental Protection Agency Recommends Further Study on Chemicals' Effects on Hormonal System*, 251 Chemical Market Reporter 7 (1997). The International Program on Chemical Safety, led by the World Health Organization, is undertaking a further study, *Cancer Weekly Plus*, April 6, 1998 (Lexis-Nexis).

50. Molly Holt and Grayson Cecil, *Natural Resource Damages for Oil Spills: The International Context*, 9 Nat. Resources & Env't 28, 29 (1995).

51. Http://www.itopf.com/compensa.html.

52. International Convention on Civil Liability for Oil Pollution Damage (CLC), as amended 2000, applicable to vessels over 140,000 gross tons. The convention also requires that owners carry insurance for the amount of a single incident loss; because of many objections to the cap on owner's liability, another convention established an International Fund for Compensation for Oil Pollution Damage (1971). Unlike the Civil Liability Convention, which looks to the ship owner, the Fund is made up of contributions from oil importers. If an accident at sea results in pollution damage that exceeds the compensation available under the Civil Liability Convention, the Fund will be available to pay an additional amount, in some circumstances up to $1 billion, while spreading the burden more evenly between ship owner and cargo interests, http://www.imo.org/Conventions/mainframe.asp?topic_id=256&doc_id=661.

53. Liability includes "impairment of the environment, other than loss of profit . . ., but [is] limited to the costs of reasonable measures to reinstate the environment actually undertaken or to be undertaken." *1992 Protocols to the 1971 Convention on the Establishment of an International Fund for the Compensation of Oil Pollution Damage*, art. 2(3), *reprinted in* Benedict on Admiralty, 6 (1983), 6–116.

54. The president of the Shipbuilders Council of America has estimated that construction subsidies by OECD countries to foreign (non–U.S.) shipyards (all classes of vessel) amounted to $9 billion, or more, annually. *See* Statement of John J. Stocker, in Hearing Before the House Subcommittee on Merchant Marine on "The Problem Facing U.S. Shipping Interests in the World Market Due to Direct Foreign Government Subsidies and What Maritime Reforms are Needed to Alleviate This Problem," Serial No. 103-36, (30 June 1993), 28–29.

55. Even so, the present system is set up to deal with oil spills far better than most other forms of pollution. *See* Bernard P. Herber, *Pigovian Taxation at the Supranational Level: Fiscal Provisions of the International Oil Pollution Compensation Fund*, 6 J. Econ. Dev. 110 (1997).

56. *See* J. F. Caddy, *Toward a Comparative Evaluation of Human Impacts on Fishery Ecosystems of Enclosed and Semi-Enclosed Areas*, 1 Revs. in Fisheries Science 57, 81 (1993) (strong circumstantial evidence that, given adequate flushing, moderate nutrient enrichment from land-based sources can alter, and at least temporarily increase, fish productivity).

57. Ross D. Eckert suggests that "taxes could be placed on ocean dumping in accordance with the danger of the material dumped" but that an auction system might be superior. Ross D. Eckert, The Enclosure of Ocean Resources Space 174 & n.33 (1979).

58. *See* William J. Baumol & Wallace E. Oates, The Theory of Environmental Policy 160–62 (1988).

59. Materials listed in Annex I to the London Convention (the "black list") are considered most dangerous to the environment and may not be dumped in any circumstances

or locale. The black list includes organohalogen compounds, certain heavy metals, persistent synthetic materials, crude oil and petroleum products, high-level radioactive wastes, and material produced for biological and chemical warfare. *Annex I, Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, London 1972, reprinted in* I.L.M. 11 (1972), 262. "Grey list" (Annex II) materials are generally less harmful, but still require "special care" and may only be dumped if a special permit has been issued by the International Maritime Organization (IMO). The grey list consists of wastes containing significant amounts of arsenic, lead, copper, zinc, cyanides, fluorides, pesticides, and their by-products. *Annex II, id.* A "white list" (Annex III) also exists, requiring only a general permit for undesirable wastes that are not considered dangerous enough to be included in Annex I or II.

60. *See* Friedrich von Zezschwitz, *Environmental Taxes in Germany, in* Taxation for Environmental Protection 95ff (Sanford E. Gaines & Richard A. Westin eds., 1991) (including references to other sorts of environmental taxes in Germany). *See also* Eckard Rehbinder, *Environmental Regulation Through Fiscal and Economic Incentives in a Federalist System*, 20 Ecology L. Q. 57, 72–75 (1993).

61. The list that follows draws from Edward D. Goldberg, The Health of the Oceans 158, 166 (1976).

62. *Id.* at 166.

63. *See* Susan Jobling et al., *Widespread Sexual Disruption in Wild Fish*, 32 Envtl. Sci. & Tech. 2498–2507 (1998) (reproductive system disruptions in fish "consistent with exposure to hormonally active substances").

64. I treat the Guardianship concept more fully in Christopher D. Stone, *Defending the Global Commons, in* Greening International Law 34–49 (Philippe Sands ed., 1993).

65. World Trade Organization, *United States—Import Prohibition of Certain Shrimp and Shrimp Products*, (15 May 1998), WTO Document No. WT/DS58/R.

CHAPTER 5. SHOULD WE ESTABLISH A GUARDIAN FOR FUTURE GENERATIONS?

1. This essay is a composite of two presentations, one, in September 1994 at a Conference on Guardian for Future Generations: Status under International Law. The Conference was held at the Foundation for International Studies at the University of Malta and underwritten by UNESCO and UNEP. In November 1994 another version was delivered in Kyoto, Japan, at a conference on future generations sponsored by the Future Generations Alliance Foundation.

2. For example, "Man . . . has the solemn responsibility to protect and improve the environment for present and future generations," Declaration of the United Nations Conference on the Human Environment, U.N. Doc./A Conf. 48/14 (Stockholm 1972) 11 International legal materials 1416 (1972). A 2009 search of the term "future generations" in various international legal material databases identified 73 agreements and 4 declarations employing the term—36 of which are within the past fifteen years.

3. Preparatory Committee for the United Nations Conference on Environment and Development, United Nations, *Principles on General Rights and Obligations* (Working Group III, 4th Session), New York, NY, 2 March—3 April, 1992; A/CONF.151PC/WG. III/L.8/REV.1/ADD.2, 21 February 1992.

4. Interestingly, while the UNCED (Rio) Declaration recognizes that women, youth, indigenous peoples, and people under oppression, domination, and occupation need representation in environmental discussions (Principles 20–23), it overlooks future generations as a disadvantaged group for which some especially appealing arguments for a Guardian might be made. *See also* United Nations Conference on Environment and Development, *Statement of Principles for a Global Consensus on the Management, Conservation, and Sustainable Development of all Types of Forests*, 32 INT'L LEGAL MATERIALS 881 (1992) (also discussing the need for further representation of various advantaged and disadvantaged parties alive today, disregarding those of the future. (Principle 2(d)).

5. Malta Proposal, §§ 12, 13.

6. *See* Robert J. Barro, *Are Government Bonds Net Worth?*, 82 J. POL. ECON. 1028 (1974); John J. Setear, *Ricardian Equivalence*, 31 J. ECON. LIT. 142 (1993).

7. Proposal, § 12 also suggests the *human species* as a client, and § 15 refers to *those yet to be born*. In the context, I assume these variants are intended synonymously—although, as we will see, one might attach distinct significance.

8. *See* R.T. De George, *The Environment, Rights, and Future Generations*, *in* RESPONSIBILITIES TO FUTURE GENERATIONS, 157–70. (Ernest Partridge ed., 1981). *But see* A. Baier, *The Rights of Past and Future Persons*, *id*. at 171–83, finding no conceptual difficulty in imputing rights to the unborn.

9. Some have supposed that a conception of our duties to them (duties without contemporary rights-holders) is less offensive than the conception of their rights against us (rights without contemporary duties bearers). *See, for example*, H.B. Nickell, *Book Review: In Fairness to Future Generations: International Law, Common Patrimony, and Intergenerational Equity*, 1 COLO. J. INT'L ENVTL. L. & POL'Y 202 (1990). The classic general treatment is in Joel Feinberg, *Legal Moralism and Free-Floating Evils*, 61 PAC. PHIL. Q. 122–55 (1980).

10. If one of your ancestors drank and gambled away the fortune your family had built up until his day, it would be odd to claim that he violated a "duty" to you (or to say that you had a "right" to the uninvaded corpus of the family fortune); but it is not odd to say that he acted "irresponsibly." *See* Daniel A. Farber & Paul A. Hemmerbaugh, *The Shadow of the Future: Discount Rates, Later Generations, and the Environment*, 346 VAND. L. REV. 294–95 (1993). Also, it can be said that the paradigmatic right is relatively detailed (Person *A* has a right that person *B* perform act *q*) whereas a responsibility, such as a parent's responsibility to his or her child, is more general (to provide the environment for the child's favorable development).

11. Proposal, § 14.

12. On intertemporal allocation (between present and future consumption), *see generally*, Amartya K. Sen, *On Optimising the Rate of Saving*, 71 ECON. J. 479–96 (1961). Sen indicates why a political decision, of a sort that a Future Generations Guardian might broker, could result in a higher rate of savings for future generations than would be motivated by individuals maximizing their personal utilities. *Id*. at 487–88. *See also* William D. Nordhaus's observation, "The key institutions for determining interest rates—central banks—appear more concerned with inflation and trade balances than with ethical judgments about the consumption trade-offs between current and future generations." William Nordhaus, *How Much Should We Invest in Preserving Our Current Climate?* 263 (Cowles Foundation Paper No. 847, 1993).

13. *See* Nordhaus, *supra* note 12, at 263.

14. In regard to all of these institutional questions, while a designated Guardian would be an original and perhaps valuable advance, the basic concept is not entirely novel.

For example, in the United States, the Office of Technology Assessment (OTA), the Assistant to the President for Science and Technology, and various official scientific bodies have aimed to extend the time-horizon of Congress and the Executive. Other comparable offices undoubtedly exist in other nations and in international bodies. Where they exist, the availability of such technical advisors does not displace the need for a Guardian with broader ambitions. But we could profitably identify existing agencies that already supply, if not fulfill, future-orienting services and learn what we can from their successes and deficiencies. What functions currently unprovided should a Guardian therefore emphasize?

15. 30 Int'l Legal Materials 1621 (1991).

16. Proposal, §§ 12–13.

17. *See* the author's analogous proposals for an Oceans Guardian in Christopher D. Stone, *Healing the Seas Through a Global Commons Trust Fund*, *in* Freedom for the Seas in the 21st Century: Ocean Governance and Environmental Harmony 173 (Jon M. Van Dyke and Durwood Zaelke eds., 1993), abridged in the present volume as Chapter 4.

18. The Convention provides for the "transmission to future generations" of certain artifacts. For its potential role in litigation, *see ICSID (W. Bank) Award in Southern Pacific Properties (Middle East) Ltd. v. Arab Republic of Egypt*, 32 Int'l Legal Materials 933 (1993) (Egyptian obligation to protect the Pyramids Plateau raised in unsuccessful defense to suit by contractor whose contract to develop the area was breached by Egypt).

19. *See Treaty Concerning the Construction and Operation of the Gabcikovo-Nagymaros System of Locks and Hungarian Termination of Treaty*, 32 Int'l Legal Materials 1247, 1280 (1993) (emphasis added).

20. Equitable claims, as such, do not exhaust the field. We could be asked to honor duties dictated by reason, such as per the Kantianism that Nora O'Neill brings to bear on analyzing our obligation to the spatially remote poor. *See* Nora O'Neill, Faces Of Hunger: An Essay On Poverty, Justice, And Development (1986).

21. Worse, to invoke "equity" as an intergenerational standard invites the old objection, "what did the future ever do for us?"

22. *See* Edith Brown Weiss, In Fairness to Future Generations (1988). Brian Barry opined that an acceptable ethic "should surely as a minimum include the notion that those alive at any time are custodians rather than owners of the planet, and ought to pass it along in no worse shape than they found it in." Brian Barry, *Justice Between Generations*, *in* Law, Morality, and Society 284 (1977).

23. *See* World Resources Institute and the International Institute for Environment and Development, World Resources 1994–1995 5–6 (1994–1995).

24. The outstanding exposition of this approach is Jerome Rothenberg, *Alternative Approaches to Time Comparisons*, *in* Global Accord 355 (Nazli Choucri ed., 1993).

25. On the range of variables, *see generally*, Amartya Sen, Ethical Issues in Income Distribution, Resources, Values, and Development (1984). Interestingly, empirical experiments provide evidence that actual subjects eschew as a just distributional principle both a maximization of expected utility (Harsanyi) and a maximum of basic goods (Rawls) in favor of a floor constraint of income and wealth. *See* Norman Frohlich & Joe A. Oppenheimer, Choosing Justice: An Experimental Approach to Ethical Theory (1992).

26. An excellent standard treatment of the policy options is William J. Baumol & Wallace E. Oates, The Theory of Environmental Policy (2d. ed. 1988).

27. *The Rights of Animals and Unborn Generations*, *in* Philosophy and Environmental Crisis 51 (William T. Blackstone ed., 1978).

28. *See* Constance Holden, *Omens of Doom for Nuclear Waste Tomb*, 225 SCIENCE 489 (1984); T.R. Reid, *Warning Earthlings of Atomic Dumps*, WASH. POST, Nov. 11, 1984, at A1 (reporting options to forewarn earth's inhabitants of such dangers until at least 12,000 AD).

29. The probability that a large (1–2 km. in diameter) asteroid will hit the earth has been variously estimated at about 1 in 500,000 or 1 million a year—but the effects could be devastating for life. However, with a telescope network in place, a large object headed for earth could be detected several decades or even centuries in advance, *see* Breck Henderson, *Scientists Support Building Telescopes to Protect Earth from Asteroids*, 135 AVIATION WEEK AND SPACE TECHNOLOGY 70 (Oct. 14, 1991), and could be blasted or nudged off course, *see* T. Ahrens & A. Harris, *Deflection and Fragmentation of Near Earth Asteroids*, 360 NATURE 429–33 (Dec. 3, 1992) (reporting an individual's annual probability of death from such an event as on the order of ~5 x 10^{-10}—or roughly the chances of losing one's life in a commercial airplane accident; but should it occur could lead to 25 percent human mortality or more).

30. "The ease or difficulty of diverting a comet . . . depends on how much time scientists have to prepare. If decades or centuries are available, an orbit in theory can be shifted by placing a nuclear or chemical reactor on the comet's surface." William J. Broad, *Scientists Ponder Saving Planet from Earth-Bound Comet*, N.Y. TIMES, Nov. 3, 1992, at C1. Incidentally, such a project would also be distinct in that we would be eliminating a peril we did not cause (the way in which we "cause" toxic wastes).

31. Indeed, once we begin to examine an "irreversible" harms model, we eventually return to much the same conversation as under "selected calamities," with the possible exception that less calamitous outcomes would be of the Guardian's concern.

32. *See* Kenneth J. Arrow & Anthony C. Fisher, *Environmental Preservation, Uncertainty, and Irreversibility*, 88 Q. J. ECON. 312–39 (1974); Anthony C. Fisher & W. Michael Hanemann, *Option Value and the Extinction of Species*, 4 ADVANCES IN APPLIED MICRO-ECONOMICS 169–90 (1986).

33. Each generation might have an obligation to conserve not only physical assets, but our cultural legacies, such as the Sphinx and ancient myths.

34. *See* Lester Lave, *Mitigating Strategies for Carbon Dioxide Problems*, 72 AM. ECON. REV. 257–61 (1982).

CHAPTER 6. REFLECTIONS ON "SUSTAINABLE DEVELOPMENT"

1. Original version presented as the 1994 Hart Lecture at the University of London, School of Oriental and African Studies. The author would like to acknowledge the comments of Scott Altman, Per Ariansen, Marshall Cohen, Greg Keating, Michael Knoll, Ed McCaffery, and Richard Warner.

2. WORLD COMMISSION ON ENV'T & DEV., OUR COMMON FUTURE (1987) (Gro Harlem Brundtland, Chairman) (1987).

3. *Id.* at 43.

4. Although much of the impetus for restrictions on substances that impair the long-term health of the planet come from the Rich, it is also the Rich who, particularly on a per capita basis, are the source of the damage—as the Poor lose no opportunity to remind.

5. *See* EDITH BROWN WHITE ET. AL., INTERNATIONAL ENVIRONMENTAL LAW AND POLICY 47–48 (2007).

6. U.N. Institute for Disarmament Research (UNDIR) and U.N. Environment Programme (UNEP), *Disarmament, Environment, and Development and their Relevance to the Least Developed Countries* 35. (Research Paper No. 10, Arthur H. Westing ed., 1991).

7. A South position on North consumption can be stated more plausibly by focusing on the *investment* implications: Considering the whole world as the relevant unit, there is a case to be made that the rich industrialized North's heavy consumption means it is under-investing; higher-than-market prices can perhaps be regarded as an indirect mode of investment.

8. *See Green Economics*, Scientific American, July 1994, 102. An important and difficult query, however, is to what extent should a rational accounting be concerned with losses at local levels that are compensated in global growth (with transfer payments)?

9. *See* Fred Pearce, The Dammed 181–202 and *passim* (1992).

10. Harold Hotelling, *in The Economics of Exhaustible Resources*, 39 Journ. Pol. Econ. 137 (1931), demonstrated that if markets for a nonrenewable resource, such as coal, are efficient, then the owner will hold the asset in situ if and only if the anticipated growth in price equals or exceeds the social rate of interest. This should incline the owner to preserve or consume the asset at a pace that is responsive to future supply and demand, assuring that demand accounts for the well-being of the unborn.

11. *See* Edith Brown Weiss, In Fairness to Future Generations (1989).

12. The many variants are authoritatively collected and critiqued in Eric Neumayer, Weak and Strong Sustainability (2d ed. 2004).

13. *See* William H. Branson, Macroeconomic Theory and Policy 611–26 (3d ed. 1989).

14. Robert Solow, An Almost Practical Step Toward Sustainability 19–20 (1992).

15. *Id.* at 15.

16. Otherwise put, net genuine investment must not be negative.

17. Martin Wolf, Why Globalization Works 444–54 (2004). Note that these figures are gross, not net of losses from environmental costs that would not (but should) show up in the accounting. Even with proper adjustments, it is hard to believe that the per capita gains would disappear.

18. This argument also applies to the transfer of specific assets, such as the rain forests, discussed later.

19. On the other hand, our progeny might wish us to invest not in the least-developed countries, which offer rather low rates of return at present, but in areas offering the highest rate of return, so as to increase their legacy.

20. That is, if, for example, some generation found itself unable to retain and pass along a "productive capacity" equivalent to what it received.

21. On that assumption, there is no one in the future to justify ourselves to.

22. Robert Solow, An Almost Practical Step Toward Sustainability 14 (1992). Solow indicates that these two illustrate assets that would be "preserved for their own sake." His choice invites questions about how he understands "own sake."

23. The relationship is ordinarily represented as an inverted U-shaped function of income per capita, known as the environmental Kuznets curve, hypothesizing that in the early stages of economic growth environmental degradation and pollution increase, but beyond some level of income per capita (which will vary for different indicators) the trend reverses, so that at high-income levels economic growth leads to environmental improvement. The robustness of the hypothesis has been questioned. *See* David I. Stern,

The Environmental Kuznets Curve, Internet Encyclopaedia of Ecological Economics (2003), http://www.ecoeco.org/pdf/stern.pdf.

24. In economic language, conserving some set of environmental assets would be intergenerational efficient under Kaldor-Hicks criteria: the gains to the (future) benefiters exceed the costs to the (present) losers.

25. One must grant that the aggregation of utilities, if admitted as a general guideline for future-affecting conduct, leads to awful problems well examined in the literature. Would the weight of *their* aggregated utilities, the unseen trillions of them, impel us to consume at the bare subsistence level on their (much greater) behalf?

26. In most jurisdictions a gift in perpetuity to a charity is valid, and that is a closer analogy to what we are proposing than the illustrative gift to Mary.

CHAPTER 7. HOW TO HEAL THE PLANET

1. A fuller version appears in Greening International Law (Philippe Sands ed., 1993).

2. Those interested in a fuller treatment of these two proposals, and others, are referred to my book, The Gnat is Older than Man: Global Environment and Human Agenda.

3. As explained more fully later, this is the prevailing view, at least as long as there are no substantial spillover effects across frontiers. In terms of the Stockholm Declaration, "States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction." 1972 Declaration of the U.N. Conference on the Human Environment, chapter II, Principle 1, *reprinted in* 11 International Legal Materials 1416–69 (1972).

This position is echoed in the 1992 U.N. Framework Convention on Climate Change, which, while calling for "the widest possible cooperation by all countries and their participation in an effective and appropriate international response," makes clear that states have "the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies. . . ." Preamble, *reprinted in* 21 International Environment Reporter Reference File (BNA) 3901–9 (1992).

4. For example, the Biodiversity Convention that issued from Rio declares the conservation of biological diversity to be "a common concern of humankind." 1992 U.N. Framework Convention on Biological Diversity, Preamble, *reprinted in* 21 International Environment Reporter Reference File (BNA) 4001–10 (1992).

5. For example, the "common concern" language, endnote 7, *supra*, is immediately qualified by the principle, "States have sovereign rights over their own biological resources." *Ibid.* This is a long-standing and continuing Third World theme. "Development is a fundamental right of all people and countries." Kuala Lumpur Declaration on Environment and Development, Article 4, *reprinted in* 22 Environmental Policy and Law 266 (August 1992). In particular, forests "are part of the national patrimony to be managed, conserved and developed by each country in accordance with its national plans and priorities in the exercise of its sovereign rights." *Id.* at Art. 15. The Declaration reaffirms "the sovereign rights of States to use their biological and genetic resources." *Id.* at Art. 25. "[T]he implementation mechanisms of the [Framework Convention on Climate Change] should fully take into account the sovereign rights of each country to

determine its national policies, plans and programmes for sustainable development." *Id*. at Art. 24.

6. *Trail Smelter (U.S. v. Canada)*, 3 R.I.A.A. 1911 (1941).

7. Springer, A., The International Law of Pollution (Westport, Conn.: Quorum Books, 1983), 150–152.

8. Note that the Stockholm Declaration (1972) of the U.N. Conference on the Human Environment, note 4, *supra*, denounces in the same terms "damage to the environment of other States" and damage to "areas beyond the limits of national jurisdiction." The point of the text is that *in practice* the sameness of treatment is not realized.

9. Special conventions and resolutions are beginning to address such issues, e.g., the U.N. General Assembly resolutions on driftnetting discussed later in this chapter; as explained more fully in the text, the "Guardianship" concept advocated herein is not inconsistent with, but should be integrated with, those ongoing efforts.

10. It is worth recalling, in this context, a major if perhaps unfortunate theme in international law: the suggestion that anything not specifically *prohibited* is ipso facto *permitted*. *See S.S. Lotus (France v. Turkey)* (PCIJ Ser. A. No. 10 (1927)).

11. *See* Stephanie Simon, *Fears over Nazi Weapons Leaking at Bottom of Baltic*, Los Angeles Times, Jul. 19, 1992, A3.

12. *See Atomic Waste Reported Leaking in Ocean Sanctuary off California*, New York Times, May 7, 1990, B12 (about one-fourth of 47,400 55-gallon drums dumped between 1947 and 1970 off San Francisco had ruptured, threatening to contaminate local fish resources). How much alarm the potential leakage warrants is controversial. *See* F.G.T. Holliday, *The Dumping of Radioactive Waste in the Deep Ocean, in* The Environment in Question (David E Cooper and Joy A. Palmer, eds., New York: Routledge, 1992), 51–64. In 1993 the London Convention on Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1972) was amended to ban ocean deposition of low-level radioactive wastes. http://www.imo.org/Conventions/contents.asp?topic_id=258&doc_id=681#6

13. Tyler, Patrick E., *Soviets' Secret Nuclear Dumping Causes Worry for Arctic Waters*, Los Angeles Times, May 4, 1992, A1. Impatient Soviet sailors got the canisters to sink more quickly by punching holes in them.

14. Nongovernmental organizations were invited to make submissions to early human rights cases before the PCIJ in the 1920s.

15. *See* 40 C.F.R. (1990) §§ 300.600, 300.615(a)(1).

16. *United States v. Montrose Chemicals*, Dkt. No. CV 90-3122 AAH, D.C.D. Cal. 1990. For the settlement terms and management reports, *see* NOAA, General Counsel for Natural Resources, Southwest Region, Case Documents, Case: Montrose/PV Shelf, at http://www.darrp.noaa.gov/southwest/montrose/admin.html

17. *Seehunde v. Bundesrepublik Deutschland* (Verwaltungagericht, Hamburg, 15 August 1988).

18. *See* Food and Agricultural Organization, *Fishery Statistics 1989*, vol. 69 (Italy: Food and Agricultural Organization, 1991), tables A-2 and A-4. "Export value" averaged $1.10 a pound. The figures are for 1989, the most recent year for which reports are available.

19. In 1991, 7 billion barrels of oil and 13.5 trillion cubic feet of natural gas were extracted from offshore sites, worth approximately $160 billion. The global data is not gathered in such a way as to enable us to separate the amount produced within traditional three- and twelve-mile limits from amounts produced within the (extended) read of the Exclusive Economic Zones (EEZs). Our illustrative calculations are based on the assumption that 50 percent of the yield is beyond traditional territorial waters. In regard to fish, the only breakdown available is between national fisheries (95 percent), on the one hand,

and the high seas areas beyond (5 percent), on the other. *See* Agenda 21, Chapter 17 ("Protection of the Oceans, All Kinds of Seas, Including Enclosed and Semi-Enclosed Seas, and Coastal Areas and Protection, Rational Use and Development of Their Living Resources") (Draft Version), § 17.47, *reprinted in* 22 ENVIRONMENTAL POLICY AND LAW 281–90 (1992). Our calculations include all fish. The rationale is explained later in this chapter.

20. World Resources Institute et al. WORLD RESOURCES 1988–1989 (Oxford: Oxford University Press, 1990), 330, table 22.3.

21. A tax on most uses of the ocean has been proposed, but taxing those who take advantage of the sea just because they *use* it makes no more sense than taxing people for making "use" of sunlight: as long as the use is nonconsumptive and nonrival, why drive people to other, depletable resources? At present, sea traffickers do not fully internalize risks to third parties through oil spills. The 1971 International Oil Pollution Compensation Fund provides for compensation, but only up to $84 million per incident. In any disaster of greater scale, such as the wreck of the *SS Braer* off the coast of Scotland in January 1993, the taxpayers (there, British) will presumably be left to foot the balance of the clean-up bill. If ships were charged a full-coverage level of premium, and no more, the charge would not be a naked fee on the privilege of ocean use (and a deadweight loss), but would internalize some of the costs of ocean transport; the charge would be earmarked to support emergency clean-up operations as explained elsewhere in this chapter.

22. Humankind added 8.49 billion metric tons carbon of CO_2 to the atmosphere in 1987. World Resources Institute et al., WORLD RESOURCES 1990–1991 (Oxford: Oxford University Press, 1990), 346, table 24.1. Measuring by mass of carbon dioxide, not carbon, the figure is over 22 billion metric tons. Note that inasmuch as the biosphere continuously withdraws carbon dioxide from the atmosphere, these figures overstate the net contribution to atmospheric carbon dioxide attributable to human activities.

23. Annual emission figures for methane and chlorofluorocarbons are found in World Resources Institute et al., WORLD RESOURCES 1990–1991 (Oxford: Oxford University Press, 1990), 346, table 24.1; similar figures for nitrogen oxides from the U.S. Environmental Protection Agency, POLICY OPTIONS FOR STABILIZING GLOBAL CLIMATE (Washington, D.C.: U.S.E.P.A., 1990), 11–18. The emission figures were then multiplied by global warming potentials for each greenhouse gas relative to carbon dioxide, using indices from Ellington, R., et al., *The Total Greenhouse Warming Forcing of Technical Systems: Analysis for Decision Making*, 42 JOURN. OF THE AIR & WASTE MANAGEMENT ASSOC, 422–28 (1992).

24. In this chapter I have treated indistinctly resources that in fact present distinct features from the perspective of tax policy. For example, depositing waste in the sea and atmosphere presents negative externalities that the right level of tax would presumably "correct." By contrast, the seabed oil and minerals, as well as satellite slots (barring congestion) present no pollution externalities, but, depending upon the costs of exploitation, afford the potential for considerable economic rents that the state *might* be able to peel off without loss of efficiency. Of course, the authority charged with setting the level and style of charge would have to be sensitive to the traps of "deadweight loss" that occur in any severance tax context. That is, if the seabed should turn out to be a low-cost source of cobalt, the authority would have to be cautious not to put cobalt, and, in particular, seabed cobalt, at a disadvantage relative to substitutes. The taxation of fisheries or any other regenerative resource presents yet a third type of problem: the right tax will not only raise revenue, but improve the long-term yield of the fishery by preventing excessive entry (and do so more efficiently than fishing seasons). These differences would have to be accounted

for in any detailed implementation of the GCTF, as would the choice between a tax and alternative policy instruments, for example, auctions of tradable quotas.

25. And, in part (as regards the levies for resources taken from the EEZs, for example), to compensate other nations for an otherwise unjustifiable unilateral partition of commonly owned areas.

26. Note that the modest carbon tax proposed for the Global Commons Trust Fund (GCTF) is not inconsistent with—in fact, it would leave plenty of room for—stiffer carbon and gasoline taxes than have been proposed in the European Union (EU) and in the United States. Indeed, it ought to be emphasized in general that the two principal proposals in the text are in no way to be understood as displacing various other measures on the environmentalist's agenda.

27. *Europeans May Propose Forestry Protocol Under Climate Treaty, EPA Official Says*, International Environment Daily (BNA), Nov. 19, 1992.

CHAPTER 8. IS ENVIRONMENTALISM DEAD?

1. Originally published in the journal Environmental Law (2008). With special thanks to Brian Rothschild for research.

2. *Michael Shellenberger & Ted Nordhaus, The Death of Environmentalism: Global Warming Politics in a Post-Environmental World, available at* http://www.thebreakthrough.org/images/Death_of_Environmentalism.pdf. The authors have since (2007) elaborated their thesis in book form, A critique of the original article may be found in Carl Pope, Response to "The Death of Environmentalism": There is Something Different About Global Warming (Dec. 2004), *available at* http://www.sierraclub.org/pressroom/messages/2004december_pope.asp; Maurie J. Cohen, *The Death of Environmentalism: Introduction to the Symposium*, 19 Org. & Env't 74 (2006); Riley E. Dunlap, *Show Us the Data: The Questionable Empirical Foundations of "The Death of Environmentalism" Thesis*, 19 Org. & Env't 88 (2006); Steve Kretzmann & John Sellers, *Environmentalism's Winter of Discontent*, 35 Soc. Pol'y 35 (2005).

3. *See* Shellenberger & Nordhaus, *supra* note 1, at 6.

4. Michael Shellenberger & Ted Nordhaus, The Death of Environmentalism: Global Warming Politics in a Post-Environmental World, *available at* http://www.thebreakthrough.org/images/Death_of_Environmentalism.pdf. at 4, 6–7, 16. A major theme of the authors is that environmentalism has become occupied with protecting a supposed thing—the environment—rather than advancing a vision that would relate a broad matrix of problems, and thus appeal to a broad cross-section of interests. *Id.* at 12. There may be some truth there, although no movement I can think of has a vision for everything: consider gay rights. In all events, the absence of a society-spanning vision is hardly crucial to those sounding alarm over climate change, whose message is less about protecting the environment and more about the dangers to humans of flooding, freezing, crop loss, diseases, drought, and serious social disruptions. Much action is motivated without a big vision and a core set of values. *Id.* at 16.

5. *Id.* at 7.

6. *Id.* at 7.

7. *Id.* at 6 (attributed to Jann Arden).

8. *Id.* at 8 (attributed to Norman Cousins).

9. *Id.* at 26 (attributed to Stephen Batchelor).

10. *See* Pope, *supra* note 1.

11. *See* Julie Hauserman, Natural Res. Def. Council, Florida's Coastal and Ocean Future: A Blueprint for Economic and Environmental Leadership 13–14 (2006), *available at* http://www.environmentaldefense.org/documents/5456_FloridaBlueprint.pdf; Sierra Club, *Just the Facts: Arctic National Wildlife Refuge*, http://www.sierraclub.org/arctic/justthefacts/ (last visited Oct. 15, 2007).

12. In June 2006, a 33–32 majority of the IWC membership voted that the moratorium—instituted in 1984—was "no longer valid." *Japan and Allies Pass a Motion that Criticizes a Whaling Ban*, N.Y. Times, June 19, 2006, A4. Ending the moratorium requires, however, a 75 percent vote. *Id.*

13. Office of Integrated Analysis & Forecasting, Energy Info. Admin., U.S. Carbon Dioxide Emissions from Energy Sources 13 (2007), http://www.eia.doe.gov/oiaf/1605/flash/pdf/flash.pdf (comparing levels of energy-related CO_2 emissions over time). Note that the 2006 emissions figure used is a preliminary estimate. *Id.*

14. *Id.*

15. For Sulfur Dioxide, *see* U.S. Envtl. Prot. Agency (EPA), *Sulfur Dioxide* at http://www.epa.gov/air/airtrends/sulfur.html; for nitrogen oxides, see EPA, Report on the Environment, Nitrogen Oxide Emissions, http://cfpub.epa.gov/eroe/index.cfm?fuseaction=detail.viewInd&lv=list.listByAlpha&r=209836&subtop=341#datashow.

16. See U.S. EPA, Electronic Report on the Environment (eROE), Chapter 1, Air, p. 5 (reporting reductions in emissions for carbon monoxide, lead, mercury, benzene, lead, and other particulates).

17. For example, the Clear Skies Act—opposed by most environmentalists—has been blocked. Library of Cong., Bill Summary & Status File for S. 131, 109th Cong., http://thomas.loc.gov/cgi-bin/bdquery/z?d109:s.00131: (last visited Oct. 9, 2007) (indicating that the bill was held up in the Committee on Environment and Public Works until the end of the legislative session).

18. *See, e.g., Massachusetts v. Envtl. Prot. Agency*, 127 S. Ct. 1438 (2007).

19. *See* Paul Krugman, Editorial, *Swift-Boating the Planet*, N.Y. Times, May 29, 2006, at A15 (describing specious attacks on climate scientists by organizations and individuals funded by the energy industry). *See also* Sharon Begley, *The Truth About Denial*, Newsweek, Aug. 13, 2007, at 20 (examining the effect of lobbyists and public policy groups on politicians); Bill McKibben, *Climate of Denial*, Mother Jones, May–June 2005, at 34 (introducing a special report on "global warming, big money, [and] junk science"); Chris Mooney, *Some Like It Hot*, Mother Jones, May–June 2005, at 36 (reporting the existence and effect of public policy groups funded by energy companies, aimed at denying human-caused climate change); Ross Gelbspan, *Snowed*, Mother Jones, May–June 2005, at 42 (reporting on how energy companies have manipulated the ethic of journalistic balance to inject doubt into stories about whether human-caused global climate change exists). The keystone of anticlimate change reform goes under the name Competitive Enterprise Institute (CEI); the tenor of their work can be found on their Web site *at* http://www.cei.org/. *See* Begley, *supra* at 26 (relating CEI's successful efforts to prevent President Bush from speaking about carbon caps).

20. *See, e.g.*, Anita M. Halvorssen, *Common, But Differentiated Commitments in the Future Climate Change Regime—Amending the Kyoto Protocol to Include Annex C and the Annex C Mitigation Fund*, 18 Colo. J. Int'l Envtl. L. & Pol'y 247 (2007) (describing a proposal to fix problems related to high-growth developing countries); Cass R. Sunstein, *Of Montreal and Kyoto: A Tale of Two Protocols*, 31 Harv. Envtl. L. Rev. 1 (2007) (comparing the successful Montreal Protocol to the problematic Kyoto Protocol); Mindy G. Nigoff, *The Clean Development Mechanism: Does the Current Structure Facilitate Kyoto Protocol Compliance?*, 18 Geo. Int'l Envtl. L. Rev. 249 (2006) (suggesting solutions to the flawed Kyoto cap and trade mechanism).

21. I do not doubt the virtue of environmentalists aligning with other interest groups whose highest priorities are matters other than the environment. For example, with an eye toward labor, the authors of *The Death of Environmentalism* urge a reassuring vision of a society that, by substituting renewable for fossil fuel sources of energy, could lead to a net increase of jobs in a more robust economy. Schellenberg & Nordhaus, *supra* endnote 1, at 17. If that is a vision for which a case can plausibly be made, then of course it should be made, but to my knowledge it has not been. *But see* Daniel M. Kammen, Kamal Kapadia, & Mathias Fripp, Putting Renewables to Work: How Many Jobs Can the Clean Energy Industry Generate? (2004), *available at* http://rael.berkeley.edu/files/2004/Kammen-Renewable-Jobs-2004.pdf.

22. *See, e.g.*, Nat'l Geographic News, *Climate Change: Pictures of a Warming World*, http://news.nationalgeographic.com/news/2004/12/photogalleries/global_warming; Natural Res. Def. Council, *Issues: Global Warming*, http://www.nrdc.org/globalWarming/fcons.asp (last visited Oct. 23, 2007).

23. The authors of *The Death of Environmentalism* recognize increased membership, but construe it in the light of slowed progress. They argue that slowed progress implies the resources are poorly deployed, supplying further support for a radical revision of the movement. Schellenberg & Nordhaus, *supra* note 1, at 11.

24. Schellenberg and Nordhaus do not deny the trends, but lament having little to show for all of the increased resources. *Id.*

25. Russell J. Dalton, *The Greening of the Globe? Cross-National Levels of Environmental Group Membership*, 14 Envtl. Pol. 441, 453 (2005).

26. The total giving went from $101 billion to $249 billion during this period. U.S. Census Bureau, Statistical Abstract of the United States (2007), *available at* http://www.census.gov/compendia/statab/tables/07s0567.xls (summarizing IRS data and household surveys by the Independent Sector and the Center on Philanthropy at Indiana University).

27. Membership is reported differently; membership can be reported in terms of the number of persons donating, those only on mailing lists, or those who simply log on to Web sites. The 1999–2002 World Values Survey used self-reporting to measure membership. Dalton, *supra* note 25, at 442. For a discussion of membership reporting for U.S. charities, *see* Peter Panepento, *Behind the Numbers*, Chron. Philanthropy, Aug. 4, 2005, at 33.

28. *See Should We Save the Seals or Cull Them?*, The Orcadian (Scot.), Nov. 30, 2000 (describing the conflict between Scottish wildlife lovers trying to save orphaned seal pups and the local fishermen who say seals are decimating fish stocks).

29. Nuclear Energy Inst., *Clean-Air Benefits of Nuclear Energy*, http://www.nei.org/keyissues/protectingtheenvironment/cleanair/ (last visited Oct. 23, 2007) (describing the clean-air benefits of nuclear energy and stating that nuclear power plants do not emit carbon dioxide).

30. *See* Deborah B. Whitman, *Genetically Modified Foods: Harmful or Helpful?* (Apr. 2000), *available at* http://www.csa.com/discoveryguides/gmfood/overview.php.

31. Abolition in fact had at least two steps: abolition of the slave trade, then abolition of slavery. The two movements also had add-ons, including assuring full civil rights, dignity, social equality, and so on. One could say the movements did not *end* so much as veer. *See, e.g.*, Am. Abolitionism Project, *A Brief History of the Abolitionist Movement*, http://americanabolitionist.liberalarts.iupui.edu/brief.htm (describing various milestones in the abolition movement, ending with a short paragraph describing the Civil War and beyond); *The Civil Rights Movement*, http://www.cnn.com/EVENTS/1997/mlk/links.html (listing milestones of the civil rights struggle); E. Susan Barber, Nat'l Am. Woman

Suffrage Ass'n Collection, *One Hundred Years Toward Suffrage: An Overview*, http://memory.loc.gov/ammem/naw/nawstime.html (providing a timeline of the women's suffrage movement, ending after the ratification of the Nineteenth Amendment in 1923 with the first proposal of the Equal Rights Amendment).

32. Although the delisting of a particular species might be taken as a sort of partial end point, the struggle continues to conserve wildlife and natural areas in general. *See, e.g.*, The Endangered Species Act of 1973, 16 U.S.C. §§ 1531, 1533 (2000) (describing Congressional goals and policy to protect and conserve endangered and threatened species and the listing and delisting process); U.S. Fish & Wildlife Serv., Delisting a Species (2004), *available at* http://www.fws.gov/endangered/pdfs/delisting.pdf (describing the delisting process and its significance).

33. *See, e.g.*, Global Roundtable on Climate Change, The Earth Inst. at Columbia Univ., The Path to Climate Sustainability: A Joint Statement by the Global Roundtable on Climate Change 3–10 (2007) *available at* http://www.earth.columbia.edu/grocc/documents/GROCC_statement_2-27_1.pdf (describing the complexities of efforts to combat global climate change, including decarbonization, and providing detail on how various entities might take responsibility).

34. Even rights discourse is rarely one-sided. Slave-owners, in polemics to their contemporaries, appealed to rights of property and biblical passages. *See* Jeffery H. Richards, *Religion Race, Literature, and Eighteenth-Century America*, 5 American Literary History 578, 582 (1993).

35. Essays in Wildlife Conservation §§ 9.2.4, 9.3.3 (Peter B. Moyle ed., rev. ed. 1997), *available at* http://www.meer.org/chap9.htm.

36. U.S. EPA, Clean Air Mercury Rule, Basic Information (2007), http://www.epa.gov/oar/mercuryrule/basic.htm (last visited Oct. 23, 2007).

37. *See* Matt Pottinger, Steve Stecklow, & John J. Fialka, *Invisible Export: A Hidden Cost Of China's Growth: Mercury Migration; Turning to Coal, Nation Sends Toxic Metal Around Globe; Buildup in the Great Lakes; Conveyor Belt of Bad Air*, Wall St. J., Dec. 17, 2004, at A1 (explaining that clouds of pollutants, originating in China, have been found to cause problems within the United States).

38. Howard Dodson, *How Slavery Helped Build a World Economy*, *in* Jubilee: The Emergence of African-American Culture (2003), *available at* http://news.nationalgeographic.com/news/2003/01/0131_030203_jubilee2_2.html.

39. *See* Adam Hochschild, Bury the Chains 324, 353–53 (2005).

40. *See id.* at 111 (discussing the venomous hounding of an Anglican minister who corroborated abolitionist allegations).

41. *See id.* at 6 (because the citizens of London were so disconnected from the places where these goods were produced, they were unaware of the human suffering their purchases were facilitating).

42. *Id.* at 192–96.

43. *Id.* at 6.

44. This list is not complete, nor is it always true that improving the environment is the bottom line. Some regard mobilizing support for a better environment part of a larger movement to change the human spirit.

45. *See* Michael Janofsky, *When Clean Air Is a Biblical Obligation*, N.Y. Times, Nov. 7, 2005, at A18 (crediting evangelicals with increasing pressure for environmental action, including defeat of efforts to weaken the Endangered Species Act).

46. *See* Ellen Gamerman, *Family: Inconvenient Youths*, Wall St. J., Sept. 29, 2007, at W1 (describing environmental messages directed at children through books and movies affecting parents' purchasing decisions). For a list of films and books, *see* Ellen Gamerman, *The Littlest Eco-Warriors*, Wall St. J. Online, Sept. 29, 2007, http://online.wsj.com/article/SB119090528485241374.html?mod=moj_latest_n (last visited Oct. 8, 2007).

47. *See, e.g.*, Toyota, Prius 08, http://www.toyota.com/Prius/ (last visited Oct. 23, 2007) (advertising the "ECO-nomic savings" available to prospective Prius purchasers); Honda, Civic Hybrid, http://automobiles.honda.com/civic-hybrid/environment.aspx (last visited Oct. 23, 2007) (selling Honda's "commitment to positive environmental change").

48. Deborah Lynn Guber, The Grassroots of a Green Revolution 131–32 (2003); *see also id.* at 63, 69–70 (exploring reasons for vacillation in public environmental interest).

49. Most environmental groups' mission statements illustrate this point. *See, e.g.*, People for the Ethical Treatment of Animals, *PETA's Mission Statement*, http://www.peta.org/about/index.asp (last visited Oct. 23, 2007); Audubon Society, *Issues & Action*, http://www.audubon.org/campaign/index.html (last visited Oct. 23, 2007); Waterkeeper Alliance, *Mission*, http://www.waterkeeper.org/mainaboutus.aspx (last visited Oct. 23, 2007).

50. Kevin Coyle, Environmental Literacy in America: What Ten Years of NEETF/Roper Research and Related Studies Say About Environmental Literacy in the U.S. (Sept. 2005). The sampling was derived from random-digit-dialed telephone interviews with 1500 adults in the continental United States. *Id* at 100.

51. *Id.* at xii.

52. *Id.* at 3.

53. The conclusion appears to be based on rather general findings that "there was no appreciable difference in knowledge levels between people who finished high school prior to 1970 and those who graduated after 1990." *Id.* To make such claims about changes in environmental literacy, one would want to know whether those asked question *q* in 1990 did no better than those asked the same question in 1970. In all events, intertemporal judgments about the environment are hard to construct because some of the things we are expected to be literate about have shifted over the past decades.

54. To illustrate how the phrasing of questions can alter responses, even in regard to a single subject, compare a 1997 and a 2001 Harris Poll. In 1997, Americans were asked whether they believed in the "theory that increased carbon dioxide and other gases released into the atmosphere will" lead to global warming, and 67 percent said yes. Humphrey Taylor, *74% to 21% Majority (Of Those Who Know About It) Support Kyoto Global Warming Treaty; If Anything it is "Not Strict Enough,"* Harris Poll #63 (Dec. 17, 1997). In 2001, the question had morphed to whether those sampled had "heard about the theory of global warming" and believed it, and 75 percent answered yes. Humphrey Taylor, *Large Majority of Public Now Believes in Global Warming and Supports International Agreements to Limit Greenhouse Gases*, Harris Poll #45 (Sept. 12, 2001), *available at* http://www.harrisinteractive.com/harris_poll/index.asp?PID=256 (last visited Oct. 10, 2007).

55. Memorandum from the Global Strategy Group to the Yale Ctr. for Envtl. L. & Pol'y, Yale Sch. of Forestry & Envtl. Studies, 2007 Environment Survey—Key Findings 1 (Mar. 7, 2007), *available at* http://www.yale.edu/envirocenter/YaleEnvironmentalPoll2007Keyfindings.pdf [hereinafter Memorandum from the Global Strategy Group].

56. *Id.*

57. Coyle, *supra* note 50, at 84.

58. *Id.* at 27.

59. *Cf.* Coyle, *supra* note 50, at 83 (discussing public misperceptions about pollution sources).

60. Tom Curry et al., *How Aware is the Public of Carbon Capture and Storage?*, *in* Proceedings of the 7th International Conference on Greenhouse Gas Control Technologies, Vancouver, Can., Sept. 5–9, 2004, at 2 (Malcolm Wilson et al. eds. 2005), *available at* http://sequestration.mit.edu/pdf/GHGT7_paper137_Curry.pdf.

61. *See generally*, Guber, *supra* note 48, at 19–36 (providing a thoughtful critique of polling methodologies).

62. Curry et al., *supra* note 60.

63. Matthew C. Nisbet & Teresa Myers, *Twenty Years of Public Opinion About Global Warming*, 71 Pub. Opinion Q. 444, 447 (2007).

64. *Id.*

65. The New York Times–CBS News Poll, Apr. 20–24, 2007, *available at* http://graphics8.nytimes.com/packages/pdf/national/20070424_poll.pdf.

66. Memorandum from the Global Strategy Group, *supra* note 55.

67. Of this 70 percent, 49 percent believed the federal government should do "much more" and 20 percent believed the federal government should do "somewhat more" to deal with global warming. Washington Post–ABC News Poll: Environmental Trends, Apr. 20, 2007, http://www.washingtonpost.com/wp-srv/nation/polls/postpoll_environment_042007.html

68. *Id.* at Question 2a. Interestingly, when polled to rank the two most serious environmental problems, the public ranked climate change below water pollution, destruction of ecosystems, toxic waste, and overpopulation, to just about tie with ozone pollution. *See* Curry et al., *supra* note 60, at Figure 2.

69. Of those 76 percent who believe climate change is occurring, 15 percent are "extremely sure," 22 percent are "very sure," and 34 percent are "somewhat sure." Wash. Post, *supra* note 67, at Question 8.

70. Of the 80 percent who believe global warming is important, 17 percent viewed it as "extremely important," 33 percent as "very important," and 32 percent as "somewhat important." *Id.* at Question 10.

71. Not to mention data that reveals whether the public cares as much as they *should*.

72. *See* Curry et al., *supra* note 60, at Figure 4 (reporting the public's willingness to pay, on average, an additional $6.50 a month on electric bills if it would yield a complete elimination of climate change).

73. Washington Post, *supra* note 67, at Question 18(a).

74. *Id.*

75. *See* U.S. Census Bureau, *supra* note 26, at 366.

76. Holly Hall, *A Record High: Donations by Americans Reached $295-Billion in 2006*, Chron. Philanthropy, Jun. 28, 2007, *available at* http://philanthropy.com/free/articles/v19/i18/18002701.htm#giving2.

77. There are a number of organizations that have attempted to measure and promote reduced ecological footprints. Some of the more prominent include *Redefining Progress*, http://www.rprogress.org/ (last visited Oct. 23, 2007); *Best Foot Forward*, http://www.bestfootforward.com (last visited Oct. 23, 2007); *Global Footprint Network*, http://www.footprintnetwork.org/ (last visited Oct. 23, 2007); and *World Wildlife Fund*, http://www.worldwildlife.org/index.cfm (last visited Oct. 23, 2007).

78. Guber, *supra* note 48, at 49–51 (reporting Gallup Poll results from April 3–9, 2000).

79. *Id.*

80. For example, New Jersey established the first mandatory statewide recycling program in 1987. *See* Anthony T. Drollas, *The New Jersey Statewide Source Separation and Recycling Act: The Nation's First Comprehensive Statewide Mandatory Recycling Program*, 12 Seton Hall Legis. J. 271, 284–98 (1989).

81. *See* Burton G. Malkiel, A Random Walk Down Wall Street (1973).

82. *See Latest Winslow Management Study Shows Environmental Responsibility Can Be Profitable*, Winslow Envtl. News (Winslow Mgmt. Co., Boston, Mass.), Apr. 2004, at 2, *available at* http://www.winslowgreen.com/admin/documents/environment/WEN%20Volume%2014,%20Number%202.pdf (finding that an investment company index of 100 "green-screened" companies reported a cumulative increase in value of 98.5 percent over a four-year period, as compared with the S&P 500's decrease in value of 10.69 percent over the same period).

83. *See* Michael Brower & Warren Leon, The Consumer's Guide to Effective Environmental Choices 4–6 (1999) (discussing the environmental impact of the typical American consumer).

84. Michael P. Vandenbergh, *From Smokestack to SUV: The Individual as* Regulated *Entity in the New Era of Environmental Law*, 57 Vand. L. Rev. 515, 539 (2004) (using "individuals" to describe persons acting in a private capacity and not in the course of employment).

85. *See* Joseph P. Tomain, *Smart Energy Path: How Willie Nelson Saved the Planet*, 36 Cumb. L. Rev. 417, 433 (2005–2006) (discussing weatherization as a conservation promoting incentive in the context of the Energy Policy Act of 2005).

86. *See, e.g.*, Christine Larson, *A New Way to Ask, "How Green Is My Conscience?,"* N.Y. Times, June 25, 2006, at BU-6; Clean Air-Cool Planet, A Consumer's Guide to Retail Carbon Offset Providers 25 (2006), *available at* http://www.cleanair-coolplanet.org/ConsumersGuidetoCarbonOffsets.pdf (listing the Web site addresses of thirty retail offset providers).

87. *See* Larson, *supra* note 86, at BU-6 (discussing "the many groups vying to shrink your carbon footprint").

88. In some countries, political impact can take the form of appointment of a "Green" to a cabinet post, such as Agriculture Minister Renate Kuenast in Germany. *See* Organic Food Quality & Health, *GMOs*, Organic Food Quality News 4 (Nov./Dec. 2004), *available at* http://www.organicfqhresearch.org/downloads/newsletter/OFQNdec2004.pdf (quoting Minister Kuenast's reaction to the German parliament's adoption of "a controversial law laying down strict rules on the cultivation of genetically modified (GM) plants").

89. *See* Karen Breslau, *The Mean Green Machine*, Newsweek, June 19, 2006, at 40 (stating that "In California . . . 87 percent of voters say that environmental issues matter in choosing a candidate" and "[Governor Schwarzenegger] made [environmental issues] a centerpiece of his re-election campaign").

90. *See* Guber, *supra* note 48, at 11, 105–23 (listing excellent sources).

91. *Id.* at 113–22.

92. *See id.* at 118–21 (discussing how the Ralph Nader campaign attracted "[w]hat attention the environment did receive" in 2000); Stan Greenberg, The Progressive Majority and the 2000 Elections 2, 22 (Dec. 15, 2000), *available at* http://ourfuture.

org/docUploads/Greenbergreport.pdf ("The Bush campaign helped push the election off of issues and on to values and trust by demonstrating a reasonableness and by creating confusion on the big issues of the day.").

93. GREENBERG, *supra* note 92, at 8.

94. GUBER, *supra* note 48, at 122. Plus, in the run-up to the 2000 election, Bush characterized climate change as "a serious problem" that he pledged to alleviate. Andrew C. Revkin, *Texas Takes Step on Warming; Some See Shift in Bush's Position*, N.Y. TIMES, Aug. 24, 2000, *available at* http://query.nytimes.com/gst/fullpage.html?res=9F0DE5D71731F937A1575BC0A9669C8B63&n=Top%2fReference%2fTimes%20Topics%2fSubjects%2fE%2fEnvironment.

95. Felicity Barringer, *New Priorities in Environment*, N.Y. TIMES, Sept. 14, 2004, *available at* http://topics.nytimes.com/2004/09/14/politics/campaign/14enviro.html (for example, on many issues voters may entertain presumptions about where the candidate stands based on his or her party affiliation); Linda J. Skitka & Renee Robideau, *Judging a Book by its Cover: The Effects of Candidate Party Label and Issue Stands on Voting Behavior*, 27 J. APPLIED SOC. PSYCHOL. 967, 967–82 (1997).

96. *Fed. Election Comm'n v. Mass. Citizens for Life, Inc.* (*Citizens for Life*), 479 U.S. 238, 249–51 (1986) (delineating issue and express advocacy); 2 U.S.C. § 441(b) (2000).

97. FN 26 U.S.C. §§ 501(c)(3), 501(h) (2000). Also, last-minute efforts to steer voters to the "right" candidate run into constraints from the McCain-Feingold Act. Issue ads do not face these constraints. *But see Citizens for Life*, 479 U.S. at 249–51 (discussing the concept of "express advocacy" and arguing that the distinction between discussions of issues and candidates often dissolves in practical application because candidates are oftentimes intimately linked to the issues they support).

98. Voting is not limited to electing candidates; voters have been able to make headway on environmental issues through state and local initiatives and referendums, which have a slightly different dynamic. *See* Deborah Lynn Guber, *Environmental Voting in the American States: A Tale of Two Initiatives*, 33 STATE & LOCAL GOV'T REV. 120, 120–31 (2001).

99. National Environmental Policy Act, 42 U.S.C. §§ 4321–4370e (2000 & Supp. 2004).

100. Coastal Zone Management Act, 16 U.S.C. §§ 1451–1465 (2000 & Supp. 2004).

101. Marine Protection, Research, and Sanctuaries Act, 32 U.S.C. §§ 1401–1445 (2000).

102. Ocean Dumping Act, 32 U.S.C. §§ 1401–1445 (2000).

103. Federal Water Pollution Control Act, 33 U.S.C. §§ 1251–1387 (2000 & Supp. 2004).

104. Endangered Species Act of 1973, 16 U.S.C. §§ 1531–1544 (2000 & Supp. 2004). State laws, often mirroring the federal, passed in their wake. *E.g.*, OR. REV. STAT. §§ 468.005–468.997 (2005).

105. Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. §§ 9601–9675 (2000 & Supp. 2004).

106. Nuclear Waste Policy Act of 1982, 42 U.S.C. §§ 10101–10108, 10121, 10131–10145, 10151–10157, 10161–10169, 10171–10175, 10191–10204, 10221–10226, 10241–10251, 10261–10270 (2000).

107. Asbestos School Hazard Abatement Act of 1984, 20 U.S.C. §§ 4011–4021 (2000).

108. Clean Air Act Amendments of 1990, 42 U.S.C. §§ 7429–7431, 7592, 7505a, 7506a, 7509–7509a, 7511–7515, 7552–7554, 7581–7590, 7651–76510, 7661–7661f, 7671–7671q, 29 U.S.C. § 1662e (2000).

109. National Environmental Education Act, 20 U.S.C. §§ 5501–5510 (2000).

110. Shellenberger & Nordhaus, *supra* note 1, at 16.

111. *See* 117 Cong. Rec. 38, 865 (1971) (indicating that the Federal Water Pollution Control Act of 1972 passed the Senate by a vote of 86 votes to 0, with 14 not voting).

112. *See, e.g.*, Chemical Security Act of 2003, S. 157, 108th Cong. (2003) (a bill requiring safety assessments for chemical plants, which was never considered by the full senate).

113. H.R. 2673, 108th Cong. (2004) (authorizing appropriations for the Environmental Protection Agency); H.R. 3378, 108th Cong. (2004) (authorizing appropriations for a newly created marine turtle conservation fund).

114. H.R. 254, 108th Cong. (2004) (enacted).

115. H.R.J. Res. 33, 109th Cong. (2004).

116. Mercury Emission Act of 2005, S. 730, 109th Cong. (2005).

117. H.R. 3133, 108th Cong. (2003).

118. H.R. 3275, 106th Cong. (1999).

119. *See generally*, David Schoenbrod, Saving Our Environment from Washington (2005).

120. *See, e.g.*, John M. Broder, *Rule to Expand Mountaintop Coal Mining*, N.Y. Times, Aug. 23, 2007 (describing the failure of environmentalists to influence a proposed surface mining regulation), *available at* http://www.nytimes.com/2007/08/23/us/23coal.html.

121. *See* Gerry Gray, *Big Picture Needed, Please*, Am. Forests, Spring 2005, at 5 ("For every dollar of federal spending in the early 1960s, 2.4 cents went toward these important programs; in 2004, it's just 1.3 cents.").

122. *Id.* (comparing, in constant FY2000 dollars, an increase in overall annual federal spending with increases in spending for natural resources and environmental programs).

123. R. Neil Sampson, *Where Do the U.S. Dollars Go?: U.S. Spending on the Environment and Natural Resources*, Conservation In Prac., Spring 2003, at 26.

124. Some of the spending attributed to climate change may be counted in the budget's tabulation of NRE, but other spending, such as by Health and Human Services and Agriculture, is not. *See* U. S. Gov't Accountability Office, Climate Change: Federal Reports on Climate Change Funding Should Be Clearer and More Complete (2005), *available at* http://www.gao.gov/new.items/d05461.pdf. The summary page summarizes OMB's budget numbers on climate change but also expresses reservations about their reliability on account of changes in reporting methods over time.

125. Office of Mgmt & Budget, The Budget for Fiscal Year 2008, Historical Tables 73 (2007) *available at* http://www.gpoaccess.gov/usbudget/. For 2010 see EPA, *FY 2010 Budget-in-Brief* (http://www.epa.gov/ocfo/budget/2010/2010bib.pdf). [added reference]

126. But not all—one in three citizen suits are brought by nontraditional citizens, including companies, landowners, developers, industry, and, ever more frequently, states and faith-based organizations. *See* James R. May, *Now More Than Ever: Trends in Environmental Citizen Suits*, at 30, 10 Widener L. Rev. 1, 3 (2003).

127. *Id.* at 4–5.

128. *Id.* at 5.

129. For example, David Schoenbrod criticizes the suit brought by the National Resource Defense Council to enjoin the EPA to regulate carbon dioxide. He argues that empowering the EPA is inferior to fostering state-by-state strategies. *See* John Tierney, *The Environmental Procrastination Agency*, N.Y. Times, July 8, 2006, at A13.

130. *See* Tessa Spencer, *The Potential of the Internet for Non-Profit Organizations*, First Monday, June 22, 2002, http://www.firstmonday.org/issues/issue7_8/spencer/index.html (last visited Oct. 24, 2007) (discussing the challenge nonprofits face in effectively using technology).

131. *See, e.g.*, *Nonprofits are Flexing Stock Proxy Muscles*, The Nonprofit Times, Nov. 8, 2004, http://www.nptimes.com/enews/Nov04/news/news-1104_2.html (last visited Oct. 6, 2007) (discussing shareholder activism by nonprofit groups); Press Release, Sierra Club, Strong Support Among ChevronTexaco Shareholders for Sensitive Areas Resolution (Apr. 27, 2005), *available at* http://www.sierraclub.org/pressroom/releases/pr2005-04-27b.asp (discussing ChevronTexaco shareholders voting to ask the company to produce a report on environmental risks of oil drilling).

132. U.S. EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2005 ES-3 (2007), *available at* http://epa.gov/climatechange/emissions/usinventoryreport.html.

133. *See, e.g.*, Cornelia Dean, *Coral is Dying. Can it be Reborn?*, N.Y. Times, May 1, 2007, at F1, *available at* http://www.nytimes.com/2007/05/01/science/earth/01coral.html?emc=eta1.

134. *See, e.g.*, Li Daoji & Dag Daler, *Ocean Pollution from Land-Based Sources: East China Sea, China*, 33 Ambio 107, 109 (2004).

135. *See, e.g.*, Rosamund L. Naylor et al., *Effects of Aquaculture on World Fish Supplies*, 8 Issues in Ecology 2, 2 (2001).

136. Millennium Ecosystem Assessment, Ecosystems and Human Well-Being: Desertification Synthesis 1 (2005), *available at* http://www.inweh.unu.edu/inweh/MA/Desertification-Synthesis.pdf.

137. Food & Agric. Org., Global Forest Resources Assessment 2005: Progress Towards Sustainable Forest Management 19 (2006), *available at* ftp://ftp.fao.org/docrep/fao/008/A0400E/A0400E00.pdf [hereinafter Global Assessment].

138. Jonathan E.M. Baillie et al., 2004 IUCN Red List of Threatened Species: A Global Species Assessment 35 (Jonathon E.M. Baillie et al. eds., 2004), *available at* http://www.iucn.org/themes/ssc/red_list_2004/GSA_book/Red_List_2004_book.pdf.

139. *Id.* at 46.

140. *See* D.W. Fahey, *Scientific Assessment of Ozone Depletion: Twenty Questions and Answers About the Ozone Layer: 2006 Update* Q.45 (2006), *available at* http://www.esrl.noaa.gov/csd/assessments/2006/chapters/twentyquestions.pdf (projecting that the first two stages of Antarctic global ozone recovery will be reached before 2020).

141. U.S. Fish & Wildlife Serv., *Bald Eagle Soars Off Endangered Species List*, http://www.fws.gov/news/NewsReleases/showNews.cfm?newsId=72A15E1E-F69D-06E2-5-C7B052DB01FD002 (last visited Oct. 10, 2007); U.S. Fish & Wildlife Serv., *Endangered Species Gray Whale*, Eschrichtius robustus, http://www.fws.gov/endangered/i/A1Q.html (last visited Oct. 10, 2007).

142. In 1980, the U.S. Fish and Wildlife Service had listed 280 plant and animal species as "threatened or endangered." Council on Envtl. Quality, U.S. Fish & Wildlife Serv., Environmental Quality Statistics: Table 4.7 U.S. Threatened and Endangered Species, 1980–2002, http://www.nepa.gov/nepa/reports/statistics/tab4x7.html. That number included 36 mammals. *Id.* By 2009, those numbers jumped to 1893 threatened or endangered plant and animal species, worldwide, including 359 mammals. U.S. Fish & Wildlife Serv., Threatened and Endangered Species System: Summary of Listed Species, http://ecos.fws.gov/tess_public/Boxscore.do.

143. Global Assessment, *supra* note 137, at 20 (noting increases in forest cover in Europe and northern Asia).

144. *See supra* text accompanying notes 14–16.

145. *See* U.S. EPA, EPA WATER QUALITY CONDITIONS IN THE UNITED STATES: A PROFILE FROM THE 2000 NATIONAL WATER QUALITY INVENTORY (Aug. 2002), *available at* http://www.epa.gov/305b/2000report/factsheet.pdf (reporting that about 33 percent of U.S. waters were assessed for the inventory, and that while the country has made significant progress in cleaning up polluted waters over the past thirty years, much remains to be done to restore and protect the nation's waters).

146. U.S. EPA, *Air Trends,* http://www.epa.gov/air/airtrends/econ-emissions.html (last visited Oct. 10, 2007).

147. Nor should they press too far.

148. Don van Natta Jr. & Neela Banerjee, *Bush Policies Have Been Good to Energy Industry*, N.Y. TIMES, Apr. 21, 2002 at A22.

149. *Id.*

150. Andrew C. Revkin, *Bush Aide Edited Climate Reports,* N.Y. TIMES, June 8, 2005, at A1 (reporting that an energy industry lobbyist hired as a White House staffer was shown to have rewritten climate change warnings).

151. *See* ROBERT F. KENNEDY JR., CRIMES AGAINST NATURE 58–68, 93–94 (2004) (criticizing the risk assessment procedures consolidated within OMB's Office of Information & Regulatory Affairs (OIRA)); *see also* Rena Steinzor, *The Legacy of John Graham: Straight-Jacketing Risk Assessment, Inside EPA's Risk Policy Report* (May 23, 2006) (critiquing the OMB's Proposed Risk Assessment Bulletin for trying to limit and control any risk assessments), *available at* www.progressiveregulation.org/articles/steinzor_risk_052406.pdf. *But see* OFFICE OF MGMT & BUDGET, EXECUTIVE OFFICE OF THE PRESIDENT, PROPOSED RISK ASSESSMENT BULLETIN (2006) (stating that the proposed bulletin's purpose is to "enhance the technical quality and objectivity of risk assessments prepared by federal agencies"), *available at* http://www.whitehouse.gov/omb/inforeg/proposed_risk_assessment_bulletin_010906.pdf.

152. GUBER, *supra* note 48, at 24 tbl. 1.1.

153. *Id.*

154. *Id.*

155. However, the Washington Post–ABC poll could be read as an indicator of increased willingness to take additional measures over the past 12 years. *See* COYLE, *supra* note 50.

156. Piotr C. Brzezinski, *Requiem for Environmentalism*, THE HARV. CRIMSON, Apr. 20, 2006, *available at* http://www.thecrimson.com/article.aspx?ref=512890.

157. Guber reviews some of the "chicken little" literature. *See* GUBER, *supra* note 48, at 3–4.

158. If the movement's messaging needs cleaning up, I suspect that alarmism is less of a problem than saturation with what the public may consider trivial.

159. Just as feminists may be regarded less favorably than feminism, there is no reason to assume that the public holds the same image of the movement as it does of its movers and members.

160. *Environmentalists vs. Scientists*, THE AMERICAN ENTERPRISE, May–June 1999, at 19 (drawing from a survey of leaders at 16 environmental organizations).

161. *Id.*

162. *See id.*

163. *See* GUBER, *supra* note 48, at 87.

164. The Pew Research Center, *Campaign '92: Survey VIII* at 101 (July 8, 1992), *available at* http://people-press.org/reports/pdf/19920708.pdf.

165. NBC NEWS & WALL ST. J., *NBC News/Wall Street Journal Poll*, (Dec. 1996), *available at* http://www.ropercenter.uconn.edu/ipoll.html (last visited Oct. 8, 2007).

166. Riley E. Dunlap, *Show Us the Data*, 19 ORGS. & ENV'T 88, 94 tbl. 4 (Mar. 2006).
167. *Id.*
168. *See* GUBER, *supra* note 48, at 82 (discussing the 1996 National Election Study).
169. Note, however, that there is a synergistic effect not to be denied.

EPILOGUE: *TREES* REVISITED

1. *Jones v. Butz*, 374 F.Supp. 1284 (S.D.N.Y. 1974). Standing was granted to Mrs. Jones and her human co-plaintiffs as taxpayers, consumers, and citizens to challenge the provision, without discussion, of the "next friend" rationale, but their claims were denied on the merits.

2. *State v. LeVasseur*, 613 P.2d 1328 (Int. Ct. App. Haw. 1980) (Rejecting defendant's interpretation of Hawaiian law that a dolphin was "another [person]" under statute). For another early unsuccessful attempt, *see Anthony v. Commonwealth*, 2 Pa. D. & C. 3d 746 (1976). Here, nonriparian plaintiffs with environmental motivation challenged an action of the Department of Environmental Resources which resulted in the encasement of a stream without impact on plaintiffs' property. Held, plaintiffs' interest as users of downstream parks was too remote to support standing, the court observing in dictum that "perhaps one day the environment will have standing to sue on its own behalf through a guardian appointed as trustee . . . [citing *Trees*]. However, the Pennsylvania courts by which we are bound, and for that matter the federal courts, are along [sic] way from recognizing that concept of standing." *Id.* at 753 n.1.

3. The Sierra Club brought suit against Hawaii's Department of Land and Natural Resources on behalf of the Palila, an endangered bird species, claiming that the department's maintenance of feral goat and sheep herds in the Palila's habitat constituted a "taking" suit under the ESA. *Palila v. Hawaii Dept. of Land & Natural Res.*, 471 F. Supp. 985 (D. Haw. 1979), *aff'd*, 639 F.2d 495 (9th Cir. 1981). The plaintiffs prevailed, and the department was ordered to remove the goats and sheep. In 1984, the Sierra Club moved to amend its original complaint—and thus reopened the case—to add the mouflon sheep species as an animal to be removed from the Palila's habitat. Again, the Sierra Club prevailed. *Palila v. Hawaii Dept. of Land & Natural Res.*, 649 F. Supp. 1080 (D. Haw. 1986), *aff'd*, 852 F.2d 1106 (9th Cir. 1988).

4. *Northern Spotted Owl v. Hodel*, 716 F. Supp. 479 (W.D. Wash. 1988); *Northern Spotted Owl v. Lujan*, 758 F. Supp. 621 (W.D. Wash. 1991).

5. *Mt. Graham Red Squirrel v. Yeutter*, 930 F.2d 703 (9th Cir. 1991).

6. *Hawaiian Crow ('Alala) v. Lujan*, 906 F. Supp. 549 (D. Haw. 1991).

7. *Florida Key Deer v. Stickney*, 864 F. Supp. 1222 (S.D. Fla. 1994).

8. *Marbled Murrelet v. Pacific Lumber Co.*, 880 F. Supp. 1343 (N.D. Cal. 1995), *aff'd sub nom. Marbled Murrelet v. Babbitt*, 83 F.3d 1060 (9th Cir. 1996).

9. *Hawaiian Crow*, 906 F. Supp. at 552.

10. *Id.* at 552 n.2 (quoting *Palila v. Hawaii Dept. of Land & Natural Res.*, 852 F.2d 1106, 1107 (9th Cir. 1991).

11. *Hawaiian Crow ('Alala) v. Lujan*, 906 F. Supp. 549, 552 (D. Haw. 1991). Section 1540(g) of the ESA authorizes citizen suits by "any person." Environmental Protection Act, 16 U.S.C. § 1540(g) (2006). "Person" is in turn defined by Section 1532(13) as, "an individual, corporation, partnership, trust, or any other private entity." § 1532(13). Despite the judge's dismissal of the *'Alala*, he refused to grant defendant's motion to sanction the plaintiff's attorney for a Rule 11 violation for naming the *'Alala* as frivolous filing and misuse of judicial process.

12. *Marbled Murrelet*, 880 F. Supp. at 1346 (quoting *Palila*, 852 F.2d at 1107).

13. *Marbled Murrelet*, 83 F.3d 1060 (9th Cir. 1996).

14. *Cetacean Community v. Bush*, 386 F.3d 1169, 1173 (9th Cir. 2004).

15. The organizations filing suit were the Environmental Protection Information Center, Inc., Sierra Club, and Northcoast Environmental Center. They claimed that modifications to the Coho salmon's habitat constituted a "take" of the species in violation of the ESA.

16. *Coho Salmon v. Pac. Lumber Co.*, 61 F. Supp. 2d 1001, 1001 n.2 (N.D. Cal. 1999).

17. *Hawksbill Sea Turtle v. FEMA*, 126 F.3d 461, 466 n.2 (3d Cir. 1997).

18. *Loggerhead Turtle v. County Council of Volusia County, Fla.* (Loggerhead District), 896 F. Supp. 1170, 1177 (M.D. Fla. 1995).

19. *Loggerhead Turtle v. County Council of Volusia County, Fla.*, 148 F.3d 1231, 1249–50 (11th Cir. 1998).

20. *E.g.*, *Pampered Dog on Trial for His Life in Woman's Death*, Los Angeles Times, pt. 1, 22, cols. 3–6, Jan. 17, 1985; *Prize Dog Spared in Death of Woman*, 87, Los Angeles Times, Jan. 23, 1985, pt. 1, p. 4, cols. 1–3.

21. Los Angeles Times, Sept. 24, 1983, pt. 1, at 10, col. 1.

22. *See generally*, Deborah Blum, The Monkey Wars 105–31 (1994) (a chapter describing several of the cases of monkey abuse, as well as the legal struggle for the monkeys' rights).

23. *Int'l Primate Protection League v. Inst. for Behavioral Research, Inc.*, 799 F.2d 934, 936 (4th Cir. 1986).

24. *Id.*

25. Note that counsel drew back at the edge of arguing the rights of the monkeys. The argument was still homocentric to the extent of being based on the humans' rights to their mission. In addition to this theory, plaintiffs pointed to (1) their personal relationships with the monkeys; and (2) "longstanding, sincere commitment to preventing inhumane treatment of animals." *Int'l Primate Prot. League v. Admins. of the Tulane Educ. Fund*, 895 F.2d 1056, 1060 (5th Cir. 1990), *rev'd*, 500 U.S. 72 (1991).

26. *Id.* at 1060–61 (quoting *Valley Forge Christian Coll. v. Ams. United for Separation of Church and State, Inc.*, 454 U.S. 464 (1982)). The U.S. Supreme Court remanded to state court on the theory that the removal to federal court deprived plaintiffs of the right to sue in the forum of their choice. While the case, on remand, bounced between federal and state courts, the health of the monkeys became more and more pitiful; with the deaths of several of them, the controversy was brought to a close to no one's satisfaction. Nothing in the subsequent case history illuminated the standing-of-Nature dimensions.

27. The Marine Mammal Protection Act requires certain permits for the "taking" and importation of marine mammals. 16 U.S.C. § 1374. Plaintiffs' substantive claim was that the transfer, albeit of a dolphin already in captivity, was a "taking" requiring a permit from the Secretary of Commerce, a claim that borrowed support from a subsection that could be read to suggest that, for these purposes, "taking" might extend to the transportation, purchase, or sale of a marine mammal. *See* 16 U.S.C. § 1374(4).

28. Joint Stipulation and Proposed Order for Dismissal, *Rainbow v. New England Aquarium*, C.A. No. 90-12207-WF (D. Mass. Nov. 5, 1990).

29. *Citizens to End Animal Suffering and Exploitation, Inc. v. New England Aquarium*, 836 F. Supp. 45, 46 (D. Mass. 1993) (*quoting* John Prescott Aff. at ¶ 6).

30. The Navy also maintained that "Kama is able to associate with wild dolphins on a daily basis, and could swim away if he so desired." *Citizens to End Animal Suffering*

and Exploitation, Inc. v. New England Aquarium, 836 F. Supp. 45, 47 (D. Mass 1993) (citing Declaration of Lester Bivens, ¶ 3).

31. The MMPA presumably has to be read in conjunction with 5 U.S.C. § 702 which grants standing to "a person suffering legal wrong . . . or aggrieved by" violation of MMPA.

32. *Id.* at 49.

33. *Citizens to End Animal Suffering and Exploitation*, 836 F. Supp. 45, 49. The Court also dismissed the standing claims of the organization on failure to show actual imminent (injury in fact) harm to members' interests in dolphin-watching. Claims based on informational harm were also rejected.

34. *Seehunde v. Bundesrepublik Deutschland* (Verwaltungsgericht, Hamburg. August 15, 1998), discussed *infra*. Later, canine distemper was identified as the mysterious virus that was decimating the seals. But the problem persisted; could human activity have altered the marine environment in such a manner as to make the seals more vulnerable? The case is described in CHRISTOPHER D. STONE, THE GNAT IS OLDER THAN MAN 85–88 (1993), and more fully in HANFRIED BLUME, ROBBENKLAGE: EIGENRECHTE DER NATUR (2004).

35. *See Amami Rabbit to be "Plaintiff" in Case to Stop Construction*, JAPAN TIMES, Nov. 8, 1994. Three other species—all birds—were also named in the complaint (correspondence with Takamachi Sekine and Takao Yamada, Esqs., Osaka).

36. *Court Seeks Animal Plaintiffs' Details*, JAPAN TIMES, Mar. 9, 1995. My correspondence with plaintiff's counsel revealed that, as of mid-1996, the suit in the name of those other than the species was continuing.

37. *Geese in Suit over Habitat Protection*, JAPAN TIMES, Dec. 21, 1995, and correspondence with counsel.

38. HCJ 466/05 *Rize v. High Planning Council* [2004]. The gazelle is the sixth named plaintiff in the case.

39. HCJ 11745/04 *Ramot for the Environment v. The National Planning and Building Board* [2008]. Zafrir Rinat and Jonathan Lis, *Court Shafts Last Vestige of Safdie Plan*, HAARETZ.COM, Sept. 7, 2008, http://www.haaretz.com/hasen/spages/1018420.html.

40. *Stibbe v. Austria*, 26188 Eur. Ct. H.R. (2008). The Austrian court did not appear to directly address whether a chimpanzee can be considered a person. Allan Hall, *European Court Agrees to Hear Chimp's Plea for Human Rights*, DAILY MAIL, May 21 2008. *See* http://www.dailymail.co.uk/news/worldnews/article-1020986/European-Court-agrees-hear-chimps-plea-human-rights.html.

41. Edith Brown Weiss develops and explores this theme in IN FAIRNESS TO FUTURE GENERATIONS (1988).

42. Complaint, *Oposa v. Factoran*, G.R. No. 101083 (Supreme Court of the Philippines, June 30, 1993). Para 22; *see* Rodolfo Ferdinand N. Quicho, WORLD CONSERVATION UNION COMMISSION ON ENVIRONMENTAL LAW, WATCHING THE TREES GROW: NEW PERSPECTIVES ON STANDING TO SUE FOR ENVIRONMENTAL RIGHTS 50 (1995).

43. ECUADOR CONST. Tit. II, ch. 7, art. 71. The direct (as distinct from symbolic) impact of a constitutional provision on actual lawsuits is far from clear. The language was written with input from the Community Environmental Legal Defense Fund, a Pennsylvania-based group providing legal assistance to governments and community groups trying to mesh human affairs and the environment. The group says it has helped more than a dozen communities in the United States to draft and pass laws "that change the status of ecosystems from being regarded as property under the law to being recognized as

rights-bearing entities." Andrew C. Revkin, *Ecuador Constitution Grants Rights to Nature*, N.Y. Times, Sept. 29, 2008.

44. *See Chevron, Ecuador, and a Clash of Values*, Los Angeles Times, Aug. 29, 2009, http://www.latimes.com/news/opinion/editorials/la-ed-chevron29-2009aug29,0,6967677.story.

45. *See* Chapter 2. Other cases in which nonhumans were exclusive plaintiffs include *Death Valley Nat'l Monument v. Dept. of the Interior*, which was never filed (*see* Introduction), and *Seehunde*, which rested entirely on nature's claim.

46. In *Bush*, the plaintiffs, although unchallenged on standing, lost on the merits. The litigation is more fully discussed in Chapter 2.

47. Environmental and animal-rights lawyers typically depend on scarce public donations for support, and occasionally court-awarded fees. My sense is that they, and most public interest lawyers, file fewer cases that might be called "frivolous" than are filed by "regular" lawyers who rely on client fees.

48. Robert F. Kennedy, Jr., and Stephen P. Solow, *Environmental Litigation as Clinical Education: A Case Study*, 8 J. Envmntl. L. & Litig. 319 (1994).

49. The number of *Länder* (German states) that provided for some such special group standing had grown from five to twelve between 1992 and 1996. *See for example*, '39a Berliner Naturschutzgesetz, '36 Hessisches Naturschutzgesetz.

50. Associations that have been granted recognition are permitted to participate prior to the granting of exemptions from prohibitions and orders relating to the protection of *Naturschutzgebiete* ("nature conservation areas"), *Nationalparke* ("national parks"), and *Biosphärenreservate* ("biosphere reserves"), and other protected areas. In certain circumstances they enjoy special guardian power to sue, viz., to challenge decisions of "plan establishment procedures" relating to projects involving intervention in nature and landscape as well as "plan approvals" where the involvement of the general public has been provided for in relevant provisions. *See* Bundesnaturschutzgesetz, articles 58–61 from "Institut für Naturschutz und Naturschutzrecht," *available at* http://www.naturschutzrecht.net/naturschutzgesetze.htm. For a review of the proceedings that have been initiated under these provisions, *see* Alexander Schmidt, *Verbandsklagen im Naturschutzrecht und Realisierung von Infrastrukturmassnahmen—Ergebnisse einer empirischen Untersuchung*, 30 Natur und Recht 544 (2008), reporting that between 2002–2006 130 cases were brought; the environmental associations counted 28 cases as won or successfully finished, 24 as partial victories, and 78 (60 percent) as lost.

51. 40 C.F.R. § 300.600, 300.615(d)(1) (2008).

52. *See United States v. Glenn-Colusa Irrigation Dist.*, 788 F. Supp. 1126 (E.D. Cal. 1992) (United States awarded injunction prohibiting the District from taking fingerling salmon in the course of pumping water from the Sacramento River after prolonged negotiations with the National Marine Fisheries Service (NMFS) failed).

53. Exec. Order No. 12580, 52 F.R. 2923 (1987), *reprinted as amended in* 42 U.S.C. § 9615. As of 1994, there had been reportedly forty actions in which the Department of Commerce, through NOAA, was seeking damages for injury to natural resources, and an additional twenty in which the Department of the Interior was involved. Paul R. Portney, *The Contingent Valuation Debate: Why Economists Should Care*, 8 J. Econ. Persp. 3, 11 (1994).

54. P. S. Elder, *Legal Rights for Nature—The Wrong Answer to the Right(s) Question*, 22 Osgoode Hall L. J. 285, 285 (1984).

55. *Animal Welfare Inst. v. Kreps*, 561 F.2d 1002, 1004 (D.C. Cir. 1977).

56. *Id.* at 1008 (*quoting* District Court opinion).

57. *Id.*

58. *United States v. Students Challenging Regulatory Agency Procedures* (SCRAP), 412 U.S. 669, 684–90 (1973). Although the students passed the standing hurdle, they ultimately lost on the merits.

59. *American Cetacean Society v. Baldridge*, 604 F. Supp. 1398 (D.C.D.C. 1985), *aff'd*, 768 F.2d 426 (D.C. Cir. 1985) *rev'd sub nom. Japanese Whaling Association v. American Cetacean Society*, 478 U.S. 221 (1985) (5–4 decision). Trade sanctions appear to be the required sanction for undermining a fisheries agreement under the Pelly Amendment to the Fishermen's Protective Act, but the power of a nongovernmental authority—here, the Cetacean Society—to invoke the courts to force the executive's hand was more problematic. 22 U.S.C. §§ 1971–1979 (2006).

60. Editorial, *Do Whales Have Standing?* Wall St. Journal, Mar. 24, 1986.

61. Both the District Court and the Court of Appeals dismissed the objections to standing almost cursorily: "plaintiffs have a clear right to relief." *Baldridge*, 604 F. Supp. 1398, 1411; *Baldridge*, 768 F.2d 426, 444 (D.C. Cir. 1985).

62. *See, e.g., Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402 (1971) (citizens group successfully challenged the Department of Transportation's highway plan that would have threatened a park without any challenge to the citizen group's standing); *Lujan v. Defenders of Wildlife*, 504 U.S. 555 (1992) (granting that "description of concrete plans, or indeed even any specification of *when*" an intended visit was to take place, would be sufficient to confer standing). *See also* the discussion of *NRDC v. Winter* in Chapter 2.

63. Even with higher mammals, such as whales, there are complications owing to our limited capacity to construct their preferences in the detail the law ideally would like. *See* Chapter 1.

64. Note that the posture of the lawyer for the manatees would be less ambiguous than that for a lawyer designated for the river. But that is one of the hurdles facing *Trees'* position: How do we carve up the world into those entities that will count, and those that will not. Indeed, if self-consciousness is not the key to moral considerateness, nor sentience, nor life . . . how does one draw the line so that an argument favoring a lake does not apply with equal force to a lamp? The same sort of dilemma crops up in other forms: Is the unit of our concern the individual ant, the anthill, the family, the species, or the ant's habitat?

65. *See* Daniel B. Botkin, Discordant Harmonies: A New Ecology for the Twenty-First Century (1992).

66. *Puerto Rico v. SS Zoe Colocotroni*, 456 F. Supp. 1327 (D.P.R. 1978), *aff'd in part, rev'd in part* 628 F.2d 652 (1st Cir. 1978). Federal statutes such as CERCLA 42 U.S.C. §§ 9601–9875 (2006), and the Oil Pollution Act of 1990, 33 U.S.C. §§ 2701–2761 (2006) (similarly appear to demand full restoration costs in some circumstances).

67. *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687 (1995).

68. *Committee for Humane Legislation, Inc. v. Richardson*, 540 F.2d 1141, 1151, n.39 (D.C. Cir. 1976).

69. 43 C.F.R. § 11.35(b)(2) (1993). The current version of this regulation no longer contains the "lesser of" language, but commentators understand it to be a continuing requirement. *See* Douglas R. Williams, *Valuing Natural Environments: Compensation, Market Norms, and the Idea of Public Goods*, 27 Conn. L. Rev. 365, 384–85 (1995).

70. *Ohio v. U.S. Dep't of Interior*, 880 F.2d 432, 442 (D.C. Cir. 1989).

71. *Id.* at 459.

72. *See generally*, Donald W. Stever, *Environmental Penalties and Environmental Trusts: Constraints on New Sources of Funding for Environmental Preservation*, 17 ENVTL. L. REP. 10356 (1987). The case is discussed in Christopher. D. Stone, *A Slap on the Wrist for the Kepone Mob*, 22 BUS. & SOC'Y REV. 4, Summer 1977.

73. Sometimes, "environmentally beneficial expenditure" (EBE).

74. Leslie J. Kaschak, *Supplemental Environmental Projects: Evolution of a Policy*, 2 ENVTL. LAW. 465, 479 (1996).

75. *See* Portney, *supra* note 32, at 11.

76. *Id.*

77. L. Jorgensen & J. Kimmel, *Environmental Citizen's Suits: Confronting the Corporation* (1988) (BNA Special Report).

78. It is often hard to discern what cause a consent decree is designed to serve. The aim of providing $13,000 to Murray State University for the purpose of breeding injured bald eagles and reintroduction of the species in depleted habitats in *Sierra Club v. Vanderbilt Chemical Corp.* can probably be identified with repairing the environment in a conventional sense. In other cases the motivation appears to be more "consumptive"; for example, $15,000 to a Cook College research fund for oyster culture, *New Jersey Public Interest Research Group (NJPIRM) v. Public Service Elec. and Gas Co.* Both cases are cited in Marcia R. Gelpe & Janis L. Barnes, *Penalties in Settlement of Citizens Suit Enforcement Actions under the Clean Water Act*, 16 WM. MITCHELL L. REV. 1025, 1032 n.35 (1990).

79. Leslie J. Kaschak, *Supplemental Environmental Projects: Evolution of a Policy*, 2 ENVTL. LAW 465, 466 (1996).

80. Marcia R. Gelpe & Janis L. Barnes, *Penalties in Settlement of Citizens Suit Enforcement Actions Under the Clean Water Act*, 16 WM. MITCHELL L. REV. 1025, 1031 (1990).

81. *Animal Lovers Volunteer Ass'n v. Weinberger*, 765 F.2d 937, 938 (9th Cir, 1985).

82. Moreover, any such expansive legislation likely faces a constitutional challenge under *Lujan*, discussed more fully in Chapter 2.

83. *See* Chapter 3.

84. 504 U.S. 555 (1992). The court, by a 4–3–2 vote, denied standing to an environmental group claiming that decimation of Asian species would harm one of their members who had future plans to embark on a Sri Lankan wildlife viewing expedition.

85. 504 U.S. at 566.

86. Cass Sunstein, in *What's Standing After Lujan? Of Citizen Suits, "Injuries," and Article III*, makes a persuasive argument that the relevant question cannot be understood simply in terms of "injury in fact" but must include whether the law, including statutes, the Constitution, and federal common law can fairly be read as conferring on the plaintiffs a cause of action. 91 MICH. L. REV. 163, 185–86, 2205, 206 (1992).

87. 7 U.S.C. § 2132 (g) (2006).

88. *Animal Legal Defense Fund v. Espy*, 23 F.3d 496 (D.C. Cir. 1994).

89. *Animal Legal Defense Fund v. Espy*, 29 F.3d 720 (D.C. Cir. 1994).

90. *Id.* at 726 (Mikva, C.J., concurring).

91. *Animal Legal Defense Fund, Inc. v. Glickman*, 154 F.3d 426 (D.C. Cir. 1988).

92. Brief of Plaintiff-Appellee at 16, *Animal Legal Defense Fund, Inc. v. Glickman*, Nos. 97-5031, 97-5009, 97-5074. (D.C. Cir. Jun. 20, 1997).

93. *See* Chapter 1.

94. A court might even say, even if Congress intended it, it was unconstitutional.

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