3
The Legal Foundations of Conservation Biology

By the law of nature, these things are common to mankind – the air, running water, the sea, and consequently the shores of the sea

Emperor Justinian 533 BC, translated by T. C. Sandars 1997

In this chapter, you will learn about:

1. **The development and contemporary expressions of conservation law and its relationship to the science of conservation biology**
2. **The most important international conservation laws and how they define and empower conservation**
3. **Examples of national conservation laws in the United States that have provided models for conservation at national levels in other countries**
4. **Specific case histories in which national and international conservation laws have influenced the goals and practices of conservation biology**

3.1. Conservation Law and Policy

3.1.1. Context and Definition

Conservation biology is a legally empowered discipline; that is, it represents a scientific community that has received legal, political, and cultural incentives and reinforcements. Indeed, some have gone so far as to call conservation biology a "regulatory science" that "seeks to develop scientific standards that can be applied to regulatory criteria and then to develop management strategies to meet those standards" (Tarlock 1994:1130). Throughout the world, the goals of conservation biology, including preservation of biodiversity, protection of endangered species, and conservation and management of ecosystems, are increasingly established in and enabled by laws.

Today many conservation biologists are tempted to believe that it was conservation biologists who inspired the laws that protect biological diversity, but a close look at recent history forces us to abandon this self-gratifying notion. It was conservation law that came first, in manifestations like the US Endangered Species Act (1973) and the Convention on the International Trade in Endangered Species (1973), among others that preceded the earliest organizational efforts to define the discipline of conservation biology. Although conservation biology might still have developed without national and international environmental legislation, it would have been substantially less influential. In fact, conservation biology owes much of its early success and continuing vitality to its legal empowerment and support, and modern national and global environmental legislation has affected and continues to affect conservation biology in three ways. First, it has given legal incentives and approval for biodiversity preservation. Second, it has affirmed the goals of conservation biology and influenced the public to value conservation. Third, it has provided an environment that requires and sustains scientific research, management and monitoring.

Good science and its attendant empirical data are necessary, but insufficient, for achieving conservation biology's goals of stemming species extinction and ecosystem degradation (Meffe and Viederman 1995). Conservation biology, as a discipline, asserts that scientists can and should influence environmental policy. To do this, they must first comprehend both science and policy. Despite the advantages of legal empowerment, conservation biology's ties to law and policy are not always beneficial. On one hand, laws represent current social values. But laws also shape values for future generations, codifying aspirations or preferences into something more lasting and transcendent. Laws empower action, providing political resources and social force to achieve specific goals, but laws also limit action by setting arbitrary and fixed boundaries that may not correspond to the needs of dynamic systems. Because laws are difficult to repeal, they provide a sense of permanence to the values they establish. But laws also can become rigid, unresponsive to changing conditions, and ultimately ineffective in solving the problems they were enacted to address.

Traditionally, scientists have avoided involvement in law- and policy-formulation because they believed that such involvement would undermine their professional objectivity and public credibility; however, many conservation biologists disagree. Reed Noss, a former editor of the discipline's most well known journal – *Conservation Biology* – said, "I believe that conservation biologists have a responsibility to enter the policy arena and advocate both general principles and specific actions needed to conserve biodiversity" (Noss 1993). Putting the matter more forcefully, conservationists Dwight Barry and Max Oelschlaeger stated, "Advocacy for the preservation of biodiversity is part of the scientific practice of conservation biology" (Barry and Oelschlaeger 1996:905). But "advocacy," if it is to be effective advocacy, must ultimately be advocacy for laws and polices that protect biodiversity. For this reason, the issue of conservation advocacy and the relationship of conservation advocacy to conservation policy remain at the forefront of concern and debate among conservation biologists (Brussard and Tull 2007). Connections to conservation law and policy are intrinsic to conservation biology's continuing mission, as well as essential to understanding its historical development.

Policy is distinct from law as being the necessary outcome of all laws that are actually enforced, and can be defined as "a definite course or method of action selected from among alternatives and in light of given conditions to guide and determine present and future decisions" (Merriam-Webster 2003). More specific to our context, environmental legal scholars James Salzman and Barton Thompson define *environmental law and policy* as "the use of government authority to protect the natural environment and human health from the impacts of pollution and development" (Salzman and Thompson 2003:1).

Legal scholars acknowledge two general views of international law, including international conservation laws. The first of these, known as the ***positivist view***, holds that international law consists of neutral rules. In this view, the goal of national governments and international agencies is to enforce rules. A second view, known as the ***process view*** holds that international law provides the normative framework and procedures for coordinating behavior, controlling conflict, facilitating cooperation and achieving values (Weiss 1999:100). In the realm of international conservation law, it is this process view that seems to best describe actual behavior, particularly in democratic nations. The process view is the paradigm that we will follow in this chapter to understand conservation law and its effects at both international and national levels. This is because, in democracies, laws originate with issues that gain the attention of politicians and government bureaucrats. But issues do not become law and laws are

not translated into policies without lengthy examination and development by all concerned parties because one of the main functions of law is to provide a framework for legitimating social norms. Laws are specifically aimed to influence behavior and reinforce approved values by establishing normative rules that everyone must follow or face punishment. Environmental and conservation law often drive ongoing conservation efforts and environmental protection, but, to be effective, law must eventually be supplemented by attendant policies that support and clarify its intentions. For our purposes, we will define "policy" as *a set of principles and intentions used to guide decision making*. We may define "environmental policy," in which conservation concerns are embedded, as *a set of principles and intentions used to guide decision making about human management of natural capital and environmental services* (Roberts 2004:1–2). It is impossible to separate conservation law from conservation policy, and fruitless to try. We will begin with an examination of how conservation law began to develop, and then examine the international and national policies for species and habitat protection that sprang from it.

3.1.2. Historical Origins of Conservation Law

Environmental and conservation law are rooted in three conceptual frameworks: ethical rights, utilitarian interests, and equitable distribution of risks (Salzman and Thompson 2003:26). As noted in Chapter 1, the earliest laws addressing the use or treatment of plants and animals were rooted in concepts of ethical rights. In ancient Roman, Chinese and Jewish legal traditions, animals and, in some cases, even the land itself, were protected from certain forms of abuse and mistreatment. Although the intention of such laws, particularly toward animals, was not directed toward "conservation" as we understand it today, but rather towards dispensing justice, these traditions did establish a basis for treating non-human creatures and ecosystems as *moral subjects*. That is, non-human entities in the natural world were perceived as "morally considerable," they could be treated in a morally right or wrong manner.

A second category of laws, also noted in Chapter 1, were prohibitions against the use of plants or animals found on private property, especially if the private property belonged to nobility. In some ways, these laws also were concerned with rights, but, in this case what was protected was the right of the landowner to enjoy a healthy, productive, or aesthetically beautiful environment. Although such laws achieved a measure of protection for non-human species, the rights they protected were expressions of privilege, not expressions of conservation. Laws of this type were rooted in utilitarian interests of the landowner. It is worth noting now, because you will see examples of it later, that conservation laws arising from concepts of rights, grounded in moral values, tend to advocate complete protection for the entity to be conserved, regardless of costs. In contrast, laws rooted in utilitarian interests use cost-benefit analyses (Chapter 2) as the primary guide to making the correct or "right" decision. In such a view, costs are not irrelevant, but rather the most relevant and decisive decision-making factor.

Historically, there were notable and commendable exceptions to the pattern of making conservation serve only as an expression of privilege for the fortunate few. Asoka, an Emperor of India, proclaimed and enforced an edict for the protection of mammals, birds, fish, and forests in 252 BC. In The Netherlands, King William of Orange set aside the Wood of the Hague in 1576, not for his own personal pleasure, but for the protection of the place itself. In 1669, the French statesman Jean Baptiste Colbert, with the full permission and support of the king, issued an ordinance to protect French forests from overcutting. In this case, Colbert's motives may have been influenced by his aims to establish a French navy and mercantile fleet that would provide increased trade, wealth, and protection to his nation, but it protected French forests nonetheless.

3.2. Environmental and Conservation Law in Individual Nations: Modern Examples from the United States, South Africa, and Australia

3.2.1. General Considerations

Although Colbert's actions influenced international relations and trade, they were taken in the interests of a single nation. While international cooperation through international conservation law is critical to the world conservation enterprise, much of international conservation law has been crafted from laws that were first developed in individual nations. Even today, with a strong and growing body of international conservation law designed to empower the world conservation effort, international laws and treaties invariably suffer constraints that cannot be overcome at international levels. By the very nature of the diversity of nation states, international conservation agreements often descend to a 'least common denominator' approach in species and habitat protection, usually united around trade or other forms of economic interests. The actions really needed to preserve endangered species and their habitats must almost always be resolved at national and local levels, not only because that is where local breeding populations are resident, but because only in national and local communities can one hope to achieve a consensus of shared values that can support

more aggressive and effective actions needed to achieve real conservation goals. Further, even international conservation laws become meaningless without national and local enforcement. The participation of ordinary citizens in conservation requires engagement at these levels, and such participation is essential for both enforcement and monitoring.

For these reasons, we now take up examples of national conservation legislation from three countries, the United States, the Republic of South Africa, and Australia. These examples will illustrate how conservation law is formed at national levels, how public participation is facilitated to strengthen enforcement and develop workable policies, how conservation laws can actually achieve conservation goals, and how problems that limit the effectiveness of conservation law can be identified and overcome. We will begin with the US National Environmental Policy Act (NEPA) and the US Endangered Species Act (ESA), two laws that have been so effective that they have been exported and "cloned" repeatedly throughout the world. Their influence is no longer national, but global, and understanding them adds value to conservation in every context throughout the world. From this foundation, we will examine more recent developments of national conservation laws in the Republic of South Africa and Australia that incorporate radical new conservation concepts, concepts that are increasingly being examined and debated in the global conservation community. But, for our first two examples, we must provide some context to understand, more generally, how conservation law became a significant issue in the US, as a means of understanding its development in democratic societies.

Beginning with the signing of the National Environmental Policy Act on January 1, 1970, that decade witnessed the development of a number of innovative structural and legal arrangements in conservation laws in the United States. Three arrangements developed during this decade that were designed to promote greater public participation. These were; (1) liberal provisions for public participation; (2) expanded rights for private organizations and individuals to sue public agencies; and (3) provisions for intervenor funding for legal expenses. Legal challenges to federal agencies' environmental actions began in 1971 and ultimately led the US Supreme Court to affirm the right of private citizens and non-governmental organizations to sue agencies for harmful or potentially harmful environmental actions. Other court decisions established the ability of citizens and NGOs to halt proposed actions by federal agencies if the environmental impact statements were judged to be improperly prepared. NEPA's requirement for environmental impact statements (EIS) accompanying proposed actions by federal agencies along with the success of citizen-led litigation demonstrated the power of the legal process and public input in achieving conservation goals.

3.2.2. Common Characteristics of Effective National Conservation Law

Although laws addressing conservation issues are diverse, the most powerful and effective among them share important characteristics that are now common in conservation laws of individual nations throughout the world. Their shared traits include an inspirational and radical message, the potential for growth in influence, an ability to attract and hold the interest of scientists because they raised questions that must be answered by research, and a requirement for monitoring (Rodgers 1994).

The inspirational and radical message of the strongest modern environmental and conservation laws built a strong foundation of moral and social support. Although court interpretation often has been necessary for the message to be clarified and implemented, such a message has been latent within all truly effective conservation legislation. Legal scholar and law professor William H. Rodgers Jr., speaking of common characteristics of exemplary US environmental laws, said of these that "they lack the compromised and ambiguous form normally associated with an act of Congress" (Rodgers 1994). Indeed, the most effective statutes in US environmental law were almost brazen in their language, and inspired popular support. The potential for growth in influence allowed such laws to alter social values, and they gained and held scientific support because they defined tasks for scientists to perform and questions for them to answer.

Several themes of US environmental legislation have become part of conservation biology, and are especially prominent in NEPA and the ESA. Such legislation has (1) required that pollution or environmental degradation be evaluated in the context of ecosystem function (NEPA); (2) endorsed intrinsic and non-economic values for resources and non-human creatures (ESA, NEPA); (3) emphasized the status of individual species and affirmed that extinction is undesirable (ESA); (4) stated that renewable resources were to be managed sustainably, and that managers of non-renewable resources must take into account the permanent consequences of present management actions (NEPA); (5) made federal funding available for research and habitat acquisition (ESA); (6) provided citizens and NGOs with avenues for participation in decision-making and litigation against federal agencies (ESA, NEPA); and (8) given additional power to agencies to protect resources (ESA, NEPA).

Environmental and conservation laws have provided conservationists with the legal means to stop activities harmful to the environment or to particular species, especially on federal lands or on projects receiving federal funding or requiring federal permits. Of these, the National Environmental Policy Act and the Endangered Species Act, passed and enforced separately but often interacting legally, have radically altered the practice and enforcement of conservation values in the United States and, by imitation,

throughout the world. More than any other legislation, the radical transformation of conservation law achieved by these two acts created the legal environment and social values in which conservation biology operates today.

3.2.3. The US National Environmental Policy Act (NEPA)

3.2.3.1. NEPA's History and Content

In 1966 a professor of public administration, Lynton K. Caldwell, published a paper entitled "Administrative Possibilities for Environmental Control" (Caldwell 1966). In his paper, Caldwell suggested that qualitative environmental standards could provide the administrative coherence historically lacking in natural resource policy (Caldwell 1966; Tarlock 1994). Caldwell's paper, published in the book *Future Environments of North America* (Darling and Milton 1966), would become one of the most influential publications on environmental policy of the late 1960s.

The US Congress employed Caldwell as the principal drafter of a law that was designed to be the centerpiece of a new era of environmental and conservation legislation, the National Environmental Policy Act of 1969 (Tarlock 1994). In writing NEPA, Caldwell mandated that a "detailed statement" must accompany "proposals for legislation and *other major federal actions significantly affecting the quality of the human environment*" (emphasis added). This requirement led to the development of the now-familiar environmental impact statement (EIS) that describes the possible environmental effects of actions proposed by federal agencies. Ultimately, policies and procedures associated with preparation of an EIS led to pervasive and well-defined procedures for public involvement, as well as for challenging an EIS in court.

NEPA was signed into law by President Richard Nixon on January 1, 1970, a fitting beginning to what would be called "the decade of the environment." NEPA stated a national policy for the environment and formally established environmental quality as a leading national priority. NEPA expressed its "inspirational and radical message" in these words: "It is the continuing responsibility of the federal government to use all practicable means, consistent with other essential considerations of national policy, to improve and coordinate federal plans, functions, programs, and resources to the end that the nation may: (a) fulfill the responsibilities of each generation as trustee of the environment for future generations, (b) assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings, (c) attain the widest range of beneficial uses of the environment without degradation, … (d) preserve important historic, cultural, and natural aspects of our natural heritage, … (e) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of the amenities of life, and (f) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources." Robed in such positive platitudes, NEPA passed both houses of Congress with relatively little opposition.

In fact, it was not NEPA's high-sounding rhetoric in its opening section that would have significant impact on US environmental policy. Hidden in the more mundane language of the bill were words that would profoundly affect the practices and decisions of every US federal agency. The requirement that all federal agencies develop information, in the form of a "detailed statement," on the ecological consequences of their actions and weigh these impacts in their decision- and policy-making would become the "teeth" of NEPA's enforcement power. Each such "detailed statement" must describe (1) the environmental impact of the proposed action, (2) any adverse environmental effects that cannot be avoided should the proposed action be implemented, (3) alternatives to the proposed action, (4) the relationship between local, short-term uses of the environment and the maintenance and enhancement of long-term productivity, and (5) irreversible or irretrievable commitments of resources involved in the proposed action should it be implemented. Such a statement is then circulated among government agencies and public venues (NGOs, libraries, and private citizens groups) for comment.

NEPA was unique among environmental and conservation legislation in several ways. First, it was proactive rather than reactive, forcing government agencies to consider the environmental effects of proposed actions in advance. Second, NEPA forced government agencies to explicitly consider the value of non-economic resources, ensuring that conservation would be considered in evaluating the proposed action. Finally, NEPA introduced environmental assessment as a means to guide administrative decision-making (Caldwell 1966; Tarlock 1994). Thus, NEPA not only established a mechanism for environmental review, but also stimulated an increased level of citizen involvement in environmental decision-making. Policy analyst Richard A. Liroff summarized the true significance of the act when he noted, "Implicit in NEPA was the notion that the public was to be informed of the rationale underlying environmentally impacting administrative actions. NEPA's architects also sought public involvement in decision making, but they did not indicate when it should occur or what form it should take" (Liroff 1976:88). It is also noteworthy that NEPA was strongly linked to the kind of "ideal" role of government in conservation that had first been developed by Theodore Roosevelt (Chapter 1), embodying his ideal of environmental protection resting on a foundation of scientifically-informed government decisions modified by citizen input.

These implicit notions of public participation ultimately became explicit directives for public involvement, first addressed by the courts in the case of *Calvert Cliffs v. the Atomic Energy Commission* of 1971. In this case, the US District of Columbia Court of Appeals ruled that federal agencies must comply with the procedural requirements of NEPA, including compliance with the preparation of a detailed statement describing the environmental impact of a proposed action, and that this requirement was in force even for an action by a private company or private individuals on private land if the action required a permit from a federal agency. *Calvert Cliffs* added legal precedent and enforcement toward motivating US federal agencies to take seriously the requirement for an EIS for proposed actions on federal land or "major federal action" that required federal permission. To better understand the scope of NEPA's effect, one must understand what constitutes a "major federal action" and appreciate the extent of federal lands in the United States and their general management directives.

3.2.3.2. NEPA and US Federal Lands

The US government is the nation's largest landowner, with responsibility for more than 715 million acres, one-third of the total US land area. Many of the country's western states are largely public domain; more than half of the land in Alaska, Nevada, Idaho, Oregon, Utah, and Wyoming is federally owned (Rosenbaum 1985). On or underneath this land area lies a wealth of natural resources. Perhaps one-third of all remaining US oil and gas reserves, 40% of coal reserves, 80% of shale oil reserves, more than 60% of low-sulfur coal (Rosenbaum 1985), and sites with high potential for geothermal energy generation exist on US public lands.

A "federal action" takes place on federal lands using federal funds, or on private, state, or locally owned land, if the action requires a permit from a federal agency. Any of these situations constitute the "federal hook" that activates the NEPA process. The agency involved may fulfill NEPA's requirements of a "detailed statement" by preparing an environmental assessment (EA) that results in a "finding of no significant impact" (FONSI) or requires additional review with an EIS. Federal actions like routine maintenance, management, and structural repairs are "Categorically Excluded" (CatEx) from further review and do not require the development of an EA. Most federal projects are classed as CatEx or their review is completed with an EA/FONSI.

If an EA is required, the process could be described as a kind of "mini-EIS." An EA may be prepared by an agency as part of a preliminary analysis to determine if a full-scale EIS is required. An EA must contain (1) a clear and concise description of the proposed action; (2) a detailed description of the environment affected by the proposed action; (3) an assessment of the probable effects of the proposed action; (4) an evaluation of the probable cumulative and long-term environmental effects, both positive and negative; (5) an assessment of the risk of credible potential accidents; (6) a description of the relationship of the proposed action to any applicable federal, state, regional, or local land use plans and policies; and (7) a brief description of reasonable alternatives and their probable environmental effects, one of which is required to be that of not implementing the proposed action, the so-called "no action" alternative.

An EA differs from an EIS in scope, length, and detail; however, an EA also includes procedures for public input and requires substantial agency investments of time, effort, and money. If the agency determines that an EIS is not required, it will then publish a finding of no significant impact, which is a brief document that explains why the proposed action has no significant effect on the environment. The FONSI must describe the action, the alternatives considered, and the environmental effects and the reasons why they are not significant. Individuals or groups unsatisfied with the FONSI, or with the EA in general, can take the agency to court for not preparing a full-scale EIS.

3.2.3.3. Preparation of an Environmental Impact Statement

The NEPA process typically begins when an agency publishes a notice of intent (NOI). The NOI identifies the responsible agency (if an action involves two or more agencies, one is designated the "lead agency" and assumes responsibility for the EIS) and describes the proposed action. Invitations, procedures, dates, times, and locations of public meetings, with availability of related documents, also are listed. Minimally, the NOI will be published in the Federal Register and mailed to individuals who request it, individuals known to be interested in the proposed action, and national organizations expected to be interested in it. The NOI may also be in local newspapers, publicized through local media, and posted on the site to be affected (Murthy 1988).

As a first step in preparing the EIS, the lead agency will assemble an interdisciplinary team of professionals capable of assessing the scientific, social, and economic issues likely to be addressed in the EIS. A team leader coordinates the group's activities to produce the EIS within specified guidelines and deadlines, and assembles comments from other team members, other agencies, experts, and the public.

EIS preparation requires regular contact among the lead agency, other cooperating agencies, and the public. Public-issue identification or "scoping" meetings involve the public early in the process. Scoping is "an early and open process for determining the scope of issues to be addressed and identifying the significant issues related to a proposed

action" (Yost and Rubin 1989). After it is completed, the lead agency prepares an EIS implementation plan (IP) and uses it to produce a draft EIS (DEIS).

The lead agency conducts an internal review of its DEIS and then publishes a "notice of availability" (NOA) in the federal register. Public comment on the DEIS, including comments received at public meetings where the DEIS is presented and explained, is then received, considered, and, if appropriate, incorporated into a revision of the EIS. From this effort, a review draft of a final EIS (FEIS) is prepared, reviewed within the agency, and made available to the public. Considering information presented in the final EIS, the responsible official of the lead agency decides whether to implement the proposed action or one of the alternatives (including the possibility of the "no action" alternative) and publishes the decision in the federal register. This "record of decision" (ROD) like other NEPA-associated documents, is available to the public and other agencies. Anyone who disagrees with the decision has 30 days to file an appeal. If an appeal is granted, the decision may be overturned and the EIS might have to be rewritten.

Policy analyst Richard A. Liroff has provided a key to understanding NEPA's profound effect on national environmental policy by noting that "… NEPA laid the groundwork for a series of procedures whereby environmental considerations could be fed into agency decision-making routines" (Liroff 1976:210). These procedures for environmental assessment radically changed the pattern and process of agency decision making with respect to public lands. Most US states now have their own versions of NEPA. In addition, procedures for public input established by agencies and by US courts in response to NEPA set the example for public input requirements in most subsequent environmental and conservation legislation. More than any other statute, NEPA made environmental review a permanent part of environmental decision making in the US. This change profoundly affected the development of conservation biology because it made conservation issues relevant and legally mandated considerations in all proposed actions on public lands. In addition, NEPA transformed US environmental and conservation policies into arenas for public participation rather than simply expressions of elected representatives. Informed by such participation, the public in general, and scientists as public citizens, began to see clearer connections between conservation science and conservation law, and to use these connections as conservation advocates.

POINTS OF ENGAGEMENT – QUESTION 1

How does the Environmental Impact Statement (EIS) make NEPA a proactive rather than reactive conservation law? How does the EIS shift the "burden of proof" between developers and conservationists?

3.2.3.4. Shortcomings of the National Environmental Policy Act

It has been over 3 decades since NEPA and its grand design for a national environmental policy became law in the United States. Although NEPA has grown in influence, not all of that influence has been positive. With its successes, NEPA also has had negative consequences that its planners did not anticipate.

One of the most foundational tensions in NEPA was that it assumed an ecosystem management approach before there were well-developed concepts and procedures of ecosystem management (Chapter 12). Specifically, NEPA's intent is to provide for functioning, sustainable ecosystems and long-term environmental quality. However, its highest level mechanism, the Environmental Impact Statement, is usually prepared by one administrative unit of a single federal agency, such as the staff of a national forest within the US Forest Service, operating within fixed spatial boundaries, limited jurisdiction, and strong vested interests in particular commodities. NEPA procedures demand that the lead agency identify and inform stakeholders, but its procedures do not truly involve stakeholders as full partners in the decision-making process. The public can express concerns at scoping meetings, through letters, or by direct contact with agency personnel, but the actual preparation of the EIS is solely the responsibility of the agency's interdisciplinary team. Although the public can give additional input after reviewing the draft EIS, such input is strictly one-way communication. The public speaks, the agency listens, but the final EIS remains an internal agency product. As a result, if the public is still dissatisfied with the outcome of the final EIS and the Record of Decision that accompany it, they have little choice but to litigate. The purpose of such litigation is, regrettably, not to improve the EIS or its decision but to show that the EIS is inadequate on professional and scientific merits as a basis for the management decision, and therefore must be thrown out and done over. This approach necessarily forces the agency into the position of defending its own EIS, if only to save the taxpayers money and their personnel more work, and an adversarial climate is created between the agency and the public. Thus, NEPA often has multiplied litigation rather than improved decision making. Faced with the daunting prospect of intense adversarial litigation, resource management agencies have responded by diverting more agency resources and personnel solely to the production of environmental impact statements to make their EIS's "litigation proof." The price for such administrative prudence is high. Money is diverted from field research and management to salaries for specialists in EIS preparation, fees for consultants who collect data solely for documentation in the EIS, and legal expenses for ongoing litigation of EISs under appeal. Agency administrators and scientists spend less time in the field and more time preparing or

defending NEPA documents. Trust between agencies and public diminishes rather than increases. Some policy analysts have argued for new, more creative approaches in the NEPA process. These have included such novel propositions as the "citizen jury," in which members of the public evaluate the EIS and determine the decision by consensus, rather than the agency (Brown and Peterson 1993), or the use of informal advisory groups that would have continuing input to the agency's interdisciplinary team (Sample 1993). However, neither these nor other, even more novel concepts for solving the problems of NEPA have been tested in real cases (Goetz 1997).

Some experts now argue that NEPA will become more effective, and its true intent more manifest, as US resource management agencies mature in their understanding of and commitment to ecosystem management approaches. There is some evidence in individual agencies that, in fact, this is the case, with more recent EISs and decisions, particularly in the Forest Service, reflecting more fully the true intent of NEPA in ecosystem protection and less of simply following the rules of an administrative procedure (Goetz 1997). NEPA and the EIS have unquestionably shaped the landscape of US policy and administration in ways that profoundly affect the perception and practice of conservation biology. But whether NEPA will ripen to bear the fruit of its full intent depends largely on whether agency and public interests mature into working relationships for conservation or remain conflicts of litigation and mistrust between adversaries.

3.2.4. The US Endangered Species Act

3.2.4.1. Historical Origins and Content

The Endangered Species Act (ESA) has been called the "strongest and most comprehensive species conservation strategy" in the world (Rohlf 1995). The ESA affirms the value of biodiversity, and actions authorized under the ESA have contributed to the persistence of many endangered species, and even the complete recovery of a few, such as the bald eagle. As of July 2007, 1,352 native species (746 plants and 606 animals) had been listed (US Fish and Wildlife Service 2007), The endangered species act might be the world's most admired piece of conservation legislation, but it is also one of the most controversial. No other conservation statute has so influenced the development of conservation biology or engendered so much enduring hostility and withering criticism.

First passed in 1966 as the Endangered Species Preservation Act, the original law was adopted with little controversy or fanfare, and little power. It limited protection to vertebrates native to the US, provided authority for only modest land acquisition for habitat, focused on populations in existing wildlife refuges, created no new programs or legal power and was so vague as to be meaningless. Its immediate successor, the Endangered Species Conservation Act of 1969, was not much better, although it broadened the definition of "fish and wildlife" to include invertebrates and prohibited the importation of endangered foreign species except for scientific purposes (Nash 1989; Smith 1992). These legally-toothless statues were rewritten in 1972 by E. U. Curtis Bohlen, then Undersecretary of the US Department of Interior, in ways that profoundly changed the legal landscape of conservation in the United States. Bohlen's contribution was essentially a new law rather than simply a revision of the former statutes. The new version expanded the jurisdiction of the ESA from vertebrates to most plant and animal species. The 1973 ESA legally defined a "species" as "any subspecies of fish or wildlife or plants, and any distinct population segment of any species or vertebrate fish or wildlife which interbreeds when mature." Although this definition is not scientifically or intellectually satisfying (it assumes an understanding of the very concept it is attempting to define), it is comprehensive in specifying an enormous array of organisms eligible for protection. Bohlen's rewritten ESA also created a new category for legal protection called "threatened species," and even allowed the listing of species that were threatened only in a portion of their range. The 1973 ESA also introduced the concept of "designated critical habitat" into environmental law, creating the legal provisions that require not only the protection of the species, but also the land or water in which it lives. The 1973 ESA gave primary authority for enforcement of the ESA to the Department of Interior's US Fish and Wildlife Service (FWS) for cases involving terrestrial and freshwater species and to the National Marine Fisheries Service of the Department of Commerce for marine species. FWS also has authority to identify and purchase such critical habitat, and to stop activities on such habitat that threatened the species, even if the habitat was privately owned. The ESA also offers incentive for the federal government to initiate cooperation with state programs as well as to cooperate fully with existing state programs to protect species (Section 6). For example, the Act states explicitly that the Secretary of the Interior shall "cooperate to the maximum extent practical with the States," may enter into management agreements "with any State for the administration and management of any area established for the conservation of endangered species or threatened species," and that the Secretary is authorized to "enter into a cooperative agreement … with any State which establishes and maintains an adequate and active program for the conservation of endangered species and threatened species." In fact, the ESA actually helped to stimulate the kind of federal-state cooperation it envisioned by its very existence because, after its passage, many states passed state endangered species laws modeled on the ESA.

It was Bohlen's skill and political savvy in rewriting the Endangered Species Act that changed a formerly obscure statute into what Donald Barry, a former vice president of the World Wildlife Fund, called "the pit bull of environmental laws.… It is short, compact, and has a hell of a set of teeth. Because of its teeth, the act can force people to make the kind of tough political decisions they wouldn't normally make" (quoted in Rosenbaum 1995:334). The 1973 Endangered Species Act passed both houses of Congress with near-unanimous support.

The ESA gives the FWS responsibility for identifying endangered species and proposing these species for protection through the "listing" process (Figure 3.1). However, actual listing is normally accomplished through interagency consultation, as specified in the ESA's Section 7, because the ESA authorizes *all* federal agencies to "utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species …". The ESA, like NEPA, also provides for review of actions carried out by agencies to ensure that their actions do not "jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of the habitat of such species …".

In assessing such actions the Act defines an "endangered" species as one that is "in danger of extinction throughout all or a significant portion of its range." A "threatened" species "is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." In managing an endangered or threatened species, the FWS also must define ***critical habitat*** – (habitat of special significance to the species' survival; Bean et al. 1991) and develop a recovery plan that will restore the species to secure population levels. The ESA also provided explicitly for public participation in the listing process. Any citizen or private citizen's group may petition the Secretary of the Interior to add a species to the endangered species, list, and the Secretary must respond with a determination for or against the petition (in the words of the Act, "warranted" or "unwarranted") within 90 days after it has been filed. Given its broad powers and uncompromising standards, the ESA was in many ways too comprehensive and too rigid to go unchallenged indefinitely. The most famous such challenge began in 1978. In *Tennessee Valley Authority v. Hill*, the Supreme Court ruled that the Tellico Dam on the Little Tennessee River could not be completed because the dam would destroy the habitat of an endangered fish, the snail darter (*Percina tanasi*) (Figure 3.2). Although environmentalists won the battle in court, their victory cost them the war in congressional backlash at what many representatives now perceived as an act that was too restrictive and insensitive to human need. Within a year, Congress had amended the ESA to create a committee that could waive the law's regulations under special economic conditions. Although officially called the Endangered Species Committee, this group soon became known as the "God Squad" because of its power to revoke the ESA's protection for selected species. The Committee ruled in favor of the fish, but Congress responded by excluding the snail darter from protection under the ESA. As for the obscure species that caused all the trouble, snail darter populations were transplanted and established in other streams, and the Tellico Dam was completed.

The FWS is prohibited from considering economic effects in decisions regarding the listing of a species,

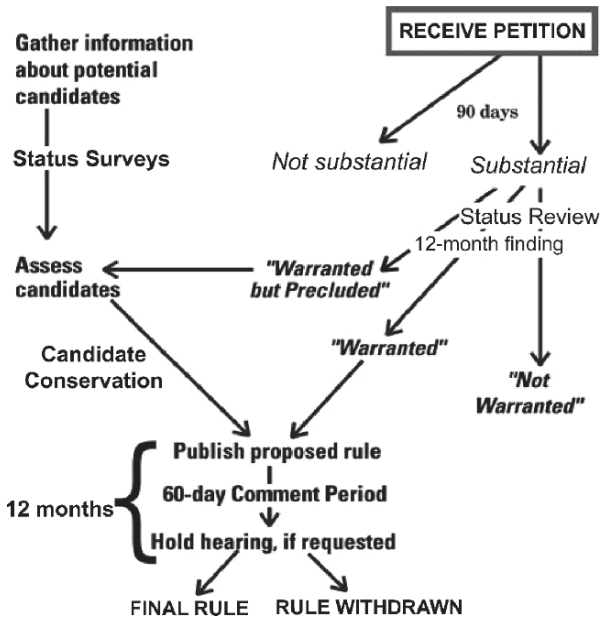

FIGURE 3.1. The process through which a species becomes "listed" as Endangered under the provisions of the US Endangered Species Act. (Diagram courtesy of US Fish and Wildlife Service.)

FIGURE 3.2. The snail darter (*Percina tanasi*), a fish that delayed the construction of the multimillion dollar Tellico Dam on the upper Tennessee River, USA, by virtue of its protection under the US Endangered Species Act. (Photo courtesy of US Fish and Wildlife Service.)

but amendments to the ESA added the requirement that the FWS conduct an economic analysis of the effects of designating critical habitat. Because such designation usually involves the suspension of other activities in the area, including economically profitable ones, the amended ESA includes an "exclusion process" through which all or part of the critical habitat may be excluded from protection if the economic analysis determines that the cost of protection poses too great a hardship in economic or other forms of loss. As in NEPA, a public comment period is provided to allow interested parties to provide information that can be included in the analysis (Berrens et al. 1998).

Post-1973 amendments made the ESA more flexible in resolving conflicts, but also, in the eyes of many conservationists, weakened and betrayed the Act's original intent to preserve endangered species regardless of economic cost (Nash 1989). Nevertheless the ESA remains armed with formidable provisions to protect listed species and is a cornerstone of biological conservation.

The process of designating critical habitat is the most frequent source of conflict between the federal government's interest in protecting endangered species and the interests of private landowners. Although the ESA provides for "informed consultation" between the federal government and landowners to determine a mutually satisfactory plan to protect the species without undue infringement of personal property rights (Section 7), private landowners have not always been satisfied with the outcome. In fact, many private landowners assert that the ESA prohibits them from deciding how to use their own land and violates fundamental rights associated with private property. Critics claim that the ESA's punitive approach to dealing with landowners who violate the Act's provisions when endangered or threatened species are found on their land is its biggest weakness because the threat of punishment often promotes landowner behavior that is harmful to the protected species. As Myron Ebell, a property-rights advocate, has said, "… if there is an endangered species on your land, the last thing in the world you want to do is provide habitat for it" (Cooper 1999). To reduce landowner-government conflicts, one recent strategy employed by the federal government is the ***habitat conservation plan*** (HCP). To better understand the need for and development of HCPs, we look to the problems associated with the protection of a particular species, the red-cockaded woodpecker (*Picoides borealis*).

3.2.4.2. The Endangered Species Act and Landowner Conflicts: The Case of the Red-Cockaded Woodpecker

The red-cockaded woodpecker (Figure 3.3) inhabits the southeastern United States where it usually lives in stands of mature longleaf pine woodlands. The woodpecker prefers open forests with minimal understory, a condition that can be maintained only by recurrent fires and active understory management. During the mid-1900s, the red-cockaded woodpecker had declined in abundance to fragmented populations of only a few to several hundred individuals, with a total population of less than 15,000 birds.

FIGURE 3.3. The red-cockaded woodpecker (*Picoides borealis)*, an endangered species that has been the subject of intense management through habitat conservation plans. (Photo courtesy of US Fish and Wildlife Service.)

Most of the historical habitat for the woodpecker is on privately owned land. Landowners typically fear the federal regulations that would be imposed on their land and their use of it if red-cockaded woodpeckers were discovered on their property. As a result, landowners often manage their land to make it unattractive to the woodpeckers by harvesting pines before they reach old-growth stages, replacing longleaf pine with shortleaf pine, suppressing fires, and letting the understory grow. For example, in the town of Boiling Spring Lakes, North Carolina, red-cockaded woodpeckers were beginning to move back into an area of longleaf pine woodland that was being reviewed by the Fish and Wildlife Service as designation for critical

habitat. During the injunction period, many of the individual trees that had been identified as "candidate trees" for red-cockaded woodpecker nesting mysteriously disappeared (Rawlins 2006).

Actions like those in Boiling Spring Lakes arise from rational economic behavior and from the landowners' fear of the ESA's prohibition against the "taking" of any endangered species. Historically, ***taking*** meant hunting, fishing, collecting, or trapping a creature to kill it or bring it into personal possession. The ESA's definition of *taking* is much broader. In the ESA, *taking* includes any act that harms or harasses the protected creature in any way, intentional or not. Thus, as Bean et al. (1991) note in their analysis of landowners' conflicts with the ESA, "a landowner whose bulldozers crush the larvae of an endangered butterfly on his land commits just as much of a taking as a hunter who deliberately shoots a bald eagle."

This view of "taking" has significant implications for landowners. If a landowner inadvertently harms a member of the endangered species through normal land-use activities such as farming, logging, or development, criminal prosecution can result. It is this discouraging prospect that leads many landowners to deliberately alter habitat on their land. If an endangered species does inhabit their property, private landowners may resort to the strategy of the Three S's – "shoot, shovel, and shut up." The long-term effect of the resulting behavior is a reduction in available habitat for already endangered animals. This example of the red-cockaded woodpecker demonstrates how even legislation designed to protect endangered species can have unintended adverse consequences if it fails to consider the interests of private landowners.

3.2.4.3. San Bruno Mountain and the Evolution of Habitat Conservation Planning

Struggles arising from conflicts of interest between private individuals and conservation efforts have repeatedly caused what former US Interior Secretary Bruce Babbitt has called "environmental train wrecks" (Kaiser 1997). Conflicts of this sort have occurred because early versions of the ESA did not define the concept of critical habitat well and did little to develop the idea of saving species through preserving habitats (Noss et al. 1997). The ESA did prohibit destruction of the habitat of endangered species, but in practice this has been difficult to enforce (Bean et al. 1991) and even overruled in court (Noss et al. 1997). To prevent continued loss of habitat for endangered species and reduce conflicts with private landowners the Clinton administration increasingly resorted to a mechanism known as the habitat conservation plan (HCP).

HCPs arose out of a 1982 amendment to the ESA that allowed the issuance of "incidental take" permits for endangered species. ***Incidental take*** was defined as take that is "incidental to, and not the purpose of, carrying out an otherwise lawful activity." To be granted such a take permit, the applicant, whether corporate or individual, must first prepare and submit a conservation plan. The plan must explain what the effects of the taking will be on the endangered species, how the effects will be mitigated, and how the species will benefit. Now called habitat conservation planning, this procedure was patterned after the resolution of an environmental/economic conflict over the proposed development of San Bruno Mountain near San Francisco, California.

San Bruno Mountain, attractive as a site for upper-class residential and commercial development, also represented some of the last undisturbed mountain habitat in the San Francisco Bay area and was the home of two endangered species of butterflies (Lehman 1995). Rather than resorting to litigation, the parties involved in the controversy devised a series of agreements that allowed for development of one-fifth of the mountain, but protected the remaining 80%, and 90% of the butterflies' habitat.

Congress was so impressed with the San Bruno example that it codified it in a 1982 ESA amendment so that HCPs would "encourage creative partnerships between public and private sectors and among government agencies in the interests of species and habitat conservation" (Lehman 1995). The process was intended to foster resolution through negotiation, compromise, and recognition of the interests of all participants.

Supporters of HCPs maintain that this approach involves all vested interests and focuses on protecting the highest-quality and most productive habitats (Lehman 1995). Critics claim that the plans have inadequate scientific guidance, permit landowners to destroy habitat later if they enhance it initially (Kaiser 1997), provide few or no opportunities for public participation in formulating the plans, and have ineffective management provisions and poor oversight of plan implementation (O'Connell 1997). Furthermore, most HCPs are for single areas, species, and landowners and critics argue that this approach is overly narrow, restricted, and fragmented (O'Connell 1997).

Despite these criticisms, officials in the Clinton administration continued to work to make HCPs more attractive to landowners. In 1994, the US Department of Interior and the Department of Commerce issued a new policy entitled "No Surprises: Assuring Certainty for Private Landowners in Endangered Species Act Conservation Planning." This revision, known as the "No-Surprises" policy, requires the responsible federal agency to provide landowners with assurances that they are not responsible for species protection if unforeseen circumstances arise (Walley 1996; Schilling 1997). Under this policy, after an HCP is approved, federal agencies cannot require any additional mitigation measures from a landowner to conserve an endangered species unless the agencies demonstrate "extraordinary circumstances" that warrant increased protection.

The no-surprises policy was intended to increase landowner cooperation and make the protection of endangered species more effective, but critics were quick to attack it. One hundred sixty-four scientists, including many of the world's leading conservation biologists, wrote letters protesting the policy to members of the US House Committee on Resources (Walley 1996). Their greatest concern was that there will be many surprises, rather than no surprises, in conservation planning. Because uncertainty and change are intrinsic to ecological systems, the policy unreasonably and unfairly restricts the ability of agencies to change conservation plans and adapt to changing conditions. The policy also has been criticized because it guarantees no surprises to the landowner as an inherent right, rather than as a privilege earned through proper conservation planning. According to the policy, the no-surprises assurance must be given to all landowners whether or not they make conservation commitments (Walley 1996).

Criticisms of the increased emphasis on HCPs have led to increased scrutiny of individual plans by conservation biologists. A comprehensive review of 44 HCPs, covering a range of land areas, locations, and landowner categories, gave mostly favorable reviews to the HCPs examined (Mann and Plummer 1997). Most of the plans were judged to have reliably determined the health of the species' population before being implemented. About half were judged to have made a reasonable prediction about the harm the landowners would cause species, and to have correctly determined the key threats to the species (Mann and Plummer 1997). Although the overall review was favorable, there were problems. Most plans did not do a good job determining how the HCP would affect species viability (not just the local population), provide for monitoring, or include basic natural-history data on species affected (Mann and Plummer 1997).

Limitations of HCPs have led to attempts to improve this approach. Increasingly, HCPs are supplemented with "no-take" management plans implemented via memoranda of agreement (MOA) and so-called ***safe harbor*** cooperative agreements (Costa 1997). MOA are agreements between a federal agency (usually the FWS) and a corporate landowner outlining conservation actions that the landowner can take to meet or exceed requirements of the ESA for habitat protection. For example, landowners can satisfy their ESA obligations by monitoring populations, managing and retaining current and future nesting habitat, producing and maintaining foraging habitat, conducting cooperative research, education and outreach, and letting the managed population provide donors for other populations (Costa 1997). One of the first agreements was signed in 1992 by the Georgia-Pacific Corporation (a lumber company) and the FWS to preserve habitat for the previously discussed red-cockaded woodpecker. By 1997, this MOA was protecting more than 66,000 acres of forest for the woodpecker (Costa 1997).

Safe harbor agreements are contracts under which a landowner agrees to actively maintain suitable habitat ("safe harbor") for a predetermined number of a species equal to the number present on the site when the agreement was formulated. In return, the landowner receives an incidental take permit that authorizes future land-use changes or management on other parts of the site that may be occupied by additional individuals of the endangered species. The major benefit of the safe harbor agreement is that it provides direct habitat improvement and maintenance for all the individuals or population subunits that are enrolled in the original conservation agreement. Once again, the first example of the use of a safe harbor agreement was for protection of the red-cockaded woodpecker. An initial agreement in 1995 in the Sandhills Region of south-central North Carolina succeeded in enrolling 24 landowners and more than 21,000 acres of habitat to be actively managed for the woodpecker. This acreage originally supported 46 woodpecker groups, but is estimated to be able to support up to 107 groups (Costa 1997). The agreement was endorsed by the landowners because it is based on initial numbers of woodpeckers present on a landowner's property at the time of enrollment. The landowner agrees to manage and monitor the habitat to maintain those numbers, but additional woodpeckers moving onto the property may be "taken."

Despite their imperfections, conservation approaches like HCPs, MOA, and safe harbor agreements acknowledge fundamental truths about the future of conservation. First, habitats must be conserved if species are to be conserved, and secondly, habitat and species conservation cannot be successful in the long run if they are restricted entirely to public land or to private reserves established by conservation organizations. Habitat and species conservation can be successful in a landscape context only if private landowners are involved and motivated partners. These realities reveal that efforts of greater landscape scale are needed to preserve populations and their habitats. It is far easier and more cost effective to protect intact ecosystems and the species they contain than to initiate emergency measures for critically endangered populations on degraded habitat.

POINTS OF ENGAGEMENT – QUESTION 2

Is it reasonable to expect "no surprises" in a conservation plan? If not, what could a responsible federal agency do to make the possibility of "surprises" acceptable to a landowner in negotiating a habitat conservation plan?

3.2.4.4. Criticisms of the Endangered Species Act

Beyond criticisms of habitat conservation plans, the ESA itself faced mounting criticism in the 1990s. Complaints from private business and development interests are

chronic and predictable, but the ESA also has been increasingly subjected to substantive criticisms from conservation biologists. Many biologists have argued that instead of focusing on individual species, a more appropriate conservation goal is conservation of overall biodiversity and the management and protection of critical habitats and ecosystems (Rohlf 1991). Such critics contend that a narrow, single-species approach is slow, unwieldy, ignorant of the dynamics of real ecosystems, and wasteful of resources and efforts that could benefit multiple populations in the same habitat or ecosystem (Flather et al. 1998). One constructive response to this criticism is habitat- and regional-level analysis of endangered species' distributions, and development of strategies to promote the recovery of multiple species in the same habitat or region (Flather et al. 1998). Other biologically-based criticisms of the ESA include complaints that the law lacks defined thresholds to delineate endangered, threatened, and recovered species; that it does not adequately protect patchily distributed populations ("metapopulations"); that it does not protect habitat reserves sufficiently to sustain recovered populations; and that uncertain or long-term threats to endangered populations are discounted (Rohlf 1991).

Perhaps the most substantive biological criticism of the ESA is that it is reactive rather than proactive, responding only to the needs of species on the brink of extinction (Karr 1995). The reactive nature of the ESA also corrupts the listing process. Although listing is primarily the responsibility of the FWS and the National Marine Fisheries Service, many recent listings have been the products of lawsuits from environmental groups against the FWS over the failure to list particular species. Lawsuits are expensive to combat, and drain money in the endangered species program budget that was intended to acquire habitat and monitor endangered populations. In 2000, the FWS spent its entire budget for the listing and recovery of endangered species on legal fees. Thus, in 2001 the Bush administration proposed new regulations that would have severely limited, for 1 year, the power of environmental groups to bring lawsuits against the FWS over endangered species. That proposal ignited new criticism that the administration was attempting to squash efforts to protect endangered species.

The ESA also has been criticized for alleged ineffectiveness. In its 2003–2004 report to the US Congress, the US Fish and Wildlife Service could name only 35 delistings of species since the Act's inception. Of these, only 12 were due to actual recovery. Fourteen species were delisted because of new information, taxonomic revision, or administrative reasons, and nine were delisted because they became extinct under the Act's "protection" (U S Fish and Wildlife Service 2004), resulting in a net final score of only +3 in terms of recoveries to extinctions.

Despite the ESA's shortcomings, it is difficult even for critics to imagine what sort of legislation could replace or improve upon its fundamental legislative virtues. More than any other statute, the ESA affirms that species have intrinsic value, and US courts have interpreted the ESA to give protection to any species listed as "endangered" by the ESA regardless of the economic cost of protection (Rohlf 1995). The ESA also clearly and explicitly extends legal rights to non-human species (Karr 1995). The US environmental historian Joseph Petulla described the ESA as one of the most remarkable, radical, and original laws ever passed because, through its protection, "a listed non-human resident of the United States is guaranteed, in a special sense, life and liberty" (Petulla 1977). Overall, the ESA has performed well at the functional level, and there is general agreement that fewer extinctions have occurred under the ESA than would have without it (Committee on Scientific Issues in the Endangered Species Act 1995).

Besieged by controversy, fraught with limitations, and plagued by well-publicized failures, the ESA nevertheless has been instrumental in preserving many species, albeit often at small population sizes. The ESA has operated in the courts more efficiently than many other legal attempts to preserve biodiversity because it contains easily defined concepts and goals. In particular, the "species" concept, the cornerstone of the ESA's validity, has proved more definable and defensible in legal circles than have concepts such as "biodiversity," "habitat," or "ecosystem" (Karr 1995). Perhaps most importantly, the ESA remains an important legislative model for efforts to save species worldwide.

3.2.5. Water as an Inalienable Reserve – South Africa and Australia Establish Radical Categories for Conservation Law

Democratically elected governments derive much of their authority and legitimacy from the view that such governments hold certain rights and entitlements in trust for the people and are therefore obligated to protect those rights for the common good. This is known in the legal community as the doctrine of ***public trust***, which can be traced to the Roman Emperor Justinian, who, in AD 533, assembled all of Roman law in a single work, the Institutes of Justinian. Among these, he included this principle, quoted at the head of this chapter, "By the law of nature, these things are common to mankind – the air, running water, the sea, and consequently the shores of the sea" (Justinian 1997:167). This doctrine of the public trust, which has become one of the most important foundations of national environmental laws throughout the world, is perhaps nowhere more important than in the management and conservation of freshwater resources and the aquatic habitats that depend upon them. Drawing on this principle, the Republic of South Africa has established a radical conservation concept, the water allocation principle known as the "Reserve" in their National Water Act of 1998. Established by this law, the Reserve concept controls water allocation

according to two principles. First, the government shall maintain a "lifeline" allocation of water sufficient to meet the basic needs of South Africans for drinking, cooking, sanitation, and other essential and personal purposes. Second, the government shall maintain an allocation of water sufficient to support ecosystem functions (aquatic and otherwise) in order to preserve native biodiversity and secure for the common good the services provided by such functions. These allocations have priority over all other uses (Postel and Richter 2003).

At first glance, such a law hardly looks like a controversial or radical endorsement of conservation. Shouldn't everyone have water for drinking and washing, and shouldn't we expect that the government will ensure that the streams and lakes will have fish and the wetlands will have frogs and toads? In fact, however, most western governments, including most European countries and the United States, make no such constitutional guarantees, and water demands of agriculture and industry often diminish allocations to individuals and for ecosystem functions. In South Africa, the Reserve concept forces all other uses of water into secondary, non-essential categories, such that any requested use of water that is not for personal sustenance and health or that is not directly related to preserving ecosystem function must be approved and licensed by the government. We can see the outcomes and implications of this concept emerge as we look at them systematically in Table 3.1. It is fair to say that, for the conservation of freshwater aquatic habitats, the Reserve concept changes everything. The concept was so compelling that the World Conservation Union (IUCN) adopted it in principle for its master plan of water and aquatic habitat conservation for the twenty-first century, Vision for Water and Nature: A World Strategy for Conservation and Sustainable Management of Water Resources in the Twenty-first Century (IUCN 2000). And the idea is spreading.

It is not surprising that a new view of water conservation law should arise in a country like South Africa, a dry land where water is a precious commodity. Similarly, in Australia, the driest inhabited continent on Earth, another new concept for water conservation has emerged in the Council of Australian Governments Water Reform Framework of 1994, which calls for sustainability in water use and protection for freshwater ecosystems. Such a legal perspective has stimulated the development of a "cap" on water allocations in one of Australia's largest and most well-known river systems, the Murray-Darling Basin, in which a limit has been placed on water allocations to create a flow regime designed to protect the river's health. Environmental policy analysts Sandra Postel and Brian Richter also note that the Murray-Darling cap is a way to guard against "the 'tyranny of small decisions,' – the large cumulative impact caused by numerous small river diversions or hydrologic alterations that individually would not raise much concern.… To our knowledge, the [Murray-Darling] cap is the only serious attempt in the world … to limit extractions from a large multi-state river basin that is already oversubscribed" (Postel and Richter 2003:92). The "oversubscribed" condition is telling, and most experts, while commending the intent, are convinced that the present cap limiting allocations still allows too much withdrawal to restore the full ecosystem functioning of the Murray-Darling system. But it is a beginning.

Although the US has no constitutional concept of a water "Reserve" like the Republic of South Africa, it does have a well-established legal precedent of "reserved water rights" for federally reserved lands. The concept of reserved water rights arose with regard to a case, *Winters v. United States*, involving a dispute between private water users and two Indian tribes on a reservation in Montana in 1908, with the tribes claiming that private users outside the reservation were not leaving enough water for use on the reservation. In this case, the US Supreme Court ruled

Table 3.1. Water allocations and their implications under South Africa's National Water Act.

Water Allocation	Purpose of Water		End Objective	Mode of Allocation
Water for Basic Human Needs	To support basic human needs (i.e., drinking water, cooking, and sanitation)		Meet human survival needs	Nonnegotiable
Water for the Ecological Reserve	To sustain a certain state of the ecosystem associated with a specific range of goods and services (e.g. subsistence fishing and recreation)	Use of goods and services support a range of benefits	Social and economic growth and well-being	Negotiated through ongoing stakeholder dialogue and consensus around trade-offs
Water for Licensed Use	To support activities that rely on water as applied outside of the ecosystem (e.g., irrigation)	Activities lead to a range of benefits	Social and economic growth and well-being	Negotiated through ongoing stakeholder dialogue and consensus around trade-offs

Source: Postel and Richter (2003). From *Rivers for Life*. Copyright 2003 by Island Press. Reproduced by permission of Island Press, Washington, DC.

that in establishing the reservation, the US government had "impliedly" reserved for the tribes enough water to carry out the purposes for which the reservation was created. The precedent set in *Winter* has been more recently extended to any federal land reservations, not just Indian land. US law now recognizes that any federally reserved land can claim reserved water rights to the extent those rights are necessary to carry out the purposes for which the reservation was established, and the priority date for rights is not from when rights are first claimed, but from the date the reservation was established. This means that entities like national parks, forests, and wildlife refuges could, in theory, claim rights to water to the extent necessary to carry out the purpose for which their reservation was created. Unfortunately for conservation interests, this right is rarely asserted, and, when asserted, the agency representing the reservation has rarely won in court (Postel and Richter 2003).

3.3. International Conservation Law: Concept and Development

3.3.1. General Considerations

Today conservation is an international effort involving all modern nation states to varying degrees. Although modern international conservation law does, in some cases, implicitly recognize the intrinsic value of the species and habitats it preserves, it is primarily driven by the utilitarian interests we have already noted, and by the equalization of risks, usually in the form of increased mutual international interdependence and increased concern for transgenerational equity, a concept which we will examine later in more detail. Modern efforts in international conservation law arise from one or more of the following sources: (1) bilateral or multilateral treaties among nations, (2) binding acts of international organizations, (3) rules of customary international law, and (4) judgments of an international court or tribunal (Sands 1999:122). As we analyze the development of international and national conservation law in the following examples, observe how these frameworks of conservation law are employed.

3.3.2. A Forum for Cooperation and Legal Foundation – The United Nations and Its Environmental Programs

3.3.2.1. Background and Context

Today the agents that broker international conservation initiative and multinational agreements are the United Nations (UN) and, within the UN, its Environmental Programme (UNEP). Largely through the impetus of UNEP and other UN environmental programs, modern nation-states have entered into over 250 treaties, conventions, and agreements focusing on international conservation during the last 30 years, and today over 1,000 international legal instruments, most of them binding, contain at least one section or provision that addresses environmental conservation. In addition to stimulating the formation of new regional international organizations and encouraging their work in conservation legislation, UNEP and other UN programs, by specifying international conservation priorities, often have directly stimulated the development of international conservation agreements among nations in the same region, serving as a catalyst for more coordinated regional action for environmental conservation. For example, since the Stockholm Conference of 1972, the European Union (EU) has enacted more than 200 items of environmental legislation that govern the western European community. Similarly, the international attention, communication, and cooperation provided by the UN and its program have inspired the development of a multitude of regional multilaterial organizations, many of which have been instrumental in developing regional international treaties for conservation. Perhaps the most advanced of these has been the European Union (EU), which legal scholar Joseph DiMento described as "unmatched as a manifestation of international law in both its substantive and procedural content" (DiMento 2003:26). In fact, the Amsterdam Treaty of the EU requires that environmental protection be integrated into all EU policies and activities (Vig and Axelrod 1999:16).

Perhaps the UN's greatest initial contribution to the world conservation effort has been that it provided a forum for the discussion of international conservation issues and a general means to permit adoption of international conservation agreements. However, for the first 2 decades of its existence, such efforts were often *ad hoc* and largely uncoordinated. A turning point in international conservation came in 1972, with the convening of the United Nations Conference on the Global Environment in Stockholm, Sweden, better known as the Stockholm Conference.

3.3.2.2. Stockholm: The Beginnings of Modern International Conservation Law

Most legal scholars today mark the beginnings of coordinated international environmental and conservation law with the convening of the Stockholm Conference of 1972 (DiMento 2003:18). The expressed purpose of the Stockholm Conference was to provide a framework within which the UN could comprehensively assess the problems of the human environment and place the focus of national governments and the public on such problems. Its most significant achievement was the production of the Declaration on the Human Environment, a document

containing 26 principles and 109 recommendations related to environmental protection and conservation. Perhaps even more importantly, it was at Stockholm that the UN created its first specifically environmental agency, the aforementioned United Nations Environmental Programme. UNEP was charged with the responsibility for creating both new international conventions to foster conservation and protect the environment, as well as the responsibility for their enforcement.

The Stockholm Conference was significant in that the United Nations became involved in world conservation in comprehensive and systematic ways, something it had rarely done before. UNEP made environmental concerns and programs a permanent fixture of the United Nations agenda. For the first time, a global institution created a series of global programs designed to address environmental and conservation concerns.

The creation of UNEP had an almost immediate impact on world conservation. In 1973, just 1 year after Stockholm, UNEP's Governing Board declared regional seas to be an important conservation priority. This emphasis lead directly to the development the Barcelona Convention of 1976 for the Protection of the Mediterranean Sea Against Pollution, an agreement developed by Mediterranean nations that sought to reduce pollution and preserve native Mediterranean Sea species (DiMento 2003:28). The Barcelona Convention provided the incentive and model for regional environmental and conservation treaties that would follow during the next 30 years, with regional treaties developed for most of the world's oceans from 1972 to 1986. By 1988, more than 100 nations and 50 international organizations were cooperating in regional seas programs (Sand 1988) and the number has continued to increase. In addition to regional conventions and protocols, the 1982 Montego Bay Convention, developed in association with the Third United Nations Conference on the Law of the Sea, addressed major issues of ocean conservation on a worldwide basis. As such conventions have developed, the most important trend has been a shift from use-oriented to resource-oriented approaches. The use-oriented approach emphasized navigation and fishing. The resource-oriented approach emphasizes sustainable development and harvest of ocean resources, focusing on defining and enforcing standards of "protection," "conservation," "management," and "development" (Sand 1988).

Although the programs, treaties, and conventions that grew out of the Stockholm Conference were critical to world conservation, most did not deal directly with the problems of endangered species or the preservation of world biodiversity. The most important international agreement on this issue, The Convention on International Trade in Endangered Species of Wild Flora and Fauna of 1973 (CITES), grew out of the combined efforts of the International Union for the Conservation of Nature (IUCN), and UNEP.

3.3.2.3. Protection of Endangered Species: The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

The Convention on International Trade in Endangered Species of Wild Fauna and Flora of 1973 (CITES) is arguably the most important international conservation agreement operating today, because it specifically regulates or prohibits commercial trade in globally endangered species or their products. Although the United States had passed an Endangered Species Act in 1966, the concept, much less protection, of endangered species was still largely unknown as an issue of international relations and global politics before 1970.

In 1950, supported by great encouragement and a tiny grant (US$2,500) from the United Nations Educational, Scientific, and Cultural Organization (UNESCO), IUCN began a program it called the Survival Service, a unit within the organization that began making lists and short status reports of endangered and threatened species worldwide (Chapter 1). These reports, which by the 1960s were becoming published as the now famous "Red Data Books," ultimately became the most important source and most respected authority for identifying the world's endangered species and their status (www.iucnredlist.org). Using relatively simple decision rules as criteria, the Red List categorizes species according to their relative endangerment (Figure 3.4). By drawing the attention of the international community to the plight of endangered species, IUCN's reports began to spur debate in the UN. As early as 1963, the directors of UNEP called for "an international Convention on regulations of export, transit, and import of rare or threatened wildlife species or their skins or trophies" (Holdgate 1999:114). Various drafts circulated from 1964 to 1972, but none could bring consensus. Finally, in 1973, an intergovernmental negotiating conference was convened in Washington, DC. A formal agreement was reached, and a text of CITES was prepared and circulated in three languages (Holdgate 1999:115).

From this point, support for CITES built steadily, and the Convention went into force in 1975. Although a great achievement in international negotiation, CITES is an imperfect document, achieving much of its consensus by being deliberately vague on its most important points. There has always been disagreement, fueled in part by the treaty's own ambiguous language, as to whether CITES is an instrument for wildlife protection or a means to regulate wildlife trade. CITES does not protect all wildlife, but only "tradable" wildlife and wildlife products that are bought or sold in transactions involving two or more countries. In fact, the heart of the CITES treaty is found not in the main body of the document, but in three appendices that list categories of species regulated under the terms of the treaty. Appendix I lists species that are endangered and vulnerable to existing or

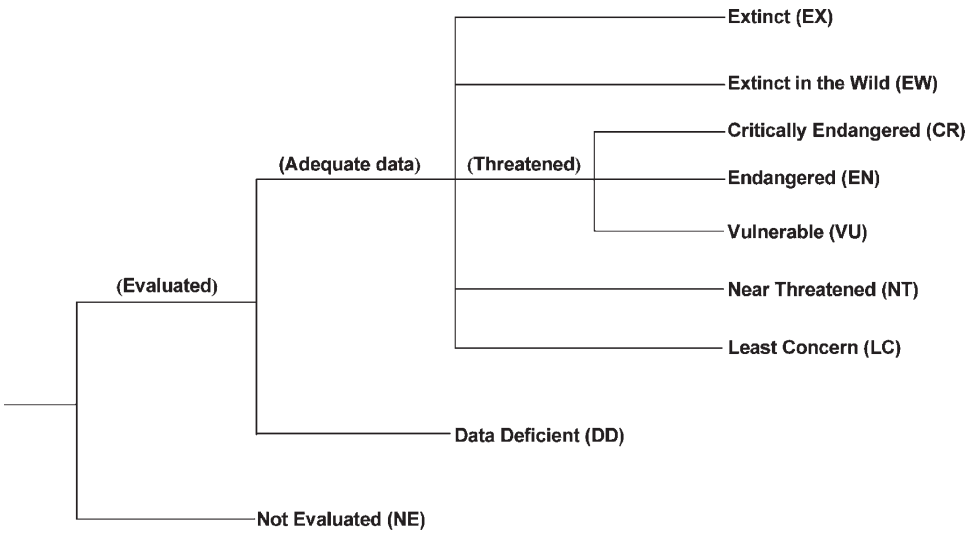

FIGURE 3.4. Categorization of species under the IUCN Red List. Using a set of decision rules as a classification algorithm, the IUCN assigns a categorical status to Red List species intended to reflect their risk of endangerment. (Courtesy of John Kidd, IUCN.)

potential trade. Commercial trade in Appendix I species is prohibited, and permits from both the importing and exporting country must be obtained even for non-commercial transport. Appendix II species are those that either could be threatened by large volumes of trade or that cannot be distinguished from a threatened species. Trade involving species in these categories requires a permit from the exporting country. Appendix III species are not globally endangered, but may be listed at the initiative of an individual state seeking international cooperation for that species' protection. In Appendix III species, nations are asked not to permit importation of the species without an export permit from the listing country. Parties to the treaty meet every 2 years to make amendments to the appendices and develop new species and animal products' lists and identification manuals to improve enforcement (Slocombe 1989).

CITES has proved to be an evolving document, and amendments to original provisions are not uncommon, reflecting changes in perceptions among delegates about the best way to achieve conservation of wildlife. Originally a treaty that equated conservation with strict protectionism in international trade, more recent meetings of CITES participants have shown a growing tendency to permit some trade in formerly protected species if it can be shown that such trade actually enhances their conservation. Thus, attempts to apply CITES to specific conservation dilemmas often have proved problematic. For example, in November 1994 CITES delegates agreed to allow trade in live southern white rhinos from the Republic of South Africa, an action based primarily on the success of rhino conservation programs in that country that had restored a population of 20 individuals (all that remained in the country by 1920) to about 6,300, the largest national population in Africa (Kelso 1995). Sales of white rhino are actually expected to improve the status of the species in South Africa because proceeds would be spent on further rhino conservation efforts. The rhinos that are sold to other governments were expected to aid in restoring rhino populations currently in decline in other countries.

The same meeting also repealed the 1987 mandate to destroy existing stockpiles of rhino horns, previously sold on the world market as raw material for medicines, aphrodisiacs and, in some Middle Eastern countries, as handles for ceremonial daggers. Although the original mandate was justified as a means to eliminate incentives for national governments to trade in rhino horn products and thus discourage poaching, more recent delegate opinion was that destruction of stockpiles would cause the price of rhino horn to increase, escalating poaching pressure (Kelso 1995). Governments now have been asked to "identify, mark, and secure" their rhino horns in national stockpiles that have, ironically, grown because of increasingly effective enforcement of conservation laws, leading to seizures of rhino horns taken by poachers. Although this meeting did not actually approve the sale or trade of horns in such stockpiles, it paved the way to do so at a later time, under strict controls, if current inventory can be carefully marked. CITES, and the standards for species protection that it expressed, also has had practical and substantive implications in international relations. In April 1994, the Clinton administration of the US government imposed trade sanctions on Taiwan after that government failed to curtail trade in rhinoceros and tiger parts despite warnings from the United States. Some scholars mark this action as the first time in history that international trade sanctions had been used directly to protect wildlife (Coggins 2003:5).

With the increasing effectiveness of international mechanisms to create agreements promoting conservation, the international community was ready to take its next step: the integration of conservation with the problems of human poverty and development. This

was the subject of the United Nations Conference on Environment and Development in Rio de Janiero, Brazil in 1992, better known as the Rio Summit.

3.3.2.4. Rio 1992 – Combining Conservation and Economics in International Agreements

In June 1992, there were in fact two major global environmental conferences held in Rio De Janiero, Brazil. Together, they produced a number of environmental documents signed by most or, in some cases, all of the participating nations. The United Nations Conference on Environment and Development (UNCED), popularly referred to as the Rio Summit or Earth Summit, was a formal conference of official government delegations. Simultaneously, a large gathering of non-governmental organizations gathered for the Global Forum, a mixture of NGO networking, street shows, trade fairs, and environmental demonstrations (Parson et al. 1992).

The explicit aim of the Rio Summit was to integrate efforts to protect planetary ecosystems with economic development of the poor nations of the world. To that end it produced five documents. The best known of these is the Rio Declaration, originally conceived as a kind of "Earth Charter" that summarized international consensus on environmental policy and development. The Rio Declaration, signed by all participating nations, affirms environmental protection as an integral part of development.

The *Framework Convention on Climate Change* primarily addresses emissions limits and standards of "greenhouse gases" associated with fossil fuels. Although the convention does not set specific targets, its ambitious objective was the "stabilization of greenhouse gas concentrations in the atmosphere that would prevent dangerous anthropogenic interference with the climate system … within a time frame sufficient to allow ecosystems to adapt naturally" (United Nations Framework Convention on Climate Change 1992). Representatives of 153 countries signed this convention, which eventually resulted in negotiation of the Kyoto Protocol.

The *Convention to Combat Desertification* was established to reduce the process of desertification, mainly by adopting measures to protect dryland environments and improving the living standards of people who use them through improving livestock and forestry practices, land use reform, soil and water conservation, and wildlife protection. To date, over 130 countries have now ratified this convention and submitted plans on how they plan to combat desertification within their own borders. However, lack of funding has made progress toward this convention's goals difficult.

The *Statement on Forest Principles* was a non-binding declaration that pledged its signers to keep 17 principles "under assessment for their adequacy with regard to further international cooperation on forest issues" (Parson et al. 1992). Progress toward a formal treaty on forests at the Rio Summit failed primarily because of differences between industrialized countries that wanted a treaty focusing on tropical forests, and developing countries that wanted a treaty including boreal and temperate forests.

The *Convention on Biological Diversity* (CBD) addressed conservation and sustainable use of biodiversity along with fair sharing of genetic resources. The 153 signers pledged to develop plans to protect habitats and species, provide funds and technology to assist developing countries to provide protection, ensure commercial access to biological resources for development, share revenues fairly among sources and developers, establish safety regulations, and accept liability for risks associated with biotechnology development (Parson et al. 1992). Entering into force only 18 months later on December 29, 1993, 175 nations had signed on by 2001, and most of the major provisions of the CBD are now being implemented.

The most comprehensive document signed at the Rio Summit was *Agenda 21*, an 800-page "work plan" addressing social and economic dimensions of environment and development, conservation and management of resources, and means of implementation. Agenda 21's structure was based on key environmental and conservation issues, including the problems of desertification, protecting the atmosphere, and managing toxic wastes. It also addressed social issues with environmental dimensions such as poverty and technology transfer (Greene 1994). Overall, Agenda 21 identified priority environmental issues and divided them into two categories: the priority needs for environmental protection, including atmospheric protection and climate change, protection of land resources, halting deforestation, conserving biodiversity and protecting freshwater and saltwater resources, and the problems of human industry and technology that pose particular threats to the environment, including threats posed from biotechnology, hazardous wastes, sewage and agriculture (Sands 1999).

In its social and economic dimensions, Agenda 21 affirmed the need to eradicate poverty and hunger, to manage resources sustainably, to link human health to environmental and socioeconomic improvements and to integrate environmental factors into policymaking, law, economics and national accounting. In addressing conservation and management of resources for development, Agenda 21 supported allocation of land that provided the greatest sustainable benefits. It affirmed the need for worldwide conservation of biodiversity, proper management of mountain resources, more information on mountain ecosystems, and integrated development of mountain watersheds. In this section, Agenda 21 also affirmed the importance of freshwater resources, provision of safe drinking water, and the need for safe management of various kinds of toxic chemicals and hazardous wastes. In its final section on means of

implementation, Agenda 21 supported promoting public awareness, establishing a new UN body, the Sustainable Development Commission (SDC), to coordinate pursuit of sustainable development among international organizations and monitor progress by governments and international organizations toward reaching the goals set out in the Agenda. It concludes with a discussion of the importance of collecting and using information for sustainable development and for implementing Agenda 21 (Parson et al. 1992). Agenda 21 spurred controversy and failed to reach agreement on issues of fish stocks, targets and deadlines for increases in development assistance, and the governance of the Global Environmental Facility (GEF), among others (Parson et al. 1992).

A significant shortcoming of Agenda 21 has been its failure to establish new regimes of international development, particularly to benefit poorer countries, including specific sets of rules and practices that would define roles and create shared expectations in the international community for such development, along with the institutions needed to implement such practices. Despite these and other shortcomings, Agenda 21 has profoundly influenced international conservation law and policy. Although not all are legally binding, the principles of Agenda 21 have already found their way into many UN resolutions; the conventions on climate change and biodiversity have increasingly set the standard of international policy, practice, and expectation on the issues they address. The Rio Declaration, although controversial, continues to contribute to common goals and standards of national behavior informed by environmental principles.

3.4. The Process: Creating and Enforcing International Conservation Law

If international conservation law consisted merely of value-neutral rules, its most important element would be ***hard law***, formal conventions and treaties adopted by many nations, with explicit mechanisms for enforcement. However, the actual behavior of the modern international community has demonstrated the growing importance of ***soft law***, nonbinding agreements that, although having no official means of enforcement, eventually come to define the norms and standards for international behavior. The reality of this concept can be seen in the way in which international laws on environmental conservation actually come into being.

In 1977 UNEP established a Working Group of Experts on Environmental Law, whose recommendations were endorsed by the UNEP governing council and, in 1982, by the UN General Assembly. Although individual nations were not legally bound to use these guidelines, much of the so-called "soft law" recommendations from this panel of experts and other sources has become, over time, an increasingly recognized international standard (Sand 1988). Such soft law agreements are often the sources for developing the actual wording of "hard law" agreements in more formal conventions, and generally create a climate of compliance by establishing a normative standard that makes them as effective as hard law. As legal scholar Jane Roberts observed, these agreements often create such a spirit of shared values and goals that in terms of international behavior, they "have a predictive value similar to those expressed in hard law" (Roberts 2004:103).

Even soft laws in conservation must have a catalyst. Although every international convention, treaty, or protocol is a product of unique circumstances, the development of international instruments in conservation usually follows a four-step process: (1) issue definition; (2) fact finding; (3) creation of an international body or regime to address the problem; and (4) consolidation and strengthening the regime.

For increased clarity and understanding, certain concepts repeatedly invoked in international conservation law require careful definition. Once conceived and defined, laws must find a mechanism of ***implementation***, that is, nations must take specific actions to make international treaties operational in their own national legal system. The purpose of creating mechanisms of implementation is to increase ***compliance***, that is, to increase the extent to which the behavior of a state, as a party to an international treaty, actually conforms to the conditions of the treaty (Faure and Lefevere 1999:139). Methods used to force states to first implement and then comply with international agreements are mechanisms of ***enforcement***, and vary with individual agreements and conditions. The goal of such enforcement is ultimately ***effectiveness***, a measure, not simply of whether the nation lives up to the conditions of the treaty, but of whether such behavior actually achieves the objectives stated in the treaty. Thus, an ideal international conservation agreement is one in which there are clear and feasible mechanisms of implementation, high levels of compliance, and workable methods of enforcement, all leading to accomplishing the goals for which the agreement was formed in the first place (high effectiveness). Regrettably, not every international conservation treaty or convention gains high marks in all areas.

Weiss and Jacobson (1999) developed a conceptual model, based on the actual success of a variety of international environmental agreements, to show how various factors affect implementation, compliance and effectiveness of international conservation treaties (Figure 3.5). Compliance with international treaties is affected by the characteristics of the activity (for example, numbers of participants, characteristics of markets, location of the activity), characteristics of the agreement, and the state of

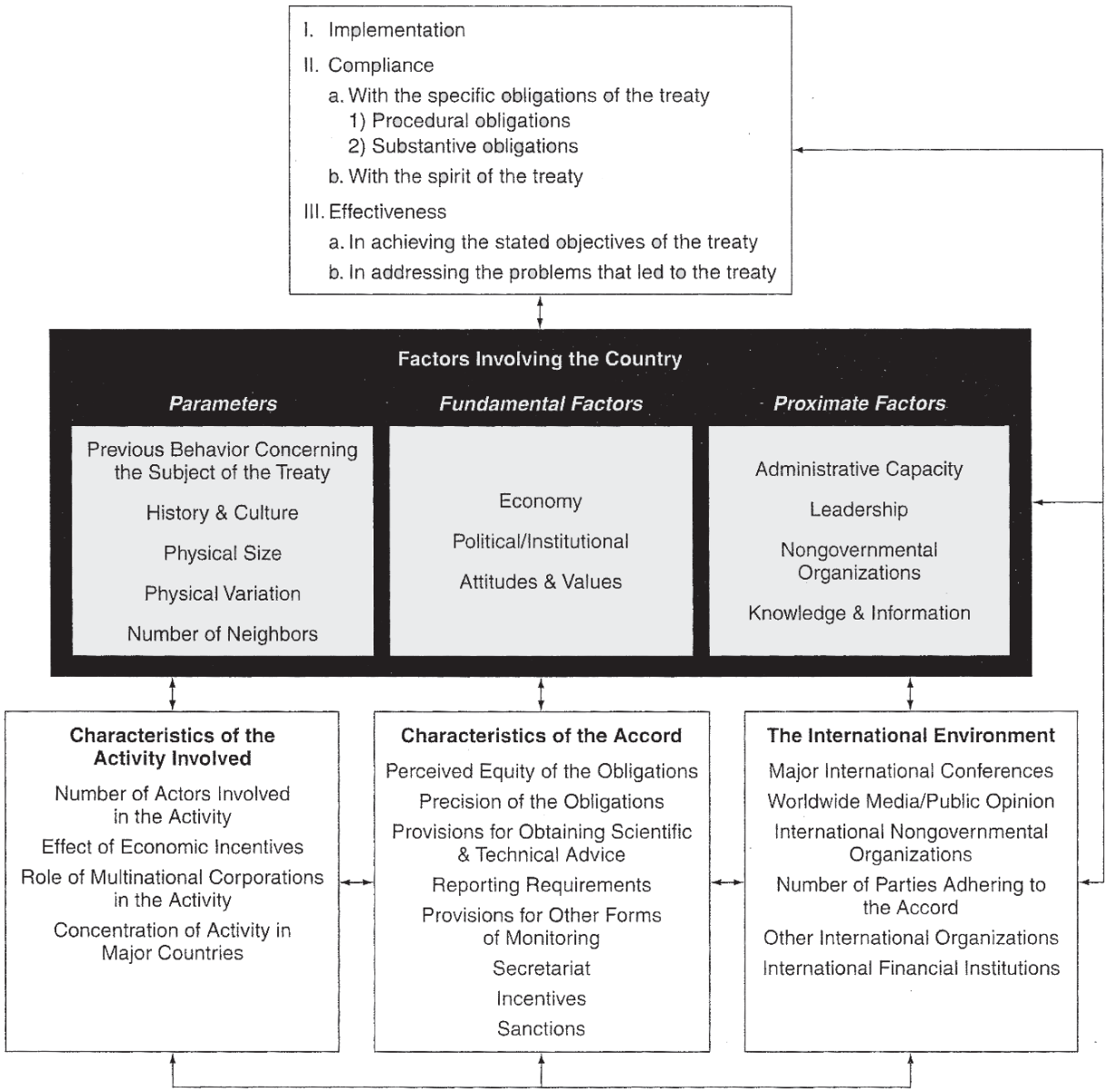

FIGURE 3.5. A model of factors that affect implementation, compliance and effectiveness of international treaties and conventions in conservation. Weiss et al. 1998, figure: 'Model of factors that affect implementation'. Copyright 1998 Massachusetts Institute of Technology. With permission of the MIT Press. Original re-design and enhancements by the McGraw-Hill Companies. Fred Van Dyke, Conservation Biology: Foundations, Concepts, Applications © 2003, McGraw-Hill, Reproduced with permission of the McGraw-Hill Companies.)

the international environment. A general trend has been that the smaller the number of participants involved in the activity, the easier the activity is to regulate internationally. Likewise, participants in an activity that dealt with large, global markets also were easier to regulate than participants in smaller firms and more local markets because global corporations and businesses were far more concerned about international image. The most important characteristic of the treaty or convention itself was equitability. Accords perceived by all parties to provide for fair treatment had much higher compliance than those that were perceived to favor some participants over others. International reception also plays an important role in compliance. The more persistently and publicly the international community focuses on a conservation problem, the more compliance with international conservation agreements related to that problem increases. In addition, the clear support of a "leader" country or group of countries, such as the United States or the European Union, for a particular accord also is a critical factor in the level of compliance. Where such leadership is present, international compliance is high.

Compliance is affected by both intent and capacity. *Intent*, or political will, can be judged from the behavior of national leaders and political bodies, and is a necessary but insufficient condition for compliance. With intent, the country also must possess the *capacity* to comply, requiring an efficient and honest environmental bureaucracy, economic resources, technical expertise and public support. Weiss and Jacobson have suggested three strategies for strengthening international compliance. The first of these is the ***sunshine approach*** which focuses on mechanisms to bring the behavior of key parties into the open for public scrutiny, including such actions as regular reporting, peer scrutiny, on site monitoring and media access and coverage. In this area, NGOs in conservation often play a critical role. In countries where NGOs are active in publicizing examples of non-compliance, the more likely they are to strengthen their government's intention to comply. Complementing Weiss and Jacobson's conclusions, international legal scholars Michael Faure and Jürgen Lefevere note that "the stronger and more active NGOs are with respect to the issue area of the treaty, the larger the probability of compliance" (Faure and Lefevere 1999:138). And the more actively both government and NGOs are engaged in reporting information relevant to the agreement, the more compliance increases. Secondly, this pattern of behavior instigates its own reinforcement because it encourages the development of ***compliance information systems*** that are built into government structures, systems whose aim is to ensure compliance and report non-compliance (Faure and Lefevere 1999:143). At the international level, the primary coordinating body for such compliance information systems is The Global Environmental Facility (GEF), established by The World Bank in 1991 in cooperation with UNEP and the United Nations Development Programme. To encourage compliance, GEF provides funding for the implementation of treaties that target various aspects of environmental quality and conservation. Finally, *positive incentives* work where a country has compliance intention but not capacity. Here, inputs of money, technical expertise, capital, training, or special considerations from other countries can increase compliance. UNESCO has instituted a number of programs to provide such incentives toward compliance, such as the World Heritage List (WHL) of sites of cultural and natural heritage. Administered by the World Heritage Centre in Paris, France, the WHL, a program created by the Convention Concerning the Protection of the World Cultural and Natural Heritage of 1972, is designed to identify and protect sites of outstanding cultural and natural value in every nation. In this case, the positive incentives take the form of providing help with administrative oversight, technical expertise, financial and material resources, and international influence for the designation and protection of listed sites. By 2007, the WHL had recognized (technically, "inscribed") 851 individual sites identified by 184 state parties as sites of particular cultural or natural value.

If the above mechanisms fail, ***coercive measures*** can be effective against parties that have capacity to comply but lack intention. Sanctions, penalties, loss of membership in international organizations or of privileges in international dealings can be effective in motivating unwilling parties to comply with agreements (Weiss and Jacobson 1999).

3.5. The Problem of Interdependence: How Does One Nation Promote Global Conservation without Negative Effects on Other Nations?

3.5.1. The Nature of International Legal Interdependence

Both international conservation law and the national laws of modern nation states have increased in breadth and matured in application in the last 3 decades. National law and international conventions are often aiming at the same goal, but there are many instances in which they run afoul of one another in the pursuit of conservation ideals. Although the worldwide trend in response to conservation treaties and conventions has been one of increasing compliance, factors affecting compliance are complex and national responses to international conservation efforts are not uniform. Increasingly, conservation efforts at international levels are guided, as well as constrained, by two overriding principles that often pull in opposite directions, both of which have important implications at national levels. The first is the increasing awareness and consensus that every nation has a responsibility to conserve its natural resources and must not damage them for use by future generations. This first principle is rooted in an axiom that has become even more foundational to international conservation: the commitment to intergenerational equity. Intergenerational equity is itself supported by three core ideas. First, each generation should be required to conserve the natural and cultural resource base of its own nation so that it does not restrict the options available to future generations in addressing their problems and achieving their goals. Second, each generation should maintain their environmental quality in such a state that it is in no worse condition than that which they received. Finally, members of every generation should have comparable rights of access to the legacy of past generations and should conserve this access for future generations. These are not empty concepts, but ones that increasingly influence how international law is expressed and implemented. In the Philippines, the Supreme Court recognized intergenerational equality by granting constitutional standing to a group of children to represent the interests of future

generations in their efforts to stop the leasing of biologically diverse forests for development.

The second foundational concept of modern environmental law is that every nation has sovereign rights over its own national resources, and these rights are not to be infringed by other nations. Thus, competing claims of responsible conservation stewardship for the sake of intergenerational equity and national resource sovereignty by different nations can create problems for conservation initiatives. In a world of increasing global connection and dependence, initiatives for global conservation by a single nation must assess their effects upon other nations to be successful. Environmental policy scholar Edith Brown Weiss has noted, "In international environmental law, the most important development for the next century may be the emerging interaction of intergovernmental environmental law with transnational law …" (Weiss 1999:102). Further, Weiss perceives that "International law has always been linked with national law, for it is implemented through national, provincial, and local laws … national laws, independent of any treaty, provide protection to other countries or their citizens for harm that occurs within the country but injures those outside" (Weiss 1999:104). To better understand and appreciate the fascinating complexity of and connections between the claims of environmental protection and national sovereignty, national and international conservation law, and governments and non-governmental organizations, we consider the following examples of legislation designed to protect dolphins from tuna fishermen and sea turtles from shrimp trawlers.

3.5.2. Case History I: Tuna and Dolphins

In 1972, just 2 years after passage of the NEPA and only a year before passage of the amended Endangered Species Act, the US Congress enacted the Marine Mammal Protection Act (MMPA). The MMPA was a relatively minor and non-controversial piece of legislation that enjoyed broad bipartisan support. The Act's clear and simple goal was to protect "certain species and population stocks of marine mammals that are, or may be, in danger of extinction or depletion as a result of man's activities." One of the MMPA's mechanisms to achieve this goal was to reduce "incidental kill or serious injury of marine mammals … to insignificant levels approaching a zero mortality and serious injury rate."

The deaths of marine mammals associated with "incidental kill" had increasingly become a cause for scandal and condemnation by the public and the press, particularly in regard to the killing of dolphins by tuna fishermen. The problem had been developing since 1950s, when tuna fishermen began to employ purse-seine nets in capturing tuna. Such nets captured tuna in large schools when they fed near the surface. After tuna were surrounded by the purse-seine net, the bottom of the net was pulled together, trapping the tuna and all other organisms inside (Joyner and Tyler 2000).

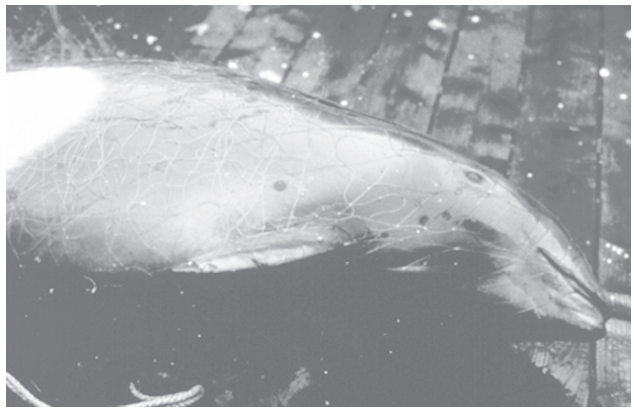

FIGURE 3.6. The Dall's porpoise (*Phocoenoides dalli*) is one of many species of porpoises and dolphins often killed as "bycatch" in the process of tuna fishing. The "incidental kill" of dolphins in association with tuna fishing has resulted in the deaths of millions of dolphins worldwide. (Photo courtesy of US National Marine Fisheries Service.)

Dolphins often travel directly above schools of tuna, so tuna fishermen began to track dolphins as an indicator of tuna presence. Thus, it was not surprising, or even "incidental," that dolphins were killed with tuna, either by drowning in the net or being crushed by the harvesting machinery. Since the 1960s, an estimated six million dolphins have perished in this manner (Figure 3.6).

By the late 1980s, US environmental and conservation NGOs successfully pressured the US Congress to add an amendment to the MMPA which established stringent guidelines for US tuna fishermen and all tuna fishing in the US waters to assure protection for dolphins and other species. It soon became apparent, however, that other countries, including those harvesting the majority of tuna, were not following standards set by the MMPA. To encourage adoption of such standards on an international level and to protect dolphin populations worldwide, the US Congress twice amended the MMPA. In 1984, the MMPA was altered to require an embargo on tuna imports from any country whose commercial fleets killed more dolphins than US fleets. In 1988, Congress added additional requirements for all tuna-exporting nations attempting to market tuna in the United States. Tuna-exporting countries were required to reduce incidental kill of non-tuna species to the level of US fishing fleets, and were prohibited from using large-scale drift nets, encircling marine mammals without direct evidence of the presence of tuna, or using purse-seine nets after sundown. The amendment also specified that failure to comply would lead the US Secretary of Commerce to ban imports of tuna from countries violating the regulation or from countries they sold tuna to (to prevent trans-national shipments as a way of getting around

the regulation). In effect, this placed a US embargo on the tuna products of the offending nation. (Miller and Croston 1998; Joyner and Tyler 2000; Salzman and Thompson 2003:219).

3.5.3. Case History II: Shrimp and Sea Turtles

In 1989, the US Congress added a provision (Section 609) to Public Law 101–162 that became known as the "Sea Turtle Act" (Joyner and Tyler 2000). The Sea Turtle Act was motivated by concern over worldwide declines in the populations of all seven species of sea turtles and by scientific studies that implicated shrimp nets in sea mortality.

One of the world's largest consumers of shrimp, the US also was one of the first nations to employ the ***turtle excluder device*** (TED). A TED is a grid trapdoor installed inside a trawling net that keeps shrimp in the net but directs other, larger objects or animals out (Figure 3.7). By the 1980s, TED technology had reached the point that, properly installed, 97% of sea turtles caught in shrimp nets could be released alive and unharmed without loss of shrimp (Joyner and Tyler 2000).

Earlier legislation had already required TEDs for all shrimp trawlers operating in the Gulf of Mexico and in the Atlantic Ocean off the southeast coast of the United States. The Sea Turtle Act went even further. It prohibited fish imports from any nation that failed to adopt sea turtle conservation measures comparable to those in the United States. Initially such sanctions were applied only to western Atlantic and Caribbean nations, which eventually complied. However, the largest shrimp importers to the US were Asian nations that did not use TEDs. As a result, the prohibitions of the Sea Turtle Act were largely symbolic and did little to protect turtles from shrimpers on a global scale.

As these events were taking place, the US was engaged in negotiations to ratify the General Agreement on Tariffs and Free Trade (GATT). The Clinton administration was reluctant to create controversy with Asian nations over sea turtles that could delay or halt ratification of GATT, and US officials delayed enforcement of the Act against its most important shrimp suppliers. Such reticence eventually led to a federal lawsuit by the Earth Island Institute, a US NGO. Earth Island Institute demanded that the provisions of the Sea Turtle Act be enforced uniformly against all nations exporting shrimp to the US. After a series of appeals, the Earth Island Institute won the case in the US Court of International Trade, forcing the US to ban imports from nations that had not complied with the Sea Turtle Act, including the largest Asian shrimp exporters.

The tuna and shrimp embargoes, now in full force, led to legal challenges by the sanctioned nations before the World Trade Organization (WTO). In separate but similar cases, the tuna and shrimp-exporting nations argued that the MMPA and Sea Turtle Act were violations of the free trade provisions guaranteed by GATT. In the case of tuna and dolphins, the European Community also joined in challenging the MMPA, because the embargoes prevented them from selling tuna they had purchased from Asian nations that did not comply with the MMPA to the US. The plaintiffs argued that, under the terms of GATT, an individual nation could not impose restrictions on imports from other nations, even for conservation reasons, that those nations had not been party to developing. Further, the US could not impose sanctions based on the *processing and production* of a product, but only on the product itself. That is, what mattered was the tuna in the can, not how the tuna got in the can (Salzman and Thompson 2003:220). In addition, the bottle-nosed dolphin (*Tursiops truncatus*), the main species affected by the tuna-fishing methods in question, was not an endangered species, and not subject to international protection. Finally, the plantiff nations charged that the entire embargo was only a ruse to protect US tuna fishers to give them an unfair competitive advantage in US markets, a form of protectionism wearing green clothing (Salzman and Thompson 2003:221).

The WTO ultimately agreed and ruled against the United States in the case of both dolphins and sea turtles, agreeing with the plaintiffs that the US laws constituted unfair barriers to free trade. The world conservation community condemned the GATT panel of the WTO for deliberately excluding environmental issues from consideration in its

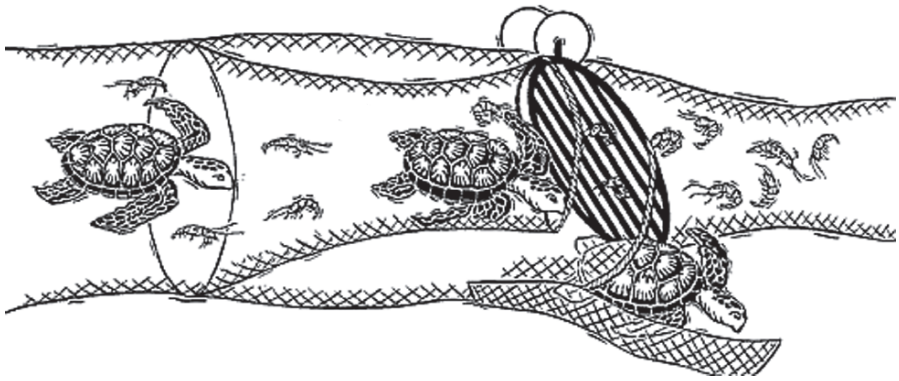

FIGURE 3.7. A Turtle Excluder Device (TED) that can be installed in a shrimp net to release sea turtles from the net. TEDs, properly installed, can reduce sea-turtle mortality associated with shrimp fishing by up to 97%. (Figure courtesy of US National Aeronautics and Space Administration.)

decision (Salzman and Thompson 2003:221). The US appealed the decisions, but its appeals were not successful (Joyner and Tyler 2000).

Although pledged to follow the rules of international law, the US continued its advocacy for the conservation of both marine mammals and sea turtles. In the former case, the US played a leading role in developing new international agreements, the La Jolla (California) agreement of 1992, a ten-nation agreement that established a voluntary program to limit dolphin mortality, and the Panama Declaration, which was signed by 12 nations in 1995. The Panama Declaration went beyond the La Jolla agreement in establishing a "permanent" mortality limit for dolphins and stricter enforcement systems. The purpose of the agreements was to foster better methods of harvesting tuna through a voluntary program of setting standards and procedures for dolphin protection. Their outcome was the establishment of the International Dolphin Conservation Program. To implement the La Jolla agreement, the US. Congress enacted the International Dolphin Conservation Act of 1992. To implement the terms of the Panama Declaration and nationalize the intent of the International Dolphin Conservation Program, Congress passed the International Dolphin Conservation Act of 1997 (Miller and Croston 1998).

The US maintained its commitment to sea turtle conservation by continuing to sponsor an already existing TED certification program for other nations. In addition, the US pledged to assist any government seeking help in developing a TED sea turtle protection program of its own (Joyner and Tyler 2000).

3.5.4. Outcomes and Future Prospects

These difficult cases involving tuna, dolphins, shrimp, and sea turtles offer insight into a world of complex interactions between national and international conservation law, public interest and private industry, and government bureaucracies and NGOs. They illustrate the fine line between conservation leadership and (in the eyes of some) conservation imperialism or economic protectionism disguised as conservation. Conservation laws of individual countries can no longer be enacted or enforced without first considering the interests of other nations or the likely international response. Although trade sanctions might be justified against processing and production methods, as well as products, of other countries that violate international conservation interests, an individual country cannot be confident that it will win in the international courts unless: (1) the measure is not unilaterally imposed and (2) the harm done is local (within the jurisdiction of the country imposing the sanctions) (Salzman and Thompson 2003:223). Today's worldwide commitment to global free trade has created international bodies, such as the WTO, whose decisions have the force of law. Such decisions may override the laws passed by a single nation in matters of international commerce, regardless of that nation's noble intentions for conservation. In the tuna-dolphin and shrimp-turtle decisions, the WTO displayed its own preference for multilateral and international agreements to reach conservation objectives as opposed to unilateral, national initiatives (Joyner and Tyler 2000); however, such decisions by the WTO appear to sacrifice conservation to commerce. The Dispute Settlement Body of the WTO rarely selects panel members and experts for their environmental expertise. Although the Dispute Settlement Body is authorized to seek expert advice on environmental issues, it rarely does so (Miller and Croston 1998). The perception that the WTO favors trade at the expense of conservation is part of the motive behind the anger and violence displayed toward the WTO by conservation and environmental organizations, among others, in the large public, and sometimes violent, demonstrations associated with the 1999 WTO meetings in Seattle, Washington and the 2000 WTO meetings in Washington, DC.

US laws like the MMPA and the Sea Turtle Act helped move the international community to higher standards on these conservation issues than would have been achieved without these initiatives. It is clear, however, in an increasingly global community that the US will have to improve its efforts to involve other nations in international conservation efforts, particularly conservation efforts that affect international trade, if it expects such efforts to be effective and permanent in their effects.

3.6. Synthesis

Environmental regulations and demands of conservation law press scientists to address and answer questions they may consider "unscientific." Likewise, law and policy require an integrated, interdisciplinary approach that conservation biologists may publicly endorse, but are privately unprepared to fulfill. Environmental problems on a worldwide scale may require a greater level of coordination than has historically been characteristic of the independent nature of science and scientists.

In the past, much of activity associated with conservation was focused on outcomes that were predictable effects of management actions. Goals such as sustained yield were based on an expectation of certain return. Today, conservationists are less concerned about certainty of return than about managing risk. Historically, environmental law has favored policies consistent with our past understanding of the rule of law (i.e., the consistent application of fixed rules that will yield a final, single decision that represents an absolute, moral ideal) (Tarlock 1994). As a result, individual environmental laws have been based on individual scientific

premises, and have then continued the application of those premises regardless of what new studies uncovered. Today such legal certainties are inconsistent with the state of our knowledge of ecosystems. Conservation biologists' best estimates of genetic diversity, population persistence, and community ordination are also uncertain estimates. Modern conservation law and policy must mature to the point that they can deal with such uncertainty, rather than simply ignore or reject it, and therby better manage risk to threatened species.

The development of conservation law and policy demonstrates repeated themes. First, the scrutiny of a free press and the involvement of an educated populace enables private organizations and citizens to make a difference in how things turn out. Second, even failed attempts at international legislation, such as the Rio Summit, may produce positive results, and should be pursued toward the eventual goal of a comprehensive and coordinated system of international conservation legislation. Third, programs of lasting effectiveness in conservation are strongly affected by economic incentives, as evidenced by the efforts to save dolphins from tuna fishing and sea turtles from shrimp boats.

The future offers two challenges. Conservation biologists must become more astute in their understanding of law and policy to make their research effective in achieving conservation goals and they must become more sophisticated in learning how to change laws and policies, and formulate new ones, that will make conservation law more consistent with the scientific findings. Failure on the first front would make conservation biology an interesting but irrelevant discipline. Failure on the second would lead to irreconcilable conflicts between scientific and political communities, and the eventual disconnection of conservation science from conservation law.

References

Barry, D., and M. Oelschlaeger. 1996. A science for survival: values and conservation biology. Conservation Biology 10:905–911

Bean, M. J., S. G. Fitzgerald, and M. A. O'Connell. 1991. Reconciling conflicts under the Endangered Species Act. World Wildlife Fund, Washington, DC

Berrens, R. P., D. S. Brookshire, M. McKee, and C. Schmidt. 1998. Implementing the safe minimum standard approach: two case studies from the U.S. Endangered Species Act. Land Economics 74:147–161

Brown, T. C., and G. L. Peterson. 1993. A political-economic perspective on sustained ecosystem management. In: W. W. Covington and L. F. DeBano (eds) Sustainable ecological systems: implementing an ecological approach to land management. U S Department of Agriculture Forest Service, General Technical Report RM-247, pp 228–235

Brussard, P. F., and J. C. Tull. 2007. Conservation biology and four types of advocacy. Conservation Biology 21:21–24

Caldwell, L. K. 1966. Administrative possibilities for environmental control. In: F. F. Darling and J. P. Milton (eds) Future environments of North America. Natural History Press, Garden City, NY, pp 648–671

Coggins, C. 2003. The tiger and the pangolin: nature, culture, and conservation in China. University of Hawaii Press, Honolulu, HI

Committee on Scientific Issues in the Endangered Species Act. 1995. Science and the Endangered Species Act. National Academy Press, Washington, DC

Cooper, M. H. 1999. Endangered Species Act. CQ Researcher 9:851–863

Costa, R. 1997. The U.S. Fish and Wildlife's red-cockaded woodpecker private lands conservation strategy: an evaluation. Endangered Species Update 14(7–8):40–44

Darling, F. F., and J. P. Milton (eds). 1966. Future environments of North America. Natural History Press, Garden City, NY

DiMento, J. F. 2003. The global environment and international law. University of Texas Press, Austin, TX

Flather, C. H., M. S. Knowles, and I. A. Kendall. 1998. Threatened and endangered species geography: characteristics of hot spots in the conterminous United States. BioScience 48:365–376

Faure, M., and J. Lefevere. 1999. Compliance with international environmental agreements. In: N. J. Vig and R. S. Axelrod (eds) 1999. The global environment: institutions, law, and policy. CQ, Washington, DC

Goetz, P. C. 1997. An evaluation of ecosystem management and its application to the National Environmental Policy Act: the case of the U.S. Forest Service. Ph.D. dissertation, Virginia Tech, Blacksburg, VA

Greene, G. 1994. Caring for the Earth: the World Conservation Union, the United Nations Environment Programme, and the World Wide Fund for Nature. Environment 36(7):25–28

Holdgate, M. 1999. The green web: a union for world conservation. Earthscan, London

IUCN. 2000. Vision for water and nature*:* a world strategy for conservation and sustainable management of water resources in the 21st century. IUCN, Gland, Switzerland

Joyner, C. C., and Z. Tyler. 2000. Marine conservation versus international free trade: reconciling dolphins with tuna and sea turtles with shrimp. Ocean Development and International Law 31:127–150

Justinian. 1997. Institutes of Justinian, 2nd edition. Translated by T. C. Sandars. Gaunt, Holmes Beach, FL

Karr, J. R. 1995. Biological integrity and the goal of environmental legislation: lessons for conservation biology. In: D. Ehrenfeld (ed) Readings from conservation biology: the social dimension – ethics, policy, management, development, economics, education. Blackwell Science, Cambridge, MA, pp 108–114

Kaiser, J. 1997. When a habitat is not a home. Science 276:1636–1638

Kelso, B. J. 1995. The ivory controversy. Africa Report 40(2):50–55

Lehman, W. E. 1995. Reconciling conflicts through habitat conservation planning. Endangered Species Bulletin 20(1):16–19

Liroff, R. A. 1976. A national policy for the environment: NEPA and its aftermath. Indiana University Press, Bloomington, IN

Mann, C., and M. Plummer. 1997. Qualified thumbs up for habitat plan science. Science 278:2052–2053

Meffe, G. K., and S. Viederman. 1995. Combining science and policy in conservation biology. Wildlife Society Bulletin 23:327–332

Merriam-Webster, Inc. 2003. Merriam-Webster's Collegiate Dictionary, 11th edition. Merriam-Webster, Springfield, MA

Miller, C. J., and J. L. Croston. 1998. *WTO scrutiny v. environmental objectives*: assessment of the international dolphin conservation program. American Business Law Journal 37:73–125

Murthy, K. S. 1988. National Environmental Policy Act (NEPA) process. CRC, Boca Raton, FL

Nash, R. F. 1989. The rights of nature. University of Wisconsin Press, Madison, WI

Noss, R. F. 1993. Whither conservation biology? Conservation Biology 7:215–217

Noss, R. F., M. A. O'Connell, and D. D. Murphy. 1997. The science of conservation planning. Island Press, Washington, DC

O'Connell, M. A. 1997. Improving habitat conservation planning through a regional ecosystem-based approach. Endangered Species Update 14(7–8):18–21

Parson, E. A., P. M. Haas, and M. A. Levy. 1992. A summary of the major documents signed at the Earth summit and the global forum. Environment 34:12–15,34–36

Petulla, J. M. 1977. American environmental history. Boyd & Fraser, San Francisco, CA

Postel, S., and B. Richter. 2003. Rivers for life: managing water for people and nature. Island Press, Washington, DC

Rawlins, W. 2006. Woodpecker mapping gets chain saws buzzing. The News & Observer. 6 August 2006. Raleigh, NC

Roberts, J. 2004. Environmental policy. Routledge, London

Rodgers, W. H. Jr. 1994. The seven statutory wonders of U.S. environmental law: origins and morphology. Loyola of Los Angeles Law Review 27:1009–1021

Rohlf, D. J. 1991. Six biological reasons why the Endangered Species Act doesn't work – and what to do about it. Conservation Biology 5:273–282

Rohlf, D. J. 1995. Response to O'Connell. In: D. Ehrenfeld (ed) Readings from conservation biology: the social dimension – ethics, policy, management, development, economics, education, Blackwell Science, Cambridge, MA, pp 100–101

Rosenbaum, W. A. 1985. Environmental politics and policy. CQ, Washington, DC

Rosenbaum, W. A. 1995. Environmental politics and policy, 3rd edition. CQ, Washington, DC

Salzman, J., and B. H. Thompson. 2003. Environmental law and policy. Foundation, New York

Sample, V. A. 1993. A framework for public participation in natural resource decision making. Journal of Forestry 91(7):22–27

Sand, P. H. 1988. Marine environment law in the United Nations Environment Programme: an emergent eco-regime. Tycooly, London

Sands, P. 1999. Environmental protection in the twenty-first century: sustainable development and international law. In: N. J. Vig and R. S. Axelrod (eds) The global environment: institutions, law, and policy. Congressional Quarterly, Washington, DC, pp 116–137

Schilling, F. 1997. Do habitat conservation plans protect endangered species? Science 276:1662–1663

Slocombe, D. S. 1989. CITES, the wildlife trade, and sustainable development. Alternatives 16:20–29

Smith, R. J. 1992. The Endangered Species Act: saving species or stopping growth? Regulation 15(1). Available from http://www.cato.org/pubs/regulation/reg15n1-smith.html (accessed July 2007)

Tarlock, A. D. 1994. The nonequilibrium paradigm in ecology and the partial unraveling of environmental law. Loyola of Los Angeles Law Review 27:1121–1144

United Nations Framework Convention on Climate Change. 1992. Article 2.

US Fish and Wildlife Service. 2004. Report to Congress on the recovery of threatened and endangered species fiscal year 2003–2004. US Fish and Wildlife Service, Washington, DC

US Fish and Wildlife Service. 2007. Summary of listed species. Available from http://ecos.fws.gov/tess_public/Boxscore.do (accessed July 2007)

Vig, N. J., and R. S. Axelrod (eds). 1999. The global environment: institutions, law, and policy. CQ, Washington, DC

Walley, K. K. 1996. Surprises inherent in no surprises policy. Endangered Species Update 13(10–11):8–9, 14

Weiss, E. B. 1999. The emerging structure of international environmental law. In: N. J. Vig and R. S. Axelrod (eds) The global environment: institutions, law, and policy. CQ, Washington, DC, pp 98–115

Weiss, E. B., and H. K. Jacobson. (eds). 1998. Engaging countries: strengthening compliance with International Environmental Accords. MIT, Cambridge, MA

Weiss, E. B., and H. K. Jacobson. 1999. Getting countries to comply with international agreements. Environment 41(6):16–31

Yost, N. C., and J. W. Rubin. 1989. NEPA deskbook. Environmental Law Institute, Washington, DC