

Endangered Species UPDATE

*Including a Reprint of the latest USFWS
Endangered Species Technical Bulletin*

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In this Issue

On the USFWS Settlement
Regarding Federal Listing
of Endangered Species

1992 CITES Amendments

From the State Series:
A Review of State Threatened
and Endangered Species
Programs and
the Massachusetts Initiative

On the USFWS Settlement Regarding Federal Listing of Endangered Species

by

Eric R. Glitzenstein

One of the principal problems plaguing implementation of the Endangered Species Act (ESA) since its creation has been the enormous backlog of "candidate" species awaiting formal listing as endangered or threatened. In an effort to expedite the listing of such species, a number of national wildlife groups and grassroots environmentalists from around the country—led by The Fund for Animals and Jasper Carlton, Director of the Biodiversity Legal Foundation—filed a sweeping lawsuit in 1992 against then Secretary of the Interior Manuel Lujan and U.S. Fish and Wildlife Service (USFWS, or the Service) Director John Turner (*The Fund for Animals, et al. v. Turner*, Civ. No. 92-800). On December 15, 1992, the parties to the lawsuit reached a comprehensive settlement in the case, which, if implemented, will greatly speed up the listing process for hundreds, and possibly thousands, of imperilled species.

Schedule For Listing Candidate 1 Species

The heart of the agreement is a commitment by USFWS to, by September 1996, propose for listing—or make final, judicially-reviewable decisions not to list—401 domestic "Candidate 1" species of plants and animals. Candidate 1 species are those for which the Service believes it already has adequate information to list the species as endangered or threatened, but for which it has not yet issued formal Federal Register notices to that effect.

Under the agreement, therefore, USFWS is required to issue approximately 100 listing proposals per year for the next four years. Since enactment of the ESA, USFWS has averaged less than forty listings per year and, in papers filed in the lawsuit prior to settlement, the Service acknowledged that, in recent

years, its "goal" was to list only about "50 species per year on a nationwide basis." (Defendants' Answer to Complaint in *The Fund for Animals et al. v. Lujan*, at ¶ 60). Thus, the settlement agreement will result in a substantial increase in the pace of listings.

Reforms Involving "Warranted but Precluded" Species

Another significant aspect of the agreement involves the treatment of species whose listing has been deemed by USFWS to be "warranted but precluded" in response to citizen petitions. Under the ESA, when an individual or organization formally petitions USFWS to add an animal or plant to the list of endangered or threatened species, the Service must, within 90 days, "make a

finding as to whether the petition presents substantial scientific or commercial information indicating that the petitioned action may be warranted." Within one year of receiving a petition which USFWS has determined may be warranted, the Service must make one of three findings: (1) that the petitioned action is not warranted; (2) that the petitioned action is warranted, in which case USFWS must promptly publish a proposal to list the species; or (3) that the petitioned action is warranted, but that the "immediate proposal and timely promulgation of a final regulation" listing the species is "precluded by pending" listing proposals, and that "expeditious progress" is being made to list other qualified species.

In *The Fund for Animals* lawsuit, the plaintiffs argued that the Service had placed hundreds of species in the "warranted but precluded" category for many years, although it could not demonstrate, as required by the ESA, that it was making "expeditious progress" in listing species as endangered or threatened. In addition, the plaintiffs were concerned that many of these species had not even been designated as Category 1 species, although the Service had purportedly concluded that their listing



For many, the bald eagle symbolizes American endangered species. Photo by New York Zoological Society.

is in fact "warranted." Rather, many of these species had been placed in "Category 2," a classification which is supposed to be reserved for species for which the Service lacks sufficient evidence to make a definitive finding of endangered or threatened status.

The most important practical effect of this anomaly in the Service's treatment of "warranted but precluded" species was that many of these species were not being assigned listing "priority" numbers in accordance with the Service's long-standing listing priority scheme (see 48 Fed. Reg. 43098 (1983)). Under that priority system, all Category 1 species are assigned priority numbers, which are supposed to reflect the degree and magnitude of the threats jeopardizing the species. Category 2 species are not ordinarily assigned formal priority numbers by USFWS.

Thus, by making "warranted but precluded" findings for numerous species year after year, and by placing such species in Category 2 rather than Category 1, USFWS was effectively relegating such species to a form of regulatory limbo. From the standpoint of the persons or organizations who had petitioned for protection of these species, the Service's placement of the species in Category 2—and concomitant failure to assign a priority number—made it virtually impossible to even gauge where the species stood in the queue relative to other imperilled plants and animals lacking protection under the ESA.

To resolve plaintiffs' complaint of misuse of the "warranted but precluded" designation, USFWS agreed to a number of reforms. First, the settlement agreement provides that all species that had been classified as "warranted but precluded" as of September 1, 1992, and for which USFWS had completed status surveys within one year prior to that date—12 species in all—the Service will, by October 1993, either (1) propose such species for listing as endangered or threatened, (2) officially place such species in Category 1 and assign the species a listing priority number in accordance with the Service's published priority system; or (3) determine that listing is not warranted for the species and publish a Federal Register notice to that

effect. With regard to all such animals and plants that are assigned a listing priority number of 1, 2, or 3—i.e., species or subspecies which, under the Service's priority system, are facing both an "imminent" and a "high" threat of extinction—the Service must, by September 1996, propose such species for listing as endangered or threatened, or publish a Federal Register notice explaining why listing of the species is not warranted.

Second, as to all species that were classified as "warranted but precluded" as of September 1, 1992, and for which USFWS did *not* complete a status survey within one year prior to that date—approximately 800 species of plants and animals—the Service must, by October 1993, make new findings "based on the best available scientific and commercial information." These findings must either (1) conclude that the petitioned action is warranted (to be followed promptly by published notices that propose such species for listing as endangered or threatened); (2) officially place any such species that the Service continues to classify as "warranted but precluded" in Category 1 and assign such species a listing priority number in accordance with the Service's listing priority system; or (3) conclude that the species should not be listed, a decision which must be explained in a published and judicially reviewable Federal Register notice. Once again, with regard to any such species to which USFWS assigns a priority number of 1, 2, or 3, the agency must, by September 1996, propose the species for listing as endangered or threatened, or make a final decision explaining why protection of the species under the ESA is not warranted.

Third, with regard to all species that are designated as "warranted but precluded" after September 1, 1992, USFWS has agreed to promptly assign each such species a listing priority number. This commitment is to be embodied in a published statement, which will inform all members of the public that, henceforth, all species classified as "warranted but precluded" in response to listing petitions will not be placed in Category 2 but, rather, will be assigned

Endangered Species UPDATE

A forum for information exchange on endangered species issues
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Instructions for Authors:

The *Endangered Species UPDATE* welcomes articles related to species protection in a wide range of areas including but not limited to: research and management activities and policy analyses for endangered species, theoretical approaches to species conservation, and habitat protection. Book reviews, editorial comments, and announcements of current events and publications are also welcome.

Readers include a broad range of professionals in both scientific and policy fields. Articles should be written in an easily understandable style for a knowledgeable audience. For further information, contact the editor.

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Cover: Northern bald eagle (*Haliaeetus leucocephalus*), our national symbol and an endangered species. Photo by New York Zoological Society.

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a listing priority number and placed in Category 1. In essence, therefore, the Service has agreed to integrate its system for responding to listing petitions with its internal process for prioritizing candidate species.

Commitment To An Ecosystem Approach to Listing

The final noteworthy aspect of the settlement agreement is an explicit commitment by the federal government to pursue a "multi-species, ecosystem approach" to its listing responsibilities. According to the agreement, USFWS and the Department of the Interior now recognize that such an approach—which has long been urged by a number of conservationists—"will assist [federal officials] in better analyzing the common nature and magnitude of threats facing ecosystems, help them in understanding the relationships among imperilled species in ecosystems, and be more cost-effective than a species-by-species approach to listing responsibilities." Indeed, in recent years, the Service has undertaken such a multi-species approach to meet its obligations under two other settlement agreements that require it to list a large number of California and Hawaiian plant species (see *Conservation Council for Hawaii v. Lujan*, Civ. No. 89-953 (D. Hawaii) (Settlement Agreement Approved May 9, 1990); *California Native Plant Society v. Lujan*, No. 91-0038 (E.D. Ca.) (Settlement Agreement Approved August 22, 1991)). [For more on ecosystem approaches, see Endangered Species UPDATE Special Issue, Vol.10 Nos.3&4, "Exploring an Ecosystem Approach to Endangered Species Conservation"—Ed.]

Expressly endorsing this approach as a national policy, *The Fund for Animals* settlement provides that the Service will "direct each region, where biologically appropriate, to use a multi-species, ecosystem approach . . . [1] in the monitoring of candidate and warranted but precluded species, including status surveys, [2] in proposing species for listing as endangered and threatened; [3] in adopting final rules listing species as endangered and threatened;

and [4] in designating critical habitat." Moreover, in a commitment that should greatly streamline the listing process if fully implemented, the agreement obligates the Service, in pursuing this multi-species approach, to "consider and rely on, to the maximum extent feasible, the commonality of threats faced by different species in the same ecosystem."

Simply stated, therefore, if USFWS determines that a large number of species within a given ecosystem are at risk because of the same problem—most obviously, habitat destruction—the Service must, under the settlement agreement, list all of those species together in a unified rulemaking proceeding, rather than repeatedly reinvent the wheel in case-by-case listing packages. Such an approach, of course, will promote not only speedier protection of imperilled species, but will also allow a federal agency that is notoriously underfunded to get the biggest bang out of its few listing bucks. It should also have the added benefit of focusing public and media attention on threats faced by entire ecosystems, rather than on the individual species versus development controversies that have often afflicted ESA implementation in the past.

Implications for Endangered Species Act Reauthorization

While the settlement accomplishes a number of much-needed reforms, it is by no means a cure-all for what ails the listing process. Truly long-term, systemic improvements in the process can only come from Congressional overhaul of the Act. To begin with, assuming that USFWS fulfills its obligation to list all *current* Candidate 1 species by September 1996, the settlement does not ensure that future Candidate 1 species do not languish unprotected indefinitely. An amendment to the ESA requiring the Service to propose a listing rule—or formally decide not to list a Candidate 1 species—within a specified period of time would help guarantee that USFWS does not revert to its prior lackadaisical pace.

Moreover, the settlement agreement does not directly obligate the Service to make any changes in its treatment of

Candidate 2 species, other than those which have also been designated as "warranted but precluded" in response to citizen petitions. As suggested above, as a result of the agreement, any individual or organization convinced that a Category 2 species warrants listing is at least in a better position to ensure that the species is placed in Category 1 and receives a listing priority number. Otherwise, the settlement—and the ESA itself, as currently drafted—afford no assurance that the Service will, within a reasonable time frame, perform the biological status reviews and gather other information that may be necessary to initiate regulatory action for Candidate 2 species.

Finally, Congressional codification of certain features of the agreement would ensure that reforms agreed to by USFWS become a permanent fixture in ESA implementation. Most notably, Congress should set in legislative stone the Service's obligation to take an ecosystem, multi-species approach to its listing responsibilities, as well as the agency's commitment to, at a minimum, assign all "warranted but precluded" species to Category 1. Virtually all students of the Act agree that these are useful, if not vital, policy reforms, which can only assist in making the listing and petition process more efficient, sensible, and comprehensible to interested citizens and organizations.

Of course, the single most helpful thing that Congress could do is provide Interior Secretary Bruce Babbitt—the first Interior leader with a genuine commitment to the ESA in more than a decade—with the resources that he needs to *both* efficiently list species *and* accomplish the other herculean tasks imposed on him by the Act, such as drafting meaningful recovery plans and designating critical habitat. In the absence of such desperately-needed funds, the Act's lofty promise to "provide a program for the conservation of . . . endangered and threatened species" and their ecosystems will continue to ring hollow for many animals and plants in dire need of the Act's protection.

Eric R. Glitzenstein is a partner in the public-interest law firm Meyer & Glitzenstein, and was lead counsel for the plaintiffs in the case discussed in this article.

A Status Review of State Threatened and Endangered Species Programs and the Massachusetts Initiative

by

Curtice R. Griffin and Thomas W. French

Threatened and endangered (T&E) species have become a major issue attracting worldwide attention. The federal endangered species program of the United States and its enabling legislation, the Endangered Species Act (ESA), have been generally regarded as the most comprehensive species protection programs in the world. Since passage of the ESA in 1973, over 600 species have been added to the federal list of threatened and endangered species, and some 3,650 species have been identified as candidates for listing in the U.S. alone. Over 350 recovery plans for listed species have been approved (U.S. Department of Interior 1991), and over \$700 million have been spent to support the program and land acquisitions since 1974 (Bean 1991).

Yet, despite the program's best intentions, listed and non-listed U.S. species continue to go extinct and the list of threatened and endangered species continues to grow. From these trends, Scott et al. (1991:283) concluded that our endangered species programs "have become essentially efforts to document the loss of species through the listing process." Clearly, current regulatory and nonregulatory programs are inadequate for protecting threatened and endangered species and the broader issue of biological diversity. Thus, the objectives of this paper are to (1) review the status of state T&E species programs and how they supplement the federal program, and (2) examine how Massachusetts through its recently enacted (1992) Endangered Species Act has expanded its protection for T&E species and their habitats.

Status of State Threatened and Endangered Species Programs

In the past two decades, most states

have increased their role significantly in protection of T&E species and their habitats. We surveyed natural resources agencies in all 50 states and Puerto Rico during December 1991, requesting information on each state's current nongame/endangered species programs. We conducted the survey by mail with follow-up phone calls for non-respondents. The survey consisted of 14 questions (Table 1, *UPDATE* pg.7) and was designed to help evaluate the potential of the various states to play a larger role in conserving T&E species. A 100 percent response rate was achieved. However, because several states indicated that responses to the first survey were not accurate, we requested by mail verification of the responses to the first survey from each of the 50 states, Puerto Rico and the Virgin Islands during fall 1992. Twenty-three responses were received and survey results modified (Table 2, *UPDATE* pg.8).

Forty-three states had land acquisition or conservation easement programs. However, in only 31 states did one of the state's natural resources agencies have the legal power of eminent domain for acquiring wildlife habitats. Thirty-seven states had regulatory authority over activities that adversely impact rare species habitats on public lands. However, only 21 states had such regulatory authority over rare species habitats on private lands.

Slightly less than half of the states (n=24) considered their state to have a comprehensive rare species protection program (Figure 1, *UPDATE* pg.7). We further evaluated the comprehensiveness of state programs by examining their responses to five of the 14 questions (1, 9, 10, and 11 and 12 combined, Table 2). In our evaluation, we considered a state to have a comprehensive T&E species program if four criteria

...States collectively provide protection for a wider array of species than the federal program...

Forty-seven states indicated that their list of T&E species was part of statute or regulation; however, seven states did not list species other than those listed on the federal T&E species list. Mammals, birds, and herptiles were included on lists of rare species in 44 states, and fish were on lists in 41 states. In contrast, rare plants were listed in 32 states, and invertebrates were the taxa most frequently not protected, being listed in 31 states. Forty-one states had special penalties for taking/harming state-listed species that are different from penalties for illegally taking non-listed species.

We also attempted to identify which states protected rare species habitats.

were present, including: (1) their list was part of statute or regulation, (2) there were special penalties for taking/harming listed species, (3) the state had land acquisition or conservation easement programs for listed species, and (4) there was regulatory authority over activities that adversely affected rare species habitats on both private and public lands. Of the 24 states that considered their T&E species programs to be comprehensive, all four of the above criteria were present in only 13 states (Figure 1). Whereas, the other 11 states had at least one or more of the four criteria absent.

Our survey results indicate that all

(continued on *UPDATE* page 7)

Report From the Field

Community Action Called to "Rescue the Riffleshell"

by Roann E. Ogawa and
Don W. Schloesser

A collective effort to save the northern riffleshell mussel arose among local businesses and citizens, the City of Detroit, Michigan Department of Natural Resources, and the U.S. Fish and Wildlife Service (USFWS) amid growing concern over the rapid decline of native unionids in the Great Lakes following the invasion of the exotic zebra mussel.

Bill Kovalak of the Detroit Edison Company led the rescue mission, which moved northern riffleshell mussels (*Epioblasma torulosa rangiana*) from Detroit River sediments heavily infested with zebra mussels (*Dreissena polymorpha*) and transplanted them in the less heavily infested sediments of the St. Clair River. Don Schloesser from Region 8, Sue Walker and John Cooper from Region 3, and Tom Weise from the Michigan Department of Natural Resources played active roles in this effort.

Freshwater mussels have decreased in diversity, abundance, and range in the Great Lakes and its tributaries because of pollution and habitat destruction and degradation. At the turn of the century, 36 species of freshwater mussels lived in the Detroit River. In 1990, a Belle Isle Aquarium survey found only 21 species. Pockets of remnant mussel populations remain in the area; one pocket occurs in the Detroit River off Belle Isle. Biologists hoped pollution control measures instituted in the Great Lakes region during the past 30 years would stimulate recovery of native mussel populations. This hope faded as scientists, including Don Schloesser at the National Fisheries Research Center—Great Lakes, documented the effect of zebra mussels on native fauna.

Zebra mussels form large masses on native unionids that impede unionid movement and prevent them from closing their shells. There is little doubt that zebra mussels are responsible for the death of freshwater mussels in the Great Lakes. These observations provided the incentive for organizing a rescue mission.

A group of scientists and citizens selected the northern riffleshell, the most endangered of the remaining mussel species in the Detroit River, for the rescue effort. The northern riffleshell's original range included tributaries of the Ohio River, western Lake Erie, and the St. Clair and Detroit Rivers. Channelization, stream bank clearing, agriculture, and chemical and waste water runoff reduced its range by 95 percent. By the 1980s, it occurred in short reaches of six streams in Kentucky, Michigan, Ohio, Pennsylvania, and the upper 2.0 miles of the Detroit River from Lake St. Clair to Belle Isle.

Field collections by biologists in August and September 1992 emphasized the urgency of the rescue mission. They found no unionids on the Canadian side of the Detroit River and although some live unionids still exist in U.S. waters, the number of zebra mussels attached to them was similar to the infestation preceding the disappearance of unionids in parts of western Lake Erie. Biologists believe most of the surviving unionids in the Detroit River will die during 1993.

This mission was conceived in



Volunteers cleaning zebra mussels off riffleshells. Photo courtesy of USFWS.

March 1992 and executed on October 10, 1992. Mutual concern between the business community and biologists, about the zebra mussel infestation in the Great Lakes, was the catalyst for the rescue mission. Biologists were invited to speak at business association meetings and offered businesspeople an opportunity to become involved in the effort.

The rescue group consisted of volunteers including 50 scuba divers from several police departments, 20 Boy Scouts, 6 biologists, and 50 community volunteers. The dive crew, in radio contact at all times with the Detroit Harbor Master's office, collected mussels. Runners transported northern riffleshell mussels, heavily encrusted with zebra mussels, to the shore crew who removed the zebra mussels, and put the cleaned northern riffleshells in holding cages. By the end of the day, volunteers had collected and cleaned 110 northern riffleshell mussels. Twenty-five of these mussels are on public display in the Belle Isle Aquarium; the remainder were transplanted. Everyone agreed they had a great time at "Rescue the Riffleshell."

The fate of the northern riffleshell and other mussels in the Great Lakes is uncertain. At the time of the rescue mission, the northern riffleshell was on the list of endangered species for the State of Michigan, and the USFWS designated this species as federally endangered, effective February 22, 1993. This volunteer effort and similar efforts elsewhere may be necessary to protect other native unionids from extinction.

Roann E. Ogawa and Don W. Schloesser are employees of the USFWS, National Fisheries Research Center—Great Lakes, 1451 Green Road, Ann Arbor, MI 48105, (313) 994-3331.

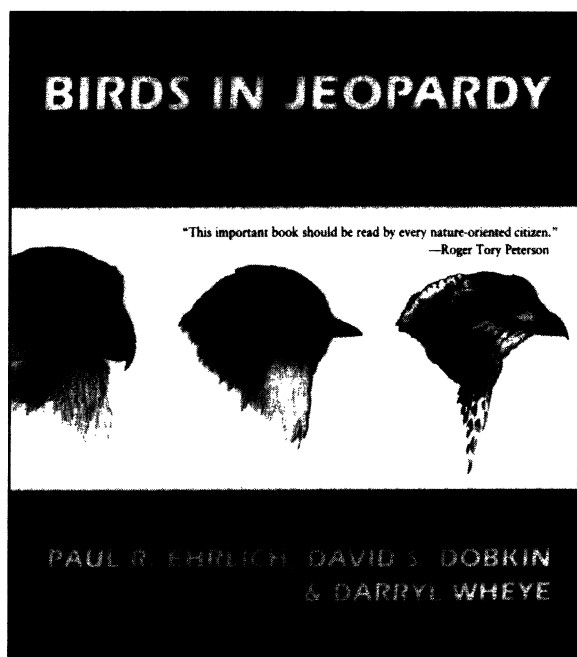
This article is an expansion of an item in the Regional News Report from Region 3 in Vol. XVII No. 12 of the USFWS Endangered Species Technical Bulletin, contained in this UPDATE—Ed.

Book Review

Birds in Jeopardy: The Imperiled and Extinct Birds of the United States and Canada including Hawaii and Puerto Rico

By Paul R. Ehrlich, David S. Dobkin, and Darryl Wheye. 1992. Stanford University Press. Stanford, CA \$17.95. 259pp.

Reviewed by J. Michael Scott



Ehrlich, Dobkin, and Wheye have compiled a very readable, informative, and authoritative book; a long-needed reference. For the first time we have, in one volume, complete information on species listed at risk by authoritative sources. In the past, such material was widely scattered in textbooks, journals, monographs, popular magazines, and newspapers.

In reviewing this book I was impressed with the content and its layout. The inclusion of Hawaiian and Puerto Rican species is fitting since it is the island ecosystems (particularly Hawaii's) that have suffered the greatest losses. We can learn much from a close examination of factors that led to the elimination or decline of species in these areas. In many respects, island systems are a window into the future for conservation of biodiversity. Extinctions occur more quickly in an insular setting than on the mainland and are more amenable to study.

The paintings by Wheye greatly enhance the book's quality. They are pleasing to the eye and accurate in depiction of form. If they were in a field guide one might take exception to the purple cast to the marbled murrelet and the brown streakiness in the heads of the akiapolaau, palila and other yellow-headed Hawaiian species, but these are minor exceptions.

The authors were very thorough in their search of the literature, and the references cited provide readers with the details needed to

seek out more in-depth information on species. I was glad to see the authors regularly refer to the USFWS *Endangered Species Technical Bulletin* (ESTB) and *Endangered Species UPDATE*. These are the best sources of up-to-date data on the status of threatened and endangered species. However, several citations from ESTB for the palila and Puerto Rican parrot seemed incomplete. More exhaustive refereed journal references are available by van Riper for the palila (van Riper, C. III. 1980. *Ibis* 122:462-475) and Snyder and others for the parrot (Snyder, N.F., J. Wiley, and C.B. Kepler. 1978. *The Parrots of Luquillo: Natural History and Conservation of the Puerto Rican Parrot*. Western Foundation of Vertebrate Zoology, Los Angeles, CA.)

The introduction lays groundwork in an easily readable form that accurately addresses extinction factors. The reference to human population size as the root or ultimate cause of biodiversity

problems was well taken. The rationale for the scope and layout of the book is nicely stated and makes reading easier. The five category presentation sequence of species in jeopardy is logical. I found myself flipping back and forth among these categories seeking common denominators and factors associated with jeopardized populations. The brief essays before each category provide concise summaries of the reasons for jeopardy and guide the reader to other more detailed discussions.

Individual species accounts are crisp, informative and accurate with sections on nesting, food, range where a species is in peril, natural history notes, reasons for current and historical status, and chronology of concern. Given the large amount of information provided in the text, I found very few errors. But reference to a population of 200 Hawaiian crows in 1980 must surely be to an earlier period. The references I am aware of (same cited by Ehrlich et al.) estimated the population size at 76 in 1978.

This is an excellent book well worth the purchase price of \$17.95. It is one that should be in the library of every ornithologist and conservation biologist. I concur completely with Roger Tory Peterson, who stated on the cover that, "This important book should be read by every nature-oriented person." The authors have done a service by identifying birds in jeopardy and the causes of their plight. Perhaps more importantly, they identify ways at the global, continental, state, and local levels in which one can make a difference.

J. Michael Scott is a Research Biologist with the U.S. Fish and Wildlife Service and Leader, Idaho Fish and Wildlife Cooperative Research Unit, University of Idaho, Moscow, ID 83843.

Table 2. Responses of states to survey. (Numbers correspond to questions in Table 1).

State/Territory	Questions													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
ALASKA	Y	N	N	N	N	N	N	N	N	N	N	N	N	N
ALABAMA	Y	Y	Y	Y	Y	Y	N	N	Y	N	N	N	N	N
ARKANSAS	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y	N	Y	N
ARIZONA	Y	Y	N	N	N	N	N	Y	Y	Y	N	N	Y	Y
CALIFORNIA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N
COLORADO	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N	N	N
CONNECTICUT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
DELAWARE	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N
FLORIDA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
GEORGIA	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	Y	N
HAWAII	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
IOWA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
IDAHO	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	N
ILLINOIS	Y	Y	N	N	N	N	N	N	Y	Y	Y	N	Y	Y
INDIANA	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	Y	N
KANSAS	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
KENTUCKY	N	N	N	N	N	N	N	N	N	Y	Y	N	Y	N
LOUISIANA	Y	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
MASSACHUSETTS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MARYLAND	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MAINE	Y	Y	Y	Y	Y	N	N	N	N	Y	Y	Y	Y	Y
MICHIGAN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MINNESOTA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y
MISSOURI	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	N	N	Y
MISSISSIPPI	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y
MONTANA	Y	N	Y	Y	Y	Y	N	N	Y	Y	N	N	N	Y
NORTH CAROLINA	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N
NORTH DAKOTA	N	N	N	N	N	N	N	N	N	Y	Y	N	Y	N
NEBRASKA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y
NEW HAMPSHIRE	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	N
NEW JERSEY	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
NEW MEXICO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y
NEVADA	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	N	N	N
NEW YORK	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
OHIO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	N
OKLAHOMA	Y	Y	Y	Y	Y	Y	N	N	Y	N	Y	N	N	N
OREGON	Y	Y	Y	Y	Y	Y	N	Y	N	N	Y	Y	N	Y
PENNSYLVANIA	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	N
PUERTO RICO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
RHODE ISLAND	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N
SOUTH CAROLINA	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N	N	Y
SOUTH DAKOTA	Y	Y	Y	Y	Y	Y	N	N	Y	N	Y	N	Y	N
TENNESSEE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
TEXAS	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N	Y
UTAH	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VIRGINIA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
VIRGIN ISLANDS	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N
VERMONT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
WASHINGTON	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WISCONSIN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WEST VIRGINIA	N	N	N	N	N	N	N	N	N	N	Y	N	Y	N
WYOMING	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N	Y	N

(continued from UPDATE page 7)

program. Thus, many state T&E species programs play a critically important role in protecting rare species and their habitats.

The Massachusetts Initiative

The Massachusetts Endangered Species Act (MGL 131A), passed in 1990, and its supporting regulations (321 CMR 10.00), promulgated in January 1992, provide Massachusetts with one of the strongest and most comprehensive state laws by which to protect its rare native species. Although the Massachusetts Wetlands Protection Act provides strong protection for the habitats of all rare wetland vertebrate and invertebrate species listed by the state (Griffin 1989), the new state Endangered Species Act now provides the primary regulatory and enforcement authority for protecting all rare species statewide. The Massachusetts Division of Fisheries and Wildlife (MDFW) is the primary regulatory agency for the act. This segment of the paper briefly summarizes the regulations including species listing and protection, habitat protection, and environmental review.

Species Listing and Protection

The listing process and the protection it provides recognizes vertebrates, invertebrates, and plants equally, and categorizes them into three levels of rarity and vulnerability, including endangered, threatened, and species of special concern. The listing process begins either by investigation of a species' status by MDFW personnel or by proposals from the public. These public initiated proposals must be reviewed within 21 days and the Director of the MDFW must determine whether sufficient evidence has been submitted to warrant review. A public hearing is required as part of the review process, and the Director must make available a summary of the biological data upon which the listing proposal is based. The Director is required to review the list of endangered, threatened, and species of special concern at least once every five years, but has chosen in practice to re-

view the list annually.

Unless specifically authorized, it is unlawful to take, possess, transport, export, process, sell or buy an individual of any listed species regardless of its origin. No permits are required for the propagation of listed plants, but no stock may be taken from the wild in Massachusetts. Penalties for the unlawful taking or possession of a listed species begin at \$500 for the first offense and increase to not less than \$5,000 for subsequent offenses, with each individual taken constituting a separate offense and with the added option of imprisonment for periods ranging up to 180 days.

Habitat Protection

The primary provision for protecting habitat is through the designation of "significant habitat." Significant habitats are specific sites that contain physical or biological features important to the conservation of one or more endangered or threatened species populations, and that may require special management consideration or protection. This form of habitat protection is not extended to species of special concern.

at the public hearing, any written comments submitted, and take into consideration the size of the threatened or endangered species population. Additionally, the Director must consider the current and foreseeable uses of the land, the current and foreseeable threats to the population or its habitat, the potential benefits of designation to the population, and the status and welfare of the species generally. Based on the best scientific evidence available, the Director must make a final decision within 60 days of the public hearing.

Once a final decision is made to designate a site, this designation becomes part of state regulation (321 CMR 10.70). Within the regulation that designates a specific site as a significant habitat, certain activities that may or may not alter the significant habitat may be specified. Elsewhere in the main body of the regulations (321 CMR 10.33) is a list of activities that can always be considered to be alterations, other activities that are never considered to be alterations, and exempted activities. In addition to the promulgation of a specific regulation which identifies the formal designation of a significant habitat, a "designation document" is published in the Massa-

The [Massachusetts] listing process and the protection it provides recognizes vertebrates, invertebrates, and plants equally...

The designation of a significant habitat is initiated by the Director of the MDFW based on an annual review of records maintained by the Division's Natural Heritage and Endangered Species Program. Designation is done through a public hearing held within 25 miles (40 km) of the site to be designated and requires a public notice at least 21 days prior to the hearing. It also requires that a special notice of the hearing be sent to all affected land owners and to a variety of town officials and agencies at least 30 days prior to the hearing.

Prior to designation, the Director must review the information presented

chusetts Register which includes a general description of the area, a summary of reasons for designating the site, and a map showing the boundaries of the site. A record of the designation identifying its location and its owners is then filed with the appropriate registry of deeds. The designation of a significant habitat may be appealed through a hearing process but may only be reversed if it is found that there is no credible scientific information to support the designation. Sites may also be undesignated through the previous public hearing process if at some later time they no longer warrant designation.

Once designated, a significant habi-

tat may not be altered without a permit, and a permit may only be issued if the action will not reduce the viability of the habitat to support the resident population of the listed species. Penalties range from \$1,000 to \$10,000 for the first offense and \$10,000 to \$20,000 for subsequent offenses, with the additional option of imprisonment ranging up to 180 days.

Environmental Review

Another provision, that resembles Section 7 of the federal ESA, requires that all state agencies utilize their authorities to further the purposes of the Massachusetts Endangered Species Act and its regulations. State agencies must review, evaluate, and determine the impact on state listed species or their habitats, all projects or activities that they conduct, and they must use all practicable means to avoid or minimize any damage to listed species or to their habitats. This responsibility extends to any activity directly undertaken by an agency, as well as any project that an agency funds or permits.

Conclusions

State endangered species acts fulfill a necessary "first line of defense" role that the federal ESA was never designed to fulfill. As such, they are essential companions to the federal ESA and are not a substitute. The Massachusetts Endangered Species Act, and those of most other states, list species that are locally and regionally declining but do not yet qualify for federal listing. In theory, the recovery of these species can be initiated long before their status has deteriorated rangewide and while management solutions are more varied and far less expensive than last ditch efforts that are sometimes required for federally listed species. In practice, however, the budgets of most state endangered species programs, that usually rely heavily on voluntary public contributions, are too small to undertake more than just a few core restoration efforts.

The listing process in Massachusetts, and in most other states, is far more responsive and timely than the federal

process. In Massachusetts, there is no backlog of species waiting to be listed, and the listing cycle from the time a species is proposed for listing until the final decision is made rarely exceeds 12 months. By contrast, over 3,600 candidate species are currently awaiting review for inclusion on the federal list of T&E species. For most species, this listing process takes years, and inevitably some species will become extinct while awaiting formal listing and protection. [However, see Feature Story in this issue for new developments in federal listing procedures—Ed.]

Unfortunately, the designation of Significant Habitat under the Massachusetts law, which requires publication of a detailed site map and a description of the rare species found at the site, could result in greater harm to some species than the benefit resulting from protection of their habitat. In Massachusetts, this would be particularly true for the bog turtle (*Clemmys mühlenbergii*) and timber rattlesnake (*Crotalus horridus*), which are two of the state's most endangered species, but are also highly sensitive to directed collection and, in the case of the rattlesnake, persecution. However, the designation of critical habitat under the federal ESA also sometimes creates the same dilemma. Further, in contrast to the federal designation of critical habitat that affects only federal agency involvement in undertaking, funding or permitting a threatening activity, significant habitat under the state law can be protected from adverse activities undertaken by any entity, including a private land owner.

In conclusion, the limitations of the federal endangered species program makes it imperative that states begin assuming a larger role in the protection of T&E species. Although a number of states currently have comprehensive T&E species programs, there is substantial opportunity for states to more fully develop their programs and regulations to protect rare species and their habitats. This would provide a much needed supplement to the federal program and provide additional protection for a wider variety of rare species and their habitats.

Acknowledgments

We thank the many individuals and environmental organizations who contributed to the development of a strong Endangered Species Act in Massachusetts, and especially H. Woolsey and J. Copeland, Massachusetts Division of Fisheries and Wildlife; and R. Ruth and C. MacDonnell, Boston, Massachusetts. We also thank the many individuals in the state agencies who participated in the survey. N. Edelson and the International Association of Fish and Wildlife Agencies conducted the verification of the responses to the first survey. The Wildlife Management Institute kindly allowed us to excerpt this article from the Transactions of the North American and Natural Resources Conference.

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Editor's note: Most of the text, and Table 1, are excerpted from: Griffin, C.R. and T.W. French. 1992. Protection of threatened and endangered species and their habitats by state regulations: The Massachusetts initiative. Trans. N.A. Wildl. and Nat. Resour. Conf. 57:674-683. This article updates the previous publication with the inclusion of the modified states' survey responses, Table 2.

Bulletin Board

Endangered Species UPDATE Student Lecture Series

In celebration of the 20-year anniversary of the Endangered Species Act, the *Endangered Species UPDATE* hosted a Student Lecture Series during the week of March 15-19, 1993. The series provided students and faculty members of the School of Natural Resources and Environment with an opportunity to discuss science, management, and policy issues surrounding the Endangered Species Act.

The following is a list of speakers and presentation titles. (For more information from any of the presenters, please contact Rebekkah Lynn Gooch at the *Endangered Species UPDATE* (313) 763-3243, who will forward your requests.)

Sara Barth, "A History and Critique of the Endangered Species Act." R. Lynn Gooch, "An Ecosystem Approach to Endangered Species Conservation." Correigh Greene, "The Problem of Interspecific Competition in Endangered Species Management." Joel Heinen and J. Yonat Swimmer, "Case Studies of Compliance with CITES: The Himalayan Fur Trade from India and Nepal and Illegal Animal Products from Amazonia." Elise Jones, "The Endangered Species Act Under Attack: The Politics of Reauthorization and What You Can Do to Help." Robin Saha,

"Improving Endangered Species Environmental Education." J. Yonat Swimmer, "Comparisons of *In Situ* and Relocated Loggerhead Sea Turtle (*Caretta caretta*) Nests in Bahia, Brazil." Max Weintraub, "Mass Extinctions in the Pacific Islands: The Elimination of Avifauna during the Human Colonization of Polynesia."

Endangered Species Conference Held at University of Michigan

Field biologists, policy analysts, educators, and organizational theorists gathered, in January 1993, to discuss how to improve endangered species conservation at a conference hosted by the University of Michigan's School of Natural Resources and Environment. Discussion suggested that the poor success rate of recovering endangered species in the U.S. will not improve if those involved continued to focus their efforts narrowly on biological tasks while neglecting socio-economic and political factors.

The biologists admitted that they had been naive about the types of political, bureaucratic, and social hurdles they had encountered in their careers. In response to this problem, the conference participants called for a reevaluation of conventional biological training programs that focus narrowly on technical skills while neglecting to prepare stu-

dents for organizational and political realities.

These and other ideas will be explored more thoroughly in a collaborative book by the conference participants that is expected to be published by Island Press next year.

Erratum/Clarification

Due to a production error, the taxon column headings for reptiles and amphibians were switched in the table of the Swimmer et. al article in the December 1992 *UPDATE* (Vol. 10, No. 2). The proper order of the headings should be: Mammals, Birds, *Reptiles, Amphibians*, Fish, Invertebrates, Total Animals, Plants, Total. In addition, while the figures for these taxa were estimates based on historic ranges from the Federal Endangered Species List (August 29, 1992), for a few species (such as some sea turtles) where historic range was not linked to any particular state or region of the country, the numbers were not included. Thanks to Michael Bender (USFWS Endangered Species Technical Bulletin editor), the *UPDATE* will receive the latest tallies of federally listed species, by state, from the USFWS database. Watch for this in an upcoming issue.

Announcements for the Bulletin Board are welcomed. Some items from the Bulletin Board have been provided by R. Lynn Gooch, and Geoffrey H. Brown and Sara E. Barth.

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