

ENDANGERED SPECIES ACT OVERSIGHT

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HEARINGS
BEFORE THE
SUBCOMMITTEE ON RESOURCE PROTECTION
OF THE
COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

NINETY-FIFTH CONGRESS
FIRST SESSION

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JULY 20, 21, 22, AND 28, 1977
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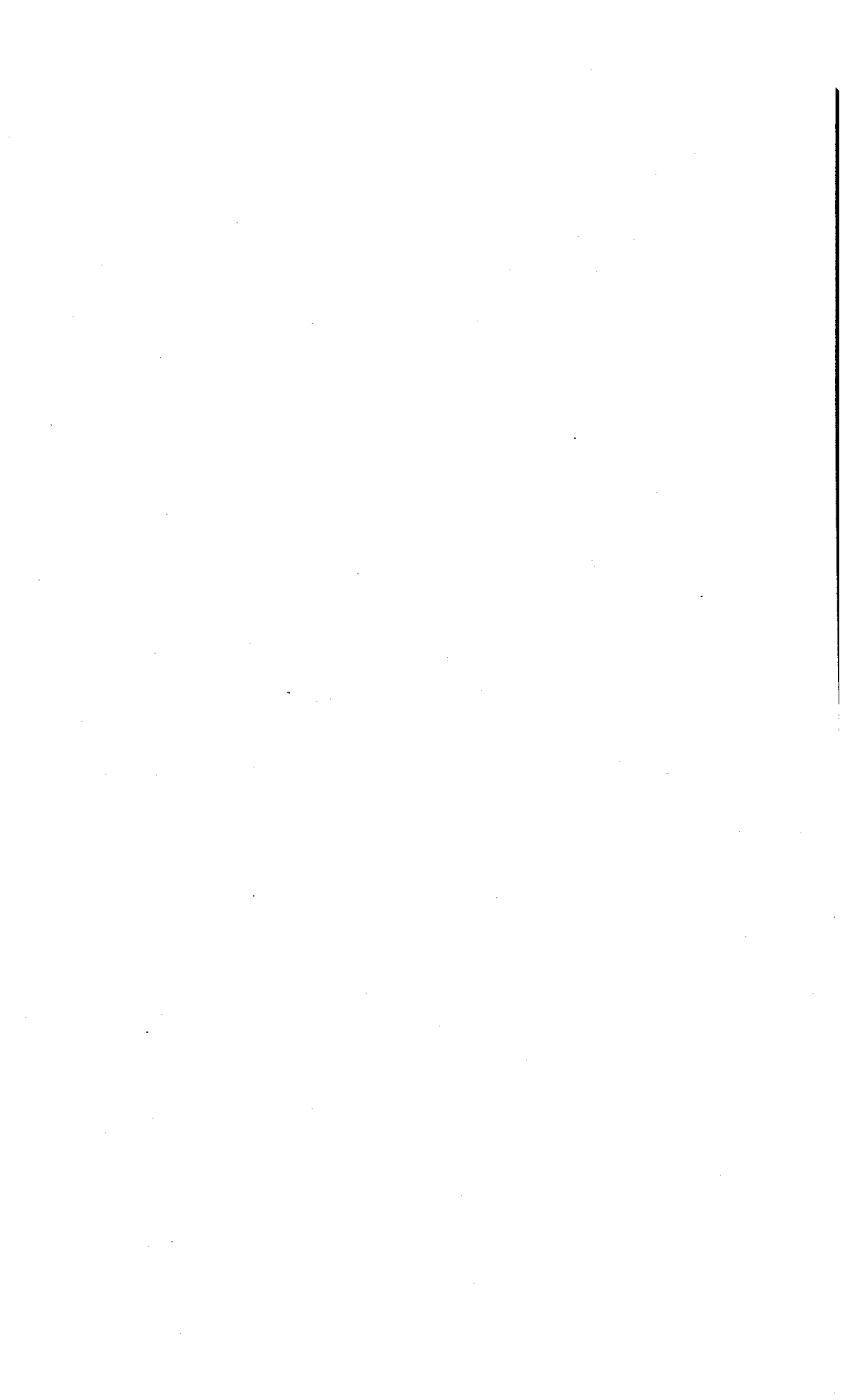
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ENDANGERED SPECIES ACT OVERSIGHT

WEDNESDAY, JULY 20, 1977

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON RESOURCE PROTECTION,
Washington, D.C.

The subcommittee met at 10:20 a.m., in room 4200 Dirksen Senate Office Building, Hon. John C. Culver (chairman of the subcommittee) presiding.

Present: Senators Culver and McClure.

OPENING STATEMENT OF HON. JOHN C. CULVER, U.S. SENATOR FROM THE STATE OF IOWA

Senator CULVER. The subcommittee will come to order.

I want to take this opportunity to welcome all of you to this series of hearings by the Senate Subcommittee on Resource Protection regarding the implementation of the Endangered Species Act of 1973. This morning's hearing will be the first of four to review the progress as well as the problems of the Endangered Species Act, which authorizes a landmark national program for the conservation of endangered or threatened species of fish, wildlife, and plants.

As you know, Congress enacted this statute in an effort to reverse the accelerating rate at which species are disappearing from our environment. According to a 1974 report by the International Union for the Conservation of Nature, the current rate of extinction of wildlife is one species annually, compared with an average rate of roughly one species every 10 years from 1600 to 1950, and with a rate of one every 1,000 years during prehistoric times. Many recent forms of life, such as the passenger pigeon and the audubon bighorn sheep provided Americans with many hours of enjoyment, but these species have now become extinct.

The underlying philosophy of the endangered species program is that we, as stewards of the world's natural and biological resources, do have a special responsibility to conserve and restore those species which are on the verge of extinction as a consequence of man's imprudence or neglect.

The Endangered Species Act provides the regulatory mechanism for achieving this goal by directing the Secretary of the Interior and, for marine species, the Secretary of Commerce, to identify endangered or threatened species and issue appropriate regulations for their protection.

Under this program, an endangered species is one in immediate danger of extinction, and a threatened species is one which is likely to become endangered in the near future. Once listed, a species is fully protected and cannot be taken or traded in interstate or foreign commerce except in accordance with permits issued by the Secretary.

Since the protection of habitat is an essential element of any effective program, the Secretary is authorized to acquire land for the conservation of affected species. Furthermore, Federal agencies are directed to assure that their actions do not adversely affect listed species or habitat which is critical to their existence.

In the 3½ years since we passed the act, significant progress has been made in the protection of our Nation's endangered species. Over 215 species or subspecies of fish and wildlife—including the American alligator, whooping crane, and leopard—have been listed for protection under this far-reaching program, and over 100 animals and 1,800 plant species have been proposed for listing.

In addition, recovery plans aimed at restoring populations of depleted species have been approved for 69 separate classifications, including such rare and beautiful forms as the California condor and the Mississippi sandhill crane.

As with any major Federal program, however, this progress has not been without controversy, and to a large extent we will examine during these hearings the problems encountered during the implementation of the act. Perhaps the most notable issue to be discussed is the possible conflict between section 7, which provides for the protection of critical habitat, and federally assisted projects.

The Tennessee Valley Authority has recently been enjoined by the U.S. Court of Appeals from completing the Tellico Dam which would destroy the critical habitat of the endangered snail darter. The subcommittee will review the Tellico Dam to determine whether or not a specific exemption for the project, as some have proposed, or other legislative action is necessary.

I should note that there are many possible conflicts between projects and officially listed species under the act which have been recently mentioned in the press. Many of these cases—and I think it is important to emphasize this—are still in the administrative or judicial process, and the appropriate agencies are negotiating project modifications or are determining whether a conflict actually exists.

Unfortunately, the recent publicity attending the *Tellico* case, which deserves examination in its own right, may obscure the larger successes of the endangered species program. The Interior Department, for instance, has resolved nearly 4,500 conflicts between projects and the act's provisions.

Furthermore, the President has recently ordered all Federal agencies to cooperate fully with the Secretaries of the Interior and Commerce in expediting the determination of the location of endangered species and critical habitats on Federal lands. This will help reduce any further irreconcilable conflicts.

We have an excellent group of witnesses this morning, and I am confident all pertinent issues will be thoroughly discussed. I believe we have a basic responsibility to protect those forms of wildlife, fish, and plants which are on the verge of extinction. They provide recreational

enjoyment and scientific and genetic benefits, and I am hopeful we can have a useful, realistic review of whether the Endangered Species Act is being implemented properly and is not unduly rigid in the protection it guarantees.

Senator Baker is unable to be here this morning. He has a great interest in this issue. The Senate will soon consider the Federal campaign financing legislation, and he must prepare for the debate this morning.

He wanted the Chair to express his regret over this conflict in his schedule to each of the witnesses who will testify this morning and especially to Congressmen Duncan and Beard with whom he shares a deep concern over the implications of the Endangered Species Act for the Tellico Dam.

He has a brief written statement to be inserted in the record at this point. Without objection, it is so ordered.

[The statement follows:]

Opening Statement of Senator Howard Baker
Hearings on The Endangered Species Act
July 20, 1977

Mr. Chairman, I am certainly glad that the Committee is taking this opportunity to examine the Endangered Species Act. From looking over the schedule of witnesses and the topics to be discussed, I believe the Committee will receive a diversity of viewpoints concerning those areas of the Act which seem to have strayed in their implementation from what I believe was Congress' original intent.

Mr. Chairman, as I have pointed out on numerous occasions, the concept of protecting and managing certain populations of endangered and threatened species is a good one and it ought to be retained. We are now realizing in the Endangered Species Act, as in other areas of environmental legislation, that the protection which we wish to provide must be tempered with reason--reason derived from examining and attempting to balance the importance of the entire range of interests involved in actions affected by these laws.

Mr. Chairman, I feel that the Committee ought to assure itself through these hearings that the Endangered Species Act will allow such a balancing of interests as part of its implementation.

In a broader context, what the Committee is seeking here, Mr. Chairman, is to establish guidelines for the stewardship and management of our natural resources, in this case our endangered and threatened wildlife resources. The very process of management requires discretion and flexibility to consider all relevant factors.

2.

In light of current and potential conflicts surrounding the implementation of the Endangered Species Act, it is apparent that the required flexibility is not currently available. In my opinion, if we are to afford proper protection to the diversity of species as well as protection to widely known species, we must seek through these hearings to determine a basis for assessment of the significance of these species and their habitat and to determine what tools are appropriate to the purpose.

I look forward to the testimony here today and in each of the three more days of hearings. I hope to learn the answers to some of these questions.

Senator CULVER. Finally, since the subcommittee this morning cannot meet after 12 noon, I would appreciate it if each witness would be kind enough to try to limit his oral testimony to 10 minutes, and we will, of course, make each written statement a part of the record.

Senator McClure?

**OPENING STATEMENT OF HON. JAMES A. McCLURE, U.S. SENATOR
FROM THE STATE OF IDAHO**

Senator McCLURE. Very briefly, I am very mindful of the time constraints under which we work. I particularly appreciate this hearing because I think we are beginning to see the problems that may be inherent in the program which the Congress has thus far put in motion. It may well be that from these hearings, there will result either modifications in the program or modifications of the statute may be indicated.

Certainly, I share with my colleagues the desire to protect endangered species, but I am not certain that the bill, that the law as it now exists is not going to be used by people for their own purposes quite apart from that. If the law has gotten to the point where people can use it for other purposes, then we may have to take a look at whether or not the legitimate interests of the Congress, the legitimate interests of the people of this country are being subverted in the desire to accomplish something else, using this act as a tool, and I am not saying that as a conclusion of this Senator.

I am stating that only as a concern because I don't want to see the law tampered with in a way that it is going to dilute its effectiveness or the purpose for which it was passed. At the same time, neither do I want to see it made the weapon in the hands of some who would desire to use it for quite different purposes.

There are those who have expressed concern that the listing of the endangered species has been taken from the hands of those in which balance might be achieved and placed in the hands of those in which balance has no legitimate objective. These are things I hope we will look at at these hearings.

I share with the chairman the desire to get on with it. I will not belabor this issue any further, and I welcome my colleagues from the other body here this morning and the other witnesses on the list.

Senator CULVER. Thank you, very much, Senator McClure.

Congressman Bevill was to testify this morning, but he cannot be here. I ask unanimous consent his full statements be made a part of the record following the testimony of Congressman Duncan and Congressman Beard. (See p. 24.)

Congressman Duncan?

**STATEMENT OF HON. JOHN DUNCAN, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF TENNESSEE**

Mr. DUNCAN. Thank you, Mr. Chairman.

I appreciate the opportunity to appear before this committee to

offer my comments and observations concerning the impact of the Federal Endangered Species Act of 1973. I do so out of a sense of concern—concern that we are seeing this act applied to certain Federal projects in a manner that is not consistent with the intent of Congress when the act was drafted and passed into law.

Let me emphasize that I believe the Endangered Species Act was an important legislative measure. It was an effort to bring some sense of balance to our national decisionmaking concerning the protection of our environment and our national economic growth.

Unfortunately, recent events have convinced me that the act, as it has been interpreted by some courts, does not promote balanced decisionmaking. Indeed, it does not permit it. I do not believe that Congress intended for this legislation to afford any single-purpose interests a potential veto over virtually any federally funded or authorized project, at virtually any stage of construction.

May I digress from my written statement, Mr. Chairman? Last night I read the Endangered Species Act and the debate in the Senate on July 24, 1973, and on page 25689, the question was raised about a road that was proposed to be constructed in Kentucky. The question was raised by Senator Cook and Senator Tunney, who was managing the bill on the floor at that time, and he said, "I understand after the consultation process"—and the act does provide for consultation process—"took place, the Bureau of Public Roads or the Corps of Engineers would not be permitted from building such road if they deemed it necessary to do so."

On page 25690, Mr. Tunney also says—

As I read the language, there has to be a consultation. However, the Bureau of Public Roads or any other agency would have the final decision, would have the final decision as to whether such a road should be built, that is my interpretation of the legislation.

I think that was the intent of the entire act and it did not permit any agency to supersede another agency and that the TVA had the right to build the dam that I am particularly interested in, which is the Tellico Dam. I think it reflects the inflexible and unreasonable manner in which the Endangered Species Act is presently being interpreted.

Since 1967, the TVA has been constructing the Tellico Dam and Reservoir project on the Little Tennessee River in east Tennessee. It is more than 90 percent completed. The Tellico Dam is on the left. Forward, Loudon Dam is on the right side of the picture. It is more than 90 percent complete and more than \$100 million of the project's estimated \$116 million cost has been invested toward realization of the project's benefits.

In order to comply with the chairman's request, I would ask that my full statement become part of the record and also the pages from the Congressional Record that I have mentioned; pages 25689 and 25690, that that also be part of the record, which to me shows the intent of the Senate.

Senator CULVER. Without objection, it is so ordered. (See p. 9.)

Mr. DUNCAN. May I state I sent a letter to every occupant in the two counties, Mr. Chairman, that touches the Tellico area, Loudon

County and Monroe County. We had from Loudon County, 864 people said they would like to see the dam completed, against 75; Monroe County, 713, for completion was 673, against was 40.

Then in my general questionnaire that went to all of the people in my district, in the other counties, total combined was 12,430 people said they would like to see the dam completed, against completion was 1,825.

I would ask unanimous consent that that become part of the record also.

Senator CULVER. Without objection, it is so ordered. (See p. 13.)

Mr. DUNCAN. May I say the opposition to the dam came up after the dam had started because I was here at the time that the House and the Senate approved the dam and to my knowledge, we only have two or three people who appeared in Washington to oppose it; but the opposition really came up after the dam had started.

May I say that they are sincere. It is sincere opposition. They are good people. They are not, as some have accused them of being, far-out people, but they are all dedicated people and good citizens of my district. They are entitled to be heard in this hearing.

I thank you, Mr. Chairman.

Senator CULVER. Thank you, very much, Congressman Duncan.

We will review all of the materials you provided us. We appreciate your being our leadoff witness this morning.

Mr. DUNCAN. May I also—I have a picture of a little fish here, if you haven't seen it.

Senator McCLURE. Congressman, is that in scale?

Mr. DUNCAN. I have a picture in scale.

Senator CULVER. It may be a suitable tie clasp for your next campaign.

Mr. DUNCAN. I have thought about having it, because they are all over the mountains in almost every stream, the snail darter, and I thought I might get an aquarium and put it in a fund raising dinner and charge admission because it is the most famous thing I suppose in Tennessee now, the snail darter.

[Congressman Duncan's prepared statement and the additional materials referred to follow:]

STATEMENT BY
THE HONORABLE JOHN J. DUNCAN
BEFORE THE
SUBCOMMITTEE ON RESOURCE PROTECTION,
SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

Thank you, Mr. Chairman. I appreciate having the opportunity to appear before this distinguished committee to offer my comments and observations concerning the impact of the Federal Endangered Species Act of 1973. I do so out of a sense of concern--concern that we are seeing this act applied to certain Federal projects in a manner that is not consistent with the intent of Congress when the act was drafted and passed into law.

Let me emphasize that I believe the Endangered Species Act was an important legislative measure. It was an effort to bring some sense of balance to our national decision-making concerning the protection of our environment and our national economic growth. Unfortunately, recent events have convinced me that the act, as it has been interpreted by some courts, does not promote balanced decision-making. Indeed, it does not permit it. I do not believe that Congress intended for this legislation to afford any single-purpose interests a potential veto over virtually any Federally funded or authorized project, at virtually any stage of construction.

One example from my district graphically illustrates the inflexible and unreasonable manner in which the Endangered Species Act is presently being interpreted. Since 1967, the Tennessee Valley Authority has been constructing the Tellico Dam and Reservoir project on the Little Tennessee River in east Tennessee. The Tellico project is more than 90 percent complete and more than \$100 million of the project's estimated \$116 million cost has been invested toward realization of the project's benefits.

Those benefits include a substantial amount of flood control storage space to help protect downstream communities; the production of 200 million kilowatthours of electric energy in an average year; and the creation of a navigation channel which will open the area to commercial and industrial development.

I want to state here that I have a deep personal interest in seeing the Tellico project completed. I have followed the project since its inception and I have carefully listened to the arguments of both those who support the project and those who oppose it. And it is my conclusion that the Tellico project will significantly improve the quality of life particularly for the people in the area affected by the project.

Let me describe briefly the situation which exists in the counties which will be directly affected by the Tellico project. Industrial development has been slow, hampered by terrain that limits the availability of industrial sites and makes construction of transportation facilities very expensive. As a result, sufficient jobs have not been available for those persons seeking adequate employment opportunities, and what jobs are available have been generally low-wage, offering few opportunities for advancement. Between 1950 and 1970 nearly 20,000 people left the three counties because of lack of employment opportunities, and about three-fourths of these were under 30 years of age. Thus, the area's most valuable resource--its young people--is being drained by lack of opportunity.

I am convinced that the Tellico project will help the people of this area take their rightful place in the economic mainstream of American life. Tellico will extend commercial navigation some 30 miles up the Little Tennessee River to a relatively level area which will become one of the finest industrial sites in east Tennessee. By providing industrial sites with access to river transportation as well as improved rail and highway access, TVA estimates 4,000 basic industrial jobs and 2,600 trades and services jobs will be created along the reservoir over a 25-year development period.

I might add that the people who will be most directly affected by Tellico share my belief that the project will substantially improve their opportunities for a better way of life. I recently completed a series of town meetings in the counties immediately adjacent to the project. Almost without exception, the people speaking in favor of the project lived in

those counties. I also conducted a survey by mail which showed that people living in the three counties support completion of the Tellico project by nearly a 9 to 1 margin. In addition, the most recent session of the Tennessee General Assembly passed several joint resolutions calling for completion of the project, all by an overwhelming majority.

TVA, at the urging of the Congress through continued appropriations, has pushed completion of the Tellico project so that its benefits could be realized as promptly as possible. The dam has been ready for closure and use since January of this year. However, on January 31 the Sixth Circuit Court of Appeals ruled that TVA could not impound Tellico Reservoir because this action would modify the habitat of the snail darter, a newly discovered three-inch fish which was designated an endangered species by the Department of the Interior. This action was taken even though the fish was not discovered until the project was half completed and not listed as endangered until the project was three-quarters completed.

The committee should note that TVA has made a good faith effort to save the snail darter, and at the same time to complete the Tellico project for the benefit of man. More than 700 snail darters have been transplanted from the Little Tennessee River to the Hiwassee River. TVA biologists inform me that those fish have been doing well and have reproduced in two successive seasons. In fact, they believe, and I have no reason to doubt their judgment, that presently there may be more snail darters in the Hiwassee River than in the Little Tennessee. They further indicate that the snail darter population in the Little Tennessee is not doing so well because the dam, which has been in place for two years, has already blocked their migration path. They are hoping to transfer more fish to other streams in the area, if they can get the necessary permits from the Endangered Species Office.

Still, it is my understanding that under the Appeals Court's interpretation of the Endangered Species Act, even a successful transplant

would not affect the Court's decision to enjoin completion of the project so long as the fish's critical habitat remains the Little Tennessee River. The Court has ruled that once a determination has been made that a Federal project or a federally authorized or funded project would adversely affect an endangered or threatened species or its critical habitat, the project must automatically give way, regardless of the importance of the project, its stage of completion and the resulting loss of a public investment. Under this interpretation, there is no room for balanced or reasoned decision-making. Indeed, balance is not allowed.

Mr. Chairman, I do not believe such an inflexible and absolute prohibition was the intent of Congress when it passed the Endangered Species Act. We certainly need to incorporate sound conservation planning in all our programs. But the interpretation being given the Act does not permit consideration of the needs of man when weighing the needs of endangered species. The needs of endangered species always prevail.

It is for this reason that I and my colleague in the House, the Honorable Marilyn Lloyd of Tennessee, have introduced a bill which would exempt the Tellico project from the provisions of the Endangered Species Act. We have not taken this action lightly. We are aware of the concerns of some that passage of this legislation might somehow weaken the act. But we are convinced after weighing the factors involved that this action will allow us to help meet the social and economic needs of the people of a three-county area of east Tennessee without compromising the continued existence of the snail darter.

Mr. Chairman, I thank you for your time and attention to this statement. I would now close with one final observation. The dilemma which exists between the Tellico project and the Endangered Species Act will not be unique as long as the act continues to be interpreted in this manner. Indeed, it has already had ramifications for other projects throughout the country. For this reason, I believe that a close examination by this committee concerning the present and potential impact of the Endangered Species Act comes at a critical time as we attempt to reach decisions which accommodate both man and the life forms with which he must exist.

Thank you.

Results of questionnaire on Tellico Project mailed by Congressman Duncan to every resident of Loudon and Monroe Counties, Tennessee. (Sample attached)

	Total responses	For completion	Against
LOUDON	939	864	75
MONROE	713	673	40

Results from Tellico question included on annual legislative questionnaire. (Sample attached)

	For completion	Against completion
Blount County	1821	231
Campbell County	468	21
Claiborne County	275	19
Knox County	7890	1343
Loudon County	787	81
McMinn County	522	59
Monroe County	526	32
Scott County	143	22
Union County	119	17
Totals	12,430	1,825

[Congressional Record—Senate, July 24, 1973]

ENDANGERED SPECIES ACT OF 1973

The Senate continued with the consideration of the bill (S. 1983) to provide for the conservation, protection, and propagation of species or subspecies of fish and wildlife that are threatened with extinction or likely within the foreseeable future to become threatened with extinction, and for other purposes.

Mr. Cook. Mr. President, I send to the desk an amendment and ask for its immediate consideration.

The PRESIDING OFFICER. The clerk will report the amendment.

The legislative clerk read as follows:

On page 43, line 11, insert the following: strike the word "such," and insert the word "any."

Mr. Cook. Mr. President, an earlier version of this bill provided that the appropriate Secretary review other programs administered by him and utilize such programs in furtherance of the purpose of the act. The bill provided further that all other Federal departments and agencies shall, in consultation with and with the assistance of the Secretary, utilize their authority in furtherance of the purpose of the act by carrying out programs for the protection of endangered species or subspecies of fish and wildlife by taking such action necessary to insure that actions authorized, funded or carried out by them do not jeopardize the continued existence of endangered species.

I am in complete agreement with this provision as stated, but it did not go far enough as it did not protect the habitat of the endangered species. I therefore recommended to the committee, and I am pleased that the bill we are now considering includes a provision which would prohibit the destruction or modification of the critical habitat of such species.

Mr. President, the only purpose of my amendment to change the word "such" to "any" is to make the provision all inclusive. I think we should be concerned with the habitat of all wildlife instead of considering that of endangered species.

We have a situation in my State that falls in this category.

Mr. TUNNEY. Mr. President, I ask the Senator whether the effect of his amendment would be, first, if the Bureau of Public Roads wanted to build a highway through an area of the country, as it deemed necessary for the citizens of the Nation, if it would be prevented from doing so by changing the word "such" to "any."

Mr. Cook. Mr. President, I would be less than fair with the Senator if I would say otherwise to him. It is conceivable that this could happen. It is conceivable also that never would happen.

The only point I am making is that they would have to have consultation with the respective agency. The point I have in mind is that we have the Pioneer Weapons Hunting Area in the State of Kentucky. It is the only one of its kind in the United States. There is no other. It is a tremendous nesting area for wild turkeys.

I might suggest that the Corps of Engineers decided that it would build a road right through the middle of this area. We have tried our best to have them change the route of the road. They had alternate routes, but they decided, despite their alternative routes, that this is where they would build the road.

This language means that they have to consult with the respective agencies under this bill, and they have to consult with the respective State agencies in order to work out this problem. That is exactly what it means. And I would be less than candid if I did not explain that to the Senator.

Mr. TUNNEY. Mr. President, as I understand it, after the consultation process took place, the Bureau of Public Roads, or the Corps of Engineers, would not be prohibited from building such a road if they deemed it necessary to do so.

Mr. Cook. The point is that they would then be doing it after consultation with the respective agencies, rather than making that decision on their own.

Mr. TUNNEY. But they would have the final decision after consultation.

Mr. Cook. The Senator has put me in a rather bad light. Under the terms of this, it would have to be under an agreement worked out with the respective agencies.

Mr. TUNNEY. Mr. President, as I understand the legislation, just reading the language:

All other departments, agencies, and instrumentalities of the Federal Government shall, in consultation and with the assistance of the Secretary—

(b) take such action as is necessary to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of any endangered or threatened species, or result in the destruction or modification of any habitat of such species which is determined by the Secretary, after consultation to the extent appropriate and necessary with affected States, to be a critical habitat of such species.

So, as I read the language, there has to be consultation. However, the Bureau of Public Roads or any other agency would have the final decision as to whether such a road should be built. That is my interpretation of the legislation at any rate.

Mr. COOK. Mr. President, we find ourselves in a position where we are debating or really talking about endangered or threatened species, and that is where the consequence of this amendment lies.

I might suggest to the Senator from California that if the Senator feels this might be the burden of this language, I do have another amendment which would designate this area.

Mr. COOK. Mr. President, I ask unanimous consent that as to this amendment the rule of germaneness be waived.

Mr. ROBERT C. BYRD. Mr. President, the Senator does not have to ask unanimous consent as long as no Senator makes a point of order.

The PRESIDING OFFICER. The Senator from West Virginia is correct.

Mr. COOK. Mr. President, I thank the Senator from West Virginia.

Mr. President, I thank the Senator from California, because this now gives me an opportunity to clarify the situation.

Mr. President, I believe that S. 1983 as written will contribute to the guarantee we all want that succeeding generations will enjoy some measure of nature and wildlife as we have known it. However, I would like further assurance for the people of Kentucky.

Mr. President, in my State of Kentucky, we have located at Cave Run, in Daniel Boone National Forest, a Pioneer Weapons Hunting Area. Within this area are various species of wild turkeys, white-tailed deer, red and grey foxes, ruffed grouse, dove, and quail. During the past year there have been attempts made to bisect this Pioneer Weapons Hunting Area by construction of a road through the normal nesting and grazing area of these species. To do so would most assuredly destroy or severely endanger the species. The tragedy is in the fact that a feasible alternate route is available that would generally skirt the Pioneer Weapons Hunting Area. We cannot permit such inconsiderate and ill-conceived projects to continue.

The amendment would not add a new section to the bill which would designate under section 3(b) of the Wilderness Act of the United States Code, that this area be designated as a wilderness area. Therefore, having such a designation, it is in the unique position of not being subject to this kind of tampering.

If we can get this accomplished, we will solve a problem and this has been going on for more than 2 years on my part.

We no longer have to fear that an agency can decide to arbitrarily build a major highway which bisects this area. I assure my colleagues that this would be of significance to the Pioneer Weapons Hunting Area located in the Daniel Boone National Forest in Kentucky.

Mr. TUNNEY. Mr. President, I have had an opportunity to consult with the Senator from Kentucky on his amendment. It is a good amendment. It is specific. It clearly focuses on the problem. I am prepared to accept the amendment.

I yield back the remainder of my time.

Mr. TUNNEY. Mr. President, I would prefer it if the Senator would withdraw his pending amendment. I know what the Senator's next amendment is. And I support that amendment. I recognize that the Senator has to secure unanimous consent to make the amendment germane to the bill. However, I am prepared to accept the amendment. I have looked it over.

I do not think there is any desire on the part of any Senator on the floor to object to a unanimous-consent request that the amendment be considered.

Mr. President, I am hesitant, as the floor manager of the bill, to accept the amendment. This does broaden considerably the impact of the language which requires consultations with the respective agencies and the Department and the Secretary of Interior. It moves it from endangered species to any species of animal. And with that extension of the language on the floor and without any hearings, I believe it is something that I would not be able to accept.

Mr. COOK. Mr. President, I withdraw my amendment.

The PRESIDING OFFICER. The amendment is withdrawn.

Mr. COOK. Mr. President, I send to the desk an amendment which is the same as S. 1532 which I introduced earlier this year and ask that it be immediately considered.

The PRESIDING OFFICER. The clerk will report the amendment.

The legislative clerk proceeded to state the amendment.

Mr. COOK. Mr. President, I ask unanimous consent that further reading of the amendment be dispensed with.

The PRESIDING OFFICER. Without objection, it is so ordered.

The amendment reads as follows:

At the end of the bill, add the following:

That, in accordance with section 3(b) of the Wilderness Act (78 Stat. 892; 16 U.S.C. 1132(b)), those lands in the Daniel Boone National Forest, Kentucky, comprising the Pioneer Weapons Hunting Area and consisting of approximately seven thousand three hundred acres, are hereby designated as wilderness.

SEC. 2. As soon as practicable after this Act takes effect, a map of the wilderness area and a description of its boundaries shall be filed with the Interior and Insular Affairs Committee of the United States Senate and House of Representatives and such map and description shall have the same force and effect as if included in this Act: *Provided, however,* That correction of clerical and typographical errors in such legal description and map may be made. A copy of such map and description shall be on file and available for public inspection in the offices of the Chief, Forest Service, United States Department of Agriculture.

SEC. 3. The wilderness area designated by this Act shall be known as the Cave Run Wilderness and shall be administered by the Secretary of Agriculture in accordance with the provisions of the Wilderness Act governing areas designated by that Act as wilderness areas, except that any reference in such provisions to the effective date of the Wilderness Act shall be deemed to be a reference to the effective date of this Act.

SEC. 4. Nothing in this Act or the Wilderness Act shall be construed as precluding the construction of a Zilpo recreation site access road generally on a route extending northward from Forest Development Road Numbered 129 generally skirting the eastern boundary of the Pioneer Weapons Hunting Area, or as affecting or modifying in any manner the 1962 Cooperative Management Plan between the Department of Fish and Wildlife Resources of the State of Kentucky and the Department of Agriculture involving the designation of the Pioneer Weapons Hunting Area within the Daniel Boone National Forest.

STATEMENT OF HON. ROBIN L. BEARD, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF TENNESSEE

Mr. BEARD. My statement is very brief, Mr. Chairman.

Thank you, Mr. Chairman.

I do want to congratulate you and the other members of this subcommittee for undertaking the first major review of the Endangered Species Act. Such a review is vitally necessary, and I appreciate the opportunity to share my views with you on this subject. I know your agenda is crowded, and I will try to keep my statement as brief as possible.

The Endangered Species Act passed the Congress in 1973. It was important legislation which embodied principles we cannot allow to be undermined. The principal objective of this act was to insure that we would never again unthinkingly cause the extinction of unique plant and animal life. That principle must be protected.

However, as with so many pieces of legislation which after enactment are exposed to the real test of implementation, certain problems arise. One particular problem that has been brought home to me rather forcefully is the apparent lack of any flexibility in the current law. There appears to be no leeway whatsoever to allow valuable public projects to go forward if there is a risk that any endangered species might be adversely affected.

The consequence of this inflexibility is that multimillion-dollar projects are forced into a "go or no go" situation, without regard to any other consideration. Compounding the problem is the fact that the law is not only applied to projects on the drawing board, but also to those that are substantially underway and even those that are virtually complete. I find the rigidity of that universal application of the law simply unreasonable.

Certainly, conflicts of the type we have experienced in the Tellico Dam project are not restricted to Tennessee. The impact of the Tellico Dam decision will be felt all across the country. Indeed, a valuable dam project in my own district is now in jeopardy as a result of that decision.

Such conflicts place an unnecessary strain on the Endangered Species Act, and I cannot help but think that agitation to severely revise the act will become more pronounced as these conflicts arise with more frequency. We can avoid this, but in order to do so, we must find some rational accommodation as soon as possible. To that end, I have introduced a piece of legislation that, in my judgment, offers a reasonable way out of this dilemma.

The objective of my legislation is to try to establish some rational guidelines within the act which will allow some certain public projects to continue. These projects would have to be major public undertakings, where construction began prior to any legal requirement to insure the safety of a specific endangered specie.

However, projects to be exempt would be required to assure that before going forward every possible modification would be undertaken to avoid damage to a listed specie. This objective would be accomplished by affording the Secretary of the Interior additional discretionary authority, under section 7 of the act.

Thus, the bill attempts to provide some very carefully limited flexibility to the act without disturbing the act's underlying principles. I do not propose that this is the only, or even the best, alternative. But I do suggest that debate on the subject is necessary, and I hope that this piece of legislation will act as a vehicle around which that debate might occur.

I would like to submit for the record a copy of the bill that I have introduced on the House side for your perusal.

Senator CULVER. Without objection, it is so ordered.

[The bill referred to follows:]

95TH CONGRESS
1ST SESSION

H. R. 4167

IN THE HOUSE OF REPRESENTATIVES

MARCH 1, 1977

Mr. BEARD of Tennessee introduced the following bill; which was referred to the Committee on Merchant Marine and Fisheries

A BILL

To amend the Endangered Species Act of 1973 in order to clarify the provisions of the Act regarding Federal agency cooperation.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That section 7 of the Endangered Species Act of 1973 (16
4 U.S.C. 1536) is amended to read as follows:

5 "INTERAGENCY COOPERATION

6 "SEC. 7. (a) The Secretary shall review other programs
7 administered by him and utilize such programs in further-
8 ance of the purposes of this Act.

9 "(b) All other Federal departments and agencies shall,
10 in consultation with, and with the assistance of the Secre-

1 tary, utilize their authorities in furtherance of the purposes
2 of this Act by carrying out programs for the conservation
3 of endangered species and threatened species listed pursuant
4 to section 4 of this Act and by taking such action as is
5 necessary to insure that actions authorized, funded, or carried
6 out by them do not jeopardize the continued existence of
7 such endangered species and threatened species or result in
8 the destruction or modification of habitat of such species
9 which is determined by the Secretary, after consultation as
10 is appropriate with the affected States, to be critical.

11 “(c) (1) In applying subsection (b) of this section,
12 no Federal public works project shall, if such project is on,
13 or directly affects, the navigable waters of the United States,
14 be deemed—

15 “(A) to jeopardize the continued existence of an
16 endangered species or threatened species; or

17 “(B) to result in the destruction or modification of
18 habitat of such species which is determined by the Sec-
19 retary to be critical

20 if the construction, reconstruction, or operation of the Fed-
21 eral public works project was commenced before the date
22 on which the notice required under section 4 (b) (1) (A)
23 of this Act regarding such species was published in the Fed-
24 eral Register.

25 “(2) With respect to any Federal public works project

1 to which paragraph (1) of this subsection applies, the
2 Secretary—

3 “(A) may, after consultation with the Federal de-
4 partment or agency concerned, and with the affected
5 States, by regulation prescribe such requirements re-
6 garding the construction, reconstruction, or operation of
7 such project as may be necessary and appropriate to
8 minimize the adverse effects, if any, which such con-
9 struction, reconstruction, or operation may have on
10 any endangered species or threatened species, and on
11 any critical habitat of such species, within the geographic
12 area directly affected by such project; and

13 “(B) shall implement such protective measures
14 (including, but not limited to, transplantation) with re-
15 spect to the endangered species and threatened species
16 in such area as he deems necessary and appropriate.

17 “(3) The harassment, harm, killing, or wounding of
18 any endangered species or threatened species within the
19 geographical area directly affected by any Federal public
20 works project to which paragraph (1) of this subsection ap-
21 plies shall, if such harassment, harm, killing, or wounding
22 is—

23 “(A) directly attributable to the construction, re-
24 construction, or operation of such project; and

25 “(B) not in violation of any requirement imposed

1 by the Secretary pursuant to paragraph (2) (A) of this
2 subsection

3 not be deemed to be a taking of any endangered species
4 within the meaning of section 9 (a) (1) of this Act or the
5 taking of any threatened species if a prohibition against the
6 taking thereof is imposed by regulation issued under section
7 4 (d) of this Act.

8 “(4) For purposes of this subsection, the term “Federal
9 public works project” includes, but is not limited to, any
10 public works project carried out by any corporation estab-
11 lished under Federal law.”.

12 SEC. 2. Section 7 (c) of the Endangered Species Act of
13 1973 (as added by the first section of this Act) shall apply
14 with respect to Federal public works projects described in
15 such section the construction of which commenced on or
16 after January 1, 1967.

Senator McCLURE. I just have one question of Congressman Beard. Do I understand that you do not propose an economic test with regard to whether or not the endangered species will be protected.

Mr. BEARD. Actually, let me first of all state that this piece of legislation that I have introduced is not a perfect piece of legislation. It is one strictly to act as a vehicle to hopefully generate conversations and debate.

As far as the economic test, I would think that in the Senate's wisdom or the House's wisdom, that this would be a viable consideration, that these situations would be considered. As far as what all would be involved, as to substantiate valid economic factors, I think it is subject for debate and for future consideration; but at this time, I would say that would be a viable consideration.

Senator McCLURE. Is it your intention that the legislation be confined—your thought is ultimately legislation would be confined to the situation you have outlined in your statement where a large public project is already underway and then the issue is raised for the first time?

Mr. BEARD. This is what my legislation deals with specifically on this particular thing.

Senator McCLURE. It wouldn't be your intention that the Endangered Species Act be modified to provide for a balancing in all cases, but only in those cases?

Mr. BEARD. I personally think it is going to have to be balanced in all cases. I see and I feel the environmentalists are going to realize also that you are going to find a radical departure from the concept of the purpose of the Endangered Species Act the more that you find projects that are underway or that have been proven to be viable projects that will be threatened because of the endangered species is found and I think you would see the whole thrust of the bill be endangered. I do think we have to, hopefully, set that concern aside.

Senator CULVER. I want to thank you both very much. I know you have commitments in the House and must leave now. We are very indebted to you for taking the effort and sharing your views on this subject.

[A statement from Congressman Beville follows:]

STATEMENT OF HONORABLE TOM BEVILL
BEFORE SENATE ENVIRONMENT AND PUBLIC WORKS
SUBCOMMITTEE ON RESOURCE PROTECTION

Wednesday, July 20, 1977

Mr. Chairman: I appreciate the opportunity to appear before you today to share some of my concern over the Endangered Species Act of 1973.

Mr. Chairman, when this legislation was before the Congress I supported it because I felt it would go a long way in calming the fears that existed over the direction man was moving in his effort to achieve progress.

Today, however, less than four years after its enactment it would be my conclusion that this Act is being used for a purpose that was never a part of the intent of Congress when it passed the Act.

This Act was seen as an important tool to help bring balance to national decision-making concerning economic growth and environmental protection. The effectiveness of this tool has been greatly reduced by the decision of the Sixth Circuit Court of Appeals in the recent case of Hill vs. Tennessee Valley Authority (snail darter), January 31, 1977. Given the Act, as interpreted by the Court, special interest groups could conceivably set out with confidence to stop any federally funded or licensed project currently underway or proposed in the United States.

The Sixth Circuit Court of Appeals has interpreted the language of the Act as being absolute and totally inflexible. It recognizes

no balance in the Act's language whatsoever. Given their interpretation, if a federally authorized or funded project is in conflict with a listed species or its critical habitat that project must be halted unless the Congress specifically exempts it or its habitat or the Secretary changes the status of the species, which under the Act he has the authority to do providing certain conditions are met.

It would certainly appear that the Congress did not intend for the Act to be considered under such narrow guidelines when you consider the general, technical, and scientific realities that exist in the world. Consider these points:

-- A species is any group of organisms with common characteristics which breeds separately. The difference between species is frequently slight and recognizable only to persons specifically trained in a given field.

-- Scientists have identified about 2,000,000 separate species of living organisms (1.4 million animals and 600,000 plants). New species are being identified constantly -- more than 10,000 new species are being discovered and described each year, and most scientists would probably agree that the current number for all existing species could be as high as 5,000,000.

-- There are more than 600 currently described species of freshwater fish in the United States and Canada alone, and 116 of these are known darters.

-- On the substrate of a river, the rich soil of a corn field, on the floor of a forest, there may exist many thousands of different organisms often representing hundreds of species.

-- Species are constantly evolving from common ancestors. Over the ages, far more species have passed out of existence than are currently living on earth.

-- Many living organisms have very limited ranges. It is conceivable that every river, every hillside, and every field could harbor an undescribed and perhaps unique species.

-- The Department of the Interior reports that there could be 200,000 "full" species plus as many as three to five times that number of additional sub-species and individual population that needed listing and protecting as threatened or endangered worldwide.

With these scientific realities it becomes very clear that the progressive development of this nation stands in jeopardy, given the current application of the Endangered Species Act. Should there be any doubt about the motives of some in their usage of the Act, I would like to quote the Secretary of Interior when he appeared before the Public Works Subcommittee on Appropriations of which I am privileged to chair: "With the endangered species list there is no question that it is being used in some instances to bring a judicial halt to a project. The problem is not with the endangered species but with the people and the project involved. That is an instrument by which they use to bring the projects to a halt."

Mr. Chairman, it is my opinion that when this Act is used in the way the Secretary of Interior described to stop a project that was within days of completion, after spending \$102 million dollars of the taxpayers' money and depriving citizens a supply of enough electricity to heat 20,000 homes, I can think of no stronger message. It is time the Congress takes another look at the Endangered Species Act and this time keep in mind that man himself is a species, and it is our responsibility to insure that his future and welfare is taken into consideration as we go about the business of protecting species.

Senator CULVER. We also have Mr. Frank Bond, State representative from New Mexico. Mr. Bond, it is a pleasure to welcome you here. Please begin.

**STATEMENT OF HON. FRANK BOND, REPRESENTATIVE, STATE OF
NEW MEXICO HOUSE OF REPRESENTATIVES**

Mr. BOND. Thank you, Mr. Chairman.

I appreciate the opportunity to be able to appear before you as first a State official and, second, as one who actually participated in the endangered species program. I may be in a unique position to judge the act really from many aspects.

I assisted in the passage of a companion act in the State of New Mexico, which would be a companion act to this piece of legislation. Additionally, I serve on the Rocky Mountain Southwest Peregrine Falcon Recovery Team, to which I was appointed by Mr. Lynn Greenwalt, Director of the Fish and Wildlife Service.

Third, I am vice president of the Peregrine Fund of Cornell University where we have major facilities for breeding peregrines in captivity at Ithaca, N.Y., and Fort Collins, Colo. Finally, I guess I am one of the few people, of about a dozen or so in the world, who have ever bred peregrine falcons in captivity.

I only use the peregrine falcon as the example of the application of this act, viewed literally from the congressional level, through the regulatory mechanisms of the land management agencies and particularly the regulatory mechanisms of the Fish and Wildlife Service to its applications through funding, cooperation in the States, and finally to work in the field. I have worked at every level, I guess, except at your level.

The peregrine fund was established in 1970, 3 years prior to the enactment of this act, and at that time, even though there was concern about endangered species through congressional intent of the act of 1969, the peregrine falcon, as now constituted as an endangered species, simply could have been the exotic course of a very large banquet. It wasn't protected very carefully in most cases.

We have established breeding colonies to reestablish the bird as a breeding bird on the east coast primarily, where it had been extirpated from that region and, second, to supplement the dwindling population of the West. In the West, we have been involved in Idaho, Colorado, and New Mexico, and we plan to expand into the other Rocky Mountain States.

As a mechanism by which the Fish and Wildlife Service could generate the greatest amount of information on a particular species, they have policymaking bodies which are called endangered species recovery teams. I understand that there are approximately 50 to 60 of these functioning at this time.

There are four for the peregrine, one in the East, one in the Rocky Mountains-Southwest, one on the west coast, and one in Alaska. The primary objective is that we are to serve as biological information as the best means of generating that information for the Fish and Wild-

life Service. The idea is to get the best experts on a particular endangered species on the recovery teams.

The problem we have in this particular instance is that we have a duplication of effort with four different plans produced by four different teams. There are approximately 26 members on the teams, only 5 or 6 of which have ever had any previous experience with peregrines. They were primarily officials of State and Federal Government who work in the wildlife field.

The other problem that is generated by our work in the field is the fact that we are faced with changing policies on the basis of this act within the Fish and Wildlife Service. Permit me for a moment to explain to you a particular situation. In peregrine falcon recovery efforts on the east coast, we are introducing subspecies that are not native to these coasts, simply because we do not have breeding stock from the originally extirpated subspecies.

So, through our best efforts, we have chosen to insert subspecies that are exotic to this particular area and, second, that are not considered endangered as a part of an overall endangered species program.

The problem we seem to be running into right now essentially, and the administration, Fish and Wildlife Service might want to address this and further clarify it, is that even though there is not any original stock, in the larger picture we are participating in the program, yet funding for these programs potentially may not be forthcoming, simply because the actual subspecies that we are introducing are not considered endangered.

Some other difficulties we have had, and I think deserve some review, are the difficulties we have had with the Division of Law Enforcement and I think the committee should be aware of that.

On the basis of a Presidential Executive order, recently signed by President Carter, we have had direct harassment in the field of our field personnel by the Division of Law Enforcement. I can't believe that the Division of Law Enforcement got together with the management policy people, because I don't think the management end would have allowed such a thing.

Senator CULVER. What specific example do you have?

Mr. BOND. For example, we have several people hired on a full-time basis to monitor the various release sites. We had in that particular instance a Fish and Wildlife agent show up at the release site and say that if you release the bird next Friday, and Friday was a date some months ago, we will have to arrest you on the spot.

Unbeknownst to us that this was coming, we thought we were participating in an approved program and in fact, I am sure we are. However, those types of activities, in addition to the others, are demoralizing, to say the least, to our field personnel. We have had some problems with some people actually trying to quit because they obviously didn't want to be arrested.

Let me address one other issue, that of the regulatory mechanisms of the act. The Fish and Wildlife Service has designated a certain category called "captive self-sustaining populations." This in a sense is an adjunct category to endangered, threatened status whereby if a captive population of endangered species is declared to be self-sustaining,

then it will be listed as threatened, and the prohibition section, section 9, will be partially eliminated.

We have gone along with this in the hopes that with our work, that status will eventually be achieved, but just recently, June 1, to be exact, the Director has noted in his statement in the Federal Register that the captive self-sustaining status will only apply to nonnative species and not to any native endangered species.

In that regard, I wrote a letter of protest to Mr. Greenwalt and then last week under the provisions of section 4, the general section of the act, I appealed for a formal public hearing on that particular matter.

I would like to, in the interest of time, address section 7 which the Congressman before me addressed. I want to say very clearly that we support the basic concept of that section. I think, as stated by Senator McClure very ably, that we also believe that the management agencies need to be sensitive to the total needs of a particular area before an endangered species is reintroduced or introduced for the first time so as not to circumvent the intent of that section or to be used as a ploy to stop an existing project.

With that, Mr. Chairman, I would be happy to attempt to answer any questions that you might have and give any further information. I do have a formal statement that I would like to have made a part of the record.

Senator CULVER. Without objection, we will make that statement a part of the record. (See p. 33.)

Senator CULVER. Thank you, very much.

Senator McClure?

Senator McCLURE. Thank you, Mr. Chairman.

First of all, I would be remiss if I didn't express on behalf of my colleague, Senator Domenici, his desire to be at this committee. He was hoping he would be able to be here personally, but other commitments made it impossible for him to be here.

He did have two or three questions that he would like to have addressed. I will ask those questions on his behalf.

You have stated that there are four peregrine falcon recovery teams and that these should be consolidated into a single team. What reaction have you received to your proposal from the Fish and Wildlife Service?

Mr. BOND. In April of this year, as a member of one of those teams, I wrote a letter to Mr. John Spinks, who is the Director of the Office of Endangered Species, suggesting this in the mood that we, one, get it to a reasonable level in terms of biological information; second, that we in the interest of saving money, quite frankly, not have so many people on the recovery team; and, third, in the interest of my further work in the field, that we not have a further level of bureaucratic review of all research, since there is no statutory authority for recovery teams and, in fact, they are only policymaking in terms of devising the plans for the recovery efforts.

What we are finding now is that through the interest of the Division of Law Enforcement, there are going to be additional requirements that recovery teams review research, at least that is what it appears

in some permits that have been issued recently. I don't think that is the purpose of recovery teams.

The Associate Director of the Fish and Wildlife Service has stated categorically that the recovery teams should not be doing anything else besides writing the recovery plans and then serving as a source of biological information; but to your specific question, I have not received a response to that letter.

That letter, by the way, is part of my record.

Senator McCLURE. Has the Fish and Wildlife Service assisted in the direct funding of your project?

Mr. BOND. Yes; it has in terms of direct grants. Let me state for the record that we are very appreciative of that assistance. In section 6 where cooperative agreements may be established between the Federal Government and the State governments for the carrying out of the activities and the purposes of this act, there are funding mechanisms whereby States cooperate on a percentage basis with the Federal Government.

We would like to see an amendment whereby an approved private program may receive direct funding as well as the continuation of cooperative agreements with the State government.

Senator McCLURE. One final question on behalf of Senator Domenici: Section 7 has been a real problem for us because it has conflicted with some public works projects. Do you have any difficulty with this section?

Mr. BOND. No difficulty unless it conflicts with an active peregrine site. We feel that from our point of view, that this can be eliminated by proper assessment under the National Environmental Policy Act, first, since that will be a requirement for those public works projects.

On the other hand, there might be a conflict if it is pushed to some ridiculous degree. Let me give you a particular example. Recently, a letter was submitted to the recovery teams which I personally didn't respond to, but the team leader did, to determine whether a peregrine falcon may sometimes fly over wetlands where there is now permitted waterfowl hunting; and whether in fact there was any potential that they may be shot there.

The potential, of course, is there, but nevertheless, if we start cutting down the wetlands as hunting habitat for the sportsmen, then we are going to have a conflict to the same degree that you have indicated earlier, Senator McClure.

Senator McCLURE. One of the means by which the endangered species are protected is the designation of the critical habitat and one of the areas of controversy that has arisen in my State is the proposal for the designation of some critical habitat for grizzly bear. This proposal is for a larger area than was first suggested.

I have introduced legislation that would provide that, before the designation of critical habitat area is made; an environmental impact statement must be prepared and filed. The action of the designation of the critical habitat area is thus made a Federal action requiring the preparation of an EIS.

Do you feel that the EIS would help resolve conflicts early, before they develop? Would it be a constructive thing in your judgement, or

would the preparation of the EIS be an overly burdensome requirement?

Mr. BOND. As far as the requirement, Senator, I can't speak to that because, in fact, I wouldn't be in the position or even assisting much in the actual preparation. In our case, and I am speaking specifically to our particular recovery efforts, it would not affect us.

I think in all cases, we can justify what we have done on biological grounds and whether what we are doing in the field is sensitive, as I explained earlier, to all the needs of a particular area. Then I feel that our declaration of an area of the country as critical habitat for the peregrine falcon will be justified and will be supported by the environmental assessment or impact statement.

Senator McCLURE. Thank you, very much.

Senator CULVER. Thank you very much, Mr. Bond. We appreciate your appearing here this morning.

Mr. BOND. Thank you very much for allowing me to appear.

[Mr. Bond's prepared statement follows:]

STATEMENT ON THE ENDANGERED SPECIES ACT OF 1973
BEFORE THE SENATE COMMITTEE ON THE ENVIRONMENT AND PUBLIC WORKS

by

State Representative Frank M. Bond
540 Camino Rancheros
Santa Fe, New Mexico 87501

July ²⁰~~19~~, 1977

Washington, D. C.

Frank M. Bond

Endangered Species Act

I am State Representative Frank M. Bond of 540 Camino Rancheros, Santa Fe, New Mexico 87501. I appreciate the opportunity to appear before you.

At the request of United States Senator Pete V. Domenici, I am appearing before you as both a state official and an individual with personal knowledge of the practical application of the Endangered Species Act of 1973. In 1975, due to my interest in the endangered peregrine falcon, I was appointed to the Rocky Mountain/Southwestern Peregrine Falcon Recovery Team by the Director of the U. S. Fish and Wildlife Service. In addition I serve as vice president of the Peregrine Fund, Inc., a non-profit organization, which supports the massive peregrine falcon captive propagation effort being carried on at Cornell University and in Colorado. Dr. Tom J. Cade, Professor of Ornithology at Cornell University, is the President of the Peregrine Fund and General Director of the peregrine falcon research program.

The original intent of the Endangered Species Act was to implement methods by which we could save and preserve for posterity various species of fauna and flora which are threatened with extinction. This ideal is noble and can be achieved with many species of wildlife; provided we do not complicate recovery efforts with cumbersome bureaucratic red tape that slows down and confounds effective actions; provided sensible, flexible regulations are promulgated with the original intent of the Endangered Species Act in mind; and provided that reasonable amounts of funding are available and spent in the wisest manner possible. These

goals are what the Congress intended when the Endangered Species Act was enacted and these are what the citizens and taxpayers expect. However, based on my experiences with the Fish and Wildlife Service regarding our peregrine work, it is my conclusion that the intent of Congress quite often is being hampered by the very agency charged to carry out the provisions of the Act. Allow me to provide a brief background of the research efforts on behalf of one endangered species, the peregrine falcon. As late as 1971, the endangered peregrine falcon could be poisoned, shot or served as the main course of some exotic meal in many states. Now the very mention of the "peregrine falcon" grips many in the bureaucracy with paranoia. Obviously, both extremes are incompatible with the restoration of the species. This need not be the case, even though the peregrine is one of those glamour species in which many people in this country have a strong interest.

In 1965 it was well-documented by Dr. Joseph Hickey at an international peregrine conference held in Madison, Wisconsin that the peregrine falcon was declining rapidly as a result of the insidious effects of DDT and its metabolites on the egg shell thicknesses of these magnificent birds. The embryos were not being incubated full term because, during the course of incubation, the weight of the incubating female would break the eggs and kill the embryo. Unfortunately, this syndrome continues because of the long-lasting effect of DDT, even after the use was restricted in the United States.

The Peregrine Fund was established at Cornell University in 1970, three years before the passage of the Endangered Species Act. The goal of the research supported by the Fund is to develop methods for the captive propagation of the peregrine falcon and then to introduce captive-

bred falcons to the wild in the eastern United States, where the species has been extirpated since the 1960's, and to supplement dwindling populations in the west. The endeavor was met with skepticism by many people; at that time only two known successful breedings of peregrines had occurred in the almost forty centuries of man's fascination with this species in the sport of falconry. Our program was begun at a time when a similar federal government program at the Patuxent Wildlife Center in Maryland appeared doomed to failure. Nevertheless, many falconers in this country unselfishly donated their birds to the project. Skepticism has now turned to strong support by most people because we are now producing almost 100 young peregrines each year and expect this figure to climb with the expansion of our western facilities in Ft. Collins, Colorado and with affiliated private projects in Chester Springs, Pennsylvania and Santa Fe, New Mexico.

The majority of these young birds have now been released to the wild. We now see some tentative success for the recovery of the peregrine in the east where young birds released in 1975 and 1976 have returned to several release sites. These first results in the field now give us realistic expectations that wild breedings of peregrines will take place within a few years.

The plan for captive propagation of the peregrine and its subsequent restoration to the wild, as originally conceived by Dr. Cade between 1965 and 1970, remains virtually unchanged today even though many others have become involved. A large portion of that plan has been carried out, thereby demonstrating that (1) captive propagation of the peregrine can be successful under proper conditions, and (2) release of young birds to the wild can be accomplished with the expectation that they are

able to survive and to breed. The restoration of an endangered species is within our grasp.

The federal government did not become actively involved in the restoration of the peregrine falcon, other than the early futile attempts at the Patuxent Wildlife Center, until 1975, two years after the first peregrines were bred at Cornell and five years after the Peregrine Fund was established. Once the major work by non-governmental biologists had been done in the lab and in the field to determine population status (ref. Canadian Field Naturalist, vol. no. 3, 1976), then four peregrine falcon recovery teams were appointed by the Director of the Fish and Wildlife Service to work on the species in four separate geographical locations: the East; the Rocky Mountains and Southwest; the West Coast; and Alaska.

I should point out that endangered species recovery teams are not based upon any specific statutory or regulatory authority given in the Endangered Species Act, but are the Fish and Wildlife Service's means of obtaining the best information and expert advice available on a given endangered species. There are approximately 50-60 recovery teams working on various endangered species at this time. The original intent of the recovery team concept, as expressed in a personal communication by Mr. Keith M. Schreiner, Associate Director and Endangered Species Program Manager of the Fish and Wildlife Service, was to gather a group of experts on a given species so that they might write a "recovery plan" for the species and supply biological information when asked. I must reiterate that the recovery teams have no regulatory authority; they serve at the pleasure of the Director of the Fish and Wildlife Service.

In the case of the peregrine falcon, we have four separate teams

working on essentially the same problem, a problem which the Cornell project has already demonstrated can be solved. Nevertheless, four separate recovery plans are being produced, with unnecessary duplication of effort. A single team could have written a national plan taking into consideration regional problems or unusual circumstances and the work already accomplished in captive propagation and release to the wild of peregrines bred in captivity, i.e. the successful Cornell project plan.

Any plan must be flexible to take into consideration the ever-changing management techniques as they evolve in the field work. Therefore, recovery plans are nothing more than our best estimate of how we should proceed to accomplish the recovery of the peregrine falcon and, by necessity, changes will have to be made.

As now constituted the recovery teams are not meant to do the field work; this must be accomplished by the executive land management agency and cooperating federal and state agencies. Again, this emphasizes the recovery teams' chief function as a source of biological information. Unfortunately, in the case of the four peregrine falcon recovery teams, only 5 or 6 team members have had any previous experience in working with the species. Of these few with prior experience, only two work for government. The remaining twenty members are, for the most part, employees of state and federal governments who only began to learn about the peregrine falcon's problems upon being assigned to the team. However, there are a large number of individuals in private life who have a wealth of knowledge on the peregrine falcon. The latter group, for the most part, is not actively involved in the recovery efforts but should be.

In fact, the recovery teams are now beginning to represent another

level of administrative review for all research on the peregrine. Researchers often find now that they must coordinate all of their activities with the recovery teams. This is being demanded of the researchers by the Division of Law Enforcement, even though the recovery teams are not empowered legally to function in this capacity. This is the function of the endangered species coordinators in the six regional offices of the Fish and Wildlife Service, not the recovery teams.

In a letter on April 25, 1977 (see Appendix I) to Mr. John Spinks, Chief of the Office of Endangered Species of the Fish and Wildlife Service, I suggested that the four peregrine falcon recovery teams be dissolved into a single team of 7 to 9 experts. This would alleviate some of the problems we are now experiencing and would save a considerable amount of the taxpayers' money.

We must face yet another problem, that of changing policies of the Fish and Wildlife Service concerning our reintroduction efforts in the eastern United States. There are no representatives of that population of peregrines known to have survived the onslaught of pesticide poisoning (referred to above) of their natural environment. If there are ever to be peregrines in that ecosystem again, they cannot, of necessity, be of the same genetic stock as lived there previously. Although the ornithological community equates taxonomically the peregrine that formerly occupied the eastern United States with that subspecies of peregrine still remaining in the west, there were, in fact, considerable differences in the birds well-known to some of the falconers in this country. Therefore, in arranging the release of captive-bred young in the east, researchers with the most knowledge about the species have attempted to select peregrines to match the habits and environmental adaptations of

the former residents.

On May 24, 1977, President Carter signed Executive Order Number 11987 prohibiting the introduction of exotic species of plants and wildlife onto land owned, leased or administered by the federal government and urged the various states and private citizens to do likewise. The President stipulated that exemptions from such restrictions can apply to species determined by the Secretaries of Agriculture and Interior not to pose a threat to the natural eco-systems of the United States.

Less than a month before the signing of the Presidential Executive Order, the Secretary of Interior had published a list of "Injurious Wildlife" whose importation and introduction into the United States might have an adverse effect on our natural ecosystems. The publication of that list represented the results of four years of study, public hearings and scientific advice in the determination of such "injurious species". There were no birds of prey on that list. Yet immediately upon the publication of the Presidential Executive Order, a regional official of the Fish and Wildlife Service, at the apparent urging of the Division of Law Enforcement, made the arbitrary decision that such restrictions would not only apply to the peregrines we are reintroducing in the east (contrary to the earlier decision that such were not "injurious"), but would also apply to "subspecies" of those birds. This is in direct contradiction to the Presidential Executive Order which expresses concern only about nonnative species.

In applying this decision, law enforcement agents harrassed and restricted several of our field workers conducting reintroduction activities in the east. If such a capricious decision is allowed to stand and its implementation restricts our reintroduction efforts, it will have deleterious

effects on our ability to recover the peregrine falcon on our continent and thus contravene the intent, if not the letter, of the Endangered Species Act.

I have included a letter from Dr. Cade to the Director of the Fish and Wildlife Service relating to the specific problem discussed above (see Appendix II). Dr. Cade speaks eloquently to the problem on a biologically justifiable basis. Dr. Cade's letter reveals the frustrations many of us have with the ever-changing policies of an agency which has to deal with a problem that requires a long-term solution.

The specific, overzealous law enforcement efforts to which I have alluded are symptomatic of a frame of mind that appears to be developing in the Fish and Wildlife Service. It is rumored that for some endangered species the Fish and Wildlife Service has budgeted four times more money for law enforcement activities than for actual recovery efforts. Some of us wonder whether the Chief of the Division of Law Enforcement is not, in fact, running the Fish and Wildlife Service instead of the Director. I believe the money allocated to endangered species programs should come under intense scrutiny by the Congress at the next budget hearings for the Fish and Wildlife Service. Specifically, those of us working with the peregrine falcon would like to know how much money is budgeted overall for law enforcement dealing with the peregrine and what the record of accomplishments has been. How many cases have been investigated, how many brought to trial, and how many convictions obtained? What sorts of violations have been encountered and how frequently?

I strongly support the intent of the Endangered Species Act of 1973. It represents a "we care" attitude on the part of the American people.

Nevertheless, there needs to be greater flexibility in some parts of the Act, and some tightening of the language in other parts. If this is not done, I believe the Department of Interior's regulations will continue to usurp the legislative prerogative and intent of the Congress.

At this time I would like to turn my attention to the language of the Act. I will attempt to point to some specific areas where, through amendment, the Act can be strengthened to protect the wild populations of endangered species.

1. Section 7, the Interagency Cooperation Section, is what many believe to be the strength of the Act, while others feel this has been included to stop all development. I support the concept of this section as it was originally intended by Congress; that is, development should not take place in the critical habitat of an endangered species when that development would affect significantly the survival of the total remaining population and no other alternatives for survival are available. However, land management agencies must be especially sensitive to all the needs of a particular area before critical habitat is established for an endangered species where that species did not formerly exist but has been introduced through a management program. In addition, land management agencies must be careful not to declare an area critical habitat where an endangered species has been introduced for the first time or has been reintroduced as a ploy to stop a contemplated project. Finally, when an endangered species occurs in an area where construction has already begun on a project before the preserve of the species was known, every conceivable step must be taken to find an alternative for the species in question before the project is stopped. To do otherwise would be unfair to the taxpayers who have already paid the bill for the

partially completed project.

2. As the Endangered Species Act is now written, the two classifications of wildlife are "endangered" and "threatened". In the course of the promulgation of regulations under the Act, the Director of the Fish and Wildlife Service has designated a sub-category, that of captive, self-sustaining populations of endangered species. The essential meaning of this adjunct category is that a population of an otherwise endangered species, whether exotic or native, which has been bred in such numbers in captive environments that it is capable of perpetuating itself is classified as threatened. This sub-category exempts such populations from most parts of the Prohibitions Section of the Act, since it has been included in the Act to protect the wild populations.

However, on June 1, 1977, the Director chose to apply this sub-category only to the captive, self-sustaining populations of exotic species. By limiting the new classification in this manner, he has removed the incentive for many who are attempting to achieve the goal of captive, self-sustaining populations for endangered species. Many people have written to protest this arbitrary ruling, and I have included my own letter of protest as part of this testimony (see Appendix III).

The Act should be amended to include the ^{category} ~~status~~ of the captive, self-sustaining populations. The new sub-category of wildlife should be regulated by the Secretary of Interior only to the extent that he assures that captive populations remain self-sustaining.

3. I suggest a new definition for the term "species" as used in this Act to eliminate the confusion over the term "subspecies". By this new definition any subgroup of a species would be designated by biogeographical boundaries rather than by any physical, taxonomic description.

4. Section 4 of the Act deals in part with Similarity of Appearance Cases. This permits the designation of all similarly appearing species of an officially listed species as endangered or threatened even though they, in fact, are not endangered or threatened. Obviously this benefits law enforcement personnel who are not able to distinguish among the various similar or geographic populations of an endangered species. Therefore, this section should be amended to empower the Secretary to exempt from this Act any individual animal as a non-endangered species or a non-endangered population of an endangered species for which the owner can legally document the geographic origin.

5. Section 9(b), dealing with Species Held in Captivity or Controlled Environment, should be amended to clarify the intent of Congress with regard to the progeny born after the effective date of this Act to wildlife held prior to the effective date of the Act. In many cases wildlife held prior to the effective date of the Act are considered to be personal property. Then, rationally, it follows that the progeny born to the wildlife held pre-Act should also be exempt from the Act's provisions. It appears that this was clearly the intent of Congress as demonstrated in Section 9 of the Conference Committee Report on the Act. However, the Fish and Wildlife Service has chosen to apply the restrictions of the Endangered Species Act to the progeny of all adults, whether ^{the adults} ~~they~~ were taken before or after the effective date of the Act. This has placed an undue hardship on many captive propagators. In our case it is impossible many times for us to return captive-bred peregrines to people who had lent us their birds in 1971 or 1972 before the Endangered Species Act was enacted. In a few cases, due to the restrictions, the same ^{People} ~~individuals~~ have withdrawn their breeding peregrines from our project, to the detriment of our ability to

assist in the recovery of the species.

Section 2, Findings, encourages "...the States and other interested parties, through Federal financial assistance and a system of incentives, to develop and maintain conservation programs which meet national and international standards...". Some of the best endangered species work is being accomplished by institutional and private organizations and by individuals throughout the country. The Congress must insist that this intent is carried out; the Fish and Wildlife Service must not be permitted to destroy the incentive of the institutional and private captive propagators of endangered species.

6. A method has been established in Section 6, Appropriations, whereby the states may enter into cooperative agreements with the federal government for financial assistance to engage in endangered species programs. These programs, if approved initially, are subject to review annually by the Fish and Wildlife Service. A similar provision should be incorporated into the Act to provide for the direct funding of non-governmental programs for endangered species recovery.

7. To do endangered species work costs a great deal of money. I believe the bulk of any budget designated for an endangered species should be spent on the management, propagation, habitat acquisition and field work for that species. With this in mind, it would be appropriate, through amendment to Section 6, to limit law enforcement expenditures on a native endangered species to not more than 5% of the funds designated for that species.

(For the amendments as I propose them, see Appendix IV).

I have heard expressed on several occasions that we should not do anything to preserve endangered species. These same individuals say endangered

species should be left to pass over the brink into extinction as evidence that man has been the despoiler of the earth. That point of view is a double indictment against our society. If at some time we have done something to push a species of wildlife to the edge of extinction, then to do nothing to rectify that wrong is doubly condemning. Those of us working on endangered species programs feel that in most cases something must be done in such situations. Our work with the peregrine falcon demonstrates that successful programs can be implemented to recover an endangered species if we can be free of the burdensome restrictions of the federal government to accomplish our goals.

APPENDIX I

FRANK M. BOND

540 CAMINO RANCHEROS
SANTA FE, NEW MEXICO 87501
505 983.6886

April 25, 1977

Mr. John Spinks, Director
Office of Endangered Species
U.S. Fish and Wildlife Service
Washington, D.C.

Dear John:

I have not had an opportunity to congratulate you on your new position. It must be quite a change from your previous job. I, personally, am pleased that you have decided to stay with the Fish and Wildlife Service.

As you may be aware, almost two years ago I was appointed to the Rocky Mountain Southwest Peregrine Falcon Recovery Team by Lynn Greenwalt. At that time the team was charged with writing a recovery plan for the peregrine falcon in our geographical region of the country in addition to providing biological data on the species to the Fish and Wildlife Service.

We have met regularly over the past two years. Under the competent leadership of Gerald R. Craig of Colorado we have completed our plan. It is my understanding that the plan has been approved or is about to be approved by the Director. When the plan has been approved, it is my feeling that our mission has been accomplished.

That will bring us to a junction in our concept of the recovery of the peregrine falcon. There are four peregrine falcon recovery teams, each with its own jurisdiction. It seems likely that all of the teams will have completed their plans shortly. Then, I ask, what will be the role of the various teams?

About a year ago, a meeting was held in Denver of the membership of all four teams. At that time I proposed that all four teams be dissolved and then be reconstituted into a single team of not more than 7 to 9 experts on the peregrine falcon. I had proposed this realizing that writing four separate recovery plans would be a tremendous duplication of effort. I think the similarity of the plans will substantiate this contention. A single team could have written a national plan taking into consideration regional problems or unusual circumstances.

During the entire time we were writing the Rocky Mountain, Southwest Plan I tried to impress upon our team the real need for flexibility, so that those working with the plan would be in a position to make timely decisions in the field. By and large I think you will find that our plan accomplishes that goal. We have recognized the need for and usefulness of captive propagation as a means to support and augment the wild population as well as the necessity of manipulating/managing the wild populations. We have steered clear of putting down in the plan specific priorities on management techniques as well as specific sites where various operations will take place. To do otherwise would clearly ignore the "nature of the beast". Also we must realize that we are still in the scientific research aspects of this work. In short, the plan(s) is/are our best estimate of how we should proceed to accomplish the recovery of the peregrine falcon. Nevertheless, changes will have to be made.

As now constituted the Recovery Teams were never intended to do the field work. According to the Endangered Species Act this must be done by the land management agencies. With the primary tasks accomplished, the Teams may tend to find themselves in "make work" projects or in another level of review capacity of all work being done on the peregrine. Since the recovery team concept does not have any statutory or regulatory authority, the various teams should only function as a source for biological information.-

In the case of the peregrine falcon this can be accomplished with a single national team, made up of people very familiar with the species. When called upon this team could act in an advisory capacity as originally conceived. A single team would alleviate the inter team squabbles which now appear to be popping up. A single team would save the Fish and Wildlife Service considerable money in travel costs alone. Finally, with a single team in its proper place as an advisor to the governmental agencies, the endangered species coordinators of the various regions will be in a position to make decisions on the welfare of and work on the species. In fact this is where the proper authority rests.

Since this may be an appropriate moment in the peregrine recovery effort to make a change, I hope you will give real consideration to my proposal. If you agree with me, I believe you will have a better source for biological information on the peregrine falcon than you have now. In fact, you will have a smoother operation.

We hope you will have an opportunity to visit us here some time soon. It has been a long time since we have had time for a chat.

With best wishes,

Frank M. Bond

Frank M. Bond

FMB:jb

CORNELL UNIVERSITY

DIVISION OF BIOLOGICAL SCIENCES

ITHACA, N. Y. 14853 U.S.A.

Reply to:
SECTION OF ECOLOGY & SYSTEMATICS
BLDG. #6 LANGMUIR LAB

7 July 1977

The Director
Fish and Wildlife Service
U.S. Dept. of the Interior
Washington, D.C. 20240

Dear Sir:

I write in the hope that I may be able to influence policy-making decisions currently under consideration by your endangered species staff, policy that I understand could bear heavily on our program to restore a breeding population of Peregrines Falcons in the eastern United States. My input will be biological in reference rather than legal. I realize that the policy you are developing is intended to be general, but I am only concerned here about its impact on Peregrine recovery work.

The questions that concern me relate in part to "interpretation" of the Endangered Species Act of 1973 and to the President's Executive Order 11987, May 24, 1977, on Exotic Organisms. The two most basic issues center around the use of captive produced Peregrines from non-indigenous stocks for introduction into the vacant breeding range of the species in North America and on whether or not it is appropriate to use funds allocated under ESA to propagate and stock falcons from non-endangered populations ("subspecies") in habitat now vacated by an endangered form. If policy emerges to state that non-indigenous and exotic forms of the Peregrine cannot be released for reintroduction in the East and/or that "endangered species money" cannot be used for this purpose, then the whole recovery effort that we have been building up over the last seven years for the Peregrine in the East will be seriously compromised, if not scuttled. The people in your agency who are responsible for developing this policy need to give very careful consideration to the effects their determinations will have on the Peregrine recovery effort, which enjoys a very wide public support and anticipation of future benefits from the governmental and non-governmental monies already expended on this program over the past years.

Speaking first as a troubled citizen, I feel that the public interest in preservation of endangered species would be better served if civil servants in the responsible agencies paid less attention to the legalistic (I use the word advisedly instead of "legal") niceties of the wording of Acts and Orders and devoted more effort to promoting actions to effect their primary intent. The wording of these Acts and Orders is often abstruse at best, and definitions of terms and words are often at variance with their commonly understood meanings and uses in the real world. This is particularly true when definitions of scientific terms and concepts are attempted, so that we have to contend in our thinking with a legal definition that may be at variance with the scientific meaning. The terms "species," "subspecies," "native," and "exotic" as used in the ESA and the Executive Order provide such difficulties in the case of the Peregrine Falcon. It is unfortunate that the drafters

of these legal instruments do not consult biologists before they start to write about biological subjects.

The ESA sect. 3(11) defines "species" in an approximately correct biological way, although it excludes one category of populations commonly recognized by biologists as belonging to species, namely disjunct allopatric populations that are separated by geographic barriers from other populations of the same species and, hence, are reproductively isolated from them physically. Species are, in fact, populations the members of which freely interbreed and exchange genes in nature, or that have the potential for doing so, but that are reproductively isolated by genetically determined mechanisms from all other populations of similar organisms. Reproductive isolation is the key to the definition, because it means that all members of a species, regardless of how widespread or how many populations have been described by taxonomists as "subspecies," share a closed, cohesive, coadapted gene pool and a common epigenetic system of development. The genetic implications of reproductive isolation mean, furthermore, that species are the fundamental units of evolutionary change, because the genes of no other population can contribute to the evolutionary potential of a closed gene pool. Thus, closed gene pools are what natural selection has to work on. A further significance is that species are the units of biological organization that adapt to environment, that specialize for particular modes of existence, for ecological niches, and that shift adaptations through successive generations in response to environmental changes. It is for these reasons that the species has remained a central unit of organization in studies of evolution, ecology, behavior, physiology, and population biology, and it is also for these reasons that the ESA rightly focuses on the species as the taxon of fundamental importance for preservation.

The legislative history of ESA, to which the Chief, U.S. Forest Service refers in his letter of 10 February 1977 to the Director, FWS perhaps says something important for the legal interpretation of what is meant by a "subspecies," but it only serves to confound biological meanings, for in no way is a subspecies, in real nature, equivalent to a full species. A subspecies is an arbitrarily delimited geographic population (deme) of a full species. There are, to be sure, degrees of difference (genetic and phenotypic) among the demes of a species; and one of the current weaknesses of ESA is its failure to recognize that there are these degrees of difference and that there are different "kinds" of species. For example, some disjunct allopatric populations, which are reproductively isolated by geography from closely related populations, may be genetically and phenotypically quite distinct from other conspecifics and on the way to becoming full species in their own right. Such subspecies and so-called "semi-species," when threatened or endangered, need to be given more consideration under the provisions of ESA than a similarly afflicted contiguously allopatric "subspecies" of a wide-ranging, continental species. More loss of unique genetic material is at stake in the first case than in the latter.

The Red Wolf (*Canis niger*) is a good example of a population that achieved considerable morphological distinctiveness in geographic isolation from other populations of "wolves" (*Canis spp*) without, however, developing sufficient reproductive isolating mechanisms to prevent extensive "hybridization" or secondary intergradation with the Coyote (*Canis latrans*), once the two populations came into geographic (sympatric) contact. While there is room for argument about whether the Red Wolf is a "good species" distinct from the Coyote, there is no doubt that the original Red Wolf population, which evolved in geographic isolation from the Coyote, represents a unique constellation of genes--a gene pool that is well worth our effort to try to save.

Contiguously allopatric breeding populations, which in the past have frequently been subjectively divided up into "subspecies" by taxonomists, usually show continuous variation over the entire species range, and adjacent populations share a high proportion of genes in common. The Peregrine is one of these "polytypic" species with as many as 16 to 22 described subspecies, depending upon which "authority" one accepts; but in most cases no more than 50 per cent of the individuals from one subspecies can be distinguished phenotypically from 50 per cent of the individuals in another. This difficulty in distinguishing subspecies is clearly evident in the way North American breeding populations have been treated by taxonomists. The Checklist of the American Ornithologists' Union, a conservative organization, still recognizes but two "official" subspecies of *Falco peregrinus* on the continent: *pealei* breeding in the Pacific Northwest Coast and Aleutian Islands and *anatum*, which breeds everywhere else. In 1968 my good friend, Clayton White, formally described a new subspecies, *tundrius*, which the Secretary of the Interior subsequently recognized by listing as an "endangered subspecies" of the Peregrine. Curiously enough, White was originally urged by Interior Department officials to describe the Arctic breeding Peregrines as a named subspecies so that the southern *anatum* populations could be declared endangered under the old 1969 Act! What better proof of the arbitrariness and subjectivity of subspecies is needed than that?

Everyone would agree, I think, that it clearly was the intent of the Congress in the wording of section 3(11) of ESA to make it possible for the Secretary of the Interior to list a "subspecies" or any other population unit of a full species as threatened or endangered without so designating the entire species. Somehow this idea needs to be stated in straightforward language without doing violence to the biological concept of species. Since there often is no agreement among specialists as to the geographic range of a "subspecies" or which geographic populations should be included in a particular "subspecies," more precision and objectivity would be introduced into the official listings of endangered species and threatened species by avoiding the use of subspecies names entirely and simply listing full species by geographic distribution. Thus, a meaningful "listing" for the Peregrine Falcon in North America might be as follows: *Falco peregrinus*, all breeding populations south of the boreal forests, excluding the Pacific Northwest Coast of British Columbia, Southeastern Alaska, and the Aleutian Islands are endangered; all breeding populations in the boreal forests and tundra regions of Alaska, Canada, and Greenland are threatened. The Peregrine Falcon is a prime example of the wisdom and utility of this procedure for listing, as by no means all breeding populations of this worldwide species are threatened or endangered; nor have the population declines followed along the arbitrary geographic limits of subspecies designations for this species. Such a procedure for listing would also allow for a more orderly, timely, and flexible process of "de-listing" by geographic designation, as local and regional populations recover their numbers.

The Chief, U.S. Forest Service has correctly pointed out in his letter that "a recovery plan which proposes the stocking of a different subspecies for an endangered subspecies cannot be considered a recovery plan for that endangered subspecies. In fact, it is possible that, in some cases, such a plan could be detrimental to the endangered subspecies." The western "*anatum*" population is such a case. It would be inappropriate, indeed biologically unacceptable, for government to sponsor large scale releases of non-indigenous Peregrines into the range of that population, as genetic swamping or adulteration of the wild genome could occur, a point that is well made in the Recovery Plan for the Rocky Mountain Southwestern Peregrines.

It does not follow from that valid argument, however, in a case where a species has been entirely extirpated as a breeding bird over a very large portion of its range (hundreds of thousands of square miles in the case of the eastern Peregrine) and the

indigenous genetic stock is no longer extant, that the establishment of non-indigenous genotypes into the vacant range falls outside the legitimate bounds of endangered species recovery and, therefore, should "not enjoy the benefits and authorities provided in the ESA." There is no wording in the ESA, its regulations, or legislative history that can be construed to demand or even encourage this interpretation. In relation to the Eastern Peregrine Recovery Plan, the Chief, U.S. Forest Service makes a misleading point when he talks about stocking "taxonomic equivalents" for endangered subspecies. We are not looking for a taxonomic equivalent; we are looking for an ecological equivalent--some stock of Peregrines that have at least a minimum capability for survival and reproduction under the prevailing conditions of our eastern United States environment. Although such birds may be genetically somewhat different from the original, indigenous breeding population, natural selection operating over several generations will select out a "fit" gene pool for the new population.

If one were to follow the legalistic view espoused by the Chief, U.S. Forest Service and others, it would be perfectly correct for us to take "anatum" Peregrines breeding at 9,000 feet in the Rocky Mountains and release them in the eastern United States because they are "taxonomic equivalents" of the same named subspecies as our former, eastern breeding population. But this would be biological lunacy, because the Rocky Mountain Peregrines are not ecological equivalents of the former eastern Peregrines. In particular, they have evolved an eggshell porosity that is adaptive for gaseous exchange at the low barometric pressures characteristic of high altitudes but which would be maladaptive for eggs incubated at lower elevations near sea level. Biological wisdom dictates that we look for a close ecological counterpart, even though it may have been named some other subspecies--peregrinus, brookei, pealei, tundrius--and may come from some "exotic" part of the world.

The President's Executive Order clearly defines what it means by "native species" and "exotic species." It also explicitly defines what it means by "United States," but unfortunately the latter is not a correct or commonly accepted definition. By including Puerto Rico, Samoa, Virgin Islands, Guam, etc. as a part of the United States, the order makes the definitions of "exotic" and "native" meaningless from both biological and political standpoints. What this curious document says to me is that absolutely no violence would be done to its wording by introducing the Guam Fruit Bat into southern California, because by the definitions given the fruit bat is a native species of the United States!

As written, the Executive Order applies only to full species, as there is no recognition in its wording of subspecies, demes, or any other population units of lesser inclusiveness than full species. Unfortunately, the order is written as though there are only two kinds of species with respect to U.S. political boundaries--those with natural distributions entirely outside the United States (exotics) and those with distributions entirely inside the United States (natives). It fails to comprehend the many wide-ranging species that occur naturally both within and without our borders. In biological fact, and also coincidentally by the definitions of this order, the Peregrine Falcon is a native species of the United States; by logical and legalistic argument none of its worldwide populations comes under the proscriptions of this order. Even if by some tortuous argument a legal counsel finds a way to apply the "subspecies definition" of ESA to this order, sect. 2(d) could be invoked in behalf of the Eastern Peregrine Recovery Plan's recommendation to use non-indigenous and exotic forms of the Peregrine for release in the United States.

These questions about "exotic" races of the Peregrine and about the use of endangered species money to establish "non-endangered" genotypes into vacant breeding range have been under active consideration inside and outside of government for at least five years. I can remember some discussions and exchange of correspondence with Earl Baysinger, Gene Ruhr, and others in the Office of Endangered Species as far back as 1972. In February of 1974, the National Audubon Society convened a Conference on Peregrine Falcon Recovery, chaired by Prof. J.J. Hickey and attended by some 30 distinguished scientists--experts on the Peregrine--conservationists, and federal agency representatives. The question of genetic problems and use of exotics were discussed in depth. "It was agreed that every effort should be made to bolster existing wild stocks by all available techniques, but that the program should include, from the start, a basis for introducing the most promising, ecologically-preadapted stock into eastern sites. Nature will then "select out" this stock so as to recreate a viable "new" race in the region lost by the original population. It won't be a Rock Peregrine, but still a proper Peregrine adapted to today's environment." (See page 25 of the proceedings.) Further, Drs. Drury and Nisbet particularly emphasized that the best strategy for successful reintroduction of the Peregrine in the East is to maximize the genetic diversity of the breeding stock and of the birds to be released, so that natural selection can pick out those genotypes that are best suited for survival and reproduction under the environmental conditions existing now.

Again, throughout 1975 and 1976 the Eastern Peregrine Falcon Recovery Team, appointed by the Director, FWS, considered all of these points and others and came out with a recovery plan recommending judicious but necessary use of non-indigenous and exotic forms of the Peregrine for restoration of a breeding population in the East, recognizing the clear difference that exists between the eastern situation where no wild breeding population remains and the West where remnant indigenous breeding populations still do occur. In February of 1976, the Regional Director of FWS for Region 5, at the request of the Eastern Recovery Team Leader, wrote a "position statement" endorsing the recovery team's recommendation to use Peregrine Falcons from populations called tundrius, anatum, pealei, peregrinus, and brookei. After a telephone conversation with a local law enforcement agent in Maryland, the Regional Director rescinded his position statement on 9 May 1977. On 3 June he sent a telegram directing that the Cornell falcon program desist from further release of exotic subspecies of Peregrines. Now your staff is engaged in drafting a policy.

The legalistic arguments against the use of non-indigenous types of Peregrines for endangered species recovery and against the expenditure of ESA money for restoration involving use of individuals from non-endangered populations come almost entirely--if not exclusively--from civil servants within the federal agencies. Many of the arguments appear to be diversions to hide deeper motives, for example, the implied worry in the Forest Service about setting a precedent for the reintroduction of wolves into vacant range in the National Forests, or the concern in some quarters that establishment of a breeding pair of Peregrines in a particular area might result in the designation of "critical habitat" that could be unfavorable to commercial or exploitive interests. Few agency people argue against the plan: from biological objections or because they think it is poor conservation.

The American public, on the other hand, is largely unaware of these internal arguments and questions, and probably could care less. A very large percentage of the American conservation public wants to see a breeding population of Peregrines re-established in the East. The people do not much care how it is done or what kind of

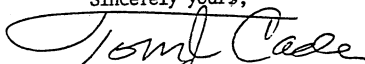
Peregrines are used, as long as the desired end result is achieved as quickly and as economically as possible. (They seem, in fact, quite willing to leave the details of methodology up to those of us who have demonstrated some success in getting the job done.) The American people, I am sure, feel that Peregrine recovery in the East is a bona fide part of our national endangered species program and that it should be supported by the federal government through the provisions of the Endangered Species Act. Most of them probably think that it should be entirely supported by ESA.

After all these years of deliberation and work, which have led us to the threshold of success in establishing some breeding pairs in nature, and the development of a strong public desire for the return of the Peregrine in the East, I find it incredible, and terribly discouraging, that the Fish and Wildlife Service would now reject the Recovery Team's plan and back away from its own position statements of the past, just because a few people in government have asked questions that they hope will be answered in ways favorable to their own bureaucratic interests.

It has been suggested that eastern Peregrine recovery could be carried forward under the Migratory Bird Management Program of FWS without creating so many problems. I find this suggestion unpalatable for both philosophical and practical reasons. First, the work is not migratory bird management; it is endangered species work, and it properly belongs under the endangered species funding program of FWS. Secondly, there are limited funds for Migratory Bird Management, and none--I have been told--are available for falcon work in the next fiscal year. Finally, if Peregrine recovery is ruled out for ESA money, then we will not be able to take advantage of the funding provisions with the involved states under section 6 of ESA. We have been looking forward to this source to provide most of the money needed for the actual reintroduction work in the field, and indeed several eastern states are now working with us in this way.

I repeat: Unless your impending policy is modified appropriately or unless some exception can be made for the Peregrine in the East, I very much fear that a death blow will be delivered to the eastern recovery program for this species. There is nothing in the wording of the Endangered Species Act, in regulations promulgated under it, or in the Presidential Order on Exotics that forces the Fish and Wildlife Service to set any policy or take any action contrary to the Eastern Peregrine Recovery Plan as drafted. There are enough "loop-hole" phrases to allow for the adoption of a reasonable and equitable policy with respect to the issues that have been raised about the plan. You can decide for Peregrine recovery in the East, or you can decide against it without the necessity for changing a single word in any of the relevant statutory and executive instruments.

Sincerely yours,



Tom J. Cade
 Professor of Ornithology and
 Program Director for
The Peregrine Fund



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House of Representatives

THIRTY-THIRD LEGISLATURE

Santa Fe

APPENDIX III

COMMITTEE:
Member:
EDUCATION
NATURAL RESOURCES

June 28, 1977

Mr. Lynn Greenwalt, Director
U.S. Fish and Wildlife Service
U.S. Department of the Interior
Washington, D.C. 20240

Dear Mr. Greenwalt:

I write concerning the final rule on captive, self-sustaining populations (CSSP) of endangered species published in the Federal Register on June 1, 1977. I am very disturbed by the Fish and Wildlife Service's stand not to list any native species in this new classification.

Since 1971 I have been actively pursuing captive propagation of a native subspecies of the peregrine falcon. It was not until 1974 that this bird was listed as an endangered species under the Endangered Species Act of 1973. Since that listing it has been determined that those people who held these endangered birds prior to December 28, 1973 could do with them as they pleased. However, the Endangered Species Act urges cooperation among the Fish and Wildlife Service and interested citizens in the restoration of endangered species. Therefore, I must object to this final rule in the strongest way and request that the Fish and Wildlife Service reconsider this position immediately for the following reasons:

1. The final rule is arbitrary and capricious in that it discriminates against one group of citizens who are interested in native endangered species;
2. The justification in the cover letter to endangered species permit holders of June 10, 1977 states: "The Service has decided, however, not to list any native, Endangered species as a CSSP. Such treatment would seriously weaken their protection, since

animals unlawfully captured in the wild could be falsely described as belonging to a CSSP." By the very nature of this statement there is a very strong inference that those of us breeding captive endangered species are presumed to be guilty of or have intentions of breaking the law. That, I believe, is contrary to the Constitution of the United States.

In addition, may I point out, that the Division of Law Enforcement has the power to inspect the premises and activities of every permit holder. I ask you rhetorically to what extent must the individual permit holder go to prove that his activities are legitimate? This aspect of the rule seems to have been included for the convenience of Law Enforcement;

3. Many breeders of peregrine falcons began their operations prior to the enactment of the Endangered Species Act. It was the intent of most of those breeders, including myself, to aid in the restoration of the species and to use some progeny in the practice of falconry. The latter, by the way, is not precluded by the language of the Endangered Species Act.

However, this ruling removes the incentive for many to continue the propagation of peregrine falcons at the same level. It is my feeling, then, that this rule goes contrary to the intent of the Endangered Species Act.

I wish to point out that you have encouraged us several times to pursue the route of having the peregrine declared a CSSP. We have done this in good faith; and,

4. Finally I feel that the final rule may have been made erroneously, procedurally. When this rule was first proposed on May 5, 1976 there was no mention that it would pertain only to exotic species; it was to include all endangered species. Therefore, we were not given an opportunity to comment on that specific distinction. At the very least there should be a new hearing on the rule before it is implemented so we might be able to make a formal presentation on the matter.

For the most part we have had good relations with the Fish and Wildlife Service in the past, so I hope that you will respond to me that the Service will review this rule immediately. In the meantime I feel compelled to seek counsel to determine what legal recourse I have in regard to this rule.

Sincerely yours,

Frank M. Bond

Frank M. Bond

FMB:jb

APPENDIX IV

SUGGESTED AMENDMENTS

AMENDMENT TO SECTION 3 (page 2)

Sec. 3. For the purposes of this Act--

(1) The term "captive population" means a population subject to regulation by the Secretary of a species of either native or exotic fish, wildlife, or plants which has been determined under this Act to be endangered or threatened and which by means of successful propagation programs, has been bred in such numbers in captivity or controlled environments that it is capable of being perpetuated. (renumber succeeding subsections)

(11) The term "species" includes populations of fish, wildlife, and plants, the members of which freely interbreed and exchange genes in nature, or have the potential for doing so, and are reproductively isolated in nature from other populations of similar organisms.

AMENDMENT TO SECTION 4 (pages 3, 4 and 5)

Sec. 4. (a) GENERAL.--(1) The Secretary shall by regulation determine whether any species is an endangered species or a threatened species, and if so, whether there exists for that species a captive population, because of any of the following factors: * * *

(4) the inadequacy of existing regulatory mechanisms; [or]

(5) other natural or manmade factors affecting its continued existence; or

(6) successful captive propagation in sufficient numbers. * * *

(b) BASIS FOR DETERMINATIONS.-- * * *

(2) In determining whether or not any species is an endangered species, or a threatened species, and in determining whether there exists for that species a captive population, the Secretary shall * * *.

(c) LISTS.--(1) The Secretary of the Interior shall publish in the Federal Register, and from time to time he may by regulation revise, a list of all species determined by him or the Secretary of Commerce to be endangered species and a list of all species determined by him or the Secretary of Commerce to be threatened species, and whether there exists for such species ^{any} a captive population. Each list shall refer to the species contained therein by scientific and common name or names, if any, whether there exists for such species a captive population, and shall specify with respect to each such species over what portion of its biogeographical range it is endangered or threatened.

(d) PROTECTIVE REGULATIONS--REGULATIONS REQUIRING INFORMATION TO DETERMINE CAPTIVE POPULATION STATUS.--Whenever any species * * * also been adopted by such state. The Secretary shall require by regulation such records and information as he deems necessary to determine that a captive population of any endangered or threatened species exists and that it maintains its self-perpetuation capacity. In the event that the captive population is found to be in danger of losing its self-perpetuating capacity, the Secretary may determine that a captive population of the species no longer exists.

(e) SIMILARITY OF APPEARANCE CASES.--(1) The Secretary may, by regulation, and to the extent he deems advisable, treat any * * * * and further the policy of this Act.

(2) Any species not listed pursuant to Section 4 of this Act, or any member of such species, shall be exempt from regulations promulgated under this subsection if the Secretary finds that adequate documentary evidence, sworn affidavits, or other information is available to verify

species identification ^{and} of the geographical origin of the member of the species in question.

AMENDMENT TO SECTION 6 (page 7)

* * * (d) ALLOCATION OF FUNDS.--(1) The Secretary is authorized to provide financial assistance in the form of direct grants to private non-profit corporations or to qualified individuals for the purpose of supporting endangered species programs approved by him. The Secretary is authorized to provide financial assistance to any state, through its respective State agency, which has entered into * * *.

AMENDMENT TO SECTION 9 (page 11)

* * * (b) SPECIES HELD IN CAPTIVITY OR CONTROLLED ENVIRONMENT.-- The provisions of this section shall not apply to any fish or wildlife held in captivity or in a controlled environment on the effective date of this Act, or to the captive bred progeny of any fish or wildlife so held if the captive bred progeny ^{are} ~~is~~ a part of a captive population as defined in this Act, if the purposes of such holding are not contrary to the purposes of this act.

AMENDMENT TO SECTION 11 (page 18)

* * * (1) Not more than five percent of any funds under the control of the Secretary to be expended for the purposes of this Act shall be allocated or spent for enforcement of the criminal or civil sanctions of this Act.

Senator CULVER. Our next witnesses represent a panel from the administration. I wonder if you would be good enough to come up at this time. The panel consists of Mr. Charles Warren, Chairman, Council on Environmental Quality; Mr. Robert Herbst, Assistant Secretary for Fish, Wildlife and Parks, Department of the Interior; and Mr. Jack Gehringer, Deputy Director, National Marine Fisheries Service, Department of Commerce.

I also see that Mr. Greenwalt, Director of the U.S. Fish and Wildlife Service, and who else do we have here?

Mr. SCHREINER. I am Keith Schreiner, Associate Director of Fish and Wildlife.

Senator CULVER. There is one other person.

Mr. SCHREINER. I am joined by Miss Marion Eddy, a member of the Council on Environmental Quality, who went through her confirmation hearing this week. We appreciate your welcoming here.

Senator CULVER. We are very happy to have you.

Mr. GEHRINGER. Mr. Chairman. I have with me Bob Gorrell, who is program specialist with our endangered species program, National Marine Fisheries Service.

Senator CULVER. Before we begin, I would like to thank the Department of the Interior, Mr. Herbst particularly, for the comprehensive briefing material that was prepared for the members of the subcommittee. It is extremely helpful to us and we are grateful.

I think you all have been advised of our time constraints this morning. It is now 11:24. Under the Senate rule, we are obligated to recess the hearing at 12 noon. We do have your complete statements which will be made a part of the record. In light of the fact that we still must hear this morning from a panel of technical witnesses, I wonder if you would please limit your oral testimony to 5 or 7 minutes each?

We will then submit your full written statement for the record. I think the subcommittee would like to have the opportunity to submit written questions to each of you for the record. We will keep the record open for that purpose.

STATEMENTS OF CHARLES WARREN, CHAIRMAN, COUNCIL ON ENVIRONMENTAL QUALITY, ACCOMPANIED BY MARION EDDY, NOMINEE TO THE COUNCIL ON ENVIRONMENTAL QUALITY; ROBERT L. HERBST, ASSISTANT SECRETARY OF THE INTERIOR FOR FISH AND WILDLIFE AND PARKS; JACK W. GEHRINGER, DEPUTY DIRECTOR, NATIONAL MARINE FISHERIES SERVICE, DEPARTMENT OF COMMERCE, ACCOMPANIED BY ROBERT GORRELL, PROGRAM SPECIALIST, ENDANGERED SPECIES PROGRAM, NATIONAL MARINE FISHERIES AND LYNN A. GREENWALT, DIRECTOR, U.S. FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR, ACCOMPANIED BY KEITH SCHREINER, ASSOCIATE DIRECTOR FOR FEDERAL ASSISTANCE, U.S. FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR

Mr. WARREN. Mr. Chairman, thank you. I do have a prepared statement which has been submitted and which I would like to have incorporated in the record. (See p. 78.) I do thank you for the opportunity and privilege of presenting the position of the Council on Environmental Quality on the issue of the success of the implementation and administration of the Endangered Species Act of 1973.

Briefly, I think that my statement could not be better abbreviated than by referring to the comments of the chairman of the subcommittee in opening this session. As we have examined the implementation of the act, it appears to us that the charges from some quarters that it is too inflexible to deal with the multitude of the problems and issues which arise under it lies not in the act itself, but frequently in the actions of the particular agency involved.

The lesson that we have been able to draw from the first 4 years of implementation is that the administrative process provided by the act should be given the opportunity to work in a complete fashion before exceptions to the act itself are allowed. The case-by-case review should initially be conducted by the agencies involved to determine whether there is an irresolvable conflict and then the process should be permitted to operate to resolve the conflict.

As the chairman indicated in his opening remarks, there have been 4,500 instances of consultation over the implementation of the act. All of these examples have been successfully resolved, save three, where litigation was used. In two of those three instances, the issues have been satisfactorily resolved one way or the other. The only one which has not been resolved by the administrative and judicial process con-

templated by the act concerns Tellico Dam, which is properly now before the ultimate decision body of this country, the Congress of the United States. You, in your wisdom, have referred that to the General Accounting Office for a report, which report, I understand, is before you and about which you will receive considerable testimony.

We believe that the process that is presently employed is appropriate and one which should not be interfered with. I would like, as a matter of historical analogy, to refer to the experience with the National Environmental Policy Act of 1970.

During its early years of implementation, problems arose to which Congress responded so to the extent that there were over 150, almost 170, as I recall, different proposals for amending NEPA to deal with these allegedly unacceptable results. As we developed experience, all such calls or all such suggestions appeared. To the extent that now given the testimony of all sections of our economy and society at hearings, the hearings that the Council recently held, there is almost universal support of NEPA as it is presently written.

So what I am trying to suggest by that is that we are in a transition phase of a recently enacted statute, the policies and purposes of which Congress wisely set forth, which are now being implemented and they have been implemented in, in my opinion, a surprisingly successful manner, that each stage of the process is working and we suggest that at this particular phase, this interim period, that the Congress exercise constraint and patience.

Senator CULVER. Thank you very much, Mr. Warren.
Mr. Herbst?

STATEMENT OF ROBERT L. HERBST

Mr. HERBST. Thank you very much, Mr. Chairman, Senator Culver, Senator McClure. I appreciate this opportunity to appear before you today on the Endangered Species Act of 1973. Mr. Chairman, let me first compliment you on your opening statement. I thought it was a very excellent summary of the act and its administration so far.

I have prepared for your subcommittee a complete comprehensive file of our activities under each section of the act. In addition to that, Mr. Chairman, you have my comprehensive statement before you. I will summarize that statement. Let me emphasize from the beginning, Mr. Chairman, that we feel that the Endangered Species Act is working well and that its flexibility in regard to critical habitat is adequate.

As you are aware, the act was signed on December 28, 1973. On that date, the Department of the Interior and the Department of Commerce assumed major new responsibilities for assuring the perpetuation of a healthy diversity of plant and animal communities in this country. We believe that significant progress has been made in implementing the law.

The regulations and processes have been established and the program is being administered in a rational and effective manner.

I am pleased to say that this administration is firmly committed to protecting our Nation's wildlife heritage and insuring wise use of our renewable resources. In this regard, President Carter has indicated

that he is firmly committed to the implementation of the Endangered Species Act as a priority environmental program. This administration does not support any attempts to modify or to weaken section 7 of the act, regarding Federal consultation and cooperation. We firmly believe that the act is working and that it can work better. We are certain that it can protect the environment while permitting most developmental projects.

The primary purpose of the endangered species program is to prevent plant and animal species endangerment and extinction that are caused by man's influence on the ecosystem, and to return the species to the point where they are no longer threatened or endangered.

Man's activities threaten a growing number of species with extinction. Some of this is natural, but a substantial number are man caused and can be avoided. There are resource development alternatives, conservation measures, and mitigative techniques that can be implemented which will allow resource utilization to meet man's physical and material needs, and yet insure the natural diversity that we are after.

The process of determining the species status is a thorough one under our current endangered species program. The 1973 act directs that the determination for listing a species as either endangered or threatened throughout all or a portion of its range must be based on the best scientific data available. The act also directs specific consultation and coordination prior to listing, and establishes criteria for the actual determination. The paucity of information available on many species makes the determination difficult and sometimes very time consuming. Over 600 species currently are listed as either endangered or threatened and the status of an additional 2,000 is being reviewed.

Once the species is listed, the prohibitions in the act or in specific regulations immediately come into force. The service has authorized 240 specially trained law enforcement officers who are available to inspect imports and exports of live plants and animals as well as parts and products made from such species and to investigate alleged violations.

Law enforcement, we believe, is a vital part of this program. However, habitat preservation, research, management, and other conservation efforts are essential activities if the recovery of species is to be achieved. Therefore, soon after the listing process is completed a recovery team may be established to identify actions necessary to restore a species. Recovery items are composed of experts from Federal, State, and the private sector. They are presently working on 68 high-priority species.

The 1973 act provided for greater international involvement. It also implemented the Convention on International Trade in Endangered Species of Wild Flora and Fauna. The process of permits for scientific activities involving endangered and threatened species is an important aspect of the endangered species program, particularly in regard to the Convention on International Trade in Endangered Species of Wild Flora and Fauna. We recognize that a problem exists in this area. The average length of time presently required to process a permit is 120 days. It is our intent to reduce this time to 90 days or less.

Mr. Chairman, having recently considered authorizing legislation for the endangered species grant-in-aid program, you are aware that it is one of the more significant aspects of the 1973 act. That significant aspect is the role of State conservation agencies. The law provides a strong Federal commitment for close cooperation and coordination with the State fish and wildlife agencies in the form of cooperative agreements and a grant-in-aid program.

We intend to do everything possible to encourage the States to enter into cooperative agreements. We believe that their expertise, manpower and cooperation are essential to the successful administration of this act.

Critical habitat designation under section 7 of the act and the requirements related to Federal agency cooperation are what is of major interest to this committee.

Senator CULVER. Mr. Herbst, you have a minute to go.

Mr. HERBST. Thank you, Mr. Chairman. Let me conclude by saying that of the thousands of Federal actions on which the service has consulted, only three actions have resulted in judicial review, and of those three, only one has resulted in proposed congressional action. Let me emphasize that point.

This is certainly not an inflexible act. And by far, most problems have been resolved. The act is workable, it is administratively flexible. We have successfully implemented its critical habitat provisions and we have high hopes for eliminating irresolvable conflicts through early consultation and mitigation in the future.

I also strongly believe that the basic purpose of the act is to get species off the list, not on the list. Our goal is to improve and preserve the habitat and to carry on management activities in such a way that adequate populations of wildlife and plant exist, that species are not endangered, threatened or extinct from this planet and from this Nation.

In short, Mr. Chairman, I believe it is entirely appropriate to focus on the positive because that focus is based on fact. We look forward to answering any questions that your committee may have.

Thank you.

Senator CULVER. Thank you very much.

Mr. Gehringer?

STATEMENT OF JACK W. GEHRINGER

Mr. GEHRINGER. Mr. Chairman, members of the subcommittee, I am very pleased to be here to discuss our agency's progress in implementing the Endangered Species Act. You have a copy of the testimony which indicates our program accomplishments, ongoing activities, planning activities, funding, and expenditures to date.

I would like to summarize the points I think are crucial to your time here.

The responsibilities of the Department of Commerce under the act have been delegated to the National Marine Fisheries Service and our basic responsibility is to develop and maintain conservation programs for fish, wildlife, and plants of the marine environment. In

meeting these responsibilities, of course, we work closely with the Fish and Wildlife Service, and interact with the States, other Federal agencies and, in certain situations, foreign countries. It includes such things as administration of the act, research, and law enforcement. Our actions on the State level, as indicated in our testimony earlier this year, have involved establishing mechanisms for the State-Federal cooperative agreements. On the Federal level, we have entered into several agreements with the Fish and Wildlife Service for cross-utilization of enforcement personnel capability, clarification of jurisdictional questions, and the development along with briefings of Federal agencies on section 7 guidelines. We have worked with Customs Service and Treasury on enforcement and to a lesser degree with other agencies.

The principal international activity concerns support through the International Whaling Commission to adopt a 10-year moratorium on the harvesting of large whales. Significant reductions in several of the whale quotas have been achieved.

Also on the international level, we participated in the Conference of Parties to the Endangered Species Convention last fall where several marine species were listed. We provide continuing assistance to Interior with respect to their responsibilities as the management authority and ours joining them in the scientific authority.

Among the several activities, we have proposed regulations jointly with the Fish and Wildlife Service to formalize the procedures for the interagency consultation under section 7. Under our permit regulations, we have processed 32 scientific permit applications, involving sturgeon, sea turtles, and one or more of the whales, and have issued 27 permits. Research involves a number of things which are necessary to arrive at the biological status of the species.

We have conducted research on endangered whales over the past several years, and we expect this to continue. Recently, we have conducted population and habitat surveys of sea turtles in the Southeastern United States. As a part of our sea turtle research, we are developing a net panel to be used with shrimp trawls to reduce the incidental take of sea turtles during shrimp fishing.

We have reported on the development of the Hawaiian monk seal habitat requirements and are presently considering designation of critical habitat for this species. This is the only proposed designation at the present time of critical habitat for those species for which we have jurisdiction. We are considering others, but we have not advanced to that stage.

We have expended an estimated 14 man-years of effort in reviewing information on the Atlantic bluefin tuna, the Hawaiian monk seal, the Caribbean monk seal, the totoaba, and the green, loggerhead, and Pacific ridley sea turtles for possible listing under the act. The Atlantic bluefin tuna was under consideration for listing as a threatened species due to a lack of adequate regulatory mechanisms. This need was eliminated with passage in August 1975 of the Atlantic Tunas Convention Act, which implemented the International Convention for the Conservation of Atlantic Tunas, and we ceased our activities to consider for listing the bluefin tuna as a threatened species.

The Hawaiian monk seal was listed as endangered in November 1976. Final regulations listing the Caribbean monk seal and totoaba as endangered are expected to be published in the near future.

We have just signed an agreement, a memo of understanding, with the Fish and Wildlife Service, defining jurisdiction with respect to sea turtles. Basically, they will have jurisdiction when the turtles are on land; we will have jurisdiction when the turtles are in the water. [Laughter.]

Senator CULVER. What if we find one that flies? [Laughter.] That is probably NASA.

Mr. GEHRINGER. We have had a considerable amount of activity with respect to enforcement. We have investigated 1,135 cases through May of 1977 involving alleged violations of the act. A lot of this involves unlawful interstate commerce in parts and products of endangered species; roughly 2,300 items valued at about \$300,000 have been seized and forfeited, and roughly \$75,000 has been paid in penalties.

The number of investigations initiated in 1977, I might say, we believe will be well below those in 1976. We think this is due, at least, in part, to increased public awareness created by the dissemination of information, pamphlets, and so forth by our people and Fish and Wildlife Service people.

In terms of expenditures, for the first couple of years, we reprogramed money—

Senator CULVER. Who is in charge of the turtle when it is half in and half out of the water?

Mr. GEHRINGER. I think we will probably work it out so we will wait for that decision when it takes place, when he reaches one or the other.

Senator CULVER. Which end of the turtle is on land?

Mr. GEHRINGER. Is this my 7 minutes?

Senator CULVER. You have already exhausted your time. I am working now on the time of the technical panel.

Mr. GEHRINGER. In 1976, appropriations were made available.

Senator CULVER. I think this example may be more important than some of the others you have mentioned. I am sure it is to some of the bureaucrats involved.

Mr. GEHRINGER. We received our first appropriation in 1976. \$400,000. They have gone for a variety of things which are itemized in the accounting. That has been increased for 1977 by an additional \$145,000 for overhead support.

In addition to that, we have reprogramed, primarily from salary lapses in other activities this year, another \$163,000 into sea turtle research. We have nine full-time positions plus support of a number of others within the agency to carry out these responsibilities.

Major activities to be carried out in future years, of course, will be keyed to available funding. Our request for 1978 asked for an increase of \$309,000, and three positions. This is primarily to fund whale research.

In 1979, we propose to expand the sea turtle, whale, seal, and fish research and will consider funding requests to provide for State-Federal cooperative agreements which we don't have.

I will turn now to our involvement under section 7. Although I do not have our consultations with other Federal agencies itemized, we will discuss that information for you as best we can. We do not have tabulations of every specific instance of Federal agency review and consultation for possible impact on endangered or threatened species. As a matter of course, with all of our Fish and Wildlife Coordination Act activities, we review all of these and comment. We have not, to this date, maintained separate records, but we can provide estimates of that. We are also involved with the Coastal Zone Management Act and the review of proposals in this area.

I am unaware of any unresolvable conflicts with respect to consultations we have had. With respect to various proposals to amend section 7 of the act to provide exemption for certain Federal projects, we believe that the present section 7 offers sufficient latitude through the consultation process to remedy problems which may arise. Consultation properly utilized should preserve the interest of the species in question and allow a viable alternative for the initiating Federal agency.

That concludes my summarized statement. I will be pleased to try to answer questions.

Senator CULVER. Thank you very much. We have been advised that we may remain in session until 12:30.

So we will have time for a few questions before the technical panel appears at 12 noon.

Mr. Warren, as Chairman of the Council on Environmental Quality, you have overall responsibility for coordinating and directing the Federal Government's total environmental program. I wonder whether or not you feel you have any recommendations to make to our subcommittee concerning the methods for improving the implementation of the Endangered Species Act, either by the Fish and Wildlife Service or by the National Marine Fisheries Service or any other Federal agencies involved?

Do you have any procedural thoughts or recommendations for us?

Mr. WARREN. Mr. Chairman, I have no recommendations which call for legislative action. Certain presidential directives were contained in the environmental message which was sent to Congress earlier by President Carter which he recognized the need for more expeditious implementation of the act; and in which he specified his support of continuing the case-by-case analysis in the event of a conflict between governmental objectives.

I frankly think that the recent attention by both Departments of Commerce and Interior to resolve jurisdictional difficulties is encouraging. It is somewhat disquieting that those conflicts have not been earlier resolved.

If I might, I would suggest perhaps more vigorous attention to the development of regulations as called for by the act in order that more than guidelines can be available to those charged with implementing other Federal or governmental programs.

I think it might serve some purpose to recognize that in the instance of the grizzly bear and the designation of habitat, that there be a clearer understanding that habitat does not mean that other uses are to be avoided, and that the designation must be done in a very sensitive manner by the responsible agency and involving to the fullest extent possible public participation and interplay.

But in any of the areas which would be called to my attention, none appear to suggest legislative amendment or modification of the act itself.

Senator McCLURE. On that latter point. Let me get into this question of the grizzly bear habitat because in your statement, you talk about the extension of the range to the areas formerly occupied. The case in point directly is the grizzly bear controversy.

Are we then under the Endangered Species Act going to try to reestablish all the former ranges of the species that have been eliminated from some areas?

Mr. WARREN. I do not think that that is a necessary interpretation. Senator McCLURE. Is it a possible interpretation?

Mr. WARREN. It is possible that the extent of that boundary, I should think would be determined by a balancing of interest process.

Senator McCLURE. For instance, the bison no longer roams as it once did. Are we going to reestablish the bison range from Canada to Mexico throughout all the immediate West or any portion of it?

Mr. WARREN. There is a bison range, as I understand it. And to the extent that habitat is required to keep the species from being put on the endangered list, yes, we would recognize that habitat and I think it would be appropriate for us to do so. But the act does not require us to extend or to identify critical habitat to mean that which was once enjoyed to the maximum by the species itself.

Senator McCLURE. So the test is then whether that habitat is critical to the maintenance of the species, period, not whether or not it is going to be reduced or expanded in its range. Is that correct?

Mr. WARREN. Yes.

Senator McCLURE. I would think that, in the case of the grizzly bear, the fact that they do exist in the Yellowstone National Park, and that they are not endangered in the Yellowstone National Park, might resolve this question very quickly. I don't mean to belabor this subject because I think that it is only one aspect and not the particular reason why these hearings were held here today.

Senator CULVER. Mr. Warren, we have, of course, the consultation process under section 7 of the act, and we have the environmental impact statement requirements under NEPA.

Do you think these two processes are redundant? Should NEPA take into consideration, for example, independently the effects of Federal action on endangered species?

Mr. WARREN. We viewed both acts as being quite compatible and having sympathy with each other and specifically the policy objectives of the Endangered Species Act as one of higher importance and significance when in the NEPA process, an endangered species is uncovered or unidentified.

We think the consultation process, the public participation process provided by NEPA is quite compatible and we think they are moving very well together. If I may say so, I hope without offense, we do not believe it would be appropriate or improve the process to any appreciable degree to require a completed environmental impact statement along with the suggestion that critical habitat be identified and designated. We think that NEPA does apply to that, that the environmental assessment is required, but it would not be appropriate or in furtherance of the act to require specifically that an environmental statement itself be prepared in each and every instance.

Senator McCLURE. You don't think the designation of habitat is a major Federal action?

Mr. WARREN. It might be, it might not be. I am suggesting that the environmental assessment called for by NEPA should be undertaken to determine if it is a major action, and if so then an environmental impact statement should be prepared.

Senator McCLURE. Would you apply the same kind of test on whether or not it is a major Federal action, which has been applied to the Forest Service decisions on timber sales?

Mr. WARREN. I am sorry?

Senator McCLURE. Would you apply the same test on whether or not it is a major Federal action that has been applied to the Forest Service decisions on timber sales?

Mr. WARREN. I am not familiar with that situation and know of no reason why an exception to the ordinary NEPA process should apply.

Senator McCLURE. Should a timber sale be applied to the same test as should be applied to the designated habitat?

Mr. WARREN. Under NEPA?

Senator McCLURE. You think whatever is applied to one should be applied to the other?

Mr. WARREN. That an environmental assessment should be made. Yes.

Senator CULVER. Did the Fish and Wildlife Service enter into consultations with the Tennessee Valley Authority in order to resolve the conflict that has developed between the snail darter and Tellico Dam?

Mr. HERBST. Yes.

Senator CULVER. Would you characterize these negotiations with TVA as cooperative?

Mr. HERBST. Mr. Chairman, I will let Mr. Schreiner, who was there at the time, respond to that question.

Mr. SCHREINER. Mr. Chairman, I would say cooperative to the extent that TVA was willing to consult with us; cooperative to the extent that they were willing to talk about moving the snail darter somewhere else, but not cooperative to the extent that they were willing to consider maintaining the snail darter in its native habitat.

Senator CULVER. Why have we reached an impasse with the Tellico project?

Mr. SCHREINER. Closure of the dam would mean that both the snail darter and its habitat would be jeopardized, and its critical habitat would be modified. Those are the two issues in section 7 which all Federal agencies are mandated not to do.

Senator CULVER. In your judgment, is Tellico a good example of the need for greater flexibility in the act?

Mr. SCHREINER. No, sir. I do not think it is a good example for a number of reasons. Tellico was initiated and well down the road before the endangered species was found. So we were dealing with an after-the-fact situation. As a matter of fact, the three confrontations we have had out of 4,500, have all been retroactive situations. Certainly they are atypical in that sense.

Senator CULVER. What kinds of project modifications have been used to avoid conflicts between the act and Federal projects?

Mr. SCHREINER. I am sorry. I am afraid I do not understand the question.

Senator CULVER. What kinds of modifications have been made in previous instances to avoid conflicts between the act and the Federal projects?

Mr. SCHREINER. Mr. Chairman, about every conceivable kind of thing you can imagine, from the agency deciding that they had an alternative project site that was better, to a modification of the project so that it did not adversely affect the critical habitat or did not jeopardize the continued existence of the species.

In the 4,500 consultations we have had, about every conceivable situation has occurred. In many cases, we have found that the project would not adversely affect the species and that ended the whole process there. In a few cases, one in particular that I recall, we simply did not carry out the activity.

Senator CULVER. Suppose we have a situation where even with consultation and every imaginative, creative effort to reach some mutually acceptable modification, a potential conflict over a Federal project is not resolvable. How should the Congress and the administration deal with such a problem?

Mr. HERBST. Mr. Chairman, then I believe that Congress should deal with it on a case-by-case basis, and represent the people of this country as to which is the more important aspect. But I think in looking at the Tellico situation, it involves more than just the value of the snail darter. I believe that is important in and of itself, but it represents the broader question of whether or not the Tellico project is a valid use of the Tennessee River.

Senator CULVER. Cost effectiveness?

Mr. HERBST. Yes, cost effectiveness.

Senator CULVER. We have the GAO study which is now underway.

Mr. HERBST. You have the study before you in which they make that specific recommendation. They do not come down on the side of the snail darter or the dam, but say it is a legitimate question to be weighed by the Congress and that you ought to weigh the complete value of the project; also that many plants and animals aside from their value as species are also indicators of many other types of values.

They are indicators of the environmental quality; they may even be indicators of human life. It is similar to the canary in the coal mine; similar to the question that we faced on DDT. The regulations that were placed on DDT were because of its effect on animal life and the fact that it was found in the tissue of every living thing.

The problem it caused in fish and wildlife was an indication then that it was going to create a problem for human beings. So many times these are indicators of the environmental quality of human life.

Senator CULVER. Even though the numbers to date do not necessarily indicate this to be a particular problem at the present time, let's just suppose that a case-by-case review by Congress would prove to be impracticable or unduly burdensome, what is your recommendation concerning general amendment to the Endangered Species Act permitting a balancing of economic, energy, and social factors with the protection of the endangered species?

Mr. HERBSR. Mr. Chairman, I believe it is premature. It is not burdensome at the moment as we all three said in our statements. There have been over 4,000 consultations. Only three have reached the judicial review. Only one has reached the attention of Congress. We expect in the next fiscal year, that the number of consultations will reach approximately 10,000.

At the present time and in response to one of the questions that your committee has asked, we have responded with a listing for you of the potential conflicts that we know about at the present time. There are about 50, but in no way does that indicate that we will not be able to resolve most of those 50 potential conflicts.

I see the changes that need to be made administratively and legislatively in this order. In terms of the legislative changes that need to be made, there are three. One, there is not a grant program for the plant community. I would like to see the act amended in that regard. No. 2, I think we need a clearer definition of State agencies. No. 3, I think that there needs to be a way of amending section 6 of the act so that State agencies can come under cooperative agreements where they do not have full authority over all endangered species that might occur in their State. A fish and game agency may not have authority over insects that happen to be endangered, but we would like to have a cooperative agreement with the agency for other species.

On the administrative area, three things need to be done: One, the time required to process permits, which I think I indicated takes 120 days now, needs to be reduced. We hope to reduce it to 90 days or less. Second, without violating OMB clearance, we are considering changes as far as staffing and funding is concerned in order to adequately carry out the act or better carry out the act in terms of our 1979 and future budget requests. Third, I think earlier consultations with Federal agencies will lead to modifications and adjustments so we won't run into potential conflicts. In conjunction with this the President's directives on determining critical habitat on lands administered by Federal agencies is well underway. Our guidelines are being reviewed with the Department of Commerce, then it will go to the other agencies. When that is implemented, we estimate it will take about 2½ years to complete the job.

Senator McCLURE. All three of you have indicated that there is sufficient flexibility in the act to administer it. All of you have on the other hand said when that flexibility isn't sufficient, it comes back to Congress. Why have you concluded that there is sufficient flexibility

for the administration up to the point where you can't resolve it and then Congress must resolve it?

If, as a matter of fact, you resolve it within the administration, how can you say that there is sufficient flexibility?

Mr. WARREN. It would appear that based upon the evidence available, that the overwhelming number of such conflicts are resolved administratively or judicially and that only the most difficult—

Senator McCLURE. But the fact that it is difficult doesn't mean the flexibility is there. It means it is difficult. It means the administration cops out and throws it back on the Congress.

Mr. WARREN. Except in our opinion, that is the appropriate place unless the process is unduly burdening Congress with such decision.

Senator McCLURE. Why is it the appropriate place?

Mr. WARREN. Because the conflict we have exists between several public purposes which Congress itself has established. The policy and purpose of the Endangered Species Act is a legislative determination. If there is a policy and purpose in another act which Congress has established, which appears to conflict with the Endangered Species Act, to the extent that it cannot be resolved successfully, administratively, or judicially, yes. We believe it properly is in your jurisdiction as the representatives of the people.

The snail darter has been considerably maligned. I think unfairly, and unreasonably in the media, with respect to Tellico Dam. The act does bring the attention of Congress to the whole question of what is happening in that particular area and reveals that there are other considerations of great magnitude which has affected not only the snail darter, but which has implications for all species, including the human species, which need attention.

We think the attention is properly, in this instance congressional. I think you come to that conclusion yourself when you requested the General Accounting Office to study the situation and report to you. The report itself particularly emphasizes the nature of the problem as one to which Congress uniquely should address.

Senator McCLURE. What you in effect have said is because Congress has created the conflict, Congress must solve it.

Mr. WARREN. They are vital. They are socially, economically, and politically vital.

Senator McCLURE. One of the ways in which Congress could resolve the conflict is to provide the mechanism by which the administrative agency solves the conflict.

Mr. WARREN. I respectfully suggest that it would be so complex and have so many factors as to be almost politically unsupportable. It would depend upon the species itself, the role of the species in the environmental ecology, the extent of the range involved. Then you have to—well, I think my point is made.

There are so many variables. I would be very reluctant to have in the administrative process juggling and weighing, particularly if the juggling and weighing is done by the development agency.

Senator McCLURE. I assume the administration or the Congress can determine who the juggler and weigher is and who the resolver is. There are an awful lot of tough questions that the administration has

to solve that Congress does not do. Let me give you an example of my resistance to the idea that Congress can resolve the problem.

We don't do very well doing what we do now. We spent 2 hours the other day deciding whether the cities ought to have a sewer charge and determined how to maintain the sewer systems. Why should we spend 2 hours in the Congress trying to make up in our minds on what essentially is a local decision? We are now spending unending hours trying to legislate subject by subject, product by product, in terms of items like saccharin. Why should the Congress be involved in making the ultimate decision on saccharin? Why shouldn't there be the guidelines and the policies set out in the law? The administrative agencies should then follow those guidelines and policies and make a decision with an adequate review in the courts to determine whether or not there has been an abuse of discretion?

Mr. WARREN. I respectfully suggest the question of whether or not a species which is endangered or threatened is a concern of national and greater than a national importance should not be left to a local consideration.

Senator McCLURE. Is isn't a local consideration. I don't think I suggested that at all. I suggested that it is within the Federal Government administrative agency, where the expertise resides and where almost every other decision that affects us is ultimately made within the broad guidelines and frameworks established by Congress, that these decisions should be made.

Congress certainly has the right to overrule it. We have now, if I recall correctly, some 25,000 petitions for registration of plant and animal life. How many of those—you say only three have resulted in any kind of controversy and only one of them is now back to Congress for decision—are going to be back here for a decision? I think we are going to find ourselves burdened in the future with a great number of those. Mr. Schreiner indicated a moment ago that because the statute says that if a species is endangered, and that habitat is critical, that the Federal Government agencies cannot permit a modification of that habitat.

He said that it is an action which the Federal agencies are mandated not to do. That isn't the sign of flexibility. That is a sign of saying if you can find a way to avoid that consequence, we will find a way to avoid it, but we don't make the judgments weighing this against that. That is a judgment process, isn't it?

Mr. SCHREINER. Mr. Chairman, I would like to respectfully disagree that I said no modification of the critical habitat was legal under section 7. If I did say that, I didn't mean to imply that.

As a matter of fact, without modification of the critical habitats of many endangered species, they are doomed to extinction. I think what we are talking about, Senator, is modification that would be adverse either to the continued existence of the species or adverse to its basic habitat in any particular form. Many kinds of modifications would not only not harm that habitat, but would in fact be beneficial to it.

Senator McCLURE. I accept your clarification of what I had said. I had understood you to say it exactly the way you have explained it now,

but if there is an adverse affect upon an endangered species or a threatened species or upon its critical habitat in a manner that would threaten its continued existence, then the Federal agencies in your words are mandated not to take that action.

Mr. SCHREINER. Yes, sir, but that does not necessarily mean that the action that they are undertaking stops. It simply means they do it in a different location, in a different way, at a different time of the year, whatever.

Senator McCLURE. If, as a matter of fact, however, they cannot find a way to do it at a different location, or in a different manner, then they are mandated not to do it.

Mr. SCHREINER. Yes; but the facts suggest we have found a way nearly every time.

Senator McCLURE. I understand that. That is not the question. My question is not how do you resolve the easy questions. My question is how do you resolve some of the tough ones.

Mr. SCHREINER. Perhaps some of the tough ones should not be resolved.

Senator McCLURE. Perhaps not. This means, as you said, that they are mandated not to be solved; therefore, the act in that instance becomes totally rigid and inflexible, in your judgment.

Mr. SCHREINER. Perhaps in the occasional instance, that is the way it should be, and I think, that is what the Congress intended.

Senator McCLURE. Perhaps it should be. I am only saying that we shouldn't say it is not a result of the act. As a matter of fact, it is the result of the act.

Mr. SCHREINER. Yes; I think it is. I think it was the intent of Congress to do that.

Senator McCLURE. In some instances, the act is not flexible?

Mr. SCHREINER. In the rare instance; yes.

Senator McCLURE. The question that we have to resolve then, is whether or not there should be a flexibility or whether or not there should be a resolution process for those otherwise irresolvable conflicts. Will the endangered species in every instance in those irresolvable conflicts always invariably, without exception, be the primary consideration?

You say yes. There are others who say yes; and others who say no. That is the reason we are having the hearings.

Mr. Warren, in your statement, you say—as we examine the implementation of the act—it appears that the inflexibility is not in the legislation, but sometimes in the agency involved.

What inflexibility, what agency?

Mr. WARREN. Let's take the example which has received some discussion this morning; that is, Tellico Dam. The agency involved, the Tennessee Valley Authority, knew in 1973 of the plight of the snail darter and was advised of the possibility that the snail darter was an endangered species.

Its attitude was rather than attempting to engage in the consultation process, which has been described here this morning, it appeared to be one of intransigence; that is, (a) the position appeared to be, one, first, it is not a species within the meaning of the act; two, it is

not endangered and; three, that the only thing we are obliged to do is determine if there is another suitable habitat that can be found rather than engaging early on and in good faith negotiations with Interior over the species itself to see if there were project modifications or mitigation actions that could have been taken.

In fact, this intransigence of the agency continued until there was no alternative but judicial relief and it was only in January of this year that the decision issued, a period of over 3½ years, and I respectfully suggest that if the agency involved had good faith implemented, complied with the policies and purposes of the Endangered Species Act, that Congress provided and required, that this problem would not be before Congress today. You would not even have this example before you.

That was my point with NEPA. When NEPA was passed, there were a whole host of suggestions in Congress, that we would have to amend it, repeal it, alter. Then with experience, when the agencies started to implement it, they discovered it was a worthwhile productive purpose and all such suggestions have disappeared.

Senator McCURE. NEPA is a balancing process. In the instances where you can't find a way to avoid a conflict, the conflict is always resolved one way, which may or may not be desired.

Mr. WARREN. The consultation process itself permits this balancing to take place in a different way, perhaps. It has worked successfully and the only instance where it has been unsuccessful is where history indicates you have an intransigence agency, TVA.

Senator CULVER. What project modifications in the project would have prevented the destruction if the snail darter's critical habitat?

Mr. WARREN. I don't know. I think the General Accounting Office's report may suggest that.

Senator McCURE. Let's pursue Tellico for 1 minute. As I understand it, there was an environmental impact statement. It was tested. It was turned down. They then modified the environmental impact statement. It, too, was tested and the court supported it. I am not an expert on the *Tellico* case, but that is my understanding of the record before the court.

Mr. WARREN. You know, I am not prepared to sit here and to tell you what possible solutions could be merged with, given 3 years of good faith consultation between the agencies involved. I find it very difficult to believe that whereas other agencies had success with equally difficult problems, that similar success could not have been experienced in this particular instance.

Ms. EDDY. Concerning the amount of money which was spent in the construction of the TVA project, regardless of whether or not the TVA could have built the actual dam in compatibility with the snail darter, TVA was accelerating and continuing—

Senator CULVER. Excuse me, could you use the microphone.

Ms. EDDY. TVA was continuing, accelerating the construction aspects of the project afterwards. So in terms of the amount of money which may have been spent, some of which may not be recovered, this perhaps is expenditure which could have been weighed.

The GAO believes that about \$68 million of that money that has been spent on the project can be used by the local communities. How-

ever, the TVA in its construction worked in the construction area, the location of the primary spawning beds of the snail darter. It does not seem to me particularly good faith activity there.

Adding to this, the controversy over the TVA may have played a very useful role in highlighting the fact that there are over 60 dams by the TVA in the Tennessee Valley river system. This particular kind of free-flowing river habitat which has many useful uses for the local citizens, that habitat is disappearing along with the snail darter. So the court case has brought to the public light and to the Congress to make what is to me essentially a political decision.

I believe that when we talk of balancing, we are nearly always talking about politics, that when you get a whole bunch of agencies, each concerned with their own turf, their own missions, that indeed you are going to get a worse bureaucratic snarl than usual if you always attempt to have them be making political decisions.

Senator McCLORE. I don't disagree with that question. But look at the fact that this morning I had four committee meetings and two conferences going on at the same time, yet you want us to make case-by-case decisions. I sometimes wonder how well we do it. I would think that you share that skepticism about the ability of the Congress to appropriately act in all instances.

Ms. EDDY. I believe that Congress might adopt a wait-and-see attitude and—

Senator McCLORE. The wait and see suits you, because you don't want the decision. You want the negative decision. So the wait and see suits you.

Ms. EDDY. If you continue to have a ratio of 4,500 cases resolved administratively per one that comes before the Congress, if this kind of ratio continues, I suggest that Congress will not be too greatly burdened and in any case where it comes before you, as in the Tellico Dam, you may find it deserves reconsideration for many other reasons as well.

Senator McCLORE. If we had to make one out of every 4,500 decisions—the bureaucracy makes, you would have to have a lot more of us than there are. I might just mention, in conclusion—and we must get to the other panel—this question and ask for your comment. The judge in the *Tellico* case, as I recall, made the comment that the decision by the Department of the Interior to place the snail darter on the endangered species list and that portion of the Tennessee River as a part of the critical habitat, that endangered species was in itself absolutely controlling and that if there were to be any flexibility or any discretion allowed in any other agency, or by the court, that decision by the Secretary of the Interior would have to be changed; that the decision by the Secretary of the Interior on those two matters was absolutely, totally controlling and there was no discretion, no flexibility.

Maybe that is desirable, as you indicate it is.

Mr. HERBST. To respond to that, it is not a flexible type of decision. The decision must be based on biological facts; that is whether or not a critical habitat is in jeopardy, and it was determined that biologically, yes, it was.

Senator McCLURE. Therefore, on those terms and we would on the fact of biological habitat questions, there is no flexibility in the act.

Mr. HERBST. It is either critical habitat or it is not.

Senator CULVER. I just have one question for you and then we would like to submit to you for the record.

When do you expect to begin the designation of the critical habitat with regard to marine species, and do you expect this process to create problems for the exploration and development of offshore oil? What kind of problems do you see in attempting to designate critical habitat for marine species?

Mr. GEHRINGER. At the present time, we are in the process of proposing critical habitat for only one species, the Hawaiian monk seal. Undoubtedly during the subsequent years, with the designation of certain sea turtles as either threatened or endangered, we will be called upon to review these particular issues. We will expect to designate areas as appropriate.

There is a potential for conflict with respect to the offshore development. Our principal concern here with the marine species is endangered whales which are found in areas of offshore development. We have consulted, and our concerns primarily involved migratory routes of the whales. Of course, any major spill could cause problems. We have not addressed in any detail specific problems posed endangered and threatened species by offshore development.

Senator CULVER. Thank you, very much.

We are very happy to have had you here this morning. We will be submitting additional questions for the record.

Senator McCLURE. I might like to say for the record that I very much appreciate the briefing material that was provided to us. I think that is the best I have seen. It is the kind that usually the witness has and the members of the committee do not have. I very much appreciate having it.

[The prepared statements of Mr. Warren, Mr. Herbst, and Mr. Gehringer follow:]

STATEMENT BY CHARLES WARREN
CHAIRMAN, COUNCIL ON ENVIRONMENTAL QUALITY

BEFORE THE

SUBCOMMITTEE ON RESOURCE PROTECTION OF THE
SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

JULY 20, 1977

MR. CHAIRMAN,

I APPRECIATE THE OPPORTUNITY TO APPEAR BEFORE YOU TODAY TO DISCUSS THE IMPLEMENTATION OF THE ENDANGERED SPECIES ACT OF 1973, AND IN PARTICULAR, SECTION 7 OF THE ACT WHICH PROVIDES FOR THE DESIGNATION OF CRITICAL HABITAT. THE COUNCIL ON ENVIRONMENTAL QUALITY WAS INVOLVED IN THE DEVELOPMENT OF THE ENDANGERED SPECIES ACT OF 1973.

THE PURPOSES OF THE ACT AS SET OUT BY CONGRESS ARE:

"...TO PROVIDE A MEANS WHEREBY THE ECOSYSTEMS UPON WHICH ENDANGERED AND THREATENED SPECIES DEPEND MAY BE CONSERVED, TO PROVIDE A PROGRAM FOR THE CONSERVATION OF SUCH ENDANGERED SPECIES AND THREATENED SPECIES, AND TO TAKE SUCH STEPS AS MAY BE APPROPRIATE TO ACHIEVE THE PURPOSES OF THE TREATIES AND CONVENTIONS SET FORTH IN SUBSECTION (A) OF THIS SECTION." WE BELIEVE THESE PURPOSES ARE BEING MET BY THE PRESENT INTERPRETATION AND IMPLEMENTATION OF THE ACT.

PRESIDENT CARTER HAS TAKEN A STRONG STAND FOR THE PROTECTION OF ENDANGERED WILDLIFE AND THE PRINCIPLES UNDERLYING THE ENDANGERED SPECIES ACT OF 1973. IN HIS ENVIRONMENTAL MESSAGE TO THE CONGRESS ON MAY 23, THE PRESIDENT SAID, "MANY LAND AND WATER DEVELOPMENT PROJECTS CAUSE EXTENSIVE DAMAGE TO FISH AND WILDLIFE HABITAT. MY ADMINISTRATION WILL ENSURE TIMELY IMPLEMENTATION OF THE MITIGATION FEATURES REQUIRED BY THE FISH AND WILDLIFE

COORDINATION ACT TO MAKE UP FOR SUCH LOSSES. FURTHERMORE, TO HASTEN THE PROTECTION OF THREATENED AND ENDANGERED SPECIES, I AM DIRECTING THE SECRETARIES OF COMMERCE AND INTERIOR TO COORDINATE A GOVERNMENT-WIDE EFFORT, AS REQUIRED BY THE ENDANGERED SPECIES ACT OF 1973, TO IDENTIFY ALL HABITAT UNDER FEDERAL JURISDICTION OR CONTROL THAT IS CRITICAL TO THE SURVIVAL AND RECOVERY OF THESE SPECIES. THE PURPOSE OF THIS PROGRAM IS TO AVOID THE POSSIBILITY THAT SUCH HABITATS WILL BE IDENTIFIED TOO LATE TO AFFECT FEDERAL PROJECT PLANNING. MAJOR PROJECTS NOW UNDERWAY THAT ARE FOUND TO POSE SERIOUS THREAT TO ENDANGERED SPECIES SHOULD BE REASSESSED ON A CASE-BY-CASE BASIS."

OUR EXPERIENCE SHOWS THAT THE VAST MAJORITY OF POSSIBLE CONFLICTS BETWEEN ENDANGERED SPECIES AND FEDERAL PROJECTS HAVE BEEN RESOLVED THROUGH THE CONSULTATION PROCESS. THE ENDANGERED SPECIES OFFICES OF THE U.S. FISH AND WILDLIFE SERVICE HAS HAD OVER 4500 INQUIRIES AND CONSULTATIONS UNDER THE ENDANGERED SPECIES ACT. IN ADDITION, THE AGENCY HAS PROVIDED OVER 125 FORMAL BIOLOGICAL OPINIONS FOR OTHER GOVERNMENT AGENCIES ON THE POSSIBLE EFFECTS OF PUBLIC PROJECTS ON ENDANGERED SPECIES. ONLY THREE ENDANGERED SPECIES CASES HAVE BEEN IRRESOLVABLE THROUGH ADMINISTRATION ACTION AND HAVE OF NECESSITY COME TO THE COURTS FOR DISPOSITION. OF THE THREE CASES THAT HAVE BEEN TAKEN TO COURT, ONLY ONE REMAINS A MAJOR CONFLICT TODAY.

THE FEDERAL HIGHWAY ADMINISTRATION WAS ENJOINED FROM COMPLETING AN INTERSTATE HIGHWAY BECAUSE IT WOULD DISRUPT CRITICAL HABITAT OF THE MISSISSIPPI SANDHILL CRANE. SINCE THE COURT FINDING, THE DIFFICULTY IS WELL ON THE WAY TOWARD RESOLUTION. DURING THIS PAST WEEK, FISH AND WILDLIFE OFFICIALS HAD BEEN MEETING WITH JACKSON COUNTY, MISSISSIPPI OFFICIALS AND HAVE COME TO THE AGREEMENT THAT 1900 ACRES SURROUNDING ONE INTERCHANGE WHICH HAS BEEN IN QUESTION SHOULD BE PURCHASED AS PART OF A NATIONAL SANDHILL CRANE REFUGE. IF THE DEPARTMENTS OF TRANSPORTATION, INTERIOR AND THE STATE AGREE, THIS CASE WILL BE SATISFACTORILY RESOLVED.

THE MERAMEC LAKE PARK CASE CONCERNED THE INDIANA BAT. THE CASE WAS RESOLVED IN FAVOR OF THE CORPS OF ENGINEERS AND THE HABITAT INVOLVED WAS NOT FOUND TO BE CRITICAL FOR THE BAT'S SURVIVAL. SINCE THE CASE WAS SETTLED, THE ENTIRE PROJECT HAS BEEN SCRAPPED FOR ECONOMIC AND ENVIRONMENTAL REASONS.

THE LAST CASE AND THE ONLY ONE THAT HAS NOT BEEN RESOLVED IS THE TELlico DAM CASE IN TENNESSEE. THIS CASE HAS A LONG HISTORY, WHICH I AM SURE YOU WILL EXPLORE IN DETAIL IN THE COURSE OF THESE HEARINGS. THE COUNCIL BELIEVES THAT THE CONFLICT ARISING IN THIS CASE COULD HAVE BEEN AVOIDED HAD SUFFICIENT INFORMATION AND THE PROPER

STUDIES BEEN DONE EARLY IN THE PROJECT'S HISTORY AND ALTERNATIVE SOLUTIONS EXPLORED. AS WE EXAMINE THE IMPLEMENTATION OF THE ACT, IT APPEARS THAT THE INFLEXIBILITY IS NOT IN THE LEGISLATION, BUT SOMETIMES IN THE AGENCY INVOLVED.

IN ADDITION TO THE FISH AND WILDLIFE EXPERIENCE, THERE ARE NUMEROUS INSTANCES WHERE THE ENDANGERED SPECIES ACT HAS WORKED WITHOUT THE INTERVENTION OF THE DEPARTMENT OF THE INTERIOR. THIS IS PARTICULARLY TRUE WHEN THE FOREST SERVICE IS INVOLVED. THE FOREST SERVICE WITHIN THE PAST TWO YEARS HAS GONE FAR TO EXAMINE ITS PROGRAMS IN LIGHT OF THE ENDANGERED SPECIES ACT AND TO MAKE ADMINISTRATIVE ADJUSTMENTS WHERE NECESSARY TO MEET THE MANDATE OF THE ACT.

THE LESSON FROM OUR FOUR YEARS OF IMPLEMENTATION TO DATE IS THAT THE ADMINISTRATIVE PROCESS SHOULD BE GIVEN THE OPPORTUNITY TO WORK IN A COMPLETE FASHION BEFORE EXCEPTIONS TO THE ENDANGERED SPECIES ACT ARE ALLOWED. THE CASE-BY-CASE REVIEW SHOULD INITIALLY BE CONDUCTED BY THE AGENCIES INVOLVED TO DETERMINE WHETHER THERE IS AN UNRESOLVABLE CONFLICT BETWEEN ENDANGERED SPECIES PROTECTION AND SOME OTHER VALID PUBLIC PURPOSE.

THE ENDANGERED SPECIES ACT OF 1974 REPRESENTS A FIRM COMMITMENT ON THE PART OF THE CONGRESS AND THE AMERICAN PEOPLE THAT OUR WILDLIFE HERITAGE SHOULD NOT BE FURTHER

DIMINISHED FOR FUTURE GENERATIONS WITHOUT THOROUGH EXAMINATION AND ANALYSIS OF THE ULTIMATE PUBLIC GOOD. EXTINCTION OF A SPECIES IS A FINAL AND IRREVERSIBLE ACTION. THE ENDANGERED SPECIES ACT RIGHTLY TRIES TO MINIMIZE THE LIKELIHOOD OF THIS EXTINCTION BY PROTECTING ENDANGERED SPECIES HABITAT. IN THE LONG RUN HABITAT PROTECTION IS THE ONLY WAY THAT WE WILL PRESERVE WILDLIFE SPECIES.

THIS DOES NOT MEAN THAT THE ACT IS WITHOUT PROBLEMS DESIGNATION OF INDIVIDUAL CRITICAL HABITAT IN SOME CASES CAN BE PARTICULARLY DIFFICULT, EXPECIALLY WHEN THE HABITAT FOR THE SPECIES MAY EXIST BUT THE SPECIES HAS DISAPPEARED THROUGH POISONING, HUNTING, OR SOME OTHER CONTROLLABLE HUMAN ACTIVITY. THE QUESTION IN THESE CASES BECOMES HOW MUCH OF THE HABITAT SHOULD BE PERMANENTLY PRESERVED WITH THE INTENTION OF ALLOWING THE SPECIES TO REOCCUPY ITS FORMER RANGE. THIS APPEARS TO HAVE BEEN THE CASE IN DESIGNATION OF GRIZZLY BEAR HABITAT. CRITICAL HABITAT DESIGNATION MUST BE DONE WITH CARE AND THOROUGH EXAMINATION AND OPPORTUNITY FOR COMMENT BY THE PUBLIC.

THE PRESIDENT RECOGNIZED THE NEED TO DEFINE CRITICAL HABITAT FOR ONGOING PROJECTS IN A SHORT TIME FRAME, AND HAS DIRECTED GOVERNMENT AGENCIES WITH LAND MANAGEMENT RESPONSIBILITIES AND POTENTIAL ENDANGERED SPECIES

CONFLICTS TO CONDUCT AN ANALYSIS OF CRITICAL HABITAT ON THEIR LANDS AND TO PROVIDE THE INFORMATION TO THE DEPARTMENT OF THE INTERIOR FOR EARLY DECISION. THIS ACCELERATED PROGRAM SHOULD HELP SOLVE PROBLEMS FOR THE FUTURE. IN THE INTERIM, HOWEVER, THE POSSIBILITY REMAINS THAT INDIVIDUAL CASES MAY ARISE WHERE FEDERAL PROGRAMS WILL HAVE TO BE REEXAMINED IN LIGHT OF THE ACT. THE ULTIMATE VALIDITY OF THE ACT NEED NOT BE SACRIFICED TO OVERCOME THIS BRIEF TRANSITION PERIOD WHILE THE ACT IS IMPLEMENTED.

IN SUMMARY, MR. CHAIRMAN, IT IS THE POSITION OF THE COUNCIL ON ENVIRONMENTAL QUALITY THAT THE ENDANGERED SPECIES ACT OF 1973 IS A SIGNIFICANT MILESTONE IN THE PROTECTION OF AMERICAN WILDLIFE AND THAT THE CRITICAL HABITAT PROVISION IS ITSELF ONE OF THE MOST IMPORTANT SECTIONS OF THE ACT. WE DO NOT BELIEVE THAT ANY CHANGE IS NECESSARY IN THE ACT TO ACCOMMODATE SPECIFIC INSTANCES WHERE THE ACT AND OTHER PUBLIC GOALS COME INTO CONFLICTS.

THANK YOU FOR THE OPPORTUNITY TO APPEAR AND TESTIFY BEFORE YOU ON THIS IMPORTANT MATTER. I WILL BE HAPPY TO ANSWER ANY QUESTIONS.

STATEMENT OF ROBERT L. HERBST, ASSISTANT SECRETARY OF THE INTERIOR FOR FISH AND WILDLIFE AND PARKS, BEFORE THE SENATE, ENVIRONMENT AND PUBLIC WORKS COMMITTEE, SUBCOMMITTEE ON RESOURCE PROTECTION, ON THE ENDANGERED SPECIES ACT OF 1973, OVERSIGHT HEARINGS, JULY 20, 1977.

Mr. Chairman, we appreciate this opportunity to discuss with you and members of the Subcommittee the Fish and Wildlife Service's progress in implementing the Endangered Species Act of 1973.

You have asked that we present a general overview of administration of the Act, and in particular, discuss the consultation process under section 7 and the Administration's views on the need for amending the Act. We are pleased to address these aspects of the program. In addition to the information contained in my statement, you have been provided with a briefing book covering the Fish and Wildlife Service's activities under each section of the Act. I hope this material will be of value to you throughout this and future deliberations on the Endangered Species Act.

As you are aware, Mr. Chairman, on December 28, 1973, the Endangered Species Act was signed into law. On that date the Departments of the Interior and Commerce assumed major new responsibilities for assuring the perpetuation of a healthy diversity of animal and plant communities. On that date an estimated 150,000 endangered and threatened animal and plant species throughout the world, both listed and unlisted, became a potential Federal responsibility.

The increased responsibilities under the new Act far surpassed the 1969 Endangered Species Conservation Act. I believe significant progress has been made in implementing this important law, with the establishment of new systems, regulations and processes. The Endangered Species Program is being administered in a rational and effective manner.

I am pleased with the job that has been done. The Fish and Wildlife Service has my support and that of the Secretary in continuing with the present program direction and effort. Furthermore, I am pleased to say that this Administration is firmly committed to protecting our nation's wildlife heritage and insuring wise use of our renewable natural resources. In this regard, implementation of the Endangered Species Act is a priority environmental program. In his May 23rd Environmental Message, President Carter stated that "...to hasten the protection of threatened and endangered species, I am directing the Secretaries of Commerce and Interior to coordinate a governmentwide effort, as required by the Endangered Species Act of 1973, to identify all habitat under Federal jurisdiction or control that is critical to the survival and recovery of these species. The purpose of this program is to avoid the possibility that such habitats will be identified too late to affect Federal project planning. Major projects now underway that are found to pose a serious threat to endangered species should be assessed on a case-by-case basis". As a supplement to that statement, the President sent a special message to the Secretaries of Interior, Agriculture and Defense and the Chairman of the Tennessee Valley Authority directing that "[F]ederal programs

should be coordinated in a way that will provide timely assistance to the Secretary of the Interior and the Secretary of Commerce in determining the habitat which is critical for the survival and recovery of those endangered and threatened species." The President directed each agency to:

- identify, in consultation with the Secretary of the Interior or Commerce, as appropriate, areas of land under their jurisdiction which appear to be critical to the survival and recovery of species;
- provide to the appropriate Secretary information concerning the areas identified as appearing critical;
- exercise caution in proposing any modifications of the habitat until the Secretary of the Interior or Commerce determines whether it is critical habitat; and
- encourage States and private citizens to assist in identifying areas under Federal control which appear critical.

The President directed us to develop timetables for implementation of the review and designation of critical habitat, and to provide guidance and coordination to assure compliance.

We have taken a number of steps to carry out the President's directive which I will address in more detail later in this presentation. I would like to emphasize here that the Administration is firmly committed to implementation of the Endangered Species Act, and particularly the

provisions related to section 7, Federal agency consultation and cooperation. Thus, this Administration does not support any attempts to modify or weaken the provisions of section 7. We firmly believe that the Act is working. We have given it a hard test, and we are certain that it can protect the environment while permitting appropriate development.

COMPARISON OF PROVISIONS OF 1969 AND 1973 ACTS

To better understand what the Endangered Species Act of 1973 means in terms of the Federal commitment, let me briefly compare some of the major authorities and responsibilities of the 1969 Act and the present law.

The Endangered Species Conservation Act of 1969 was hailed by many conservationists and environmentalists as a landmark in the preservation and perpetuation of our living natural resources. It has been said that the 1969 Act established the United States as the world leader in this endeavor. What did the 1969 Act do to deserve such acclaim? Basically, it authorized the Federal listing as endangered of any animal determined to be threatened with worldwide extinction, the protection of such species to be afforded through prohibition on importation; an authorization for habitat acquisition in the United States, and the promotion of sound management practices in this and other countries. The 1973 Act authorizes the Federal listing of plants in addition to animals and covers animals not previously considered (arthropods and other invertebrates). The 1973 Act provides considerable flexibility

in considering the status of a species and in affording to it commensurate protection in all or part of its range by listing it as either threatened or endangered. In effect, it is no longer necessary to wait until the species reaches that most critical level in its existence--threatened with extinction throughout its range--before some action is taken. We now have a much needed management tool; that is, authority to act before a point of no return is reached.

PURPOSE OF 1973 ACT

The primary purpose of the Endangered Species Program as directed by the 1973 Act is to prevent plant and animal species endangerment and extinction caused by human influence on the environment, and to return the species to the point where it is no longer threatened or endangered. Man's activities threaten a growing number of species with extinction, and it appears that the number of species becoming extinct has increased at a rate paralleling human population growth. For the United States alone, 200 species per decade, become extinct, with an even greater number entering the endangered category. If the same rates apply on a worldwide basis, an estimated 3,000 extinctions occur per decade.

It is clear that resources are needed to supply a growing human population --food, energy, shelter, etc. Even so, reasonable efforts can be made to prevent the extinction of many species. There are resource development alternatives, conservation measures and mitigation techniques that can be implemented which will allow resource utilization to meet man's

physical and material need and yet insure a reasonable natural diversity. In some cases, the protection of a relatively small area will preserve a species' entire range. Careful evaluation of land or water use activities and modification of essential projects when necessary will insure the continued existence of many species. Where taking is a major factor in a species' survival, the control of such taking can eliminate the threat to the species' existence.

The 1973 Act prescribes strict procedures which must be followed in determining the status and proper classification and conservation measures for an individual species. Once listed, the law provides a number of mechanisms to protect and enhance the recovery of the species involved.

LISTING (SECTION 4)

The process of determining a species' status is one of the most difficult aspects of the Endangered Species Program. The 1973 Act directs that the determination for listing a species as either endangered or threatened throughout all or a portion of its range must be based on the best scientific and commercial data available. Lengthy and complex scientific research and field investigations are frequently involved in determining many species' life histories, habitat requirements and the techniques to use for population status evaluations. The Act also directs specific consultation and coordination prior to listing, and establishes criteria for the actual determination. Before any activities for protection and

recovery of a species can take place the determination and listing process must be completed.

As of December 28, 1973, there were 391 species listed as endangered. Today, over 600 species are listed as either endangered or threatened and the status of an additional 2,000 species are being reviewed. The Fish and Wildlife Service is continuously monitoring the status of all listed species. Such monitoring has resulted in the reclassification of four species. The status of a listed species must be continuously monitored and reviewed in order that appropriate protective measures can be maintained. We would be just as negligent in the performance of our duties under the Act for not delisting or reclassifying a species that has recovered to a requisite level as for not listing a truly endangered or threatened species.

The success of the Endangered Species Program should not, however, be measured by the number of species listed. The goal of the program is to maintain a healthy diversity of plant and animal life and to restore endangered or threatened species to a level where they are viable components of their ecosystems. Thus, if it could be measured, success should be gauged by the number of species that never need to be listed plus the number of species removed from Federal protection because they are no longer endangered.

ENFORCEMENT (SECTION 9)

Once a species is listed, the prohibitions in the Act or in related regulations immediately come into force. There is little benefit to

listing a species if the prohibitions designed to protect it are not adequately enforced. Specially trained enforcement officers must be available to inspect shipments of live plants and animals as well as parts and products made from such species at ports of entry. Other enforcement officials must be available to investigate alleged violations throughout the country and perform other functions designed to eliminate illegal traffic in and illegal taking of endangered and threatened species.

The law enforcement effort is aimed at obtaining widespread voluntary compliance with the statute and regulations. This compliance is obtained either by removing the desire or incentive to engage in the prohibited activity, or by removing the opportunity for such engagement activity. Most of our enforcement activities relate to the first of these methods. After all, it is better to keep the endangered animal from being killed than apprehend the violator for the illegal killing. One way of preventing violations is by disseminating information to inform people specifically about the law and the need for compliance. In this regard, since the 1973 Act imposed a whole host of new prohibitions relating to endangered species, the Fish and Wildlife Service has carried out a major public education program.

Three television public service announcements have been distributed alerting viewers to the problem and urging them to write in for a special booklet entitled "Facts About Federal Wildlife Laws". These spots,

featuring actor Lorne Greene, were mailed to 500 TV stations throughout the country in March 1975. Three radio messages were released in 1976 to 500 stations. To date, we estimate 75 percent of the stations receiving the TV spots have put them on the air for an average of 13 weeks. We estimate the TV and radio spots released so far have received one million dollar's worth of free air time and have been seen or heard by a minimum of 50 million Americans. The public has responded and over 110,000 of the booklets have been mailed to viewers. In addition, Service officials have appeared on TV and radio programs throughout the country to explain Federal restrictions on wildlife and display a variety of forfeited wildlife items. Fact sheets have been prepared to describe in layman language the various prohibitions and how they affected special groups such as zoos and taxidermists. Assistance has been given to newspapers and magazines so that they can carry our message to an additional segment of the public.

Another method of preventing violations is by maintaining the capability and the willingness to enforce the laws. During fiscal year 1975, the Fish and Wildlife Service handled 1,343 investigations under the Endangered Species Act. In fiscal year 1976 and the transition quarter, 1,590 investigations were initiated and, during the first six months of fiscal year 1977, 1,134 investigations were initiated. As of May 31, 1977, there were 921 investigations pending. Since the Act became law through fiscal year 1976 and the transition quarter, criminal prosecutions have resulted in conviction of 209 individuals with the

courts imposing total fines of \$33,619, and 12,500 days of jail sentences. In addition, through June 30, 1977, 239 civil actions have been concluded with total penalties of \$40,180 collected. There are approximately 500 civil penalties pending.

Law enforcement activities under the Endangered Species Act have to be considered in relationship to other laws enforced by the Fish and Wildlife Service. This is for two reasons. First, the 235 enforcement officers of the Fish and Wildlife Service, called Special Agents, are responsible for the enforcement of all the laws administered by the Service. Therefore, it is impossible for us to say that a particular agent is an "endangered species" agent, or a "marine mammal" agent, or a "migratory bird" agent. Second, there is considerable overlapping protection provided by some statutes. For example, several marine mammals are also endangered species, and are therefore, protected by both the Endangered Species Act and the Marine Mammal and Protection Act. Similarly, many endangered species are also migratory birds, and thus protected by the Migratory Bird Treaty Act and, in the case of the eagle, by the Bald Eagle Protection Act. With regard to fish, there is additional protection provided by the Black Bass Act. Moreover, the Lacey Act provides protection to wildlife moving in interstate or foreign commerce if certain State or Federal laws are violated.

The 1973 Act controls the activities of "persons" which extends far beyond the traditional meaning of individuals and organizations. These prohibitions

caused several significant problems. An initial problem centered around misunderstandings about to whom and to what degree the Act should be applied. This led to an intensive period of communications, by telephone and letter, posing innumerable problems and questions. Most of these problems have, as a result of our public information campaign, been resolved.

Under the law permits are required for every activity which involves the "taking" of an endangered species. "Take" is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect.

Zoos found themselves faced with an apparent block to their normal business of transferring animals. It also came to our attention, shortly after the Act came into effect, that many circuses were affected because the transportation of endangered animals across State lines or in or out of the country without a permit was a violation of the Act. A number of propagators of wildlife, including endangered species such as tigers, leopards, jaguars, wolves and pheasants, found themselves unable to sell the wildlife which they produced in interstate or foreign commerce.

These problems are being resolved, in part, through the recently issued regulations (June 1, 1977) on captive self-sustaining populations of endangered species. There are species that while endangered in the wild, are being bred in captivity in such numbers that captive self-sustaining populations have been established. The successful maintenance of such

populations usually depends on the ability of the zoos or other propagators to transfer breeding stock and progeny, and recoup their expenses through the sale of surplus animals. In order to enhance the ability of propagators to breed animals in captivity in such numbers that a self-sustaining population is maintained, the Fish and Wildlife Service has promulgated regulations for treating certain otherwise endangered species as threatened in this country.

Thus far, 11 species have met the criteria for self-sustaining populations. Animals will be added to the list as they qualify.

RECOVERY TEAMS

Enforcement alone will not insure either the survival or recovery of many species. Habitat preservation, research, management and other conservation efforts are essential activities if the recovery of species is to be achieved. Therefore, one of the most important steps after the listing process is to establish a recovery team to identify actions necessary to restore a species. Recovery teams are composed of experts from the Federal, State and private sector, and there are presently 58 such teams working on 69 high priority species. Through the preparation of recovery plans it is possible to set priorities, assign responsibilities among cooperating groups, and estimate costs of a species' recovery.

LAND ACQUISITION (SECTION 5)

While both the 1969 and 1973 Act provided for habitat preservation through acquisition, here again the 1973 Act surpassed its predecessor by removing

a statutory limitation on the use of Land and Water Conservation Fund Act money and by providing a means to identify and protect critical habitats. Through FY 1977, over \$31 million in Land and Water Conservation funds has been appropriated for acquiring some 57,000 acres of key habitat for endangered and threatened species. In viewing the long range requirements of species, we estimate that as much as \$200 million may be needed to acquire habitat over the next five years.

FEDERAL AGENCY COOPERATION AND CRITICAL HABITAT DETERMINATION (SECTION 7)

As indicated in your letter inviting the Department of the Interior to participate in this oversight hearings, critical habitat designation and the requirements related to Federal agency cooperation are of major interest to this Committee. I welcome this opportunity to discuss with you the issues involved in section 7 and the Administration position regarding those issues.

Passage of the 1973 Act mandated, for the first time, responsible actions by all Federal agencies to insure protection of endangered and threatened species, and their critical habitats. Under the Act, an affected Federal agency still retains power to make final decisions as to whether and on what terms it will proceed with an action covered by section 7. The Act does, however, provide for consultation to insure that the expertise of the appropriate agencies is brought to bear on environmental questions, and provides for a check against potential biases of mission-oriented agencies. Such consultation has been shown to be very important where earlier laws were inadequate in meeting consultative needs of

Federal actions that could impact fish and wildlife resources in general and more specifically, endangered and threatened species. We believe the 1973 Act and its attendant regulations provide us with all the flexibility we need, especially if we are brought onto the scene early in the planning process.

Critical habitat is determined for only those United States species whose habitat is the critical factor in their continued existence. Such delineation is essential if other Federal agencies are to comply with the requirements of section 7 of the Act. To date, critical habitat determinations have been made for 6 species and proposals have been published in the Federal Register for 44 more species.

We estimate that about 4,500 consultations, the majority of which were informal telephone conversations, have been conducted by the Fish and Wildlife Service since passage of the Act. Since earlier laws primarily addressed specific types of actions, and affected only a few Federal agencies, many Federal actions proceeded without the benefit of technical advice on pertinent environmental considerations. We estimate that over 10 to 20 thousand consultations will be initiated in fiscal year 1978. We have recently issued regulations that establish the procedures for the Fish and Wildlife Service to advise and consult on all Federal actions that may adversely impact endangered and threatened species.

At the time of passage of the National Environmental Policy Act (NEPA) there was substantial reaction to what was perceived as NEPA's restrictive-

ness. One hundred-seventy bills and resolutions were introduced to make the new law more "reasonable" and "flexible". None of them passed. Since then, of course, NEPA has been amended, but only after very careful and extensive consideration, and even then only in a very narrow sense. In this sense we believe the Endangered Species Act is analogous to NEPA.

The Endangered Species Act provides protection not only for endangered species and their habitats, but for human values as well. The endangerment of lower forms of life is an indicator for the human race. A poignant example of this "canary in the coal mine" argument is the DDT case where this pesticide, which has subsequently been banned for human health reasons, was first discovered as creating a serious hazard to reproduction in various endangered raptorial species.

Of the thousands of Federal actions on which the Service has consulted only three actions have resulted in judicial review. Of these three, only one has been brought before you for a proposed Congressional solution. Our observations and experience clearly show that Federal agencies, for the most part, are seeking our advice, and more importantly, at earlier stages of project planning and development. We have given the Act a hard test and we are certain that it works to protect the environment while permitting most developmental programs. To amend the Act at this point, before it is fully integrated in natural resource development activities, would be premature and shortsighted.

We are about to embark on a major government wide review and identification of critical habitat on Federal lands. As I previously stated, President Carter is firmly committed to carrying out the provisions of section 7 and has directed this action in his Environmental Message to Congress and special message to affected agencies. The agencies are to identify lands under their jurisdiction which appear to be critical habitat, in consultation with the Secretary of the Interior or the Secretary of Commerce, and submit this information to the appropriate Secretary for a determination of critical habitat if such a determination is justified. The Secretaries of Interior and Commerce were specifically directed to develop expeditious timetables for implementing this process providing the necessary guidance and cooperation to the involved agencies. The Fish and Wildlife Service has prepared draft guidelines and timetables for implementing the President's directive. This document will soon be distributed to appropriate agencies for review.

Specifically, the proposed guidelines establish a format for critical habitat submissions, including the description, maps and justifications necessary for the area in question and identification of environmental impacts for compliance with the National Environmental Policy Act. Biological criteria have been developed which define critical habitat, explain the biological concept of critical habitat, and give examples of special consideration for certain biological circumstances.

A timetable has been developed based on a review of all listed species which resulted in a priority system, by species, divided into three categories. The first category consists of species with the most urgent need for critical habitat determinations. Recommendations are to be developed and submitted to the appropriate Secretary within 12 months. The second category for species (with less urgent need for critical habitat determination) requires recommendations within 18 months, and the third (category) requires recommendations within 24 months.

INTERNATIONAL PROGRAM (SECTION 8)

The 1973 Act provided increased authority and alternative sources of funding a greater international involvement to protect endangered species. The Act is the implementing legislation for the Convention on International Trade in Endangered Species of Wild Fauna and Flora. As a party to that Convention, the United States has a major international commitment to the protection of global fish and wildlife resources. Previously, our international obligations were limited to certain migratory birds and marine mammals.

To date 34 countries have ratified the Convention. Ratifying nations are now in the process of establishing management and scientific authorities as well as regulations for implementation of the Convention. Many countries, including the United States, have completed these requirements. The United States has taken the following steps toward implementation of the Convention:

- [Ratified] the Convention, January 15, 1975. The Convention came into force on July 1, 1975.
- Encouraged other nations to ratify in order to strengthen Convention. This is a continuing effort.
- Under Executive Order 11911, negotiated between the involved agencies and signed on April 13, 1976:
 - Established a United States Management Authority as required by the Convention, to issue permits, to be the United States spokesman internationally and to coordinate United States implementation.
 - Establish the United States Endangered Species Scientific Authority to conduct biological review of permit applications as required by the Convention. The Scientific Authority is an interagency organization, chaired by the Department of the Interior, and also representing the Department of Agriculture; Department of Commerce; Department of Health, Education and Welfare; National Science Foundation; Council on Environmental Quality and Smithsonian Institution.
 - Selected an Executive Secretary to the Scientific Authority.
- Drafted and issued regulations to implement the Convention in the United States, effective May 23, 1977.

Having accomplished these things, the Management and Scientific Authorities are now actively implementing the Convention. Permit applications are being reviewed and permits issued. As of July 1, 1977, the Management Authority had received 112 applications for the seven different types of permits or certificates required by the Convention. Twenty-four permits or certificates had been issued as of July 1, 1977.

The public was given 3 months from the time the regulations were published until they became effective, in order to become familiar with the new requirements. The Management Authority mailed copies of the regulations and other information to over 4,500 persons and groups known to have an interest affected by the Convention. A number of press releases and articles were prepared and disseminated to the general and the specialized trade press.

The Management Authority also prepared a special set of instructions for permit applicants, as well as a fact sheet on the Convention. The new instructions are designed to simplify the permit process for the applicant. We plan to hold a series of public workshops across the country this summer, and seek public comment on this new type of instruction.

The Management Authority is also responsible for stimulating and coordinating United States implementation of the Convention. This

is being accomplished through meetings and workshops with other agencies such as the Department of Agriculture and the Department of Commerce. We are also in the process of drafting new procedures and policies.

In the international arena, the Management Authority is pursuing several goals to make the Convention more effective. We will propose an internationally standardized identification manual at a technical meeting to be held in Geneva, Switzerland in October of this year. At the same meeting, we will discuss internationally standardized guidelines for humane transportation of Convention species and revisions of the Appendices (lists of protected animals and plants). For the future, we plan to encourage greater international uniformity in the procedures for and the appearance of Convention permits and certificates. We will continue to support substantial personnel increases in the international secretariat for administration of the Convention.

The Convention on International Trade in Endangered Species of Wild Flora and Fauna is only one of the activities authorized by section 8 of the Act. Section 8 also provides a most effective tool for carrying out a vigorous global effort to promote conservation of fish and wildlife.

The Secretary is authorized to utilize United States excess foreign currencies for programs necessary or useful to the conservation of endangered or threatened species. Very positive results can be realized through the use of excess foreign currencies. In fiscal year 1977, the

Congress authorized use of \$600,000 in foreign currency equivalents held at embassies in Egypt, India and Pakistan. Using these monies in lieu of general revenues we are developing threatened and endangered species research programs in Egypt, including training and education in the management and protection of these species. If successful, this program will have a major salutary effect on conservation of threatened and endangered species throughout the arid ecosystem of the Middle East. We intend to proceed with similar programs in Pakistan and India as soon as practicable. Our initial focus is on those species which either of themselves, or due to their relationship to other species or their environments, relate to domestic situations we face here. In this case, we seek to help ourselves while also providing programs necessary and useful to the conservation of threatened and endangered species abroad.

We have also used the consultative and cooperative authorities of section 8 to develop joint research on threatened and endangered wildlife with foreign countries which share our concerns for protecting these species. For example, consultations and shared field work on endangered mammals and birds has been undertaken with the Soviet Union. With Mexico, we have established cooperative research projects on threatened and endangered species such as the California condor, peregrine falcon, wolf, grizzly bear and masked bobwhite quail.

The Government of Saudi Arabia has asked us to develop a management program to protect several species of bustard which appear there. Saudi Arabia will fund this entire project.

Section 8 also calls for implementation of the 1940 Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere. In meeting this responsibility, we have begun work with the Brazilians to train their professionals in bird banding techniques. This project, partially funded by the National Science Foundation, will increase our knowledge of migration patterns and provide information needed to establish protection programs. Similar work is developing for protection of the manatee. In Venezuela, we are joining in the design of a program to train South Americans in fish and wildlife protection, ecosystem preservation and law enforcement.

Due to the many activities of enormous global potential authorized by section 8, we have established a small staff within the Fish and Wildlife Service to develop and coordinate these nonconvention activities. The achievements I have noted represent their efforts of the past year. This staff has increased our liaison with the International Union for the Conservation of Nature and Natural Resources, the United Nations Environmental Program and the World Wildlife Fund. This liaison allows us to coordinate planned work of the Service and exchange information.

In one recent case, for example, this liaison provided us with information critical to our own needs in the South Pacific and again in relation to a National Science Foundation funded project in Spain.

STATE COORDINATION AND FEDERAL ASSISTANCE (SECTION 6)

One of the most significant aspects of the 1973 Act is its recognition of the important role of State conservation agencies. Unlike the 1969 Act the new law provides a strong Federal commitment for close cooperation and coordination with State fish and wildlife agencies. That commitment takes the form of cooperative agreements and a grant-in-aid program with the States in addition to the cooperative development and execution of recovery plans.

The grant-in-aid program authorized by section 6 of the Act provides for a financial incentive to the States to help meet the Act's requirements. We intend to do everything possible to encourage States to enter into cooperative agreements. Their expertise, manpower and cooperation are essential if we are to attain our overall goal of effecting the recovery of species and removing them from the list. State fish and wildlife agencies have the skills and manpower. In addition, many States have had programs for decades to protect endangered species for decades and their continued work is essential if the purposes of the act are to be achieved. The Fish and Wildlife Service's ability to carry out the purposes of the Endangered,

Species Act depends in large part on the willingness and ability of the States to participate in the program. With few exceptions, States are cooperating and have been expending scarce financial and manpower resources in obtaining necessary authority and in development of plans for species recovery. It is not our intent to preempt State control of resident species, but rather to help States through cooperative agreements to develop adequate management program.

As you are aware, Mr. Chairman, having recently considered authorizing legislation for the grant-in-aid program, section 6(i) of the Endangered Species Act authorized an appropriation of \$10 million for financial assistance to States through June 30, 1977. In fiscal year 1976, \$2 million was appropriated to remain available until expended for grant-in-aid. In fiscal year 1977, \$4 million was appropriated for this purpose, \$3 million of which was in the supplemental appropriation. A request for \$3 million is contained in the fiscal year 1978 budget presently pending in Congress.

The Endangered Species Act provides that the Federal share of the cost of cooperative programs not exceed $66 \frac{2}{3}$ percent of the total cost when only one State is involved. If two or more States have a common interest in endangered and threatened species and enter jointly into an agreement with the Secretary, the Federal share of the program may be increased to 75 percent.

To date, 18 States have signed cooperative agreements, and thus qualify for financial assistance. Some 48 States have contacted the Service for advice and assistance in reaching a cooperative agreement. We anticipate signing an additional 13 agreements before the end of this year, and more States will come on board over the next few years.

To date, about \$1.4 million in grant-in-aid has been allocated to 16 States including: Arkansas, California, Colorado, Delaware, Florida, Maine, Maryland, Michigan, Missouri, New Jersey, New York, South Carolina, South Dakota, Virginia, Washington and Wisconsin. We anticipate that all of the funds thus far appropriated for this purpose will be obligated by September 30, 1978.

Before entering into cooperative agreements the Secretary must make certain findings regarding the State's authority and programs. This requirement of the Act has, naturally, caused some delays in allocating grant-in-aid funds. In addition, we in the Department and the States are still learning what resources are available and how best to use the funds. The allocation of Federal funds will be more timely and the need for such funds will increase as recovery plans are developed for more species, and more cooperative agreements are consummated. In addition, we anticipate multi-state agreements will also be developed.

State grant-in-aid funded programs presently involve 32 different species, among them the bald eagle, California condor, brown pelican, Florida panther and American peregrine falcon. The peregrine falcon and the bald eagle provide good examples of the type of programs for which grant-in-aid funds are used. In California the agreement provides for identifying the critical habitat of peregrine falcons, surveying eyrie sites for possible acquisition and participation in developing the recovery plan. In Colorado, we are, among other projects, documenting eggshell thinning and pesticide residues, and monitoring movements and hunting ranges of adult falcons by radio tracking. In New Jersey, we are reintroducing these falcons where they previously nested. We are, in fact, working with eight States to bring about the recovery of this spectacular bird of prey. Six States, California, New Jersey, Florida, Maryland, New York and Maine, are doing essential work to help the American bald eagle, our national symbol, by locating present and historic nesting sites and wintering areas, determining causes of mortality, providing direct protection to nesting and wintering birds, releasing young eaglets into the wild by a process called hacking and a host of other activities essential to making the nation's bald eagles a strong and healthy population that will be here for many future generations of Americans to admire.

A funding level of about \$3 million per year for the next four fiscal years will be adequate to take care of current and anticipated needs authorized by section 6.

PERMITS AND EXEMPTIONS (SECTION 10)

Although the Act provides for prohibitions against taking (except for plants), importing, exporting and interstate commerce of listed species, Congress recognized that some uses of these species were necessary, proper or desirable. Section 10 of the 1973 Act authorizes the issuance of permits for certain uses of endangered species. Section 4, implemented by regulations, provides permits for certain uses of threatened species. Section 9, which requires the entry and exit of all plants, fish and wildlife through designated ports to facilitate enforcement, also authorizes permits for entry at other ports.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora requires permits or certificates as a condition of import, export, or introduction from the sea. There are also certificates for certain exceptions. All in all, there are seven different types of permits or certificates under the Convention.

The processing of permits is an important aspect of the endangered species program, and must be handled expeditiously. Control of trade through a permit system is the fundamental mechanism of the Convention on International Trade in Endangered Species of Wild Fauna and Flora. From July 1974 to June 9, 1977, the Service has processed 1,435 permit applications in its Washington office. Of this number, 600 were endangered species permits and 236 were for exceptions to the designated port requirement. In addition, since late February of this year, we have received 112

applications under the Convention. (This number does not include applications where the species is also covered by the Act). It is likely that the new regulations on captive self-sustaining populations and the listing of plants will increase the number of permit applications received for processing.

The major goals of the Service's permit program are:

- to reduce unnecessary paperwork for all concerned;
 - improve the quality of the biological review of permit applications;
 - develop simplified procedures for applicants;
- and
- reduce the time required for consideration of a permit applications.

Work is proceeding toward each of these goals, and there has been some progress. As an example of accomplishments to date on the permit system, we have:

- revised our internal system of permit tracking including establishment of a computerized data base;
- computerized mailing lists for informing interested persons of new regulations and procedures;
- developed several fact sheets on permit procedures;
- conducted internal training on permit procedures, regulatory requirements and establishment of priorities; and
- developed plans for a series of national permit workshops,

the purpose of which is to invite public participation in revising the permit system.

I believe that the Service is going in the right direction with these actions. However, in the face of a constantly increasing workload, it has been difficult to review and issue permits in less than 120 days. The length of time it takes to process permit applications has been of considerable concern to me, and as you are aware, caused some of the most vocal criticism directed at our administration of the Act. The Service recently did an analysis of endangered species permits. The analysis showed that 40 percent of the applications surveyed were incomplete and required further information from the applicant. It took an additional 30 to 60 days to get a response from the applicant. We are trying to reduce this figure by simplifying instructions for applicants, by holding a series of public workshops on the application process, and by trying to identify and remove unnecessary questions from the applications. The analysis also identified a significant in-house delay in one of the reviewing offices, which was short of manpower. To overcome this we have eliminated one stage of the preliminary review of permits by combining it with another review. This should save up to 30 days on each application, without sacrificing the quality of the critical biological reviews.

We have set a goal of a maximum of 61 days to process an endangered species application. This includes the 30 days of public review required by the Act. We believe that this is a reasonable figure for maximum time, which does not jeopardize the quality of the review. Even with increasing workload, I am confident that we can reach this goal in one or two years.

OTHER ACTIVITIES

There is an extensive research effort, both in-house and contract, aimed at 1) producing endangered and threatened species in captivity for release in the wild, 2) conducting investigations to determine procedures identified in recovery plans, and 3) conducting investigations to determine procedures for species status surveys. Our research personnel also identify and serve as taxonomic experts on specimens taken in law enforcement cases.

Technical advice and assistance is being provided at all levels of government and the private sector. Some 600 letters a month are received in the Washington Office on the endangered species program. The number is much higher when correspondence from regional and area officers is counted.

In the area of public information the Service has responded to numerous inquiries and assistance requests from the broadcast media. Over the past two years, television and radio news and feature producers have sought information primarily on such better-known species as the whooping crane, bald eagle, peregrine falcon and red wolf. Occasionally, producers have asked for Service stock film footage on such species; more frequently, they have sought information on procedures to undertake their own filming. Production related inquiries averaged roughly four per month, during the years 1975 and 1976.

Illustrative of requests received from and assistance provided to news agencies is the cooperation afforded ABC's "Good Morning America" television program. One of the Washington-based producers of this program approached the Service in the fall of 1976 for information on what is being done to help the peregrine falcon. The Service apprised him of ongoing research and restocking efforts being conducted primarily by Cornell University and the Peregrine Falcon Recovery Teams. The Service further arranged for filming opportunities with peregrine experts in Colorado and provided peregrine footage from one of the Recovery Team members to the network. As a result of these efforts, ABC's "Good Morning America" telecast a short feature segment this April highlighting some of the important peregrine restocking work being done in the Rocky Mountain area, and bringing to the television public the positive concept that recovery programs can indeed benefit endangered wildlife.

SUMMARY OF ACCOMPLISHMENTS

In order to implement the Act carefully and judiciously, we have tried to build an orderly and thoughtfully structured base of procedures and supporting regulations. This is the basis for an effective and timely program of listing and delisting, permit processing, cooperation with State conservation agencies, habitat acquisition, protection and enhancement of species on Service and other Federally administered lands and assistance to other countries.

I am firmly convinced the Fish and Wildlife Service's approach has been appropriate and significant progress has been made. The Service has memorandums of understanding with the Department of Commerce that delineate areas of jurisdiction, cooperation and law enforcement. The Service has held workshops throughout the country and briefed State, Federal and private conservation agencies on the Act. Similarly, steps have been taken to insure that all Interior agencies and other Federal agencies are aware of their obligations under the Act. Guidelines have been developed for States to use in preparation of cooperative agreements and action is well underway in reaching such agreements. A model nongame and endangered species bill has been developed to assist States in obtaining legislative authority compatible with the Federal law. A method to implement the difficult but essential "critical habitat" concept of the Act has been developed. Some 58 recovery teams have been established. Educational materials on endangered species including special brochures, notices and TV spots have been produced.

Limited resources, however, necessitate uneven application of the Act. Although the Act gives authority for listing and protection of species worldwide, it has been necessary to limit program efforts and establish priorities within the program. Endangered native ecosystems and species have received priority over lesser taxa and the more endangered a species is, the greater the effort is to provide for its conservation. While

it is unlikely that we can ever provide the resources necessary to protect all species equally necessary to threat all species equally, an adequate level of funding and manpower must be available to operate within the priority system and at the same time meet emergency situations and be responsive to petition as well as an ever-increasing activity on the part of private citizens and conservation groups.

Appropriations are not authorized beyond fiscal year 1978 for continued implementation of the Endangered Species Act. Grant-in-aid fund under section 6(i) are in the process of being extended. The Administration is presently evaluating our recommendation for extending the general authorization contained in section 15 of the Act. It is my hope that it will be possible, within overall national budgetary priorities to provide the funds and manpower necessary for maintaining a balanced program.

PROBLEMS

As I am sure you are well aware, Mr. Chairman, progress in implementing the Act has not been without problems.

Those who have said that we are avoiding discharging our responsibilities have perhaps expected too much. On the other hand, there are those who view our implementation of the Act as a threat to their livelihood or programs. In some cases it is; it should be. I fully support the intent of the Act to reduce the demand for endangered animals and their parts

or products. It is essential that we reduce the demand for certain animals that have been reduced to a level where their continued existence is in jeopardy. However, we recognize that this creates some legitimate cases of economic hardship on those engaged in legitimate commercial activities prior to passage of the 1973 Act. The commercial demand for endangered animals from the wild should be eliminated, and the United States should take the lead by reducing the demand by its citizens for animals taken from the wild, but to abruptly eliminate this demand by declaring illegal an activity which does not affect wild stocks appears to be an unnecessarily severe approach.

The Congress recognized this problem last year in enacting Public Law 94-359, exempting under certain conditions whale parts and products lawfully held on or before December 28, 1973, from the prohibitions in the Act. Incidentally, that also provided needed amendments to facilitate administrative processes, clarify enforcement procedures and refine the definition of "commercial activity". It did not, however, address the entire problem. The 1973 Act provides a one year economic hardship exemption for species listed subsequent to December 28, 1973. An exemption is also provided for animals held in a controlled environment on the date of enactment if such animals were not being held for commercial purposes. For example, the breeder of Swinhoe's pheasant who trades with other aviculturists and the wholesaler or retailer with a stock of parts and products of animals listed as endangered under the 1969 authority, other than scrimshaw and whale oil, were not provided any exemptions under the new law. Yet, they were engaged in legitimate

commerce prior to December 28, 1973. I believe that where economic hardship can be clearly demonstrated these people have a valid criticism of the Act. The captive self-sustaining population regulations will eliminate part of the problem, but not the entire problem.

You will be hearing from State witnesses who will be describing difficulty in entering into cooperative agreements because of the lack of State legislative authority, and also because of the definition of "States agency" in the Act. In addition, the Act does not allow grant-in-aid for protection of plants.

We hope that you will look into these situations in greater depth than can be done at this oversight hearing, and we would be pleased to provide you and your staff with technical assistance.

Mr. Chairman, I appreciate the opportunity to present this overview of the 1973 Endangered Species Act. This concludes my prepared statement. I would be pleased to answer any questions you might have. Thank you.

Testimony of
Jack W. Gehringer
Deputy Director
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
U.S. DEPARTMENT OF COMMERCE

at

Oversight Hearings
on the
Endangered Species Act of 1973

before

Subcommittee on Resource Protection
Committee on Environment and Public Works
U.S. Senate
July 20, 1977

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss our agency's progress in implementing the Endangered Species Act of 1973.

I will mention briefly the basic responsibilities of the Department of Commerce under the Act, our major accomplishments and expenditures to date, indicate planned activities, the criteria and methodology for listing determinations, and interagency consultation. Lastly, I will comment on proposed amendments concerning section 7 of the Act.

The responsibilities of the Department of Commerce under this Act have been delegated to the National Marine Fisheries Service (NMFS). Our basic responsibility is to develop and maintain conservation programs for fish, wildlife, and plant species of the marine environment. In meeting these responsibilities we have, of course, worked very closely with the U.S. Fish and Wildlife Service (FWS) of the Department of the Interior. We have also interacted with the States, other Federal agencies, and, in certain situations, foreign countries. Our actions have involved administration, research, and law enforcement functions.

Our actions on the State level, as indicated in our testimony to this Subcommittee last April, have involved establishing the mechanism for State-Federal Cooperative Agreements under Section 6, cooperative law enforcement efforts, and consultations relative to the possible listing of resident species.

On the Federal level, we have entered into interagency memoranda of understanding with the FWS to provide for cross-utilization of enforcement authority and capability, and to clarify jurisdictional responsibilities and listing procedures. We have also co-chaired Committees with the FWS

to brief other Federal agencies on Section 7 of the Act and to develop guidelines for Federal agency consultation to avoid jeopardizing endangered and threatened species and to avoid the destruction or modification of critical habitat. Concerning import/export enforcement activities, we have interacted with the Customs Service of the Treasury Department. To a lesser degree, we have also worked with the State Department, Agriculture Department, and the Environmental Protection Agency.

International cooperation has involved soliciting views and information from foreign countries concerning the possible listing of species -- either resident in those countries or harvested by residents of those countries. We have also encouraged research on endangered whales and attempted to persuade foreign countries, through the International Whaling Commission (IWC), to adopt a 10-year moratorium on the commercial harvesting of all large whales. Significant reductions in fin, sei, and sperm whale quotas have been achieved. We also have served on the U.S. delegation to the first Conference of Parties to the Endangered Species Convention last November where the United States was successful in getting three marine species listed on the appendices

to the Convention (fin and sei whales, and the totoaba, a Mexican weakfish). We also provide continuing assistance to Interior in the implementation of that Convention, both as a member of the Scientific Authority and as a consultant to the Management Authority.

Other program actions, and accomplishments, include publication of final regulations covering general administration of the Act, civil procedures, seizure and forfeiture procedures, permit provisions, and cooperation with the States under Section 6. We have also proposed regulations, jointly with the FWS, to formalize procedures for interagency consultation under Section 7 of the Act.

Under our permit regulations, we have processed 32 permit applications for scientific purposes involving the endangered shortnose sturgeon, endangered sea turtles, and one or more of the eight endangered species of large whales and 27 permits have been issued by NMFS.

Our research has included stock assessments, population dynamics, habitat requirements, and other factors necessary to monitor the biological status of species, support listings, and encourage foreign governments to adopt complementary conservation measures.

NMFS has conducted research on endangered whales over the past several years and this research is expected to expand next year. Recent NMFS reports on the endangered bowhead whale concern population biology of the whale in the Bering, Chukchi, and Beaufort Seas, the 1976 catch of bowhead whales by Alaskan Eskimos, with a review of the fishery, 1973-1976, and a biological summary of the species. Population and habitat surveys of sea turtles are being conducted in the southeastern United States. In addition, a net panel is being developed for use with shrimp trawls to reduce the incidental catch during shrimp fishing. We reported on development of Hawaiian monk seal habitat requirements earlier this year and we are presently considering designation of critical habitat for this species. We established a recovery team for shortnose sturgeon which will host a meeting with sturgeon experts and interested individuals later this month to discuss current research and information needs.

We have expended an estimated 14 man-years of effort in reviewing information on the Atlantic bluefin tuna, the Hawaiian monk seal, the Caribbean monk seal, the totoaba, the green, loggerhead, and Pacific ridley sea turtles for

possible listing under the Act. The Atlantic bluefin tuna was under consideration for listing as a threatened species due to a lack of adequate regulatory mechanisms. This need was eliminated with passage in August, 1975 of the Atlantic Tunas Convention Act, which implemented the International Convention for the Conservation of Atlantic Tunas. The Hawaiian monk seal was listed as endangered in November 1976. Final regulations listing the Caribbean monk seal and totoaba as endangered are expected to be published in the near future.

We and the FWS have just signed a new Memorandum of Understanding redefining agency jurisdiction for sea turtles. NMFS will have responsibility for sea turtles while in the water and FWS will have responsibility for them when they are on land. We believe this agreement will facilitate orderly, effective implementation of the Act with regard to sea turtles. Final regulations listing the green, loggerhead, and Pacific ridley sea turtles, as threatened, are expected to be published by the Department of Commerce and the Department of the Interior this fall.

Significant accomplishments have been made in enforcement. Even though our enforcement effort is largely restricted to specific complaints, through May, 1977, NMFS special agents have investigated 1135 cases involving alleged violations of the Act. The majority of these cases involves unlawful importation of and interstate commerce in parts and products of endangered species, particularly whale teeth, bone, and oil, and turtle meat and shells. A total of 2,344 items valued at approximately \$306,000 has been seized and subsequently forfeited to the government, and \$75,290 in civil penalties have been paid for violations of the Act.

Of the 1135 investigations conducted under the Act, 31 were initiated in calendar year 1974, 297 in 1975, 633 in 1976, and 174 through the first five months of 1977. The number of investigations initiated in 1977 likely will be well below the 1976 total. This is due, at least in part, to an increased public awareness of the the Act created by dissemination of pamphlets, posters, fact sheets, and copies of the Act and regulations, and by personal contacts between our and FWS special agents with individuals involved in commercial activities dealing with endangered species parts and products.

Amendments to the Act (P.L. 94-359) authorized the NMFS on July 12, 1976, to grant exemptions from certain interstate and foreign commerce prohibitions to individuals legally holding inventories of certain pre-Act endangered species parts and products. Through June, 1977, we issued 23 Certificates of Exemption to persons holding inventories of whale teeth, bone, and oil. Eight additional applications for Certificates of Exemption are currently being processed. After August 17, 1977, NMFS will no longer accept applications for Certificates of Exemption under P.L. 94-359.

In terms of expenditures, the National Oceanic and Atmospheric Administration reprogrammed \$130,000 in FY 1974 on a one-time basis to initiate an endangered species program, almost all for whale research. In FY 1975, on a one-time basis, \$350,000 was reprogrammed for research on the status of Atlantic bluefin tuna, and an additional \$30,000 was reprogrammed for the administration of the Act.

In FY 1976, \$400,000 was appropriated: about \$100,000 to develop policy and regulations, for review of permit applications, and for administration of the program generally; \$150,000 to enforce the provisions of the Act; and the remaining \$150,000 for studying population status and trends

of sea turtles, Hawaiian monk seal, Guadalupe fur seal, and northern elephant seal. During the FY 1976 budget transition period, we received \$27,500 for a continuation of this research, allowing for limited research for Atlantic sturgeon, and \$42,500 for administration and enforcement.

A total \$541,000 was appropriated in FY 1977. This included an additional \$145,000 for overhead support. The administration, enforcement, and research allocations remained relatively unchanged from FY 1976, and research emphasis shifted to sea turtles. In order to accelerate development of gear designed to reduce incidental catch of turtles by commercial fishermen, in FY 1977 we reprogrammed \$163,000 from other activities into sea turtle research. These monies primarily came from salary lapses within the agency.

The endangered species program has nine full-time positions: a program manager, an endangered species specialist, a secretary, and six law enforcement agents. Others within the agency who assist in implementing the Act, include administration, research, law enforcement, and General Counsel staff personnel.

Major activities to be carried out in future years will, of course, be keyed to available funding. The Administration's FY 1978 budget request asks to increase our endangered species budget by 3 positions and by \$309,000. This increase would be used to fund whale research. With our base funding of \$541,000, we will continue to do the following: promulgate regulations, conduct law enforcement activities, carry out sea turtle research and management programs, designate critical habitat, as appropriate, for sea turtles and the Hawaiian monk seal, process permits, review State/Federal Cooperative Agreement applications and review Federal agency projects to ensure that they do not jeopardize endangered or threatened species or destroy or modify critical habitat.

In FY 1979, NMFS proposes to expand sea turtle, whale, seal, and fish research. We will also consider funding requests to provide for State/Federal Cooperative Agreements.

Actions which should be undertaken over the next several years include: research on all species listed; status reviews and protection resulting from listing Convention species not presently listed domestically as endangered or threatened; status reviews of species for which we receive

petitions which present substantial evidence in support of listing; commercial fishing gear research to reduce or eliminate incidental catch of endangered or threatened species; marine flora research and regulations; designation of critical habitat areas; and adequate State/Federal Cooperative Agreement support.

Let me turn now to the methods and procedures for listing determinations. The biological criteria we use to determine species which should be listed as endangered or threatened consists of the best available information as to whether: (1) the population is estimated to be very low relative to initial or historical population size; (2) there has been a clear trend of decreasing population; (3) the habitat is being destroyed or otherwise curtailed; (4) the range and distribution of the species or separate breeding populations of the species are being, or have been, reduced; (5) commercial or other catch records show major reductions while catch effort remains high; and (6) an extraordinary threat to a species exists.

Methods for determining priority of species in listing as endangered or threatened include: (1) the basis or degree of biological endangerment, therefore, candidates for listing

as endangered would receive higher priority than those considered threatened; (2) location within the territorial limits of the U.S. or otherwise under the jurisdiction of the U.S.; and (3) petitions by the public, when supported by adequate documentation and falling within the categories of (1) or (2) above.

The Subcommittee has expressed particular interests in Section 7 of the Act. Our involvement under this provision law is small by comparison with that of FWS, due primarily to the number of listed marine species (we are responsible for 14 species presently listed and FWS is responsible for over 600), the fact that most Federal actions affect land or freshwater areas, and the fact that NMFS has not yet designated any critical habitat. We have reviewed a number of significant agency actions which could conceivably impact listed marine species. Most consultations have been initiated through the NEPA process and have involved either the Army Corps of Engineers concerning maintenance dredging, beach refurbishment, or power projects, or the Environmental Protection Agency concerning power plants, sewage treatment, and tidal projects. We have also reviewed coastal zone management plans of the NOAA Office of Coastal Zone Management for potential impact on listed species. We believe that most Federal agencies with whom

we have consulted go along with our recommendations, which may simply alert them to the presence of endangered species in the area to be affected. In other instances, NMFS recommended that the Federal agency involved refrain from conducting the activity during certain periods of time, (e.g., avoid dredging during the months of high species occurrence). We are not aware of any unresolvable conflicts.

With respect to various proposals to amend Section 7 of the Act to provide exemptions for certain Federal projects, NMFS believes that Section 7 offers sufficient latitude through the consultation process to remedy problems which may arise. Consultation properly utilized should preserve the interest of the species in question and allow a viable alternative for the initiating Federal agency.

Mr. Chairman, this concludes my prepared statement. I will be pleased to answer any questions you may have.

Senator CULVER. Would the next panel come forward, please?

Gentlemen, I wonder if you would all be good enough to summarize briefly, your written testimony. We will have the full text of your statements entered into the record.

We do apologize for the time constraints. Please begin.

STATEMENTS OF EDWARD RANEY, PRESIDENT, ICHTHYOLOGICAL ASSOCIATES, INC., AND PROFESSOR OF ZOOLOGY EMERITUS, CORNELL UNIVERSITY; JAMES WILLIAMS, STAFF BIOLOGIST, U.S. FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR; BRUCE COLLETTE, ASSISTANT DIRECTOR, SYSTEMATICS LABORATORY, NATIONAL MARINE FISHERIES SERVICE, DEPARTMENT OF COMMERCE; STEPHEN EDWARDS, EXECUTIVE SECRETARY, ASSOCIATION OF SYSTEMATICS COLLECTIONS; AND ROBERT JENKINS, VICE PRESIDENT FOR SCIENCE, THE NATURE CONSERVANCY

Mr. RANEY. My name is Ed Raney, emeritus professor of zoology at Cornell University. I have studied fish for some 45 years. Since I only have a minute, I would like to highlight what I think is a problem in connection with the Endangered Species Act.

My specialty basically is fish and other aquatic organisms. With 20 other colleagues who are knowledgeable about fishes, crayfishes, insect larvae that live in water, and other aquatic organisms, I could describe at any time in the southeastern United States—that is in the part of the United States that was not glaciated—new species which immediately, if a snail darter case is an example, would be put on the threatened and endangered list and on the basis of limited knowledge about the habitat, could stop the building of any dam, any nuclear plant, any coal mine or any other major facility in that part of the United States in the Southeast.

I will prepare a document and submit it to the committee. [The document referred to appears at the end of today's proceedings, p. 147.]

Senator McCLURE. Dr. Raney, certainly we will receive that document when it is presented. It will be made a part of the record in full and it may also, when received, stimulate a question from one or more members of this committee.

We might submit then those questions, if there be no objection. The questions could be submitted in writing with the responses in writing.

Thank you, very much.

STATEMENT OF STEPHEN R. EDWARDS

Mr. EDWARDS. Thank you.

I am the executive secretary for the Association of Systematic Collections. I would like to submit for the record a position paper that was prepared for consideration by this subcommittee. (See p. 135.)

I am here to make a case for the endangered biologist—the person that has had considerable experience with preserved and living animals and plants—who first documented the problems of the decreasing populations of certain species. This community was the first to have an empathy for this problem. It subsequently has become a public issue.

The organization I represent is comprised of 65 major research institutions throughout the United States and Canada. We maintain biological collections of both living and preserved animals and plants, ranging from viruses and bacteria, through mammals, and flowering plants.

The regulations that we face in the course of performing our basic mission, research, are excessively prohibitive. For example, the Endangered Species Act contains a “grandfather” clause that provides that any specimen of a species obtained after December 28, 1973, that subsequently is determined to be endangered or threatened, falls under the purview of the Endangered Species Act. That means that we must acquire all of the necessary permits to continue to maintain it and use it in our basic research.

We are an international community, not restricted to the United States for communications. We recognize no State or national boundaries in exchanging information or preserved or living specimens. Even though we have acquired specimens legally, under permit, subsequent loans or exchanges of those specimens require additional permits. Parts and products of an endangered species are also controlled. If we want to carry it to the extreme, a fossil of an endangered species that occurred in North America during the Pleistocene would be controlled by the Endangered Species Act.

In conclusion, I would like to say that in all respects, this community supports the basic concepts of the Endangered Species Act. However, this act cannot be used to stop the research that led to the basic information that gave us the act in the first place. I concur very strongly with Senator McClure on this matter.

Thank you.

Senator McCLURE. Thank you, Dr. Edwards.

I understand you appreciate some means by which the scientific community can be freed of the excessive restriction on their activities, even where endangered species are concerned.

Mr. EDWARDS. That is correct. I would put the burden of management of research on endangered species in the hands of the institutions that have supported this research for a number of years. I would provide for institutional permits with a review process that was managed by the community of scholars within each of these institutions. I would not place that authority in Washington in the hands of a disinterested party—USDI.

We have been conducting research in these matters quite successfully for a number of years.

Senator McCLURE. Thank you, very much.

[Mr. Edwards' position paper follows:]

POSITION PAPER

20 July 1977

The Effects of the Endangered Species Act
on the Systematics Collections Community

Presented to: The Senate Subcommittee on
Resource Protection
Senator John C. Culver, Chairman

Prepared for: The Association of Systematics
Collections

Presented by: Stephen R. Edwards, Ph.D.
Executive Secretary

THE EFFECTS OF THE ENDANGERED SPECIES ACT ON THE
SYSTEMATICS COLLECTIONS COMMUNITY

The Association of Systematics Collections was founded in 1972 with 24 institutions to improve management and development of natural history collections and to facilitate use of those collections in science and by society. "Collection" denotes more than physical housing and maintenance of preserved or living organisms. Each specimen contained within a collection represents a unique information set, which minimally must include the following data: the precise locality from which the organism was obtained; the date on which it was obtained; and the person who collected it. Other information that normally are associated with each specimen are the name of the person identifying the specimen, field notes documenting the details of the habitat from which the organism was taken, weather conditions, description of colors in life, notes on behavior and other species found at the same locality. In addition, a given specimen is accompanied by a host of ancillary data and documentation such as photographs of the living organism and the habitat in which it was found, microscopic slide preparations of the specimens' genetic material, preparations of parasites associated with the organism, and, if appropriate, recordings of sounds the organism produces. Therefore, these collections represent a complex inter-related data base that should be readily available to address problems of science and society.

Today the ASC membership is comprised of 65 institutions and 11 professional societies. The institutional members include large and small private museums, private and State universities, and Federal and State government collections (see attached sheet).

Although these institutions have diverse missions, they all have certain characteristics in common:

- 1) They maintain collections of biological specimens with associated documentation on the origin of the specimens, who collected them, when they were collected, etc.
- 2) They employ professional scientists to manage the collections.
- 3) They support active research programs.
- 4) The collection resources are available to the scientific community and society in general.
- 5) There is a commitment on the part of the administration of each institution to maintain the collections in perpetuity.

Our professional societies are also cited on the attached sheet. These societies all have international memberships and a stated commitment to systematic biology with a majority of their members carrying out research on the systematics of plants and animals.

The collections represented through the Association hold in trust over 300 million biological specimens representing the spectrum of plants and animals that comprise an important component of our natural heritage; and with the 2,000 scientists who manage the collections, the documentation on each specimen and associated libraries, they comprise a significant National Resource.

Today natural history collections serve as a basis for research into the nature, origin, development, and past and present relationships among plants and animals. Further, they serve as specialized "libraries" whereby the precise identity of each kind of plant or animal can be determined. This service is possible because of the international codes of nomenclature that must be followed to describe a "new" species and require that examples of the newly described species be deposited in recognized collections throughout the world as Holotypes and Paratypes. Without an alphabet, words and functional written communication cannot proceed. "Type" specimens provide a reference standard for that alphabet and insure a world-wide scientific stability. The capacity of this community to function is absolutely dependent on the free exchange of specimens between institutions in different countries. This leads me to the primary reason for my presenting this statement. It was through the natural history community that factual data of decreasing populations of particular species were first obtained. Out of such knowledge emerged the "endangered species" concept. The concept relates only to the current or perceived status of a particular species, rather than addressing more important issues. For example, how can we ensure reestablishment of a species' population as an integral component of its community? What factors contributed to the endangered status and what roles did these factors play? Herein lies the fundamental conflict between the natural history museum community and the regulatory law designed to implement the Endangered Species Act. Today, basic research is being determined by regulations that tend to discourage research into

these important questions--the answers to which are essential if species currently recognized as endangered or threatened are to regain a so-called "normal" or "healthy" status or to determine if indeed they are endangered at all. For example:

1) Although the regulatory law provides exemptions for scientific research, the current procedure for acquiring the necessary permits is time consuming and potentially costly--an unnecessary frustration to qualified scientists wishing to investigate endangered or threatened species.

2) The scientific community does not review the merits of permit applications--it is done by Federal employees that often lack an intimate knowledge of the scientific community, the organisms, and other research that may apply directly to the problem in question.

3) Individuals in qualified institutions cannot exchange preserved specimens of endangered species freely unless they have the requisite import/export permits--even if the specimens were acquired under permit initially. This further inhibits the progress of research.

4) Unsolicited specimens received by a curator may include representatives of endangered species that are not identified until sometimes months later, at which time the curator has broken the law and is subject to prosecution.

5) The "Grandfather Clause" of the Endangered Species Act requires that any specimen of a species obtained after 28 December 1973 that is subsequently determined to be endangered or threatened falls under the purview of the Endangered Species Act--that is, you need to acquire all the necessary permits to continue to maintain and use it in a collection.

6) The protocol for determining the date of acquisition of a specimen, and particularly whether it was acquired prior to 28 December 1973 may not recognize the information contained in a museum catalog as valid documentation because these criteria are not well defined.

7) Many times it is difficult to provide all the required information on a shipping label when each specimen in a package bears a tag with the catalog number that in turn references this information.

8) The fact that "parts" of an endangered species are subject to equally restrict controls also inhibits basic research. For example, a skeleton of a preserved specimen has potential scientific value.

In closing let me emphasize that the natural history museum community I represent does not want to "neuter" the Endangered Species legislation. On the contrary, we would prefer to strengthen this legislation in order to provide for basic research--research that will lead to the reestablishment of these species as integral components of our environment. Furthermore, we need the freedom to continue to support this basic research without the inhibitory effects of the current Act and associated regulatory law.

As a recent graduate from college may intone after completing four years of study--"My greatest single lesson is that I now know how much I don't know." So it is in the world of endangered species and biology in general in this country. Today we are just beginning to understand how little we really know about our flora and fauna. This recognition of our lack of knowledge led the Association in 1973 to unanimously pass a resolution calling for the establishment of a national biological survey (in the model of the USGS) to implement a survey of the animals and plants of the United States with the creation of a taxon-based electronic data processing system and the establishment of an inventory of open areas. Only through such a national coordinated effort will we, both in Government and science, be able to answer the important questions you are addressing here today.

ASSOCIATION OF SYSTEMATICS COLLECTIONS

Institutional Members

ACADEMY OF NATURAL SCIENCES OF
PHILADELPHIA (Philadelphia, PA)
AGRICULTURE CANADA (Ottawa, CAN)
ALLYN MUSEUM OF ENTOMOLOGY (Sarasota, FLA)
AMERICAN MUSEUM OF NATURAL HISTORY
(New York, NY)
AMERICAN TYPE CULTURE COLLECTION
(Rockville, MD)
ARKANSAS STATE UNIVERSITY (State
University, ARK)
BELTSVILLE AGRICULTURAL RESEARCH CENTER
(Beltsville, MD)
BERNICE P. BISHOP MUSEUM (Honolulu, HI)
BRITISH COLUMBIA PROVINCIAL MUSEUM
(Victoria, B.P., CAN)
BUFFALO MUSEUM OF SCIENCE (Buffalo, NY)
CALIFORNIA ACADEMY OF SCIENCES
(San Francisco, CA)
CARNEGIE MUSEUM OF NATURAL HISTORY
(Pittsburgh, PA)
CLEVELAND MUSEUM OF NATURAL HISTORY
(Cleveland, OH)
CHARLESTON MUSEUM (Charleston, SC)
CORNELL UNIVERSITY (Ithaca, NY)
DELAWARE MUSEUM OF NATURAL HISTORY
(Greenville, DE)
FIELD MUSEUM OF NATURAL HISTORY
(Chicago, IL)
FLORIDA DEPARTMENT OF AGRICULTURE AND
CONSUMER SERVICES (Gainesville, FLA)
FORT HAYS STATE UNIVERSITY (Hays, KS)
GULF COAST RESEARCH LABORATORY
(Ocean Springs, MS)
HARVARD UNIVERSITY (Cambridge, MA)
ILLINOIS NATURAL HISTORY SURVEY
(Urbana-Champaign, IL)
ILLINOIS STATE MUSEUM (Springfield, IL)
LOUISIANA STATE UNIVERSITY (Baton
Rouge, LA)
MCGILL UNIVERSITY (Quebec, CAN)
MIAMI UNIVERSITY (Oxford, OH)
MICHIGAN STATE UNIVERSITY (East
Lansing, MI)
MISSOURI BOTANICAL GARDEN (St. Louis,
MO)
MILWAUKEE PUBLIC MUSEUM (Milwaukee, WI)
NATIONAL FISH AND WILDLIFE LABORATORY
(Washington, D.C.)
NATIONAL MUSEUM OF NATURAL HISTORY
(Washington, D.C.)
NATIONAL MUSEUM OF NATURAL SCIENCES
(Ottawa, CAN)
NATURAL HISTORY MUSEUM OF LOS ANGELES
COUNTY (Los Angeles, CA)
NEW YORK BOTANICAL GARDEN (Bronx, NY)
NEW YORK STATE MUSEUM OF SCIENCE
SERVICE (Albany, NY)

NORTH CAROLINA STATE MUSEUM OF NATURAL
HISTORY (Raleigh, NC)
NORTH CAROLINA STATE UNIVERSITY (Raleigh, NC)
PENNSYLVANIA STATE UNIVERSITY (University
Park, PA)
PURDUE UNIVERSITY (West Lafayette, IN)
ROYAL ONTARIO MUSEUM (Toronto, CAN)
SAN DIEGO NATURAL HISTORY MUSEUM (San Diego, CA)
SOUTHERN METHODIST UNIVERSITY (Dallas, TX)
TEXAS A&M UNIVERSITY (College Station, TX)
TEXAS TECH UNIVERSITY (Lubbock, TX)
UNIVERSITY OF ALASKA (Fairbanks, AK)
UNIVERSITY OF ARIZONA (Tucson, AZ)
UNIVERSITY OF CALIFORNIA-BERKELEY (Berkeley, CA)
UNIVERSITY OF CALIFORNIA-DAVIS (Davis, CA)
UNIVERSITY OF CALIFORNIA-SAN DIEGO (San Diego,
CA)
UNIVERSITY OF COLORADO (Boulder, CO)
UNIVERSITY OF FLORIDA (Gainesville, FLA)
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UNIVERSITY OF KANSAS (Lawrence, KS)
UNIVERSITY OF LOUISVILLE (Louisville, KY)
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UNIVERSITY OF NEBRASKA (Lincoln, NE)
UNIVERSITY OF SOUTHERN CALIFORNIA (Los Angeles,
CA)
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VIRGINIA POLYTECHNIC INSTITUTE AND STATE
UNIVERSITY (Blacksburg, VA)
WESTERN FOUNDATION OF VERTEBRATE ZOOLOGY
(Los Angeles, CA)
YALE UNIVERSITY (New Haven, CN)

Societal Members

AMERICAN ARACHNOLOGICAL SOCIETY
AMERICAN ORNITHOLOGICAL SOCIETY
AMERICAN SOCIETY OF MAMMALOGISTS
AMERICAN SOCIETY OF PLANT TAXONOMISTS
AMERICAN SOCIETY OF ICHTHYOLOGISTS AND
HERPETOLOGISTS
ASSOCIATION OF BOTANICAL GARDENS AND ARBORETA
ENTOMOLOGICAL SOCIETY OF AMERICA
HERPETOLOGISTS' LEAGUE
THE PALEONTOLOGICAL SOCIETY
SOCIETY OF VERTEBRATE PALEONTOLOGY
SOCIETY FOR THE STUDY OF AMPHIBIANS AND
REPTILES

STATEMENT OF BRUCE COLLETTE

Mr. COLLETTE. Mr. Chairman, my name is Bruce Collette, assistant director of the systematics laboratory, working for the National Marine Fisheries Service, and I might say I am proud to be one of Dr. Raney's students on darters.

I would like to endorse Dr. Edwards' statements about the difficulty of working with some of the species. Sometimes we find a species to be endangered, then it becomes difficult for us to get additional information. I think perhaps you are somewhat concerned about the total magnitude of the problem. So I might say there are approximately 20,000 species of fish in the world, about 20 percent of these are freshwater fish and these are restricted to a very small proportion, therefore, of the Earth's waters. The reason for this special situation is because of isolation in headwater streams and things of this nature.

There are about 20,000 species of other vertebrates also. If we want to look at vertebrates, that might slow down projects on a worldwide basis. You are talking about perhaps 40,000 species. In the United States there are 726 actual species of fish. Admittedly, there are distinctive subspecies of some of these.

About 50 of these are yet undescribed, but are well enough known that some of them have been on collection shelves attributed to a particular author for 10, 20, 30 years, because authors haven't gotten around to doing all the work they should have done. So there are undescribed species, as Dr. Raney alluded to. However, I do not think there are quite that many.

It is true that virtually anybody can write a description. Some of them get weeded out in the editorial process before they are published in the scientific journals and the ones that are not valid get weeded out later by subsequent papers synopsisizing them. We have no ultimate court, no person that says this is a valid species, or this isn't a valid species.

As Dr. Edwards said, this is a worldwide international community. Scientists put their thoughts forth in scientific papers and anyone that wishes to disagree with them can thereby try to disprove them. If somebody wishes to try to synonymize the snail darter, they are perfectly free to take the data and try to prove it is not a species.

However, I should point out also that the arguments about things like this don't hinge on whether it is a full species, the act clearly provides for subspecies or geographical populations, so that it seems applicable in this case. There are about 160 forms of those which include the darter.

Senator McCCLURE. You say if anyone wishes, for instance, to disprove the existence of the snail darter as a distinct species, they are free to do so. But as I understand the judge's decision, the Secretary of the Interior's decision on that matter is conclusive.

Mr. COLLETTE. That may be one interpretation. If somebody showed me the same color pattern, the same breeding distribution, the same pattern on the breast that supposedly distinguishes it, in another viable population, then you can state it is not endangered or it is not a species.

Senator McCCLURE. My question is not whether or not the snail darter is a separate species; my question is directed to the fact that

while the scientific community might debate this, the decision of the Secretary of the Interior is final.

Mr. COLLETTE. But as was pointed out earlier, the objective of the list is to get things off the list. So if you can prove it is not a separate species, or not a distinctive population or that it occurs abundantly elsewhere, then the procedure exists to delist it.

Mr. EDWARDS. I believe that there is a general misunderstanding on the part of the layman. Species names are not fixed. Any species may not be recognized forever. Through time, many students may review groups of species and synonymize—a process in systematic biology by which a number of previously recognized species names are referenced under a single name—or split currently recognized species. Taxonomy is a dynamic process that is not affected by governmental regulations.

Senator McCURE. I don't question that, but assume for the moment that the Secretary of the Interior didn't wish to recognize the changes of opinion within the scientific community.

Mr. EDWARDS. The Secretary of the Interior would be rather naive if somebody in the scientific community was in fact able to demonstrate the validity of the name change to the satisfaction of his colleagues. The change would be recognized by the scientific community.

Senator McCURE. I will not quarrel with that possible description. I am not personalizing this in the person of the individual who is now there. But the potential exists, as I understand it, for an interpretation by the judge of the existing law. I would think that this would be a matter of concern to the scientific community as well. Would I be correct?

Mr. EDWARDS. Yes.

Senator McCURE. I didn't mean to cut you off.

Mr. COLLETTE. That is all I have to say unless there are further questions.

Senator McCURE. Thank you.

STATEMENT OF ROBERT JENKINS

Mr. JENKINS. I am Dr. Robert Jenkins, vice president for science, the Nature Conservancy. I had not anticipated making a statement, but I, and the organization which I represent, are strongly supportive of the purpose of the Endangered Species Act and the even broader purpose of preserving ecological, biological, and genetic diversity.

We strongly believe that this is an extremely worthwhile goal for the reason that these genetic resources constitute all of our future renewable natural resource options, both for their ecological functions and for any practical significance they may have in human affairs.

We do believe that the existing act and the program associated with it may possibly suffice to deal with most or all of the vertebrate animal species and with the higher plant species of the United States and North America. Over the long run, we believe that for the plethora of other species, because of some of the chronic shortcomings of our current scientific knowledge there will be additional steps required. It should be a tenet of prudent resource management, to assure the continuation of as much of this diversity as possible through positive measures to protect the widest possible variety of the ecosystem types

including widely distributed and typical ecosystem types as well as peculiar types that may support these particular rare and endangered species.

We further believe that the great issue in endangerment and extinction of the species is habitat destruction, and that at the present time, we know far too little about the existence, characteristics, numbers, condition, status, location, and distribution of the habitats of the species in question. We would urge the acceleration of the research process through State and Federal arrangements to identify these habitats as early as possible so that the conflicts that have occasionally arisen may be avoided by the properly timed availability of this information in the planning process.

Senator McCLURE. Thank you very much. We will certainly welcome more extensive statements if you desire to file one with the committee. I assure you that at least this Member will read it, because I am very interested in what each of you has to say about this question. I didn't arrive at this hearing with any fixed idea of what the right answer is. I certainly share with you the support for the goals of the Endangered Species Act.

I think the diversity for which you speak should have nearly universal support, so far as we can achieve that goal.

STATEMENT OF JAMES WILLIAMS

Dr. WILLIAMS. Mr. Chairman, I am Dr. James Williams of the U.S. Fish and Wildlife Service. I have been employed for the past 3 years as a biologist in the Office of Endangered Species. I would like to point out that while working with the Endangered Species Act and its provisions, we have had few problems in the interpretation of species, subspecies and lesser species.

We have usually had no problem in the assignation of endangered and threatened status to particular species. I think the act as it presently exists, fulfills all of the needs, in terms of listings, specifically with regard to what is appropriate for listing and the methods for their determination.

Senator McCLURE. You wouldn't change those procedures?

Dr. WILLIAMS. I would not. In cases where adequate documentation is lacking for some species, we have been able to go to biologists, either to get the additional available information or to let contracts so as to acquire the additional information required. In no case have we had problems dealing with the terms as they are defined in the act.

Senator McCLURE. Let me return for one moment to the comment that was made by Dr. Raney in opening this panel. His concerns have been expressed to me and I know other members of the committee and the Congress by a number of people outside of the Congress and outside of any special interest group, so far as I know.

In any human activity, whether it is a Federal project or a State action, there is a certain interaction with the plant and animal community. If the human activity is very extensive at all, the likelihood exists that someone looking at it closely enough can identify something in the plant or animal or insect world that is unique to that particular area or is being affected by this human activity.

The question, then, is whether or not the identity process by those who wish to prohibit this human activity can obstruct, at least for some period of time, the activity on the basis of using this act for that purpose rather than for the purpose for which the act was passed.

Dr. Raney?

Mr. RANEY. Senator, I would be glad to comment on that question. I think that is exactly what happened in the snail darter case. Back in 1972 or 1973, there was an effort to stop the building of the Tellico Dam, because the Little Tennessee is a good brown trout stream. It is a good brown trout stream because there are 20-plus dams located upstream. I believe Fontana Dam has the major role in controlling water temperature; it forms a deep reservoir. Thus the tailwater of the Little Tennessee below the Chilhowee Dam is cold—basically 40° F. year round. An excellent brown trout tailwater fishery exists. Shortly after a new environmental report was produced by TVA, a biologist from the University of Tennessee claimed that there probably were three supposedly threatened species living in the lower Little Tennessee River. We subsequently disposed of this argument as having no substance.

In 1973, a biologist from the University of Tennessee went on a field trip with a group of students, found the snail darter, wrote a manuscript, and on the basis of that manuscript this fish was placed on the threatened and endangered list. The assumption, on the basis of very little fieldwork, was that the critical habitat of the snail darter was from river mile 4 to 17 in the Little Tennessee.

Subsequently, TVA biologists began intensive studies. They found it at Little Tennessee River mile zero in greater numbers than it had ever been taken anywhere else.

The critical habitat then was modified by Interior to include the region from the Tellico Dam—0 to 17 miles. My suggestion, with the concurrence of TVA biologists, was that the snail darter must be a big river species. It must exist in the Tennessee River. The Little Tennessee is a tributary of the Tennessee River. We went out by helicopter, and located the old shoals that had been in existence before the dams were built on the Tennessee River. I pointed out the places where the snail darter would be found if we were able to look. TVA used scuba teams because, in the Tennessee River, it is difficult when you get close to the bottom—the snail darter is a bottom dwelling species basically—sometimes because of turbidity one can only see 6 or 7 inches. You have to crawl around on the bottom. But by doing this, and by working at the most ideal times as far as water clarity was concerned, TVA biologists found them at Tennessee River mile 12 downstream from the Tellico Dam, and as far downstream as 80-plus miles—by biologist David Turner. In the meantime, I wrote to the Department of the Interior and indicated the snail darter does occur in the Tennessee River.

Nevertheless, the critical habitat was determined by Interior and published in the Federal Register as 0 to 17 miles of the Little Tennessee River.

This is the reason for my brief opening statement. I was talking about fishes and not only about darters, but minnows, suckers, catfishes—the number of catfishes described has about doubled in the

last 10-plus years—and others. If you consider crayfishes, fishes, and the organisms that fishes feed on—these are all subject to listing as threatened and endangered—I repeat my statement: With a group of knowledgeable experts and by doing the same thing that was done with the snail darter, we could stop every major structure, all dams, all nuclear plants, all big fossil fuel plants, most coal mining attempts, in the Southeastern United States or at least in the area that was not covered by Pleistocene ice.

One of the indications that this statement is not an exaggeration is that almost weekly new descriptions of new aquatic species appear.

Are we going to list smaller species such as the animals that fish depend upon for food? Many of these, as far as we know, like midge larvae which spend part of their life in the water, have limited distributions. There are thousands of species and I predict that there are thousands of undescribed species.

I am concerned and because I have been a student of fishes most of my life, I am sympathetic toward the act. I think that the decision to designate a critical habitat too fast is part of the reason we find ourselves in the present situation with the Tellico Dam. The snail darter was a lucky find and too little investigation was carried out before the decision was made on the designation of the critical habitat by the Department of Interior.

Dr. WILLIAMS. Mr. Chairman?

Senator McCLURE. Let me say to the witnesses, I don't mean to stifle the discussion. It is only getting well started, I am certain. We are transgressing the rules of the Senate in continuing this hearing. I am also due two other places right now. So I am going to have to adjourn very quickly. I will permit you to respond.

Dr. WILLIAMS. This will be very brief. First of all, the manuscript to which Dr. Raney refers was submitted to our office. It just happened that I am an expert on this group of fishes. In fact, I have described recently a new species in this group. By the way, this fish is not a candidate for listing, and is not even a potential "dam stopper." Along these lines, I would disagree that Dr. Raney can stop any project in the Southeast by going out and looking hard enough for a candidate species. That is simply not true.

Senator McCLURE. It has been suggested that the resolution of the difference between you two is a political decision that we must make.

I am sure you scientists must feel very secure in that judgment.

Dr. WILLIAMS. We have in the listing process the same provisions for delisting as we have for listing. In the listing process for the snail darter, when it was proposed, it was reviewed by the scientific community, TVA, the public, and the State. We accepted comments for at least 90 days, after which a final rulemaking decision was made accordingly. We received no information which led us to believe anything other than that the fish was in fact restricted to the Little Tennessee River and that it was in fact endangered.

As for the critical habitat, which was a separate determination action, we based that decision on the best scientific data available at the time, which indicated that the snail darter was found only in the Little Tennessee River. At that time, we did not know, Dr. Raney did not know, and TVA did not know of the drift pattern of the larval fishes in the downstream reservoir.

We did receive some comments that insufficient information was available to designate any critical habitat. Instead of taking this approach, we designated only that which we know to be critical. In the future, new information may lead us to propose additional critical habitat or to propose a reduction of that previously determined.

I feel that TVA's purported snail darter record 80 miles downstream from the Tellico site should be clarified. That record was a sight record made by an individual, not a biologist. I might add that sight records of any fish are unreliable at best.

Senator McCLURE. Maybe a Member of Congress.

Dr. WILLIAMS. Perhaps; at a depth of some 4 to 6 feet, in unclear water he got a very fleeting glance of a fish. I think that if there were a good healthy population of snail darters at river mile 85, the Tennessee Valley Authority would have documented it by now. To my knowledge, they have not.

Senator McCLURE. Thank you very much. I do appreciate your testimony and, again, I would invite any further statement you would like to make and any commentaries upon the testimony or the questions that have been made.

With that, the committee stands adjourned.

[Whereupon, at 1 p.m., Wednesday, July 20, 1977, the subcommittee was recessed, to reconvene at 10 a.m., Thursday, July 21, 1977.]

[The paper submitted by Dr. Raney follows:]

ICHTHYOLOGICAL ASSOCIATES, INC.

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22 July 1977

Statement by Dr. Edward C. Raney
 Professor of Zoology Emeritus, Cornell University
 and President, Ichthyological Associates, Inc., Ithaca, New York
 Before the U. S. Senate Subcommittee on Resource Protection

20 July 1977

THE ENDANGERED SPECIES PROBLEM

The Endangered Species Act of 1973

(P.L. 93-205/87 Stat. 884/16 U.S.C. 1531/1534)

December 28, 1973

Prelude

On 11 July 1977 I received a call from a member of the staff asking if I would serve on a panel of experts who would be asked on 20 July to discuss the Act. I agreed to do so. However, on 20 July 1977 little time was available to discuss the problems which I find with the Act and its administration, but I did give a few minutes leadoff testimony (of the technical panel) pointing out that in much of the United States, particularly in the southeastern United States which had been unaffected by the Pleistocene glaciers, many undescribed species of aquatic organisms existed. I predicted that I could by taking 20 or so experts in the various fields of aquatic biology, describe new species from almost any locality and if these species were pushed

onto the Threatened and Endangered List, as was the case with the snail darter, that it would be impossible in the future to build dams, nuclear plants, large fossil fuel plants, many coal mines or any other large structure that would involve the use of considerable water or which would be situated near a river or creek. In fact, I could do this by calling on the more than 300 specialists who are now working with me in the aquatic ecology field in my corporation, Ichthyological Associates, Inc.

The above was the extent of my introductory remarks. However, near the end of the session by answering a question posed by Senator McClure I was able to give an example of how, in my opinion, the so-called threatened and endangered snail darter was used to halt construction on the Tellico Dam at a time when it was very close to completion, when in fact several earlier attempts had failed to preserve the lower Little Tennessee River as a brown trout fishery. Impounding would not have destroyed the fishery and possibly would have improved it. This part of the record I do not intend to repeat in the summary of my testimony which follows.

The Problem

The Act provides a means to conserve the habitats of those plant or animal species which are judged by the Secretary of the Interior to be threatened or endangered. Up until this time the courts have upheld the Act's language and unless Congress grants a specific exemption or the Secretary of the Interior or the Secretary of Commerce permits a change of the status of the species or recognizes the limitations originally placed upon the critical habitat, no work on energy producing programs or other useful construction may occur.

It is also a problem to me, a student of small fishes for more than 45

years, to even go into a stream where a supposed threatened or endangered species exists (or is on the official list) without risking arrest and imprisonment. This actually has occurred in my case and may illustrate what will happen in the future. A scientific colleague, Dr. Frank Schwartz, of the University of North Carolina, Morehead City and I rediscovered the Maryland darter in lower Deer Creek (a tributary of the lower Susquehanna River) about 10 years ago. For over 50 years only a single specimen had been taken at the type locality, which was Swan Creek, Maryland. It was obvious that the species was very scarce in Swan Creek, which was deemed to have been the type locality, that is, the area from which the darter was originally described. However, we found it to be abundant in Deer Creek. Other ichthyologists were able to go to Deer Creek and find it and observe it. However, it was placed on the Threatened and Endangered List. This meant that scientists could no longer go to the Creek, walk in the Creek, collect fishes in the Creek without having secured a special permit from the bureaucracy set up to handle such matters in the Department of the Interior. I talked to my friend, Robert Rubelmann, Maryland Fisheries Administrator on one occasion and said that I would like to return to Deer Creek to take a look at the Maryland darter and observe its habits. He warned me that if I did I would be subject to arrest. I assume therefore that once a fish is placed on the List that it is no longer possible, except by permit, to collect or to study it. Permits are hard to come by and involve much bureaucratic red tape. Occasionally I am concerned, as one who has studied these small fishes throughout his life, that I no longer can do so. I realize that this may appear to be a minor point as compared to the stoppage of the completion of Tellico Dam, but it is one of the amenities

of life that many enjoy which now in a practical sense is forbidden.

The Species Problem

Congress, in its wisdom in passing the Act was, I am sure, concerned with major species which would include the sandhill crane, the grizzly bear, the American alligator and numerous other large animals.

I doubt that most Congressmen realized that the Act would apply to literally millions of species of plants and animals, the exception being obnoxious insects.

Probably most members of Congress had not considered actually what a species is except for those that they are in contact with from day to day. A species, whether it be plant or animal, may be defined in a number of ways. However, a species constitutes a group of organisms with common structural and behavioral characteristics. Members of the species or group interbreed freely, but occasionally breed with other species (usually by accident) to form hybrids. The structural differences between many related species is slight, both morphologically and behaviorally, and these species are recognizable only to specialists who have been trained in a given field. Such specialists are found at the Smithsonian Institution (Museum of Natural History) and at numerous universities and other collections. These collections are even more important as a result of the passage of the Act and I agree with the fine statement which Dr. Steven Edwards, Executive Secretary, Association of Systematic Collections, was able to make and file with the Committee.

The question of how many species exist on earth is moot. Probably more than 1,500,000 have been identified and additional species are being described almost daily in one of the hundreds of scientific journals, most of which specialize in a given field (of plants or animals). Probably more than 10,000

new species are being discovered and described each year. Perhaps as many as five million species exist on earth and it is generally agreed by specialists that since the beginning of life on earth far more species have passed out of existence than are now alive.

Many species have very limited range of distribution, or are thought to. Many conclusions on the range are based upon limited observations due to access, time and funds available for studies. Few studies of small, unimportant species are done except by specialists and mostly because of the lack of specialists and funds. Most specialists become trained in the study of one or two families or subfamilies and their relationships may take many years of work both in and out of museums to come to tentative conclusions with regard to evolutionary pathways.

Many species have limited ranges. A few are found only in the most isolated headwater creeks. Others may have limited ranges in big rivers, but the described range or critical habitat is often difficult to determine, particularly in bigger waters.

Dr. Bruce Collette, a trained and knowledgeable ichthyologist working for the National Marine Fisheries Service in the Smithsonian Institution, estimates that at present there may be on the order of 20,000 fishes. Of these, approximately 40% are found in freshwater. He also pointed out in his testimony on 20 July 1977 before the Committee that there may be as many as 20,000 other vertebrate animals for a general total of about 40,000. He also estimated that there are about 746 full species of freshwater fishes in the United States and Canada and that at least 50 of these are undescribed. Ultimately many subspecies will be recognized when the above are thoroughly studied throughout their ranges and many of these will be of limited distribution and probably will

go on the Threatened and Endangered List. Dr. Collette also estimates that there are 160 forms included in the family Percidae, which includes the group of fishes known as "darters". Most darters are small and live on or near the bottom in most freshwater aquatic habitats.

If we consider only the darters, and they are but one of many families of fishes, we conclude that the geographical histories of various regions have played an important part in determining the number of darters now living in various parts of the United States and Canada. For example, Canada and many parts of the northern United States were covered by ice up until approximately 12,000 years ago. Any darters or other fishes which may have existed in that area were eliminated or forced to retreat to the south. In the south during this same period when much of the moisture was locked in northern ice, the seas receded and sandy soils developed. As the seas rose the fishes made their way back into the rivers and estuaries which developed.

This contrast in number of species found in the United States and Canada is of interest. For example, of the 700 or more described species, more than 300 are native to the southeastern United States. More than 200 fishes have been identified in the State of Tennessee alone. A consideration of the distribution of darters based upon various state lists which are not always up-to-date indicate that among the described species Tennessee has 77 darters, while only 11 are found in all of Canada, 1 in Montana, 17 in New York State, 2 in New Hampshire, 22 in Ohio and 26 in Mississippi.

It should be emphasized that fishes, including darters, feed on a multitude of different species, many of which have not been described. Any group of aquatic insects, worms, zooplankters and so forth which are worked on in detail

yield many undescribed species. Under the Act each of these could, if the habitat were limited and the range relatively small, end up on the Threatened and Endangered Species List. It is obvious that this List is growing monthly and will continue to do so in the future. In fact, the Secretary of the Interior (or Commerce) must list such species, subspecies, suspected species or even minor groups of individuals that might be endangered or threatened in the foreseeable future and as a practical matter, under these limitations of the law almost every new plant or animal discovered and described immediately qualifies for endangered status. This status would continue until the true range could be established. This process could take decades of intensive scientific effort which would call for searching new areas and/or matching descriptions with catalogue specimens in museums. The vital necessity of preserving adequate numbers is obvious and was pointed out by Dr. Steven Edwards on 20 July.

Problems in Determining the Relationship of Newly Described Species and in Determining the Critical Habitat

It is often difficult to determine the status of a newly collected form unless the group of animals (such as darters) had been thoroughly investigated by other scientists. Many times this has not been done. It is most difficult to find the critical habitat of many of these species because of the difficulties of making the investigations. This depends upon the thoroughness of collections made and these are always limited. In large waters particularly, such as the Tennessee River, studies are difficult. The water is often fairly deep and during the warmer season is often very turbid. To do a good job all types of expensive gear must be used in all depths and in all seasons because the habitat

often changes with or at spawning time or with other requirements such as feeding. Fortunately many new types of gear have been developed, such as special nets, electrofishing and the use of scuba gear, so that large river fishes may be investigated if the funds are available. For the most part they are not.

It is also very important to remember that some species are very short lived, that is, two to four years. All animals and particularly fishes which have been studied intensively have been shown to vary greatly in numbers from year to year. These are known as year class fluctuations. What may appear to be a rare fish on one occasion may be a common fish over a wider range on another occasion because fishes (many of them) do move around. Their numbers may be influenced by competition with others of the same species or of other species and predation is always a problem with regard to small fishes.

Conclusion

I would recommend that the authorities charged with the administration of the Act take a more reasonable attitude toward the determination of whether a species is actually threatened and endangered and certainly more time in investigation is required to determine the critical habitat. The relatively small staff assigned to this in the Department of the Interior and in the Department of Commerce, even with the help of the excellent scientists in the Smithsonian Institution, can in most cases only do a superficial job unless they happen to be specialists in a particular group in which the endangered species occurs.

Finally, I urge that Congress be alerted to the use (perhaps unintentional by the bureaucrats in Washington) of the discovery of a so-called threatened and endangered species and the delimitation of a critical habitat to stop large

projects until every reasonable effort has been made to determine the basic facts. In my opinion this was not done with regard to the Tellico project. A long battle to preserve the area as a brown trout fishery and as a natural river finally was won by listing a still undescribed species of darter and delimiting its critical habitat without thorough study. The Congress had approved the project, had continued to supply the funds and had been kept informed. The conservatism in the Department of the Interior in failing to delist the snail darter does not inspire confidence in their reasonableness in handling important and critical situations.

References

References to various data given above are not included, but will be supplied upon request.

Qualifications of Edward C. Raney, Ph.D.

Professional qualifications as of 26 March 1976 are attached.

Appreciation

I am happy to have had the opportunity to present my view or comments and to answer Senator McClure's critical question. I am hopeful that the above document may be made a part of the Record.

Edward C Raney

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14 May 1976

Professional Qualifications of EDWARD C. RANEY, Ph.D.

Is Director of Research, President and Chairman of the Board of Ichthyological Associates, Inc. As such I am responsible for the activities of more than 200 scientists who are dedicated to aquatic and terrestrial ecological research in eastern North America.

Is Professor of Zoology, Emeritus (31 August 1971) at Cornell University, Ithaca, New York. During the period between 1936 to 1971 I served successfully at Cornell as Assistant Instructor, Assistant Professor, Associate Professor and Professor of Zoology. My duties involved teaching and research in the field of Vertebrate Zoology with emphasis on Ichthyology. My scientific specialty is the study of the ecology, behavior and systematics of fishes.

Place and Date of Birth:

Pittsburgh, Pennsylvania, 23 May 1909.

Education:

Ph.D., Cornell University, Ithaca, New York; 1938; M.S. Cornell University, 1935; B.S. State College, Slippery Rock, Pennsylvania, 1931.

Other Formal Appointments:

1968 Research Associate, Mote Marine Laboratory, Siesta Key, Sarasota, Florida. Director of Biological Survey of Charlotte Harbor and adjacent areas.

1964 November to December Senior Scientist, Cruise 9 Research Vessel Anton Bruun, American Program in Biology, Indian Ocean Expedition.

1953 to 1957 (part-time) Coordinator of the Atlantic States Cooperative Striped Bass Program of the Atlantic States Marine Fisheries Commission as Fishery Biologist, U.S. Fish and Wildlife Service.

1948 (summer) Expert Ichthyologist, U.S. National Museum, Washington, D.C. Worked on the identification of fishes taken at Bikini in connection with the atom bomb tests.

1942 to 1948 Lt. (j.g.), Lt., Lt. Comm. USNR; active duty 1942 to 1945.

1939 (summer) Research Associate, Edmund Niles Huyck Preserve, Rensselaerville, New York; made a study of the food of chain pickerel in small ponds.

1937, 1938, 1940, 1941, 1942, 1952 (summer) Fishery Biologist, New York State Conservation Department. Made stream surveys of trout and warm water fishes such as smallmouth bass, perch, etc., marine and freshwater fishes of Long Island, muskellunge in Chautauqua Lake, whitefishes and walleye in Lake Ontario, striped bass in the Hudson River and mapped the fish fauna of New York State.

Before 1936 Served as a biology teacher, Oneonta, New York State University College (fall term 1935) and a Science and Mathematics teacher and athletic coach at Shenango High School, New Castle, Pennsylvania and at Ben Franklin Junior High School, New Castle, Pennsylvania (1931 to 1935).

Advisory Committees:

American Nuclear Society Standards Committee; ANS-18 Environmental Impact Evaluation, Protection of Aquatic Organisms, 1972 to 1973.
 National Academy of Engineering, Committee on Power Plant Siting, 1971.
 National Water Commission; Ecology Panel, 1970 to 1972.
 Atomic Industrial Forum, Committee on Environmental Law and Technology, 1970 to 1971.
 Study of Connecticut River related to Connecticut Yankee Atomic Power Station, Haddam Neck, Connecticut, 1965 to 1974.
 National Science Foundation, Consultant to Committee on Facilities and Special Program, Division of Biological and Medical Sciences, 1964 to 1970.
 National Science Foundation, Committee on Inland Biological Stations, 1963 to 1964.
 Consultant, New York Legislature: New York State Joint Legislative Committee on Revision of Conservation Law, 1956 to 1960.
 Institute of Fisheries Research of the University of North Carolina, Morehead City, North Carolina, 1956 to 1960.
 Commercial Seafoods Division of the Louisiana State Conservation Commission, 1952 to 1956.
 American Institute of Biological Sciences, Biological Films Committee.

Membership in Professional Societies:

The Ecological Society of America.
 American Institute of Fishery Research Biologists (Fellow)
 American Fisheries Society (Representative on Council of American Association for the Advancement of Science 1963 to 1967).
 American Institute of Biological Sciences.
 American Society of Ichthyologists and Herpetologists (President, 1955 to 1956; Secretary, 1948 to 1951). Representative on Governing Board of American Institute of Biological Sciences and representative on Division of Biology and Agriculture, National Research Council (1949 to 1951).
 Representative on Council of American Association for the Advancement of Science, 1957.
 American Society of Limnology and Oceanography.
 American Society of Zoologists.
 Animal Behavior Society.
 Association for Tropical Biology.
 Biological Society of Washington.
 Herpetologists League (Fellow).
 The International Oceanographic Foundation.
 The Marine Biological Association of the United Kingdom.
 The Systematics Association.
 Society for the Study of Evolution.
 Society of Systematic Zoologists.
 American Society for the Advancement of Science (Fellow), Member of Council (1957 to 1959).
 American Littoral Society.
 Gulf and Caribbean Fisheries Institute.
 Western Society of Naturalists.
 Oceanic Society.
 Estuarine Research Society.
 Atlantic Estuarine Research Foundation.
 Western Society of Naturalists.
 Woods Hole Ocean Institution.
 American Chemical Society.

Honorary Fraternities:

Phi Gamma Mu, Phi Kappa Phi, Phi Sigma Pi, Sigma Xi (Treasurer, Cornell Chapter, 1955 to 1956).

Listings:

American Men of Science, Who's Who, Who's Who in the East, Who Knows What.

Editor:

Served on Editorial Board of Copeia (Amer. Soc. Ichthy. and Herp.), The Journal of the Fisheries Research Board of Canada and the American Midland Naturalist.

Grants for Research from:

American Association for the Advancement of Science; U.S. Public Health Service; National Science Foundation; Sport Fishing Institute; U. S. Department of the Interior; U. S. Fish and Wildlife Service; U. S. Office of Water Resources Research; Manufacturing Chemists Association.

Nature of Studies:

Field studies of the ecology and behavior of fishes. Laboratory studies of the systematics of fishes. In charge (until August 1971) of Fish Collection at Cornell University, 70,000 series of fishes, more than one million specimens.

My ichthyological studies include all rivers (or tributaries of) in eastern North America from the Connecticut River southward to Florida.

Experimental studies designed to provide information on the effects of heated effluents on fishes have been carried on over the past seven years. These include studies of the swim speed of fishes, of the thermal preference, attraction and repellant of fishes.

Have directed studies in regard to the following:

Population changes below dams.

Prevention of fish mortalities below dams (Conowingo).

Feasibility of passage of shad and other anadromous fishes over dams (Lower Susquehanna River).

Effects of pumped storage projects on fishes and other organisms (Muddy Run, Northfield, Stony Creek, Tom Sauk, Raccoon Mountain, Blenheim-Gilboa).

Evaluation of populations of fishes and other aquatic organisms in areas where heated effluents are expected from nuclear plants (Peach Bottom, Salem, Newbold, Limerick, Atlantic Generating Station, Summit, Zion, Cook, Indian Point, Susquehanna).

Screening and guiding problems in protecting fishes at intakes and effluents (Muddy Run, Peach Bottom, Connecticut Yankee, Vermont Yankee, Vernon, Northfield).

Effects of heated plumes on aquatic organisms (Connecticut Yankee, Mercer, Burlington, Eddystone, Chester, Edge Moor, Schuylkill).

Scientific Publications:

More than 110 papers on fishes and other vertebrates. Most are in the field of fishery biology and ichthyology, and include observations on the life history of many species found in eastern U.S. including studies on food and growth of the common bullhead, chain pickerel, brown trout and several suckers. Also worked on the pond propagation of minnows for use in fish cultural projects; and investigated the summer food, growth and movements of the walleye (yellow pike-perch). Has described many new species of fishes from eastern U.S. Recent work includes studies of racial stocks of striped bass and bluefish. Popular publications: several hundred articles in the *Wise Fishermen's Encyclopedia* and *Collier's Encyclopedia*.

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A list of the fishes described by
Edward C. Raney and Coauthors

<u>Hadropterus oxyrhynchus</u>	Hubbs, C. L. and E. C. Raney	1939
<u>Percina oxyrhyncha</u>		
<u>Poeciliichthys kanawhae</u>	Raney, E. C.	1941
<u>Etheostoma kanawhae</u>		
<u>Fundulus waccamensis</u>	Hubbs, C. L. and E. C. Raney	1946
<u>Menidia extensa</u>		
<u>Boleosoma perlongum</u>		
<u>Etheostoma perlongum</u>		
<u>Thoburnia hamiltoni</u>	Raney, E. C. and E. A. Lachner	1946
<u>Moxostoma hamiltoni</u>		
<u>Hyentelium roanokense</u>	Raney, E. C. and E. A. Lachner	1947
<u>Notropis alborus</u>	Hubbs, C. L. and E. C. Raney	1947
<u>Hadropterus notogrammus</u>	Raney, E. C. and C. L. Hubbs	1948
<u>Percina notogramma</u>		
<u>Ichthyomyzon hubbsi</u>	Raney, E. C.	1952
<u>Notropis baileyi</u>	Suttkus, R. D. and E. C. Raney	1955
<u>Notropis hypsilepis</u>	Suttkus, R. D. and E. C. Raney	1955
<u>Notropis asperifrons</u>	Suttkus, R. D. and E. C. Raney	1955
<u>Moxostoma ariommum</u>	Robins, C. R. and E. C. Raney	1956
<u>Moxostoma lachneri</u>		
<u>Etheostoma moorei</u>	Raney, E. C. and R. D. Suttkus	1964
<u>Etheostoma rubrum</u>	Raney, E. C. and R. D. Suttkus	1966
<u>Etheostoma microlepidum</u>	Raney, E. C. and T. Zorach	1967

- Hubbs, C. L. and E. C. Raney 1939. Hadropterus oxyrhynchus, a new percid fish from Virginia and West Virginia. Occ. Pap. Mus. Zool. Univ. Mich. 396: 1-9.
- Raney, E. C. 1941. Poecilichthys kanawhae, a new darter from the upper New River system in North Carolina and Virginia. Occ. Pap. Mus. Zool. Univ. Mich. 434: 1-16.
- Hubbs, C. L. and E. C. Raney 1946. Endemic fish fauna of Lake Waccamaw, North Carolina. Mus. Zool. Univ. Mich. No. 65: 1-30.
- Raney, E. C. and E. A. Lachner 1946. Thoburnia hamiltoni, a new sucker from the upper Roanoke River system in Virginia. Copeia (4): 218-226.
- Raney, E. C. and E. A. Lachner 1947. Hypentelium roanokense, a new catostomid fish from the Roanoke River in Virginia. Amer. Mus. Novitates. No. 1333: 1-15.
- Hubbs, C. L. and E. C. Raney 1947. Notropis alborus, a new cyprinid fish from North Carolina and Virginia. Occ. Pap. Mus. Zool. Univ. Mich. 498: 1-17.
- Raney, E. C. and C. L. Hubbs 1948. Hadropterus notogrammus, a new percid fish from Maryland, Virginia, and West Virginia. Occ. Pap. Mus. Zool. Univ. Mich. No. 512: 1-26.
- Raney, E. C. 1952. A new lamprey, Ichthyomyzon hubbsi, from the upper Tennessee River system. Copeia. (2): 93-99.
- Suttkus, R. D. and E. C. Raney 1955. Notropis baileyi, a new cyprinid fish from the Pascagoula and Mobile Bay drainages of Mississippi and Alabama. Tulane Stud. Zool. 2(5): 71-86.
- Suttkus, R. D. and E. C. Raney 1955. Notropis hypsilepis, a new cyprinid fish from the Apalachicola River of Georgia and Alabama. Tulane Stud. Zool. 2(7): 161-170.
- Suttkus, R. D. and E. C. Raney 1955. Notropis asperifrons, a new cyprinid fish from the Mobile Bay drainage system of Alabama and Georgia, with studies of related species. Tulane Stud. Zool. 3(1): 1-33.
- Robins, C. R. and E. C. Raney 1956. Studies of the Catostomid fishes of the genus Moxostoma, with descriptions of two new species. Cornell Univ. Ag. Exp. Sta. Memoir 343: 1-56.
- Raney, E. C. and R. D. Suttkus 1964. Etheostoma moorei, a new darter of the subgenus Nothonotus from the White River System, Arkansas. Copeia (1): 130-139.
- Raney, E. C. and R. D. Suttkus 1966. Etheostoma rubrum, a new percid fish of the subgenus Nothonotus from Bayou Pierre, Mississippi. Tulane Stud. Zool. 13(3):95-102.
- Raney, E. C. and T. Zorach 1967. Etheostoma microlepidum, a new percid fish of the subgenus Nothonotus from the Cumberland and Tennessee River systems. Am. Midl. Nat. 77(1):93-103.

Graduate Students who took advanced degrees
with Edward C. Raney at Cornell University

Lachner, Ernest A., Ph.D. 1946 Studies of the biology of the chubs (genus Nocomis, family Cyprinidae) of northeastern United States.

Kelley, George F., M.S. 1947.

Harrington, Robert W., Jr., Ph.D. 1947 A contribution to the biology of the bridled shiner, Notropis bifrenatus (Cope).

Pfeiffer, Roman A., Ph.D. 1947 Studies on the life history of the rosy-face shiner, Notropis rubellus (Agassiz).

Kezer, Leonard J., Ph.D. 1948 The chromosomes of plethodontid salamanders, with special reference to the genera Desmognathus and Plethodon.

Underhill, Adna H., Ph.D. 1948 Studies on the life history of the chain pickerel, Esox niger LeSueur.

Walter, Vladimir, M.S. 1948.

Byrn, John W., M.S. 1948.

Suttkus, Royal D., Ph.D. 1950 A taxonomic study of five cyprinid fishes related to Notropis hypselopterus of southeastern United States.

Ross, Robert D., Ph.D. 1952 The subspecies and races of the cyprinid fish Campostoma anomalum (Rafinesque) in eastern United States.

Backus, Richard H., Ph.D. 1953. The marine and freshwater fishes of Labrador.

Crawford, Ronald W., Ph.D. 1953 A study of the distribution and taxonomy of the percid fish, Hadropterus nigrofasciatus Agassiz, throughout the southeastern United States.

Hecht, Max K., Ph.D. 1953 A review of the salamander genus Necturus Rafinesque.

Illick (Breed), Helen J., Ph.D. 1953 A comparative study of the lateral-line system on the head of North American Cyprinidae.

Mehring, Albert G., M.S. 1953 A comparison of several populations of striped bass, Roccus saxatilis (Walbaum), with reference to racial investigations.

Wigley, Roland L., Ph.D. 1953 Life history of the sea lamprey, Petromyzon marinus (Linnaeus) of Cayuga Lake, New York.

- Brown, Jerram L., M.A. 1954 A review of the cyprinodont genus Fundulus of eastern United States.
- Robins, Charles R., Ph.D. 1954 A taxonomic revision of the Cottus bairdi and Cottus carolinae species group in eastern North America (Pisces, Cottidae).
- Deubler, Earl E., Jr., Ph.D. 1955 A taxonomic study of the cyprinid fish, Clinostomus vandoisulus (Valenciennes), in eastern United States.
- Gibbs, Robert H., Jr., Ph.D. 1955 A systematic study of the cyprinid fishes belonging to the subgenus Cyprinella of the genus Notropis.
- Woolcott, William S., Jr., Ph.D. 1955 Comparative osteology of serranid fishes of the genus Morone (Mitchill) and infraspecific variation in Morone americanus (Gmelin).
- Outten, Lora M., Ph.D. 1956 Studies of the life histories of the cyprinid fishes Notropis coccogenis, Notropis galacturus and Notropis rubricroceus.
- Lewis, Robert M., M.S. 1956 A comparative study of populations of the striped bass, Roccus saxatilis (Walbaum), based on gill raker counts.
- Cole, Charles F., Ph.D. 1957 The taxonomy of the percid fishes of the genus Etheostoma, subgenus Boleosoma, of eastern United States.
- Lund, William A., Jr., M.S. 1956 A morphometric study of the striped bass, Roccus saxatilis (Walbaum).
Ph.D. 1960 A racial investigation of the bluefish, Pomatomus saltatrix (Linnaeus), of the Atlantic coast of North America.
- de Sylva, Donald P., Ph.D. 1958 The life history and systematics of the great barracuda, Sphyraena barracuda (Walbaum).
- Murawski, Walter S., M.S. 1958 Comparative study of populations of the striped bass, Roccus saxatilis (Walbaum), based on lateral-line scale counts.
- Collette, Bruce B., Ph.D. 1960 The systematics and biology of the darters of the subgenera Hololepis and Villora (Pisces, Percidae).
- Miller, Rudolph J., Ph.D. 1961 Studies on the behavior, morphology, and ecology of three North American cyprinid fishes (Pisces, Cyprinidae).
- Carlson, Bruce M., M.S. 1961 A chromatographic analysis of the bound amino acids in lamprey muscle (Petromyzontidae).
- Bane, Gilbert W., Jr., M.S. 1961 The distribution and abundance of tunas and tuna bait fishes in the Gulf of Guinea.
Ph.D. 1963 The biology of the yellowfin tuna, Thunnus albacares (Bonaterre) in the Gulf of Guinea.

- Foster, Neal R., M.S. 1961 The reproductive biology of eight species of American oviparous cyprinodont fishes.
Ph.D. 1967 Comparative studies on the biology of killifishes (Pisces, Cyprinodontidae).
- Francois, Donald D., Ph.D. 1962 A revision of the Australian crayfish genus Euaestacus (Decapoda, Parastacidae).
- Rothschild, Brian J., Ph.D. 1962 The life history of the alewife, Alosa pseudoharengus (Wilson), in Cayuga Lake, New York.
- Richards, William J., Ph.D. 1963 Systematic studies of some darters from southeastern United States (Pisces, Percidae).
- Knapp, Leslie W., Ph.D. 1964 Systematic studies of the rainbow darter, Etheostoma caeruleum (Storer), and the subgenus Hadropterus (Pisces, Percidae).
- Miller, Robert V., Ph.D. 1964 A systematic study of the greenside darter, Etheostoma blennioides Rafinesque.
- Reed, James R., Jr., M.S. 1964 A racial study of the blueback herring, Alosa aestivalis (Mitchill).
- Zorach, Timothy, M.S. 1964 Systematic studies of Etheostoma microlepidum and E. maculatum, Percid fishes of the subgenus Nothonotus (Etheostomatini)
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ENDANGERED SPECIES ACT OVERSIGHT

THURSDAY, JULY 21, 1977

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON RESOURCE PROTECTION,
Washington, D.C.

The subcommittee met at 9:50 a.m., in room 4200, Dirksen Senate Office Building, Hon. John C. Culver (chairman of the subcommittee) presiding.

Present: Senators Culver and Wallop.

OPENING STATEMENT OF HON. JOHN C. CULVER, U.S. SENATOR FROM THE STATE OF IOWA

Senator CULVER. The hearing will come to order.

I want to welcome you this morning to this Resource Protection Subcommittee hearing on the implementation of the Endangered Species Act of 1973. As you know, this is the second of four hearings reviewing the progress and problems that we have encountered under this program.

Today we will specifically focus on the Tellico Dam project. Recently, the Sixth Circuit Court of Appeals overturned a District Court ruling and permanently enjoined the Tennessee Valley Authority from completing the closing of the dam at Tellico.

This ruling was made because the appeals court determined that the project would completely destroy the critical habitat of the snail darter, which is an officially listed endangered species. I am hopeful today's hearing will fully reveal the history of this case, and that we will be able to develop a factual record on which to base any appropriate action to resolve this impasse.

I think it is important that we fully understand all developments in this issue before deciding what course to take. We have an excellent group of witnesses this morning.

I am very pleased that you are here, and I am confident this hearing will be informative and productive. To allow time for questions and answers, I would appreciate it if each witness would limit his or her oral comments to a 10-minute statement, and any written remarks you have will be made a part of the record.

Is Mr. Canfield here? Mr. Canfield, would you be good enough to identify yourself and your office for the record, please.

STATEMENT OF MONTE CANFIELD, JR., DIRECTOR, ENERGY AND MINERALS DIVISION, GENERAL ACCOUNTING OFFICE, ACCOMPANIED BY DAVID CAHALEN, ASSISTANT DIRECTOR; DANIEL SPENGLER, SUPERVISORY MANAGEMENT ANALYST, AND DONALD HOWARD, PROJECT MANAGER, ATLANTA REGIONAL OFFICE

Mr. CANFIELD. Yes, Senator. Thank you very much. I am Monte Canfield, Jr. I am Director of the Energy and Minerals Division of the General Accounting Office. My colleague on my immediate left is Dave Cahalen, who is Assistant Director, Don Howard, who is project manager in our Atlanta regional office, and Daniel Spengler, who is a supervisory management analyst in my division.

My prepared statement is quite short and probably fits in the time frame. There is an appendix that makes it look more bulky than it is.

We appreciate your invitation to discuss the tentative conclusions of our study on the costs, alternatives, and benefits for the Tellico water resources project. As you know, we are in the process of incorporating agency comments into our report, which we hope to issue in a matter of weeks.

In January 1977, a Federal court of appeals halted completion of the Tellico Dam because it would destroy the critical habitat of the snail darter, a 3-inch fish protected by the Endangered Species Act. Shortly thereafter, the chairman of the House Committee on Merchant Marine and Fisheries, John Murphy; Senator James Sasser; and Representative John Duncan, of Tennessee, requested GAO to assist in assessing the issue by, one, identifying what portion of project expenditures would provide benefits if the project were not completed; two, identifying alternative methods to operating the completed project that would not adversely impact the snail darter, and, three, examining the benefits that would occur if the project is completed. We were asked to include in our analysis the "real" costs and benefits, including "unquantifiable" items.

I will briefly discuss each of these areas and our tentative recommendations.

As to benefits without completion, as of January 1977, TVA had obligated about \$103 million on the project and estimated that about \$13 to \$19 million was required for completion. The funds for completion are primarily for roads, recreation centers, and reservoir clearing.

The actual dam portion of the project has been completed. Closing the sluice gates and impounding the reservoir, however, depends on the outcome of TVA's appeal of the court's decision to the U.S. Supreme Court and action by the Congress on exemption legislation.

There are varying estimates of the amount of funds spent to date which might provide benefits if the project were not completed. The Tennessee Endangered Species Committee, for example, has asserted that \$80 million of the \$103 million obligated could still provide benefits. TVA estimates that only \$25.65 million is recoverable.

I should point out that these estimates do not address exactly the same point, however, since TVA's valuation is limited to an estimate

of the current value of the land, plus the estimated cost of roads and bridges which were needed even without the project.

Our analysis looks at what portions of the project might provide at least some benefits even if the project were not completed. We believe that \$56 million, or about half of the project costs—primarily for land, roads, and bridges—could provide some benefits under this criterion, but the amount of benefits to be derived will depend on how the land is used. Because bridges were built higher and longer than normal to accommodate a reservoir and many of the roads were built to replace existing roads scheduled for inundation, the benefits probably will not be proportionate with the cost.

Another type of benefit associated with the Tellico project is the economic stimulation from almost \$25 million in salaries and wages paid to the project workers. Some argue that a portion of these payments should be included in the calculation. However, since the direct benefits created by these wages have already been realized, and any secondary stimulation that might accrue will also be realized without regard to whether the project is completed, we have not included these payments as "benefits."

Turning to project alternatives, project proponents and opponents agree that a workable compromise between completing the Tellico project and the continued existence of the snail darter in the Little Tennessee River is not possible. A low or an intermediate dam would threaten the survival of the snail darter and, at the same time, reduce projected benefits for the reservoir.

Abandoning the project without removing at least a portion of the dam is also not feasible because life cycle studies of the snail darter indicate that the dam in its present form also threatens the darters' survival in the river.

TVA has transplanted about 700 darters to the Hiwassee River. Although still questioned by some biologists, TVA claims its transplant is successful based on survival, maturity, and reproduction. For that reason, and because the existing Tellico construction is threatening the darter, TVA has twice petitioned the Secretary of the Interior to delist the Little Tennessee River as its critical habitat. The Secretary of the Interior rejected the first petition and suggested certain steps to preserve the darter population. TVA has not received a response to the second petition.

In addition to studying modifications to the dam and transplanting the snail darter, TVA has considered alternate uses for the valley if the project is not completed. Other groups such as the Tennessee Endangered Species Committee and students and faculty at the University of Tennessee have also developed alternate use plans. Each of the other groups' plans proposes to preserve the existing river and to develop the agricultural lands, cold-water recreational opportunities and numerous archeological and historical sites. Although some of the plans are quite detailed, none are supported by current cost-benefit estimates which evaluate their feasibility.

Because the dam in its present form threatens the snail darter's survival, any evaluation of alternative plans must include the costs of removing at least a portion of the dam, which is partly concrete and partly earthen. We believe that removal costs could vary considerably depending on the extent of restoration deemed necessary.

Removing a portion of the earthen dam, as suggested by the Tennessee Endangered Species Committee, to allow the river to flow more freely could likely be accomplished without great expense. However, TVA maintains that removing only a portion of the dam will result in periodic flooding of some of the prime agricultural land in the valley. TVA estimates that removing the concrete and earthen dams and restoring the entire area could cost as much as \$16 million.

As to benefits with completion, the Tellico Reservoir would principally provide recreation, shoreline development, and flood control benefits. Other benefits, such as navigation and electric power generation, are also expected. The most recent analysis of these benefits was prepared primarily in 1968 by TVA. TVA estimated direct annual benefits of about \$3.8 million annually from the project and a benefit-cost ratio of 1.7 to 1. Although project costs have increased about 115 percent, TVA has not updated its cost-benefit analysis.

We examined the assumptions and logic used by TVA to estimate benefits for Tellico. Generally, we conclude that TVA's projections are not representative of the actual benefits that could be derived. In some instances, we found that the methodologies used did not conform to Federal guidelines and, in other instances, statistical projections were not valid.

For example, TVA's projection of recreation benefits, which accounts for about 38 percent of all benefits, had several questionable assumptions and did not adequately consider factors such as water quality, type and amount of shoreline development, the amount of land devoted to public access, and proximity to population centers.

TVA based its estimate on an average annual visitation rate per shoreline mile at all existing reservoirs and adjacent parks in the TVA system. Our analysis showed that this average does not reflect the extreme variations, or the reasons for the variations among the individual reservoirs used in the analysis. The visits per shoreline mile used to compute the average ranged from 258 at one reservoir to 19,351 at another.

Also, TVA did not make allowances for recreation visits at Tellico that would result in a reduction in visits at nearby existing reservoirs. TVA officials agreed that different factors would be used if the analysis were to be made again.

Because of problems with this and other benefits, we were unable to determine whether the benefits claimed for the Tellico project were overstated or understated. Clearly, we believe that more current remaining benefit and cost information is needed on the project and its alternatives before an informed decision can be made.

I turn to my recommendations. As I stated at the beginning, we plan to issue a report to the Congress in the near future on our assessment of the Tellico project including a detailed analysis on each of the major points which I have discussed here today, and comments of TVA and other affected agencies.

We expect to make several recommendations to the Congress and to the Chairman of the Board of TVA concerning the need for more current information on the project. Since the report is not yet final, the recommendations I am about to make must be regarded as tentative.

We plan to recommend that the Chairman of the Board of TVA gather and provide to the Congress, through the Office of Management

and Budget, detailed remaining cost and remaining benefit information on the Tellico project and its alternatives.

In addition, we plan to recommend that the information include the formal comments of the Office of Management and Budget, the Council on Environmental Quality, and the Department of the Interior, and be submitted to the Congress not later than 6 months from the date of our report.

TVA is ready to impound the reservoir and spend an estimated \$13 to \$19 million to complete the project if the U.S. Supreme Court rules in favor of its appeal and lifts the current injunction. For this reason and because current detailed benefit information is not available, we expect to recommend that until the remaining cost and remaining benefit information on the Tellico project is received from the Chairman of the Board of TVA, including the comments of agencies referred to above, the Congress prohibit by law the expenditure of existing appropriations, and not authorize further appropriations for work on the project that would, one, further endanger the snail darter's survival, such as closing the sluice gates, or, two, not be necessary if the project is not completed or is modified.

Finally, we also expect to recommend that no action be taken on legislation which would exempt the Tellico project from the Endangered Species Act of 1973 until the Congress has had time to receive and assess the updated information outlined above.

In closing, I must emphasize that these recommendations should not be construed that GAO is either for or against the completion of the Tellico project, but rather that we believe additional information is necessary to allow the Congress to act on the questions before it.

Thank you, Mr. Chairman.

[Attachments to Mr. Canfield's statement follow:]

ATTACHMENT I

ATTACHMENT I

Tellico Dam Project Costs
As Of February 1977

<u>Type of expense</u>		<u>Cost</u> <u>(in millions)</u>
Land acquisition		
Purchase price		
Land	\$16.9	
Improvements	<u>5.2</u>	\$22.1
Other related costs		
Acquisition expense	\$ 1.9	
Surveying and mapping	0.8	
Legal	0.2	
Relocation	<u>0.5</u>	<u>3.4</u>
Total land acquisition		\$ 25.5
Construction		
Dams		
Concrete dam spillway	\$ 5.0	
Main earth dam	16.2	
Auxiliary dams	<u>1.3</u>	\$22.5
Reservoir roads, bridges and other adjustments		
Highways and bridges	\$25.6	
Railroad and bridge	4.1	
Reservoir clearing and rim treatment	4.0	
Utility relocations and miscellaneous	<u>2.0</u>	35.7
Other construction features		
Access roads	\$ 2.1	
Interreservoir canal	1.8	
Public use facilities	0.1	
General yard improvements and miscellaneous	<u>0.8</u>	<u>4.8</u>
Total construction		63.0

ATTACHMENT I

ATTACHMENT I

Tellico Dam Project Costs
As of February 1977
 (Continued)

<u>Type of expense</u>	<u>Cost</u> <u>(in millions)</u>
Other	
General engineering and design	\$ 1.6
Planning, surveying, model tests	3.2
Environmental studies, construction supervision and support, and nonallocated overheads	8.2
Contracts not yet paid in full	<u>1.7</u>
Total other	<u>\$ 14.7</u>
Total costs	<u>\$103.2</u>

ATTACHMENT II

ATTACHMENT II

Estimates Of The Amount Of Tellico
Dam Project Costs That Are
Recoverable Or Could Provide Benefit
Without Project Completion

<u>Category</u>	<u>Original cost</u>	<u>TVA estimate of recover- able cost</u>	<u>Estimate of amounts that could provide benefit</u>	
			<u>GAO</u>	<u>TESC</u>
Land	\$ 25.5	\$21.0	\$25.5	\$25.5
Construction				
Dams	22.5	0.0	0.0	0.0
Roads, bridges, and other reservoir facilities	35.7	3.3	26.5	34.0
Other facilities	4.8	0.0	0.0	0.0
Other costs	<u>14.7</u>	<u>1.35</u>	<u>4.3</u>	<u>5.5</u>
Total	<u>\$103.2</u>	<u>\$25.65</u>	<u>\$56.3</u>	<u>\$65.0</u> ^{1/}

^{1/} In addition to the \$65 million, the Tennessee Endangered Species Committee (TESC) also contends that \$15 million in salaries will provide benefits.

Alternatives Evaluated By TVA			
<u>Project design</u>	<u>Characteristics</u>	<u>Estimated annual costs</u>	<u>Estimated annual benefits</u>
Lower dam	3200 acre pool extending 25 miles	\$1,426,000	\$3,560,000
Lower dam and scenic stream	3200 acre pool; 8 mile scenic stream	1,444,000	3,602,000
Intermediate dam	8000 acre pool extending 29 miles	1,745,000	3,500,000
Intermediate dam and scenic stream	8000 acre pool; 4 mile scenic stream	1,761,000	3,509,000
Scenic stream	33 mile scenic river corridor	82,000 <u>1/</u>	129,000
No further action	Project abandonment	-0- <u>1/</u>	101,000
Tellico Project reservoir	Full pool level with Ft. Loudon reservoir	1,507,000	5,903,000

Percent benefit to Tellico

60
61
59
59
2
1.7
100

1/ Excludes cost of removing a portion of the Tellico dam.

ATTACHMENT IV

ATTACHMENT IV

Land-Use Alternatives Proposed
By Other Groups

<u>Proposal number</u>	<u>Major elements</u>	<u>Estimated Costs</u> ^{1/}
(1)	Declare the Little Tennessee River a Class II pastoral river. Acquire easements: 2891 acres scenic and 764 acres public use. Acquire islands: 730 acres. Provide 3 access sites.	\$ 20,000
(2)	All aspects of plan (1) plus 2 added access sites. Develop 14 archeological and historic sites. Construct a visitor center at Halfway Town.	1,998,500
(3)	All aspects of plans (1) and (2) plus 11,000 acre state park, stable facilities at several historic sites, 15 cabins, 50 trailer campground with facilities and a group lodge for 60 persons.	5,450,800
(4)	Return all land to private ownership.	Negligible
(5)	All aspects of plan (2) and return adjacent lands to private ownership and agricultural development. Provide 5 access sites. Develop 14 archeological-historical sites.	1,998,500
(6)	Designation of Class II river, develop archeological and historical sites, establish a state park and return agricultural lands to private or semi-private control.	5,450,800
(7)	All aspects of plan (1) plus return all land to private ownership. Provide scenic and public use easements and 3 access sites.	20,000
(8)	Return all land to private or semi-private ownership with minimal control by a managing authority. Use area as a model agricultural management region in combination with a recreational facility. Construct a loop system to maximize tourism.	No estimate

^{1/} GAO did not verify the cost estimates or determine associated project benefits. Estimates exclude the cost of removing a portion of the Tellico dam.

ATTACHMENT V

ATTACHMENT V

TVA's Estimate Of
Removing Dams And
Restoring Project Area

	<u>Estimated cost</u>
Remove concrete dam and spillway	\$ 3,800,000
Remove earth fill dam	5,300,000
Remove auxiliary dams	700,000
Fill interreservoir canal	3,300,000
Reforest river banks and reservoir	500,000
Obliterate incompletd roads and site facilities	1,100,000
Restore fill at Old Fort Loudoun, Chota, and Blockhouse	700,000
Remove 411 and railroad bridges	200,000
Remove miscellaneous facilities	400,000
Total Estimated Cost	<u>\$16,000,000</u>

ATTACHMENT VI

ATTACHMENT VI

TVA'S Estimate Of The
Direct Annual Benefits Of
The Tellico Dam Project

Recreation	\$1,440,000
Shoreline development	710,000
Flood control	505,000
Navigation	400,000
Power	400,000
Fish and wildlife	220,000
Water supply	70,000
Redevelopment	<u>15,000</u>
	<u>\$3,760,000</u>

Senator CULVER. Thank you very much, Mr. Canfield.

I understand you have another commitment that might require you to leave; is that correct?

Mr. CANFIELD. I can stay the better part of the morning, if necessary.

Senator CULVER. In your statement, you noted that the remaining costs of the Tellico project will be primarily for the development of roads, recreation centers, and reservoirs. Is it common practice for TVA and other project agencies to finish the dam portion before finishing other aspects of this type of project?

Mr. CANFIELD. Yes; it is. It is fairly normal. It is common practice.

Senator CULVER. You have stated that costs associated with removing a portion of the dam could vary considerably depending, of course, on the extent of the recreation requirements deemed necessary. Are you prepared to give us an estimation of the outside limits of these costs and discuss perhaps the restrictions that would be associated with each limit?

Mr. CANFIELD. Yes, sir. From your statement and attachment 5, you can get some indication of these limits. If, as some have argued, you remove a portion of the earthen dam to solve the spawning problem of the snail darter, the cost could be less than \$5.3 million—the estimated cost of removing the earthen dam.

If you were to remove both the concrete and earthen dam, restore and fill the area, et cetera, TVA estimates the cost to be \$16 million—about the same as the cost to complete the project.

If you fellows want to expand on that, feel free.

Mr. HOWARD. It is self-explanatory.

Senator CULVER. TVA believes that removing only a portion of the dam will result in periodic flooding of prime agricultural land in the valley. Do you agree?

Mr. HOWARD. We don't know what impact removing a portion of the dam would have. We do know that when the valley had a flash flood 3 or 4 months ago with the entire dam in place and the sluice gates open, it temporarily flooded a lot of the area.

Senator CULVER. Can you talk into the mike?

Mr. HOWARD. The valley had a flash flood and it did temporarily cover quite a few acres, but that was with the entire dam in place and the sluice gates open.

Senator CULVER. Are you aware of other views on this matter?

Mr. HOWARD. No.

Senator CULVER. There is no disagreement?

Mr. HOWARD. We have not specifically talked with other people on this. This is something that has come up fairly recently.

Senator CULVER. Do you plan to talk to someone else on this matter before you submit your final report to Congress?

Mr. HOWARD. Yes.

Senator CULVER. You have stated that the methodologies that were used by TVA in arriving at the cost-benefit analysis for the project do not conform to Federal guidelines. Of which guidelines are you speaking?

Mr. HOWARD. Specifically, Senate Document 97. There were a couple of instances—

Senator CULVER. You are really going to have to put that mike in front of you.

Mr. HOWARD. We noted a couple of instances where Senate Document 97 criteria was not specifically followed. For example, Senate Document 97 provides that benefits basically are the net increase in value with a project compared to the value without the project. And this was not always done, for example.

Senator CULVER. Does that describe other reasons why the TVA methodology does not conform to the guidelines?

Mr. HOWARD. Yes; there are several reasons. Basically, our biggest problems with the analysis that was made at that time relate to the methodology and procedures, not the failure to follow guidelines. I think failure to follow guidelines is a rather minor consideration.

Senator CULVER. Why don't their methodologies conform?

Mr. HOWARD. We are not saying that their methodologies do not conform in all cases. We did notice a couple of instances, however, where TVA did not compare values with and without the project.

Senator CULVER. Would you elaborate on that point for the record.

Mr. HOWARD. For example, to estimate flood control benefits, TVA calculated an average savings per acre-foot of storage for the whole TVA system, and multiplied this average by the acre-feet of storage in the projected Tellico Reservoir. In our thinking, the proper way to estimate these benefits is to determine how much flood damage would occur without the project and compare it to how much damage would occur with the Tellico project. To us, this would be a more reasonable approach.

Senator CULVER. Could you give us for the record any other examples, in your judgment, where TVA methodologies do not conform? Would you do that?

Mr. HOWARD. Yes; these examples will be included in our final report which we plan to issue shortly.

Senator CULVER. You also noted statistical projections used by TVA were not valid, did you not?

Mr. HOWARD. Yes.

Senator CULVER. What were you speaking of, and why were they not valid?

Mr. HOWARD. For example, to estimate navigation benefits, TVA identified 44 industrial firms that were already located on the Tennessee River and calculated the navigation savings those firms had incurred over the previous year. I think it was. TVA totaled all the savings, divided by the acreage occupied by the firms, and came up with an average savings per acre.

This average savings was then multiplied by the 5,000 industrial acres that TVA plans to have in the lower Tennessee, to project navigation savings.

We noticed of the 44 industries used to project savings, 27 had no savings at all. It seems questionable to us that TVA could average in 27 out of 44 with no savings and still come up with something that might be reasonable. To us, navigation savings would depend more on what kind of industries would locate at Tellico and how much savings these industries would have.

Senator CULVER. You also criticized TVA's projections for the recreational benefits associated with the project. What benefits did you examine and what were your conclusions?

Mr. HOWARD. There are basically eight benefit areas.

Mr. CANFIELD. Mr. Chairman, you might want to turn to the last page of the attachments. It lists the eight areas.

Senator CULVER. Read those for the record. Would you read that chart.

Mr. HOWARD. The chart shows TVA's estimate of the direct annual benefits.

Senator CULVER. Please talk into the microphone.

Mr. HOWARD. The chart shows TVA's estimate of the eight direct annual benefits of the Tellico project. Recreation, \$1,440,000; shoreline development, \$710,000; flood control, \$505,000; navigation, \$400,000; power, \$400,000; fish and wildlife, \$220,000; water supply, \$70,000; redevelopment, \$15,000, for a total of \$3,760,000.

Senator CULVER. Mr. Canfield, on page 5 of your statement you note that none of the alternatives proposed to the Tellico project, I quote, "* * * are supported by current benefit-cost estimates which evaluate their feasibility."

Does this mean that none of the alternatives are cost-beneficial, or cost-benefit analyses have not been prepared on the alternatives?

Mr. CANFIELD. The latter.

Senator CULVER. Senator Wallop?

Senator WALLOP. Mr. Canfield, you described the cost-benefit methodology used by TVA as problematic. I think this whole subject of cost-benefits is problematic, because it is a manipulatable figure.

In your opinion, was the Tellico project more problematic than other projects?

Mr. CANFIELD. That would be very difficult to say. We did find that it didn't conform with some of the guidelines. It would be difficult for me to state that it was more or less problematic. That would be pure speculation on my part.

I have looked at cost-benefit ratios over the years, and I know exactly what you are talking about in terms of how ratios go up and down, but I couldn't tell you if it was more or less problematic than the others.

Senator WALLOP. You state they didn't update it. Is it a common practice to update cost-benefit ratio studies?

Mr. CANFIELD. It seems we would never get anything built if we did that. It is not a common practice, but not a completely unused practice either, especially for projects that have been authorized and benefit-cost ratios prepared many years ago.

The reason we are suggesting it here is because this is a rather unique situation. There is a lot of emotion involved in Tellico and a lot of other social values that have come to the fore. We want TVA to not only update the strict economic cost-benefit analysis, but to also get the views and opinions on that updated analysis from other agencies which represent different points of view.

Senator WALLOP. Did TVA use the existing Federal guidelines when they prepared their cost-benefit analysis? They had two different sets of guidelines.

Mr. HOWARD. Our analysis was made on the basis of the guidelines existing at that time. TVA generally did follow those guidelines.

Mr. CANFIELD. And we noted the instances where they did not.

Senator WALLOP. But you say they generally did follow the guidelines at that time but have not updated it. Isn't that a kind of an unfair approach?

Mr. HOWARD. I think the discussions this morning are probably giving too much attention to whether or not the guidelines were followed. Most of our problems with TVA's cost-benefit analysis are not specifically with the guidelines themselves or whether or not they were followed, but rather with the methodology and procedures that were used.

Senator WALLOP. OK, we will look at that. They contain several questionable assumptions and TVA did not make allowances for recreation visits to Tellico that would result in reduction to visits to nearby reservoirs. My experience is if you create recreation areas, they will get full. Most of them in the country are overcrowded.

Mr. HOWARD. I don't have the exact figures, but I do believe some of the other reservoirs in the area are not at capacity at this time.

Senator WALLOP. That is a very unique State.

Mr. HOWARD. There are about 20 reservoirs within 100 miles or so of the Tellico project.

Mr. CANFIELD. We did note in the testimony, Senator, that visitation rates at TVA reservoirs vary from some 200 visitors to over 19,000 per shoreline mile. We are only questioning the fact that TVA would take the average of these widely varying rates and assume that the average number of visitors will use Tellico. It is not a very sophisticated way of looking at it, because it doesn't consider the number of potential visitors in the area surrounding Tellico or the number of visitors that might be attracted from the reservoirs.

I think it is important that our analysis did not lead us to conclude that the benefits were either overstated or understated.

Senator WALLOP. That is what I was about to get into. You just said it wasn't a very sophisticated approach. I think perhaps that it is more sophisticated than that. To criticize something and say you have not been able to determine whether they were right or not—

Mr. CANFIELD. We found a number of problems. We would like to have TVA look at the remaining costs and benefits, come up with an analysis and share that analysis with other agencies—including the Department of the Interior, the Council on Environmental Quality and the Office of Management and Budget—that represent other points of view so the Congress will have before it all of the relevant considerations that can bear on the problem. We have also asked those agencies to comment on our report and give us their assessment of what they think of it.

Senator WALLOP. I must say, that doesn't come across clearly. In your statement, you say that \$56 million, about half the project cost, could provide some benefits. Does this mean that \$47 million of the project cost will be lost?

Mr. CANFIELD. The way we analyzed it under our criterion, that is correct. We believe that some benefits can accrue to the project but probably not proportionately with the cost. We tried to be conservative in our estimate.

Other people have come up with figures much higher. Attachment 2 of my statement indicates that the Tennessee Endangered Species Committee asserts \$65 million will provide benefits and added in \$15 million worth of salaries. We took a more conservative approach than that.

The other way to look at it is to determine the cost which could be literally recovered if the project were abandoned at this time. TVA arrived at the much, much smaller figure of \$25.7 million because they limited their estimate to the current value of the land plus some credit for bridges which were in poor shape and would have had to be replaced anyway had the Tellico project not been developed.

Senator WALLOP. Did any of the alternatives look as though they would reduce the \$47 million figure?

Mr. CANFIELD. Senator, there are no cost-benefit analyses available on those alternatives, so we were unable to do an economic calculation as to how those alternatives would look.

Senator WALLOP. Off the top of your head, does the \$16 million that it would cost to build the dam get added to the \$47 million?

Mr. CANFIELD. To the \$47 million? Yes, some of it would, but some of the remaining costs—such as completing roads—could provide benefits.

Senator WALLOP. So we are looking at \$63 million.

Mr. CANFIELD. Yes, as an absolute maximum. That is right.

Senator WALLOP. Thank you, Mr. Chairman.

Senator CULVER. Mr. Canfield, I am really getting somewhat disappointed, I think, with some of GAO's products. Congress asked you to look at this project in late February, wasn't it?

Mr. CANFIELD. March.

Senator CULVER. As a member of the Public Works Committee, I was involved in the consideration of Lock and Dam 26 last year, and I remember that this committee asked GAO to study alternative proposals of reconstruction of that dam and to recommend to Congress what would be the most favorable public investment in that regard.

GAO used outside consultants for that study, and I don't think GAO ever came back with a sound recommendation. And here is another example. Why shouldn't GAO determine the appropriate cost-benefits rather than recommending another study? We study so much around here I don't think the patient can survive another examination.

We just grind out all that paper and pay for all those people and we don't have the guts at the end to decide what to do. Why doesn't GAO make its own cost-benefit estimate for this project?

Mr. CANFIELD. The simple fact of the matter has been that it has not been the business of the General Accounting Office to do cost-benefit analyses, per se.

Senator CULVER. What do you mean GAO shouldn't do this work, if that is a prerequisite for a recommendation to the Congress? You consult out all the time. What do you mean, "do not touch, cost benefit work; beware, GAO, poisonous if consumed internally"? What do you mean GAO does not do cost-benefit work? What kind of nonsense is that?

Mr. CANFIELD. I am not at all sure I would have walked in here if we didn't do work that is politically sensitive.

Senator CULVER. When you walked in here you indicated the need for another study. You are in the middle of the fairway. I would like to see some evidence of a tough look at this problem.

Mr. CANFIELD. We do analyses of the work of the executive branch. Sometimes it is very frustrating. We will be presenting next week an analysis of the President's energy plan, and one of the criticisms will be that we didn't come up with a national energy plan, but that has not been, for over 50 years, the role of the General Accounting Office.

Senator CULVER. Why not short-circuit you? Why don't we just bypass you, and get someone else to do the first study? It might knock out a link in the chain.

Mr. CANFIELD. That may be a possibility.

Senator CULVER. It may be a possibility we will consider, and may be a corresponding change in your budget.

Mr. CANFIELD. Another committee asked us to take a look at TVA's cost-benefit analysis and find out where the strengths and weaknesses were. This is precisely what we tried to do. We tried to answer the questions of another committee. We did exactly that. They didn't ask us to do a cost-benefit analysis.

Senator CULVER. Don't you almost have to do that in part to determine the effectiveness of TVA's assessment? How do you punch holes in what they said without an independent evaluation on your own?

Mr. CANFIELD. We looked at what they did—

Senator CULVER. GAO said TVA did not do it properly, and that they came up with such a result. Why didn't GAO go ahead and make the correct analysis?

Mr. CANFIELD. We said have them go back and look at the remaining costs.

Senator CULVER. Why have TVA gone back? You know the requirements. If TVA's study is defective, and GAO gets paid to do the work in the public interest, just make a few more phone calls and get the necessary data that TVA had used and point up specifically, not philosophically, that the cost benefit analysis would result in such a finding if the right data are used.

Finish the job. Don't come in with a recommendation for another study.

Mr. CANFIELD. It is the responsibility of the Tennessee Valley Authority. Certainly if you want to you can accept the analysis that was done in 1968 as accurate and updated and a useful document now for making these decisions. All we are recommending is that they come through with a remaining cost-benefit analysis and that it be shared with other agencies representing other points of view in the spectrum of all the issues that Congress has before it.

There are other views on this project. Tellico is not just an average project; there is a lot of emotion and heat involved in it.

Senator CULVER. I have never suffered under the illusion that Tellico is an average project or I would be somewhere else this morning.

Mr. CANFIELD. All we are saying is that we think an updated analysis with the views of these other agencies should be submitted through