

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

[50 CFR Part 17]

Endangered and Threatened Wildlife and Plants; Proposed Listing with Endangered Status for the American Crocodile Throughout its Range and the Saltwater Crocodile Exclusive of the Papua New Guinea Population

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: The Service proposes that the American crocodile (*Crocodylus acutus*) and the saltwater crocodile (*Crocodylus porosus*) populations outside of Papua New Guinea be listed as Endangered species. This action is being taken because both species have suffered serious losses of habitat throughout their ranges and have been subject to extensive poaching for their hides. The Papua New Guinea population of *C. porosus* is not being included in this proposed action because of the assurances of the government of Papua New Guinea that crocodile farming is under strict control within that country and that wild populations are not being jeopardized by such activity. The Florida population of *C. acutus* is already listed as Endangered under provisions of the Act. This rule would provide additional protection to wild populations of both species, presently listed on the Appendices to the Convention on International Trade in Endangered Species of Wild Fauna and Flora, by further restricting commercial trade in their parts and products.

DATES: Comments from the public must be received by October 26, 1979. Comments from the governments of the countries where these species occur must be received by October 26, 1979.

ADDRESSES: Submit comments to Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240. Comments and materials relating to this rulemaking are available for public inspection during normal business hours at the Service's Office of Endangered Species, 1000 N. Glebe Road, Arlington, Virginia.

FOR FURTHER INFORMATION CONTACT: Mr. John L. Spinks, Jr., Chief, Office of Endangered Species, U.S. Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C. 20240 (703/235-1975).

SUPPLEMENTARY INFORMATION:

Background

The American crocodile, *Crocodylus acutus*, ranges throughout the Caribbean Sea, and on the Pacific Coast of Central and South America from Mexico to Ecuador in primarily coastal waters. Portions of the following countries are known to have or have had populations of this species: United States, Mexico, Colombia, Venezuela, Ecuador, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Trinidad and Tobago, Jamaica, Cuba, Haiti, the Dominican Republic, and Belize. The Florida population is currently listed as Endangered and its Critical Habitat has been determined (see the *Federal Registers* of September 25, 1975 [40 FR 44149-44151] and September 24, 1976 [41 FR 41914-41916]).

On May 23, 1975, Professor Federico Medem of the Faculty of Science of the National University of Columbia petitioned the Secretary of the Interior to list, under protection of the Endangered Species Act of 1973, the American crocodile throughout its range. However, only the Florida population was actually proposed and eventually listed.

The saltwater, or estuarine, crocodile, *Crocodylus porosus*, ranges throughout Southeast Asia and includes the countries of Australia, Papua New Guinea, Indonesia, Philippines, Malaysia, Thailand, Burma, Bangladesh, India, Cambodia, Vietnam, and Sri Lanka. This species may be the largest of reptiles, with reports of lengths well over 20 feet (7 meters), although leatherback sea turtles may weigh more.

All populations of the saltwater crocodile and all populations of the American crocodile, with the exception of those in Florida, were proposed as Endangered under the Similarity of Appearance clause of the Act (*Federal Register* of April 6, 1977; 42 FR 18287-18291); no final action has been taken as of this date on that proposal. Populations of *C. acutus* are listed on Appendix II (other than Florida which is on Appendix I) and *C. porosus* on Appendix I (other than Papua New Guinea which is on Appendix II) On the Convention of International Trade in Endangered Species of Wild Fauna and Flora.

In the *Federal Register* of February 5, 1979 (44 FR 7060-7061), the Fish and Wildlife Service published a Notice of Review on the status of these species. Information contained in the notice summarized existing knowledge concerning their status and the reasons for conducting the review. Persons who desire to review these data should

consult this document or the *Endangered Species Technical Bulletin* of March, 1979; these documents are available from the Office of Endangered Species, U.S. Fish and Wildlife Service, Washington, D.C. 20240.

A total of 15 comments were received in response to the notice. These comments are summarized below:

Pong Leng-EE (Wildlife Conservation Division, Thailand): Mr. Leng-EE agreed that wild populations of the estuarine crocodile are in need of protection in Thailand but requested an exception to any rulemaking for those crocodiles raised on a breeding farm in Samutprakarn province.

Henry Norries (First Secretary, Embassy of Papua New Guinea, Washington, D.C.): Mr. Norries included a report on the status, protection and management of crocodiles in Papua New Guinea. Parts of this report are reprinted below.

1. *Status.*—Papua New Guinea is inhabited by two species of crocodiles: the saltwater or estuarine crocodile, *Crocodylus porosus* and the freshwater crocodile, *Crocodylus novaeguineae*.

The saltwater crocodile was extensively hunted in the 1950's and 1960's and has been generally much reduced in major rivers and estuaries. Residual populations still exist in certain major rivers and their tributaries, but no reliable estimates are available about the present status of the population. It is believed that the ban on export of skins greater than 20" belly-width provides reasonable protection of the adult population. However, a high proportion of the juveniles are vulnerable to the hunter. There are no indications that the program of farming crocodiles has resulted in an increased decline of the wild population.

The freshwater crocodile is well established in large expanses of freshwater swamp, which restricts the proportion of juveniles which can be caught. Because it occurs in these strongholds in reasonable numbers and because efficient hunting in these areas is generally almost impossible, there does not seem to be any indication that this species may be endangered. The species has, however, been virtually eliminated from the major rivers.

2. *Protection.*—The following laws are relevant to crocodile protection in Papua New Guinea:

1. The fauna (Protection and Control) Act of 1966, its amendments of 1970 and Regulations of 1974;
2. The Customs (Prohibition) Act Regulations, and
3. The Crocodile Trade Act, 1966.

Under these acts and regulations, the illegal and commercial export of crocodile skins has been controlled.

Records are being kept on the export of all crocodile skins.

Crocodiles over 20" belly-width cannot be legally traded; this serves to protect the adult population.

Illegal skins are confiscated and offenders prosecuted.

3. **Management.**—Crocodiles in Papua New Guinea are managed by the National Crocodile Project, assisted by a UNDP/FAO project since 1 January 1977. The objectives of the management program are the following:

1. Prevent species extinction;

2. Assess stocks and enhance recovery towards ecologically optimal levels, and

3. Develop controlled commercial utilization in such a way that ultimately a sustained utilization can be obtained.

With assistance from the UNDP/FAO project, a network of village, business and government crocodile farms has been established as follows (March 1979):

Village farms, 130.

Business Farms, 10.

Government farms, 5.

The objective of the farming program is to raise crocodiles to commercial slaughtering size and to reduce mortality (which is presumed to be higher in the wild).

During the last three years a captive breeding program has been established and the following number of crocodiles of breeding age are kept on the government farm at Moitaka:

Female *C. novaeguineae*, 24.

Male *C. novaeguineae*, 13.

Female *C. porosus*, 30.

Male *C. porosus*, 16.

This program has been successful insofar as most captive females have laid eggs and hatchlings have been successfully reared for three years in succession. This year mortality among hatchlings will be reduced considerably, because of improved facilities. The breeding program of saltwater crocodiles will be stepped up considerably.

The government has agreed with UNDP to extend the FAO project on assistance to the crocodile skin industry to include monitoring and a program has been planned for implementation. It should therefore be possible by the end of 1979 to produce a report on population trends and to arrive at a better understanding of whether or not the saltwater crocodile population is over-exploited.

Dr. Leslie Garrick: Dr. Garrick offered additional information to that contained in the Notice of Review on American crocodile populations in the Canal Zone, Dominican Republic, and Jamaica. He supported listing this species on appendix I of the Convention.

Stefan Graham (Director, Baltimore Zoo): Mr. Graham supported protection for these species because of the threats of taking for hides and lack of protection in many areas of their ranges.

Ray Pawley (Curator of Reptiles, Brookfield Zoo): Mr. Pawley provided data on crocodile populations in the Dominican Republic, particularly at Isla Cabritos. He recommended encouraging the protection of the two breeding groups of American crocodiles occurring at Isla Cabritos.

Peter C. H. Pritchard (Florida Audubon Society): On behalf of the Florida Audubon Society, Dr. Pritchard supported a proposal to list both species as Endangered. With regard to crocodile farms, Dr. Pritchard states:

In some areas, such as Papua New Guinea, the estuarine crocodile is harvested under a reasonably controlled program, and it is probably not necessary for this harvest to be stopped at present. Similarly, estuarine crocodiles are raised commercially on several farms in South-east Asia. However, there is no need for hides from these operations to be exported to the United States, and indeed it would be better if these hides were exported to other areas, such as France and Italy, over which the United States has no control, so that they may partially displace the demand for hides from other areas or of truly endangered crocodilian species.

Seymour Levy (Safari Club International): Mr. Levy provided information on crocodile farming in Papua New Guinea and stressed the need for providing economic incentive. He also stated that he hoped the estuarine crocodile would be retained on Appendix II to the Convention instead of transferring it to Appendix I.

A. de Vos (Project Manager, FAO, Papua New Guinea): Mr. de Vos took issue with Dr. Faith Campbell's statements on crocodile scarcity contained in the Notice of Review by indicating that estuarine crocodiles can be observed "regularly in some numbers" in the Fly, Bensbach, and Turama Rivers. Mr. de Vos also included a statement by M. Raga outlining the crocodile industry in Papua New Guinea in relation to crocodile conservation. Mr. Raga states "even though there may have been some over-exploitation of the wild crocodile population of Papua New Guinea in recent years, the populations of both species (*C. porosus* and *C.*

novaeguineae) are far from threatened at present."

The Service also received information from U.S. embassies in Haiti, Ecuador, Costa Rica, Malaysia and Papua New Guinea which stated that: officials in Malaysia believe the estuarine crocodile to be very endangered; that officials in Papua New Guinea do not believe a ban on the importation of crocodile skins to be in the best interests of either that country or the conservation of the species; that the crocodile is almost extinct in Haiti although there may be a few in Lake Saumatre; studies are underway on the crocodile in Ecuador; crocodiles are uncommon in Costa Rica and there is illegal trade of skins to Nicaragua.

The most completed data on both species were supplied by Dr. F. Wayne King of the New York Zoological Society. He submitted two reports which summarize the known status of these species: "Review of the status of the American crocodile, *Crocodylus acutus*" by F. W. King, H. W. Campbell, and F. Medem, and "Review of the status of the estuarine or saltwater crocodile, *Crocodylus porosus*" by F. W. King, H. W. Campbell, H. Messel, and R. Whitaker. Both reports are extensive and document the decline of the two crocodiles. The summaries are reprinted below:

"In summary, there appears to be no area within the historic range of *Crocodylus acutus* where healthy populations exist without serious threat from exploitation and/or habitat degradation. The species exists today only in isolated, small populations scattered in the more isolated and impenetrable areas within the historical range and, wherever found, it is still hunted commercially or for local consumption (both eggs and flesh) or killed as vermin. Wherever data exist, over-exploitation for hides is clearly indicated as a major factor in the reduction of populations to the present lows, but today this threat is compounded by habitat degradation and/or increased human activities (commercial fisheries, etc.) in the remaining habitat. The species is recognized as endangered by the IUCN/SSC Crocodile Specialist Group."

Crocodylus porosus is a wide-ranging species which is virtually extinct or reduced to small populations throughout the bulk of its range. Very few actual population data are available for the species, but all available observations indicate dramatic population reductions from historical levels as a result of unregulated hide exploitation, vermin control, and habitat loss. The volume of hides being traded internationally has dropped from over

100,000/year to fewer than 20,000/year in the last decade (Fuchs, personal comm.), while prices have been rising. The species is unprotected over most of its range and is most heavily commercialized in those countries without the protection of any program of census or management. The species is only managed, by any modern concept of wildlife management, in Papua New Guinea which still, however, has no active census program. It is effectively protected only in Australia where extensive studies suggest no actual recovery over the last five years.

The proposal of the government of India to place its population of *Crocodylus porosus* on Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora is fully supported by the available data, but the vast majority of all other *C. porosus* populations are equally threatened with extinction. Clearly closure of international trade in hides and other products of *C. Porosus* is mandated by the available information. Recognition of the status of the wild populations led the IUCN/SSC Crocodile Specialist Group in 1978 to recommend placement of *Crocodylus porosus* on Appendix I of the CITES. We concur with the recommendation and urge the entire species (all populations) be placed in Appendix I of the CITES until the wild populations have recovered and adequate, national management programs for the species are developed and implemented.

Robert O. Wagner (American Association of Zoological Parks and Aquariums): On behalf of the AAZPA, Mr. Wagner supported the listing of the two crocodiles because of rather dramatic population declines in recent years.

This should be deleted or broadened. We are also relying on other evidence we had before the review and Office of Endangered Species' professional expertise. The Director has determined that the American crocodile populations outside of Florida and all populations of the estuarine (saltwater) crocodile, except those of Papua New Guinea, should be proposed as Endangered species. Those populations of *C. porosus* in Papua New Guinea will be continued to be considered for listing under the Similarity of Appearance clause of the Act (see the Federal Register of April 6, 1977 (42 FR 18287-18291)); a decision concerning this population will be made at a later time.

Section 4(a) of the Act (16 U.S.C. 1531 et. seq.) states:

General—(1) The Secretary shall by regulation determine whether any species is an endangered species or a threatened species because of any of the following factors:

(1) The present or threatened destruction, modification, or curtailment of its habitat or range;

- (2) Overutilization for commercial, sporting, scientific, or educational purposes;
- (3) Disease or predation;
- (4) The inadequacy of existing regulatory mechanisms; or
- (5) Other natural or man-made factors affecting its continued existence.

This authority has been delegated to the Director.

Summary of Factors Affecting the Species

These findings are summarized herein under each of the five criteria of Section 4(a) of the Act. These factors, and their application to the American crocodile outside of Florida and the estuarine crocodile populations outside of Papua New Guinea, are as follows:

1. *The present or threatened destruction, modification, or curtailment of its habitat or range*—The increasing human population throughout the ranges of these species has resulted in a loss of most available habitat for the crocodiles. Because crocodilians do not tolerate much disturbance, especially during nesting seasons, human populations have impacted the species by harassment as well as by direct destruction of suitable basking and nesting sites. This problem (habitat destruction due to encroaching human population) is especially severe in Central America, the Caribbean, and South America (for the American crocodile) and Southeast Asia, such as Sarawak and Sri Lanka (for the estuarine crocodile). It is most probable that the continuing expansion of human populations in these areas will result in increasing amounts of habitat destruction and harassment (i.e. curtailment of its range) in the future.

2. *Overutilization for commercial, sporting, scientific, or educational purposes*—This is the major factor involved in the decline of both *C. acutus* and *C. porosus*. The hides are extremely valuable in the production of fashionable leather luxury items; this has led to the severe decline or elimination via hunting of virtually all populations of both species where not protected. Indeed, even in countries with restricted taking of and commerce in crocodiles, poaching continues to severely impact crocodilian populations. In some countries, poorly managed and ill-conceived commercial crocodile farming schemes have also resulted in a drain on populations, particularly of *C. porosus*, since they often rely on young collected in the wild. Some farms have gone as far as to hybridize *C. porosus* with protected species in order to circumvent trade and conservation restrictions, thus resulting in a drain on

both species involved. Commercial exploitation can be expected to continue as prices are high and regulatory mechanisms are weak or lacking.

3. *Disease or predation*—These factors are probably not significant in the decline of *C. acutus* and *C. porosus*. However, natural predation may seriously affect the ability of populations already reduced through overexploitation and habitat destruction to maintain themselves.

4. *The inadequacy of existing regulatory mechanisms*—While many of the countries where these species occur have laws to protect crocodilians, they are often ignored, unenforced, or impossible to enforce because of lack of manpower, funds, or magnitude of the problem. The lack of effective means to protect crocodilians is a major problem in the conservation of wild populations of these species; this is especially true with both *C. acutus* and *C. porosus*.

5. *Other natural or man-made factors affecting its continued existence*—Malicious killing of these crocodilians occurs wherever they are found and undoubtedly contributes to their decline, especially in areas near human populations. Crocodiles are also taken accidentally by fishing nets and are killed whenever encountered especially *C. porosus*, where the species has a reputation as a man-eater.

Effects of the Rulemaking

Endangered species regulations already published in Title 50 of the Code of Federal Regulations set forth a series of general prohibitions and exceptions which apply to all endangered species. The regulations referred to above, which pertain to Endangered species, are found at Section 17.21 of Title 50, and are summarized below.

With respect to the American crocodile and estuarine crocodile (except the Papua New Guinea population), all prohibitions of Section 9(a)(1) of the Act, as implemented by 50 CFR 17.21, would apply. These prohibitions, in part, would make it illegal for any person subject to the jurisdiction of the United States to take, import or export, ship in interstate commerce in the course of a commercial activity, or sell or offer for sale these species in interstate or foreign commerce. It also would be illegal to possess, sell, deliver, carry, transport, or ship any such wildlife which was illegally taken. Certain exceptions would apply to agents of the Service and State conservation agencies.

Regulations published in the Federal Register of September 26, 1975 (40 FR 44412), codified at 50 CFR 17.22 and

17.23, provided for the issuance of permits to carry out otherwise prohibited activities involving Endangered or Threatened species under certain circumstances. Such permits involving Endangered species are available for scientific purposes or to enhance the propagation or survival of the species. In some instances, permits may be issued during a specified period of time to relieve undue economic hardship which would be suffered if such relief were not available.

Endangered Species Act Amendments of 1978

The Endangered Species Act Amendments of 1978 specify that the following be added at the end of subsection 4(a)(1) of the endangered Species Act of 1978:

At the time any such regulation (any proposal to determine a species to be an Endangered or Threatened species) is proposed, the Secretary shall by regulation, to the maximum extent prudent, specify any habitat of such species which is then considered to be critical habitat.

Since the species under consideration in the rulemaking are not domestic, this amendment does not apply.

The Endangered Species Act Amendments of 1978 further state the following:

(B) In the case of any regulation proposed by the Secretary to carry out the purposes of this section with respect to the determination and listing of endangered or threatened species and their critical habitats in any State (other than regulations to implement the Convention), the Secretary—

- (i) shall publish general notice of the proposed regulation (including the complete text of the regulation), not less than 60 days before the effective date of the regulation;
- (I) In the Federal Register; and
- (II) If the proposed regulation specifies any

critical habitat, in a newspaper of general circulation within or adjacent to such habitat;

(ii) Shall offer for publication in appropriate scientific journals the substance of the Federal Register notice referred to in clause (i)(I);

(iii) Shall give actual notice of the proposed regulation (including the complete text of the regulation), and any environmental assessment or environmental impact statement prepared on the proposed regulation, not less than 60 days before the effective date of the regulation to all general local governments located within or adjacent to the proposed critical habitat, if any; and

(iv) Shall—(I) if the proposed regulation does not specify any critical habitat, promptly hold a public meeting on the proposed regulation within or adjacent to the area in which the endangered or threatened species is located, if request therefore is filed with the Secretary by any person within 45 days after the date of publication of general notice under clause (i)(I), and

(II) If the proposed regulation specifies any critical habitat, promptly hold a public meeting on the proposed regulation within the area in which such habitat is located in each State, and, if requested, hold a public hearing in each such State.

In the case of the two crocodiles herein considered, Section 4(B)(i)(I) above is hereby complied with. In addition, the following scientific journals will be notified of the proposal and offered a copy of the Federal Register document for either publication or distribution to scientists: *Copeia*, *Herpetologica*, *Herpetological Review*, and the *Journal of Herpetology*. Since these species are not domestic and no critical habitat is included in the proposal, none of the other amended subsections of this Section are applicable.

Public Comments Solicited

The Director intends that the rules finally adopted will be as accurate and

effective as possible in the conservation of any Endangered or Threatened species. Therefore, any comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, private interests, or any other interested party concerning any aspect of these proposed rules are hereby solicited. Comments particularly are sought concerning:

(1) Biological or other relevant data concerning any threat (or the lack thereof) to the American crocodile and Estuarine crocodile;

(2) Additional information concerning the range and distribution of these species.

National Environmental Policy Act

A draft environmental assessment has been prepared pursuant to the Executive Order 12114 and is on file in the Service's Washington Office of Endangered Species, Suite 500, 1000 N. Glebe Road, Arlington, Virginia. It addresses this action as it involves the two crocodilians.

The primary author of this rule is Dr. C. Kenneth Dodd, Jr., Office of Endangered Species (703/235-1975).

Regulations Promulgation

Accordingly, it is proposed that Part 17, Subchapter B of Chapter I, Title 50 of the U.S. Code of Federal Regulations be amended as follows:

1. By adding the American crocodile throughout its range and the estuarine crocodile (exclusive of the Papua New Guinea population) to the list, alphabetically, under "Reptiles" as indicated below:

§ 17.11 Endangered and threatened wildlife.

* * * * *

Species		Range			Status	When listed	Special rules
Common name	Scientific name	Population	Known distribution	Portion endangered			
Reptiles:							
Crocodile, American.....	<i>Crocodylus acutus</i>	N/A.....	U.S.A. (FL); Mexico, S. & C. America; Caribbean.	Entire.....	E	10	N/A
Crocodile, Saltwater (estuarine)....	<i>Crocodylus porosus</i> ..	Entire, except Papua New Guinea.....	Southeast Asia, Australia, Papua New Guinea, Pacific Islands.	Entire, except Papua New Guinea.	E		N/A

Note.—The Department of the Interior has determined that this rule is not a significant rule and does not require preparation of a regulatory analysis under Executive Order

12044 and 43 CFR 14.
 Dated: July 12, 1979.
M. Spear,
Acting Director, Fish and Wildlife Service

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