

**STATUS AND TRENDS IN INTERNATIONAL TRADE AND LOCAL
UTILIZATION OF WILDLIFE IN CENTRAL AMERICA**

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INTRODUCTION

This report is an initial overview of the status of local utilization and international trade in wildlife and wildlife products in the Central American region. The study on which this report is based was sponsored by the World Wildlife Fund-U.S. and carried out by the Wildlands and Watershed Program of the Tropical Agricultural Research and Training Center (WWP-CATIE) of Turrialba, Costa Rica. In the compilation of data for the study a great deal of collaboration was received from conservation agencies, conservation NGO's, and a large number of knowledgeable individuals from throughout the region, whose collaboration is hereby acknowledged with gratitude.

This document provides comprehensive information on wildlife utilization in Central America, including data on wildlife legislation, trade records, export procedures, legal and illegal import-export pathways, species in commerce and used locally, wildlife products utilized, agencies involved in policing wildlife trade, and major problems confronting efforts to rationalize wildlife utilization in the region. The report concludes with a series of recommendations for priority actions by the governments of the region and the international community to better control and rationalize wildlife utilization and trade, particularly of threatened or endangered species, through improved trade monitoring and control, new and improved legislation, environmental education programs, regional cooperation, personnel training, and increased efforts to investigate the status and trends in populations of endangered species and their ability to withstand harvest and/or be ranched or farmed in economically viable operations, and therefore contribute in a sustainable manner to the development process in the seven countries of Central America.

It should be pointed out that the scope of this report is wider than that originally envisioned in the terms of reference regarding its preparation. In particular, considerable information on local and intra-regional utilization of wildlife is included, which except in a very few cases, is a greater problem than extra-regional trade in wildlife and interrelated with such trade. The report also places emphasis on the widely recognized fact that both subsistence utilization and local and international commerce of wildlife resources are at present less serious conservation problems than habitat destruction in Central America.

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- II. Compendium of Wildlife Legislation and Regulations from Central America
- III. Published Statistics on Central American Wildlife Trade
- IV. List of Central American Flora and Fauna Protected under CITES
- V. Compendium of Returned Questionnaires, Wildlife Department Studies and Other Sources of Data on Central American Wildlife Trade and Local Utilization

OBJECTIVES

The objectives of this study according to the terms of reference for its preparation were the following:

- To provide a preliminary qualitative and quantitative analysis of the actual state and trends in international trade of fauna and flora in the Central American countries.
- To analyze and evaluate the actual procedures and existing legislation in each country.
- To provide a sound basis for designing further, more in-depth study of such international trade in the Central American countries, should such be necessary and/or desirable.
- To identify and evaluate possible mechanisms for establishing a regular and sound exchange of information amongst the Central American and nearby countries (e.g. Colombia, Venezuela) concerning control of international trade in fauna and flora, including the possibilities of making procedures and legislation more uniform.
- To determine the need and usefulness of a Central American regional meeting on the international fauna/flora trade problem.
- To initiate a flow of international trade records and related information to the IUCN/SSC TRAFFIC GROUP and its US Office and to the US Fish and Wildlife Service, from Central America.
- To promote ratification of the Convention on International Trade in Endangered Species (CITES) in those Central American countries which are not yet parties and to promote understanding and observation of it in those which are.

The authors later added as an additional objective the following:

Provide a preliminary qualitative and quantitative analysis of subsistence consumption, local commerce, and sale to foreign tourists of wildlife resources in Central America.

ACTIVITIES

Study activities, also according to the terms of reference for the project, included the following:

- Compile and analyze all legislation in each country related to national and international trade in goods in general, and flora/fauna trade specifically. Identify any "loopholes" and other aspects used by flora/fauna exporters and importers.
- Compile and analyze existing government and other trade records and related documents in each country.
- Via interviews with government officials, persons/organizations involved in trade, and private sector individuals/organizations, identify and analyze the actual procedures in each country.
- Via these same interviews and records attempt to identify all principal import/export "pathways", both legal and illegal, in each country, including intermediate and final destinations for exports and origins and intermediate holding stops of imports.
- Make a qualitative and quantitative inventory of individuals and organizations involved in international fauna/flora trade in each country.
- Present information on and/or discuss the CITES convention with appropriate government officials in each country. Equally, present information on the IUCN/SSC Traffic Group.
- Discuss with appropriate government officials in each country the possibilities of improving legislation, making procedures more uniform

in and amongst countries, establishing an adequate exchange of information amongst countries and the need for a future technical meeting at the regional level on such matters.

The authors later added an additional activity:

Make a qualitative and quantitative inventory of local subsistence use and local commerce in wildlife and wildlife projects in Central America.

METHODS AND MATERIALS

This study was prepared between mid 1980 and August 1983 by the staff of WWP-CATIE, consultants and volunteers associated with the program, and national collaborators from the seven countries covered by the study -- Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama. Initially, information was obtained on wildlife trade and utilization through questionnaires sent to natural resource management agencies of six of the seven countries (excluding Belize), which included requests for information on wildlife legislation, trade procedures, trade records, law enforcement, trade pathways, species consumed internally and traded, and personnel involved in wildlife investigations and law enforcement. A copy of the questionnaire sent as well as returned completed questionnaires are included in the annexes.

In Nicaragua, Honduras, Guatemala, and El Salvador, wildlife agencies went beyond the call of duty in preparing very detailed studies covering wildlife trade and/or local utilization in their countries, instead of just answering the questionnaire. Copies of these reports are also included in the annexes. Since the studies were completed between 1979 and 1981, information obtained from them and the completed questionnaires was updated through telephone conversations with wildlife agency personnel in July and August of 1983.

Additional information on the subject was obtained through the following means: a review of available literature on wildlife trade; conversations with knowledgeable individuals both inside and out of

government; contacts made during the WWP staff's frequent trips to all nations of the region; and by personal observations made during trips to markets, souvenir shops, airports and wildlands by the authors.

Because of WWP's small staff and numerous commitments throughout Central America, it was impossible to complete the study as originally planned in a few month period. Instead, information was compiled and analyzed by co-authors Morales and MacFarland, with specific collaboration from Byron Swift in completing the draft section on legislation and trade procedures, during the period 1980-1982. In the latter year a draft progress report was submitted to WWF-US, but the increasing work load of the WWP staff limited progress from then until mid 1983, when additional WWF-US support enabled WWP to contract co-author Barborak to aid in completing this report and several other pending joint WWF-WWP projects. From June to August 1983 Barborak worked on reviewing and synthesizing all previously gathered data, and obtaining additional updated information through telephone conversations with wildlife agency personnel. Interviews were conducted as well with wildlife and fisheries agency representatives from five countries (Panama, Costa Rica, Honduras, Nicaragua and Guatemala) attending the Western Atlantic Sea Turtle Symposium in San José, Costa Rica in July, 1983.

The final draft of the report was then revised by WWP staff members and co-authors Morales and MacFarland before final typing and submission to WWF-US.

LIMITATIONS

A number of factors limited the ability of WWP to successfully complete the previously outlined activities and fulfill project objectives. One was the previously mentioned problem regarding WWP's multiple responsibilities in Central America and its inability to assign a staff member full time for an extended period to work exclusively on the study, until additional support was obtained from WWF-US to hire co-author Barborak. Another limitation was the

fact that the time necessary to complete the project was greatly underestimated in the original terms of reference for the study. Especially time-consuming were the compilation and analysis of legislation and trade records and the literature review. A final limitation was the authors' inability to obtain updated wildlife import/export statistics from the Central American nations, which are in general years behind in filing required CITES annual reports if they have filed them at all, and from major wildlife importing countries, to compare trade data.

Much of the information provided in interviews with both governmental and private-sector sourcepersons was given confidentially and only on the condition that neither the specific information provided nor its source be widely publicized. For this reason much of the information obtained regarding wildlife utilization in the region, along with bulky copies of completed questionnaires, major published sources of data, and wildlife legislation, have been submitted to WWF-US as supplemental annexes to this document and are not intended for general distribution.

Since the initiation of this study, WWF-US has approved a more detailed, one-year research project specifically on "Wild Animal and Plant Trade Regulation in Central and South America" (1983). Thus it was decided to de-emphasize within the text of this report sections on wildlife trade procedures and legislation, since they will be covered in more detail in the new study. However, in addition to the information contained on these subjects in the text of this report, a large amount of material has been included in its supplemental annexes which will hopefully be of great use to the regulation study investigators.

GENERAL SUMMARY OF INTERNATIONAL WILDLIFE TRADE IN CENTRAL AMERICA

Trade Within the Region

Most wildlife and wildlife products traded within Central America, from one of the region's countries to another for consumption in that

country and not later re-shipment to third markets, involves the following species: sea turtles (eggs), crocodilian skins (partially for later re-export), iguanas and ctenosaurs, Psittacine birds, clams, and forest products.

A 1981 study (Zelaya) reported that a considerable traffic in sea turtle eggs, specifically of Lepidochelys olivacea, occurs from both Nicaragua and Honduras to El Salvador. A sizeable illegal trade in mangrove clams (Anadara spp.), iguanas (Iguana iguana) and ctenosaurs (Ctenosaurus sp.), parrots and parakeets, and lesser numbers of other wildlife species also occurs from the same countries to El Salvador (Zelaya, 1981). The same study showed that El Salvador is the region's only net wildlife importer -- over 72% of all wildlife offered for sale in checks at three markets came from other countries -- primarily Honduras and Nicaragua, and to a lesser extent from Guatemala. Almost all, dealers admitted, was smuggled across the borders or brought in by boat to El Salvador's southern port of La Union. It should be noted that the effects of recent increased military (and guerrilla) activity along these countries' borders and in their territorial waters on this trade is unknown. It must also be stressed that the impact of local consumption of nationally produced wildlife in Nicaragua and Honduras is much greater than that of their trade to El Salvador, and that the impact of the small local harvest of El Salvadoran wildlife within that country is a greater threat than the intra-regional trade, since El Salvador is almost completely deforested and has the most threatened populations of many utilized species within the region. Macaws and jaguars have already been extirpated from that country (Serrano, 1978).

Smuggling of skins of the crocodile Crocodylus acutus and the caiman Caiman crocodylus from Costa Rica to Nicaragua, and also smuggling of the same skins (tanned) and skins of Nicaraguan crocodiles and caimans back into Costa Rica, is still occurring. Although some of this trade is for local sale to Costa Ricans, much eventually reaches other regions since major customers in the exclusive shops still openly selling crocodilian leather products in San José, Costa Rica's capital, cater to foreign tourists. The same can be said of the sale of stuffed marine toads

(Bufo marinus), as curios in souvenir shops. These toads are by no means endangered, however and hundreds can be seen in a small area after a rainstorm. Their leather, also coming at least partially from Nicaraguan specimens, is even made into shoes and boots in a San Jose suburb (Tres Rios).

Some intra-regional trade in logs and processed forest products occurs within the region, with Honduras being the major producer, primarily of pines (Pinus caribea and P. oocarpa) which are by no means endangered although stocks are seriously depleted (Campanella et. al., 1982). A small amount of trade in precious hardwoods and products also occurs, but does not have the same impact on populations as local use and export to non-C.A. countries. The same can be said for fisheries resources (bony fish, sharks, lobster, conch, shrimp).

Local disparities in purchase price can sometimes create situations where intra-regional trade in a given wildlife species or product increases temporarily. Cases in point include the sizeable smuggling of hardwood logs and lumber from Costa Rica to Panama which occurred briefly in 1981 and 1982 when a major currency devaluation in the first country temporarily made such export very lucrative, and the smuggling of lobster and fish to Mexico from Belize, described below. The increase in local purchase price for iguanas, garrobos, Psittacine birds, and clams resulting from the almost complete destruction of local stocks is also the cause of wildlife import into El Salvador rather than absolute market limitations for traded species in their country of origin (Nicaragua and Honduras, primarily).

In summary, although some inter-regional trade in wildlife occurs from one country in Central America to another for final consumption/purchase, it is limited to a very few species for which consumption within the source country and export to other regions are more important problems. Only El Salvador is a net wildlife importer.

Transshipment between Central American countries and to Neighboring Nations for Later Re-export

Transshipment of wildlife and wildlife products between Central American countries and to neighboring nations for later re-export is a much more

serious problem in general than intra-regional trade of wildlife destined for final use/consumption within Central America. Conversations with Guatemalan, Nicaraguan, and Honduras authorities and recent publications such as the Honduran Environmental Profile (1982) and a paper by Rockstroh (1983) point out that smuggling of psittacine birds to Honduras from the other countries, for later "legal" re-export under Honduras' quota system for bird exports, is apparently an increasing problem, although no hard proof to substantiate these allegations exists. Smaller numbers of psittacines, even of the locally extirpated macaw, still occur as well from El Salvador, from specimens undoubtedly originating in neighboring countries (Shane, 1980).

From Nicaragua to Costa Rica, an important trade in contraband crocodilian skins still exists, and leather products from crocodiles and caimans are still sold openly in large quantities in San Jose in spite of local legislation and CITES provisions to the contrary. Nicaraguan officials from that country's wildlife agency stated in August 1983 that they knew of at least one 1982 shipment of over 4000 crocodilian skins from San Juan del Norte in southeastern Nicaragua across the border to Costa Rica, regarding which they informed Costa Rican wildlife authorities who, the Nicaraguans say, did nothing to intercept the skins even though the dealer's name was provided. A vendor openly selling crocodile and Boa constrictor skins in front of a San Jose hotel also stated his skins came from Nicaragua, and said by giving a small "mordida" or bribe he had no trouble in getting wildlife products across the countries' joint border. Some Costa Rican crocodiles from the country's northeastern lowlands are apparently first traded to Nicaraguans for tanning in that country, and then re-imported to Costa Rica, which has a much larger tourist trade, many more affluent foreign residents, and a much wealthier native population, all more likely to buy expensive crocodilian and boa leather products.

A large pirate green turtle fishery off Nicaragua's Misquito Coast and southeastern Honduras by Cayman Islands fishermen still existed until very recently, according to Nicaraguan biologists from the Institute for Natural Resources and the Environment (IRENA). Stepped-up

military activity by the armed forces of Honduras and Nicaragua in the affected region has no doubt reduced this illegal harvest. It is also probable that utilizing the small boats operating between Honduras' Bay Islands and the Caymans that some Central American hawksbill turtle (Eretmochelys imbricata) shell and perhaps green turtles and black coral are shipped via this route. The Cayman's large hawksbill shell exports to Japan (Mack et. al., 1979; 1983) definitely do not come entirely from the Islands' small and depleted local turtle stocks.

The administrators of two Atlantic coast protected areas in Costa Rica (Tortuguero and Cahuita National Parks) report that a southward trade in hawksbill shell also exists from Costa Rica to Panama, which at least until 1981 was still a major shell exporter to Japan (Mack, 1983) in spite of local legislation and CITES provisions. This trade, although not mentioned in Panama's annual reports to CITES of 1979 and 1981, is openly recorded in Panamanian Commerce Ministry statistics (see annexes). Panamanian biologists and the Panamanian Environmental Profile (1980) also report an important (but unquantifiable) trade in hawksbill shell, along with crocodilian skins, from Panama's eastern Atlantic coast to adjoining Colombia, whose dismal record in controlling wildlife trade in spite of strict local legislation and CITES membership has been the focus of many articles in the Traffic-USA Bulletin and the WTMU Traffic Bulletin.

A considerable contraband in spiny lobster (Panulirus argus) and bony fish exists from Belize to Yucatan in Mexico to avoid the low prices at which Belizean fishermen are forced to sell a percentage of their officially declared catch on local markets (Perkins, 1983).

Of all of the above cases of trade between Central American nations and between them and neighboring countries for later re-export, none of them except the transshipment of hawksbill turtle shell for later re-export to Japan and possibly the psittacine smuggling from Guatemala and Nicaragua to Honduras for later re-export and the shipment of caiman and crocodile skins from Nicaragua to Costa Rica, are as important as direct exports of traded species, local utilization, and sale to tourists in the source countries.

Direct Trade from Central American Nations to Other Regions

The export trade from Central America to other regions is a major cause of population declines of Psittacine birds, especially of Ara aracauna in Panama, the Scarlet Macaw (Ara macao) and the Yellow-naped or Yellow-headed Parrot (Amazona ochrocephala) and to a lesser degree for other Psittacines, especially of the genus Amazona, throughout the region (Nilsson and Mack, 1980). The once flourishing commercial trade from the region of macaws (Nilsson, 1977) has now been stopped, but individual birds are still being exported as personal pets from throughout the region especially from Panama (Roet, 1981 and annexes). Especially important in this regard is the fact that in most countries of the region individuals with "palanca" (pull or influence) such as diplomats, foreign businessmen, etc., can still manage to get permission to export personal pets, skins, etc., by appealing directly to ministers and other high-level government officials even if wildlife department staffs initially deny permits. Some Psittacines, especially the macaws and the Yellow-naped Parrot, are so valuable that knowledgeable tourists and foreign residents buy birds cheaply and apply for export permits for their "pets" with the intent of selling the birds for a hefty profit upon arrival in their own countries as soon as they get the birds out of quarantine.

Large numbers of live reptiles such as baby Boa constrictor (s), iguanas, crocodiles and caimans were exported legally until recently from Panama, and a large number of smaller lizards have been exported for the speciality pet market and scientific/zoo/laboratory use by several dealers in Guatemala and Honduras at least until this year. The Panamanian exports have now been prohibited due to stricter local legislation and CITES ratification, and a Honduran Renewable Natural Resources Directorate (RENARE) biologist recently (July 1983) noted that interest in reptile exports among Honduran dealers has greatly diminished because they prefer to deal in the more lucrative Psittacine export trade.

The continued legal export of large quantities of Psittacines from Honduras is one of the three most important wildlife trade issues in

Central America warranting immediate national and international action; the others are the trade in crocodilian skins and hawksbill turtle shell. As noted earlier, this trade is lucrative enough to stimulate major smuggling of Nicaraguan and Guatemalan birds to Honduras. A total of 18 wildlife exporters are registered with RENARE, and most deal primarily in Psittacines (excluding, at least legally, macaws). These dealers all are really middle-men, working for foreigners (mostly from the U.S.) who by RENARE regulations cannot export directly. These exporters are so organized that RENARE deals with them as a group in allocating shares of exports which are fixed annually according to a quota system. This system, Honduran biologists admit, is not based on hard data regarding the status of harvested species' wild populations, nor does it take into account the impact of rapid habitat loss on these stocks. The presence of a powerful block of exporters also undoubtedly results in a parallel illegal trade in species also legally exported.

Particularly important in the Psittacine trade is the manner in which the birds are taken from the wild throughout the region. Most local and international dealers arrive in impoverished rural areas and offer a certain price per bird for desired species to local residents, which represents a fraction of the birds' real worth but still an important source of income to destitute campesinos. The dealers return every few days to buy birds from the peasants. The high mortality of captured birds and the destruction of nesting habitat caused by one popular capture method (cutting down nest trees) have a greater lasting impact on the populations of these birds than trade statistics indicate. Serrano (1978), writing about Psittacine capture methods and treatment in El Salvador, reported the following: "... The mortality is so high among young birds taken from the nests, that generally no more than forty percent survive more than four days in captivity; mistreatment, infections caused by crowding and excessive humidity, auto-infection caused by feces and suffocation are the general rule for parrakeets and parrots captured ...".

The once flourishing commercial export and re-export trade from Panama in crocodilian skins and products and a variety of other

wildlife species has now diminished greatly due to improved Panamanian legislation and law enforcement, and CITES ratification by Panama, former supplier countries and traditional export market countries. The famous "Plan Vallejo" scheme, whereby Colombian crocodilian skins were smuggled to Panama, and then re-imported to Colombia mixed in with Panamanian skins for processing in Colombian free port zones for later re-export, has now apparently been brought under control (see the Traffic-USA Bulletin, 4:3-4 and others, and several reports in the WTMU Trade Bulletin and its predecessors). However, as noted earlier, some smuggling of wildlife and wildlife products from Panama to Colombia, at least of turtle shell and probably of crocodilian, iguana and boa skins and live specimens, is undoubtedly still occurring.

As noted in the previous section, direct export to Japan of large quantities of hawksbill turtle shell existed, from Panama, at least through 1981, and lesser amounts have been exported in recent years from all other countries of the region, excluding El Salvador and Guatemala (Mack, 1979; 1983; Anon, 1983).

Central America is not apparently an important exporter of marine shells (Abbott, 1980) or of corals. Occasionally, depending on the whims of the international pet market, dramatic short-term increases occur in exports of such groups as hermit crabs (Hartshorn *et. al.*, 1982), poison-arrow frogs (Boyer *et. al.*, 1980) and other speciality pets. Small amounts of tropical fish, butterflies, and other wildlife items occur, but not on the scale of that reported from other regions (Inskipp and Wells, 1979).

Commercial fisheries exists in all countries of the region both at the artisanal level, with the catch going mainly to local markets, and through commercial fleets, with the catch going mainly to export markets. Numerous published documents, including country environmental profiles for Panama, Honduras and Costa Rica, and Perkins (1983) for Belize, show clearly that although many stocks of marine resources are underutilized, others, including white shrimp (Penaeus spp.), spiny lobster, and queen

conch (Strombus gigas), are in general being overexploited in the region, and populations and/or catches are declining due to this factor and habitat destruction and alteration for those species spending part of their lifetime in estuaries.

Costa Rica and Guatemala are important exporters of tree fern bark to the U.S. for use as plant growth medium, and lesser numbers of tree ferns, listed on Appendix II of CITES, are apparently exported from other countries of the region, although no data on this trade has been included in export data in CITES annual reports from the countries of the region (Oldfield, 1981). Considerable quantities of orchids, listed mainly on Appendix II of CITES, are exported from several countries of the region (McCarten et. al., 1981; Campbell and Tarr, 1981); the export of orchids is in general the only area where Central American countries provide an important share of the total world commerce in a CITES protected plant group, although smaller numbers of cacti and cycads, listed on Appendix II, are traded (Tarr, 1979; Whitelock, 1981 and annexes), and decreasing numbers of the small number of tropical forest trees native to the region and listed on Appendix II (see annex II) are exported, for which no information has been included in national CITES reports.

ANALYSIS OF WILDLIFE LEGISLATION AND TRADE PROCEDURES IN CENTRAL AMERICA

Belize

Belize obtained independence from Great Britain in September, 1981, and shortly thereafter the government enacted The Wildlife Protection Act of 1981.^{1/} This comprehensive act authorizes the setting of hunting seasons and methods, establishes an extensive protected species list, and bans all commercial dealing in wildlife for seven years, excepting the local sale of meat. Complementing this Act is the National Parks System Act of 1981, which improves upon Belize's existing system of forest reserves, among the best managed in Central America.^{2/}

Historically, Belize, along with Panama, has served as a re-export center for wildlife taken in other parts of Central and South America.

In recent years, however, Belize has moved to close off commercial trade, which has gone far to eliminate this problem.^{3/} Under the terms of the Wildlife Protection Act, the export of wildlife for commercial purposes is prohibited for seven years, and exports for other purposes require a permit issued by the Game Warden,^{4/} and the appropriate health certificates.^{5/} In 1988, the Minister responsible for wildlife protection shall recommend to the National Assembly whether to lift, extend or make permanent the ban on commercial dealing.^{6/}

CITES provisions are enforced also in Belize, for the government considers the Convention to be in force following independence. Although Belize is not a signatory nation, the Convention had entered into force when Belize was a protectorate of Great Britain, a party nation, and past laws continue in effect following Belize's independence. Hopefully, Belize will formally ratify the Convention as an independent nation in the near future.

Exports of wild plants are allowed with an export permit and plant health certificate. Plant trade is believed to be minor by government officials.^{7/}

Domestically, commercial dealing in wildlife is prohibited, and many species are protected from hunting or harrassment. The list of protected species includes most of the larger mammals, crocodiles, all whales, dolphins and sea turtles; and all birds except for certain ducks, quail and cracids. Hunting of other species is allowed with a permit issued by the Game Warden.^{8/} It is also illegal to hunt or to carry a weapon in a national park or other area closed to hunting.^{9/} The only exception to these prohibitions is for scientific or educational collection, which may be authorized by a special permit.^{10/}

The new act is a marked improvement over the former Wildlife Protection Ordinance of 1944, which allowed the hunting of such species as the jaguar, puma, ocelot and peccary without a permit, and did not have as comprehensive protection for rare or endangered species.^{11/} However, the present Wildlife Protection Act still fails to protect amphibians and

other forms of life which do not fit within its definition of wildlife: "all undomesticated mammals, birds and reptiles and (their) parts".^{12/} The passage of the Wildlife Protection Act of 1981 is due in part to a long-standing campaign to update and revise the 1944 law, ^{13/} and may lead to a well-managed system of wildlife management if adequate regulations are promulgated under it.

FOOTNOTES

1. Statutory Instrument No. 4 of 1981 (Gazette 11/28/81).
2. National Park System Act of 1981 (Gazette 11/28/81).
See also Forestry Ordinance, Belize Consolidated Laws, Ch. 115 (1960).
3. For several years prior to the enactment of the Wildlife Protection Ordinance of 1981, the Belize government had followed an administrative policy of not authorizing any permits for commercial trade or export of wildlife. Information of the Department of Forestry, Ministry of Trade and Industry, Belize (1981).
4. Wildlife Protection Act of 1981, note 23 above, § 9,15. The issuance of an export permit under these sections is made subject to section 8 of the Act which imposes "a seven year moratorium on the sale, exchange, hire or any other dealing for profit in any wildlife of any species or parts or products thereof.". There is also a statutory ban on the export of black or thorny coral (Antipatharia), Fishing Ordinance § 12B, Statutory Instrument No. 57 of 10/22/71.
5. Health requirements are in the Plant Protection Ordinance of 1941, Belize Consolidated Laws, Ch. 122 (1960), and in the Animals (Diseases and Importation) Ordinance of 1958, Belize Consolidated Laws, Ch. 129 (1960) (does not explicitly deal with exports).
6. Wildlife Protection Act, note 23 above, § 8(2).
7. Information of the Belize Department of Forestry (1981). However, a preliminary report on the orchid trade by TRAFFIC-USA shows that over 8,000 orchids were imported into the United States from Belize in 1979. TRAFFIC-USA, Special Report No. 4 "The International Trade in Plants" (working draft January 1981), Table 8. A few species, including the wild rubber plant, are protected under the Forestry Ordinance, Belize Consolidated Laws, Ch. 115, § 42 (1960).
8. Wildlife Protection Act, note 23 above, § 3(b).

9. Id. § 4. See also National Park System Act, note 24 above, §§ 4, 6.
10. Wildlife Protection Act, note 23 above, § 14.
11. Wildlife Protection Ordinance of 6/17/44, Belize Consolidated Laws, Ch. 127 (1960) (repealed). Fewer species were protected, and the Game Warden could issue permits to take even protected species "subject to such conditions as ... may seem fit," id. § 6(2).
12. Wildlife Protection Act, note 23 above, § 2.
13. See W. Deshler, "Belize: Proposals for Wildlife Protection and National Park System Legislation and the Establishment of National Parks and Reserves" (Rome: United Nations Food and Agriculture Organization, 1978), p.3. See also M. Frost, "Wildlife Management in Belize: Program Status and Problems", Wildlife Society Bulletin 48 (summer 1977).

Costa Rica

Costa Rica was the first Central American Country to sign CITES,^{1/} and is considered to have among the best laws and enforcement practices in Central America for managing the wildlife trade. Its laws prohibit commercial trade in non-marine wildlife,^{2/} and, at present, the government issues few export permits for wildlife listed on any Appendix of the Convention, even for scientific purposes.^{3/}

The export of a species of fauna not protected under the Convention may be made for scientific purposes, and is authorized by the Ministry of Agriculture and Animal Husbandry (MAG).^{4/} There is a special Wildlife Protection Committee which MAG is to consult prior to issuance of any permit.^{5/} An export requires, in addition to a permit from the appropriate authority in MAG,^{6/} a health certificate^{7/} and a general export license from the Central Bank of Costa Rica.^{8/} The exporter must provide the number of specimens, species name and country of destiny,^{9/} as well as a request of the interested government when it is a matter of providing specimens to laboratories, zoos or museums.^{10/} An export may also be made of an animal which is found by the Department of Wildlife to be damaging to agriculture.^{11/}

Products of the sea are less regulated, and commercial export of marine fauna and flora may be authorized, provided the species is not protected under the Convention. Registered shippers do not need to apply to MAG for a permit each time they make an export, unless the export is of marine aquarium fish or shark's fin. ^{12/} Costa Rica does allow a limited internal trade in sea turtles and crocodiles, though the law prohibits destruction of their young and eggs, as well as commerce in the eggs of sea turtles. ^{13/}

Plants, like marine species, may be exported commercially provided they are not on Appendix I of the Convention. In order to export, the producer, intermediary, or exporter must register with MAG, ^{14/} and obtain a certificate of plant sanitation ^{15/} along with a general export license. ^{16/} Tourists may export a limited number of plants without commercial purposes, as may persons in transit at airport shops, though they need to obtain a sanitation certificate at the place of exit. ^{17/} Wildlife Department officials are now preparing draft legislation to prohibit wild orchid export. ^{18/}

Other regulation of wildlife and plant trade includes required record keeping by tanneries and taxidermists, ^{19/} and regulation of transshipments. A transshipment of fauna through the country must be made at designated ports, and a permit application must specify the species in transit and present their health certificates to the Department of Fish and Wildlife. ^{20/} If illegal trade or contraband is encountered, there is general authority to confiscate it. ^{21/}

Domestically, Costa Rica maintains its own list of protected species, the hunting of which is prohibited. That list presently includes all of the wild hawks, monkeys and cat species found in the country. ^{22/} Any hunting or other appropriation of wild animals requires a permit, even for domestic consumption, and must respect closed seasons and the protected species list. ^{23/} Hunting for commercial purposes is prohibited, though sport hunting of certain species is allowed, and scientific collection is authorized upon approval of a detailed application. ^{24/} Although commerce is prohibited in songbirds, up to two adult male

song birds may be captured for domestic purposes with the appropriate hunting permit. ^{25/}

Costa Rica's lists of endangered species are published by decree ^{26/} and are also added to Appendix III of the Convention. A revision is now underway which hopefully will include insect and amphibian species. ^{27/}

A couple of interesting provisions in the Costa Rican law reflect trends that have become established in the protected species legislation of some developed countries. A rare example of public participation established by law is a provision directing MAG to solicit the opinions of scientific organizations and knowledgeable biologists in establishing closed seasons. ^{28/} Another provision requires coordination between MAG and the Institute of Land and Colonization ^{29/} to protect wildlife in the latter's programs of soil, water and forest conservation. ^{30/}

It should be noted that a revision of the Wildlife Conservation Law is currently being discussed in the Costa Rican Congress (Asamblea) which would raise license fees, fines, and arms/munitions taxes with the income obtained to go to the Wildlife Department. ^{31/}

FOOTNOTES

1. Law No. 5605 of 10/30/74 ratified CITES (La Gaceta 1/28/75).
2. Wildlife Conservation Law (Ley de Conservación de la Fauna Silvestre) No. 4551 of 4/15/70, art. 12 (L.G. April 28, 1970); id., art. 14 (hides and parts - commerce prohibited). Regulation of the Wildlife Conservation Law, Decree No. 2716 S 13 (December 19, 1972); see also Decreto No. 9 of May 24, 1963 (implementing Law No. 2790). This prohibition is carried forward in the proposed revision of the Wildlife Conservation Law, Proposed Law No. 8932 (L. G. June 4, 1981).
3. Information of the Department of Wildlife, Forest Administration, MAG (Depto. de Vida Silvestre, Dirección Forestal, Ministerio de Agricultura y Ganadería), Management Authority for fauna under the CITES Convention. (1981).
4. See notes 2 and 3 above.

5. Wildlife Conservation Law, No. 4551, note 2 above, at art. 13. MAG is also established as the sole authority over interior commerce in wildlife as well as similar species born in captivity.
6. Id.
7. Information of MAG (1981)
8. Organic Law of the Central Bank of Costa Rica, Law No. 1552 of 4/23/53, as amended; Law No. 2801 of September, 1961, as amended (covers all articles or products exported).
9. Information of the Management Authority, note 3 above. See Wildlife Conservation Law and its regulations, note 2 above.
10. Decree 2716, note 2 above, art. 13.
11. Id.
12. Marine Fishing and Hunting Law (Ley de Caza y Pesca Marítima), Law No. 190 of 9/28/48; Regulation of Law 190, Decree No. 363 of 1/11/45.
13. Marine Fishing and Hunting Law, note 12 above, s 28. Although commerce in eggs is prohibited, some claim that an individual digging up and selling eggs should not be considered commerce.
14. The registration must contain such information as the countries of export, species cultivated, and number of hectares cultivated. Regulation of the Export of Ornamental Plants and their Parts, Decree No. 8060 of 2/21/78. See Law of Plant Sanitation, Law No. 2852 of 11/6/61, as amended by Law No. 4295 of 1/6/69, and Law No. 6248 of 5/2/78. Additionally, wherever there is a sale of plants for export, those authorized to sell plants and plant parts for export must convey a signed "certificate of registration" mentioning the species sold and the business registration number with MAG. Without this the corresponding certificate of Plant Sanitation of Export cannot be issued. Decree No. 8050, above, art. 5
15. Decree No. 8060, note 14 above, art. 4 (in addition, inspection ticket must be affixed to the plant at port of exit). See also Law of Plant Sanitation, note 14 above.
16. See note 8 above
17. Decree No. 8060, note 14 above, arts. 3, 11

18. Information from Wildlife Department Officials, July 1983
19. Regulation of the Wildlife Conservation Law, No. 2716, note 2 above, art. 12.
20. Id., art. 14. The Management Authorities, note 3 above, state that very few transshipments have been made in recent years.
21. Fiscal Law (Ley Fiscal) (information of MAG).
22. Decree No. 9467 of 1/2/79 (1/22/79).
23. Regulation of the Wildlife Conservation Law, No. 2716, note 2 above, arts. 1,4 (c). See Decree No. 9467 of 1/2/79, arts. 4-9 (L.G. 1/22/79) (establishing closed seasons). See also Decree No. 2517 of 10/4/72 (same).
24. Regulation of the Wildlife Conservation Law, No. 2716, note 2 above, arts. 18, 20. A non-national requesting a scientific collection permit must document the purposes of study, submit a letter of reference from a scientist affiliated with a Center of Higher Research of Costa Rica, and leave examples of collected specimens with the University of Costa Rica, when it is considered necessary. Decree No. 9467, note 21 above, art. 11.
25. Decree No. 9467, note 21 above, arts. 1,2.
26. Id.
27. Information of the Management Authority of the Convention, note 2 above.
28. Regulation of the Wildlife Conservation Law, No. 2716, note 2 above, art. 21.
29. El Instituto de Tierras y Colonización
30. Wildlife Conservation Law, note 2 above, art. 9
31. As in 27, information given July 1983

El Salvador

There is at present no legal instrument protecting wildlife in El Salvador whatsoever (Shane, 1980). However, a draft wildlife law was recently submitted to the Salvadoran Congress (Asamblea Legislativa) by the Agriculture Ministry. At present, that body is not processing any new legislation while debate on a new Salvadoran constitution, scheduled to end in September, 1983, goes on. It should be noted that

the present draft of that new constitution contains two articles on natural heritage and the environment, which were proposed by the Agriculture Ministry (M. Benitez, Agricultural Ministry, pers. comm., August 1983).

In July, 1983, the Salvadoran Ministry of Agriculture formally requested to the Ministry of Foreign Relations that El Salvador adhere to and ratify CITES (Benitez, as above).

Hunting regulations have been enacted in the past administratively, and during at least one one-year period (January 9, 1978 - January 9, 1979) the hunting sale, possession and exportation of sea turtles and their eggs was prohibited by Decree 427 of December 22, 1977. Even this lone decree went unenforced: Zelaya (1979) reported observing over 19,000 eggs in just three markets during part of the covered period.

In general, enactment of comprehensive wildlife legislation and CITES ratification and adherence are more urgent in El Salvador than any other country of the region except Honduras. Although El Salvador is almost completely deforested, and has little possibility of sustaining viable populations of many of its terrestrial endangered faunal species in its few, small protected areas, continued demand for wildlife pets and products has converted El Salvador into Central America's, only net wildlife importer. The country also serves as a re-export center for wildlife, especially live Psittacines (Shane, 1980). As such it provides an additional drain on neighboring countries' wildlife resources, especially from the greatly deforested dry Pacific coast regions of Nicaragua and Honduras.

Guatemala

Guatemala has good wildlife trade legislation, and has ratified the Convention and published it as a law of the Republic.^{1/} However, these laws are reportedly not enforced, and there exists a significant and generally unsupervised trade in wild flora and fauna, reptiles and plants in particular. A serious problem is that under present practices

permits generally do not specify the species being traded, and trade in species supposedly protected under the law is allowed to occur. Until such basic requirements are enforced, the purposes of Guatemala's laws and the Convention cannot be fulfilled.

The two important laws regulating wildlife and the wildlife trade are the General Hunting one of 1970^{2/} and the Convention.^{3/} Two types of permits are required for the export of wild fauna and flora under the above laws. The first serves the purposes of the Convention, and is issued by either INAFOR, the National Forestry Institute,^{4/} or DIGERENARE, the Agency of Natural Renewable Resources.^{5/} The standards of the Convention govern the issuance of these exports permits, as the Convention has been published as a law of the Republic.^{6/}

The second necessary permit for fauna is a health certificate issued by the Department of Animal health or an accredited veterinarian. In either case a representative of the Division of Fauna of DIGERENARE must be present.^{7/} A similar law requires that a certificate of quarantine be issued for exports of plants.

Further regulation of export and import trade in the General Hunting Law requires that establishments doing commerce in ornamental or imported birds must obtain a license, and that tanneries and taxidermists must register the export or import of pieces obtained or prepared.^{8/} Other important individual decrees are those prohibiting the hunting or export of the quetzal,^{9/} originally issued in 1895, and of the national flower, Lycaste skinneri alba, along with all other members of the orchid family,^{10/} and the capture or commerce in the green sea turtle and its eggs for a period of a ten years^{11/}.

Domestically, the General Hunting Law regulates hunting and trade in wild animals. It authorizes closed seasons and methods of hunting, establishes a list of sixteen species protected from hunting or capture, and requires permits for commerce in or export of wildlife^{12/}. However, only one species has been added to the list since 1970, the ocellated turkey.^{13/}

There are several ambiguous provisions in the General Hunting Law, such as a provision stating that hunting for commercial purposes shall be permitted only for obtaining ornamental or song birds, ^{14/} which contradicts another which "conclusively prohibit(ing) from hunting or capture ... insectivorous birds ...; ornamental and song birds, which have unique value when living; birds and other free wild species, which are beneficial to the public good; ... (and) other useful (non-game) wild species" ^{15/} except for subsistence purposes. ^{16/} Although commercial hunting of species other than songbirds is apparently prohibited, Guatemala exports many reptiles, possibly under an earlier decree which regulates the taking of lizards and authorizes their export. ^{17/} Regulations authorized under the law ^{18/} should be issued which clarify these problems, or else a revision of the law should be made which eliminates these ambiguities. ^{19/}

FOOTNOTES

1. The Convention was ratified by Guatemala October 11, 1979, Law No. 63-79 of 1979.
2. General Hunting Law (Ley General de Caza), Law No. 8-70 of 4/14/70 (Diario oficial April 16, 1970).
3. Law No. 63-79 of 10/11/79.
4. Instituto Nacional Forestal (INAFOR). See note 5 below.
5. Dirección General de Recursos Naturales Renovables (DIGERENARE). DIGERENARE is authorized under the General Hunting Law, arts. 32.46, to issue permits for the export of any live wild animal or its hide or parts. INAFOR was established in 1974 as the agency responsible for the management of wild fauna and flora. See Decree No. 51-74 (1974) and conforming statement No. AJ-43-79 (July 30, 1979).
Article 32 of the Hunting Law states that a commercial export of more than 2 specimens requires payment of an export duty in addition to the license fee imposed by article 20 (all fees or fines collected are placed in a common fund, under article 57, for the study and conservation of wildlife).
6. See note 3 above.

7. General Hunting Law, art. 34.
8. Id., arts. 33, 35.
9. Presidential Resolution (Acuerdo Presidencial) of December 13, 1895, as amplified by Pres. Res. of October 22, 1897. Today the hunting of the quetzal, the national bird, is prohibited by the General Hunting Law, art. 40, and penalized in article 48 by a prison term of three years, the most severe punishment in the law.
10. Governmental Resolution (Acuerdo Gubernativo) of August 9, 1946, as amplified by Gov. Res. of June 4, 1947.
11. Resolution (Acuerdo) of October 26, 1971 (protecting the green sea turtle Chelonia mydas, for 5 years) extended by Res. of October 8, 1976 (also for 5 years).
12. General Hunting Law, note 2 above art. 41(4).
13. Resolution (Acuerdo) of 9/28/79 (Agriocharis ocellata).
14. General Hunting Law, note 2 above, art. 19 (authorizing Ministry to set regulations).
15. Id., art. 41
See also Aguilar and Rivera (1983); INAFOR (1981).
16. Id., art. 16
17. Decree No. 69 of 6/18/55, modified by Decree No. 21 of 11/21/63. Theoretically, this decree should have been overuled by the General Hunting Law, note 2 above, which overuled laws opposed to it.
18. See note 20 above.
19. Efforts to contact Guatemalan authorities in early August of 1983 to update this information were unsuccessful.

Honduras

Honduras ratified the Convention in 1979, ^{1/} but there exists little other legislation regulating export trade. The only requirements for an export of wildlife are a general export permit, payment of export taxes and a sanitary certificate. ^{2/} A recent study by RENARE, the Agency for Natural Resources Renewable Resources, ^{3/} summarizes trade law as follows:

"There does not actually exist a legal instrument which regulates wild fauna in a comprehensive form, and there must be resort to the

emission of resolutions each time a closed season is required to be established for any animal considered heavily used and which is in danger of extinction, for which there still lacks a positive system which regulates the export and import of these animals, so that until this moment what exists is a system of fixed contributions based on the estimated prices these animals have in the international market, which in no manner are the result of scientific study of the potential of the populations for an annual harvest or of the population required by these animals to maintain their ecological equilibrium, or of the effect of the external demand". ^{4/}

Therefore, what exists at present is a system of quotas ^{5/} and estimated prices, although the study questions the accuracy of the price estimates. ^{6/} Commercial trade is not allowed in animals for which no quota is established, which would include birds such as the quetzal and most mammals. ^{7/}

Domestically, Honduras lacks a general law to control hunting, and hunting is virtually unregulated except for individual decrees controlling the seasons for a few species. ^{12/} There is a closed season for a few other species, notably the macaws. ^{13/} There does exist a general Fishing Law, ^{14/} which requires permits for the export of live specimens or eggs of aquatic fauna and flora, establishes closed seasons, and prohibits the taking of or dealing in the manatee. ^{15/} A new comprehensive wildlife law is currently being discussed in the Honduras congress. ^{16/}

FOOTNOTES

1. Resolution (Acuerdo) No. 16 of 6/20/78, approved by Decree No. 771 (La Gaceta, September 24-25, 1979).
2. There are both animal and plant health laws. Information of RENARE. (1981).
3. Dirección General de Recursos Naturales Renovables.
4. González (1980): Department of Wildlife, RENARE, "Commercialization of Wild Animals in Honduras" (Commercialización de Animales Silvestres en Honduras") (Tegucigalpa, D.C., November 1980), p. 3.

5. DIGERENARE Report, note 4 above, points out that there are insufficient scientific studies on which to base accurate quotes. Id. at p. 17, 21.
Some recent studies have, however, been completed for the yellow-naped parrot, the most heavily traded, and the quota is now set at 800. Information of RENARE (1981).
6. DIGERENARE Report, note 4 above, at. p. 12. Export taxes have averaged eleven percent of the declared value. Id. p. 2. Another problem is that only 2 of the 40 exporters have registered as required. Id. p. 19.
7. Information of RENARE (1981).
8. Closed seasons have been established for the deer, iguana, ctenosaur or black iguana, and several of the large rodents. Information of RENARE (1981).
9. See Decree No. 17 of 1978.
10. Fishing Law, Law No. 154 of 5/29/59, (signed June 9, 1959).
11. Id. SS 7,41,55. The law also establishes a five-year moratorium on taking or dealing in sea turtles and certain mollusks on the Pacific coast. Id., S49 establishes closed seasons for mollusks, fish and shrimp, Id. S41, and regulates fishing for commercial, sport and scientific purposes, Id., SS 7,11,32.
12. RENARE information, August 1983.

Nicaragua

Nicaragua has banned commercial trade in wild animals, and there is subsequently little legitimate export trade in fauna. Exports for scientific purposes or of pets must be in accordance with the Convention, signed in 1977, and be accompanied by a permit of IRENA, the Nicaraguan Institute of Natural Resources and Environment.^{1/}, and a health certificate.

The most significant restriction on wildlife trade is the ban on

all commerce in wildlife, internal or external, which was approved in 1977.^{2/} Export of turtle shell ^{3/} and caiman skins ^{4/} is still authorized however, although the export of turtle eggs is banned for ten years.^{5/} Prior to the 1977 decree, and Nicaragua's subsequent ratification of the Convention,^{6/} the regulation of export was confined to setting minimum sizes and export procedures for trade in the skins and products of a limited number of species. These species tended to be those important for commerce, such as the sea turtles, iguanas, caimans, deer and small cats.^{7/}

Today, export is only allowed for scientific purposes and of pets, with an export permit, issued by the management authority of the Convention, and a health certificate.^{8/} The export of marine fish species also is allowed, subject to regulation by the Ministry of Economy.^{9/} Plant exports appear to be few, and import data of the United States indicate Nicaragua has exported fewer plants than any other country in Central America.^{10/}

Domestically, commercial trade is again prohibited, with the exception of regulated commerce in iguanas,^{11/} turtles and their products,^{12/} caimans^{13/} and armadillos.^{14/} This trade is principally for their protein. Hunting for domestic consumption, sport and scientific purposes is allowed under a permit system,^{15/} and closed seasons are authorized for all species, including marine fish.^{16/} The hunting laws prohibit the hunting, broadly defined, of certain rare or protected species, including five large mammals and selected families of birds;^{17/} they also generally prohibit the hunting of insectivorous and song birds.^{18/} However, the domestic hunting situation is not well controlled, and IRENA estimates that most Nicaraguan hunters operate without licenses.^{19/}

FOOTNOTES

1. Instituto Nicaraguense de Recursos Naturales y del Ambiente. See Law of August 24, 1979, which created IRENA, and Law of October 9, 1979 which details its powers and functions.
2. Law No. 625 of 3/28/77 (La Gaceta, May 16, 1977).
3. Resolution (Acuerdo) No. 2 of 7/26/72 (I.G. 7/29/72) prohibits the capture and sacrifice of adult turtles on the Pacific coast,

- and establishes a closed season for domestic commerce in turtle eggs from September 15 to November 30. Decree 204 of 7/2/72 (L.G. July 15, 1972) continues to allow exploitation of Atlantic turtles, but establishes a closed season from April 1 to July 31 in which no commerce or export can be done. The export of turtle eggs is prohibited under Law No. 625, note 2 above. See note 22 below.
4. Resolution No. 2 of 7/26/72 (L.G. 7/29/72) establishes a closed season, minimum sizes, and zones for taking crocodiles and caimans. This resolution has apparently been continued in force despite Law No. 625, note 2 above, which banned commerce in wildlife.
 5. Law No. 625, note 2 above, art. 12.
 6. Law No. 14 of 10/28/77 (L.G. January 27, 1978).
 7. Resolution No. 2 of 7/26/72, note 3 above, specified minimum sizes for caiman and crocodiles, prohibited the export of iguanas, and regulated commerce in turtles, see also, note 4 above. A prior series of decrees regulated the export and minimum size of hides of deer, ocelots and caimans (the Spanish word for ocelot, "tigrillo" may be interpreted to mean other small cats too). See Decree of 3/25/66; Decree No. 1 of 8/5/61; Decree No. 5 of 4/9/57 (L.G. 5/2/57).
 8. See note 1 above. The management authorities are the Wildlife Department (Depto. Fauna Silvestre) for fauna and the National Forestry Department (Depto. Forestal Nacional) for flora, both in IRENA. A health certificate is required by the General Hunting Law, Law No. 206 of 10/16/56 art. 33 (L.G. November 3, 1956). There is both a Department of Animal Health and of Plant Health.
 9. Law for the Exploitation of Fishing, Law No. 557 of 1/20/61 art. 4 (L.G. 2/7/61). Commercial exports of several species of marine fish is considerable, in 1977 amounting to 720,000 pounds.
 10. TRAFFIC-USA, special report No. 4 "The International Trade in Plants", Table 8 (Washington D.C., working draft 1981) (in the past decade, Nicaragua's orchid exports to the U.S. were only 594 and made only in one year, 1978).
 11. Law 547 of 10/8/80 (L.G. October 18, 1980), authorizes internal commerce in iguanas which have reached a certain size and establishes a closed season.
 12. Internal commerce in turtle eggs is authorized in Law 625, note 2

- above, art. 2. Apparently previous laws authorizing limited trade in adult turtles, see note 3 above, have continued in effect, although Law 625's general ban on commercial trade in fauna, should have overuled them.
13. See note 4 above.
 14. The commerce in armadillos is tolerated by IRENA because of social customs of use. The armadillo is included in a list of "harmful animals" established by the General Hunting Law, note 9 above, art. 12, which also includes poisonous snakes, rats, mice, bats, foxes, margay cats and coatimundis. Although the provision does not specify any consequences of the designation, it lacks a scientific basis and should be completely revised or deleted.
 15. General Hunting Law, note 9 above, art. 19. Subsistence hunters are required to comply with the law, but need not pay fees, Id., art. 17. Scientists may obtain special licenses to obtain a limited number of specimens, Id., art. 24
 16. Resolution 2 of 7/26/72, note 3 above, details closed reasons for mammals, birds and reptiles, and prohibits the hunting of certain species. The Fishing Law, note 10 above, art. 7, authorizes commercial marine fishing only of permitted species, within authorized periods. See also Regulation of the Fishing Law, Decree 11 of 3/6/61, art. 3.
 17. Resolution 2 of 7/26/72, note 3 above, art. 1, indefinitely prohibits the hunting of the manati, tapir, paca (Agouti paca), coatimundi howler monkey and quetzal, as well as the bird groups of quails, guans, mountain woodpeckers, flower-pickers, hawks and owls. The definition of "hunting" which applies in Nicaragua is one of the broadest of any found in Central America, and includes pursuing(perseguir), surprising (sorprender) and attracting wildlife in order to capture them alive or dead. General Hunting Law, note 9 above, art. 8.
 18. General Hunting Law, note 9 above, art. 13.

Panamá

Panama is a party to the Convention $\frac{1}{}$ and appears to be fairly

successful in controlling its wildlife trade. Since Panama banned the export of many endangered wild fauna species in 1980, there has been little legal trade in wild fauna originating from Panama. Panama's laws additionally require export permits and health certificates to be obtained for any export of wild fauna or flora.

Early in 1980, Panama prohibited the hunting, sale or export of 82 endangered species of fauna.^{2/} Included are most of Panama's large mammals, such as deer, cat species and monkeys, plus macaws, sea turtles, caimans and iguanas, among others. This decree appears to have greatly reduced the trade in wild fauna.

Species of fauna not included on Panama's protected list, as well as species of flora, may be exported pursuant to the Convention with an export permit and upon payment of export fees. RENARE, the National Agency of Renewable Resources, is the management authority. To obtain the permit the exporter must provide the purpose of the export, the species and number exported, the port of export, and a health certificate issued by a veterinarian.^{3/}

In addition, commercial exporters must maintain a current registration with RENARE.^{4/} Wild animal pets must be registered, and can only be exported with a permit from RENARE, and can only be imported with valid export permits and veterinary health certificates from the country of origin.

Panama has reportedly served as a major reexport center for illegal trade coming from other Latin American countries, especially Colombia. With the new laws this activity appears to be diminishing, although there are still problems with the illegal export of skins of caimans, crocodiles and jaguars in particular.^{6/} These may be added to imports and the whole batch then shipped out as a reexport, under the pretext that the added skins were actually imported. A draft regulation would help control such imports and reexports by requiring proof of a valid export permit before issuing an import permit, and proof of the import permit before issuing a reexport permit.^{7/} Although much of this activity

takes place in the Panama Free Zone which is hard to administer, the authorities do have general authority to confiscate illegally traded wildlife when encountered. ^{8/}

Domestically, animals on Panama's endangered species list of 82 species are protected from hunting, capture or sale, ^{9/} and the sale of meat of wild fauna is also prohibited. ^{10/} These prohibitions, however, have been difficult to enforce without an adequate budget. A network of national and regional Commissions for Protection of Wildlife are established to assist in enforcing and creating public awareness of these laws. ^{11/} One of the duties of the National Commission for Protection of Wildlife is to consult with the Agrarian Reform Agency for the purpose of preserving wildlife habitat when land is cleared for development. ^{12/} These commissions, however have not proven to be highly visible.

An annual two-month closed season is imposed on shrimp fishing. ^{13/}

FOOTNOTES

1. Law 14 of 10/28/77 (Gaceta Oficial Jan. 27, 1978) approves the Convention.
2. Resolution DIR 002-80 of 1/24/80. Previously, sixteen species were protected by Decree 23 of 1/30/67 art. 1 (G.O. March 10, 1967), and the green, loggerhead and olive ridley sea turtles by Decree 104 of 9/4/74, which added them to the protected list and established seasons for collecting their eggs.
3. Information and permit forms of RENARE (1981); see also, Sanitary Code (Código Sanitario), Law 66 of 11/10/47.
4. The establishment's name, address and commercial license number must be furnished. Information of RENARE (1981).
5. Resolution DIR 003-80 of 1/25/80 art. 3. Since all pets must be registered with RENARE, id., art. 1, an unregistered pet cannot be exported. Imports of wild animal pets are regulated under article 3 of this Resolution.
6. Information of RENARE (1981).
7. Id.

8. Id.
9. Resolution DIR 002-80 of 1/24/80 art. 2.
10. Decree 23 of 1/30/67 arts. 6-8. (G.O. March 10, 1967).
11. Decree No. 23 of 1/30/67 arts. 4-5 (G.O. March 10, 1967). For example, when issued a permit for scientific taking of wildlife, RENARE is to consult with the National Committee, which sets the conditions. Id. art. 15.
12. Id. art. 14.
13. Information from the General Directorate of Marine Fisheries, 1983.

Regional Summary

A decade ago, the wildlife trade in Central America was essentially unregulated. It still is in a few countries, but a growing awareness of the problem has shaped new laws and policies in most, which have increasingly brought the trade under control. Six of the seven countries adhere to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (herein called "Convention"), ratified in Washington in 1973, even though the CITES Secretariat does not consider Belize and Honduras to have ratified the Convention. The Convention's permit system for endangered or threatened species provides sufficient authority to allow a country to regulate its trade in wildlife, if the will is there.

Every country has basic export laws, which require general export permits and health certificates for exports of wild flora and fauna. In addition, five countries, excepting Honduras and El Salvador, have some comprehensive form of wildlife legislation which provides further regulatory powers to the wildlife agency. Protection of wildlife in Central America centers on laws regulating the export trade and hunting of wildlife, and the creation of parks and forest reserves. No country, however, can be said to have adequate laws and regulations for a system of wildlife management. Possibly the dove and pigeon hunting regulations in Honduras and Costa Rica and some of the laws for the protection and propagation of sea turtles are adequate for managing the wildlife resource, but the money, personnel and training needed to formulate and enforce effective regulations are generally lacking.

Record keeping and documentation of each nation's wildlife trade is very deficient in most countries of the region. Most wildlife departments do not have central office officials devoted to (and trained in) statistical analysis of trade data. Data available from commerce department statistics usually does not identify traded wildlife species as to species and genus, especially plants. There are often great discrepancies between commerce department statistics and wildlife department ones. No nation of the region which is a CITES signatory has prepared and submitted on a yearly basis Convention-required annual trade reports; those submitted contain notable discrepancies with other published data on these nations' trade. There is no standardization of import-export procedures or permits to aid in determining if shipments of wildlife from one country to another are legal.

Although all of the nations of the region have definite export procedures required before wildlife products can be exported, many knowledgeable individuals informed this report's authors of known cases where regular procedures were circumvented and wildlife and wildlife products have been successfully imported to CITES signatory nations, most notably the U.S. Although in a few cases shipments have been seized, there appears to be a clear lack of information on Central American wildlife law and export procedures on the part of U.S. authorities, which if eliminated should result in more efficient action in that country, the major destination of Central American wildlife exports, to enforce CITES and Lacey Act restrictions on its imports of wildlife.

Despite these difficulties, four countries have brought the export of wildlife species under a fair degree of control, generally by banning or restricting commercial exports. The legal methods have varied from country to country. Panama promulgated a decree in 1980 that prohibited export of 81 endangered species, thereby virtually halting the legal export trade in wildlife. Costa Rica and Nicaragua have both passed laws within this decade which prohibit commercial trade in wildlife. Belize has followed suit by prohibiting commercial exports through the exercise of its administrative authorities. On the other hand, though Guatemala has good laws, they are not enforced, leaving its substantial

wildlife trade virtually unregulated. These different approaches indicate that the most important ingredient in achieving management of the wildlife trade is the country's will to control its wildlife trade, rather than the type or extent of its laws.

ANALYSIS OF INSTITUTIONAL INFRASTRUCTURE TO CONTROL WILDLIFE TRADE AND LOCAL UTILIZATION IN CENTRAL AMERICA

Just fifteen years ago, no specific wildlife agencies existed in the entire Central American region. As a response to growing public and governmental awareness of the importance of wildlife resources, all countries of the region now have official governmental agencies in charge of forestry, fisheries, protected areas, and wildlife. The institutional arrangements for managing these resources varies greatly from country to country; in Panama, one agency controls forestry, wildlife and parks (RENARE) and another agency in a different ministry (commerce) controls fisheries. In Costa Rica, although the fisheries, parks, and forestry-wildlife agencies all are found in the same ministry (Agriculture and Animal Husbandry) communication between these agencies is poor and interinstitutional jealousy is a major problem. In Honduras, wildlife, parks, and fisheries are combined in RENARE which has poor relations with the forestry agency, COHDEFOR. In Nicaragua, a centralized natural resources agency, IRENA, has been created since the 1979 revolution. In Belize, a country with just 150,000 inhabitants, the entire staff dedicated to natural resources management can be counted on one hand. In Guatemala, forestry and wildlife are combined in one agency (INAFOR) while fisheries is a separate directorate in the Agriculture Ministry. In El Salvador all responsible agencies are found within the Agriculture Ministry.

In addition to wildlife agencies, all countries of the region have of course police authorities which as mentioned, provide little assistance in wildlife law enforcement. All countries also have plant and animal inspection and customs services which generally are responsible for border inspections, especially of incoming cargo and luggage, and

provide some assistance in wildlife trade control at airports and border points. However, lack of knowledge to effectively enforce wildlife legislation is a major problem with the inspection service personnel.

The number of wildlife inspectors also varies from country to country. Nicaragua, for example has 57 natural resource inspectors dealing with all aspects of forestry, wildlife and fisheries law enforcement; RENARE in Honduras has approximately 25 inspectors responsible for wildlife, and fisheries (but not forestry) law enforcement. COHDEFOR has additional forest rangers throughout Honduras, but their responsibilities are limited to policing against forest fires and illegal forest felling. The Costa Rican Wildlife Department has just three wildlife inspectors to cover the whole country, a notable contrast with its National Park Service, which has over two hundred persons assigned to protecting the nation's model national park system covering eight percent of the country. In El Salvador, there are no wildlife inspectors per se, but 56 park rangers and 49 forest agents throughout the country are charged with protecting all natural resources of the country. In Panama and Guatemala, where fisheries is managed by totally separate agencies, approximately a dozen fisheries inspectors, usually more concerned with trade statistics and license regulations than other matters, are assigned to major ports in each. In Panama RENARE has just three wildlife inspectors and one central office technician assigned to control wildlife commerce.

In Belize, as mentioned, available personnel is at a maximum in the Ministry of Natural Resources, responsible for terrestrial natural resource management and protection, and the Fisheries Unit of the Ministry of Health, Housing and Cooperatives, responsible for marine resource management.

Regardless of the institutional responsibilities, the availability of personnel, especially well trained and highly motivated individuals, to enforce wildlife legislation and especially international trade in wildlife and wildlife products, is very limited throughout the region.

Also, most Central American governments are going through a period of severe economic difficulties. In most, to avoid total economic collapse the governments have had to request large loans from international banks and multilateral agencies such as the World Bank, which if granted carry very strict terms requiring governments to cut back bureaucracies, eliminate the creation of new positions, and reduce agency budgets drastically. As a result, it is extremely improbable that any government of the region will be in a position any time in the near future to devote additional personnel to wildlife law enforcement. Because of this, any efforts to improve such enforcement must be based on increasing the capabilities of the existing personnel and providing them with the minimum facilities and equipment needed to carry out their responsibilities. There is great room for improvement in the training level of such individuals --most, especially personnel only partially responsible for wildlife law enforcement, such as customs and plant and animal inspection service employees and forest rangers, have never received any training regarding wildlife law and their role in its enforcement. At best, the wildlife inspectors/game wardens might have participated in one or several short internal training events.

A caveat is necessary regarding the above comments on the need for better training of enforcement personnel: most work for miserable salaries, and for this reason regardless of the amount of training they receive, their motivation and dedication cannot reasonably be expected to be very high. The potential for bribery and corruption among such individuals will always remain high as long as the wildlife trade remains lucrative. This problem is not limited to enforcement personnel only -- central office staffs, often responsible for issuing or denying export permits, are also underpaid, and subject to low morale.

In summary, all the Central American nations have at least minimal institutional infrastructure for dealing with wildlife trade. However, as described further in the next section, communication and collaboration among the different agencies responsible for wildlife law enforcement, including wildlife, forestry, fisheries, plant and animal inspection, customs, commerce, and police authorities, is deficient. The available

personnel is underpaid, poorly trained, and as a result, poorly motivated and subject to corruption. Since economic crises in all the countries of the region have forced cutbacks in government payrolls, wage freezes, and wholesale budget cutbacks, any positive change in the above situation is years off. Any attempt to better control wildlife trade through improving local wildlife law enforcement will be risky and should definitely be combined with other measures such as public education campaigns, improved protection of critical habitat, and increased restrictions on trade in endangered wildlife on the part of richer consumer nations with better capabilities to control and monitor such commerce.

COMMUNICATION WITHIN AND AMONG COUNTRIES

In general, there has been insufficient cooperation among the different institutions within each Central American country responsible for protection of flora and fauna, plant and animal quarantine and inspection services, customs and commerce departments, and military and police authorities regarding local commerce and international trade in wildlife resources. The same applies to cooperation among similar agencies between different countries of the region. This has been due mainly to a lack of initiative to achieve such cooperation, and the possibilities for improvement in this area are promising.

Occasional success stories point to the possibilities of collaboration. A good example is the recent filing of charges against a U.S. man, Barry G. Brown, owner of two USDA plant quarantine stations in California (Nilsson and Mack, 1980), in Costa Rica, for possession and intent to smuggle to the U.S. of monkeys, parrots, and macaws. The tip on the case was provided by an FAO adviser to the Costa Rican Forest Directorate, who alerted officials of the Wildlife Department and Judicial Investigation Organization (the local FBI), who found the animals in cages at Brown's luxurious San Jose residence (surrounded by television monitoring cameras). A local affiliate of the World Society for the Protection of Animals also helped by provided temporary shelter for the animals until they could be released to the wild.

Cases of non-cooperation are more common, such as the previously mentioned allegation by Nicaraguan authorities that their Costa Rican counterparts have not aided in stopping the crocodilian trade between the two countries.

Training and information exchange is one concrete area where increased collaboration within and among the countries of Central America could help improve control over local and international commerce in wildlife. Although the level of knowledge, especially of agency administrators and chief technicians regarding national and international wildlife trade regulations, has definitely improved in the last few years, the "men in the field" -- customs and quarantine inspectors, game wardens, police and military personnel -- still are almost universally poorly trained and uninformed regarding wildlife laws and their responsibility in enforcing them. To the authors' knowledge, no interinstitutional training event or formal meeting to discuss wildlife laws and/or institutional responsibilities has been held within any country of the region, although some internal short courses on the subject have been held for game wardens in several nations.

Cooperation among the countries of the region in training wildlife law enforcement personnel, standardizing wildlife legislation and trade procedures, and collaborating in joint investigations of the status and harvest possibilities of shared wildlife resources is minimal at best. The August 1983 Hemispheric Meeting on CITES Implementation in the U.S. was the first such event involving some Central American participants held to date. However, because the few Central American representatives at the event were in general knowledgeable wildlife department officials, and already convinced of the need for improved wildlife trade controls, it is doubtful that significant contributions in reducing trade at regional level will result from that meeting. Much more useful and less costly would be a Central American-level regional meeting on wildlife trade, with numerous participants from each country and observers from nearby nations (see recommendations).

It should be pointed out that the subject of wildlife trade has

been discussed in an number of national congresses and symposiums on wildlife, wildlands, and ecology held in the region during the last few years, and in international events including the First Central American Meeting on Wildlife (CATIE, 1978) held in Nicaragua and an OAS-sponsored meeting on Western Hemisphere migratory animals (OEA, 1979) (see annexes for recommendations of those meetings), and the Western Atlantic Sea Turtle Symposium held in San José in 1983.

With the exception of a 1983 meeting in Panama on the iguana and its possible management in captivity, sponsored by the Smithsonian Tropical Research Institute (STRI), few instances exist of cooperation among the nations of the region in wildlife investigations which could lead to improved management of wild and captive stocks of native flora and fauna. Particular important in this regard could be a setting of priorities for management-oriented research by country, to eliminate duplication of research events by the region's financially strapped wildlife departments and university biology departments.

Cooperation within each country in management-oriented research of wildlife populations is definitely better. Cooperative studies of marine and terrestrial floral and faunal populations are now being carried out in most countries of the region by government agencies, universities (both national and foreign) and research centers like STRI and the Organization for Tropical Studies (OTS). STRI and OTS have each placed increasing emphasis on their responsibility to train local scientists and carry out management-oriented research and shake their past images as "gringo ghettos".

International cooperation and assistance to Central American nations to aid them in evaluating and managing their wildlife resources has been very important in stimulating local conservation action. The U.S. Peace Corps, still active in Belize, Costa Rica, Guatemala and Honduras, and formerly in the other three countries, has provided a large number of volunteers to wildlife, forestry, fisheries and parks agencies, who have aided national counterparts in completing many baseline studies of wildlife populations, preparing recommendations on regulating local wildlife

utilization and the export trade, carrying out environmental education programs on wildlife, and contributing to wildlife reserve planning and management. STRI's Barro Colorado Island facilities in Panama and OTS's La Selva Field Station are two of the most thoroughly investigated sites in the American tropics and studies are increasingly management-oriented in both. A new STRI program involves conducting investigations of wild faunal species with possibilities for sustainable production in captive or semi-captive situations, including iguanas, tepezcuintles (Cuniculus paca) and agoutis (Dasyprocta punctata), which could result in reductions in pressure on wild populations of these species.

Many international conservation NGO's, including CATIE, WWF-US, IUCN, RARE, The Nature Conservancy, the Fauna Preservation Society, the International Council for Bird Preservation, and others, have aided in planning, establishment, and development of environmental education programs, systems of protected areas, and wildlife investigation programs in the region. A number of governmental agencies from developed countries have also contributed, including the U.S. National Park Service, which has provided numerous short-term consultants to parks agencies in the region and which has also provided instructors and financial support for many CATIE regional training activities related to wildlands management and environmental education programs. The U.S. Agency for International Development has sponsored loans and grants to Panamanian, Costa Rican and Honduran government agencies and NGO's including wildlands management and environmental education components. The National Marine Fisheries Service, with International Oceanic Commission financing, has assisted in turtle nesting surveys.

The U.S. Fish and Wildlife Service has provided a large amount of technical assistance to the countries of Central America directly related to wildlife protection and utilization. USFWS has provided consultants to aid in planning wildlife refuges, carry out manatee surveys, and serve as instructors in CATIE training events. On its own, USFWS annually sponsors a number of training courses held in the U.S. but for Latin American participants, on topics such as migratory bird management, crocodilian management and biology, and wildlife refuge management. A

discussion of crocodilian trade and observations of U.S. enforcement techniques is an important part of the crocodilian course. Little cooperation between USFWS and Central American wildlife departments appears to have occurred in the area of coordinating enforcement of wildlife laws and treaties, however.

U.N. affiliates have also aided the efforts of Central American nations to manage their resources. The International Oceanic Commission sponsored the Western Atlantic Sea Turtle Symposium and has financed nesting turtle surveys as noted earlier. FAO has provided much guidance in fisheries and forestry management, and UNESCO has supported personnel training, planning and management for the World Heritage Sites and Biosphere Reserves of the region.

The OAS, UNEP, and a host of other U.N., bilateral and multilateral aid agencies and NGO's have also provided financial and support to conservation efforts in Central America, and a large number of university professors and graduate student from educational institutions in the developed world have carried out investigations of Central America's wildlife resources, supported by grants from numerous research foundations. It should be noted that aid from outside the region has not always had a positive impact on the region's resources, nor has it always been offered "without a catch" -- aid from North American and European nations to "evaluate" forest resources has often led to resource over-exploitation, at times by companies from these same countries. For example, the Honduran pine forest resource has been rapidly depleted in just a few years in spite of (or better stated, due to) incredible quantities of outside technical expertise and loans to develop the forest sector in that country. Current offers by Asian nations to aid in the "assessment" of the fisheries resources of Central American nations should therefore be viewed cautiously.

CATIE is one of the major regionally -based institutions providing training and technical assistance in forestry, wildlands and watershed management, both through its graduate degree program and through the numerous short training events and regional meetings it sponsors or co-

sponsors yearly. Many of the previously mentioned institutions also collaborate in financing and providing instructors for CATIE events. CATIE's Wildlands and Watershed Program (WWP) has sponsored specific training activities on protected area planning and management, and aided in planning wildlife refuges. No specific training activities or meetings have been sponsored to date by WWP specifically on wildlife trade or law enforcement, but the program is definitely interested in co-sponsoring such events if additional financial and technical support can be obtained from other interested institutions.

A good final case in point to show the need for improved communication within countries, as well as between them and the CITES Secretariat, is the case of the Honduran ratification of the Convention. Honduras ratified CITES in 1979, through Resolution (Acuerdo) No. 16 of June 20 of that year, approved by Decree (Decreto) No. 777, published in the Government Register (La Gaceta) for September 24-25, 1979. As of August, 1983 however, all lists of CITES members do not mention Honduras. Officials at RENARE, the Honduran CITES management and scientific authority, stated in August, 1983 that they informed the Honduran Chancellory years ago of the need to deposit the instruments of ratification of CITES with the Swiss government. Evidently, this has never occurred, but since the situation has now been brought to the attention of RENARE, hopefully its staff will again push the Chancellory to finally deposit the instruments, a full four years after Honduras ratified CITES.

This incident seems to indicate that communication between the CITES Secretariat and both member and non-member nations is deficient. A simple letter to RENARE inquiring about the status of the ratification process in that country any time in the last four years should have caught this oversight. Unfortunately, Honduras has been shut out of CITES meetings and training events such as the recent hemispheric meeting of signatory nations in Washington, unjustly.

A similar situation exists with Belize, which considers itself a CITES member based on its Constitution which recognizes as valid all laws in force when the country was granted independence in 1981. Since it

was formerly a British colony, and Britain is a CITES member, the Belizeans continue to adhere to the convention, even if they haven't re-ratified as an independent nation. They have also been shut out of funding to attend CITES meetings and training events. The CITES Secretariat should at least maintain communication with the Belizean government authorities to push for re-ratification.

Similarly, the gentle urging to ratify CITES which could be expressed in occasional letters from the CITES Secretariat, could help speed the ratification process in El Salvador, and stimulate member nations to complete and forward to CITES the required annual reports of trade statistics which no Central American country has filed on a regular basis or with complete information.

In summary, cooperation between agencies within each country of Central America that are involved in some form in wildlife law enforcement and trade record keeping is dismal, and cooperation among agencies in neighboring countries is worse. Collaboration between different agencies and universities within each country in wildlife investigations, and between local institutions and collaborating government agencies and universities from developed countries in the same regard, is much better although there is still room for improvement. Greatly lacking is regional cooperation in wildlife investigations to use the limited research budgets available to maximum benefit and not duplicate investigative efforts.

International assistance from developed world government agencies, bilateral and multilateral aid agencies, and conservation NGO's has been extremely important in setting up protected areas and sponsoring training programs for forestry, wildlands, wildlife, and environmental education personnel. Although these actions have stimulated conservation action in Central America, little direct assistance has been granted from outside the region to train wildlife law enforcement personnel or encourage cooperation within and among the nations of the region in enforcing wildlife legislation, standardizing laws and trade procedures, or cooperating in evaluating the status of wildlife populations and their

potential for sustained yield utilization. Specific actions warranted to remedy all the above mentioned problems are given in the recommendations section.

CONCLUSIONS

The following conclusions are based on an analysis of the information compiled in the preceding sections and this report's annexes, on a thorough review of the available literature on Central America's wildlife resources, and on personal experiences of the authors in the region:

- 1) With the notable exceptions of crocodilians, sea turtles, manatees, and some Psittacines and song birds, local utilization and international trade are not at present the principal causes of declining populations of endangered floral and faunal species protected by CITES and national legislation in Central America. Direct utilization is undoubtedly a major secondary cause of decline in many other endangered species, including spotted cats, orchids and tree ferns, CITES listed timber trees, eagles and hawk-eagles, the tapir, otter, monkeys, and the boa constrictor. Direct utilization is also a major cause of decline of some commercially valuable species such as the spiny lobster, queen conch, white shrimp, the majority of tropical hardwood lumber trees not protected by CITES, some inshore marine bony fishes, and large numbers of freshwater fish and other aquatic organisms in areas where dynamiting and poisoning of streams are common.

- 2) Significant but generally declining illegal international trade is still occurring from Central American countries to other regions in species identified as endangered or threatened by local legislation or CITES. On a regional level such trade in hawksbill turtle shell appears to have the most severe impact on populations of that species, although some illegal trade in crocodilian skins and leather products, and in Psittacine birds, is also still occurring. Trade in marine mammals, felines, monkeys, corals and sea shells is very restricted or non-existent.

3) Subsistence consumption of wildlife and local sale of wildlife and wildlife products has a greater impact on most threatened and endangered species than the comparatively better regulated international trade in wildlife. Endangered species involved include Psittacine birds (for pets and food), sea turtles (eggs and meat for food, shells for jewelry and ornaments), orchids, tree ferns and cycads (ornamental plant use, plant growth medium), CITES protected tropical timber trees (artisanal woodworking, construction), felines (shot as pests and for skins used as wall-hangings), eagles and hawk-eagles (shot for talismans, as pests, for food), crocodilians and boa constrictors (shot for wall hangings and leather), manatees (shot for food) and quetzals (shot for decorative feathers) (Marcus, 1981; Neitschmann, 1977; Hartshorn et. al. 1982; Boyer et. al. 1980, Aguilar and Rivera, 1983; among others). CITES Appendix III species from Costa Rica and Guatemala which fall in this category include the Great Curassow, Collared Peccary, White-tailed Deer, Plain Chachalaca, Black Penelopina, Ocellated Turkey, Deppe's Squirrel, and to a lesser extent all other Appendix III species from these nations, the only countries of the region which have listed species on this Appendix.

4) A number of species currently not listed in CITES and only partially protected or unprotected by national legislation are subject to considerable population pressure due to local subsistence consumption, and local and international commerce. These include ornamental plants currently not listed on CITES, tropical aquarium fish, sawfish, sharks, some songbirds, the garrobo or ctenosaur, large rodents, fresh water turtles, and some fresh water fish. The impact of utilization on stocks of most of these species is at present unknown.

5) The sale of protected wildlife and wildlife products to foreign tourists is probably as important as direct export of most traded species. The species involved include crocodilians and boas (skins and leather products), sea turtles (shells of most and jewelry from hawksbills), Psittacine birds (taken back as personal pets and not unfrequently for immediate resale at tremendous profit), spotted cats (skins) and black coral (jewelry).

6) Importation of wildlife and wildlife products into Central America is very limited when compared to the region's wildlife exports. Small numbers of tropical fish and exotic birds are imported annually by all countries, and undetermined quantities of ivory and ivory products are imported by Panama. Importation of wildlife and wildlife products from nearby nations for later re-export to North America, Europe and Asia was very important until recently, especially in Panama, but tighter controls in producer countries, final importers, and Panama itself have now greatly reduced this trade.

7) The role of subsistence consumption of wildlife and use of wildlife products by rural inhabitants throughout the region has been well documented in numerous anthropological studies, especially of indigenous groups such as the Miskitos in Honduras and Nicaragua, Bribris and Cabecars in Costa Rica, and Guaymis, Kuna and Chocos in Panama. The existence of knowledgeable local hunters plays an important role in facilitating local and international commerce in wildlife, since such individuals, usually extremely poor, willingly cooperate with middlemen and wildlife dealers by killing or capturing commercially valuable species and selling them at extremely low prices, which have no relation to their market value and do not contribute to the sustainable development of impoverished rural communities. The spreading use of sophisticated weapons by indigenous groups and high population growth among both Indian and colonist communities is increasing the impact of their utilization of wildlife resources.

8) The Central American country which at the present time is the most important in both legal and illegal trade of CITES protected wildlife species is Honduras. Large quantities of Psittacine birds and reptiles are exported annually from Honduras legally under a quota system which Honduran biologists admit is not based on sufficient studies of the sustainable harvest potential of affected species. The presence of this legal trade avenue has also spawned illegal counterparts --smuggling of Psittacines from Guatemala and Nicaragua to Honduras for later export and illegal exports beyond quota limits by "legal" exporters. Panama is an important hawksbill turtle shell exporter, although exports have

decreased markedly due to apparent overharvest in recent years. As noted, transshipment of skins from Panama to Colombia is also still occurring. Several Central American countries are important orchid exporters, and tree ferns valuable as plant growth medium, are exported in large quantities from Guatemala and Costa Rica.

9) The proportionately large and prosperous foreign communities of diplomats, international aid agency personnel, military civilian advisers and investors, businessmen and expatriate retirees throughout the region are important consumers of wildlife and wildlife products such as cat skins, orchids and Psittacines and often later take back such live specimens and products to their own countries for personnel use or resale.

10) Intraregional trade, almost all illegal, occurs for a number of wildlife species between Central American countries. The most important problems involve shipments of Psittacines, clams, iguanas and garrobos from Nicaragua and Honduras to El Salvador, the region's only net wildlife importer, the shipment of crocodilian skins from Nicaragua to Costa Rica and from Panama to Colombia; the smuggling of lobster, conch and bony fish from Belize to Mexico (Yucatán); the smuggling of hawksbill shell from Costa Rica to Panama and from that country to Colombia; the pirate fishery of green turtles by Cayman Islanders off eastern Nicaragua and Honduras, as well as possible smuggling of hawksbill shell from the Caribbean coast of Central America to the Caymans; and the smuggling of Psittacines from Nicaragua and Guatemala to Honduras for re-export.

11) Introduction and release to the wild of some exotic wildlife species, especially fresh water fish, is a major problem in Central America. Introduction of the largemouth bass (Micropterus sp.) to Lake Atitlan in Guatemala and Lake Yojoa in Honduras has contributed to the decline in the flightless Atitlan Grebe, listed on CITES Appendix I, in the first, and extinction or reductions in the populations of many native fish in both (LaBastille, 1978). The affects on local artisanal fisheries in both lakes have also been negative since bass are harder to catch, and the advent of sport fishing industries catering to foreigners has not

provided alternative employment opportunities for local fishermen. In Panama, the introduction of the exotic Sargeant Fish, Cichla ocellaris, has caused great ecological damage: plankton and primary production levels are down and seven native fishes have been eliminated from the lakes (Boyer et. al., 1980). The introduction of rainbow trout into many high altitude streams in Costa Rica and Panama is potentially the most serious of the fish introductions. Many biologists fear that the trout will have a serious impact on populations of native invertebrates and especially amphibians, many endemic to the southern Costa Rica - western Panama highlands, which have evolved reproductive strategies in fish-free waters and whose populations might be seriously threatened by the trout's predation on their young (Hartshorn, et. al., 1982).

12) The Africanized bee has now spread into Panama and Costa Rica, and its continual spread northward will require a considerable adjustment in local beekeeping industries' technology.

13) Few native wildlife species are economically important agricultural pests in Central America. Parrakeets and tree ducks eat grains and fruits, pocket gophers damage many crops and pastures, and felines, coyotes, mustelids and raccoons and opossums occassionally prey on farm livestock and poultry. Even though no endangered species are important pests, the occassional incident involving animals such as jaguars is used by rural dwellers to justify their "shoot on sight" philosophy toward such species (Hartshorn, et. al., 1982).

14) Reliable information on the true current status and trends in the populations of endangered and threatened species protected by CITES and national legislation is sorely lacking for nearly all such species. Wildlife agencies throughout the region, as well as university biology programs, are understaffed and have few biologists available to work on population surveys and development of management techniques. Reliable inventory techniques for many species have yet to be developed. Some recent progress has been made, however, with nesting turtle and manatee surveys region-wide, sea turtle repopulation efforts, and local studies on quetzals, doves, deer, peccaries, tapir, and other species.

Development of a method to estimate the status of supposedly endangered species in Costa Rica through analysis of known population densities for such species, evaluation of known distribution, and studies of minimum habitat size to support genetically viable populations deserves special mention (Vaughan, 1982).

15) Additional efforts need to be directed to investigations oriented toward farming or ranching endangered and/or economically important species, especially crocodilians, large lizards, frogs and toads, large rodents, ornamental and medicinal plants and timber trees.

16) Most countries of the region have very limited human resources with which to enforce conservation legislation. Personnel when available often is poorly trained and worse paid, which helps foster corruption and disinterest in controlling trade and local utilization of wildlife. Cooperation among the responsible agencies in each country, and between countries, is sorely lacking. Assistance from government agencies and NGO's of developed countries, especially the nearby United States, has been a positive force in research, protected area establishment and personnel training, but specific assistance to help deal with the wildlife trade problem has been minimal.

17) Awareness on the part of rural dwellers of Central America regarding the impact of their often uncontrolled utilization of endangered wildlife is minimal. Rural inhabitants are often very poor and persons concerned about the source of their next meal cannot be expected to change their attitudes toward wildlife easily. Widespread improvement in their environmental consciousness will take decades and is dependent on major socioeconomic changes. Efforts to improve their awareness and cooperation should focus on communities near protected areas and important habitats for protected and/or endangered species (watercourses with manatees, lagoons, estuaries, turtle nesting beaches, etc.).

18) Environmental awareness among urban inhabitants in Central America is better than that of most of the region's rural dwellers, and improving thanks to increasing emphasis placed on national environmental

education campaigns by education ministries and natural resource agencies throughout the region. More emphasis should be placed in such programs on the need to control wildlife trade and utilization, through poster and billboard campaigns, radio and TV announcements, and nature center exhibits explaining why consumers should not buy products such as turtle eggs, pet songbirds, Psittacines, and reptile leather, and other wildlife products. Such EE programs, aimed primarily at more affluent urban populations, can be expected to be more successful than those aimed at comparatively poorer rural populations.

19) The target group which can easiest be reached and convinced to reduce its contribution to wildlife commercialization and trade is that of foreign tourists. Strategic placement of permanent posters displays and announcements in airplanes, airports, border posts, hotel rooms, elevators and lobbies, tourist brochures and English-language newspapers can achieve saturation coverage of this group with limited expense. Such campaigns, which should inform tourists of the reasons why they should not buy wildlife and wildlife products, including legislation in Central America and their home countries and the possible penalties involved if they are discovered bringing back such products to their countries, would undoubtedly be worth the investment.

20) Because of the limited financial and human resources available in all countries of Central America to control illegal utilization and commerce in wildlife, enforcement efforts, a necessary counterpart to educational programs, must be concentrated where their lasting impact is greatest. The common policy in most Central American countries of having wildlife/fisheries inspectors spread across the country is obviously not having the desired impact. Selection and training of a small number of inspectors (1-5 in each country) to deal exclusively with wildlife commerce, and work full-time inspecting markets, restaurants, tourist and souvenir shops, major source areas for traded wildlife, airports, ports and border ports is suggested as a better strategy to control wildlife commerce. If combined with efforts to better coordinate enforcement with customs, migration, plant and animal quarantine, and police authorities within and between countries, such a strategy would

probably have much greater impact on wildlife commercialization. This would be especially true if such enforcement campaigns were coupled with efforts to increase penalties for wildlife law violators, which at present are extremely light in all countries.

21) Habitat destruction is a far worse environmental problem and greater threat to survival of almost all endangered species of wildlife in Central America than direct utilization of wildlife for subsistence consumption, local commerce and international trade combined (LaBastille, 1978; Myers, 1979). Therefore, the establishment and management of a well designed regional network of protected natural areas should definitely receive the lion's share of the limited human and financial resources available from national wildlands and wildlife management agencies and international conservation organizations through the foreseeable future in the Central American region. With few exceptions, most endangered animal species of the region prefer uninhabited, unaltered natural forest habitats which will be almost completely eliminated, outside of protected areas, within a few years, or reduced to small patches. These patches, and even a large number of the existing and planned conservation units in the region, are or will be so small that even with a total and well-enforced ban on utilization in any form populations will either go extinct or gradually lose genetic viability anyway (Vaughan, 1982). For these reasons, national and international support to increased controls on utilization of endangered species should be limited to the specific activities described in this report's recommendations section.

23) Although many factors contribute to whether a country does or does not control wildlife utilization and trade, several factors stand out. One is the existence of well designed legislation. Even the best laws, however, are worthless unless at least a small number of dedicated and well trained government officials, especially from wildlife departments, make efforts to enforce laws and regulations, and violators receive sufficient punishment to deter further offenses. The activity of the international wildlife market in each country is important in generating demand for wildlife and wildlife products. The current situation in Honduras with Psittacine birds, and the existence of a major

re-export trade in wildlife from Panama until recently, are examples of the influence of foreign businesses, which actively promote wildlife trade, on local use patterns. The existence of foreign tourists and residents in large numbers in some countries of the region also creates additional outside demand for products such as black coral, hawksbill jewelry, cat skins, pet birds and crocodilian leather goods. Finally, official tolerance of souvenir and clothing shops which cater to affluent nationals and foreigners, and which sell large quantities of such items, promotes a large "hidden trade" in wildlife and wildlife products which for the most part goes unreported or underestimated in the literature, because luggage of most foreigners returning to their home countries from Central America is not thoroughly searched, and just a small fraction of wildlife imported in this manner is intercepted by authorities.

GENERAL RECOMMENDATIONS

Subsistence utilization, local commerce and international trade are as noted not the major conservation problems in Central America -- their impact is limited to a very small percentage of the endangered organisms of the region, and most individuals of those species used are culled from remnant populations which will be exterminated through much of their ranges through habitat destruction in just a few years, even if direct utilization stops tomorrow. Thus it should be clear that through the foreseeable future, the majority of available human and financial resources available to aid in wildlife conservation in Central America should go toward establishment, protection and management of a representative system of protected wildlands in each of the nations of the region.

There are, however, a number of measures related to wildlife trade and utilization which deserve immediate attention and action by national authorities and for which support from international organizations and developed country governments is recommended. These include the following:

- 1) Improved training of wildlife inspectors, game wardens, customs officials and other personnel involved in wildlife law enforcement.

- 2) Better cooperation, within each country, among the nations of the region, and between them and governmental and non-governmental institutions from outside Central America, in training wildlife personnel, unifying legislation and trade procedures, enforcing regulations, and carrying out wildlife investigations.
- 3) Education campaigns aimed at the populations of the countries of Central America and foreign tourists to make them more aware of the need to better control wildlife utilization and trade.
- 4) Research to determine the current size and trends in populations of threatened, endangered, and economically important wildlife species and to determine the feasibility of sustainable utilization of wild stocks and/or captive bred, ranched and farmed populations of the same.
- 5) Ratification of and adherence to CITES of all nations of the region: ratification by El Salvador; re-ratification as an independent nation by Belize; deposition of the instruments of ratification by these nations and Honduras; and better compliance with CITES convention stipulations by the other countries of the region, all CITES members (Costa Rica, Guatemala, Nicaragua and Panama).
- 6) Stricter legislation and regulations, and improved law enforcement to better control direct international trade and local sale of wildlife and wildlife products from the three wildlife groups most directly threatened by such commerce: sea turtles, especially the hawksbill; non-marine reptiles, especially crocodilians and the boa constrictor; and Psittacine birds, especially Amazona parrots and macaws.

SPECIFIC RECOMMENDATIONS

The following specific recommendations for action on wildlife trade by Central American governments and the international community are directly related to the general recommendations outlined in the previous section, and describe those activities felt to warrant immediate action by appropriate authorities.

Training

There is obviously great room for improvement in the professional training of wildlife inspectors, game wardens, customs and quarantine officials, and other authorities involved in wildlife law enforcement in Central America. Two levels of training are considered to be of highest priority and deserve national and international support: national and regional courses for enforcement personnel.

1) National Courses:

Over a three year period (1985-1987), it is recommended that at least one basic training course be held for all wildlife inspectors and game wardens in each of the six Spanish speaking nations of Central America. Judging from experience with similar events held for park rangers in several nations of the region, these courses would probably be most effective, economical, and easiest to organize logistically if held for approximately three weeks in a field location (such as a national park), with basic accommodations and kitchen facilities. Content of such courses should of course vary somewhat from country to country, but all should include basics of wildlife management and conservation, principles and techniques of environmental education, principles of law enforcement, national wildlife legislation and international agreements and treaties, use and maintenance of firearms, self defense, first aid, public relations, and similar topics. Lectures should be interspersed with illustrative practical activities such as simulated arrests, preparation of educational materials, identification of wildlife and wildlife products, emergency first aid demonstrations, etc. To encourage regional cooperation, at least one representative from each neighboring country should participate in each national course (for example, one each from Nicaragua and Panama in a Costa Rican course). Also, at least one representative from all other national agencies involved in wildlife law enforcement besides the wildlife departments, such as plant and animal quarantine/inspection services, customs, armed forces, and national police should be invited to each national course to improve inter-institutional understanding and cooperation within each country.

The number of participants in each course would vary; however, the maximum suggested for logistical reasons and to maintain an acceptable

student-teacher ratio is 30. Instructors should include knowledgeable national biologists, quarantine officials, wildlife department chiefs, police and military officials, first aid experts, representatives from environmental education departments, and lawyers with knowledge of national and international conservation law. To organize the courses and provide continuity and uniformity, it is recommended that the U.S. Fish and Wildlife Service offer assistance in the form of a full-time course instructor for each national course. Hopefully, two such instructors could be assigned by the USFWS: each would teach in one course a year over a three year period. These instructors should have Spanish language fluency, past experience in Latin America, thorough knowledge of wildlife law enforcement and proven teaching ability.

Total cost of each such course, if held in a field location with minimal lodging costs would probably not exceed \$10,000, excluding salary and international transportation and per diem costs for USFWS instructors. These instructors would need to be available for a minimum period annually of six weeks per course, to allow for adequate pre-course planning (2 weeks) and post-course wrap-up (1 week). National authorities should be expected to pay a considerable part of the costs of organizing the courses, such as local transportation, outfitting of classrooms and dormitories, provision of cooks and secretarial services, etc. It is suggested that the remaining costs of each event (from four to eight thousand dollars) be made available through USFWS and cooperating non-governmental conservation groups such as WWF-US.

Since the number of individuals involved in wildlife law enforcement in predominantly English-speaking Belize is so small, organization of such a course there would not be cost-effective. As an alternative, it is recommended that Belizeans with Spanish language ability be invited to warden courses in neighboring countries, and that the interinstitutional meetings recommended in the following section to improve wildlife law enforcement in each country of the region be especially emphasized in Belize.

2) Regional Training Course:

As a prelude to initiating national training courses for wildlife law enforcement personnel in each country of Central America, it is recommended that an initial region-wide training course be held for such personnel from all countries of Central America. Such a course could rapidly train a core group of wardens from throughout the region and serve as a testing ground to develop the curricula for later national courses. To keep logistical problems to a minimum, such an event could possibly be held at CATIE, where excellent classroom, lodging and cafeteria facilities are available at nominal cost.

Participants should include experienced game wardens and wildlife inspectors from all Central American wildlife departments, as well as customs service and plant and animal quarantine department representatives. A total of 4-5 representatives per country could be invited, or a total of about 30 students. Belizean participation would depend on locating acceptable candidates with Spanish language ability. At least one participant should also be invited from Mexico and Colombia.

Course content would be similar to that proposed for the national training courses, with the addition of comparative analyses of each country's wildlife laws.

Course instructors would hopefully include the two USFWS representatives who would later teach in and help organize the individual national training courses, at least one knowledgeable biologist working in the region, probably in Costa Rica, and CATIE WWP staff. Part-time instructors would include conservation law experts, environmental education specialists, first aid, firearms, and self-defense teachers. The USFWS representatives and local biologist would have to arrive at CATIE at least two weeks before the course to prepare materials and complete final program planning, and would need to stay at CATIE at least two weeks after the three-week course to prepare outlines and revise instructional materials for the national courses hopefully to follow.

Based on past CATIE experience in holding similar events, total costs would probably be about \$20,000 excluding salaries for CATIE and USFWS

instructors and international transportation costs for the latter.

In the case funds and personnel cannot be obtained to hold all the individual national training courses, a lower-cost alternative would be to hold just two regional training events over the 1984-1987 period, or hold just one national course per year during 1985-1987 but invite more representatives from other countries of the region to each.

Cooperation

1) Regional Seminar on International Trade in Wildlife:

There is no doubt that improved regional cooperation in dealing with wildlife trade requires first and foremost better communication among responsible agencies and individuals involved in controlling the trade in the region.

As an attempt to partially meet this need, a Western Hemisphere meeting of representatives of wildlife agencies of CITES signatory nations was held in August, 1983 in Washington, D.C.. Although the idea of the meeting is excellent, its short duration, the cost of holding the event in the U.S., the small number of representatives present, and its limitation to CITES members leads to doubts about its cost effectiveness and real impact on reducing illegal wildlife trade in the region.

As a future alternative to holding more such costly events, it is recommended that a Central American regional seminar on wildlife trade be held in late 1984 or early 1985, to include national delegates from all the Central American nations and observers from Colombia, Venezuela, Mexico and the U.S.. Such an event, if held for seven days at CATIE, would have a total cost of approximately \$20,000 for an event attended by at least three representatives from each country (wildlife departments, plant and animal quarantine/inspection services, and police or commerce authorities).

Major topics of the meeting would be standardization of trade procedures, legislation, cooperation in enforcement of wildlife law, and related subjects. To help offset the costs of organizing such an event, observers from non-governmental conservation groups could be

charged a registration fee (\$150-250).

CATIE's WWP, it should be pointed out, is not interested in organizing this event, but rather serving as an inexpensive, centrally located site to hold it. Its Wildlands and Watershed Program staff could no doubt assist greatly in logistical planning as well. It is suggested that this event be sponsored and financed by the CITES Secretariat and Traffic-USA (WWF-US) with secondary support from USFWS and other conservation NGO's besides WWF-US.

- 2) Interinstitutional and agency meetings in each country of the region to discuss improved cooperation in wildlife law enforcement:

Improved inter-agency cooperation among wildlife, customs, police, and agricultural inspection authorities within each country of the region is definitely needed if wildlife trade and local commerce are to be better controlled. A concrete "first step" to achieve such cooperation would be the organization of one-day national seminars on these subjects for mid and upper level representatives of the institutions mentioned above. In such meetings, national wildlife trade and commerce problems, local legislation and international accords, trade and commerce procedures, and institutional responsibilities to control and monitor wildlife trade could be discussed by participants and speakers. These speakers could include not just nationals representing wildlife departments, commerce, police and agricultural inspection authorities, but also, to add to the meetings' appeal and importance, representatives from CITES, WTMU, TRAFFIC-USA and USFWS, with Spanish language ability.

These one-day interagency meetings could be followed by several days of courtesy visits and internal meetings with personnel from all agencies which play (or should play) a role in wildlife commerce control, by the USFWS, CITES, WTMU, and/or TRAFFIC-USA representatives and local Wildlife Department Staff.

If CITES, WTMU, TRAFFIC and USFWS are interested in supporting and participating in these meetings, it is suggested that they be held consecutively in the seven nations of the region sometime in late 1984 or early 1985. CATIE's WWP staff could aid in making initial contacts with key agencies in each country. Participation by CITES, WTMU, TRAFFIC and USFWS staff would probably be most effective if before the start of the series of meetings they travel to CATIE for a general briefing on

the wildlife trade and legislation situation in Central America, and to prepare lecture and meeting programs with WWP staff. Also helpful would be to start the meeting series in Costa Rica after the session at CATIE, with WWP assistance, and then to make necessary adjustments in meeting programs based on the initial experience there, before continuing the series in other Central American countries.

The total cost of this meeting/lecture series would probably not exceed \$2500 per country, including per diems for international lecturers, costs of complimentary lunches and cocktails for national meeting participants, and program and handout costs. To this must be added an extra \$250 per participant for the briefing/planning session at CATIE (10 days), approximately \$350 per week per diem costs for each and their international airfare and salary costs. To complete the meeting series quicker, two of the meeting lecturers from among the WTMU, CITES, TRAFFIC, USFWS, and CATIE participants could split up (if all or most of these institutions agree to participate) and two of the national meetings could be held simultaneously. Thus the entire series, including the pre-lecture briefing at CATIE and a final two or three day session there to review the success of the meetings and discuss future regional priorities to better control wildlife trade in the region, would take about four to five weeks.

Educational Campaigns

Increased efforts need to be devoted to improving public awareness by the Central American populace and foreign tourists and residents regarding the need to restrict and rationalize wildlife utilization and trade. Three specific recommendations in this regard are the following:

- 1) All environmental education programs and departments in Central America are urged to include materials and discussions on wildlife trade and local utilization of endangered wildlife, with emphasis on those species and groups most threatened by such use -- Psittacines, sea turtles, crocodilians, song birds, manatees, felines, and freshwater fishes (where poisoning and dynamiting occur).

2) Continued, and increased international support to environmental education programs by the international community is warranted, especially by RARE, WWF-US, the Center for Environmental Education, and AID. WWF-US and RARE are urged to create and distribute a standard set of bilingual posters, displays and similar EE materials for wide regional distribution in airports, hotels, tourists attraction and border posts, aimed at foreign tourists, to point out to them the local regulations and CITES provisions which limit commerce and trade in wildlife products, the restrictions and penalties possible for law violators, and the reasons for restrictions on commerce in endangered species. Such a standardized set of materials could be used not only in Central America, but also in the rest of Latin America, and could be produced and distributed at a very reasonable cost, with the help of national wildlife departments and environmental education programs throughout the region. Total cost of such a project should not exceed \$10,000-15,000.

3) Although the number of environmental education materials produced in or applicable to the nations of Central America has increased rapidly in the last few years, no specific audiovisual programs on commerce and subsistence utilization of endangered wildlife has been produced in or for the region. WWF-US and RARE are urged to sponsor production of a program in Spanish and English on the topic, primarily oriented toward local audiences. It is suggested that the Environmental Education Program of the National Open (Extension) University of Costa Rica (UNED) be contracted to prepare such a program because of its considerable experience in producing similar slide-tape shows on environmental topics. Total costs of producing such a show and distributing 150 copies would probably not exceed \$7,500.

Research

Universities and foundations which sponsor biological research in the Central American countries are strongly urged to provide more funding for management-oriented research on economically important and endangered plant and animal species, and on the development and application

of techniques to accurately monitor populations of such species. National governments of the region are strongly urged to increase funding for management research by wildlife, fisheries and forestry agencies as well. It is recommended to FAO and USFWS that they increase technical and financial aid to these efforts and to investigations of the possibilities of ranching and/or farming endangered species of economic importance, such as Psittacines, crocodilians, iguanas, and boas. STRI and OTS are strongly urged to expand their current programs in these regards as well.

Ratification of and Adherence to CITES

One Central American country, El Salvador, has never ratified CITES. It is strongly recommended to the government of that country that it ratify the convention as soon as possible. Belize, still complies at least partially with the stipulations of the convention but has not ratified it as an independent nation and its government is strongly urged to do so. Honduras, although it ratified the convention in 1979, has never deposited the instruments of ratification to officially become a CITES member, apparently through an oversight, and is urged to quickly take this simple step. Costa Rica, Nicaragua, Panamá and Guatemala, although all CITES members, have been lax on filing required annual wildlife trade reports with the CITES Secretariat. Those reports which have been filed have been incomplete. All of these countries are urged to better comply with CITES reporting and enforcement stipulations.

Stricter legislation, regulations, and law enforcement

As noted earlier, the need for comprehensive national wildlife legislation is particularly urgent in El Salvador and Honduras, which currently lack such laws. Quick passage of such legislation in these two nations is strongly recommended to their governments. They are also urged to include in such legislation provisions which ban international trade and local commerce in specimens and products of CITES-listed and locally threatened wildlife species, which provide for strong fines and jail sentences, which create specific funding sources for wildlife departments, that enable them

to adequately protect and manage wildlife resources. All other nations of the region are urged to strengthen their wildlife legislation in these three areas as well.

All nations of the region which issue regulations on wildlife utilization, either by decree or administratively, are urged to strengthen such measures to further restrict wildlife trade and utilization. Wildlife departments are also urged to strengthen the permit review process before authorizing wildlife exports, even by tourists, especially of Psittacine birds.

All nations of Central America which have not already done so are urged to impose immediate moratoriums on commercial exports of all CITES-listed and locally threatened wildlife species, until sufficient studies conclusively show that limited, controlled harvest of wild populations of these species will not further endanger their survival.

All nations of the region are also urged to further restrict tourist purchase and export of wildlife and wildlife products through crackdowns on shops, markets and street vendors which cater in wildlife and wildlife products.

As explained in the conclusions section, the current practice of distributing wildlife and conservation law enforcement personnel nationwide in most countries of Central America should be augmented and/or partially replaced by assignment of a small number of well-trained individuals to work full-time on controlling wildlife trade, through constant inspections of shops and markets, observations in airports and at border posts, constant coordination and communication with other agencies which can provide assistance in controlling wildlife trade (customs, police, agricultural inspection authorities), and undercover work in sources areas for wildlife and wildlife products in commerce.

Specific campaigns by national wildlife departments to restrict trade in those species and groups most endangered by such trade are strongly recommended in the following cases:

Belize: to search for measures which will stem smuggling of seafood products to México, and to investigate the possibility that smuggling of Psittacines is occurring to Belize from Guatemala.

Honduras: to ban commercial Psittacine exports until the populations of trade species can be thoroughly assessed as to their harvest potential; to determine the extent of illegal hawksbill turtle shell being trans-shipped to the Cayman Islands from Honduras, and to gain passage of a comprehensive wildlife law.

El Salvador: passage of a comprehensive wildlife law and ratification of CITES must precede any enforcement measures.

Nicaragua: to investigate illegal wildlife shipments to Cuba; to cooperate with Honduran authorities in stemming the smuggling of Psittacines to the latter country for re-export; to intensify efforts to eliminate the pirate turtle fishery by Cayman Islanders in Nicaraguan waters; and to cooperate with Costa Rican authorities in restricting crocodilian leather product and skin exports to the latter country.

Guatemala: to investigate possible bird smuggling to Belize; to cooperate with Honduran authorities in eliminating Psittacine smuggling to the latter country for later re-export; to crack down on illegal direct exports of orchids and Psittacines.

Costa Rica: to crack down on local commerce in crocodilian leather products and cooperate with Nicaraguan authorities in stopping trade in such goods from Nicaragua.

Panamá: to investigate the origin and quantities of ivory products being sold in Panamá as a prelude to possible enforcement action; to crack down on hawksbill turtle shell exports; and to increase efforts to restrict the transshipment of wildlife products between Panamá and Colombia.

United States: to improve cooperation and communication between the enforcement branch of USFWS and wildlife departments in Central America.

BIBLIOGRAPHY

- Abbott, R. Tucker. 1980. The shell trade in Florida: status, trade and legislation. Washington: Traffic-USA Special Report # 3. 85 pp.
- Aguilar, Marco A. and José L. Rivera. 1983. Situación actual de la fauna silvestre en Guatemala. Paper presented at the 1st Guatemalan Seminar-Workshop on Wildlands, Guatemala, C.A., June 1983. 44 p.
- Anon. 1983. WATS computerized data base. From the WATS national reports for the Western Atlantic Sea Turtle Symposium, San José, Costa Rica, July, 1983. Irr. pag.
- Boyer, Jeffory et al. 1980. Draft environmental profile of Panamá. Washington: International Science and Technology Institute. 258 pp.
- Campanella, Paul et al. 1982. Honduras: country environmental profile. McLean, VA: JRB Associates. Irr. pag.
- Campbell, Faith T. and Jan Tarr. 1981. The international plant trade: still unregulated. The Environmental Journal. April, 1980. pp. 11-15.
- CATIE, 1978. Memorias de la Primera Reunión Regional Centroamericana sobre Vida Silvestre. Matagalpa, Nicaragua, Julio 1978. Irr. pag.
- González, José R. 1980. Comercialización de animales silvestres en Honduras. Tegucigalpa, Honduras: RENARE. 22 pp.
- Hartshorn, Gary et al. 1982. Costa Rica: country environmental profile. San José, Costa Rica: Tropical Science Center. 123 pp.
- INAFOR, 1981. Estudio sobre exportaciones de fauna y flora silvestre de Guatemala de enero de 1978 a diciembre de 1980. Guatemala; C.A. 24 pp.
- Inskipp, Tim and Sue Wells. 1979. International trade in wildlife. London: International Institute for Environment and Development. 104 pp.
- IUCN (1979-1983). IUCN/SSC Traffic Group Bulletin, Vol. I, 1-9; Traffic International Bulletin, Vol. I, 1-9, Vol. II, 1-9/10; and WTMU Traffic Bulletin, Vols. III-V; all issues to date.
- LaBastille, Anne. 1978. Facets of wildlands conservation in Central America. CATIE: Turrialba, Costa Rica. 37 pp.
- Mack, David et al. 1979. The sea turtle: an animal of divisible parts. Washington: WWF-US Traffic-USA Special Report No. 1. 86 pp.
- Mack, David. 1983. Worldwide trade in wild sea turtle products: an update. Marine Turtle Newsletter. No. 24, March 1983.

- Marcus, Mickey. 1981. Aprovechamiento de fauna silvestre y avifauna. Reserva de la Biosfera Río Plátano. Tegucigalpa, Honduras, RENARE. 9 pp.
- McCarten, Niall *et al.* 1981. The international trade in plants focusing on the U.S. A preliminary report. Working draft. Washington: WWF-US Traffic-USA Special Report # 4. Irr. pag.
- Neitschmann, Bernard. 1977. Memorias de Arrecife Tortuga; Historia Natural y Económica de Las Tortugas en el Caribe de América Central. Managua, Nicaragua: Banco de América. Colección Cultural, Serie Geográfica y Naturaleza. No. 2. 258 pp.
- Nilsson, Greta. 1977. The bird business, a study of the importation of birds into the United States. Washington: Animal Welfare Institute/Humane Society of the U.S./WWF-US. 82 pp.
- Nilsson, Greta and David Mack. 1980. Macaws: traded to extinction? Status, trade and legislation. Washington: WWF-US Traffic-USA Special Report # 2. 136 pp.
- OEA (OAS). 1979. Memoria, Reunión Técnica sobre Conservación de Animales Migratorios del Hemisferio Occidental y sus Ecosistemas. Panamá, Junio 1979. 68 pp.
- Oldfield, Sara. 1981. The trade in tree ferns. In: WTMU Traffic Bulletin, Vol. 11, No. 3-4. pp. 30.
- Rockstroh, Peter. 1983. El estado actual de la fauna en Guatemala. Presented at the First Seminar/Workshop on Wildlands, Guatemala, June, 1983. Irr. pag.
- Roet, Emily *et al.* 1981. Psittacines imported by the United States (October 1979-June 1980). Washington WWF-US Traffic-USA Special Report # 7. 70 pp.
- Serrano, Francisco. 1977. Supervivencia o extinción, dilema de nuestra fauna. San Salvador, El Salvador: Ministerio de Agricultura y Ganadería, Dirección de Parques y Vida Silvestre. 27 pp.
- Shane, Douglas. 1980. Edging toward extinction: a report on the status of wildlife in Latin America. Washington: Institute for the Study of Animal Problems. 52 pp.
- Vaughan, Christopher. 1982. A report of primary habita of Costa Rica endangered wildlife species. Heredia, Costa Rica: Universidad Nacional Autónoma/United States Department of the Interior. 57 pp.
- Whitelock, Coran. 1978. The twilight of the cycads. Garden. Sept-Oct. 1978.
- WWF-US. 1979-1983. WWF-US Traffic USA Bulletin. All Issues Vols. I-IV.
- WWF-US. 1983. Proposal, study on wild animal and plant trade regulation in Central and South America. Unp. Manus. 11 pp.

Zelaya, Víctor M. 1979. Uso comercial de la fauna silvestre en El Salvador. San Salvador, El Salvador: Ministerio de Agricultura y Ganadería, Dirección General de Recursos Naturales Renovables. Irr. pag.

Note: see also individual footnotes in the section on Wildlife Legislation and reference sections of support materials included in Annex V.



CENTRO AGRONÓMICO TROPICAL DE INVESTIGACION Y ENSEÑANZA

Turrialba - Costa Rica - Teléfonos: 56-64-31 - 56-01-69 - Telex: 8005 CATIE C. R. - Cable: CATIE Turrialba

RNR-2754
October 20, 1983

Mr. Michael Wright
Vice President
World Wildlife Fund-U.S.A.
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U.S.A.

Ms. Linda Mc-Mahon
Director
TRAFFIC-U.S.A.
1601 Connecticut Ave. N.W.
Washington, D.C. 20006
U.S.A.

Dear Mike and Linda:

Enclosed, finally, is the report on the wildlife trade study in Central America titled "Status and Trends in International Trade and Local Utilization of Wildlife in Central America" by the PASC staff (Jim Barborak, Róger Morales and myself).

The document enclosed is the main body of the report. Jim Barborak already has sent you the five bulky annexes which should be appended to this document to form the complete report.

We all consider that the report more than fulfills the original scope of work and objectives of the study, since it goes well beyond those. It is hoped that particularly TRAFFIC-USA and WWF-USA, but also USFWS, WMTU, AID, IUCN, WWF-International, and other international and bilateral agencies and institutions, will find it very useful both as a succinct summary of the wildlife problems in the region and as a guide to further more in-depth study and, especially, a strategy for support and action to help the countries of the region begin to solve those problems.

In that regard, the following are some main points and ideas for follow-up discussion and action:

1. Circulation of the full report in a confidential manner to a limited, select group of organizations for their comments. That would include at least WMTU, TRAFFIC International, USFWS, IUCN, WWF-International and the main national

agencies responsible for wildlife protection and management in the Central American countries.

2. Publication of the main body of the report, without annexes due to their bulk and the confidentiality of much of the information and sources, for wide distribution internationally (in English) and in the region (in Spanish), requesting critiques and comments.

3. Formation, soon, of a small work team to discuss and develop in somewhat more detail the strategy/action plan for follow-up activities. As a basis for that the "Recommendations" section of the report presents in basic form what we consider to be a clearcut, practical and achievable strategy for the next 3-4 years, to greatly strengthen the national agencies and, thus, begin to solve most of the region's wildlife trade problems. That set of activities, particularly the training and coordination ones, would be the most cost effective means with the largest and most long-lasting impact. Those would serve also to begin to help solve wildlife utilization and management problems on a broader scale in the countries, through the multiplier effect. The strategy or set of interrelated activities recommended is analogous to the approach which has been used for nearly a decade to support and strengthen protected areas management in the region, with well-known, highly successful results.


That work team probably should consist of key specialists from USFWS, WWF-US, TRAFFIC-USA and CATIE (also perhaps WTMU). As you will see in the recommendations, we are suggesting strong roles for those other organizations, particularly the first three, but only a very limited one for CATIE, because of the realities of our staff limitations and principal commitments to wildlands and protected areas management. However, the set of recommended activities could be conducted far more effectively and efficiently, and some others added too, if there were a full-time regional wildlife management specialist working with the national agencies and the bilateral and international technical and financial support organizations. If funding were available for such a person and basic operational costs, in addition to that for the priority training, coordination and other recommended activities, CATIE could consider adding such a staff member and thus provide strong, direct action by a regionally-based specialist and coordinator.

4. Preparation of funding proposals to support the recommended activities/strategy, by the work team, for submission to various potential supporters.

I will be in Washington, D.C. the week of 31 October-4 November and would like to discuss these ideas and related ones with you both then. I will telephone the week before to try to arrange an appropriate time.

Finally, could you please make one complete photocopy of all five annexes to the report and send us those by air mail (AO RATE). We do not have a complete set in their final form since Jim Barborak took those with him to the U.S. and has sent you the only fully complete set.

Sincerely,



Craig Mac-Farland
Head Wildlands and Watershed Program