Conservation of Colonial Waterbirds in the Caribbean Basin: Summary of a Panel Discussion

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The Caribbean region, including northern South America, is an important wintering area and migratory pathway for migrating birds. During the past 30 years especially, a great deal of habitat alteration has occurred because of human population growth. Of most significance to waterbirds has been the drainage of many wetlands in the region.

A panel discussion on the issue of waterbird conservation was held at the seventh annual meeting of the Colonial Waterbird Group (CWG) in San Juan, Puerto Rico. The discussion was aimed at 1) describing what local, national, and international programs are currently underway pertaining to waterbirds, 2) reviewing major threats to species and their habitat in certain areas, and 3) identifying specific types of actions that could be taken through cooperation with such organizations as the World Wildlife Fund (WWF), International Council for Bird Preservation (ICBP), and the International Waterfowl Research Bureau (IRWB). Although some discussion of South American countries occurs in the following text, we focused mainly on the Caribbean region.

Summaries of the presentations and discussion follow:

Canadian Wildlife Service (I. M. Price). —A new Canadian Wildlife Service initiative is the Latin American Program (LAP) whose scope includes all of the Caribbean region, Central and South America. Its primary objective is to promote the conservation of birds that spend part of the year in Canada and winter in Latin America. After several months of consulting people with first-hand ecological experience in Latin America, CWS concluded that Latin American problems are similar to those of North America but that the scales differ. Habitat destruction, the use and abuse of agricultural chemicals, and industrial pollution were the gravest problems identified. The next step was to visit some Latin American countries to introduce the CWS and the LAP. We found Latin American wildlife agencies willing to work with us to promote the conservation of shared birds.

We plan to meet our primary objective by sponsoring projects relating to surveys, shorebirds, waterbirds, toxic chemicals, wetland evaluation, and habitat loss. All projects should be jointly planned, carried out, and funded by us and one or more Latin American wildlife agencies or their designates. This latter point is important as joint funding increases the level of commitment by all parties. We also fund projects relating to training and professional development of Latin American biologists and technicians and are particularly interested in seeing measurable results at the end of a project.

The first major project, headed by R. I. G. Morrison, was a survey of the northern and eastern coastline of South America to identify shorebird concentration areas and to obtain a preliminary assessment of the distribution and characteristics

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of the habitat being used. The governments of Argentina, Brazil, Guyana, French Guiana (Guyane francaise), Suriname, Trinidad, and Venezuela cooperated. About 95% of their coasts containing suitable habitat have now been surveyed and more than one million shorebirds counted and identified. Important wintering areas have been identified and work is progressing on the preparation of maps and a narrative report.

A second project is a comprehensive system study in Chile, examining the effects of copper mine effluent on a marine ecosystem. As a part of this, heavy metal levels are being determined in resident and migrant shorebirds. A third project, headed by Hans Blokpoel, focuses on the factors affecting winter mortality in Common Terns (*Sterna hirundo*) in Trinidad, Venezuela, and Peru. Other projects include the translation and publication of a Spanish edition of the Wildlife Society's Wildlife Management Techniques manual and our contribution to the IWRB Wetland Evaluation Project (see below) which should have a positive impact on wildlife conservation in Latin America.

U. S. Fish & Wildlife Service (R. M. Erwin).—In the past few years, the U.S. Fish & Wildlife Service (FWS) has developed stronger Latin American wildlife linkages. Like the CWS, the FWS recognizes the importance of protecting populations and habitats on a year-round basis; because many migratory bird species spend more than 50% of the year in the Latin American region, it is essential that we learn more about factors affecting their survival and distribution.

One of the first Latin American projects involving migrant birds supported by FWS was the publication of *Nearctic Avian Migrants in the Neatropics* (Rappole et al. 1983), a 646 page synthesis of current distributional and ecological information on 332 species, of which 105 winter in aquatic habitats.

The FWS sponsored the first migratory bird workshop in 1983. Twelve biologists from eight Spanish-speaking Central and South American countries spent one month at the Patuxent Wildlife Research Center and at local field sites learning current research and management methods. One week was devoted to colonial waterbirds and shorebirds. In 1984, a second bird workshop is planned, following the protocol of the first.

With the renewal of the revised Endangered Species Act came a separate provision for support of migrant birds in the Western Hemisphere. A training session and winter study of tern and Pelecaniform distribution and ecology in the Caribbean region is being planned. Although it does not include colonial waterbirds, a project currently underway involves the study of neotropical migrants in forest fragments of various sizes on three Caribbean Islands and Costa Rica.

The FWS also is providing funding support to the International Waterfowl Research Bureau to identify important wetland areas throughout Latin America. A report is expected to be completed in fall 1984.

International Council for Bird Preservation (ICBP)/International Waterfowl Research Bureau (IWRB) (C. Luthin).—Two major conservation efforts are currently underway in Latin America. First, an attempt is being made to locate and census all active colonies of Ciconiiformes in coastal areas of northern South America and the southern Caribbean Islands. Recent aerial surveys were flown in Venezuela in 1982 and from western Venezuela to northeastern Brazil in 1983. An even more comprehensive survey is planned for 1984. A set of conservation recommendations and suggestions for waterbird management will be drafted following the 1984 census. A follow-up coastal education program is planned for Venezuela. This effort is being sponsored by ICBP's World Working Group on Storks, Ibises, and Spoonbills, in cooperation with governmental and private agencies in each country.

A second effort, jointly sponsored by IWRB, CWS, FWS, and ICBP, focuses on identifying wetlands that are significant habitats for "waterfowl" (in the broadest sense to include shorebirds, rails, colonial waterbirds as well as ducks and geese) throughout the Neotropics. This effort, coordinated by Derek Scott, IWRB, Slimbridge, England, is an outgrowth of the Ramsar Convention of 1971 in which numerous governments signed a treaty to

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establish important wetland preserves.

Venezuela (J. A. Kushlan).—In the interior of Venezuela, the llanos represent one of the largest freshwater wetlands in South America, with large concentrations of wading birds. However, both here and in the rich estuary of the Orinoco delta, major land use changes are underway, or planned, sponsored by the government. To enhance cattle farming by mitigating seasonal drought effects, the government is planning to create small reservoirs using dikes. The strategy is to increase the wet period on an annual basis, increase forage productivity, and reduce the unpredictability of water levels. Naturally, this is expected to have a major ecological impact on the aquatic species, perhaps analogous to the drastic alterations of south Florida after the implementation of water management (Robertson & Kushlan 1974).

Bahamas (A. Sprunt IV).—Following the early work of the National Audubon Society (NAS) on Greater Flamingos (*Phoenicopterus ruber*), (Allen 1956), periodic waterbird inventories were conducted by the Research Department of NAS on many of the Bahamas. The largest colony of flamingos in the Caribbean Basin is on Inagua, one of the largest islands in the archipelago. In 1959, the Bahamas National Trust (BNT) was established in cooperation with Canada and the United States. Modeled after the British National Trust, the BNT has become an effective conservation force throughout the region. Wardens patrol areas on Inagua and the Exuma Cays to deter poaching and disturbance of nesting birds and marine turtles.

Trinidad.—In this island country lies a major swamp, the Caroni, famous for its former nesting of thousands of Scarlet Ibis (*Eudocimus ruber*). Despite designation as a national park in 1980, the swamp is now administered under the Division of Forests whose management includes harvesting of resources on all its holdings. In addition, illegal hunting of ibises and other birds in the swamp continues without any law enforcement and it has been 5 to 10 years since ibises nested in the Caroni (B. Ramdial, J. Kushlan, C. Luthin, pers. comm.). The ibises now use the Caroni only as a roost site.

No doubt many other important wetlands in Latin America suffer from drainage for agricultural purposes or exploitation of their wood resources. The Usumacinta Delta in southeastern Mexico is one other example of a wetland of vast importance to waterbirds (Sprunt & Knoder 1980), yet one in jeopardy of alteration. Its significance probably ranks the Everglades in Florida or the Mississippi Delta in Louisiana (Sprunt & Knoder 1980). With the completion of the IWRB report, perhaps many of these wetlands can be ranked in order of protection priority. In turn, conservation organizations such as the CWG, ICBP, and WWF might take the lead in working with national and local government officials to protect specific wetlands.

A number of North American and European public and private organizations are working to learn more about wildlife resources in Latin America to assist in their conservation. Despite the best intentions of these "foreign interests", the only real hope for long-term survival of species and natural areas is national and local concern for protection of these natural resources. Conservation awareness throughout the area is now growing. In addition to the conservation work in the Bahamas already mentioned and the exemplary strides taken in Costa Rica (Beebe 1984), other advances are noteworthy in the Caribbean Basin. First, with NAS assistance, a Mexican program called Pro Natura has been established to help identify important natural areas (Sprunt, pers. comm.). Second, in Venezuela, a new program called FUDENA (Foundation for the Defense of Nature) has been established. Similarly, the Nature Conservancy's International Office has helped develop conservation data centers in Costa Rica, the Netherlands Antilles, and Puerto Rico (Beebe 1984). The Dominican Republic has recently established several national parks that protect seabirds (J. Wiley, pers. comm.). In Cuba, significant wetlands still exist (e.g. Zapata swamp) and a recent survey has discovered extensive flamingo populations (J. Wiley, pers. comm.). A Caribbean Conservation Association has also been established under the direction of Ms. Jill Sheppard on Barbados. Originally supported by the Rockefeller Foundation, it has been involved in numerous projects throughout the region.

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In the U. S. territories of Puerto Rico and the Virgin Islands, a number of waterbird projects are underway. Both areas have also increased efforts to reduce illegal poaching of eggs and hunting (R. Perez-Rivera and R. Norton, pers. comm.). In western Puerto Rico, a number of projects have been conducted by the FWS (Kepler 1978), the Department of Natural Resources, and by Dr. Perez-Rivera and his students on pelicans and other species. Most recently, White-tailed Tropicbird (*Phaethon leptures*) nesting has been studied both on Mona Island (R. Perez-Rivera, unpubl. data) and on the Culebra National Wildlife Refuge (S. Furniss et al., unpubl. data). One of the few inclusive aerial surveys of waterbird colonies has been conducted by the Virgin Islands Division of Fish and Wildlife from 1977 to 1982 (R. Norton, unpubl. data) for the entire coast of the three Virgin Islands.

Probably the most significant and comprehensive documents on Caribbean colonial waterbirds is a soon-to-be published chapter in ICBP's Seabird workshop proceedings entitled "The status and conservation of seabirds in the Caribbean" (van Halewyn and Norton, in press). To summarize, 19 species of seabirds (gulls, terns, Pelecaniformes, Procellariiformes) breed in the Caribbean region, with about 85% of the total composed of only two species, the Sooty Tern (*Sterna fuscata*) and Brown Noody (*Anous stolidus*). The chapter points to the need for regular surveying and monitoring because, in many areas, the most current data on birds may be 10 or more years old.

Thus, while problems are numerous and complex both biologically and politically, a number of steps have been taken in recent years to protect wetlands and waterbirds in the Caribbean and throughout Latin America. The concerted efforts of The Nature Conservancy, World Wildlife Fund, U. S. and Canadian Wildlife Services, and ICBP must be channeled through local organizations for long-term success.

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