Avian Conservation in Latin America: a Clinician's Perspective

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"Nobody made a greater mistake than he who did nothing because he could only do a little."

Edmund Burke

The role of North American zoos in avian conservation began decades ago. It was largely manifested as organized and intensified propagation efforts directed at maintaining sustainable genetic pools of endangered species in captivity. Captive breeding was followed closely by aggressive and expansive educational programs. Private collectors and avian enthusiasts, who also had set up commercial breeding facilities, greatly enhanced extant captive populations and genetics. The focus on conservation issues branched from direct involvement through animal related issues, to indirect involvement through effecting a change in humans and their attitudes. Educational programs eventually grew to include professional zoological training in many fields. Only recently have many zoological institutions come to realize that to truly be the conservation organizations that they promote themselves to be, they must extend their efforts beyond their own front gates, and their own borders.

Latin America encompasses a part of North America, and all of Central and South America. Geopolitically, it may best be defined as Mesoamerica and South America. Many of the world's rarest avian species inhabit parts of this vast and rapidly changing sub-continent. Colombia, for example, is the country with the highest avian bio-diversity in the world. It contains an untold number of avian species and sub-species that are still being classified today. Its extremely diverse terrains and climates support all orders of birds, from tropical and Amazonian species, to highland plateau Orders. In spite of being a relatively small country, considering the size of its neighbor, Brazil, it still manages to act as a "funnel" of sorts for migrating species from North America, and to support an enormous variety of non-migratory birds. Colombia represents, therefore, an ideal country to promote and support avian conservation.

There are many other countries in Latin America that share not only unique wildlife resources, but in the specific cases of birds, migratory routes, breeding grounds, unique habitats, and rapidly vanishing species. Conscious of the vanishing resources that disappearing avian species represent, many governments and private organizations have set to task in studying, protecting, and promoting avian conservation. These groups can be generally divided into those working with avian conservation in truly wild species (*in situ*) , and those attempting to work with numerous avian species in a captive situation (*ex situ*). We will refer to each of these efforts separately, for the sake of clarity, although most efforts today are mixed, and are jokingly referred to as "sort of

situ" by those involved. Before discussing possible solutions to a problem, one must first try to understand it cause. Avian populations all over the Americas are threatened or vanishing and the causes, though evident, are more complex than they appear at first sight.

Trafficking with wildlife, be it flora, fauna, or their bi-products, is considered the third largest illegal activity in the world. Only illegal drugs and weapons are larger in economic importance. Nobody really knows the actual monetary value of animal trade, but it is estimated to represent 10 to 20 billion U.S. dollars a year. Five to fifteen percent of the total animals involved in illegal trade come from Brazil alone. About thirty to forty percent of the rest generate in Latin America. According to the US Department of Commerce, world-wide animal traffic involves: 25 to 40 thousand primates – primarily for medical research; 3 million captive-bred turtles; 2 to 3 million other assorted reptiles; 10 to 15 million turtle carapaces; 10 million animal hides; 30 to 50 million animal bi-products, and 2 to 5 million live birds. It was estimated that Brazil lost 12 million animals in 1991. Wildlife trade has only increased, as a clandestine activity, since then. Recent estimates by IBAMA, the Brazilian branch of government in charge of animal confiscations, indicate that approximately 38 million animals are taken from the wild each year in Brazil. Other Latin American countries loose animal resources in a proportional manner.

Animal traffic has a huge impact on biodiversity, and is now considered a global problem. Nine out of ten animals involved in illegal trade end up dead or dying. This is due to an almost total disregard for proper conditions of transport or upkeep. Four animals are usually taken for each animal bi-product sold on the market. Brazil has the most efficient methods of confiscation, but is only able to intercept about 45 % of the total estimated 900 million to 2 billion US dollars that Brazilian wildlife produces worldwide. All data is estimated, since these activities are illegal, and any reliable information is generated based on confiscations and second-hand reports. Information gleaned from arrested animal dealers indicates that most of the animals that survive the journey and are sold die within the first year of captivity due to inappropriate conditions of care or lack of adaptation to captivity. Those who are confiscated frequently end up dying too, since they arrive in extremely poor conditions, and the lack of zoos or animal shelters willing to take them. In Brazil, most of the animals taken from the wild are destined to be sold to private collectors or zoos, research labs, specialty pet stores, or for processing for wildlife bi-products.

Developing countries are the primary suppliers of wildlife, and even though a large number of people participate in illegal wild animal trade in one way or another, the activities are extremely damaging to natural resources, and do not represent any real benefit to the community as a whole. The main exporters of wildlife (in order) are Brazil, Peru, Argentina, Guiana, Venezuela, Paraguay, Bolivia, Colombia, South Africa, Zaire, Tanzania, Kenya, Senegal, Madagascar, India, Vietnam, Malaysia, Indonesia, and Russia. Countries that allow legal transit of wildlife include Portugal, Mexico, Saudi Arabia, Thailand, Spain, Greece, Italy, France, and Belgium. The world's largest consumers of wildlife are (in order) the United States, Germany, the Netherlands, Belgium, France England, Switzerland, Greece, Bulgaria, Saudi Arabia and Japan.

In Brazil, for example, animal traffic originates in the North and travels South towards Rio or Sao Paolo, to markets that then allow traffic to international buyers. Most wildlife is moved by land or by boat. Frequently, animals are moved out of Brazil and into Argentina, Bolivia, Guiana, Paraguay, Suriname or Uruguay, where they enter illegally or with false documents. Once there, they are regularized, given proper papers as "legal" animals, and exported to larger markets. The Amazonian regions are permeable to illegal animal traffic, and several "researchers" have been caught utilizing their permits to investigate wildlife to participate in animal trade rings. Animals are frequently transported as a group by small airplane, or individually, concealed in luggage or on the person of persons traveling by boat, bus, or train. Eggs, plants, insects and small birds are

frequently shipped by ordinary mail. Mortality in most cases can be of 90% or more, but most dealers still manage to make enough of a profit to continue to trade.

Animal trade is frequently intermingled with other illegal activities. Many zoos, breeders, farms, and even local "conservationists" declare wild caught animals as born in captivity, making them "legal" for trade. Besides this "animal laundering", there is also contraband of goods, the use of legal documents to front for illegal trade, and numerous forms of fraud that become increasingly difficult to interrupt or detect. Contraband is predominant in areas that are hard to control for authorities, be they borders, mountain passes, or regions of difficult physical access. Documents frequently lead investigators to the receiving country, but rarely do they allow tracing an animal to its port of provenance. At times, the country of origin can be obscured by multiple false paper trails. A favorite method of illegal importation is to pass an endangered and protected species for a common one with similar characteristics. This system takes advantage of the customs agent's poor training and little experience in differentiating avian species. Dealers go as far as dyeing animals different colors to confuse inspectors. Large numbers of birds being transported represent an easy way to hide rare or endangered animals that bring a higher market price, or species with higher barriers of protection.

As rules and regulations meant to prevent illegal animal trade have become more stringent, the use of falsified or illegally obtained documents has increased. Most of the time, genuine documents are altered, or simply sold by corrupt officials. Illegal animal trade is not only a cruel activity; it also is unsustainable at an economic and environmental level, since the animal resources involved are non-replaceable. The person taking the animal from its environment frequently is the one making the least amount of money. A single Lear's macaw, often bartered for food or goods in its place of origin, can be worth up to 60,000 dollars US to a collector. As an example, a 2 dollar US hide sold in the Argentine Chaco region is worth 4 dollars US to the middle-man, who sells the pelt to the tanner. The tanner sells the pelt for 6 dollars once its treated. The same tanned pelt can be sold for 10 dollars US to produce a 300 dollar pair of shoes. The same is true of live birds sold on the market or to individual collectors. The person collecting the animal from the wild sometimes receives no cash at all, but goods, or alcohol. The community where the animal originates from seldom receives any direct or indirect benefit from the sale of its animal resources.

Animals are collected from the wild for illegal trade during all seasons and without regard for the animal's biological behavior. Collections during breeding season do the most harm, not only by removing entire generations of a group, but also by disrupting social orders of entire colonies of nesting animals. The imbalances and social repercussions on a flock can be severe, and may lead to further imbalance of the group with its environment. Eventually, entire ecosystems are affected. Since most trade is illegal, the governments of the producing countries lack the resources to fight the problem effectively, and can not even revert the money generated from whatever trade becomes disrupted to further fight the problem itself.

According to a study performed by the Brazilian Ministry of the Environment, the Amazonian region has the potential to generate 13 billion dollars US in ecotourism activities a year. The depletion of avian wildlife lessens the attraction of these areas, and implies a loss in possible revenue to its inhabitants. The loss of diversity is reflected by the need to enter further and further into previously unaffected terrain to view the species of interest to most eco-tourists. Supplying these tourists with proper infrastructure and basic needs only compromises the area even more. This cycle is repeated until the area is so affected it ceases to attract visitors, creating a "Catch 22" situation.

Since animals sold illegally do not undergo any type of health exam or quarantine, they frequently become a source of potential zoonotic diseases. Some of these diseases are even novel to domestic and human populations. One only has to remember the discovery and spread of West Nile Virus into the Americas two years ago. Illegal animal trade was strongly suspected of being the culprit for the introduction of the disease. Toxoplasmosis, Chlamydiosis, and even Salmonellosis have become frequent problems in people and birds involved in illegal trade.

The lack of resources to effectively fight illegal animal trade further complicates an already bleak picture. Inspectors must be given the tools to detect illegal trade, and need to receive continuous training and reinforcement regarding animal trade. Lack of across-the-border coordination of interception efforts, or communication between government agencies involved in interception, mean that these same borders remain essentially permeable to illegal trade. Conflicting laws and jurisdictions in neighboring countries provide “weak links” in the legal process that animal dealers frequently exploit. At times, animal trade and drug trade overlap. Confiscations of animals occasionally will turn up large amounts of drugs hidden within an animal’s stomach. Thirty six kilos of cocaine were removed from the stomachs of boas being imported from Colombia to the US in 1993. Thirty three million dollars worth of cocaine were found inside a container full of tropical fish being imported into the US through Miami. Lack of proper holding space and resources to maintain confiscated animals also represents a huge problem.

What can we do about all this? Random House Webster's College Dictionary defines outreach as "to reach beyond or to reach out; an organized effort to extend services beyond usual limits." Conservation outreach is the simple extension of the educational function of institutions, be they private or public, to the international arena. In zoo and wild animal medicine, or exotic pet medicine, it involves the training and development of foreign professionals in conservation related fields. Conservation outreach programs can take a variety of forms, but most involve active and participatory training of staff and volunteers. Many programs have been extant for over a decade, and most have been successful in effecting change in their target areas by producing individuals with medium to advanced training in zoological and biological techniques. Programs have included: 1) the Foreign Course for Conservation Biologists, put into effect by National Zoo; 2) New York Zoological Society\The Wildlife Conservation Society's extension service to field projects abroad; 3) two reintroduction programs, the Golden Lion Tamarin and Bali Mynah, attempted by their respective SSP's, and 4) training courses in rehabilitation of native wildlife, promoted by interested individual clinicians or by groups such as the National Association of Wildlife Rehabilitators. The people involved in these programs have usually interacted vigorously with each other, as well as with their international counterparts. Group efforts through organizations dedicated solely to outreach, such as the Zoo Conservation Outreach Group, have allowed other interested institutions without specific programs to become active participants in the process. Slowly, a global network of people who share a common vision and who know one another is being constructed.

The interest in implementation or active participation of North American zoos in outreach programs is exemplified by the tremendous growth of the Zoo Conservation Outreach Group (ZCOG). Founded in 1988 by 10 zoos in the southern region of the United States, ZCOG now has over 65 member zoos and aquariums throughout North, Central and South America. With a mission of conserving rainforests and their wildlife in the Americas by establishing cooperative programs between zoos in North and Mesoamerica, ZCOG presents an opportunity for low budget, low maintenance, high-impact, and high visibility conservation. Materials developed for these courses are sent on to regional libraries, and to individual zoos and affiliated organizations throughout Latin America.

The critical aspects of conservation outreach in zoos are fundraising, institutional networking between zoos in developed and developing countries, candidate recruitment for exchange programs between institutions, and communication with all parties involved. All these activities require coordination, and frequently involve the use of more than one language. In the case of Mesoamerican programs, ZCOG allows these activities to be channeled through a single source. Coordination and follow-through are simplified, allowing even the smallest institutions access to information, programs, and public relations benefits. Most of ZCOG's programs have focused on training in zoo biology and veterinary science, and exchange of zoo staff between North and Meso American zoos.

Zoological facilities and private specialized practices are important vehicles for education. Many zoos are state owned and run, and many have visitation rates of well over a million people annually. Private veterinary practitioners can have clienteles reaching thousands of people. Many clinicians develop extremely “tight” relationships with their patient’s owners, and can therefore be extremely influential in educating their clientelle. Zoos of developing countries that have chosen to display indigenous fauna are critical to conveying the importance of preserving the surrounding habitat and its resources. Their efforts are enhanced by the improved husbandry, management, and education programs that outreach efforts provide. Institutions involved in outreach need to be wary of mis-directing others by creating a desire to emulate zoos of developed countries. The people that we are attempting to train frequently live in the habitats that zoos with abundant resources seek to re-create through expensive and elaborate exhibitry.

Are outreach programs worth developing? Are they successful, and if so, how do we measure their success? These are difficult questions to answer. If ten exchange programs produce only one person who is able to impact conservation efforts in his/her own country, have we succeeded? Unequivocally yes. Continued participation in educational outreach is in itself a measure of success that should not be under-rated. These kinds of programs can be marketed and funded in the same way a new exhibit is promoted. Although the results are not as tangible, and therefore harder to "sell" to administrators, they are productive, self-sustaining, and effective.

There are numerous caveats: solutions from developed nations seldom hold the answers for those in developing countries. It is as natural for our colleagues to want their zoos to be more like ours as it is for them to want commodities, advanced technology and better medical care. We need to exercise caution in this regard. In the course of our outreach efforts we should acknowledge that we do not have all the answers. The people we are trying to assist are the best qualified to identify their problems and their needs, as well as the best course of action. We should not impose our solutions, but help them facilitate their own. The language barrier can be dealt with by being clear on the communication skill expectations on both sides. Some zoo education departments like the exposure and practice that an international student can provide. Many private practitioners enjoy practicing their own language skills with visiting professionals. It is best to determine and specify a trainee's language skills during recruitment. Expectations should be clearly specified in order to avoid disappointment.

Zoos have it in their power to enhance existing outreach programs through established organizations such as ZCOG, or to initiate programs of their own in regions of particular interest to them. Private practitioners interested in mentoring visiting international professionals many times only need to open their doors to the possibility, and let the prospective professional visitors come up with the means themselves. Only zoos or individuals with abundant resources, or considerable local economic support, are capable of producing effective individual programs. It is best to leave competition aside, and to initiate or continue outreach efforts through existing channels. After all, it is the concerned professionals of developed countries that have the means, the motive, and the

opportunity to increase their support of conservation outreach, and to make it an effective vehicle for wildlife conservation worldwide.

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