The Challenge of Implementing the Important Bird Area Program in a Megadiversity and Mega-threatened Country[1]

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Abstract

Brazil is a megadiversity country but also has the highest number of threatened bird species in the neotropics. There are over 100 species of birds threatened with extinction in Brazil. Some of the most threatened birds occur in the highly threatened Atlantic Forest hotspot of Brazil. BirdLife International started an Important Bird Areas (IBA) program in Brazil by identifying 161 areas in 15 of the 26 Brazilian states. Two areas were selected as priorities for initial projects, and their case studies are presented here: Murici, in Alagoas, and Serra das Lontras, in the state of Bahia. In Brazil, BirdLife has been working with local non-governmental organizations (NGOs) to develop and implement conservation projects. Local NGOs, which are an integral part of the process, have easier access to first-hand knowledge and information about the real situation of the areas under study. A network of such NGOs, linked through BirdLife, can then exchange experiences and thereby enhance the chance of success of any individual initiative.

Key words: Atlantic forests, birds, Brazil, Important Bird Areas, Murici Serra das Lontras, threatened.

Introduction

Brazil is a megadiversity country and ranks first in the neotropics in richness for higher plants, freshwater fishes, and mammals, and in the top five for amphibians, reptiles, birds, and butterflies (Myers et al. 2000). Such high biodiversity combined with the continuing destruction of the country's natural resources has lead to an imminent threat of extinction for many species and, as a consequence, Brazil also ranks first in the Americas in numbers of threatened bird species; 114 species of the Brazilian avifauna are considered threatened with extinction, (BirdLife International 2000). In a country with continental dimensions, (ca.8,500,000 km^2), two hotspots have been identified, namely the Atlantic Forest (ca. 1 million km^2) and the Cerrado (ca. 2 million km^2) (Mittermeier et al. 1999). The hotspot concept was first proposed by Myers (1988). The main criterion to identify a hotspot is the level of species endemism (instead of the total biodiversity), particularly of vascular plants, in a biogeographic region. Although the hotspots are determined primarily based on plant endemism, animal data are also examined. Another important criterion to determine a hotspot is the degree of threat to the region, caused principally by humans. Many hotspots have had over 90 percent of their original vegetation cover altered, including the above-mentioned Atlantic Forest Region of Brazil (Mittermeier et al. 1999).

Some of the most threatened birds occur in the Atlantic Forest of Brazil, which spans the region from Piauí in the north-east to Rio Grande do Sul in the south, and includes portions of the interior states of Minas Gerais, Goiás and Mato Grosso do Sul (Federal Decree nº 750/93). The coastal states were the first to be colonized in Brazil, and as a consequence 70 percent of Brazilians live in this, the most developed region of the country (Conservation International et al. 2000). The exceptionally diverse forests here help protect watersheds that provide water for both urban and rural communities, help to regulate microclimate, and still are home to several traditional peoples. Within the states of the Atlantic Forest Domain, there are 103 globally threatened and 64 near threatened bird species.

Background

BirdLife International initiated a conservation program in Brazil in March 2000, with support from the British Birdwatching Fair and the Council of Agriculture of the Republic of China (Taiwan). The program was developed based on an initial assessment of needs, challenges and opportunities, reviewed by key ornithologists and conservationists.

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[1]A version of this paper was presented at the **Third International Partners in Flight Conference, March 20-24, 2002, Asilomar Conference Grounds, California.**

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The initial focus of the country program lies primarily in the Atlantic Forest region. Although much attention is now given to the Atlantic forests, its continuing destruction is apparent. Indeed, deforestation in this region has been rampant in the last 15 years - recent estimates suggest the rate is 2.5 times that of the Amazon for the same period. Paradoxically, as much as 410 million reais (equivalent to ca. US $160 million in May 2002) have been invested in conservation programs in the Atlantic Forest region in the past 10 years, as shown by a study lead by the Instituto Socioambiental (Rede de ONGs da Mata Atlântica 2002). According to this study, most implementing agencies were non-government organizations, but the majority of the funds came from the National Environment Fund (Fundo Nacional do Meio Ambiente), a fund from the Ministry of the Environment.

Although the legal protection of the Atlantic Forest is ensured by the Brazilian Federal Constitution through several articles, some laws, and a decree, its practical preservation remains a challenge. Recently, the national policy for the environment known as PPG-7 (Programa Piloto para a Proteção das Florestas Tropicais Brasileiras) expanded from the Amazon region to include the Atlantic Forest. A sub-program of the PPG-7, known as Ecological Corridors, predicts that protected areas will become the cornerstones of the ecological corridors. Land-use in the intervening areas will be regulated through sustainable development projects and other mechanisms that enhance and ensure that forested patches are connected. Three main corridors have been identified in the Atlantic forests:

- The Central Corridor, which includes areas in southern Bahia, northern *Espírito* Santo, and northeastern Minas Gerais
- The Serra do Mar Corridor, which follows this mountain range along the coast of Rio de Janeiro and São Paulo, and
- The Tri-national Corridor, which includes the interior Atlantic forests of Paraná towards Argentina (Misiones) and eastern Paraguay.

The Niche for the Important Bird Area Program in Brazil

The BirdLife International Brazil Program seeks to fill a major gap in the current conservation efforts, one that must be filled in the immediate or short term if we are to prevent numerous species extinctions. In the Brazilian Atlantic Forest, landscape level conservation (such as the Corridors initiative) is the ultimate long-term goal, but is not enough in the immediate short-term. The reason is that the remaining forest areas are fragmented (especially so in the north-east), and given the large number of very local endemic species that they support, it is essential to look at species and site-level conservation issues. Landscape approaches to conservation will succeed only if source populations exist to disperse into restored or corridor-connected areas. Many forest fragments contain multiple priority bird species and large numbers of other endemic taxa. Therefore, unless a site-oriented effort is undertaken immediately, many populations of threatened species will be lost forever.

By building on existing initiatives and working from previous priority setting exercises, e.g. by PROBIO (Pacheco and Bauer 2000), BirdLife's *Key Areas for threatened birds in the neotropics* (Wege and Long 1995), and the neotropical Wetlands Directory (Scott and Carbonell 1986), the Important Bird Area (IBA) program of BirdLife International seeks to ensure the sustainable conservation of a network of globally important biodiversity sites that combine to encompass, and thus help to maintain the integrity of, the entire Atlantic Forest region. This region was selected both for the high degree of threat to the ecosystems that form the Atlantic Forest Biome, and for a relatively greater knowledge of its avifauna available through the scientific literature and unpublished reports. The gathering and preliminary analysis of this information is an essential step in the process of IBA identification to avoid duplication of efforts. Thus, our initial objectives were to:

- Gather extant information on the priority areas for conservation of birds in 15 of the 17 states within the Atlantic Forest Domain
- Propose a network of IBAs following global criteria (sensu BirdLife International), based on information available from the literature, and
- Evaluate the protection status of the proposed IBAs.

These initial phases are being conducted in collaboration with Fundação Zoobotânica do Rio Grande do Sul. The ultimate goal of this phase of the IBA program is to ensure that each globally threatened species is effectively protected in at least one IBA in the Atlantic Forest Domain. The network of IBAs in the Atlantic forests will also ensure the protection of other endemic bird species, as well as diversity and other endemic taxa.

Proposed Network of IBAs in the Atlantic Forest Region

During the initial process, 161 areas were identified as IBAs (Bencke and Maurício 2002). Another 30 areas are considered potential IBAs, but more information is needed before they can be included in the proposed IBA network system. These 191 sites are distributed throughout the Atlantic Forest regions (*Fig. 1*). Some IBAs, regardless of their size, have large concentrations of threatened bird species, e.g., 20 threatened species at Parque Estadual do Desengano, 19 at Sooretama/Linhares, 15 at Estação Ecológica de Murici, 15 at Boa Nova/Serra da Ouricana, along with many other examples (Bencke and Maurício 2002). In contrast, five globally threatened species did not have confirmed records in any of the proposed IBAs. All may be extinct in eastern and southeastern Brazil (Sick 1997, BirdLife International 2000). Another 44 globally threatened species occur in fewer than five proposed IBAs and may be considered as priorities for the identification of new IBAs (Bencke and Maurício 2002).

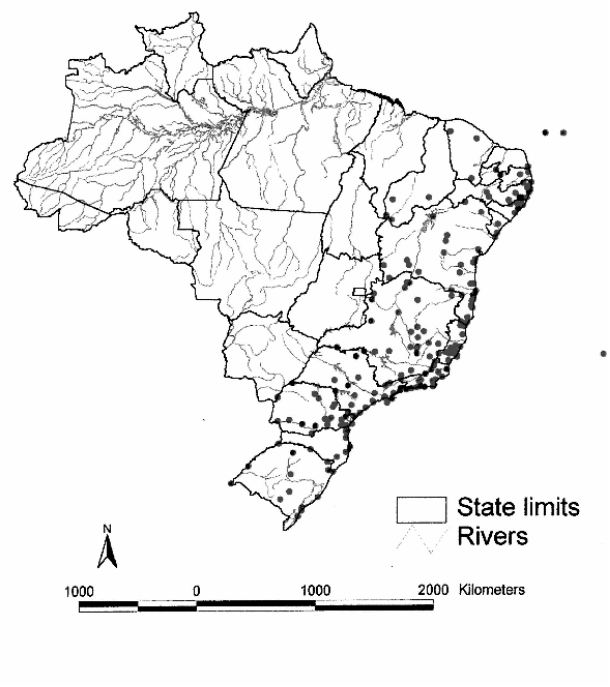

Figure 1— Location of 191 proposed and potential IBAs identified in the 15 Brazilian states that encompass the Atlantic Forest. The status of these areas is preliminary and currently under review.

Of the proposed and potential IBAs, 28 percent are legally protected as conservation units, and 22 percent have part of their areas protected. Thus, half of the areas considered IBAs are not currently protected. This analysis will be refined as more information becomes available, and some areas may gain or lose the status of IBAs once a more complete inventory is concluded. Nevertheless, as some areas have been identified as priorities being under severe threat (see below), immediate conservation action is imperative if we are to prevent the extinction of more avian species.

Case Studies: Murici and Serra das Lontras

Murici

Remnant forests on the mountains of northeastern Brazil have been seriously threatened in recent decades due to expanding agricultural programs in Brazil. The most dramatic example lies in a forested area in the Municipality of Murici in the state of Alagoas, where less than 2 percent of the original forest cover remains (Teixeira and Gonzaga 1985). During the 1970s, forests in Alagoas gave way to sugar cane plantations, largely due to fiscal incentives provided by the government under a development plan known as Pró-Álcool, where sugar cane was produced and processed to produce fuel (ethanol) for motor vehicles. There has been much discussion in the media about the government's intention to revive this program, which has not only helped to devastate north-eastern forests, but also interior forests in south-east Brazil. Conservation efforts in the Murici region date back to the 1980s, after an expedition discovered four species of birds new to science: *Philydor novaesi* (Alagoas Foliage-gleaner; Teixeira and Gonzaga 1983b), *Terenura sicki* (Orange-bellied Antwren; Teixeira and Gonzaga 1983a), *Myrmotherula snowi* (Alagoas Antwren; Teixeira and Gonzaga 1985), and *Phylloscartes ceciliae* (Long-tailed Tyrannulet; Teixeira 1987). Three of the above species have been recorded at other localities but, to date, there have been no confirmed records of the Alagoas Foliage-gleaner outside Murici.

Previous efforts to protect Murici include the declaration of an "Area of Relevant Ecological Interest (ARIE)", established in 1984 by the National Council for the Environment (CONAMA - Resolução 005-84). In 1992, the owner of the largest tract of forest in the region, the Usina Bititinga (a sugar cane processor plant) signed an agreement with a national NGO, which would be responsible for the management and protection of the forest. However, due to financial and administrative problems, and local politics, the NGO was unable to maintain the agreement. In 1997, Murici was encompassed by an "Area of Environmental Protection (APA)" of approximately 116,100 ha. The establishment of an APA, however, does not involve reimbursement to the landowners for their properties, and therefore, protection of forest is not ensured because it remains privately owned. Yet, in 1997 Murici was considered a priority area within the Biosphere

Reserve of the Atlantic Forest (RBMA), sponsored by the United Nations Educational, Scientific and Cultural Organization (UNESCO). Belonging to a Biosphere Reserve does not ensure legal protection of forests, but it raises the status of the area to a global level of importance. Thus, all initiatives up to that date raised Murici's profile, but did not ensure its effective conservation (Goerck 1999). BirdLife International, through its partnership, led a campaign with other NGOs that resulted, in May 2001, in the declaration of Murici as an "Ecological Station", i.e., a fully protected area, through a federal decree signed by the President of Brazil, Mr. Fernando Henrique Cardoso.

BirdLife International has worked closely with a national NGO, Sociedade Nordestina de Ecologia (SNE), and with the Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (IBAMA) in the design of a plan of action for the reserve (this study was partially funded by World Wildlife Fund). Little has been achieved after the new status of Murici was gained: inhabitants of nearby villages and camps continue to use forests as a source of firewood, wood for construction, and food (game and fruits). In addition, small-scale agriculture occurs in areas adjacent to the forest, and in some cases, plantations (e.g., bananas) are illegally placed within the forest. As a consequence, the remaining forest fragments continue to be degraded. Another immense threat for the avifauna in particular is the illegal capture and trade of birds with commercial appeal, among them the Seven-colored Tanager (*Tangara fastuosa*) and the Yellow-faced Siskin (*Carduelis yarrellii*). These birds are captured and sold not only by children along the roads, but also in local markets and fairs. Some species even reach the illegal, but well organized markets of Bahia, Rio de Janeiro, and São Paulo (Renctas 2001).

Much action on the ground is needed, including studies and inventories of the flora and fauna for the elaboration of a suitable management plan for the reserve. Indeed, an integrated management plan incorporating remaining forest tracts and recovering degraded areas is needed to maintain the integrity of the forest ecosystem and the long-term survival of species, particularly those threatened with extinction. The creation of the Murici Ecological Station is only the first, but decisive, step in the protection of these globally important forests (Goerck 2001). We have now a legal mechanism, through which we can effectively change the course, or curse, of destruction that has seemed to linger over Murici.

Serra das Lontras

Serra das Lontras belongs to a complex of small mountains that lie about 50 km away from the coast in the state of Bahia. Coastal forests in Bahia have recently received much conservation attention, and are now more effectively protected: several national and state parks have been created in the last few years (e.g. Parque Nacional do Descobrimento, Parque Estadual da Serra do Conduru, etc). Despite efforts that have taken place along the southern coast of Bahia, the adjacent mountains have been neglected, even though they comprise an essential portion within the Central Corridor initiative. These mountains reach up to 1,000 m in altitude, but are generally no more than 500-800 m in elevation, and continue west for more than 100 km. Humid forests on the plateau were ideal for the plantation of cacao, using an agro-forestry system known as '*cabruca*', where the canopy is thinned to about 40 percent cover (or exotic trees are planted to reach 40 percent cover), and cacao trees are planted under the shade. Most *cabruca* plantations are near the coast, and they have contributed in many ways to the preservation of forests there. Farther inland, forests gradually were replaced by pastureland, and very few forest remnants still exist.

The little known avifauna from Serra das Lontras contains 10 globally threatened species (Develey and Silveira 2001, Bencke and Maurício 2002), including two recently described species, *Acrobatornis fonsecai* (Pink-legged Graveteiro, Pacheco et al. 1996), a most unusual ovenbird (Furnariidae) that belongs to a monotypic genus, and *Phylloscartes beckeri* (Bahia Tyrannulet; Gonzaga and Pacheco 1995). Little is known about the distribution of either of these recently described taxa, and they may have broader ranges than previously thought. But the fact that the Graveteiro seemingly preferentially uses cacao plantations, *cabrucas*, indicates that this agro-forestry system needs to be considered in future conservation efforts.

Cacao producers have always recognized the many advantages of the *cabruca* system of cacao plantation (e.g., control of insect pests and weeds, microclimate stability, etc.; Johns 1999), not to mention the immense benefits to the preservation of adjacent forests along mountaintops. In the late 1980s, the Brazilian cacao sector was hit by sudden drops in world cacao prices and the onset of a major fungal disease, known as "witch's broom." This disease, caused by the fungus *Crinipellis perniciosa*, has devastated cacao plantations and resulted in c.60-70 percent declines in cacao production. This collapse of labor-intensive cacao plantations has left thousands of rural workers unemployed, unable to control their lives and without a political "voice." Looking for other options, owners of large properties converted their farms to alternative uses such as cattle ranching or sun coffee plantations. These practices are clearly not sustainable in the region (Radon and Barrett 2000), and through the felling of the *cabruca*, previously protected forests became vul-

nerable to the process of deforestation. While some alternative solutions are being tested (e.g., implementation of genetically modified cacao), it is impossible to predict the outcome of this crisis, and the conservation of this montane habitat needs to be seriously considered (Goerck 1999).

BirdLife has joined forces with a local NGO, the Instituto de Escudos Sócio-ambientais do Sul da Bahia, to create a private protected area in the region. Funds already have been secured to purchase an area of approximately 500 ha within the mountains. In addition, a proposal will be presented to the national government for the creation of a federal conservation unit, because the Serra das Lontras mountain complex is the largest tract of forest within the Central Corridor of the Atlantic Forest that links the coastal forests to the forests inland. BirdLife's presence in the region will both provide assistance and ensure that this unique area receives the protection it deserves.

Final Considerations

There are at least 100 sites in the Atlantic region of Brazil in need of increased protection. This is too many sites for any one conservation organization to address. However, the IBA program is designed to form a framework within which all concerned institutions and government agencies can work towards a common agenda. The program also provides a framework within which to monitor sites and evaluate conservation success. Thus, the IBA network of priority sites is anticipated to enhance the survival chances of several species, particularly those that have received little attention and are not currently within any of the existing protected areas. However, for some species that are affected by the pet trade, hunting, or that have specialized habitat needs or behaviors, like the Red-spectacled Parrot *Amazon pretrei*, the IBA program may not be the most efficient tool for protection, and species-specific efforts need to be undertaken in such cases.

While there may be opportunities for linking IBAs in North America with those in Brazil through the few North American migratory species that reach the area, the utmost necessity is to protect the globally threatened and endemic species. The global coverage of the IBA program provides opportunities to share conservation successes, experiences, and expertise, through a loose network of sites and institutions (whether local, national, or international), thus developing the overall capacity for achieving conservation successes. The emphasis of an alliance between North America and Brazil should be based on a common desire to prevent bird species extinctions. The Atlantic Forest region of Brazil is of critical importance for global conservation due to the presence of numerous highly threatened endemic birds. Many of the Atlantic Forest IBAs in Brazil have been neglected in the past, and creative mechanisms, such as site-based partnerships between North America and Brazil, are needed to raise their profiles and ensure effective long-term protection.

Acknowledgments

The authors would like to thank Dr. R. S. Ridgely and T. Rich for reviewing this paper and making some excellent suggestions for its improvement. We also thank G. A. Bencke and G. N. Maurício for compiling an enormous amount of information thoroughly, resulting in an invaluable report on the Atlantic Forest IBAs. This study was partially funded by the American Bird Conservancy. The area projects have been funded through various grants: Murici - Beneficia Foundation and BirdLife's Rare Bird Club; Serra das Lontras - Rainforest Action Fund, Garfield Foundation, and Clothworkers Association. Also, the generosity of several individuals has made this initiative possible, and we wish to thank Mr. K. Berlin, Mr. N. Simpson, and Mr. J. J. Childs.

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