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Important Bird Areas of the Neotropics: Colombia

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Continuing our series on the Important Bird Areas of the Neotropics, we look at how Colombia's key sites for bird conservation were identified and documented.

Colombia's cultural and biological megadiversity

lanked by Venezuela and Brazil to the east, and by Peru and Ecuador to the south, Colombia provides the gateway to South America. The north of the country borders the Panama isthmus, and its coastline embraces both the Atlantic (Caribbean) and Pacific Oceans. Colombia is simultaneously a beautiful, troubled and enigmatic nation. The country has one of the longest histories of democracy and economic stability on the continent, but has also suffered one of the region's longest internal conflicts.

With 41 million inhabitants, Colombia is one of the Neotropics' most populous countries, and also one of the most diverse. More than 50 different indigenous groups as well as Afro-Caribbean communities live here, and more than 80 languages are spoken (although Spanish is the only official tongue).

Such human diversity is more than matched by the country's wildlife. Colombia holds an incredible wealth of biodiversity, most notably the largest avifauna of any country in the world. This abundance reflects Colombia's geological history, geographical location, climate and variety of ecosystems. The latter range from humid montane forest to dry lowland scrub, from mangrove swamps to dunes, and from deserts to highaltitude *páramo* (Andean peat bogs and wet grasslands) and ice-capped peaks, and are distributed across six natural regions: the Andes, Caribbean, Orinoco, Pacific, Amazon and outlying islands.

The Andes, Colombia's most biologically diverse region, form three separate *cordilleras* (mountain ranges) divided by wide river valleys, with the río Magdalena and Cauca emptying into the Caribbean at Barranquilla on the north coast. The Caribbean region is mainly flat, with dry ecosystems offset by wetlands associated with the río Magdalena. The exception is the world's highest coastal mountain system, the Sierra Nevada de Santa Marta, which rises above 5,500 m within a mere 50 km of the coast. To the east of the Andes lie the *llanos* (plains), a savanna system shared with Venezuela and bordered by the vast río Orinoco. To the south, transition ecosystems merge into Amazonia.

Left: Red-bellied Grackle *Hypopyrrhus pyrohypogaster* (Endangered) has been recorded in at least 15 IBAs (Murray Cooper) West of the Andes, the Pacific region (also known as the Chocó) is shared with Panama and Ecuador: the largest and best preserved tracts of Pacific rainforest are in Colombia, lying snugly between the Pacific coast and the foothills of the Andes' western *cordillera*. Finally, Colombia has island territories in both the Caribbean and the Pacific. In the western Caribbean, San Andrés island is densely inhabited, with 50,000 residents (plus a large tourist population) within its 25 sq. km—but is also home to the endemic St. Andrew (or San Andres) Vireo *Vireo caribaeus* (Vulnerable).

Colombia's first national park, Cueva de los Guácharos, was created in 1960; among its objectives is the protection of the country's largest colony of Oilbird *Steatornis caripensis*. To date, 54 protected areas in four national categories have been designated and cover 10% of the country. The state-run system is complemented by several networks of private reserves. The largest is the *Red de Reservas de la Sociedad Civil* (Civil Society Reserves Network), which has more than 180 reserves covering c.48,000 ha.

Birds and ornithology in Colombia

Colombia is a birding paradox. The country boasts an avifauna totalling c.1,860 species^{e.g.16}, almost 20% of the world total, and should thus be a magnet for birding—yet remains largely unvisited by foreign birders. Colombia holds 90 globally threatened birds³; a further 22 are considered threatened at the national level¹⁵. Colombia has 70 endemics, of which more than 40 are globally threatened. Colombia has 228 restricted-range species¹⁷ within 14 Endemic Bird Areas (EBAs), four of which occur entirely within the country.

Colombia has a relatively long history of ornithology, its early years being dominated by foreign collectors and ornithologists. Recent years have witnessed a boom in ornithological research, bird-related conservation projects and birding; ornithology is also offered as a course at several universities. As a measure of this recent increase in ornithological activity, nine species new to science have been described from Colombia since 1996 and at least two more are under review.

More than 30 ornithological organisations exist in Colombia, many working at the local level. Most groups are brigaded under the umbrella of the *Red Nacional de Observadores de Aves* (National Ornithological Network) which organises a national bird meeting that lasts several



Location of Important Bird Areas (IBAs) in Colombia (BirdLife International/Instituto Humboldt)

days, runs three bird counts per year and manages the national bird database (DatAves), now online as part of eBird (for which see Daniel Lebbin's article on pp. 13–18). Organisations working at the national level include the Asociación Colombiana de Ornitología (publishes the journal *Ornitología Colombiana*), Asociación ProAves (manages 12 privates reserves) and Asociación Calidris (specialises in waterbirds and marine species).

Serious threats to Colombia's ecosystems and bird habitats abound: deforestation, agriculture and urbanisation are the principal pressures¹⁵. Deforestation is particularly acute in the Andes, home to the majority of Colombia's human population. Large areas of forest and *páramo* have been fragmented through conversion to agricultural land, pasture for cattle-raising and housing; less than 70% of Colombia's Andean forest remains. Severe ecosystem disturbance is one of two factors leading to 'hotspot' designation¹³, a large-scale system for establishing priority regions for conservation. Large areas of both the Tropical Andes and the Tumbes-Chocó-Magdalena Hotspots lie within Colombia.

The Important Bird Area programme: history

Colombia's Important Bird Area (IBA) programme has been managed by the Focal Species Research Group at the Instituto de Investigación de Recursos Biológicos Alexander von Humboldt. The 'Instituto Humboldt' is one of five research institutes affiliated to the Ministry of the Environment, Housing and Development, responsible for promoting, coordinating and conducting research that contributes to the knowledge, conservation and sustainable use of biodiversity.

The Instituto Humboldt began identifying priority sites for conservation in 1996, but the IBA programme was only launched in 2001, at the First National IBA Workshop in Villa de Leyva, Boyacá. The programme addresses one of the four objectives of the then recently published National Bird Conservation Strategy¹⁴, namely the identification of key areas for bird conservation.

Between 2003 and 2005, the Instituto Humboldt organised a series of regional workshops to identify IBAs. Participants included local ornithological associations, the national parks authority, regional environmental authorities, academics and individual birdwatchers. The lengthy candidate site list was whittled down to 106 IBAs that were included in the Tropical Andes IBA directory⁷, published in 2005.

Subsequently, in 2007, the Instituto Humboldt published an online directory⁵ (http://aicas. humboldt.org.co) and launched a website about the programme designed for young people (http:// jovenes.humboldt.org.co). And the process of identifying sites continues. A more detailed dataset has enabled a more refined application of the IBA criteria, resulting in an extensive revision and re-evaluation of Colombia's IBAs for inclusion in the Americas-wide IBA directory⁴ that will be published by BirdLife International in 2009.

One of the successes of Colombia's IBA programme has been its strong uptake by local groups and communities. Since the outset, the programme has had vigorous local involvement; many IBAs were nominated by the groups working at the sites. Moreover, the relationship between these local organisations and the IBA programme itself grows ever stronger: the programme is more successful because its objectives have been assimilated into those of the local groups, while the latter benefit from improved capacity.

Overview

At the time of writing, 118 IBAs covering more than 7.6 million ha have now been identified, with at least one in each of the 32 departamentos. These figures are provisional given that the IBA review remains underway: additional sites are in the process of nomination, and many more may warrant IBA status if suitable supporting data are produced. Three-quarters of IBAs have some form of legal protection: 42 are national parks or overlap with them, 22 are regional reserves and 30 contain private reserves. IBA designation has also led to demonstrable conservation benefits: partly as a result of their nomination, at least three IBAs have become legally protected as national parks (e.g. Selva de Florencia in Caldas) or as regional 'integral management areas'.

The IBA site network seeks to maximise coverage of globally threatened, restricted-range and biome-restricted species as well as important congregations of birds. Seventy-one of Colombia's 87 species of globally threatened birds (82%) occur within the IBA network, although 12 occur in just a single IBA. Not all IBAs are equal: 40 have more than five globally threatened species and 10 have more than 10. Twenty-four IBAs support one Critically Endangered species, and five sites hold two.

Seventy-seven sites trigger IBA criteria for restricted-range species, and 50 for biomerestricted taxa. In total, the IBA network contains sites for 178 restricted-range and 253 biomerestricted species. Eighteen IBAs support significant populations of 26 congregatory species at some point in their annual cycle. IBAs with seabird colonies include Santuario de Fauna y Flora Malpelo, a Pacific island with the world's largest breeding colony of Nazca Booby Sula granti¹². Parque Nacional Natural (PNN) Sanquianga on the Pacific coast in the south has been proposed as Colombia's first site within the Western Hemisphere Shorebird Reserve Network; IBAs such as the Reserva de la Biosfera Ciénaga Grande de Santa Marta on the Caribbean coast may follow.

In terms of habitat, the ecosystems best represented in the IBA network are natural forest (62%), grassland (12%) and scrub (6%). IBAs have served as indicators of land-use changes according to analyses by Unidad de Sistemas de Información Geográfica (UNISIG), using two map resources^{9,10}. During 1985–2005, natural ecosystems decreased in area at 48 IBAs, and only three showed increases in their area of natural land cover.

More than 70 IBAs provide habitat for migratory species, including Cerulean Warbler *Dendroica cerulea* (Vulnerable; found in nine IBAs) and Golden-winged Warbler *Vermivora chrysoptera* (Near Threatened; 11 IBAs), with many important sites situated on the north coast, the first landfall for many Neartic long-distance migrants to the continent. Seaflower Biosphere Reserve IBA, which includes San Andrés island, is a particularly important staging point, with more than 90 migratory species recorded.

Conservation in IBAs

IBAs range in size from 50 ha to 1.28 million ha, and there is a similar variation in the scope and ambition of conservation initiatives within them. At one end of the spectrum are small, highly local projects such as a village school keeping track of an Andean Cock-of-the-rock *Rupicola peruvianus* nest under a bridge; at the other end lies a project funded by the Global Environment Facility and World Bank covering multiple regions and IBAs.

Many of the 35 projects thus far implemented in IBAs are funded by a small grant scheme established by the Instituto Humboldt as part of 'Proyecto Andes'. This project funded a tree nursery, as part of a series of landscape conservation tools, to supply the Barbas-Bremen biological corridor in Risaralda, joining two reserves within one IBA. The corridor, now in its sixth year, lies on land provided by local inhabitants as part of a conservation incentive scheme. Additionally, Fundación ProAves have sponsored more than 50 final-year undergraduate projects, many in IBAs.

Monitoring activities at certain IBAs have been in train since well before the creation of the IBA concept. For example, the Asociación Bogotana de Ornitología has conducted Audubon Christmas Bird Counts for 20 years in parts of two IBAs: the Humedales de la Sabana de Bogotá and Cerros Occidentales de Tabio y Tenjo in Cundinamarca. For five years, reserve wardens and researchers at the Cañón del Río Alicante IBA in Antioquia have been monitoring species triggering IBA criteria, such as Blue-billed Curassow *Crax alberti* (Critically Endangered), Wattled Guan *Aburria aburri* (Near Threatened), Sooty Ant Tanager *Habia gutturalis* (Near Threatened), Saffron-headed Parrot *Gypopsitta*



Top left: Gold-ringed Tanager Bangsia aureocincta (Endangered) is endemic to the Western Cordillera of the Colombian Andes (Carl Downing)

Clockwise from top right: Three Santa Marta endemics, all present in the Cuchilla de San Lorenzo and Valle del Río Frío IBAs. Santa Marta Bush Tyrant *Myiotheretes pernix* (Endangered) is found at altitudes between 2,100–2,900 m, Santa Marta Brush Finch *Atlapetes melanocephalus* at 1,500–3,200 m and Santa Marta Parakeet *Pyrrhura viridicata* (Endangered) at 2,000–2,500 m (all Joseph Tobias/www.neomorphus.com)

Below: Apolinar's Wren *Cistothorus apolinari* (left; Murray Cooper) and Bogota Rail *Rallus semiplumbeus* (right; Joseph Tobias/www.neomorphus.com) are both Endangered species endemic to the high-Andean plateau of Cundinamarca and Boyacá; the wetlands inhabited by the duo in inner-city Bogota are highly threatened





Left: Vermillion Cardinal *Cardinalis phoeniceus* is restricted to the dry forests of the Caribbean Colombia and Venezuela EBA, one of the most threatened and under-represented ecosystems in Colombia's protected area system (Murray Cooper)

Right: Sooty Ant Tanager Habia gutturalis (Near Threatened) is rare within its limited distribution in the Nechí Lowlands EBA (Murray Cooper)



Top left: From 2003–2007, the nursery supplying the Barbas-Bremen corridor produced more than 2.5 million plants of almost 500 species, of which 147 are threatened (William Gerardo Vargas/Instituto Humboldt)

Bottom left: A view of Cerro Madroño from La Planada IBA in Nariño. La Planada holds more than ten globally threatened and Near Threatened birds (Francisco Nieto Montaño/Instituto Humboldt)

Right: Parque Nacional Tatamá, an IBA, is one of Colombia's best preserved natural areas, and is home to several Chocó endemics and near-endemics (Christian Devenish/Instituto Humboldt)

pyrilia (Near Threatened) and Black Oropendola *Psarocolius guatimozinus*, as part of projects coordinated by the Universidad de Antioquia, the regional environmental authority and the Instituto Humboldt. Meanwhile, ProAves has been monitoring bird populations at eight of their reserves that are IBAs. Since 2004, Asociación Calidris has been monitoring seabirds at Malpelo IBA and has recently established a migratory bird monitoring station at Chicoral, a proposed IBA.

The launch of BirdLife International's IBA monitoring framework² enabled incorporation of such initiatives into a national monitoring programme, inaugurated at the Second National IBA Workshop in November 2007. Participants completed questionnaires for nearly 50 IBAs, providing important information on site condition, state of threats and conservation responses. Such data provide a baseline for future assessments. Initial results show that the most frequent threats to IBAs are agricultural expansion, over-exploitation of birds, and human disturbance to birds and habitats. In addition, information relating to invasive species at IBAs were integrated into the Instituto Humboldt's national database on invasive species.

Workshop participants also shared experiences of many conservation initiatives being implemented at IBAs. These included the discovery of new populations of Wattled Curassow *Crax globulosa* (Vulnerable) near Isla Mirití IBA in Amazonas department, the development of a biological research station at San Antonio/km 18 IBA in Valle del Cauca and the coordination by the Serankwa Network of more than 600 private reserves within the Puracé-Guácharos biological corridor in the south of the country.

Monitoring and conservation are not the only activities taking place in IBAs. Many sites have been the venue for training courses. ProAves have organised six basic ornithology courses at different IBAs and have trained participants in bird-ringing techniques on six courses at Reserva Pangán IBA in Nariño and on San Andrés Island. A Nariño-based ornithological organisation, Grupo de amigos para la investigación y conservación de las aves (GAICA), has organised training events such as a general birdwatching course for children. GAICA work closely with Fundación Altaquer, which is responsible for the management of the Río Ñambí IBA and private reserve, famous for being the paratype locality of Chocó Vireo Vireo masteri (Endangered), the scientific name of which was sold to raise funds for conservation.

The Instituto Humboldt's Animal Sound Archive has organised soundrecording courses at three IBAs. As a direct result of the course at La Judía, two local organisations (Asociación Maklenke and El Diviso) are collaborating on a CD of birdsong recorded there. Numerous other publications^{e.g.1,18} that have emerged from the IBA programme that aim to further conservation within and around sites. Examples of other outputs include field guides to local birds^{8,11}, educational books and materials for teachers⁶, promotional leaflets and posters.

Birding tourism (albeit with differing levels of amenities and accessibility) is also on the increase at many IBAs, which are becoming fixtures on the small number of budding 'ecoroutes' around Colombia. The IBAs in the Sierra Nevada de Santa Marta win in terms of sheer numbers of endemics. with more than 15 at both Cuchilla de San Lorenzo and Valle del Río Frío, including a sobering eight globally threatened species. These include Santa Marta Parakeet Pyrrhura viridicata (Endangered) and a Vulnerable trio: Rusty-headed Spinetail Synallaxis fuscorufa, Santa Marta Antpitta Grallaria bangsi and Santa Marta Wren Troglodytes monticola. In the Western Cordillera of the Andes, the little known PNN Tatamá and Serranía de los Paraguas also offer unique birds, including the following endemics: Gold-ringed Tanager Bangsia aureocincta (Endangered), Blackand-gold Tanager Bangsia melanochlamys (Vulnerable), Multicolored Tanager Chlorochrysa nitidissima (Vulnerable) and Chestnut Wood Quail Odontophorus hyperythrus (Near Threatened).

The future

Looking ahead, key goals for the IBA programme are to implement further training courses, to integrate the sustainable use of biodiversity with conservation in IBAs, to run a third national workshop that seeks to establish an IBA Conservation Strategy and to manage a prioritysetting exercise across IBAs. The IBA programme welcomes proposals for new IBAs, recognising that more sites are needed to cover fully the wealth of Colombia's avifauna.

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