CONTENTS

INTRODUCTION

Our goal in writing the *Field Guide to the Birds of the Dominican Republic and Haiti* is to provide an updated and field-accessible guide to the birds of Hispaniola. This work rests on the success of the first comprehensive field guide devoted to birds of the island, *Birds of the Dominican Republic and Haiti* by Steven Latta, Chris Rimmer, Allan Keith, Jim Wiley, Herb Raffaele, Kent McFarland, and Eladio Fernandez, published in 2006 by Princeton University Press. That book was also translated into Spanish as *Aves de la República Dominicana y Haití* for the Dominican market, and into French as *Les oiseaux d'Haïti et de la République Dominicaine* for the Haitian market. Those guides have contributed greatly to a strong growth in birdwatching, attention to conservation issues, and a boost in environmental education on the island.

That first complete field guide has since sold out in the English and Spanish editions. More than 20 new species have been reported for the island, names and taxonomies have changed, as has the conservation status of many species. We have also thought that a true field guide with a lighter, more compact format would be useful. Since much of the information on a given bird's ecology and natural history is already available in the earlier guide, here we elected to concentrate on identification of bird species through descriptions of body form, plumage, and behavior. Our overall goal remains unchanged, and that is to continue to help inspire a new generation of birdwatchers, ornithologists, and conservationists. With this guide in hand, we hope that many more Dominicans and Haitians will become as fascinated as we are by the diversity of Hispaniola's avifauna, and as committed to its conservation.

This *Field Guide to the Birds of the Dominican Republic and Haiti* draws on the second edition of *A Guide to the Birds of the West Indies* by Herb Raffaele et al. (2020), and incorporates detailed information on the status and range of species from the annotated checklist *The Birds of Hispaniola: Haiti and the Dominican Republic* by Allan Keith et al. (2003). Thanks to the generosity of the publishers and artists of these two works, we have been able to use much of the information and many of their fine plates. But we have also included more than 150 new images of Hispaniolan species painted by Dana Gardner, as well as new, detailed range maps of unsurpassed accuracy and precision prepared by Kent McFarland.

We are confident that by dramatically expanding possibilities to appreciate birds in the Dominican Republic and Haiti, this guide will promote conservation of migratory and resident species and build support for environmental measures to conserve and protect their habitats. The guide is certain to be used in the many educational, outreach, and training activities by local environmental organizations. We sincerely hope that it will increase public awareness throughout Hispaniola, as well as internationally, for the island's unique avifauna, underscoring the need to protect these special species and their habitats for future generations to cherish.

MAP OF HISPANIOLA: TOPOGRAPHY AND CITIES

GEOGRAPHY

Hispaniola is a diverse island with many habitats and a highly diverse assemblage of birds, in part a result of its complex geological history. Although this history is not well understood, Hispaniola is thought to have formed by the merging of at least three land blocks, with two of these formerly attached to what are now Cuba and Puerto Rico. These three blocks probably came together about 9 million years ago, but change continued to take place. Global cycles of glacial and interglacial periods caused periodic rising and lowering of sea levels, and the alternation of dry and moist environments, resulting in drastic environmental changes and repeated isolation of higher elevation sites by the rising seas. Cyclic climatic changes contributed to the repeated separation of Hispaniola into two "paleo-islands" by a marine canal along the current Neiba Valley during much of the Pliocene and portions of the Pleistocene. These two paleo-islands are generally referred to as the North Island and the South Island of Hispaniola. In addition, the South Island was likely divided in pre-Pleistocene times by an intermittent sea passage across the peninsula at the Jacmel-Fauché depression. This would have effectively separated the Massif de la Hotte to the west from the Massif de la Selle and Sierra de Bahoruco to the east.

Cyclic climatic changes in the Pleistocene are likely to have contributed significantly to speciation and extinction events. Unique flora and fauna are thought to have existed on the two paleo-islands, as evidenced by several pairs of closely related bird species that are today found on the north and south paleo-islands. For example, the Eastern Chat-Tanager occurs in the Cordillera Central and the Sierra de Neiba, whereas the Western Chat-Tanager is found in the Sierra de Bahoruco and the southern peninsula of Haiti. Similar processes may have contributed

Kate Jordan Wallace, champion of environmental education and ecotourism in the Dominican Republic, holds a Broad-billed Tody mist netted during a monitoring program in the Sierra de Bahoruco

to speciation of the Gray-crowned and Black-crowned palm-tanagers, the two tody species, and two subspecies of La Selle Thrush.

Cyclic climatic changes also had dramatic impacts on the island's vegetation. It is clear that vegetation types such as conifers, now confined to higher elevations, occurred much lower during the cooler, drier periods, when glaciation occurred on Hispaniola down to 1,800 m above sea level. It was also during such periods that sea levels were significantly lower, allowing the appearance of a broad expanse of savanna and thorn scrub habitat in the Hispaniolan lowlands. During these periods of cold and aridity, the wet slopes of the Massif de la Hotte in particular likely served as a refugium for plants and animals adapted to mesic environments. The mountain range's geography with respect to winds and weather fronts positioned it to receive naturally high levels of rainfall. Today the Massif de la Hotte displays extraordinary levels of endemism in orchids, other plants, and amphibians.

The island is dominated by a series of roughly parallel mountain ranges and valleys that are aligned east to west. These ranges change names between Haiti and the Dominican Republic but effectively bridge both countries. The southern paleo-island features, from west to east, the Massif de la Hotte-Massif de la Selle-Sierra de Bahoruco range. High points in this range include Pic Macaya (2,347 m) in the Massif de la Hotte, Pic la Selle (2,574 m), and Loma de Toro (2,367 m) in the Sierra de Bahoruco. North of the Neiba Valley and the Cul de Sac Plain, on the northern paleo-island, lies the second major east–west range of mountains. These are the Montagnes de Trou-d'Eau in Haiti and the Sierra de Neiba in the Dominican Republic. At its summit, Monte Neiba reaches 2,279 m. Somewhat isolated to the east of the Sierra de Neiba, and southwest of Azua, is the Sierra de Martín García. Farther north, the Plateau Central and the Valle de San Juan separate this range from the next east–west range, the Cordillera Central, which extends into Haiti as the Massif du Nord. This is the island's largest mountain range, and it includes Pico Duarte, at 3,098 m the highest elevation in the Caribbean. North of the Cibao Valley lies the Cordillera Septentrional, which runs from Monte Cristi to Samaná Bay and rises to 1,250 m. Two additional, minor ranges include the Cordillera Oriental, southeast of Samaná Bay, and the Montagnes du Nord-Ouest in the northwestern peninsula of Haiti.

Hispaniola has several lakes and lagoons, many of which lie along the current Neiba Valley and Cul de Sac Plain. These include the hypersaline Lago Enriquillo (which can vary from 180 to 265 km^2) in the western Dominican Republic and, to its east, the largest freshwater lake on the island, Laguna de Rincón (30 km^2) at Cabral; and in Haiti, the slightly brackish Étang Saumâtre (113 km^2) and marshy freshwater Trou Caïman (7 km^2). Other large water bodies include Laguna de Oviedo (25 km^2) in the southeast of the Barahona Peninsula, Laguna Redonda (7 km^2) and Laguna Limón (5.1 km^2) on the northeastern coast, and Étang de Miragoâne, consisting of two freshwater lakes (combined 8 km^2) and adjacent marshes on the northern coast of the Tiburón Peninsula.

There are several significant river systems on the island, including the Río Yaque del Norte, Río Yaque del Sur, Río Ozama, and Río Dajabón in the Dominican Republic, and in Haiti the Guayamouc, Les Trois Rivières, and Artibonite. At 400 km, the latter is the longest river in the Caribbean.

Ten offshore islands contribute to Hispaniola's avifaunal diversity. These islands tend to be relatively low, small, and dry, but are often of high importance to birds. Many are crucial nesting sites for seabirds and other species, and some are home to endemic subspecies of land birds. Associated with the southern paleo-island are Isla Beata (47 km^2, 100 m elevation); Isla Alto Velo (1 km^2, 152 m elevation); Île Grande Cayemite and Île Petite Cayemite, with the larger being 45 km^2 and 152 m in elevation; and Île à Vache (52 km^2, 30 m elevation). Associated with the northern paleo-island are Isla Saona (111 km^2, 35 m elevation); Isla Catalina (18 km^2); the Cayos Siete Hermanos which are seven small, low, and sandy islands; Île de la Tortue (180 km^2, 325 m elevation); and Île de la Gonâve (658 km^2, 755 m elevation). Navassa Island (5 km^2, 77 m elevation), a U.S. possession 55 km due west of the westernmost point of Haiti, is included in this guide because of its zoogeographic association with Hispaniola. Birds recorded from these offshore islands are presented in Appendix 2.

HABITATS

Bisected by mountain ranges and rivers, and dotted with lakes and lagoons, Hispaniola contains a diversity of habitats. Most of the mountains are steep and rugged, and frequently cut by deep gorges or valleys. Mountain valleys tend to be cool and moist, supporting either pine or broadleaf forests, but lower elevations are dominated by dry forest and thorn scrub habitats. There are extensive areas of limestone karst in the southern paleo-island, including the Tiburón Peninsula, Barahona Peninsula, Sierra de Bahoruco, and Sierra de Neiba. In addition, much of the eastern Dominican Republic is limestone karst. Along the northern coast, limestone karst forms tower formations in Los Haitises National Park, on the Samaná Peninsula, and along the Cordillera Septentrional. Sand dunes are found in more than 20 coastal locations, and those near Baní on the southern coast are the largest in the Caribbean.

***Mangroves*.** This habitat type is found at coastal sites around river mouths and lagoons where the soil is flooded most or all of the year, and also inland along the margins of both freshwater and saline lakes where the soil may only be flooded seasonally. In some places the mangrove forest reaches heights of 20 m and a density covering 70% to 85% of the ground surface. Dominant species are buttonwood mangrove (*Conocarpus erectus*), red mangrove (*Rhizophora mangle*), white mangrove (*Laguncularia racemosa*), and black mangrove (*Avicennia germinans*). In the Dominican Republic, mangroves cover less than 1% of the land area; in Haiti, mangroves cover about 0.5% of the land area.

Mangroves

Freshwater swamps. This is an uncommon lowland habitat type on Hispaniola, usually occurring below 20 m elevation. It is sometimes forested, primarily with swamp bloodwood (*Pterocarpus officinalis*), or may occur in the form of marshlands characterized by dense growth of cattail (*Typha domingenis*). Some of the marshlands in this category may have significant moisture for only part of each year. On Hispaniola, freshwater swamps cover less than 0.5% of the land area.

Grasslands. This habitat type includes natural savannas at all elevations. They are mostly in the lowlands but are also found in several intermountain valleys. On Hispaniola, grasslands cover less than 1% of the land area.

Top: Freshwater swamps

Bottom: Grasslands

Agricultural lands

***Agricultural lands*.** Included here are all lands cleared for agriculture, whether for large-scale farming enterprises such as sugarcane plantations and truck gardens or for subsistence agriculture, even at relatively high elevations in the foothills and mountains in many parts of the island, especially Haiti. Land cleared for pasture is also included here. In the Dominican Republic, agricultural lands and pastures cover about 55% of the land area; in Haiti, about 42% of the land is under cultivation, and another 19% is considered pasture.

***Shrublands*.** This habitat type is typically dry and results from the recent removal of forest cover or because environmental or geological substratum conditions limit plant growth. It is now a

Shrublands

widespread habitat type in both countries from sea level to, at least locally, 500 m. Depending on the elevation and original forest type, typical shrub species may include mahogany (*Swietenia mahagoni*), botoncillo (*Ternstroemia peduncularis*), mastic (*Sideroxylon cubensis*), waltheria (*Waltheria indica*), escobón (*Eugenia maleolens*), logwood (*Haematoxylon campechianum*), cordia (*Cordia globosa*), and sensitive plant (*Mimosa pudica*). Especially typical of thorny shrublands are *Jacquinia berterii*, capertree (*Capparis ferruginea*), damiana (*Turnera diffusa*), and another sensitive plant species (*Mimosa azuensis*). In the Dominican Republic, shrublands cover about 6% of the land area; in Haiti, where the forest cover has been removed from more than 95% of the land area and 60% of the land is on mountainous slopes, shrublands and low dense vegetation cover about 35% of the land area.

***Dry scrub*.** This forest type, also known as thorn scrub, now consists primarily of secondary growth of semideciduous trees growing at 40 to 500 m elevation in areas of 50 to 100 cm of rainfall annually. The canopy is largely open at a typical height of 10 m. Most of these forests are chronically disturbed because of cutting by humans. This vegetation type is widespread in lowlands of both the Dominican Republic and Haiti. Indicator species are gumbo limbo (*Bursera simaruba*), acacia (*Acacia sckeroxyla*), boxwood (*Phyllostylon brasiliensis*), tamarindo (*Acacia macracantha*), and white leadtree (*Leucaena leucocephala*). In the Dominican Republic, dry scrub covers about 8% of the land area; in Haiti, dry scrub is reduced to shrubland.

***Dry forest*.** Typically found at elevations of 400 to 900 m on the coastal plain and in the foothills of mountains, this habitat type is often bordered by dry scrub at its lower edge and broadleaf forest at its upper edge. It occurs in areas with a distinct annual arid period and rainfall in the range of 100 to 180 cm. It is a common natural forest type over much of lower elevation Dominican Republic and Haiti but has been widely cut, especially in Haiti. In its undisturbed form it has a canopy density of 60% or greater; the canopy typically ranges from 3 to 10 m in height, less often to 20 m in wetter situations. Indicator species in drier areas are leadwood (*Krugiodendron*

Dry scrub

ferreum), mahogany (*Swietenia mahagoni*), seagrape (*Coccoloba diversifolia*), gumbo limbo (*Bursera simaruba*), lignumvitae (*Guaiacum sanctum*), poisontree (*Metopium brownei*), and crabwood (*Ateramnus lucidus*). Moister habitats usually contain oxhorn bucida (*Bucida buceras*), pond-apple (*Annona glabra*), and mara (*Calophyllum calabra*). In the Dominican Republic, dry forest covers about 8% of the land area; in Haiti, most dry forest has been converted to shrubland.

***Broadleaf evergreen forest*.** Humid evergreen forest or rainforest is typically found below 500 m but locally up to elevations of 1,500 m. It is found in all Dominican Republic mountain ranges and very locally in Haiti, where extensive stands are now scarce. Typical canopy height is up to 25 m, and canopy density is 60% or greater. This forest type receives annual precipitation of 200 cm or more. Many humid evergreen forests are also mixed with pine or shade coffee. Indicator species

Dry forest

BELOW: Broadleaf evergreen forest

include wild mamee (*Clusia rosea*), myrtle laurelcherry (*Prunus myrtifolia*), lancewood (*Oxandra laurifolia*), manac palm (*Calyptronoma plumeriana*), tree-fern (*Cyathea arborea*), butterbough (*Exothea paniculata*), miconia (*Miconia dodecandra*), and coi (*Mora abbottii*).

At higher elevations up to 2,300 m, this habitat type is known as montane broadleaf forest or cloud forest. These humid forests are found in parts of the Cordillera Central, Cordillera Septentrional, Sierra de Neiba, and Sierra de Bahoruco; remnant stands in Haiti are found primarily in the Massif de la Hotte and Massif de la Selle. Canopy density is 80% or greater, and indicator canopy species include wind tree (*Didymopanax tremulus*), parrot-tree (*Brunellia comocladifolia*), bitter tree (*Garrya fadyenii*), tachvela (*Podocarpus aristulatus*), palms (*Coccothrinax* spp.), green ebony (*Magnolia pallescens* and *M. hamori*), rose-apple (*Clusia clusioides*), sierra palm (*Prestoea montana*), bone-tree (*Haenianthus salicifolius*), trumpet-tree (*Cecropia peltata*), swamp cyrilla (*Cyrilla racemiflora*), Florida trema (*Trema micrantha*), tabebuia (*Tabebuia berterii*), and laurel (*Ocotea* sp). In the Dominican Republic, broadleaf evergreen forest covers about 13% of the land area; in Haiti, broadleaf evergreen forests have probably been reduced to less than 1% of the land area.

Pine forest. Pine forest habitats include both pure pine stands and pine mixed with some broadleaf species. Pine forests can also be either closed pine forest, with a canopy density of 60% or greater, or open pine forest, with a canopy density between 40 and 60%. Virtually all closed pine habitat remaining in Hispaniola is in the Sierra de Bahoruco or above 2,000 m in the Cordillera Central of the Dominican Republic. Examples of open pine habitat are found in parts of the Cordillera Central, Sierra de Bahoruco, and Sierra de Neiba; small stands occur in the Macaya Biosphere Reserve and La Visite National Park, Haiti. Indicator species include Hispaniolan pine (*Pinus occidentalis*) in the canopy, and in the understory bitter tree (*Garrya fadyenii*), *Eupatorium illitium*, holly (*Ilex tuerckheimii*), and species of the genera *Fuchsia*, *Ambrosia*, and *Senecio*. In the Dominican Republic, pine forest covers about 6% of the land area; in Haiti the pine forests have been reduced to less than 1.5% of the land area.

Pine forest

ENDEMIC SPECIES OF HISPANIOLA

We recognize a total of 34 species endemic to Hispaniola and associated satellite islands. Those species include:

White-fronted Quail-Dove (*Geotrygon leucometopia*)
Bay-breasted Cuckoo (*Coccyzus rufigularis*)
Hispaniolan Lizard-Cuckoo (*Coccyzus longirostris*)
Least Pauraque (*Siphonorhis brewsteri*)
Hispaniolan Nightjar (*Antrostomus ekmani*)
Hispaniolan Emerald (*Riccordia swainsonii*)
Ridgway's Hawk (*Buteo ridgwayi*)
Ashy-faced Owl (*Tyto glaucops*)
Hispaniolan Trogon (*Priotelus roseigaster*)
Broad-billed Tody (*Todus subulatus*)
Narrow-billed Tody (*Todus angustirostris*)
Antillean Piculet (*Nesoctites micromegas*)
Hispaniolan Woodpecker (*Melanerpes striatus*)
Hispaniolan Parakeet (*Psittacara chloropterus*)
Hispaniolan Parrot (*Amazona ventralis*)
Hispaniolan Elaenia (*Elaenia cherriei*)
Hispaniolan Kingbird (*Tyrannus gabbii*)
Hispaniolan Pewee (*Contopus hispaniolensis*)
Flat-billed Vireo (*Vireo nanus*)
Hispaniolan Palm Crow (*Corvus palmarum*)
White-necked Crow (*Corvus leucognaphalus*)
Golden Swallow (*Tachycineta euchrysea*)
La Selle Thrush (*Turdus swalesi*)
Palmchat (*Dulus dominicus*)
Hispaniolan Crossbill (*Loxia megaplaga*)
Antillean Siskin (*Spinus dominicensis*)
Western Chat-Tanager (*Calyptophilus tertius*)
Eastern Chat-Tanager (*Calyptophilus frugivorus*)
Black-crowned Palm-Tanager (*Phaenicophilus palmarum*)
Gray-crowned Palm-Tanager (*Phaenicophilus poliocephalus*)
Hispaniolan Highland-Tanager (*Xenoligea montana*)
Green-tailed Ground-Tanager (*Microligea palustris*)
Hispaniolan Spindalis (*Spindalis dominicensis*)
Hispaniolan Oriole (*Icterus dominicensis*)

THREATENED AND ENDANGERED SPECIES

On Hispaniola, we consider 37 taxa to be threatened or endangered, or apparently extirpated from the island since 1968. We used a variety of published lists and assessments to determine each species' conservation status, including those from *Threatened Birds of the World* (BirdLife International 2000), *The Birds of Hispaniola: Haiti and the Dominican Republic* (Keith et al. 2003), *Birds of the Dominican Republic and Haiti* (Latta et al. 2006), the "Red List" of endangered species compiled by the Dominican Ministry of the Environment and Natural Resources (MIMARENA 2019), and two recent field guides to the birds of the West Indies by Kirwan et al. (2019) and Raffaele et al. (2020). We also solicited the expert input of a number of other birdwatchers and ornithologists, but ultimately the final list represents the opinion of the authors. Alarmingly, *half* (17 of 34) of the endemic species (names italicized below) are considered threatened with extinction.

Critically Endangered
Black-capped Petrel
Ridgway's Hawk

Endangered
Masked Duck
White-fronted Quail-Dove
Bay-breasted Cuckoo
Least Pauraque
Double-striped Thick-knee
Stygian Owl
Hispaniolan Parrot
Hispaniolan Kingbird
Golden Swallow
La Selle Thrush
Hispaniolan Crossbill
Western Chat-Tanager
Eastern Chat-Tanager
Hispaniolan Highland-Tanager

Threatened
West Indian Whistling-Duck
Scaly-naped Pigeon
White-crowned Pigeon
Plain Pigeon
Key West Quail-Dove
Northern Potoo
Black Swift
Spotted Rail
Black Rail
Piping Plover
Snowy Plover
Roseate Tern
Sharp-shinned Hawk
Short-eared Owl
Hispaniolan Trogon
Hispaniolan Parakeet
Hispaniolan Palm Crow
White-necked Crow
Bicknell's Thrush
Hispaniolan Oriole

Likely Extirpated
Wood Stork

AVIAN CONSERVATION ON HISPANIOLA

Hispaniola's contribution to global bird diversity is significant; some 318 bird species are now known to occur in Haiti and the Dominican Republic. More species are endemic to Hispaniola and its associated satellite islands than to any other Caribbean island, and Hispaniola provides important overwintering habitat for many Nearctic-Neotropical migrants. As a result, the island is highly ranked in biological importance in worldwide assessments of bird-protection priorities.

Today a growing number of species are listed under some level of threat on the Dominican Republic's National Red List. Threats to birds on Hispaniola are similar to those in other tropical regions, particularly due to habitat loss, forest degradation and fragmentation, overharvesting, and impacts of invasive species and climate change. Drivers of these threats, however, can vary widely across the island and among sites.

THREATS TO BIRDS

Habitat loss

The Dominican Republic has more extensive forest cover (41.0%) than Haiti (3.5%; FAO 2015). However, forest habitats supporting birds and other biodiversity have been (and continue to be) destroyed or degraded in both countries. For example, from 2001 to 2020, the Dominican Republic lost approximately 13% of its tree cover while Haiti lost 8.4%. In particular, high-elevation cloud forest and moist broadleaf forests are considered the most threatened; these broadleaf forest types have decreased from their original ~60% land cover and now occupy only ~15% of the island.

While causes of deforestation and forest degradation vary, the leading driver of forest loss appears to be farming. In the Dominican Republic, more than 60% of deforestation is attributed directly to the expansion of farming and cattle ranching. Farming in the Dominican Republic occurs even inside legally protected areas and can take the form of permanent plantations, seasonal crops at both industrial and small scales, or shifting agriculture. Of these, shifting agriculture drives most deforestation, often in combination with sharecropping arrangements on plots farmed every 2–3 years, such that land remains in a permanent cycle of slashing and burning. The main driver of forest degradation is selective logging, with timber removed for precious woods, fence posts, construction materials, charcoal production, and firewood.

Other habitats important to birds are also impacted by human activities. Because most human population centers are located in coastal lowlands, these areas are most heavily affected, with lowland forests, beaches, coastal swamps and lagoons, and mangroves all experiencing multiple threats. Both coastal and interior wetlands (including riparian habitats) are impacted by filling, drainage, and conversion to agriculture or cattle pastures, as well as by development for tourism (particularly in the Dominican Republic), mining, and urban sprawl. In addition, disruptions to water levels at key wetlands have resulted from the construction of canals, dams, roads, and other infrastructure, and from excessive water extraction for farming; these disruptions have been exacerbated in recent years by a pattern of more severe droughts.

Overharvesting

Overharvesting of species can take the form of hunting (for sport or control of perceived pests), subsistence harvesting, and capture for the pet trade. Hunting regulations in Haiti were recently established; hunting of most species in the Dominican Republic is currently illegal, but this can vary periodically. In the Dominican Republic, shooting at White-crowned Pigeon breeding aggregations is particularly popular, but other pigeons are also frequently hunted. Intentional killing of birds considered "pests" is common in farmlands, including the shooting of Hispaniolan Woodpeckers in cacao plantations, and the poisoning of migrant waterfowl in rice fields. Diurnal

and nocturnal raptors (including endemic Ashy-faced Owl and Ridgway's Hawk) have been historically targeted due to local myths and negative attitudes toward birds of prey.

Overharvesting of birds associated with subsistence hunting is not common. But harvesting of White-crowned Pigeon nestlings and of seabird eggs has been documented in coastal regions, wetlands, and cays. Occasional subsistence killing of wild birds for food by locals is also known, with pigeons, ducks, and gallinules the most frequent targets.

Finally, collection of birds for the pet trade has long been a serious threat to parrots and parakeets, but many other avian species are found in illegal zoos, private collections, and as displays at hotels and resorts. Known captive species include American Flamingo, Little Blue Heron, Hispaniolan Palm Crow, White-necked Crow, Hispaniolan Lizard-Cuckoo, Greater Antillean Bullfinch, and Village Weaver. Hispaniolan Parrots are, unfortunately, a very popular cage bird across the island, particularly in the Dominican Republic, where fledglings taken from nests in the wild are sold in urban centers. Nest cavities are often destroyed in the process, preventing their reuse and reducing future nesting opportunities. Hispaniolan Parakeets have also suffered from humans' appetite for pet birds, as naive buyers are often tricked into buying them in lieu of a parrot. Bird keeping has also been widely documented in Haiti, including the sale of birds captured in the Dominican Republic.

Invasive species

Invasive, exotic mammals, including dogs, cats, pigs, rats, and mongoose, adversely impact many native bird species, especially those nesting low to the ground or in cavities. For example, introduced mammals have led to reduced nesting success of Black-capped Petrel, Hispaniolan Parakeet, and Golden Swallow. Exotic plants are also rapidly changing some habitats, directly or indirectly affecting the species that rely on them. For instance, many frugivorous birds, including Palmchat and Hispaniolan Parrot, have been observed feeding on invasive plants in both cities and forested areas; direct impacts of this behavior are unknown, but it is certain to propagate these exotic species.

Climate change

According to several models of climate change, Hispaniola will experience rising temperatures, decreases in rainfall, and shifts in rainfall seasonality in the coming decades. This predicted transition to a drier, warmer climate will increase vulnerability of threatened and endangered bird species and exacerbate existing environmental pressures around protected areas. Eleven of 30 assessed endemic birds are considered highly vulnerable to climate change. Wetland bird assemblages will also be adversely affected by seasonal changes in water levels; these likely include the large flocks of migratory waterfowl and shorebirds that use wetlands as stopover or overwintering sites.

HOPEFUL SIGNS

Formal recognition of the importance of the environment in governmental decision-making has been achieved in both Haiti and the Dominican Republic. In 1994, Haiti created the Ministry of the Environment (MED) to "promote sustainable development while facilitating environmental conservation." Following suit, the Dominican Republic established the Ministry of the Environment and Natural Resources (MIMARENA) in 2000, uniting scattered government offices and professionals concerned with environmental issues. This includes the National Museum of Natural History, National Aquarium, National Zoological Park (ZOODOM), and National Botanical Garden. These institutions serve as important repositories of biodiversity collections and knowledge, and participate in nature conservation and research programs. The Dominican Republic also created within the National Attorney's Office the Specialized Attorneys for the Environment and Natural Resources. With 11 regional branches and staff, the goal of this unit is to prosecute environmental crimes.

The Paulino family searching for overwintering Louisiana Waterthrush to color band near La Loma de La Joya de San Francisco

During the past decade, local governments have also shown a commitment to nature conservation or enhancement. As an example, the City Mayor's office of the National District (which includes Santo Domingo) has collaborated with the National Botanical Garden to draft regulations on tree plantings in the urban environment. They are now embarked on an ambitious urban plan to promote the use of native, endemic, and biodiversity-friendly trees in the National District.

Nonprofit and other civil society organizations have a strong presence in the island's conservation community, especially in the Dominican Republic. Dominican groups such as Grupo Jaragua, Fundación Moscoso Puello, Grupo Acción Ecológica, Fondo Peregrino RD, Centro para el Ecodesarrollo de Samaná y su Entorno, ANA Ambiental, Acción Verde, SOS Ambiente RD, Sociedad Ecológica del Cibao, Sociedad Ecológica de Barahona, and Sociedad Ornitológica de Hispaniola, as well as Haitian groups such as Société Audubon Haiti and Fondation Seguin, have been very active in a variety of conservation efforts. These groups have worked diligently to foster an entirely new perspective of natural resource protection to conserve the island's national heritage. Some of these organizations work cooperatively for conservation and protected area advocacy, such as under the Consorcio Ambiental Dominicano and the Alianza para la Defensa de las Áreas Protegidas. In the Dominican Republic, academia-linked groups, such as the Comisión Ambiental de la Universidad Autónoma de Santo Domingo, the Academia de Ciencias de la República Dominicana, and Instituto Tecnológico de Santo Domingo, have also been strong advocates for protected areas and environmental health.

Private companies, especially in the Dominican Republic, have begun investing in conservation. For example, Fundación Propagas, established by a leading propane gas distributor, and the Sustainability Center of Grupo Punta Cana, a leading tourism group, have contributed significantly to conservation programs. Other companies have collaborated with local nonprofits to carry out conservation actions. For example, the cement company Cemex Dominicana collaborated with the nonprofit Grupo Jaragua in an innovative Biodiversity Action Plan.

It is noteworthy that both government and civil society actors have benefited from contributions from the international conservation community. This has included efforts to strengthen and increase technical capacity by the National Aviary, Vermont Center for Ecostudies, BirdLife International, Environmental Protection in the Caribbean (EPIC), American Bird Conservancy, BirdsCaribbean, and Caribaea Initiative. The contribution of foreign government agencies, such as the U.S. Fish and Wildlife Service, the U.S. Forest Service International Programs, and the Ministry of the Environment and Climate Change Canada (through the Nature Canada program), has been noteworthy. The Ministry of the Environment in partnership with the United Nations Development Program has also carried out a number of multi-million-dollar environment-related projects funded by the Global Environmental Facility.

CONSERVATION ACTIONS

Area-based conservation

Both the Dominican Republic and Haiti can boast of national protected area systems that protect important natural habitat for birds. In the Dominican Republic, the National System of Protected Areas has grown from 9 areas protecting 4.2% of the country's land area in 1980 to 123 areas covering 25% of Dominican territory (~12,000 km^2) in 2017. In Haiti, 20 protected areas cover ~7% of the country's land base. These include areas designated as national parks, managed natural resource protected areas, biological diversity areas, and exceptional natural elements. In 2015, Haiti's first protected area management plan was developed for Macaya National Park.

In the Dominican Republic, after a series of legislative attempts to eviscerate the national park system through the sale of protected lands for tourism and development, the conservation community attained inclusion of the Dominican Republic's protected areas under its constitution. In the 2015 constitution, protected areas are recognized as "an inalienable, non-sequestrable national heritage, not subject to statutory limitations." Additionally, the constitution explicitly bans protected area size reductions without favorable votes of two-thirds of both houses of Congress, making it much more difficult to modify existing protected areas.

Although the Ministry of the Environment is ultimately responsible for management of the Dominican Republic's protected areas, some civil society groups collaborate under formal co-management arrangements. These include Fundación Progressio with Ébano Verde Scientific Reserve, Grupo Jaragua with Jaragua and Sierra de Bahoruco National Parks, Fundación Moscoso Puello and Fundación Propagas with Valle Nuevo, Asociación Comunitaria de Ecoturismo del Salto del Limón with Salto del Limón Natural Monument, and Río Damajagua Guides Association with Salto de Damajagua Natural Monument. In recent years, a private reserve, Reserva Privada Zorzal, has also been added to the National Protected Area System.

At the international level, Hispaniolan sites have received recognition for hosting exceptional biodiversity, helping to prioritize conservation actions and funding streams. These include BirdLife International's Important Bird and Biodiversity Areas (IBAs), with 21 IBAs in the Dominican Republic and 10 in Haiti. All of these IBAs have also been designated as Key Biodiversity Areas (KBAs), a standard proposed by Conservation International and now recognized by the International Union for the Conservation of Nature. A third international coalition, the Alliance for Zero Extinction, has recognized a site in the Dominican Republic (Los Haitises) on behalf of its importance for Ridgway's Hawk.

Finally, Dominican and Haitian protected areas have also been included in international environmental conventions. Three sites are recognized under the Ramsar Convention for wetlands of international importance, including Lago Enriquillo, Laguna de Cabral, and Jaragua. These sites are also recognized under the Specially Protected Areas of the Wider Caribbean (SPAW) Protocol of the United Nations Environmental Program's Cartagena Convention. Another UN organization, UNESCO, has further recognized two International Biosphere Reserves on Hispaniola: the Jaragua-Bahoruco-Enriquillo Biosphere Reserve and the La Selle Biosphere Reserve.

Species-based conservation

Few Hispaniolan bird species have received focused conservation attention. One of the earliest species-specific programs targeted Ridgway's Hawk, a Critically Endangered endemic with fewer than 500 individuals remaining. Since 2000, breeding pairs and their nests have been monitored yearly by Fondo Peregrino RD. Related conservation actions have included securing unstable nests, protecting fledglings from botfly larvae infestations, and establishing new breeding populations via a translocation program. Since 2009, the private sector (Fundación Propagas and Grupo Punta Cana), in collaboration with ZOODOM, has joined this effort, successfully translocating hawks to Punta Cana, where wild breeding first occurred in 2013.

The Critically Endangered Black-capped Petrel has been another focus of monitoring and conservation efforts in the Dominican Republic and Haiti. Teams led and trained by Grupo

Jaragua, in collaboration with Environmental Protection in the Caribbean (EPIC) and the International Black-capped Petrel Working Group, have identified and monitored nesting sites in the Sierra de Bahoruco–Massif de la Selle range, and at Valle Nuevo National Park in the Cordillera Central. Unfortunately, dogs, mongoose, and forest fires take an annual toll on nest success. Related efforts for the petrel led by EPIC in Haiti focus on community-based habitat restoration, sustainable farming, and economic improvement programs near breeding sites.

The Endangered endemic Golden Swallow has been managed through the establishment of artificial nesting boxes in Valle Nuevo National Park. Beginning in 1998, boxes were built and monitored in the Sierra de Bahoruco by local birdwatchers with direction from Steven Latta and the Cornell Lab of Ornithology. More intensive research and critical monitoring efforts were pursued by Cornell University students at Valle Nuevo National Park, and that program has since been maintained with support and staff from Fundación Propagas.

Finally, two species of migratory birds overwintering on Hispaniola have received focused conservation attention. Steven Latta has collaborated with Grupo Acción Ecológica in long-term studies of the riparian-obligate Louisiana Waterthrush. These studies are contributing to development of full annual cycle models to identify what factors affect population sizes of migratory birds. Chris Rimmer of the Vermont Center for Ecostudies (VCE) has led a 25-year effort to monitor and investigate Bicknell's Thrush, a globally Vulnerable overwintering migrant. This program has built capacity by supporting local research and habitat restoration efforts. Partners were also instrumental in achieving a critically important land purchase for Reserva Privada Zorzal in the Cordillera Septentrional, now managed by Consorcio Ambiental Dominicano. VCE's work has also led to local reforestation efforts in Sierra de Bahoruco and a forest recovery program in Haiti that has been led by Cornell University's James Goetz at key Bicknell's Thrush sites.

Environmental education

Environmental education around birds of Hispaniola took shape in the 1960s, when naturalists Donald Dod and his wife, Anabelle Stockton de Dod, led bird-oriented education initiatives that included talks, walks, stakeholder workshops, and public forums on avian conservation. Their influence in the development of governmental organizations, including the National Museum of Natural History, and of grassroots groups led to the emergence of the first birdwatching clubs in the Dominican Republic. In addition, Mrs. Stockton de Dod contributed greatly to the production of education materials through the publication of bird books and illustrated pamphlets, and she compiled natural history and anecdotal information. Since then, avian education initiatives have increased slowly yet steadily across the island.

The 1998 National Planning Workshop for Avian Conservation in the Dominican Republic identified the need to create a national culture for environmental protection through the training of educators and the design of an environmental curriculum, in addition to strengthening stakeholder capacity for community organizing and advocacy. Although a national educational curriculum specific to avian conservation has not yet been established in either country, the Dominican Republic recently passed a new law regarding the implementation of environmental education and communication in public education and outreach. In addition, thanks to efforts led by BirdsCaribbean, educators from several Dominican organizations have adopted the BirdSleuth Caribbean curriculum developed by the Cornell Lab of Ornithology. In general, educators face many operational and capacity-related challenges, particularly in Haiti, given the limited number of didactic tools and materials translated to Kreyòl. Regardless, many conservation groups, including governmental agencies, actively participate in global and regional education schemes, such as World Migratory Bird Day, World Shorebirds Day, and the Caribbean Endemic Bird Festival.

Although early environmental education efforts were scattered and small-scale, by 2015 improved communication outlets through social media, as well as access to online and digital resources, allowed the development of medium- and large-scale initiatives to reach more diverse audiences. For instance, a concerted education campaign for parrot conservation reached more than 150,000 people in Santo Domingo during 2015–2016. In addition, bird-oriented summer

camps and festivals have been held in several locations; these include migratory bird-themed camps led by Grupo Acción Ecológica, parrot-themed camps led by Grupo Jaragua, and Black-capped Petrel festivals led by EPIC. Since 2017, an annual festival has celebrated Ridgway's Hawk. Other novel approaches to community outreach and education include door-to-door efforts and a community theater program to deter persecution of Ridgway's Hawk; specialized training of farmers to promote tree diversification in cacao farmlands; linking birds to sports programs, such as a Black-capped Petrel soccer team; and the training of ZOODOM educators by the National Aviary in the use of "bird shows" to increase public awareness regarding birds of prey.

Ecotourism

The establishment of ecotourism programs has been linked to the success of local conservation efforts. During the last two decades, numerous newly created ecotourism activities have promoted both sustainable livelihoods and bird conservation programs. These include flamingo-watching tours in Oviedo Lagoon, agritourism in Reserva Privada Zorzal, and kayaking tours in Monte Cristi, Dominican Republic. These initiatives also contribute to pride-building, site recognition, and increased local awareness regarding the importance of birds and other biodiversity.

Despite the lack of an established birding culture in the Dominican Republic, the 2012 publication of the first bird-finding guide, *Ruta Barrancoli: A Bird-finding Guide to the Dominican Republic* by Steven Latta and Kate Wallace, has led to the emergence of regional and local collaborations aimed at strengthening guided interpretation, infrastructure, and marketing platforms for birdwatching tourism. Although birding tourism is still developing on the island, international and locally based tour operators have established a variety of high-potential ecotourism products.

CHALLENGES REMAIN

Most Hispaniolan protected areas face multiple threats to the effective conservation of their biodiversity. In Haiti, these weaknesses have more serious consequences, as the landscape is severely deforested. The country's high population density, chronic poverty, and political instability have prevented sustained conservation efforts. Despite the Dominican Republic's greater political and economic stability, and its ambitious protected area system, repeated evaluations of management effectiveness across 35 areas have yielded disappointing results. Site weaknesses include insufficient budgets, limited staff capacity, poor availability of proper equipment, and lack of infrastructure and visitor facilities. Other notable constraints include the lack or near-lack of patrolling systems, management plans (or their implementation), and local community involvement. Together, these contribute to very poor legal enforcement of protected areas, and the labeling of many protected areas as "paper parks."

In the Dominican Republic, some protected areas, especially those linked to international tourism, receive considerable revenue via entrance fees; however, there is no clear policy for the management of these funds. In 2006, a presidential order established that fees generated by protected areas should not be diverted to the general government account, but would remain within MIMARENA to improve protected area management. However, even with the public-private partnership Fondo MIMARENA, established as a trust to finance protected area management and infrastructure improvements, in 2009 one-third of all revenues were diverted to other uses.

Protected areas also suffer from uncertainties about land ownership. In the Dominican Republic, a double land tenure regime is in place, causing considerable confusion. Land titles include a formal title registered in a central government office, and a traditional title based on notarized sales contracts in the local mayor's office. Under the traditional system, which prevails in rural areas where most protected areas occur, tenure claims can be based on sustained, uninterrupted, and peaceful occupation, with rights increasing over time. The formal designation of protected areas has often clashed with land occupants and owners under both systems, since

Haitian field apprentices Françoise Benjamin (left) and Jean-François Orélien Beauduy (right) banding a Red-legged Thrush with Chris Rimmer during a training workshop in La Visite National Park, February 2014

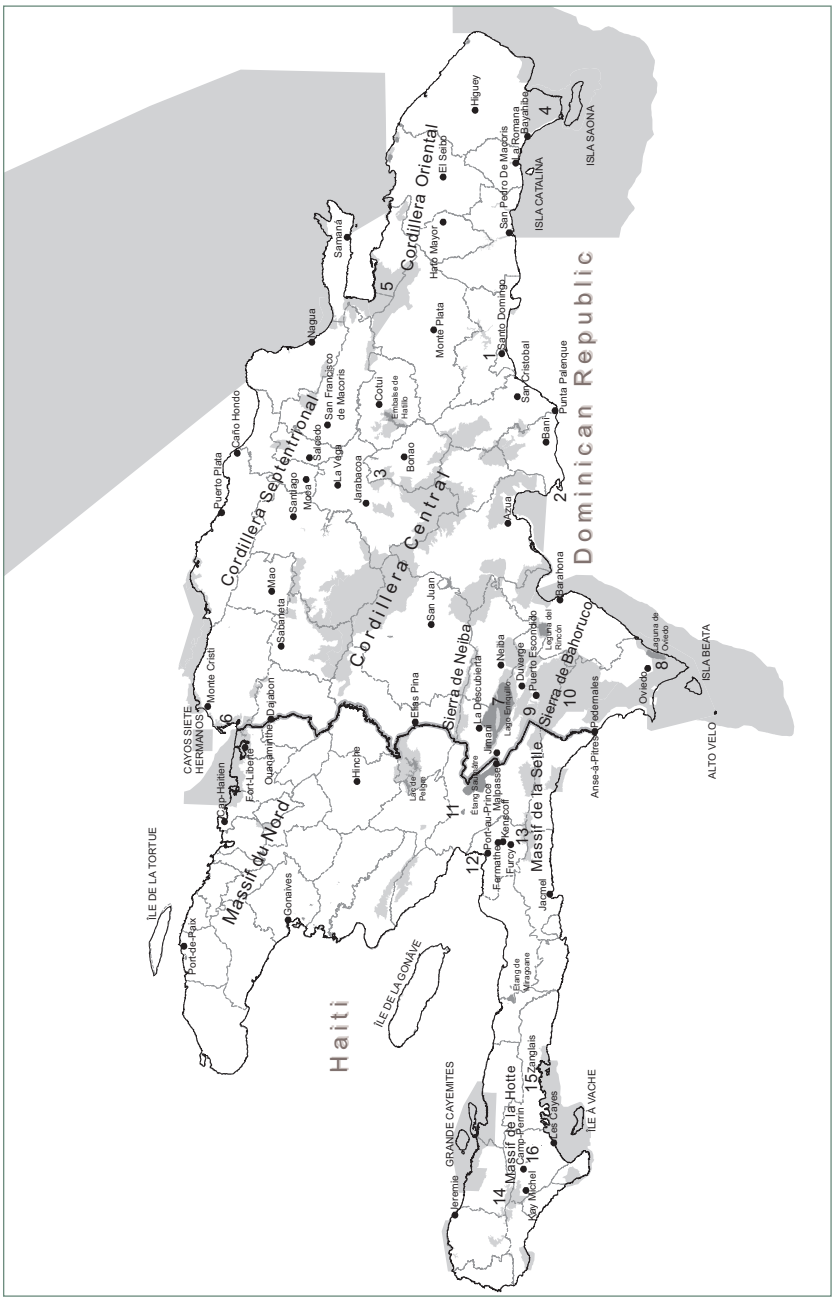
compensation has been rare and the legitimacy of titles questioned. Due to the lack of legal enforcement of protected areas, most occupants continue farming inside parks as they had in the past, thereby locking habitats into a suboptimal state. These tenure issues are compounded by a lack of visibly marked boundaries for most protected areas, facilitating protected area violations, even by other government agencies.

Periodic reforestation programs have been executed by both government agencies and private sector organizations. In the Dominican Republic, these have been implemented mainly by a government program, Quisqueya Verde, which is financed by MARENA revenues. However, few statistics are available on these plantings, and little follow-up monitoring has been conducted; efforts have often been misguided by planting exotic tree species, including Caribbean pine, Australian grevillea, and Mediterranean cypress. Reforestation programs have been further hampered by the dominant use of only two native tree species for all sites (West Indian mahogany and Hispaniolan pine), both of which have commercial timber value.

There are two overarching challenges impeding further, effective conservation in Hispaniola. One, which derives from the underlying political culture in both countries, is a lack of institutional and staff stability, resulting in a shifting policy focus. This extends to the appointment of party members to key government positions, even when appointees lack the most basic aptitude for environmental management; this issue affects conservation all the way up to the Minister level. The second broad challenge hindering conservation across the island is poverty. Many rural communities surrounding protected areas lack opportunities for sustainable livelihoods, forcing people to violate environmental laws to survive. Even as many communities in the Dominican Republic have improved their living standards in recent years, local residents routinely hire low-wage Haitian workers to carry out their farming practices, especially those involving shifting agriculture inside protected areas, thus perpetuating the deforestation cycle.

Despite these challenges, both Haiti and the Dominican Republic have taken key steps to institutionalize and professionalize environmental conservation. Concurrently, the Dominican Republic's civil society has given rise to many strong and effective environmental advocates, educators, and conservationists, who work both independently and closely with the government. Similarly, emerging civil society groups in Haiti, working across the country via governmental and regional cooperative initiatives, provide a favorable scenario to strengthen avian conservation efforts. Finally, the use of social media and the increasing tendency of conventional media to highlight conservation issues and successes give us hope for the future.

MAP OF HISPANIOLA: BIRDWATCHING SITES



BIRDWATCHING ON HISPANIOLA

Comprising a small island with 34 endemic species, and many more regional endemics, the Dominican Republic and Haiti are growing in popularity for the birdwatcher. Here we outline a few of our favorite sites for sampling the island's diverse birdlife; these include sites suitable for day trips from Santo Domingo or Port-au-Prince, and sites that may require more extended travel.

While we provide information on a diverse array of birdwatching sites, please note that access to remote areas of the island can be difficult for those unaccustomed to rural travel. We recommend that for the sake of convenience, safety, and the best birding, everyone *please contact a local guide*. There are many well-trained and friendly birdwatching guides on the island who would love to help you discover Hispaniola's avifauna and tell you more about the island's habitats, plants, animals, history, culture, and conservation efforts! We particularly recommend Manny Jimenes at Explora EcoTour (https://exploraecotour.com/), Miguel A. Landestoy, Independent Guide (mango_land@yahoo.com), and Kate Wallace at Tody Tours (https://www.todytours.com/).

BIRDING SITES IN THE DOMINICAN REPUBLIC

These sites are a selection from a complete list of birdwatching sites contained in the book, *Ruta Barrancolí: A Bird-finding Guide to the Dominican Republic* by Steven Latta and Kate Wallace (National Aviary, 2012). The Ruta Barrancolí covers 44 sites dispersed across the Dominican Republic and represents the first national birding trail in Latin America and the Caribbean. Sites from the Ruta Barrancolí are also posted on BirdsCaribbean's Caribbean Birding Trail (https://www.caribbeanbirdingtrail.org/sites/dominican-republic/), where additional information can be found, including driving directions, access and trail maps, and bird lists.

1. Jardín Botánico Nacional

The Jardín Botánico Nacional Dr. Rafael Moscoso, or National Botanical Garden, is located in the northern part of Santo Domingo and is a fine place to encounter the country's common birds. An early morning walk of about two hours, encompassing wooded areas, a stream, and open palm savannas, will offer opportunities to see many species. The national bird, Palmchat, will be readily observed, and the endemic Hispaniolan Parakeet is likely to be found even though it is often hard to locate elsewhere on the island. The stream is home to Limpkins and Least Grebes, both of which are typically elusive elsewhere. Other more common birds to be found in the gardens include Black-crowned Palm-Tanager, Hispaniolan Woodpecker, Hispaniolan Lizard-Cuckoo, Mangrove Cuckoo, Antillean Palm-Swift, Gray Kingbird, Vervain Hummingbird, and Antillean Mango. Black-whiskered Vireos may be heard singing even if they are not easily seen. Many migratory warblers may also be seen in the Botanical Gardens during the nonbreeding season.

OPPOSITE PAGE: Numbered birding sites and nationally protected areas (shaded gray) as shown at www.protectedplanet.net, including marine and terrestrial national parks, biological reserves, natural monuments, and wildlife refuges.

1. Jardin Botánico Nacional
2. Salinas de Baní
3. Reserva Científica del Ebano Verde
4. Parque Nacional Cotubanamá
5. Parque Nacional Los Haitises
6. Monte Cristi
7. Lago Enriquillo
8. Laguna de Oviedo
9. Sierra de Bahoruco—North Slope
10. Sierra de Bahoruco—South Slope
11. Trou Caïman
12. Port-au-Prince
13. Parc National La Visite
14. Macaya Biosphere Reserve
15. Zanglais
16. Lakes between Cayes and Camp Perrin

American Redstart may be seen in the Jardín Botánico Nacional

2. Salinas de Baní

Salinas de Baní is located some 60 km west of Santo Domingo, or about an hour-and-a-half drive, making it an ideal destination for a day trip from the city. The Salinas de Baní area is characterized by extensive sand dunes, inter-dunal swales, thickets, mangroves, salt-drying pans, lagoons, mudflats, and both sandy and rocky beaches. Many of these are not common habitats on Hispaniola, and the site therefore provides extremely important habitat for both migratory and nesting shorebird species. All egret and heron species present on the island may be seen here, as well as Clapper Rails and Whimbrels. Shorebirds are plentiful in the mudflats, coastal areas, and especially the saltpans. Nesting species at Salinas de Baní include Snowy Plover, Wilson's Plover, Least Tern, and Willet. Many warblers frequent the mangroves and thickets along the lagoons, and the bay often hosts boobies and other seabirds. Many Hispaniolan rarities have first appeared here, including Black-legged Kittiwake, Great Black-backed Gull, Lesser Black-backed Gull, American Golden-Plover, Wilson's Phalarope, and Red-necked Phalarope. A spotting scope is recommended.

Salinas de Baní

3. Reserva Científica del Ebano Verde

Reserva Científica del Ebano Verde is located 1.5 hours from Santo Domingo on the easternmost slopes of the Cordillera Central. The best trail for birding is the Arroyazo Sendero de Nubes trail, which starts at the visitor center and ends at the top of Casabito. This trail extends 6 km through pine forest and second-growth areas which were formerly populated but are now recovering. Halfway up the trail, one starts walking beside El Arroyazo, where the vegetation changes to riparian forest characterized by the manacla palm (*Prestoea acuminata*), which typically grows in humid soil. The upper part of the trail passes through dense, undisturbed cloud forest that is very much worth seeing. For most of its length, the trail involves a relatively easy walk, although the final ascent to the top of Casabito Mountain is fairly steep. Along the trail it is common to encounter Stolid Flycatcher, Hispaniolan Elaenia, Hispaniolan Pewee, Hispaniolan Trogon, Narrow-billed Tody, Hispaniolan Woodpecker, Caribbean Martin, Vervain Hummingbird, Hispaniolan Emerald, Antillean Siskin, Rufous-collared Sparrow, Hispaniolan Spindalis, Black-crowned Palm Tanager, Rufous-throated Solitaire, Yellow-faced Grassquit, and Black-faced Grassquit. In the upper cloud forest, one has a chance at briefly sighting, or at least hearing, the elusive Eastern Chat-Tanager as well.

4. Parque Nacional Cotubanamá (del Este) and Isla Saona

Parque Nacional Cotubanamá (del Este) is located on the extreme eastern end of Hispaniola, close to some of the island's most popular resort areas. The national park contains an extensive area of dry forest where you are likely to find White-crowned Pigeon, Hispaniolan Parrot, Mangrove

Eastern Chat-Tanager occurs at the Reserva Científica del Ebano Verde

BELOW: Parque Nacional Cotubanamá (del Este)

Cuckoo, Hispaniolan Lizard-Cuckoo, Broad-billed Tody, Antillean Piculet, Hispaniolan Woodpecker, Stolid Flycatcher, Flat-billed Vireo, Black-whiskered Vireo, Greater Antillean Bullfinch, and other dry forest inhabitants. White-necked Crows may also be seen near Guaraguao. A productive walk is a 3 km trail from the Guaraguao Park Entrance near the village of Bayahibe that parallels the beach. It is at first sandy, and then passes over rough limestone with a slight rise in elevation, indicating a former marine shoreline accompanied by a slight change in habitat type. At the El Puente Cave, look for the Taino petroglyphs as well as an Ashy-faced Owl that sometimes roosts inside. Arrive early and carry plenty of water.

The main tourist attraction at Cotubanamá (del Este) is the trip to Isla Saona, also part of the parks system, although this is primarily a beach excursion. In order to visit the extensive Magnificent Frigatebird colony at Las Calderas on the way, it is advisable to contact the park office in the village of Bayahibe.

5. Parque Nacional Los Haitises

Los Haitises National Park is the stronghold of the endemic and Critically Endangered Ridgway's Hawk. The park consists primarily of dense lowland broadleaf forest covering very hilly karst limestone formations called mogotes. Although much of the area has been previously deforested, the extremely steep mogotes were often left untouched, forming small islands of intact habitat. Today, with protection afforded by the park, areas between the mogotes are regenerating with thick vegetation. Typical forest birds include White-crowned Pigeon, Plain Pigeon, White-necked Crow, Broad-billed Tody, Hispaniolan Pewee, Stolid Flycatcher, Black-crowned Palm-Tanager, Hispaniolan Parrot, and Hispaniolan Oriole. Off the coast, mogotes form islands in the bay and are nesting sites for egrets, pelicans, frigatebirds, and Brown Boobies.

One popular and pleasant route to visit Los Haitises is by hiring a boat and guide from Caño Hondo, proceeding down a river through mangroves to the Bahía de Samaná, and then stopping at various points to explore trails on the margins of the park that pass through lowland broadleaf forest. Otherwise access to Los Haitises is quite difficult. The best way to visit interior areas is to contact the park office where you can hire a guide who is familiar with the park. Please note that the trails in Los Haitises are not well maintained and can be lined with nettle and other irritant plants. Trails are often rocky and slippery due to the geological characteristics of the area and frequent afternoon rains. Humidity levels can reach 95% in the forest. Arrive early and carry plenty of water.

Parque Nacional Los Haitises

Monte Cristi

6. Monte Cristi

The town of Monte Cristi, and the Parque Nacional Monte Cristi, are located in the northwest corner of the country and best known for the massive El Morro headland, seen and named by Christopher Columbus (known in Spanish as Cristóbal Colón). The main birding attractions here are the extensive mangroves (which can be explored by boat), lagoons full of flamingos hidden in cactus forests (for which a local guide is essential), and the offshore islands of the Cayos Siete Hermanos. During the months of May through August, these islands are home to nesting seabirds, including large numbers of Brown Noddy, Sooty Tern, and Bridled Tern. Besides flamingos, the mangroves host many herons, egrets, spoonbills, ibis, and other large waders, as well as shorebirds and waterfowl, including some hard-to-find species such as Ring-billed Gull and Gull-billed Tern. Although numbers of wintering ducks are reduced from historic highs, Monte Cristi is still one of Hispaniola's better places to find wintering and resident waterfowl.

7. Lago Enriquillo

This large, hypersaline lake lies a remarkable 44 meters *below* sea level. It is a remnant of the open marine channel that during much of the Pliocene and Pleistocene separated the southern paleo-island of Sierra de Bahoruco, Massif de la Selle, and Massif de la Hotte from the rest of what is now Hispaniola. Lago Enriquillo is a surreal landscape and home to hundreds of egrets, terns, herons, and flamingos, as well as crocodiles and iguanas. The mud-sand flats fringing the lake's shore can provide good shore-birding. White-necked Crows may be seen around the town of La Descubierta, and Palm Crows are found on Isla Cabritos, a large island in the lake's middle. Access to the national park is a few kilometers east of La Descubierta on Lago Enriquillo's north shore. From here, one can arrange boat trips, which proceed along the shore to observe birds

and crocodiles, stopping on Isla Cabritos to view the iguanas. Birdwatching from the northern shore is also possible in the Los Borbullones area near the village of Bartolomé, and on the south shore from the Duvergé–Jimaní road west of the town of Baitoa.

8. Laguna de Oviedo

To experience a close look at American Flamingo, Roseate Spoonbill, White Ibis, as well as other waders, shorebirds, gulls, terns, and pelicans, a boat trip on Laguna de Oviedo is recommended. This brackish lagoon is in southwestern Dominican Republic, halfway between Barahona and Pedernales. It is so shallow that after crossing the width of the lagoon to the mangrove edge, the boatman must get out and wade, pushing the boat by hand. By cutting the motor, it is usually possible to approach birds very closely. A longer trip down the length of the lagoon passes an island where White Ibis nest and may also include a stop at another island to see the two local iguana species, one of which is endemic to Hispaniola. Purchase tickets and inquire about tours in the Oviedo park office. Be sure to arrive at Laguna de Oviedo early in the morning, because winds typically pick up in late morning and can make for a wet, though not dangerous, trip.

Reddish Egret occurs at Lago Enriquillo

BELOW: American Flamingos at Laguna de Oviedo

9. Sierra de Bahoruco—North Slope; Puerto Escondido, Rabo de Gato, La Placa, and Zapotén

The Parque Nacional Sierra de Bahoruco is Hispaniola's premier birding area. Although some areas of the park are remote and difficult to reach, requiring a 4x4 vehicle, other areas are more easily accessed. Of the 34 Hispaniolan endemics, only Ridgway's Hawk and Eastern Chat-Tanager are not found in the region; in addition, the Grey-crowned Palm-Tanager, endemic to Haiti, rarely crosses into the Sierra de Bahoruco mountain range. The outstanding feature of the Bahoruco's north slope is its montane broadleaf evergreen forest, or Dominican cloud forest, marked by large tree ferns above Zapotén at about 1,200 m elevation. This is the best site for high-elevation endemics such as Scaly-naped Pigeon, White-fronted Quail-Dove, Hispaniolan Emerald, Hispaniolan Trogon, Narrow-billed Tody, Rufous-throated Solitaire, La Selle Thrush, Green-tailed Ground-Tanager, Hispaniolan Highland-Tanager, Western Chat-Tanager, Hispaniolan Spindalis, Antillean Euphonia, and Antillean Siskin.

North slope birding sites are accessed above the village of Puerto Escondido south of Duvergé. Just outside the town of Puerto Escondido, the area known as Rabo de Gato is an interesting narrow strip of riparian habitat with a surprising mix of birds. Both Broad-billed and Narrow-billed tody occur here, as well as Hispaniolan Lizard-Cuckoo, Antillean Piculet, Hispaniolan Trogon, Flat-billed Vireo, White-necked Crow, Hispaniolan Oriole, and Antillean Euphonia, and on occasion the Bay-breasted Cuckoo. Simple accommodations are available at Rabo de Gato and represent the best opportunity for early arrival at the higher elevation birding sites mentioned below. For accommodations at Rabo de Gato, contact Kate Wallace at Tody Tours (https://www.todytours.com/) or Manny Jimenes at Explora EcoTour (https://exploraecotour.com/).

From Rabo de Gato, one can follow the single road along the international border, but extreme caution is advised as the road is not well maintained and a 4x4 vehicle is essential. About 10 km beyond Rabo de Gato, and ascending in elevation, La Placa is a reliable spot for Bay-breasted Cuckoo and Flat-billed Vireo. At dawn and dusk, this is also one of the best places to see or hear Least Pauraque and Hispaniolan Nightjar. Continuing up the road for another 3–5 km, the area known as Los Naranjos has traditionally provided the most dependable sightings of Bay-breasted Cuckoo. About 3 km further on, the road enters a (normally) dry riverbed full of loose stone, and

Sierra de Bahoruco—North Slope

ascends into the moist broadleaf zone. About 5 km past the military guard post at Aguacate, the road enters a brief stretch of pine forest. The cloud forest zone begins just short of 2 km further on. Stop at a wide curve and park well off the road. The best birding strategy here is to walk up and down the road. Be advised, however, that in order to maximize the chance of seeing La Selle Thrush, you should arrive before dawn, after which you might find birds foraging in the road. Beyond Zapotén the road continues to ascend, crossing Loma del Toro and patches of excellent cloud forest, before descending through pine forest and the agricultural areas of Los Arrollos to the border town of Pedernales. This road is frequently impassable, even with a 4x4 vehicle, so *always* check local conditions before proceeding. From Pedernales, the south slope of the Sierra de Bahoruco is accessible via Aceitillar just east of town (see below).

10. Sierra de Bahoruco—South Slope; Cabo Rojo, Aceitillar

Cabo Rojo and the Aceitillar sector of the Parque Nacional Sierra de Bahoruco lie just east of the border town of Pedernales, and are about half an hour west of Oviedo, with a good paved road all the way. Cabo Rojo and the Aceitillar sector are linked by the Alcoa Road, a paved road that remains from the bauxite mining operations of Alcoa. At sea level, and the southern terminus of the Alcoa Road, Cabo Rojo contains a small wetland across from the mine shipping port. This wetland attracts a fair number of waterfowl and shorebirds of all kinds, including the regional endemic White-cheeked Pintail, White Ibis, occasional Roseate Spoonbill, and wintering ducks and shorebirds. The mangroves here harbor good numbers of Yellow Warblers, an endemic subspecies, and many other nonbreeding warblers. North from Cabo Rojo, the road climbs steadily through desert thorn scrub to dry forest and broadleaf forest until reaching pine forest

Sierra de Bahoruco—South Slope

at about 1,100 m elevation. This portion of the park is known as Aceitillar, taking its name from a local grass. Just after entering the pine forests, look for a national park sign for La Charca, which is a small catch basin for water runoff. When water is present, this is a great spot to look for Hispaniolan Emerald, Antillean Piculet, Caribbean Martin, and especially Golden Swallow and Hispaniolan Crossbill, as well as several species of warblers in season. The Hispaniolan Parrot, Hispaniolan Parakeet, Olive-throated Parakeet, and Plain Pigeon are also commonly seen here. Make frequent stops on the way down to find the piculet and other broadleaf specialists.

BIRDING SITES IN HAITI

Although the Dominican Republic's birding infrastructure is currently better developed than Haiti's, Haiti still offers remarkable opportunities to encounter many Hispaniolan and Greater Antillean endemics. Haiti supports all populations of the Gray-crowned Palm-Tanager, and finding this rare species is virtually guaranteed in proper habitat. In addition, other Haitian sites can provide excellent views of rare endemic birds such as La Selle Thrush, Western Chat-Tanager, and Hispaniolan Highland-Tanager.

Many of Haiti's premier birding sites are in remote and difficult-to-access locations, thus tending to appeal to more adventurous and hardy birders. Political stability in Haiti ebbs and flows, with direct effects on safety for travelers, so it is very important to check conditions in the country before making travel plans. The U.S. State Department assesses safety concerns in all countries, and these reports and recommendations can be found online at https://travel.state.gov/content/travel/en/traveladvisories/traveladvisories/haiti-travel-advisory.html. Often the situation described in the international media is bleaker than reality on the ground, so we also encourage you to seek local advice, such as that of guides listed here, whenever considering a trip to Haiti. Frequently the greatest security risks are in the capital of Port-au-Prince and surrounding areas, with more outlying departments in the south and the north being quite safe. As such, conditions may sometimes warrant passing in a 4x4 vehicle from Pedernales, Dominican Republic (see suggestions for birding in Pedernales, above), to Anse-à-Pitres (or Ansapit), Haiti, to access the departments of the south without passing through Port-au-Prince. Similarly, in the north, by passing from Monte Cristi, Dominican Republic (see suggestions for birding in Monte Cristi, above), to the border towns of Dajabon and Ouanaminthe (or Wanament), it may be possible to access the northern departments and their many waterbirds, waders, and other birdlife. Regardless, the rewards of birding in Haiti are great, and the country's rich cultural heritage and the friendliness of its people will be an unquestionable highlight of your visit. Since Haiti is not currently included in the Caribbean Birding Trail, here we provide more detailed information on driving directions and access for a number of sites.

11. Trou Caïman

Trou Caïman (or Dlo Gaye) is a shallow, freshwater lake approximately 25 km northeast of Port-au-Prince. As part of the lowland Cul-de-Sac / Neiba corridor, Trou Caïman attracts a wide variety of birds, particularly migrants. In recent years, more than 100 species have been recorded at this site, including rare vagrants like Neotropic Cormorant, American Golden Plover, Buff-breasted Sandpiper, Black Skimmer, American Pipit, and Bay-breasted Warbler. At least 30 species can be found at Trou Caïman on any given morning of the year.

Access to Trou Caïman is a relatively easy 45-min trip by vehicle from Port-au-Prince. Begin by taking the road to Croix-des-Bouquet. This is the same road that leads to the Haiti–Dominican Republic border at Malpasse and Jimaní. At the roundabout intersection in Croix-des-Bouquet, take the road north that leads to Mirebalais (Central Plateau). Eventually the houses become scarce, more scrub land is evident, and the pavement abruptly ends just before a lone gasoline station. Continue on for less than 1 km and veer right onto a rough dirt road leading toward Thomazeau. After a few minutes of driving, Trou Caïman will appear in the distance below. Eventually the road passes very close to the lake itself at a left-hand bend in the road just before

Northern Jacana occurs at Trou Caïman

the tiny village of Trou Caïman. At this point, look for a small entry in the brush barely wide enough to accommodate a vehicle. Beware of thorns when entering, and also soft ground under the grassy area next to the shoreline. From this point, one can view a portion of the cattail habitat and a large portion of the lake.

The wide, flat, grass-fringed western edge of the lake is the best area for birdwatching since it is relatively clear of trees and scrub. This habitat is especially attractive to ducks, herons, egrets, plovers, sandpipers, gulls, and terns. Pied-billed Grebe, Common Gallinule, and American Coot are often seen or heard. American Wigeon, Northern Shoveler, Lesser Scaup, and Ruddy Duck may be seen on the lake during the winter months. Walk south along the western edge for better viewing of the southwest corner, where bird activity is usually high. Make sure to check the scrubby areas for migrating and wintering warblers, as well as for local birds like Smooth-billed Ani, Broad-billed Tody, Hispaniolan Woodpecker, Hispaniolan Palm Crow, White-necked Crow, Gray Kingbird, and Village Weaver. This is one of the most consistent locations in Haiti to see American Flamingo; they are usually near the far eastern shore, so a spotting scope is highly recommended. From August to October, keep watch overhead for migrating Osprey. During winter months, Peregrine Falcon and Merlin can be observed hunting or resting. Large swaths of reeds dominate the northern part of the lake, where one can find wintering waterfowl, Fulvous Whistling-Duck, and Least Bittern. Local fishermen will take birders there in a small skiff for a negotiable fee. There are no amenities in this area, so be prepared with water and food. Sun and mosquito protection, plus sturdy, waterproof footwear, are strongly advised. Best viewing is in the early morning, as an easterly wind usually picks up later in the day, making it difficult to hear and occasionally to hold steady binoculars and spotting scopes.

12. Near Port-au-Prince: Fermathe, Kenscoff, Furcy

Approximately 20 km south of Port-au-Prince, this area offers an opportunity to see some of Haiti's high-elevation specialties like Hispaniolan Emerald, Narrow-billed Tody, Hispaniolan Elaenia, Hispaniolan Pewee, Golden Swallow, Rufous-throated Solitaire, Red-legged Thrush, Hispaniolan Spindalis, and Antillean Siskin. To reach the Fermathe, Kenscoff, and Furcy area, take the Route de Kenscoff out of the Port-au-Prince suburb of Petionville. This road is paved, but traffic can be heavy on the twisting road to Fermathe, so caution and patience are advised.

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INDEX OF ENGLISH AND SCIENTIFIC NAMES

QUICK INDEX