

Field Notes from Cuba*
Report on the NAA 5th International Workshop, 9-18 November 2001

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Hurricane Michelle arrived in Cuba five days before we did. I wondered beforehand, watching satellite images of the hurricane as it proceeded across the Caribbean and over western Cuba, whether there would be much left of the landscapes we planned to visit and birdlife we hoped to see.

Our group of sixteen U.S. travelers arrived in Havana full of anticipation nonetheless, convening the NAA International Workshop to Cuba. Our task for the next 10 days was to interact with land managers and scientists in Cuba's national parks, preserves, and other natural areas. The objective was to close the gap in communication and knowledge between Cuban and US conservation biology communities isolated from each other by years of political circumstance. Our venues were a series of natural environments key to maintaining Cuba's high biodiversity, primarily in western Cuba. We met with the staff of three national parks, a UNESCO-designated Biosphere Reserve, a sustainable rural development community, two botanical gardens, and two centers for ecological research and environmental education.

Our visit to Cuba was organized by Gary Markowski under a US Treasury Department license for a humanitarian project for the environment procured by a non-profit organization. Guides and logistical services were provided by Cubatur, a government tour operator. The humanitarian project, the Cuban Bird Survey, promotes the preservation of bird biodiversity and habitats and has been ongoing since 1995. A focus of the workshop was on understanding bird habitats and the status of habitat conservation efforts in Cuba. We conducted bird species counts in the natural areas visited – we found 66 bird species including seven Cuban endemics and many winter migrants familiar to eastern US deciduous forests in summertime. The bird survey, in other trips, also undertakes bird population assessments later in winter at a time when winter migrants are more prevalent (these surveys have yielded up to 160 species).

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From a natural areas perspective, why is Cuba of interest? We were continuously struck by what naturalist Alfonso Silva calls *the Cuban Surprise*. This is a land of highly diverse landscapes – from white beaches bordered by thick mangroves to tropical forests on steep karst (limestone) towers, or “*mogotes*.” Cuba is conspicuously a biodiversity hotspot – over 350 recorded bird species and in excess of 6300 higher plants (but few native mammals). Even though it is only 48 miles from Hispaniola and 90 from Florida, Cuba has high rates of endemism across many taxonomic groups. Twenty-one birds are endemic, as are over half the plant species.

We left Havana for the Zapata Peninsula where Hurricane Michelle made landfall. Damage was patchy – devastating to some communities, others little touched. Fruit in citrus orchards had been blown to the ground, and oranges and grapefruit were being gathered and taken by truck to a local juice processing plant to recoup some of the losses. When we arrived at the interpretative center for the Ciénaga de Zapata (Zapata Swamp) National Park, we saw more damage – the center’s thatch roofs had been laid open, tall Royal Palms blown over, and pens for the crocodile farm no longer held back their residents. Our local host from the park discussed impacts of the hurricane – one concern was the danger of rapid spread of exotic species taking advantage of newly disturbed natural habitats. Our birding efforts were limited by damage from Michelle that kept us out of the interior of the Zapata Peninsula – Cuba’s most prolific birding area. We hiked in the periphery of the swamp forest among some fallen and yet mostly still upright trees. We were in search of the Bee Hummingbird, the world’s smallest bird at 2.5 inches long, weighing less than a tenth of an ounce. Wonderfully called *Zunzuncito*, this endemic eluded us here and elsewhere on the trip.

In search of Cuba’s biodiversity, we discovered that the distribution of natural areas is a study in fragmentation. While roughly 90% of Cuba was forest when the Spanish arrived in the early 1500’s, conversion to agricultural use (sugar cane, tobacco, coffee) left only 15% of the island in forest by 1970. Today, thanks to reforestation efforts forest cover has crept back to 20%. This heavy modification of landscapes has had its toll on biological richness – three bird species are considered extinct and many more endangered. From the areas we visited and their history, we realized that many sites were preserved by default – that is, lands that were inaccessible or with poor soils and so not lending themselves to farming or

ranching. Yet others were protected by design, including estates of wealthy landowners kept as preserves following the Revolution and areas of reforestation. All told, there are 80 protected areas at the national level (both terrestrial and marine), and many more at the local level.

Traveling west, we arrived in Soroa in the Sierra del Rosario mountains. In the morning, we hiked up through semi-evergreen broadleaf forest. There under the canopy, we had our first sighting of four endemic birds, the Cuban Trogon (with iridescent green back, watermelon red and white underside, and violet blue crown), the much smaller but also colorful Cuban Tody, the Cuban Green Woodpecker, and the Cuban Solitaire. The Solitaire was seldom seen, but we were often captivated by its high-pitched, flute-like song penetrating the forest. We arrived at the top of a steep-sided karst hill to a view of the Sierra del Rosario softly draped with closed-canopy tropical forest and emergent Royal Palms.

Soroa and the nearby community Las Terrazas represent, in Gary's words, "Cuba's most important venues with regard to promoting environmental awareness and sustainable tourism." Both are within the Sierra del Rosario Biosphere Reserve designated by UNESCO based on importance of its natural resources, an extensive reforestry program (of a former coffee plantation), and a high number of endemic plants. Las Terrazas is a model sustainable development community supported by forestry, some ranching, and ecotourism – residents play a strong role in conservation activities of the reserve. There we hiked and visited with specialists from the reserve's Ecological Research Center and the National Academy of Sciences. The Center is dedicated to conservation research, reserve management, and environmental education programs for the community. Environmental education is integrated throughout school curricula, using, for example, local ecological concepts in math problem sets. We learned about Cuba's strict enforcement of environmental laws and its internationally recognized commitment to sustainable development.

The next couple days were spent visiting La Güira National Park, west of Soroa. Here we had our first chance to explore a towering mogote up close, both outside and in. At the base of the mogote, forest abruptly gave way to a vertical landscape. The sides of the mogote were the bright white-gray of limestone, with bromeliads, filamentous cacti, and other hangers-on draped off cliff faces and, standing on any foothold big enough, trees and palms – including the bombaceous Ceibón. Inside the mogote, a little above base

level, was a large open cave – Cueva de los Portales, that served as Che Guevara’s headquarters during the Cuban missile crisis in 1962.

We learned from park staff how, in a pattern repeated elsewhere, management for protection of natural areas is laid out hierarchically in concentric patterns on the landscape. In this region, at the broadest level is the Mil Cumbres (Thousand Summits) Resource Management Area which across its 66-sq mile domain has the highest density of endemism in Cuba. It is managed for sustainable use including forestry. Within the management area is La Güira National Park managed for educational and recreational uses. And at the finest level, mogotes are set aside as special reserves within the park, protecting xeromorphic forests on mogote tops as local hot spots of endemism.



Impromptu questions and answers in the field regarding levels of natural areas protection within the Mil Cumbres Resource Management Area. [Photo by the authors.]

Our next venue was Valle de Viñales, a UNESCO World Cultural Heritage Site, and adjacent Viñales National Park. From a vista on a slope above the valley, it was a breathtaking view. This was the Cuba I had seen in photos while studying biogeography in college. This was what had drawn me here. Here was a broad valley of rich red tilled fields, contrasting dark trees and hedgerows, and scattered Royal Palm groves abruptly broken by long precipitous ridges and dramatic towers of mogotes. Each mogote was a pedestal for an island of dense forest. Like two worlds: one rural at base level, the other a discontinuous wilderness

touching down on each mogote summit. This sight is unique in the Americas, but is close in form to and familiar from paintings of karst landscapes of the Li River Valley in southeastern China.

In the next few days, we became intimate with yet a third world of this domain – a world inside the mogotes of extensive cave systems and underground rivers. We visited with staff of the National Speleological School – the only such school in Latin America – who have undertaken ongoing cave zoological surveys and studies of mogote forests. They treated us to a subterranean tour through the nearby Santo Tomás Cave, with 28 miles of caverns distributed across eight levels. With headlamps and helmets, we walked and scrambled through tight passages and broad caverns with an array of calcite deposits including both delicate pearls scattered on the floor and massive pendant stalactites. We emerged several levels up below openings to the sky, rimmed by forest.

We spent an evening in conversation with specialists from Viñales National Park. Levels of land management within the park are again concentric and hierarchical, but with the additional need for coordination with the Valle de Viñales Cultural Heritage Site. As in other parks we visited, there is an emphasis on research and inventory (a new lizard species had been discovered just that year). Such parks and their neighboring management areas encompass sufficient territory and have enough control over landuse to protect endemics – for example, in Viñales 59 of 79 mogote endemic plants are protected in the Park and the rest in surrounding floristic reserves. Restoration of habitats, such as abandoned mines and where exotics are being removed, is supported by efforts to cultivate rare plants in botanical gardens in the city of Pinar del Río and Havana. Our impressions of the specialists and managers everywhere we visited are that they are highly knowledgeable about the ecosystems they work in, are well educated about the issues facing them, and have a strong sense of teamwork. They are hungry for intellectual and technical exchange. Scientific journals and reference texts are wanting in most research facilities. More often than not they lack even basic equipment to carryout their research – simple medical supplies and binoculars for studying birds and the phenology of canopy trees were among the gear we donated.

Our last area to visit was a cay along the north coast, Cayo Jutía. Standing in the soft sand with waves lapping warm water of the Gulf Stream against me, I reflected on the kind people who had been our guides

and hosts and others whom we'd met in casual encounters on the streets of Havana and rural towns, and on *the Cuban Surprise* – the beauty and variety of landscapes, plants, and birds that had filled our too few days here.

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