

# Caribbean National Forest, Puerto Rico

James W. Wiley and Gerald P. Bauer

**LOCATION:** Caribbean National Forest: Luquillo Mountains of northeastern Puerto Rico (18°10'N, 65°30'W) (Fig. 1).

**DESCRIPTION:** The 11,500-hectare (28,000-acre) Caribbean National Forest (Fig. 2) is the only tropical rain forest in the United States National Forest system, and offers the traveler a convenient opportunity to visit a lush and exotic ecosystem and observe its birdlife.

Extreme climate, steep topography, cascading streams, and luxuriant vegetation characterize the forest (Fig. 3). Elevation ranges from approximately 100 to 1075 meters (330-3530 feet) above sea level, with three peaks rising above 1000 meters (3281 feet). Daily temperatures average 25.5°C (77.9°F) at the lowest elevation, and about 18.5°C (65.3°F) above 1000 meters. Mean monthly temperature varies annually from 3 to 3.5°C (5.4-6.3°F). Clouds often cover the upper forest, with solar radiation at El Yunque Peak averaging only 60% of that for the coast, 10 kilometers away. Rain falls nearly daily, averaging 500 centimeters

(200 inches) per year at the highest peaks, and is greatest during spring and fall. Most showers are short but intense.

Much of the lower forest is timber plantations and reclaimed agricultural land, with a mixture of exotic and native trees, ferns, and vines, and a wide variety of naturalized flowering plants. Except for modifications around roads and recreation areas, the relict pre-Columbian forest of the upper mountains remains in the same state as when Europeans first landed on Puerto Rico nearly 500 years ago. Four distinct forest types comprise the virgin forest: the tabonuco, palo colorado, palm, and dwarf forests.

The tabonuco type, or lower montane rain forest, lies below 600 meters (2000 feet) and is characterized by *Dacryodes excelsa* (tabonuco), *Sloanea berteriana*, and *Manilkara bidentata*. The straight white trunks of the dominant tabonuco are clear of branches for more than one-half the tree's height. This creates an open mid-section in the forest (Fig. 4). Originally, tabonuco towered to more than 30 meters (100 feet) and covered most of Puerto Rico's lower mountain

slopes. These forests are now largely gone owing to their valuable timber and the past need for agricultural land.

The palo colorado, or upper montane rain forest, ranges from 600 to 900 meters (1970-2950 feet) in the valleys and gradual slopes, and is characterized by *Micropholis chrysophylloides*, *M. garciniaefolia*, and *Cyrilla racemiflora* (palo colorado). The palo colorado, which dominates this zone, also grows as a short tree or shrub in the titi swamps of the southeastern United States. However, in the Puerto Rican mountains it grows as a huge, canopy-forming tree with circumferences up to 6.3 meters (20.7 feet; Fig. 5).

The palm forest, or brake, occurs on steep slopes and arroyos above 600 meters and is characterized by a near-monoculture of sierra palm (*Prestoea montana*). The forest has few vines and a sparse understory, making it more open than the other forest types.

The dwarf forest, or elfin woodland, occurs on summits and ridge tops above 850 meters (2790 feet) and is characterized by dense stands of stunted, contorted shrubs and small trees. Usually bathed in mists and clouds (Fig. 6), this forest receives rain nearly 350 days each year. The vegetation, as well as the forest floor, is festooned with bryophytes and mosses, and overburdened with vines, lianas, and bromeliads.

The Caribbean National Forest has been designated as an Experimental Forest and a Biosphere Reserve in the UNESCO Man and the Biosphere Program (MAB). To preserve genetic diversity and remnant virgin tracts representing the four forest types indigenous to the area, an 850-hectare (2070-acre) "Baño de Oro" Research Natural Area has been established. An additional area has been

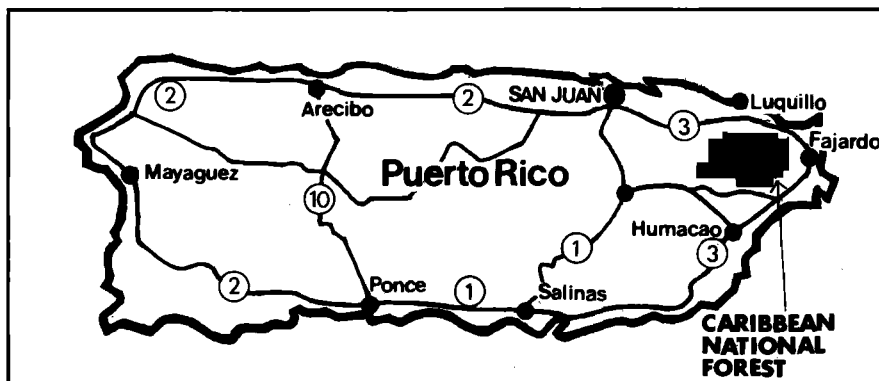


Fig. 1. Map of Puerto Rico and the Caribbean National Forest. The Commonwealth of Puerto Rico is the smallest and easternmost of the Greater Antilles. It is located about 1600 kilometers (1000 mi.) southeast of Miami, Florida.



Fig. 2. North (Atlantic) slope of the Caribbean National Forest. El Yunque Peak is in the background. Photos/Gerald P. Bauer.

proposed as the El Cacique Wilderness Area

Vegetative diversity of the Caribbean National Forest, although not as great as a continental tropical forest, is greater per unit area than in any other United States National Forest. Two hundred and twenty-five tree species are native to the forest, 23 endemic. An additional 47 have been introduced. The Caribbean National Forest harbors 88 rare tree species, more than any other national forest. The rain forest contains about 50 species of native orchids and 150 ferns, the largest of which, the tree fern *Cyathea arborea*, grows to 12 meters (40 feet) high.

About 100 vertebrate species inhabit the Caribbean National Forest. Although a number of mammals once inhabited the island, including a large ground sloth, the only native mammals now inhabiting the forest are 11 species of bats. The forest fauna is dominated by lizards and birds by day and frogs by night. Eight species of *Anolis* lizard are found within the forest, including the 36-centimeter (14-inch) giant tree anole (*Anolis cuvieri*) and

a recently discovered twig-like species (*A. occultus*). Small litter-dwelling *Sphaerodactylus* lizards can often be seen on the trails. Only one snake occurs commonly in the low and middle elevations of the forest—a spectacular boa (*Epicrates inornatus*) that attains a maximum length of about 4 meters (13 feet). Amphibians are mostly represented by 12 species of small frogs of the genus *Eleutherodactylus*. They are locally called *coquí* because of their delightful piping of “co-qui, co-qui” vocalizations. The *coquís* are abundant throughout the forest and are most vocal at night during rainy weather. They offer a bedtime concert for those who choose to camp.

Puerto Rico hosts 269 bird species throughout the year, of which 106 breed and 11 are endemic; 66 species representing 22 families occur in the National Forest (Table 1). Especially interesting birds include the Puerto Rican Tody, one of the five members of the Todidae, a family endemic to the Greater Antilles, and the Puerto Rican Tanager, sole member of an endemic genus. Seventeen species of migrant warblers regularly use the forest,

but only four are common. Perhaps the forest is best known as the last refuge of the formerly abundant Puerto Rican Parrot (Fig. 7). If one follows the suggestions given below under the heading “Big Tree Trail”, there is a good chance for seeing a pair or small flock of these exquisite green birds as they fly over the forest canopy.

**ACCESS:** Puerto Rico’s close association with the United States makes travel to and around the island easy and without the complications of currency exchange rates or a need for passports and visas for United States citizens. Spanish is the official language, although English is widely spoken and accepted. A small language guide may prove useful for those who plan to travel throughout the island. Major American and foreign airlines serve Puerto Rico several times daily. The Isla Verde International Airport in the San Juan metropolitan area is about 40 kilometers (25 miles) west of the National Forest. Tour and cruise ships also make Puerto Rico one of their regular ports of call.



Fig. 2. North (Atlantic) slope of the Caribbean National Forest. El Yunque Peak is in the background. Photos/Gerald P. Bauer.

proposed as the El Cacique Wilderness Area.

Vegetative diversity of the Caribbean National Forest, although not as great as a continental tropical forest, is greater per unit area than in any other United States National Forest. Two hundred and twenty-five tree species are native to the forest, 23 endemic. An additional 47 have been introduced. The Caribbean National Forest harbors 88 rare tree species, more than any other national forest. The rain forest contains about 50 species of native orchids and 150 ferns, the largest of which, the tree fern *Cyathea arborea*, grows to 12 meters (40 feet) high.

About 100 vertebrate species inhabit the Caribbean National Forest. Although a number of mammals once inhabited the island, including a large ground sloth, the only native mammals now inhabiting the forest are 11 species of bats. The forest fauna is dominated by lizards and birds by day and frogs by night. Eight species of *Anolis* lizard are found within the forest, including the 36-centimeter (14-inch) giant tree anole (*Anolis cuvieri*) and

a recently discovered twig-like species (*A. occultus*). Small litter-dwelling *Sphaerodactylus* lizards can often be seen on the trails. Only one snake occurs commonly in the low and middle elevations of the forest—a spectacular boa (*Epicrates inornatus*) that attains a maximum length of about 4 meters (13 feet). Amphibians are mostly represented by 12 species of small frogs of the genus *Eleutherodactylus*. They are locally called *coquí* because of their delightful piping of “co-qui, co-qui” vocalizations. The *coquí*s are abundant throughout the forest and are most vocal at night during rainy weather. They offer a bedtime concert for those who choose to camp.

Puerto Rico hosts 269 bird species throughout the year, of which 106 breed and 11 are endemic; 66 species representing 22 families occur in the National Forest (Table 1). Especially interesting birds include the Puerto Rican Tody, one of the five members of the Todidae, a family endemic to the Greater Antilles, and the Puerto Rican Tanager, sole member of an endemic genus. Seventeen species of migrant warblers regularly use the forest,

but only four are common. Perhaps the forest is best known as the last refuge of the formerly abundant Puerto Rican Parrot (Fig. 7). If one follows the suggestions given below under the heading “Big Tree Trail”, there is a good chance for seeing a pair or small flock of these exquisite green birds as they fly over the forest canopy.

**ACCESS:** Puerto Rico’s close association with the United States makes travel to and around the island easy and without the complications of currency exchange rates or a need for passports and visas for United States citizens. Spanish is the official language, although English is widely spoken and accepted. A small language guide may prove useful for those who plan to travel throughout the island. Major American and foreign airlines serve Puerto Rico several times daily. The Isla Verde International Airport in the San Juan metropolitan area is about 40 kilometers (25 miles) west of the National Forest. Tour and cruise ships also make Puerto Rico one of their regular ports of call.

**LOCAL TRANSPORTATION:** There are several ways to reach the rain forest. Group tours can be arranged through tour agencies and major hotels but these tours do not cater to the naturalist or his interests. A taxi or public car (*publico*) can be hired for all or part of a day, but this is expensive. A rental car affords an opportunity to see the forest to best advantage. Major rental agencies (*i.e.*, Avis, National, Hertz, Budget) have offices at the airport and the major hotel area (Condado). Rates are somewhat higher than those in the States but comparable to other cost-of-living differences on the island.

**HIKING:** The United States Forest Service maintains a 52-kilometer (32-mile) trail network through the National Forest (Figs. 8 and 9). Most trails are well cobbled and drained, although some remote trails may require detours around washouts and some bushwhacking. We recommend that hikers stay on the trails, as it is easy to become disoriented and lost in the dense forest. The trails provide the easiest walking in the steep, muddy terrain. Rain showers occur regularly, so one should dress accordingly. Afternoons tend to be rainier than mornings. Visitors should plan their days with this fact in mind.

Maps of the Forest and other information may be obtained at the Forest Service



Fig. 3. Waterfall and pool along one of the many rivers in the forest.

Catalina Field Office (Km 4.4 on Highway 191), the Interpretative Services Information Center (Km 12 on Highway 191), or by writing to the Field Staff Officer, Caribbean National Forest, Catalina Field Office, P.O. Box B, Palmer, Puer- to Rico 00721.

**ACCOMMODATIONS:** Many types of accommodations are available within 40 kilometers (25 miles) of the National Forest, ranging from luxury hotels to guest houses to camping.

Winter season rates (from mid-December through mid-April) for the nicer hotels in San Juan run from about \$65 per day and up for a single and \$70 per day and up for double occupancy. Summer season rates are somewhat lower.

Closer to the National Forest there are guest houses (*paradores*) in the towns of Luquillo and Fajardo which run about \$25 per day for single and \$30 per day for double occupancy. The *paradores* provide visitors with more local atmosphere than the usual hotels.

For those who want to enjoy the rain forest to the fullest, camping is permitted. All camping is primitive; no developed camp sites are maintained. Because of the weather, we recommend camping only to the hardy. A free use permit is required and can be obtained at the previously mentioned Forest Service address.

Information on tourism in Puerto Rico is available through the Tourism Company of Puerto Rico, Box 4435, Old San Juan Station, San Juan, Puerto Rico 00905. Also, by request, they will send a copy of "Que Pasa [What's Happening]—Official Visitor's Guide to Puerto Rico USA."

## RECOMMENDED BIRDING SITES

*Catalina Area (Km 4.4, Highway 191).* This site is across from the Forest Service Catalina Field Office just inside the National Forest. A map in a parking area west of the highway helps orient Caribbean National Forest visitors. Lower forest vegetation grows less densely than upper forests and consequently provides more bird-watching opportunities. Mixed kadam (*Anthocephalus chinensis*) and mahogany (*Swietenia macrophylla*) plantations west of the highway, and pine (*Pinus caribaea*) on the east, offer good habitat diversity for birds and are relatively open areas for observations. Black-cowled Orioles, Puerto Rican



Fig. 4. Tabonuco trees (*Dacryodes excelsa*) in lower natural forest.

Bullfinches, and Pearly-eyed Thrashers may be seen or heard. The Red-legged Thrush and endemic Puerto Rican Lizard-Cuckoo are common in the overstory kadam, and Puerto Rican Woodpeckers forage for insects in the pines. Zenaida Doves and Ruddy Quail-Doves (Fig. 10) are best seen in the early morning close to the forest floor. A tree nursery, located a few hundred meters west of the parking area, creates a large clearing and provides perimeter forest where birds may be spotted easily. This is a good place to look for Puerto Rican boas, which often haul themselves out on exposed ground to sun on warm days.

*Yokahú Tower (Km 9, Highway 191).* Yokahú Tower provides an overview of the Mameyes River Valley with its extensive tabonuco and palo colorado forests. The Baño de Oro Research Natural Area in the upper Mameyes Valley is visible from this vantage point. Puerto Rican Sharp-shinned Hawks (*Accipiter striatus venator*) and parrots can be spotted from the tower in the early morning as they fly from their overnight roosts or nesting areas to foraging areas. At about 8:30 a.m., endemic Broad-winged Hawks (*Buteo platypterus brunnescens*) begin circling in the warming air over their territories. Looking down on the nearby canopy, one can see foraging Scaly-naped Pigeons, Black-whiskered Vireos, Puerto Rican Bullfinches, Stripe-headed

Tanagers, raucous-calling Puerto Rican Lizard Cuckoos, and many migrant species. Antillean Euphonias feed on the mistletoe in the tree tops.

*Big Tree Trail/La Mina Trail (Km 10.3, Highway 191).* The trail leads through groves of huge tabonuco, with scattered *Sloanea* and *Guarea*, to the La Mina Falls, then parallels the La Mina River up to a picnic and recreation area. One can see several varieties of shrimp and the remarkable goby, *Sicydium plumieri*, in the clear pools of the river. The goby is the only fish found in the forest. It spends its juvenile life in marine estuaries and then battles its way up the cascading rivers to the headwaters where it completes adult life.

Puerto Rican Todies nest along the trail. Their nesting burrows, about an inch in diameter, can be found in banks and trail cuts. The recreation areas at the top of this trail are perhaps the best sites for observing the Puerto Rican Parrot. Although they may appear there at any time, the parrots are most likely to be seen around the restaurant and Interpretative Services Center in the early morning and late afternoon as they noisily move between foraging and roosting sites deep in the forest. The flowering shrubs around the restaurant attract the Puerto Rican Emerald and the ubiquitous Ban-



**Fig. 5.** Red-barked palo colorado (*Cyrilla racemiflora*), the tree species used most often by nesting Puerto Rican Parrots.



**Fig. 6.** Cloud-enshrouded elfin woodland at the upper limits of Caribbean National Forest.

anaquit. An open patio behind the restaurant offers an excellent view of the La Mina River, the surrounding forest, and the birdlife. The upper trail head is an excellent area, too, for seeing the Puerto Rican Broad-winged Hawk, as a pair regularly nests within 100 meters northeast of the restaurant.

*El Toro Trail/Trade Winds Trail (Km 13.3, Highway 191).* This relatively little-used route takes the hiker into Puerto Rico's remotest area and passes through all forest types. The trail straddles an elf-

in wooded ridge for much of its length to El Toro Peak where hikers may view the forest's Caribbean and Atlantic slopes. This makes a fine all-day trip with a picnic on El Toro Peak.

The many forest openings allow views of the canopy-dwellers. The most exciting bird to watch for is the recently discovered Elfin Woods Warbler. It is very elusive and normally remains in the denser parts of the forest canopy. The Elfin Woods Warbler joins in mixed feeding flocks of Bananaquits, Puerto Rican Bullfinches, Puerto Rican Todies,



**Fig. 7.** Male Puerto Rican Parrot near its nest in a palo colorado.

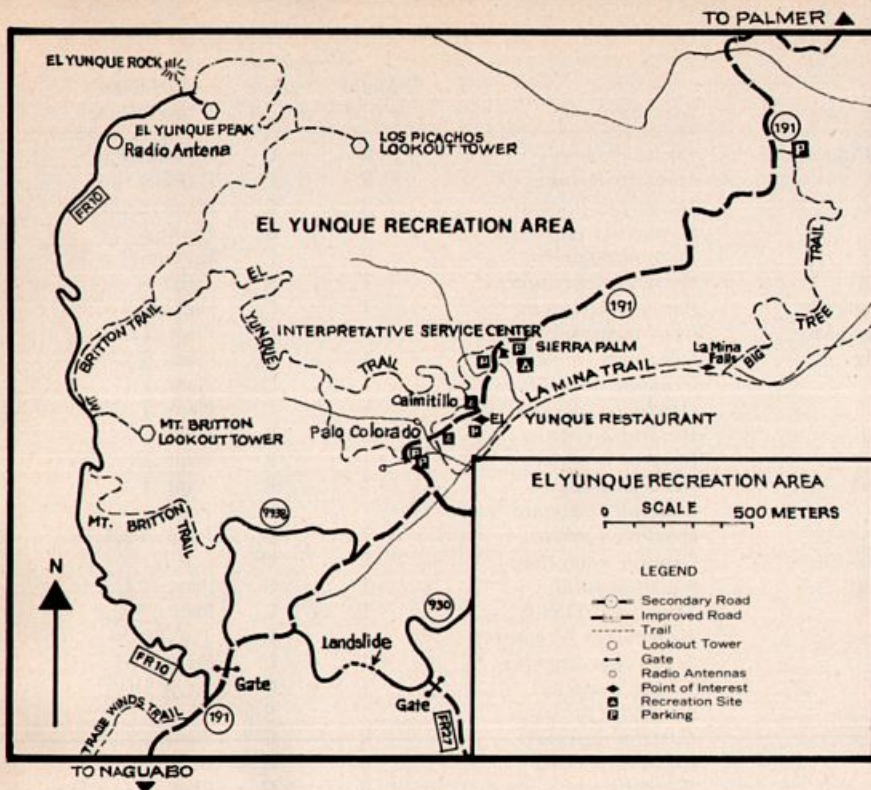


Fig. 9. The El Yunque Recreation Area in the center of the Caribbean National Forests. Hiking trails, picnicing and parking areas, and an Interpretative Services Center are provided by the U. S. Forest Service.



Fig. 10. Ruddy Quail-Dove at nest in tabonuco zone of the National Forest.

make bird-watching difficult, but this will sharpen one's skills at identifying bird vocalizations. Black-whiskered Vireos, Bananaquits, and bullfinches are the most commonly heard species. Occasional openings in the dense foliage offer vistas of the surrounding mountain peaks.

About 50 meters upriver from the end of the Bisley Trail is a grove of palo de pollo (*Pterocarpus officinalis*). Old growth *Pterocarpus*, with their enormous narrow planklike buttresses extending high up the trunk, form a unique ecosystem in the National Forest and are well worth visiting. With its flat terrain and the crystal clear water of the Mameyes River, this is an ideal area for camping.

Table 1. Checklist of birds in the Caribbean National Forest.

Common English Name <sup>1</sup>	Common Spanish Name	Scientific Name	Status in CNF <sup>2</sup>	Occurrence in CNF <sup>3</sup>	Habitat preference <sup>4</sup>
Cattle Egret	Garza del Ganado	<i>Bubulcus ibis</i>	T	R	E
Green-backed Heron	Martinete	<i>Butorides striatus</i>	T	C	T,C,[R]
Yellow-crowned Night-Heron	Yaboa Común	<i>Nycticorax violaceus</i>	T	U	T,[R]
*Sharp-shinned Hawk	Halcón de Sierra	<i>Accipiter striatus</i>	R	U	T,C
*Broad-winged Hawk	Guaragua de Bosque	<i>Buteo platypterus</i>	R	C	T,C
Red-tailed Hawk	Guaragua Colirrojo	<i>Buteo jamaicensis</i>	R	C	T,C,P,(D)
Merlin	Halcón Migratorio	<i>Falco columbarius</i>	T	U	T,C,(P)
Peregrine Falcon	Halcón Peregrinus	<i>Falco peregrinus</i>	T	U	T,C,(P)
Spotted Sandpiper	Playero Coleador	<i>Actitis macularia</i>	T	C	T,C,P,[R]
White-crowned Pigeon	Paloma Cabeciblanca	<i>Columba leucocephala</i>	T	U	T,C
Scaly-naped Pigeon	Paloma Turca	<i>Columba squamosa</i>	R	C	T,C,P,D
Ruddy Quail-Dove	Paloma Perdiz Rojiza	<i>Geotrygon montana</i>	R	C	T,C,P,Plant.
Zenaida Dove	Tórtola Cardosantera	<i>Zenaida aurita</i>	R	C	E,Plant.
†Puerto Rican Parrot	Cotorra de Puerto Rico	<i>Amazona vittata</i>	R	R	T,C,P
Mangrove Cuckoo	Pájaro Bobo Menor	<i>Coccyzus minor</i>	R	U	E,T,Plant.
†Puerto Rican Lizard-Cuckoo	Pájaro Bobo Mayor	<i>Saurothera vieilloti</i>	R	C	E,Plant.,T,C,P,D
Smooth-billed Ani	Judío	<i>Crotophaga ani</i>	R	C	E,Plant.
†Puerto Rican Screech-Owl	Múcaro de Puerto Rico	<i>Otus nudipes</i>	R	C	T,C,P,Plant.
Chuck-will's-widow	Guabairo Mayor	<i>Caprimulgus carolinensis</i>	T	R	T,C,P
Black Swift	Vencejo Negro	<i>Cypseloides niger</i>	T	C	T,C,P,D
Antillean Mango	Zumbador Dorado	<i>Anthracothorax dominicus</i>	R	R	E,Plant.
†Green Mango	Zumbador Verde	<i>Anthracothorax viridis</i>	R	C	T,(C)
†Puerto Rican Emerald	Zumbadorcito de Puerto Rico	<i>Chlorostilbon maugaeus</i>	R	C	(T),C,P,D
†Puerto Rican Tody	San Pedrito	<i>Todus mexicanus</i>	R	C	T,C,P,D
Belted Kingfisher	Martin Pescador	<i>Ceryle alcyon</i>	T	R	T,[R]
†Puerto Rican Woodpecker	Carpintero de Puerto Rico	<i>Melanerpes portoricensis</i>	R	C	Plant.,T,C,P,(D)
Yellow-bellied Sapsucker	Carpintero Pechiamarillo	<i>Sphyrapicus varius</i>	T	R	Plant.,T,(C),(P),(D)
†Puerto Rican Flycatcher	Juí de Puerto Rico	<i>Myiarchus antillarum</i>	R	R	(Plant.),E
Gray Kingbird	Pitirre	<i>Tyrannus dominicensis</i>	R	U	E,Plant.
Loggerhead Kingbird	Clérigo	<i>Tyrannus caudifasciatus</i>	R	R	E,Plant.
Cave Swallow	Golondrina de Cuevas	<i>Hirundo fulva</i>	T	U	E

Table 1 (Continued)

Common English Name <sup>1</sup>	Common Spanish Name	Scientific Name	Status in CNF <sup>2</sup>	Occurrence in CNF <sup>3</sup>	Habitat preference <sup>4</sup>
Red-legged Thrush	Zorzal de Patas Coloradas	<i>Turdus plumbeus</i>	R	C	E, Plant., T, (C)
Northern Mockingbird	Ruiseñor	<i>Mimus polyglottos</i>	R	U	E, (Plant.)
Pearly-eyed Thrasher	Zorzal Pardo	<i>Margarops fuscatus</i>	R	C	Plant., T, C, P, D
Cedar Waxwing	Picotera	<i>Bombycilla cedrorum</i>	T	R	Plant., T
Black-whiskered Vireo	Julián Chiví	<i>Vireo altiloquus</i>	R	C	E, Plant., T, (C)
Golden-winged Warbler	Reinita Alidorada	<i>Vermivora chrysoptera</i>	T	R	T, (C)
Northern Parula	Reinita Pechidorada	<i>Parula americana</i>	T	C	E, Plant., T, C, P, D
Chestnut-sided Warbler	Reinita Costadicastaña	<i>Dendroica pensylvanica</i>	T	R	Plant., T, C
Magnolia Warbler	Reinita Manchada	<i>Dendroica magnolia</i>	T	U	Plant., T, C
Cape May Warbler	Reinita Tigre	<i>Dendroica tigrina</i>	T	U	Plant., T, C
Black-throated Blue Warbler	Reinita Azul	<i>Dendroica caerulescens</i>	T	C	Plant., T, C, P, D
Yellow-rumped Warbler	Reinita Coronada	<i>Dendroica coronata</i>	T	R	Plant., T
Black-throated Green Warbler	Reinita Verdosa	<i>Dendroica virens</i>	T	R	Plant., T
Blackburnian Warbler	Reinita de Fuego	<i>Dendroica fusca</i>	T	R	Plant., T
Bay-breasted Warbler	Reinita Castaña	<i>Dendroica castanea</i>	T	R	T
Blackpoll Warbler	Reinita Rayada	<i>Dendroica striata</i>	T	U	Plant., T, C
†Elfin Woods Warbler	Reinita de Bosque Enano	<i>Dendroica angelae</i>	R	U	C, P, D
Black-and-white Warbler	Reinita Trepadora	<i>Mniotilta varia</i>	T	U	Plant., T, C, P, D
American Redstart	Candelita	<i>Setophaga ruticilla</i>	T	C	Plant., T, C, P, D
Worm-eating Warbler	Reinita Gusanera	<i>Helmitheros vermivorus</i>	T	R	T, C, P
Ovenbird	Pizpita Dorada	<i>Seiurus aurocapillus</i>	T	U	Plant., T, C
Louisiana Waterthrush	Pizpita de Río	<i>Seiurus motacilla</i>	T	C	T, C, P, [R]
Kentucky Warbler	Reinita de Kentucky	<i>Oporornis formosus</i>	T	R	Plant., T
Bananaquit	Reinita Común	<i>Coereba flaveola</i>	R	C	Plant., T, C, P, D
Antillean Euphonia	Canario del País	<i>Euphonia musica</i>	R	C	T, C, P, D
Stripe-headed Tanager	Reina Mora	<i>Spindalis zena</i>	R	C	Plant., T, C, P, D
†Puerto Rican Tanager	Llorosa	<i>Nesospingus speculiferus</i>	R	C	(T), C, P, D
Rose-breasted Grosbeak	Piquigrueso Rosado	<i>Pheucticus ludovicianus</i>	T	R	Plant.
Yellow-faced Grassquit	Gorrión Barba Amarilla	<i>Tiaris olivacea</i>	R	U	(Plant.), E
Black-faced Grassquit	Gorrión Negro	<i>Tiaris bicolor</i>	R	U	(Plant.), E
†Puerto Rican Bullfinch	Come Nombre de Puerto Rico	<i>Loxigilla portoricensis</i>	R	C	Plant., T, C, P, D
Greater Antillean Grackle	Mozambique, Chango	<i>Quiscalus niger</i>	R	R	E, (Plant.)
Shiny Cowbird	Tordo Lustroso	<i>Molothrus bonariensis</i>	T	U	(Plant.), E
Black-cowled Oriole	Calandria	<i>Icterus dominicensis</i>	R	U	(Plant.), E
Bronze Mannikin	Diablito	<i>Lonchura cucullata</i>	R	U	E

<sup>1</sup>† = Endemic Species, \* = Endemic Subspecies; <sup>2</sup>Status: R = Resident, T = Transient or Migratory; <sup>3</sup>Occurrence in National Forest: C = Common; U = Uncommon; R = Rare; <sup>4</sup>Habitat Preference: Plant. = Plantation; E = Edge of forest at interface with pastures, crop land or fallow land; T = Tabonuco Forest; C = Palo Colorado Forest; P = Palm Forest; D = Dwarf Forest (Elfin Woodland); R = River Edge; brackets [ ] denote specific habitat used within a forest zone; parentheses ( ) denote habitat where species is much less common than other areas given; underlined habitat type is area in which species is most often found.



Fig. 11. Female Puerto Rican Sharp-shinned Hawk (*Accipiter striatus venator*).

The Green-backed Heron regularly wanders into the forest along the river. Screech-owls are especially common in the *Pterocarpus* and surrounding area.

#### USEFUL GUIDES

- BOND, J. 1974. Birds of the West Indies. Collins, London.
- LITTLE, E.L., Jr. and R.O. WOODBURY. 1976. Trees of the Caribbean National Forest, Puerto Rico. U.S. Forest Serv. Res. Paper ITF-20, [Available from: Librarian, Institute of Tropical Forestry, P.O. Box AQ, Río Piedras, Puerto Rico 00928].
- PHILIBOSIAN, R. and J.A. YNTEMA. 1977. Annotated checklist of the birds, mammals, reptiles, and amphibians of the Virgin Islands and Puerto Rico. Information Services [P.O. Box 305, Frederiksted, St. Croix, U.S. Virgin Islands 00840].

RAFFAELE, H.A. 1983. A guide to the birds of Puerto Rico and the Virgin Islands. Fondo Educativo Interamericano, San Juan, Puerto Rico.

RIVERO, J.A. 1978. The amphibians and reptiles of Puerto Rico. Universidad de Puerto Rico Editorial Universitaria, Río Piedras, Puerto Rico.

—Puerto Rico Field Station, Patuxent Wildlife Research Center, U.S. Fish and Wildlife Service, P.O. Box 21, Palmer, PR 00721 (Wiley), and Catalina Field Office, Caribbean National Forest, U.S. Forest Service, P.O. Box B, Palmer, PR 00721 (Bauer).