## **Mammalwatching in Puerto Rico**

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Puerto Rico, the smallest of the Greater Antilles, is part of the US (kind of), so it's particularly easy to visit from there (but don't expect everybody to speak English). PR has decent roads along the coast and a labyrinth of narrow, winding, often very scenic roads in the rugged interior. It is usually possible to find cheap accommodation and car rentals. Bring sunblock, bug spray, and earplugs (or, better, an RPG). 4wd is not needed but high clearance wouldn't hurt. The climate is perfect, except for occasional hurricanes in July-November. PR is a nice place to combine a family vacation with looking for wildlife. Offshore islands (of which <u>Vieques</u> and <u>Culebra</u> are geographically parts of the Virgin Islands) are also worth exploring; the best is the uninhabited <u>Isla Mona</u>, almost halfway to Hispaniola. There's a lot of relatively pristine habitat, particularly in the mountains, karst areas, and offshore islands. PR is great for <u>birding</u>, herping, diving etc.; a good introduction to its natural areas is *Puerto Rico & Virgin Islands Wildlife Viewing Guide* by D.W. Nellis (Falcon, 1999). I've visited PR three times (in 12.1999, 07.2000, 11.2021, and 12.2021-01.2022) for a total of about six weeks.

The only surviving native land mammals are bats; there are also many introduced species and marine mammals. Recently extinct are shrew-like *Nesophontes edithae*, jutia *Isolobodon portoricensis* (likely domesticated and introduced from Hispaniola by Amerindians), spiny rat *Heteropsomys insulans*, Caribbean monk seal, and a few bats (see below).

## <u> 1. Bats</u>

Please wear a mask in caves and do not handle bats until COVID-19 pandemic is over. There are 13 bat species in PR; 11-12 of them can be found in the island's countless caves. Some are endemic species or subspecies. There's always a possibility of splits so try to see all of them. Here's the list (with abbreviations used in the table that follows):

**Jamaican fruit bat** (*Artibeus jamaicensis jamaicensis*, AJ). Abundant; roosts in many caves including small ones. Swarms around fruiting trees and sometimes roosts in the canopy. Also on offshore islands. Large, dark.

Antillean fruit-eating bat (*Brachyphylla cavernarum intermedia*, BC). Common; large colonies in well-ventilated caves. Also on <u>Isla Mona</u>. Large, pale. Nearly endemic subspecies (elsewhere only on some of the Virgin Islands).

**Red frit bat** (*Stenoderma rufum darioi*). Rare, except on the very wet northeastern side of <u>El Yunque National Forest</u> (try <u>Angelito Trail</u>, 18.3230N 65.7470W), which is great for other rainforest fauna and flora as well. Roosts in the canopy among leaves, rarely in the undergrowth. Also on <u>Isla Vieques</u>. Wings look reddish in flight. Endemic subspecies and nearly endemic species (the Virgin Islands subspecies *rufum* has been recorded only once since 1957).

**Brown flower bat** (*Erophylla bombifrons bombifrons*, EB). Common; huge colonies, often in colder parts of hot caves. Sometimes visits hummingbird feeders. Medium-sized, light-colored. Endemic subspecies.

Leach's single-leaf bat (*Monophyllus redmani portoricensis*, MR). Common; colonies in big and small caves, usually in wet chambers. Also on <u>Islas Mona</u> and <u>Vieques</u>. Medium-sized, brown. Endemic subspecies.

**Greater fishing bat** (*Noctilio leporinus mastivus*, NL). Rare in the N, uncommon over mangrove lagoons in the S. Roosts in caves, cliffs, rarely buildings; feeds by flying low over water. Look in <u>Boqueron WR</u>, during boat tours to <u>La Parquera</u> Bioluminescent Bay, and over Rio Culebrinas (18.4123N 67.1617W). Also on offshore islands. Large, long-legged.

Antillean ghost-faced bat (*Mormoops blainvillei*, MB). Common; a few huge colonies in hot caves. Often hunts around ponds and streetlights in rural areas, even far from known colonies. Also on <u>Isla Mona</u>. Small, orangish.

**Puerto Rican mustached bat** (*Pteronotus portoricensis*, PP). Uncommon; colonies in hot caves, mostly on the northern side of PR. Also on <u>Isla Mona</u>. Small, FA >50 mm, brown. Endemic species.

**Sooty mustached bat** (*P. quadridens fuliginosus*, PQ). Common; huge colonies in hot caves. Often hunts around ponds and streetlights in rural areas and near mangroves, even far from known colonies. Tiny, FA<40 mm.

**Big brown bat** (*Eptesicus fuscus wetmorei*, EF). Uncommon; roosts in caves, incl. small ones, often near the entrance in solution holes, in buildings and hollow trees. Sometimes hunts near street lights. Large, dark. Endemic subspecies.

**Minor red bat** (*Lasiurus minor*, LM). Rare, roosts among leaves. Look in isolated trees of <u>Laguna Cartagena NWR</u> and in dry forests of <u>Guanica State Forest</u> (visitor center at 17.9716N 66.8680W; great for endemic birds). Occasionally hunts near street lights or just inside large cave entrances (try Cueva del Viento). Looks red in flight. Taxonomy uncertain.

**Pallas's mastiff bat** (*Molossus molossus*, MM). Common; colonies in buildings, hollow trees, palms, rarely caves. In 2000 there was a large colony in a complex of abandoned buildings called <u>Antigua Central Aguirre</u> (17.9538N 66.2223W). Also on offshore islands. Medium-sized, black, long-winged, with fast, swallow-like flight.

**Brazilian freetail** (*Tadarida brasilensis antillularum*, TB). Common; roosts in buildings, concrete structures (try <u>Guajataca Tunnel</u>, 18.4900N 66.9598W), and caves, for example, in <u>Las Cabachuelas Nature Reserve</u>. Usually feeds high above open areas. Also on <u>Islas Mona</u> and <u>Vieques</u>. Small, dark, long-winged, with fast, swallow-like flight.

Recently extinct bats that are known as subfossils and theoretically might still be around include insular single-leaf bat (*Monophyllus plethodon frater*, an endemic subspecies), Puerto Rican flower bat (*Phyllonycteris major*, an endemic species), and Waterhouse's leaf-nosed bat (*Macrotus waterhousii waterhousii*). Red fruit bat had also been considered extinct for over a century (1816-1943) after the discovery of its bones in local caves.

Below is an incomplete list of bat caves of PR. Species I saw in caves I visited are in bold; \* marks night-only presence.

Name	Visited	Lat./long.	Species	Comments
Cavernas del Rio Camuy	07/2000	18.3473N	AJ, BC, EB, MR, NL, PP	In a <u>national park</u> . Huge, very touristy;
-		66.8281W		come early, bring binoculars.
Reserva Natural Las Cabachuelas	07/2000	18.3493N	AJ, BC, EF, MM, NL,	Countless caves, some difficult to access.
		66.4500W	<u>PP, PQ</u> , <b>TB</b>	Nice cave invertebrates.
Cueva de Murcielagos	12/1999	17.9587N	AJ, BC, MB, MR	Hike from 17.9539N 66.8495W (PR's best
	12/2021	66.8496W		beach). Flooded with liquid guano.
Cueva del Viento	11/2021	18.4120N	AJ, MR*, LM* (flying at	In Guajataca State Forest; easy access,
		66.9762W	entrance)	nice hike from 18.4206N 66.9661W.
Cueva Vientos	12/1999	18.3290N	EB, MR, NL, PP, PQ	There are other caves with the same or
		66.5237W		similar names but hardly any bats.
Cueva Jimenes	11/2021	18.4603N	AJ, EB, EF*, MR, PP,	Difficult access (muddy, twisting crawls);
		66.4858W	PQ	park at 18.4609N 66.4860W.
Cueva Cucaracha	11/2021	18.4162N	MB, MR, PP	5 km long; 5 m rope required for access;
		67.1341W		10 m crawl before 1 <sup>st</sup> chamber.
Cueva Mapancha	12/1999	18.0474N	AJ, PP	Part of Cuevas del Convento complex;
-		66.7425W		check other caves as well.
Cueva de Pirata Cofresí	01/2022	18.0388N	AJ, EF, NL	Small; park at 18.0458N 67.2003W,
		67.1980W		trailhead at 18.0411N 67.2033W.
Cueva Naranjo	01/2022	18.0665N	AJ, EB, MB, MR, NL,	2 km long, partially flooded; difficult dry
		66.4698W	PP, PQ	weather-only access; in a restricted area.
Cuevas de Aguas Buenas	-	18.2277N	AJ, BC, EB, MR, NL, PP	Multiple caves, some difficult to
		66.1080W		access/explore.
Cueva Culebrones	-	18.4128N	AJ, BC, EB, MB, MR, PP,	In Mata de Platano Reserve; watch for PR
		66.7232W	PQ	boas hunting bats.
Cueva Matos	-	18.3832N	AJ, EB, MR, NL	Short walk from 18.38392N 66.6877W.
		66.6870W		
Cueva Madama	-	18.4290N	EB, MR, PP, PQ	50 m rope required for access.
		67.1175W		
Cueva Canejas	-	18.4185N	AJ, MR	
		66.1044W		
Cueva Bonita	-	18.3754N	BC, EB, MR, PP, PQ	50 m rope required for access.
		66.3043W		
Cueva Grillos	-	18.2189N	EB, MR, PP, PQ	
		66.1138W		

## 2. Marine mammals

West Indian manatees inhabit mangrove lagoons of the southern coast. The best place to look for them (mostly in winter) is around the power plant discharge area in <u>Aguirre</u> (try 17.9488N 66.2282W and 17.9515N 66.2264W).

23 species of cetaceans have been recorded, but most are very rare. **Bottlenose** (mostly in summer, sometimes in inshore bays), **Atlantic spotted**, and (rarely) **common dolphins**, and, in January-March, **humpback whales** are occasionally seen from shore, but more often during boat crossings to offshore islands, particularly <u>Mona and Desecheo</u> where **short-finned pilot whales** are also common in summer. Other species are also possible during these crossings. <u>Mona can be visited by boat tours</u>; it has over 200 caves in coastal cliffs and is very good for bats. <u>Desecheo</u> is off-limits but you can get very close by going on a diving trip there (offered by dive centers in northwestern PR). Regular ferries go from Fajardo to <u>Vieques</u> and <u>Culebra</u>, and from Ponce to <u>Caja del Muertos (Coffin Island)</u>. All five islands are great for seabirds and reptiles. For deepwater species such as **sperm** and **Cuvier's beaked whales**, try fishing boats out of <u>Guanica</u> where submarine canyons are not far out. Various **rorquals** are most often seen in the area 30-90 miles N of San Juan.

## 3. Introduced species

**Black rats** are abundant in forests and caves; **brown rats** are rare outside human settlements. **House mice** occur throughout PR but are uncommon; in natural areas they mostly inhabit grassy and/or rocky habitats. There are lots of **feral dogs** and **cats** (the latter often hunt in bat caves). **Small Indian mongooses** occur everywhere but are most often seen in <u>Cabo Rojo NWR</u> (visitor center at 17.9807N 67.1671W) and in <u>Cambalache State Forest</u> (entrance at 18.4524N 66.5971W). **Patas monkeys** occur in <u>Sierra Bermeja</u> (17.9992N 67.1127W) and rarely in <u>Cabo Rojo NWR</u>.

**Feral pigs** and **goats** live on <u>Islas Mona</u> and <u>Desecheo</u>; **horses** on <u>Vieques</u>, **white-tailed deer** on <u>Culebra</u> (also very rarely on PR); **rhesus macaques** on <u>Desecheo</u> and <u>Cayo Santiago</u>; **Central American agoutis** on <u>Caja del Muertos</u>.

In 2000 I videotaped a large non-*Rattus* arboreal rodent, possibly an **eastern woodrat**, in <u>Guanica State Forest</u>. It was never reported before or after, so it could be a short-lived introduction (Guanica is an important port).