

## The Lesser Antilles

### VLADIMIR DINETS

The Lesser Antilles, a chain of islands separating the Caribbean Sea from the Atlantic Ocean, are a fascinating evolutionary laboratory. Many of them have virtually identical topography, climate, and geological history, yet evolution there took remarkably different paths, due in part to random colonization events, but also to the randomness of the evolutionary process itself. (This account doesn't cover islands such as Trinidad and Tobago that have once been connected to the mainland and have a subset of South American fauna rather than truly West Indian wildlife.)

All native land mammals of the Lesser Antilles except **bats** and **Robinson's mouse opossum** (the latter found only on Grenada) have been exterminated by waves of human colonization and human-introduced species. What exactly used to live there is almost unknown because the fossil record is extremely poor, but it is thought that there were at least ten rodent species and possibly others. There are persistent claims that some native rodents have survived (see below), but no solid evidence of that in the last hundred years. Caribbean manatee and Caribbean monk seal have also been exterminated.

Extinct native mammals have been replaced by introduced species. Some of those (**red-rumped agouti** of three different subspecies, **common opossum**, **nine-banded armadillo**) are believed to be pre-Colombian introductions; others are more recent. The latter include **small Indian mongoose** that has caused countless extinctions among local fauna.

Bats are still fairly diverse and include at least nine endemics and near-endemics (a useful but outdated list: [https://en.wikipedia.org/wiki/List\\_of\\_bats\\_of\\_the\\_Caribbean\\_by\\_island](https://en.wikipedia.org/wiki/List_of_bats_of_the_Caribbean_by_island)). Species of particular interest include **common funnel-eared bat** (now endemic to the Lesser Antilles due to recent splits), **tree bat** (all larger islands except Grenada and Barbados; endemic), **Antillean fruit-eating bat** (all larger islands except Grenada; elsewhere found only in Puerto Rico); **insular long-tongued bat** (all larger islands; endemic); **Guadeloupe big-eyed bat** (endemic to Guadeloupe, Montserrat and St. Kitts); **Angel's yellow-shouldered bat** (endemic to Montserrat, Guadeloupe, Dominica and Martinique); **Paulson's yellow-shouldered bat** (endemic to St. Lucia, St. Vincent and Grenada); **Guadeloupe brown bat** (single-island endemic), **Dominican myotis** (endemic to Guadeloupe and Dominica), **Schwartz's myotis** (endemic to Martinique), and **nyctor myotis** (endemic to Barbados and Grenada, but the latter population might be split off). Possible future splits include the Grenada/St. Vincent race of **Miller's long-tongued bat**, the Lesser Antilles race of **velvety mastiff bat**, and particularly the Dominica race of **big brown bat**.

There are over thirty inhabited islands in the chain, but to see all endemic bats you have to visit just four: Guadeloupe, Dominica, Martinique, and Grenada. Visiting Montserrat, Barbados, St. Lucia and St. Vincent is also recommended due to possible future splits, and also because some bats are easier to see on these islands than elsewhere (not to mention that each of these islands has endemic birds, herps and other fauna and flora).

Unlike the Greater Antilles with their spectacular limestone karst, the larger and more interesting of the Lesser Antilles are mostly volcanic and have few caves (only Barbados is relatively flat and covered with limestone). Most local bats are considered to be cave-roosting species, but I strongly suspect that on volcanic islands many of them mostly roost in hollow trees, because known bat caves there tend to contain only **Antillean fruit-eating bat** and/or **Artibeus fruit bats**. Since finding roosts is difficult; consider mist-netting if possible, or learn to ID local bats in flight (it's relatively easy here because most local species are remarkably different in size, color, and flying behavior).

There are 26 species of cetaceans in surrounding waters, and some of them, particularly **pantropical spotted** and **Frazer's dolphins**, **melon-headed whale**, and **sperm whale**, are easier to see here than elsewhere, particularly if you wish to see them underwater.

English-speaking Montserrat, Dominica, St. Lucia, St. Vincent and Grenada are less developed and generally more pleasant, while French-owned Guadeloupe and Martinique are heavily deforested, more expensive, and suffer from terrible traffic jams. Barbados is, again, an exception (see below).

Some islands are connected by high-speed ferries, but these provide poor cetacean-watching opportunities, take very long time to board, and arrive at terminals with no rental car companies. Flights are almost as cheap and way easier. On Dominica you have to get a local driving permit (US\$30, available in all airports and ferry terminals). On St. Vincent such permit is also required, but only if you don't have an international driving permit (available in the US from AAA for \$15). Credit cards are almost useless on St. Vincent.

This account is based on a number of trips over the years; dates of my visits are listed for each island.

### **1. Grenada** (June 30 - July 1, 2017)

Grenada forms a transitional zone between the typical Lesser Antilles and the continental islands such as Trinidad. The rainforests are seriously degraded, and dry tropical forests of the southern tip are in even worse shape. Grenada has at least twelve species of bats including an endemic subspecies of **nyctor myotis**, one other Lesser Antilles endemic (**Paulson's yellow-shouldered bat**), and a few South American species not found farther N, plus **Robinson's mouse opossum** which might be introduced or native. Locals say that there are two species of mouse opossums on the island, and

**grey-bellied slender mouse opossum** is sometimes listed for Grenada, but not by IUCN or any major source on local fauna. There is the usual menagerie of introduced species plus a small population of **mona monkey**. **Red-rumped agouti** is of subspecies *albida*; there are also **common opossum** (the most common introduced mammal), **nine-banded armadillo**, **small Indian mongoose**, **feral pig**, **house mouse**, **black** and **Norway rats**.

The island is rather pleasant but its forests, although still extensive, are badly degraded. One patch worth visiting is Mt. Hartman National Park, just a few minutes' drive from the airport. Although it is covered by dry secondary scrub, this park shelters the last known populations of many of Grenada's endemics. In five hours of spotlighting there I saw six **common opossums** and one **Robinson's mouse opossum**. There were lots of *Artibeus* **fruit-eating bats**, but with five species occurring on the island it was impossible to identify them in flight. I also saw lots of smaller bats; some were probably **Geoffroy's tailless bats** and one seemed black and was probably the rare **nyctor myotis**.

Point Salinas at the S tip of the island has many small sea caves. I checked them out (in daytime) and found small groups of **greater fishing**, **Miller's long-tongued**, and **Jamaican fruit-eating bats**. A century ago this location also had **lesser dog-like bats**, but they've never been recorded from the Lesser Antilles again, and I didn't find them despite a thorough search.

In winter and early spring there are whale-watching tours; they mostly go after **humpbacks** but there are occasional sightings of **Bryde's**, **short-finned pilot**, **killer** (winter only), and **false killer whales**, as well as **Atlantic spotted**, **spinner**, **bottlenose**, and **common dolphins**. **Sperm whales** occur to the E of Grenada but usually too far for regular whalewatching trips. **Short-finned pilot whales** are reportedly common around small islands N of Grenada; you can try visiting the area by taking a ferry to Carricou, and then continuing by other ferries to Grenadines and then to St. Vincent.

## **2. Saint Vincent** (June 29-30, 2017)

St. Vincent is the most rugged of the Lesser Antilles; this makes it very scenic but the roads are a bit scary. It has the strongest African feel of all Caribbean islands I've been to. The island is still about 1/3 forested, but only less than 5% is primary forest. There are fifteen bat species including **Paulson's yellow-shouldered bat**, endemic to St. Vincent, Grenada and St. Lucia, and three Lesser Antilles endemics. **Miller's long-tongued bat** is represented by a subspecies endemic to St Vincent and Grenada, a potential split. The list of introductions is typical except there are no records of Norway rat; this is the northernmost island where **nine-banded armadillo** has been introduced.

The easiest way to access primary rainforest is to walk Vermont Nature Trail, popular among birdwatchers and signposted on the main "highway" a few kilometers NW of Kingstown. It is a 3-km loop with a parrot roost lookout at the far end. Here I saw **Paulson's yellow-shouldered bat** (night-roosting in the giant Gothic-looking strangler fig just before the viewpoint and also flying around the viewpoint), **common funnel-eared bat** (near the viewpoint and around the first bridge from the trailhead), **Parnell's moustached bat** (along the trail), *Artibeus* **fruit-eating bats**, **small Indian mongoose** (on the access road), **common opossum** (on the trail), and still-pink juvenile **nine-banded armadillo** (also on the trail). Near the trailhead there are a few concrete pools that should be good for mistnetting; I saw one **Mexican freetail bat** there and heard a few more.

Botanical garden in Kingstown had **Miller's long-tongued bats** at night and **red-rumped agoutis** (subspecies *albida*) in the morning.

Dennis' Cave in Cane Grove, accessible by boat or a short swim (there are boats and kayaks for rent), had **Antillean**, **Jamaican** and **plain-faced fruit-eating bats** and **little big-eared bats**. The latter have been first recorded on the island very recently but are now common; perhaps they have just colonized it naturally.

Tunnels at Black Point near Chester Cottage had a few **Jamaican fruit-eating bats** and **insular long-tongued bats**.

**Humpback whales** are common around the island in winter and often breach close to shore. Sea Breeze Nature Tours (<http://www.seabreezenaturetours.com/>) run trips to see **pantropical spotted**, **spinner** and sometimes **Clymene dolphins** along the W shore; other species such as **short-finned pilot**, **killer** and **sperm whales** are seen occasionally according to their website. Longer trips in search of **Fraser's**, **pelagic bottlenose**, **Atlantic spotted**, **rough-toothed** and **Russo's dolphins**, **dwarf** and **pygmy sperm whales**, **melon-headed whales**, and **false killer whales** can be arranged.

## **3. Barbados** (May 30, 1998 and June 29, 2017)

English-speaking Barbados is in many ways an exception among the Lesser Antilles. Stuck in the ocean far E of the main island chain, it is relatively flat and densely populated, with only tiny forest fragments remaining (Turner Hall Woods is the largest of them). Most of the island's surface is limestone, so there are lots of caves.

Barbados has six species of bats, including two endemic subspecies: the smallest race of **Antillean fruit-eating bat** and the nominate race of **nyctor myotis** (formerly considered a subspecies of Schwartz's myotis, now confined to Martinique), plus one Lesser Antilles endemic (**insular long-tongued bat**). Introduced mammals include **grivet monkey** (habituated troops are easy to see in Barbados Wildlife Reserve, which otherwise is basically a zoo) and **European hare** (rarely seen); the introduced population of Northern raccoon is now extinct. **Small Indian mongoose** is relatively

uncommon, but **feral cat** and **dog** are abundant, as are **house mouse** everywhere, **Norway rat** in towns, and **black rat** in the countryside.

I briefly visited two caves on Barbados in 1998. Harrison's Cave is a popular tourist attraction; at the time of my visit it had lots of **insular long-tongued bats** and **Antillean fruit-eating bats**. Cole's Cave had the same plus a few **nyctor myotis**. At dusk, **velvety mastiff bats** were swarming over Graeme Hall Reserve. **Jamaican fruit bat** is also common; in 2017 I saw a few around a fruiting tree near Bridgetown International Airport.

#### **4. Saint Lucia** (January 1-4 and 13-15, 2017)

Saint Lucia is English-speaking (although most people speak a local Creole as the mother tongue), left-driving, and comfortable. E side is less developed; it also has a few patches of dry tropical forest with distinctive fauna. The rest of the island used to be covered with rainforest, which is now mostly confined to higher elevations due to banana growing boom.

There are at least ten species of bats; no single-island endemics, but four species are endemic or near-endemic to the Lesser Antilles. The list of introductions is typical, but, remarkably, house mouse is absent. **Small Indian mongoose** is particularly abundant; you can see 3-5 in one hour of driving along the E coast. **Red-rumped agouti** (ssp. *fulvus*), **common opossum** and **feral cat** are relatively uncommon, and the only small rodent occasionally seen in the forest away from human dwellings is the **black rat**. St. Lucia has five single-island endemics among its birds, more than any other island in the Lesser Antilles.

Locals living in remote areas report crop damage by a mouse-sized rodent they call **pilorie**. Nothing similar is known from the island's extremely poor fossil record. In 2007 there was a possible sight record of **Saint Lucian giant rice rat** (a large, glossy-brown arboreal rodent, last recorded in 1881) near Barre Coulon.

The montane rainforests of the central highlands can be accessed by three routes. The easiest way is to hike Barre de Isle Trail that is signposted on the main Castries-Dennery highway between Ravine Poison and Thomazo; this area is said to be the best for seeing **feral pigs**. The best trails are in Quiavlesse Forest Reserve, accessible by taking the paved road W from just S of Micoud through Ti Rocher, turning right (N) just before that road loops back SE, and looking for a sign "Rainforest Reserve", from which it is another 2 km on a rental car-only road to the trailhead. This area is said to be best for **red-rumped agouti**, but I didn't see any mammals there except for a **common opossum** and a few *Artibeus* **fruit bats**. The third route is to drive from Soufriere to Migny and take the steep and bumpy road to Edmund Forest Reserve; you have to hike the last 1 km but it's a pleasant walk. The trail through the forest is steep in parts; to see more mammals you can instead continue along the access road past the trailhead. That road (very scenic but fit only for motorbikes nowadays) passes through high-elevation fern meadows where I saw a fast-running rodent too small for an adult *Rattus* rat (I wonder if it was the mysterious **pilorie**), and then through beautiful open forest where **Davy's naked-backed bat** (small, brown) and **tree bat** (larger, greyish or beige with white hair bases reflecting the flashlight) were common.

We lived in two places on the island. First, we stayed in Paradise View Inn near Praslin. During our stay, the inn's balcony was used as night roost by two bats. A black **velvety mastiff bat** was there every night from about two hours after sunset until dawn, never moving a muscle (I think it was a pregnant female). An **insular long-tongued bat** visited only once for about three hours. It probably had been feeding entirely on nectar because its droppings were very liquid. Fox Grove Inn next door had a pool that was visited by numerous bats at dusk; the only ones I could ID were dozens of **velvety mastiff bats**. If you drive from the inns down towards Mamiku Gardens, you soon get to a place (just before a river bridge) where a side road branches off to the left (at 13.866N, 60.9041W). This formerly paved road climbs into the hills through a few miles of plantations and rainforest patches, and is used by lots of bats that you can see up close as they chase insects in your flashlight beam. Some of them briefly hang from roofs of corrugated-iron shelters built along the road by plantation workers, but the views you get there are hardly better than those of bats in flight. The only species I managed to ID were **tree bat** (see above) and **Paulson's yellow-shouldered bat** (tiny, bright-golden, often attracted to clusters of small orange berries hanging from small trees; these berries attract saltators, thrushes, euphonias and thrashers during the day); there were also tiny bats with long legs that I am 100% sure were **common funnel-eared bats** (currently known only from Martinique and the islands further N). Mamiku Gardens are an excellent place to watch bats at fruiting trees: at dusk the trees were visited by *Artibeus* fruit bats (difficult to tell apart under the circumstances, but I think there were both **Schwartz's** and **Jamaican fruit bats**). As soon as it got completely dark, **Antillean fruit-eating bats** arrived and chased others away with much squeaking and some fighting. **Insular long-tongued bats** attended flowers.

After a trip to Martinique we spent three days in Soufriere, a very scenic town on the W coast, with a healthy **Norway rat** population. Diamond Botanical Gardens are a good place to see the tiny, bright-golden **Paulson's yellow-shouldered bats** feeding in fruiting and flowering trees (unlike insular long-tongued bats that always hover, they land on larger flowers, particularly those of tree hibiscus and flame-of-the-forest). There is a bat cave in the coastal rocks W of Hummingbird Lodge, accessible only by boat or a short swim (do not attempt if the sea isn't flat, and watch for speedboats!), where you can see thousands of **Antillean fruit-eating bats**. If you drive N along the coast to Anse Chastanet resort and then walk for about 500 m along the beach (check out **Schwartz's** and **Jamaican fruit bats** roosting

in a small roadside cave about 50 m past the pier), you get to Anse Mamin Beach; take the road inland and in a few minutes you'll see plantation ruins on your left where more **Jamaican fruit bats** roost in small numbers.

There are two whale-and-dolphin-watching operators on St. Lucia, one in Castries and the other in Soufriere, but both go to Soufriere area, so it's better to go with the latter (<http://www.mysticmantours.com>). The problem is, their trips (scheduled Mon, Wed and Sun) are often cancelled as there aren't enough people. They use a sailboat, and turn off the engine to sail closer to the whales. They eventually agreed to take me on a personal tour; within twenty minutes we found a lot of **sperm whales**, and the crew allowed me to snorkel with three different pods, one of which included a huge male that breached repeatedly and another had a baby that was left by its mother on the surface while she dived and almost bumped into me (I had to gently push it away). While swimming with the whales I also saw a group of gorgeous **Fraser's dolphins** and a humongous blue marlin (I know it was humongous because I had the whales to compare it with). All for US\$40, the best forty bucks I've ever spent. Amazingly, I was their first client ever to ask for underwater views, even though the boat carries snorkeling gear. The most frequently encountered species are **pantropical spotted, common and Fraser's dolphins, sperm whale, humpback whale** (February-March, usually very close to shore), and **short-finned pilot whale** (lots of the latter were seen two days before my trip); there are also occasional sightings of **killer whale** in winter. There is a ferry to Martinique, but the captain said he never sees any marine mammals on that route.

## **5. Martinique** (January 5-12 and July 4-5, 2017).

Martinique is a very developed place. Much of the island is deforested all the way to the hilltops, with only a few patches of natural vegetation remaining. The N part still has some rainforest on the slopes of five beautiful volcanoes; there is also dry tropical forest on Caravelle Peninsula and in the SW.

Although part of France (with French prices on everything), Martinique has a few typical Latin American slums and everything tends to be slightly dysfunctional. Traffic on weekdays is a major problem: avoid driving N through Fort-de-France between 6 and 10 am and driving S from 3 to 7 pm, or you risk spending up to three hours in jams. When not jammed, roads are fairly good and well signposted, but with numerous speed cameras.

The island has eleven bat species. One of them (**Schwartz's myotis**) is a single-island endemic, and four are endemic or near-endemic to the Lesser Antilles. **Common opossum, small Indian mongoose, feral cat** and **roof rat** are the most frequently encountered introductions (the mongoose seems a bit less common than on neighboring islands).

There are two known bat caves (and a lot of unknown ones, judging by the abundance of bats believed to be cave specialists). Both those caves are called simply "Grotte aux Chauves Souris", but all information you can find online refers to just one of them, located in Anses d'Arlet. It is accessible only by boat and has a few thousand **Antillean fruit-eating bats**. The other cave is much easier to access; look for a small sign on D37 a few meters S of its intersection with D5 in Abondance. It is officially open only for 1-2 hours per day on weekdays; at any other time you can simply walk around the house and follow the trail for about 40 m to the entrance. In January, hundreds of **Antillean fruit-eating bats** (a few of them bright-orange) and a few much shier **greater fruit bats** (a rare species on Martinique) were well visible from the entrance; I climbed down (it looks tricky, but there are enough footholds if you go through the right side of the entrance), and spotted a cluster of **insular long-tongued bats** in the far end of the cave (which is only a few meters long).

In winter of 2017 we stayed in Residence Les Cayalines in Desert (near Sainte-Luce). A boardwalk leading from the hotel to the beach through mangrove forest was a great place to see forest bats in flight. The ones I managed to ID were **common funnel-eared bats** (tiny, orange or grey with pale belly, face and ears, very long-tailed) and **tree bats** (midsize, greyish with white hair bases reflecting the flashlight); the former would also swarm for about 20 min every evening near the small creek that you get to by walking E along the beach for a couple minutes, while the latter fed around the barbecue pavilion on the hotel grounds, occasionally landing at the edge of its roof for a second or two, but were present only when there wasn't much moonlight. **Velvety mastiff bats** were flying high above the hotel in large numbers. The traffic roundabout where you exit towards the hotel has a second exit which immediately ends at a locked gate; from here an entire network of trails leads into dry tropical forest where small, very dark bats could sometimes be seen flying under the canopy; I think they were **Schwartz's myotis** as no other local species seems to fit. There were also **Antillean fruit-eating bats** flying through the canopy, instantly recognizable by their huge size, massive build, and slow flight with shallow wingbeats. Once I saw a **black rat** in a tree (in the Lesser Antilles they are usually light-grey with pure white belly, and almost completely arboreal).

More extensive dry forests cover the mountains between Le Diamant and Trois-Islets. Road D38 provides access to higher elevations, where in January I found a **Schwartz' myotis** roosting under a huge leaf of grandleaf seagrape. This bat is said to roost in caves, but there is an old sight record of two individuals roosting on the underside of large leaves (apparently of the same tree species) in dry tropical forest on Caravelle Peninsula.

The best way to see the rainforest is to take N3 from Fort-de-France. After passing Jardin de Balata on the left, look for an abandoned arboretum on the right: here I saw **insular long-tongued bats** feeding in flowering trees. Higher up, look for "Plateau Boucher" sign on your right, soon followed by a trailhead on your left. This is the most popular birding

site on the island, but the only bat I saw there was an **Angel's yellow-shouldered bat** that briefly used the small pavilion near the trailhead during a bout of heavy rain; there were also **feral pig** tracks. Farther N on the same road is Les Jesuites Trail, similar but usually less muddy and much easier to walk. I spent a night and a morning there in July and saw a **red-rumped agouti** (ssp. *fulvus*), plus lots of bats flying along the trail (should be a good place for mistnetting); the ones I identified were **common funnel-eared** and **Davy's naked-backed bats**, which makes me think there's an undiscovered hot cave nearby.

Caravelle Peninsula Nature Reserve has a few nice trails where **common opossum** and **black rat** were common at night, while **Mexican freetails** and **velvety mastiff bats** could be seen at dusk as they swarmed over open spaces. This is a good place to practice telling them apart in flight, as the freetails vocalize loudly. I saw one **Greater fishing bat** feeding along the loop trail through the mangroves (this species is widely distributed through the Lesser Antilles, but is uncommon, local and difficult to see; some mistnetting records suggest that it roosts in hollow trees in the mountains, not just in coastal caves like in other parts of the range).

There are numerous dolphin-watching operators on Martinique, almost all of them located on the W coast. **Pantropical spotted dolphin** is the only resident species, but there are records of **Fraser's**, **common** and **bottlenose dolphins**, **melon-headed whale**, **short-finned pilot whale**, **killer whale** (rare), **sperm whale**, and unspecified **beaked whales** (probably Cuvier's or Gervais'). Three of these companies are located in Pointe du Bout and operate a total of six boats; these business geniuses all run trips on Wednesdays and Sundays (but their websites get everything wrong, and reservations are unreliable). In January 2017 I tried to arrange a trip with either of them, but due to a sequence of unfortunate events it didn't happen. One of the captains told me that on the previous day they encountered a few "blackfish" near the route of Pointe du Bout - Fort de France ferry. I immediately took a return trip on the ferry and, indeed, saw a pod of **melon-headed whales**, although the views were poor. In July of the same year I finally managed to get on a tour; we saw four pods of **Pantropical spotted dolphins**, in one of which a female was giving birth; I jumped in the water and saw the whole process, but was later told that snorkeling that far offshore is not normally allowed. The dolphins live along the NW coast of the island, and can also be seen from ferries to Dominica (I saw a few off St. Pierre).

## 6. Dominica (July 1-3, 2017)

The best-preserved of all inhabited Caribbean islands, Dominica is a splendid paradise with rugged coasts and pristine rainforests (only the N and NW coasts are covered with dry scrub). It has twelve bat species, including one two-islands endemic, the **Dominican myotis**, which is more common here than on Martinique. There used to be a watchable myotis colony in the belltower of the Catholic church in Portsmouth, but the tower is no longer there and the only bats we saw flying over the town were **velvety mastiff bats** (one colony was under the roof of a white house immediately upslope from the church). The island also has a distinctive population of **big brown bat** which is likely to be split if anybody can get more specimens (although not rare, these bats appear to be very difficult to mistnet, and no colony has ever been found). There's also the usual collection of introduced species; **common opossum** is particularly abundant. **Feral goats** can be seen near the N tip of the island. Dominica has the most endemic herps (thirteen species) in the Lesser Antilles.

Syndicate Trail, located in Morne Diablotins National Park, is well signposted from the main highway S of Portsmouth. It passes through one of the most beautiful rainforests I've ever seen, with unusually high numbers of heavily buttressed trees. Two of these giants growing along the trail were hollow; at night the hollows were empty, but I couldn't help noticing big mounds of guano at the bottoms, checked them again in the morning, and found one of them full of **insular leaf-nosed bats**. The visitor center is reportedly almost always closed, but the men's restroom is open; I noticed piles of termite wings under all three urinals and kept checking the place throughout the night until I found a rather shy **big brown bat** roosting under a urinal. I wonder why it chose such an unusual place, and also if the three piles were left by three bats each using its own urinal, or by the same bat using all three indiscriminately. At dawn there was a **red-rumped agouti** (subspecies *noblei*) on the trail, and also the remains of a **common opossum**: the unknown predator left only the intestines and the facial part of the skull, and I have no idea what it was (a feral cat, perhaps?).

The largest known bat cave on Dominica is Stinking Hole in Morne Trois Pitons National Park. To get there, drive from Roseau towards Laudat and look for "Middleham Falls" sign. From the trailhead, follow the signs to the falls until you start seeing signs for Stinking Hole. The hike is a bit strenuous and takes more than an hour each way. The entrance is a narrow pit about 7 m deep with highly unstable walls – do not attempt descending without a rope! A few decades ago the cave reportedly had huge numbers of Antillean fruit-eating bats, but now it is a typical hot cave with lots of **Davy's naked-backed bats**; other species we saw inside were (in order of decreasing numbers): **common funnel-eared bat**, **Antillean** and **Jamaican fruit-eating bats**, **insular long-tongued bat**, and **Dominican myotis**. If you don't want to get inside, you can watch the emergence: all species can be identified in flight. The access trail had **common opossums** at night and **red-rumped agoutis** during the day. There was a hollow tree with a bat colony along the trail; its opening was too narrow to look inside, but the pile of guano looked exactly like the one at the colony of **insular long-tongued bats** mentioned in the previous paragraph. During the night, one **Angel's yellow-shouldered bat** roosted a few times under the

roof of the rain shelter at the parking lot. **Tree bats** were flying in the fig grove a couple minutes up the trail (look for the place where the trail is crossed by thousands of fig roots). The road continues past the waterfall trailhead to Freshwater Lake in the same national park. This stretch gets almost no traffic and is probably the best on the island for night drives; we saw **common opossums** and **feral pigs** there.

Whalewatching tours are run from January to March, and go after **humpbacks** and particularly **sperm whales**. **Fraser's**, **bottlenose**, **spinner** and **pantropical spotted dolphins** are also said to be seen sometimes. You are allowed to snorkel with the whales, but only after paying \$4000 to the local fisheries department for a permit – better try St. Lucia. **Sperm whales** are said to be sometimes seen from ferries to Guadeloupe in winter.

## 7. Guadeloupe (July 3-4, 2017)

The largest and least pleasant of the Lesser Antilles, Guadeloupe has as many as sixteen bat species, including a single-island endemic (**Guadeloupe brown bat**) and a two-islands endemic (**Dominican myotis**, more common on Dominica). **Guadeloupe big-eyed bat** occurs also on Montserrat and St. Kitts. Other Lesser Antilles endemics include **Angel's yellow-shouldered bat**, **Antillean fruit-eating bat**, **tree bat**, and **insular long-tongued bat**. Introduced mammals include **northern raccoon** (very common), **lesser Indian mongoose**, **red-rumped agouti** (*ssp. noblei*) and **rhesus macaque** (rare), but no opossums.

Guadeloupe is actually two islands connected by causeways; the W one (Basse-Terre) is much less trashed. One fascinating thing about the Lesser Antilles is that more widespread species differ in abundance even between similar islands. **Insular long-tongued bat**, common on all larger islands, is rare on Guadeloupe, while **tree bat** is extremely abundant in all forested lowland habitats – I even saw one roosting by following it with binoculars as it flew into a palm tree crown about half an hour before dawn (that was in downtown Petit Burg).

The town of Petit Burg is the place to look for the very rare **Guadeloupe brown bat**: single individuals sometimes briefly feed around street lights along Plage de Viard (I saw one in five hours and consider myself very lucky). There are also a few records from the hills above the town and places further N. The other two species present at the beach were **Jamaican fruit bat** and **velvety mastiff bat**.

A road named Chemin de Grande Savanne leads from N1 highway just N of Petit Burg to the mountains of Guadeloupe National Park, providing better access to the rainforest than Vernou area popular among birders. The last house on the S (left) side of the road before the edge of the forest had a swimming pool very popular with local bats. The owners were not home, so we watched the pool for about an hour after sunset and saw about 30 bats; these included **tree bats**, **Jamaican fruit-eating bats**, a few small ones I couldn't identify, and a large, dark bat with slower flight than *Artibeus*; it hanged around for a while and I managed to see pale stripes on its face, so I'm pretty sure it was the rare **Guadeloupe big-eyed bat**. In the forest there were more **tree bats** but nothing else; we drove the road up and down at daylight and at night and saw three **northern raccoons**.

The second island, Grande-Terre, has limestone deposits with caves where colonies of **Antillean fruit-eating bat** are known to occur, but I couldn't find any information on the location of these caves.

Reintroduction of **Caribbean manatee** is being planned in the mangroves near Viex Bourg (also part of Guadeloupe National Park).

GED Excursions (<https://www.guadeloupe-evasion-decouverte.com/>) run whale-and dolphin-watching tours. Possible species reportedly include **humpback** and **sperm whales**, **Gervais' and Cuviers beaked whales**, **false, pygmy** and "true" **killer whales**, **short-finned pilot whale**, **melon-headed whale**, **Risso's**, **Fraser's**, **rough-toothed**, and **pantropical spotted dolphins**. I don't know what the chances are.

## 8. Northern Lesser Antilles.

From Guadeloupe northward, the island chain forks: islands in the W fork (including the W half of Guadeloupe) are still volcanic, while those in the E fork (including the E half of Guadeloupe) are mostly limestone and have lots of caves. Unfortunately, human disturbance (particularly guano mining) has driven some island populations to extinction; hot cave specialists were hit particularly hard.

Many islands have limited transportation options. There are a few ferries but they don't form a continuous network.

Montserrat (July 3, 2017) was once famous for well-preserved forests, but was devastated in 1995-2000 by pyroclastic flows from Soufrière Hills volcano. Almost 2/3 of this beautiful small island are now uninhabited and closed for visitors. Prior to the eruption Montserrat had 10 species of bats and the usual bunch of introductions. **Guadeloupe big-eyed bat** is currently known only from here (just two specimens), St. Kitts (one specimen) and Guadeloupe.

**Jamaican fruit bat** and **velvety mastiff bat** are still easy to see at dusk pretty much everywhere. **Antillean fruit-eating bat** inhabits coastal caves; the largest known colony is in Rendezvous Bluff Cave on Rendezvous Beach, accessible by dirt road from Little Bay. We also found six **insular long-tongued bats** there. **Insular long-tongued**, **greater fishing** and **Mexican freetail bat** are said to be common in Belham River Valley. Other species are rare.

Montserrat is connected by regular ferries to Antigua and by irregular ones to Guadeloupe; the latter are so scheduled that you get either two hours or at least a week on Montserrat. We chose two hours, which is my account is so brief. **Short-finned pilot whales** are very common in the area and often seen from ferries; we saw a pod off the SE coast of Montserrat.

Barbuda (June 1, 1998) is a small, flat island, typical of the eastern chain of the northern Lesser Antilles. It has 8 species of bats, including **Waterhouse's leaf-nosed bat** that doesn't currently occur on other islands of the chain. There are numerous caves on the island with a surprising number of large bat colonies; see Bats of Barbuda by Pedersen et al. (<http://digitalcommons.unl.edu/museummammalogy/143>) for more information (but note that Waterhouse's leaf-nosed bat was discovered on Barbuda after this paper was published). I was there for only one evening and saw only a few **velvety mastiff bats** flying over Frigate Sanctuary.

Barbuda is connected by regular ferries to Antigua; they should be good for looking for **short-finned pilot whales**. I visited Barbuda on a research boat and saw a large group of **Cuvier's beaked whales** about 50 km E of the island. I also saw a **Bryde's whale** ~70 km E of Antigua, a small group of **oceanic bottlenose dolphins** ~100 km E of St. Maarten, and a few groups of **spinner** and **Atlantic spotted dolphins** at various locations along the island chain. Overall, however, the density of cetaceans was low and on some day we didn't see any mammals at all.