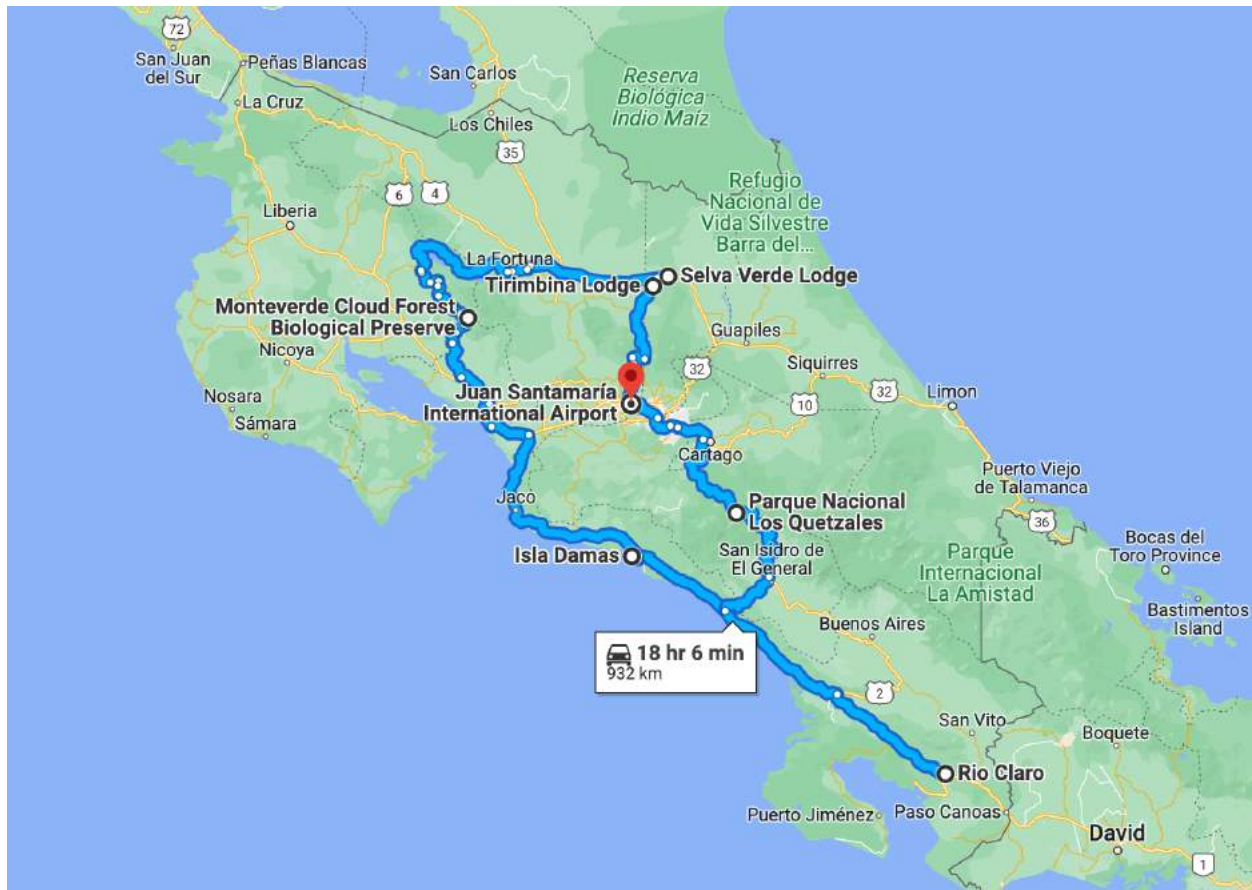


Rare Mammals of Costa Rica

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An approximate map of our itinerary – quite ambitious for just 6 days in the field!

Introduction

I first tried to visit Sylvan – Fiona Reid’s scenic property at the base of Costa Rica’s Osa Peninsula – on an ill-fated “bat blitz” scheduled for mid-March 2020. Forced to cancel at the last minute due to the start of the pandemic, I put my plans for a trip to Costa Rica on the back burner.

A year and half later, Alex – a fellow small mammal-obsessed participant on the initial tour – emailed me asking if I wanted to join him on a similar trip focused on rare and distinctive bats in early 2022. This was right up my alley! We contacted Fiona for help planning the trip and tentatively scheduled a visit to Sylvan and a few other Costa Rican sites with her for March 2022. But as is usual with travel these days, things were about to get a lot more complicated!

Due to the Omicron wave and uncertainty on my end, we deferred seriously planning the trip until February 2022, at which point changes in Fiona’s availability meant she wouldn’t be able to join us during our planned week in Costa Rica. I was ready to give up, but Alex was steadfast

– and I have to give serious credit to him for making this trip happen. Upon his request, Fiona connected us with Vino de Backer (vino.monteverde@gmail.com / WhatsApp +506 8502 7056), a friend of hers and Costa Rican bat biologist who was happy to help organize our mini-expedition. This was a fantastic recommendation – thank you Fiona! I really do not have enough good things to say about Vino: he’s personable, funny, energetic, and knows how to find pretty much every Costa Rican bat species. Moreover, he brought along Jim Wolfe, a retired biologist currently trying to film all of Costa Rica’s mammals (check out his channel: <https://www.youtube.com/c/JamesWolfeSilverSpotProductions>). Jim’s knowledge of small mammals and Costa Rican natural history proved invaluable to the success of our trip. Vino also connected us with Emmanuel Rojas, head bat biologist at Tirimbina lodge, who really went above and beyond to arrange special excursions over our stay there. And so, with only a week left before our flights, we finally had all the arrangements in place for an incredible trip!



Vino’s truck near the fateful telecom station on Cerro de la Muerte (3451m/11322ft asl); Alex, me, and Jim at PN los Quetzales

Itinerary

Day 1 (3/19/2022): SJO – Tirimbina Lodge (O/N Tirimbina Lodge)

Day 2 (3/20): Tirimbina Lodge – Selva Verde Lodge – Monteverde (O/N Monteverde)

Day 3 (3/21): Full day exploring Monteverde (O/N Monteverde)

Day 4 (3/22): Monteverde – Caldera – Miraflores – Damas (O/N Damas)

Day 5 (3/23): Damas – Sylvan (O/N Sylvan)

Day 6 (3/24): Sylvan – PN Los Quetzales (O/N Mirador de Quetzales)

Day 7 (3/25): PN Los Quetzales – Cartago – SJO

Key sites

Tirimbina Lodge & Reserve

Tirimbina must be one of the best places in the world to see bats, and therefore should be a must-visit site for mammal watchers in Costa Rica. As mentioned earlier, we were fortunate to get “VIP” service from Emmanuel, the resident bat researcher here. Emmanuel is awesome – he

has an insanely sharp eye for tents and roosting bats, and even spent the entire day before our visit scouting roosts and stakeouts for our target species. If you're seriously into bats, definitely try to schedule your visit based on his availability as you will see so much more under his guidance!



L – Honduran White Bats: surely the most recognizable mammalian symbol of Costa Rica's Caribbean lowlands; R – Smoky (Short-eared) Bats: a rare Neotropical Emballonurid that roosts in coconut palm fronds

Tirimbina is divided into 2 sectors by the wide Sarapiquí River. The western sector comprises a sliver of land between Highway 126 and the river, encompassing the lodge, adjacent gardens, and a small patch of secondary forest to the N with abundant *Heliconia imbricata* and many coconut palms. While hardly pristine habitat, there is a great array of species here. Emmanuel showed us roosting **Proboscis Bats** in a reception area and both **Pacific Tent-making** and **Watson's Fruit-eating Bats** in the gardens. Central American Dwarf Squirrel is common here, and Emmanuel has found both Spix's and Peters' Disk-winged Bats (the latter only twice) roosting in rolled young *Heliconia* leaves and dry, dead *Musa* leaves respectively. In the secondary forest, Emmanuel quickly located a staked-out group of roosting **Honduran White Bats**. I was thrilled to see this iconic species, and Alex also enjoyed the improved photographic opportunities relative to his previous sighting. Against the odds, Emmanuel's sharp eyes picked up a **Short-eared (Smoky) Bat** roosting high in a coconut palm. We had not expected to see this species, and were apparently only the third group to do so at Tirimbina.

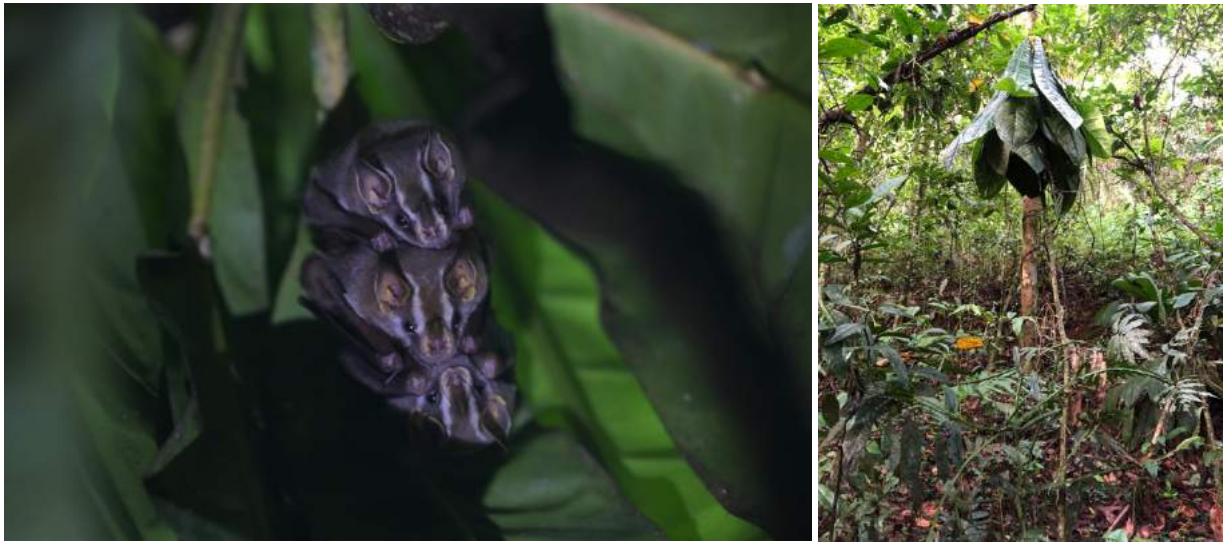
We also explored short trails leading down from the lodge to thick forest on the banks of the river. **Pygmy Round-eared Bats** roosting in an aerial termite mound were a highlight here. We also set several mistnets hoping to catch the rather uncommon, pretty MacConnell's Bat but only got **Seba's** and **Chestnut Short-tailed Bats** and a **Greater Dog-like Bat**. A full moon likely limited netting success during our stay, as we also missed Brazilian Serotine and Thomas's Yellow Bat here, which can usually be readily caught as they emerge from a dilapidated outbuilding that serves as their roost.



Assorted mammals of Tirimbina (clockwise): Chestnut Sac-winged Bats roost in a "stack" under large fallen logs; Mexican Hairy Porcupine; rarely-seen Thomas's Shaggy Bats roost in the open, underneath large canopy leaves; Greater Dog-like Bat

A long, rickety suspension bridge leads from the lodge to Tirimbina's much larger eastern sector, which comprises the main rainforest reserve. This is classic Caribbean slope lowland rainforest, very wet and humid with tall trees, fairly open understory, and many small streams. Over an afternoon and morning, Emmanuel showed us a number of roosts: **Greater Dog-like Bats** and **Chestnut Sac-winged Bats** under fallen logs over quebradas; **Greater White-lined Bats** in buttresses of a large tree; beautiful **Striped Yellow-eared Bats** roosting in their neat umbrella-shaped tent, cleverly constructed from *Potalia turbinata* leaves; and a rare **Thomas's Shaggy Bat**, roosting underneath a large leaf in the canopy (which Emmanuel miraculously re-found after it had moved from its previous "spot"). Several of these species are quite rare globally, and Tirimbina is certainly the only place in Costa Rica where they can realistically be seen by mammal watchers. We kept an eye out for MacConnell's Bats in tents of *Asplundia* species and Spix's Disk-winged Bats in rolled up *Heliconia* leaves without luck. From Sep-Feb,

Tirimbina is also one of the few places where rare Dark Long-tongued Bats can be reliably found roosting under fallen logs.



Rare, elusive Striped Yellow-eared Bats and their very cool leaf tent

Beyond bats, the reserve is quite productive for a range of other rainforest mammals. We saw **Mantled Howlers** easily, and Panamanian White-throated Capuchins are also seen frequently. The suspension bridge is excellent for spotlighting, as it serves as a crossing point over the river. We saw at least 5 **Kinkajous** and 3 **Mexican Porcupines** in just an hour or two of spotlighting, and Central American Woolly Opossum (usually around 10PM) as well as both Brown-throated Three-toed and Hoffmann's Two-toed Sloths are common. Common and Dark Four-eyed Opossums and Nine-banded Armadillo are also frequently seen on the trails, and Emmanuel has also seen Zeledon's Mouse Opossum and Black-and-yellow Rice Rat along quebradas. Vesper Rats nest in the small rain shelters along the trail network. Rare species here include Water Opossum (only registered on camera traps), Ocelot, and Neotropical Otter. The birding is pretty good too – we saw Agami Heron and Sunbitterns without much effort!



A Pygmy Round-eared Bat in its unique roost within an aerial termite nest; a rare sighting of an Agami Heron

Selva Verde Lodge

After meeting Vino and Jim on the morning of 3/20, we made a short visit to this property located just N of Tirimbina along Highway 4. This lodge was perhaps Alex's most eagerly-anticipated destination of the trip, as the rare **Thumbless Bats** that roost here represented a new mammal family for him. The lodge doesn't accept day visitors, but thanks to Vino's connections the owners were happy for us to visit.

Arriving at the lodge, we met Henry Lara, the handyman who initially found the bats in 2017. This was the first roost of Thumbless Bats found in Costa Rica in almost 40 years (and only the second ever), so quite a remarkable discovery. Sadly, the colony has not fared well in the last year due to the arrival of a feral cat, which decimated their numbers from ~120 to 30. Thankfully, the cat was recently removed and the remaining bats are now relatively free of disturbance. After enjoying the Thumbless Bats, we continued to two more cabins which held roosting **Common Big-eared** and probable **Commissaris's Long-tongued Bats** respectively.



Selva Verde: the only colony of the very rare (and very weird) Thumbless Bats in Costa Rica!

Monteverde

A scenic 4-hour drive via Arenal and Tilaran took us to Monteverde, our base for the next 2 nights. We had a packed schedule here, visiting a range of sites around the town of Monteverde – a great place to see a wide diversity of special mammals – by day and night. As

with most cloud forest habitats, we racked up a respectable list of sightings over 2 days of effort but definitely still left many target species on the table for a future trip!



Lovely cloud forest at the Curi-Cancha Reserve in Monteverde

Jim generously invited Alex and me to explore his lovely forested property at La Cruz on both nights. When I retire, I hope to have a home like Jim's – it's really a mammal enthusiast's paradise, and the habitat is only getting better thanks to his reforestation efforts. Jim converted a shed into a photographic hide for mammals (with a live video feed no less), which provides stellar photo-ops for a range of species. Over 2 hours, we had great views of multiple **Lowland Pacas** and **Talamancan Mice**. Cloud-dwelling Spiny Pocket Mice are normally a common sight here as well, but Jim thought they were at a low point in their population cycle this year. Walking trails elsewhere on the property, we also saw a **Mexican Porcupine**, 3 **Cherrie's Harvest Mice**, and a **Great Fruit-eating Bat**. Vito set up a few mistnets and despite cold, windy weather managed to catch us many **Toltec Fruit-eating** and **Honduran Yellow-shouldered Bats** and **Northern Hairy-legged Myotis**. **Alston's Mouse Opossums** live around Jim's hydroponics setup and were a key target for both Alex and me; I managed a brief view on the second night, but Alex (who was standing just 5 ft away from me) sadly missed it. Despite spending several more hours searching that night, he couldn't re-find the animal but did see 2 **Vesper Rats**. Jim also regularly sees Zeledon's Mouse Opossum, Central American Tapeti, Watson's Climbing Rat (when they invade his home), Underwood's Long-tongued Bat, and Bushy-tailed Olingo but we weren't lucky in our short stay. Even Puma is occasionally seen hunting pacas at the hide!

Elsewhere, a short night excursion to the Bajo del Tigre sector of the Children’s Eternal Rainforest failed to produce hoped-for Bushy-tailed Olingos. However, I did see several **Nine-banded Armadillos** both in town and at Vino’s house nearby, where we stayed. I was particularly pleased with these sightings, as armadillos have been a long-standing nemesis of mine! On our second night, Vino netted at Crandell’s Reserve and caught us a range of species. The highlights included rare **Underwood’s Long-tongued** and spectacular **Greater Broad-nosed Bats**, but we also added **Sowell’s Short-tailed Bat**, **Jamaican Fruit-eating Bat**, and **Brazilian Brown Bat**, in addition to the same 3 species caught at Jim’s place. This is another good spot for olingos, but they hadn’t been seen for a couple of weeks.



A selection of mammals from Jim’s “yard”: Lowland Paca (always special to see one at touching distance!); Northern Hairy-legged Myotis; the poorly-known, endemic Cherrie’s Harvest Mouse; “Honduran” Yellow-shouldered Bat

By day, we visited a range of sites in the surrounding area. A short trip to the Monteverde Cloud Forest Reserve revealed that olingos no longer visit the few remaining Hummingbird feeders anymore (most were taken down following a new law that bans bird feeding). We also checked the ruins of an abandoned field station here for bats, finding **Common Vampire Bats** but not the hoped-for Commissaris’s Long-tongued Bats. Vino then showed us some roosting **Riparian Myotis** crammed into a tiny crack in a tree on the grounds of a nearby hotel. We spent an enjoyable afternoon in the Curi-Cancha Reserve, probably the best mammal watching site in the area. We had nice views of **Hoffmann’s Two-toed Sloth**, **White-nosed Coati**, **Central American Agouti**, and **Central American Dwarf Squirrel** in a few hours’ walk. Panamanian

White-throated Capuchin, Central American Spider Monkey, and Central American Tapeti are also common here, and guides showed us photos of Tayra, Margay, and Mexican Red Brocket they had seen in the past few days! The latter species is frequently seen at dusk on the grounds of the Fondavela Hotel, but an evening walk did not yield success (we only saw more agoutis and a **Variegated Squirrel**).



Specialty mammals of Monteverde: Central American Dwarf Squirrel; the striking Greater Broad-nosed Bat; and the localized Underwood's Long-tongued Bat

During the middle of our full day, we also made a quick stop at the Bat Jungle – a bat education and tourism setup. Vino runs with his mentor, Richard LaVal (who we also met earlier that day). Even for mammal watchers, I reckon it's well worth a stop to meet Vino, hear some bat jokes, and see firsthand his passion for communicating the importance of bats to the public. As a bonus, we also enjoyed close-up views of Geoffroy's Tailless and Commissaris's Long-tongued Bats, two species we never had confirmed views of during the trip.

Monteverde is a very rich area for mammals and there are a range of species left to see. Among rodents, Alston's Singing Mouse and Sprightly Pygmy Rice Rat can be seen around pastures while Short-nosed Harvest Mouse occurs in drier, lower-elevation cloud forest down the hill near San Luis. Jim has seen the rare Cherrie's Pocket Gopher once, but sighting it on a short trip is nearly impossible. Monteverde is probably the best place to see the marvelous Goldman's

Water Mouse, and there are 2 known sites (streams near Selvatura and Pocosol), but we didn't have enough time to try. A range of other exciting bat species are around too, particularly at higher elevations within the Monteverde Cloud Forest Reserve including Handley's and Geoffroy's Tailless Bats, Aztec Fruit-eating Bat (cf.), Velvety Fruit-eating Bat, Great Stripe-faced Bat, and both Burton's and Talamancan Yellow-shouldered Bats. Definitely somewhere to revisit one day. Lower elevations near Santa Elena are often more productive for olingos, and Jim has also found Schmidts' Big-eared Bat and Striped Hog-nosed Skunk in drier forests here.

Caldera, Miraflores, and Carara

These 3 sites, which encompass the transition zone between the tropical dry forests of Costa Rica's northern Pacific coast (Guanacaste) and wet forests of the south, were visited briefly en route between Monteverde and Damas. They're great spots for bats in particular, though note that the first two sites require advanced permission to visit, which I suspect is not possible to obtain without VINO.



L – Gray Sac-winged Bat; R – Fringe-lipped Bat, a long-awaited sighting for me

At Caldera, we visited the ruins of an abandoned railroad depot where many **Gray Sac-winged Bats**, a new species for Alex, now roost. We also saw some **Lesser White-lined Bats** roosting on the walls of the nearby hotel.

Miraflores is the site of a remarkable ~200m long abandoned railway tunnel, now colonized by around 10 species of bats. On our walk through the tunnel, we noted both **Greater** and **Lesser White-lined Bats** at the entrances and large numbers of **Common Vampire Bats**, **Seba's** and (probably) **Chestnut Short-tailed Bats**, and **Jamaican** and **Great (*intermedius*) Fruit-eating Bats** inside. Scarcer species included a probable **Merriam's Long-tongued Bat**, 2 **Pale Spear-nosed Bat**, and the highlight – a cluster of 60 spectacular **Fringe-lipped Bats**. An excellent spot, and a must-visit if you're into bats.

Carara is a small and popular (hence overcrowded) national park another hour down the highway just past Tarcoles. Rare and beautiful **Northern Ghost Bats** roost beneath the fronds of large palms here, and it took just 5 minutes for Vino to spot one. This is perhaps the only known reliable place on Earth to see *Diclidurus* roosting. We didn't see any other mammals here in our 20-minute visit, though others report Panamanian White-throated Capuchin and Pacific Tent-making Bat regularly, among other species.



Pale Spear-nosed Bat roosting at Miraflores tunnel; day-roosting Northern Ghost Bats are quite a rare sight, except at Carara NP where they can be found reliably

Damas

Damas is an interesting area located along the central coast of Costa Rica, immediately W of much busier Quepos and Manuel Antonio NP. There are two principal sites of interest: the mangroves of Isla Damas, and the impressive caves at the Riopalma property further inland. We stayed at Rancho Leon, a funny place with good food but a party atmosphere at night.

The main draw for mammal watchers at the mangroves is of course, the **Central American Silky Anteater**. Alex (who was particularly keen to find it, as it represented a new mammal family) made up for the rest of our lack of homework here by preparing contact info for Milenlli (milenlly@hotmail.com / <https://www.mammalwatching.com/listing/millentours/>), who also showed Jon his first silky anteater years ago. As Mac Hunter notes in his report, arranging a dedicated trip materially increases your odds of success with this species. The anteaters are cryptic and tiny and have specific habitat preferences, so going out with experienced guides explicitly targeting this species is essential. Even then, it was all a bit touch and go until Milenlli's sharp eyes spotted one at dusk, as we were returning to the dock! Notably, she beat both our thermal imagers to the punch... Sightings are apparently less common than they used to be, so perhaps consider booking 2 trips to be more confident of success. We also saw

Panamanian White-throated Capuchins (the animals here have been documented using tools!) and **Proboscis Bats**; Milenlli sees Greater Fishing Bats (at roost and in flight), Dark Four-eyed Opossum, Northern Tamandua, and Northern and Crab-eating Raccoons from time to time.

The caves are a really interesting spot, but unfortunately access has gotten trickier due to changes in ownership of the private property on which they are located. While Vino still has access, Milenlli mentioned she hasn't visited the site in a few years. While the caves are undoubtedly spectacular and full of bats, the surrounding forest and river are also quite rich in mammals and Alex and I were both ultimately happy we dedicated the majority of our time in Damas to this site (at Vino's recommendation).



Proboscis Bats and Central American Silky Anteater at the mangroves of Damas Island

Vino was disappointed to see fewer bats in the cave compared to previous visits (perhaps due to a combination of seasonality and disturbance), but thankfully the diversity is still there. The most abundant species are **Seba's**, **Chestnut**, and **Sowell's Short-tailed Bats**, and there are also large numbers of **Common Vampire Bats** and plenty of **Greater White-lined Bats** at the entrances. We also enjoyed seeing hundreds of the very impressive **Greater Spear-nosed Bats**, as well as both **Greater** and **Lesser Dog-like Bats**, a few delicate **Mexican Funnel-eared Bats**, and 2 of the pretty **Orange Nectar Bats**. The rarity of the latter species was particularly concerning for Vino, as he was used to seeing them roosting in clusters among the *Carollia*. A large colony of *Pteronotus* roosts in deep chambers high in the walls of the cave; based on photos and calls, we could identify **Big Naked-backed** and **Mesoamerican Mustached Bats**. Smaller bats may have been Lesser Mustached Bats, and we recorded calls of Davy's Naked-backed Bats here too, but didn't knowingly see any. Vino has seen Central American Nectar Bat, *Glossophaga* sp., and Fringe-lipped Bat roosting in the past, but we couldn't find any this time.

The forest surrounding the cave is intact and full of mammals. We had good views of a large troop of 50+ **Central American Squirrel Monkeys** coming to sleep in a bamboo patch near the access road's end at nightfall. Walking the path to the cave and along the river, Alex and I had a

productive time seeing **Greater Fishing Bats**, **2 Common Opossums**, **Short-tailed Cane Mouse**, **Costa Rican Pygmy Rice Rat**, and best of all – a **Dark Four-eyed Opossum**. Several Boat-billed Herons were also a fun surprise. The next morning, I checked *Heliconias* in the same area for disk-winged bats before leaving. I had a nice sighting of **Spix's Disk-winged Bats**, a major target of ours (and yet another new family for Alex), roosting in a furled leaf. While I was too slow to catch them, I did manage to call the others over for brief views before they disappeared.

We didn't visit Manuel Antonio NP, but it remains reliable for Brown-throated Three-toed and Hoffmann's Two-toed Sloths, Mantled Howler, Panamanian White-throated Capuchin, Central American Squirrel Monkey, Central American Agouti, Northern Raccoon, and White-tailed Deer. Alex also saw 2 Zeledon's Mouse Opossums on a night walk just outside the park on his previous visit to Costa Rica in 2014, and Striped Hog-nosed Skunks are seen on occasion as well.



An assortment of mammals from Damas caves: Central American Squirrel Monkey, Lesser Dog-like Bat, Mexican Funnel-eared Bat, Greater Spear-nosed Bats (note the orange, piebald individual), and Orange Nectar Bat

Sylvan

Sylvan, Fiona Reid's remote property, is located along the shallow Rio Sorpresa SW of Rio Claro. I've been keen to visit ever since I saw the remarkable lists of species observed on her bat surveys back in 2020. It's a lovely and highly biodiverse spot, with pretty forest clinging to steep ridges, and holds a really spectacular list of bats in particular (60+ are now known from the area!). Accommodations are in a basic but comfortable field station, and the friendly caretakers Jesus and Frances were around to look after us and prepare great meals.

Access is a little complicated, requiring 3 river crossings, and a portion of the "road" literally involves driving through the channel of a small stream. So not a place to try to drive into during the wet season (you have to take a horse) or without 4WD and high clearance anytime. We had originally planned on 2 nights to try and catch a broad diversity of bats, but the rainy season started early, beginning about a week prior to our trip. Although we could drive in easily enough, heavy rains on our first evening had us concerned: if these continued, we may not be able to leave the area for our trip back to the airport on the 25th – so we departed after 1 night.



Pygmy Fruit-eating Bat and the rare Central American (Goldman's) Nectar Bat at Sylvan; Dark Four-eyed Opossum at Damas caves

Despite the weather, we managed to catch or see a range of species after the rains let up. A couple of hours' netting around the banana patch were reasonably productive, yielding 2 **Central American Nectar Bats** – a rare species and key target of mine – as well as 2 more (albeit common) new species, **Pygmy Fruit-eating Bat** (which we could compare with the very similar **Watson's Fruit-eating Bat**) and **Northern Yellow-shouldered Bat**. Other species included a few more **Orange Nectar Bats**, several **Pacific Tent-making Bats**, **Jamaican** and **Great Fruit-eating Bats**, and **Seba's**, **Sowell's**, and **Chestnut Short-tailed Bats**. We also saw both **Proboscis Bats** and **Black Myotis** roosting in the station, and **Tomes's Spiny Rats** in riverside vegetation (bring rubber boots so you can walk up and down the river more easily, and for snake safety).

We spent the morning looking for disk-winged bats in furred *Heliconia* leaves and banana patches. While we couldn't find more of the usually common Spix's Disk-winged Bats, Alex and

Jim did glimpse a **Peters's Disk-winged Bat** flying out of its roost in some dead banana leaves. Meanwhile, Vino became the first mammal enthusiast to add a species to his "shadow list" as the bat flashed right over his head. Unfortunately, they couldn't catch it so I missed (an albeit brief) sighting of this rare species. The bats are likely resident in the banana patch just across the first river crossing leaving Sylvan. Central American Squirrel Monkey and Central American Dwarf Squirrel are also regularly seen on Sylvan's trails, but we didn't try on our one morning. Underwood's Pocket Gophers have dug up the banana patch, but are quite unlikely to be seen.

There are of course, many more exciting bat species at Sylvan, and the best way to see them would be to join one of Fiona's surveys – I'd like to return for one at some stage. Wrinkle-faced and Northern Stripe-headed Round-eared Bats are caught regularly, and an impressive range of rare species have been recorded once or twice, including Orange-throated Bat, Dark Long-tongued Bat, Velvety Fruit-eating Bat, and White-winged Vampire Bat. Surveys using triple-high nets have caught many rare (or at least rarely seen) aerial insectivores e.g. Smoky Bat, Thomas's Shaggy Bat, Mexican Dog-faced Bat, Sanborn's Bonneted Bat, and Miller's Mastiff Bat.

Los Quetzales

With an extra night at our disposal, we decided to head to this scenic area of cloud forests high in the Talamancan Mountains. We had a range of reasons: 1) Vino had never been, so he was excited to see a new area of Costa Rica; 2) we'd have chances to see a range of rare, endemic mammals that were otherwise off-route; and 3) the area is on route to San Jose, thus reducing the driving distance for our final day. In the end, Los Quetzales turned out to be the least productive stop of the trip, not helped by lack of local knowledge and car trouble. But despite breaking one of my cardinal rules (never spend less than 2 nights in a cloud forest site) and seeing less than we'd hoped, I think we all still enjoyed our time in this peaceful, pretty area.



Chiriqui (Talamancan) Harvest Mouse, the largest harvest mouse (*Reithrodontomys*) species and also one of the most distinctive; a particularly attractive Talamancan Mouse

Los Quetzales comprises 2 key habitats – rich cloud forests and rare patches of *paramo* (brushy alpine moorland; the only such areas in Mesoamerica). *Paramo* is best accessed from (9.5706, -

83.7541), where a gravel road heads S from the Panamerican Highway toward some telecom towers atop Cerro la Asuncion. This is prime habitat for 2 very localized alpine specialists – Musser’s Harvest Mouse and Dice’s Cottontail (which also ranges down into the upper cloud forest belt). An hours’ night walk didn’t yield sightings of either, perhaps due to cold, drizzly weather (though we did have a possible harvest mouse sighting). Also, Vino’s diesel 4x4 started giving us trouble here thanks to the high altitude and sustained hill climbing: the road climbs 9000ft in just 45km from San Isidro de el General! If you want to explore Los Quetzales thoroughly, I’d make sure to take a new petrol 4x4 with high-clearance and a full-size spare tire.

Cloud forests can be explored from two points – Savegre Valley (surrounding San Gerardo de Dota) or further W between PN Los Quetzales and the Cerro Vueltas Reserve. Roads into either reserve (leading to Providencia and Vueltas Hill, respectively) would be good, safe options for night drives or walks targeting Dice’s Cottontail, Mountain Spiny Pocket Mouse, and Cacomistle. Avoid walking along/near the highway at night, as sections have poor visibility. These same roads (particularly the former, which has many bamboo thickets) are perfect Bangs’s Mountain Squirrel habitat. We only looked around for a couple of hours, seeing a **Red-tailed Squirrel** but no mountain squirrels.



The closest we got to seeing a quetzal (...); *Prumnopitys standleyi*, a rare conifer endemic to the Cordillera de Talamanca with a very similar habitat and distribution to Bangs’s Mountain Squirrel

The whole area comprises intact forest, so with permits rodent trapping on side trails outside formal protected areas is quite productive. 20 traps near our lodge (Mirador de Quetzales) yielded 6 captures, all regional endemics: 4 **Talamancan Mice**, a **Montane Rice Rat**, and best of all – a **Chiriqui Harvest Mouse**, an uncommon capture and the largest harvest mouse species. We hoped for Mountain Spiny Pocket Mouse, Chiriqui Singing Mouse, and Sumichrast’s (cf.) Harvest Mouse, but likely needed more traps/time. When I go back, I’d also like to try for the rare Underwood’s Water Mouse. Bats are naturally scarce, but we saw a likely **Northern Yellow**

Bat (yellow color noted in flight + Song meter recordings) on a short night walk. The area is good habitat for rare species in Costa Rica like Aztec (cf.) Fruit-eating Bat and Montane Myotis (*gardneri*). I also enjoyed seeing a rare, endemic Costa Rican conifer – *Prumnopitys stanleyi*.

In all, Los Quetzales is a beautiful area and I wish we had at least an extra night; we only began figuring out the best places to spot mammals as we were leaving. And I didn't even have time to spot a Quetzal! Definitely somewhere to return to...

Conclusion

A short 1.5-hour drive from Los Quetzales brought us to Cartago, where we took an efficient rapid COVID test (clinic: LABIN) and continued to San Jose. We spent the afternoon trying to find Alex some rare zoo animals to photograph without luck. Or at least Vito and Alex did – while Jim and I laughed at the bemused replies from various zoo attendants stating that they in fact did not have mouse opossums or spotted skunks on site. At one point, it even turned into a game of telephone as the hoped-for *taltuzas* (gophers) turned out to be very similar sounding, but much more boring *guatuzas* (agoutis).

Having aborted this idea, we enjoyed a prolonged meal at Jim's favorite Costa Rican restaurant near Alajuela before heading to a mechanic to sort out the car. And all too soon, Alex and I were off to the airport for our midnight flights.



Pacific Tent-making Bats in fan palms at Tirimbina; Jim and Vito washing off bat cave dirt in the river at Damas

Acknowledgements

As usual for these intense, small mammal-focused trips I have a bunch of people to thank for our success. Thanks to Jim for his generosity in sharing his home at Monteverde with us, and to Emmanuel for his hard work finding us nearly every bat in Tirimbina on our wish list. Of course, thanks are due to Fiona Reid for her help organizing our stay at Sylvan and most importantly,

introducing us to Vino. And to Jon Hall, for pre-trip advice and the 20 Sherman traps he loaned us. I'd also be remiss if I didn't acknowledge my travel companion and (now) friend Alex – after corresponding online for several months, it was great to meet in person! Focused, sharp, and very skilled (and equally importantly, fast) with the camera, Alex made up for my relative lack of photographic talent by producing great images of most species. All the photos featured in this report are thanks to him. I also enjoyed traveling with someone (almost) as keen on the small mammals as I am – let's do it again someday!

But the biggest thank you of all goes to Vino for uncomplainingly driving hours on end and then manning the mistnets late into the night only to conjure up seemingly every species we asked for. And he did it all despite heat, rain, sleep deprivation, and car trouble. Vino is a great guide and travel companion, and an enthusiastic advocate for bats and their conservation – I highly recommend that anyone interested in a bat-focused tour of Costa Rica gets in touch. Surely few others can compete with his results – an epic 70+ mammal species in just 6 nights in the field!

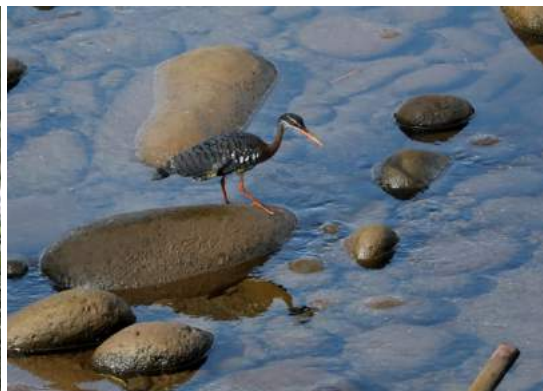


The celebratory meal at the end of our trip; a rickety bridge into Sylvan, and a view of Fiona's lovely field station; Emmanuel photographing Honduran White Bats at Tirimbina

Species list (E = endemic, NE = near-endemic, RE = regional endemic, ◇ = other specialty)

1. Common Opossum (*Didelphis marsupialis*)
2. Dark Four-eyed Opossum (*Philander melanurus*) RE
3. Alston's Woolly Mouse Opossum (*Marmosa alstoni*) NE
4. Nine-banded Armadillo (*Dasypus novemcinctus*)
5. Hoffmann's Two-toed Sloth (*Choloepus hoffmanni*)
6. Central American Silky Anteater (*Cyclopes dorsalis*) ◇
7. Mantled Howler (*Alouatta palliata*)
8. Panamanian White-throated Capuchin (*Cebus imitator*) RE
9. Central American Squirrel Monkey (*Saimiri oerstedii*) NE
10. Lowland Paca (*Cuniculus paca*)
11. Central American Agouti (*Dasyprocta punctata*)
12. Mexican Hairy Porcupine (*Coendou mexicanus*)
13. Tomes's Spiny Rat (*Proechimys semispinosus*)
14. Central American Dwarf Squirrel (*Microsciurus alfari*)
15. Red-tailed Squirrel (*Sciurus granatensis*)
16. Variegated Squirrel (*Sciurus variegatoides*)
17. Talamancan Mouse (*Peromyscus nudipes*) NE
18. Cherrie's Harvest Mouse (*Reithrodontomys cherrii*) E
19. Chiriqui Harvest Mouse (*Reithrodontomys creper*) NE
20. Montane Rice Rat (*Nephelomys devius*) NE
21. Costa Rican Pygmy Rice Rat (*Oligoryzomys costaricensis*) RE
22. Short-tailed Cane Mouse (*Zygodontomys brevicauda*)
23. Vesper Rat (*Nyctomys sumichrasti*)
24. Gray Sac-winged Bat (*Balantiopteryx plicata*)
25. Thomas's Shaggy Bat (*Centronycteris centralis*) ◇
26. Chestnut Sac-winged Bat (*Cormura brevirostris*) ◇
27. Short-eared Bat (*Cyttarops alecto*) ◇
28. Northern Ghost Bat (*Diclidurus albus*) ◇
29. Greater Dog-like Bat (*Peropteryx kappleri*) ◇
30. Lesser Dog-like Bat (*Peropteryx macrotis*)
31. Proboscis Bat (*Rhynchonycteris naso*)
32. Greater White-lined Bat (*Saccopteryx bilineata*)
33. Lesser White-lined Bat (*Saccopteryx leptura*)
34. Thumbless Bat (*Furipterus horrens*) ◇
35. Big Naked-backed Bat (*Pteronotus gymnotus*)
36. Mesoamerican Mustached Bat (*Pteronotus mesoamericanus*)
37. Greater Fishing Bat (*Noctilio leporinus*)
38. Chestnut Short-tailed Bat (*Carollia castanea*)
39. Seba's Short-tailed Bat (*Carollia perspicillata*)
40. Sowell's Short-tailed Bat (*Carollia sowelli*)

41. Common Vampire Bat (*Desmodus rotundus*)
42. Underwood's Long-tongued Bat (*Hylonycteris underwoodi*) ◇
43. Commissaris's Long-tongued Bat (*Glossophaga commissarisi*) [probable]
44. Merriam's Long-tongued Bat (*Glossophaga mutica*) [probable]
45. Central American Nectar Bat (*Lonchophylla concava*) RE
46. Orange Nectar Bat (*Lonchophylla robusta*)
47. Common Big-eared Bat (*Micronycteris microtis*)
48. Fringe-lipped Bat (*Trachops cirrhosus*)
49. Pygmy Round-eared Bat (*Lophostoma brasiliense*)
50. Pale Spear-nosed Bat (*Phyllostomus discolor*)
51. Greater Spear-nosed Bat (*Phyllostomus hastatus*)
52. Jamaican Fruit-eating Bat (*Artibeus jamaicensis*)
53. Great Fruit-eating Bat (*Artibeus lituratus*)
54. Pygmy Fruit-eating Bat (*Dermanura phaeotis*)
55. Toltec Fruit-eating Bat (*Dermanura tolteca*)
56. Thomas's Fruit-eating Bat (*Dermanura watsoni*)
57. Honduran White Bat (*Ectophylla alba*) RE
58. Greater Broad-nosed Bat (*Platyrrhinus vittatus*) ◇
59. Pacific Tent-making Bat (*Uroderma convexum*)
60. Striped Yellow-eared Bat (*Vampyriscus nymphaea*) ◇
61. Honduran Yellow-shouldered Bat (*Sturnira hondurensis*)
62. Northern Yellow-shouldered Bat (*Sturnira parvidens*)
63. Peters's Disk-winged Bat (*Thyroptera discifera*) ◇
64. Spix's Disk-winged Bat (*Thyroptera tricolor*) ◇
65. Mexican Funnel-eared Bat (*Natalus mexicanus*)
66. Common Black Myotis (*Myotis nigricans*)
67. Northern Hairy-legged Myotis (*Myotis pilosatibialis*)
68. Riparian Myotis (*Myotis riparius*)
69. Brazilian Brown Bat (*Eptesicus brasiliensis*) ◇
70. Northern Yellow Bat (*Lasiurus intermedius*) [probable]
71. White-nosed Coati (*Nasua narica*)
72. Kinkajou (*Potos flavus*)



White-nosed Coati on the trail at Curi-Cancha Reserve, Monteverde; Sunbittern in the Sarapiquí River