# Mammals of Mexico's Yucatan Peninsula

Venkat Sankar and Juan Cruzado Cortes March 24-29, 2017

#### I. OVERVIEW

5-night mammal watching trip to the Mexican Yucatan peninsula guided by Juan Cruzado Cortes, encompassing 2 nights at Tres Garantias (Quintana Roo), 1 night at Calakmul (Campeche), and 2 nights at Xocén (Yucatan).

Highlights included Gaumer's Mouse Opossum, Big-eared Climbing Rat, Elegant Myotis, Underwood's Bonneted Bat, Woolly False Vampire Bat, Cozumel Golden Bat, Hairy-legged Vampire Bat, Striped Hog-nosed Skunk, and Tayra. Lowlights included frustratingly poor views of Orange-throated Bat, an un-countable glimpse of Wrinkle-faced Bat, and a roadkill Ocelot.

### II. SITE GUIDE, SIGHTINGS & LOGISTICS

#### A. Tres Garantias

Tres Garantias encompasses a sizable area of conserved forest managed by ejidos Caobas and Tres Garantias in far SW Quintana Roo, close to the borders with Belize and Guatemala. Managed as a refuge for numerous large mammal species, particularly Baird's Tapir, Jaguar, White-lipped and Collared Peccaries, White-tailed Deer, Yucatan Brown and Central American Red Brockets, Paca, Ocellated Turkey, and Great Curassow, it is probably the best place in Mexico to see large mammals as you are free to walk and drive as you please, day or night and poaching is low in the core area of the reserves. Habitats are diverse, ranging from scrubby, bone dry thicket to humid tall forest.



Yucatan Black Howler (*Alouatta pigra*) is widespread but uncommon and shy in the Southern peninsula; easy to hear, seeing it requires local knowledge. The best places to try are archaeological sites with little hunting.

Accommodation is in basic, but very comfortable cabins in the ejido—the generator failed at the time of our visit, so there was no electricity but we were told this was an unusual occurrence. Food is good, very generous, and flexible so you can eat meals such that they don't disrupt mammal watching routines. The best time to visit is late March to early May, when large mammals congregate around aguadas, or year-round pools on impermeable limestone, where they may be readily observed on foot, by vehicle, or through stakeouts. Access is by a good, paved all-weather road from

Caobas but visiting the best sites for mammals requires 4WD and the roads are likely impassable in the wet season. The local village guides are pretty good though don't speak English (so basic Spanish helps a lot!), and it's best to arrange access to the reserves right when you arrive; we had Federico, who was good company and knew his stuff. Overall we did fine in a couple of days here but felt unusually cold weather (near-record lows for this time of year) and bright moon hindered success.

ROADS: We found wildlife viewing quite difficult from the main roads (which had a surprising amount of traffic even at night) and the only major sighting was a superb **Tayra** on the road between Tres Garantias and Tomas Garrido; from talking to the locals, it seems this species is seen quite regularly (mostly crossing roads) so perhaps this is a good place to try. Another incentive is that the animals here are of the particularly striking gray-headed Yucatan subspecies *senex*. By day **Central American Agouti** and **Yucatan Squirrel** (the steel-gray tall forest race) are common along the road and you may see **Central American Spider Monkey** (we observed 1 group). Night drives were very poor and we only saw a **Common Opossum** and a **Forest Spiny Pocket Mouse** in about 5 hours total of driving. Perhaps bright moon and near-record low temperatures (on first night) interfered, as night driving should be better (Juan saw Cacomistle, and Gray Fox and Northern Tamandua were common on a previous visit). We observed roadkill <u>Central American Red Brocket</u> and <u>Ocelot</u>, which attest to the intact community of large mammals at this site (albeit likely subject to poaching near main roads). That said, I suspect Richard Webb was extremely lucky to see Tayra, Long-tailed Weasel, and Central American Red Brocket in a night as all these species are not easy sightings according to Federico.



Dark tall-forest phase of Yucatan Squirrel (Sciurus yucatanensis), a common roadside sighting in Tres Garantias.

RESERVE: The best site for mammals in Mar-May at least, seemed to be "Burgos", in the core area of the Tres Garantias ejido reserve land. The area is accessible via a logging track off the right hand side of the Dos Aguadas road, and access requires permission from the ejido authorities in Tres Garantias. Located at the border of humid tall forest and dense, scrubby seasonally inundated thicket, mammal diversity and abundance seemed quite high. The main sites for mammal watching are the main logging road and a short trail with 2 excellent aguadas and many fruiting trees. The area appears very promising for <a href="Baird's Tapir">Baird's Tapir</a> and we found sign of no fewer than 4 animals on a short stretch of logging road; I suspect with a few nights of focused effort in mid April chances of a sighting are very high. We also found fresh sign of <a href="Jaguar">Jaguar</a>, White-tailed Deer, Yucatan Brown Brocket, and Ocellated Turkey,

observed a group of **Central American Spider Monkeys** and 2 **Deppe's Squirrels** at close range, and heard <u>Yucatan Black Howlers</u> on the logging track; a night walk was very quiet, but did yield a brief sighting of what must have been a resting <u>Wrinkle-faced Bat</u> (found with thermal scope). Night walking on the trail was better with a **Kinkajou**; staking out an aguada yielded a very close but sadly heard-only Baird's Tapir. Bring the strongest insect repellent you can find or you'll be eaten alive.

Batting should be quite productive with strong possibilities of rare species such as Elegant Myotis, Van Gelder's Bat, and Wrinkle-faced Bat, all unusually common in the area. Puddles along the main logging road are good for **Elegant Myotis**, and we also caught **Davy's** and **Mesoamerican Mustached Bats**; pools and small streams in the tall forest should also be ideal for Elegant Myotis and Van Gelder's Bat, both locally common. The final aguada on the trail (surrounded by dense, seasonally inundated scrubby thicket, locally called bajos) looked good for mistnetting with very high bat activity, and should be a great place to try for Wrinkle-faced Bat. Mistnetting outside this area in pure dry forest at this time of year (late Mar-May), even where water is present, is a waste of time as there are no fruiting trees; we tried one night and only caught 1 **Great Fruit-eating Bat**, the most common species in the area. Bat activity was very low; mosquitos, sandflies, and horseflies were abundant.

Trapping here was a dead loss both nights, with 0 captures in 140 trap-nights. Not sure what the issue was—maybe our bait (oats, peanut butter, and vanilla) wasn't the right choice; however, I suspect rodents were either inactive or in very low numbers as I found none on night walks, even with thermal scope. Capture data indicates Big-eared Climbing Rat should be common, as well as Longnosed and Coues' Rice Rats and Forest Spiny Pocket Mice.





Baird's Tapir (Tapirus bairdii) sign and Elegant Myotis (Myotis elegans) recorded at the same roadside puddle.

NEARBY: If it's your first time in the region, **Zona Arqueologica Dzibanche** (a short detour if driving from Cancun or Felipe Carrillo Puerto) is worth a stop. **Yucatan Black Howlers** are usually easy to see here (it's probably the best site in the Mexican Yucatan to try) and **Greater White-lined Bats** roost in the ruins themselves. You may find Central American Spider Monkey or Yucatan Squirrel, and there are plentiful diggings of Hispid Pocket Gopher.

### **B. RB Calakmul**

This large reserve has a good mammal list, but is unfortunately poorly set up for mammal watchers as the main road into the reserve only opens at 7:30 (though we were able to get in half an hour early), long after dawn in March. Although the third car to enter, we only saw **Yucatan Black Howler** and

Ocellated Turkey (one of which followed and repeatedly attacked our car!) but others have reported sightings of Jaguar (especially near km34), Puma, White-lipped and Collared Peccary, Central American Red Brocket and Yucatan Brocket Brocket (km27), and Central American Spider Monkey (km27) so it's worth putting in a morning trying to be the first car on the road. Mexican Mouse Opossum is reportedly common at Campamento Yaax'che, but we never tried.

Accommodation choices are quite variable, ranging from upmarket luxurious hotels (e.g. Puerta Calakmul) to basic campgrounds. We stayed at Rio Bec Dreams, which I'd hesitate to recommend for a few reasons. They have set meal times encompassing the best hours for mammal watching (dinner only begins at 7:30 PM) and lock the gate early in the morning (only opens at 7:30 AM), making it rather inconvenient to get out early enough to drive to the gate in the reserve about 1.5 hours away.

The reserve and surrounding area is superb for bats, with a variety of rare species. A small room at La Muralla, in ZA Calakmul proper, holds a colony of **Seba's Short-tailed Bat** and several **Greater White-lined Bats**. At the time of our visit, we also found 1 **Hairy-legged Vampire Bat**, which gave good views, and almost certainly also an excellent **Orange-throated Bat**, both of which have been at the site since last September at least. The Orange-throated Bat turned into an exercise in frustration as I struggled to get onto it among the flighty Carollia, and spotted it just as it flew into an inaccessible adjacent area, getting no photos as a result... ZA Hormiguero S of Xpujil has two small rooms, one with a small group of 4 **Woolly False Vampire Bats** and another with at least 6 fantastic **Cozumel Golden Bats**, perhaps the most beautiful bats I've ever seen. SE of Xpujil lies Ejido Veinte de Noviembre, surrounded by intact forest and unexplored Mayan ruins of the Rio Bec region. Local guide Humberto Dzib can arrange visits to the practically unknown 8th-century site of Okolhuitz, where a small group of **Woolly False Vampire Bats** has roosted consistently for several years. Fabulous Wrinkle-faced Bats are irregularly abundant around fruiting patches of seasonally inundated scrubby thicket; the best area is near Ejido Concepcion, surrounding Laguna Silvituc and Laguna Chan.



Spectacular Woolly False Vampire Bats (Chrotopterus auritus) are surprisingly common in forests of Rio Bec.

Finally, the evening emergence from Volcan de los Murcielagos, or "Bat Volcano" (conveniently along the Escarcega-Chetumal highway) is an excellent spectacle and a good place to see numerous species of bats in flight, especially if you have a professional-grade detector. Small numbers of **Hairy-legged** 

Myotis should be seen first emerging from the cave at dusk, followed by large numbers of Broadeared Bats spiraling upward immediately after. A little later, 3 species of Pteronotus (Davy's Nakedbacked, Mesoamerican Mustached, and Lesser Mustached) emerge and we also found a couple of Underwood's Bonneted Bats mixed into the Nyctinomops as well (identified in the detector by very low frequency flight calls and by large size in flight; Juan has prior experience with this species). Once it becomes fully dark, small numbers of Ghost-faced Bat should be seen as well as large numbers of Mexican Funnel-eared Bat flying low to the ground in graceful spirals, the last species to emerge.



Stunningly beautiful Cozumel Golden Bat (Mimon cozumelae) is rare and difficult to find, but certainly worth the effort!

### C. Xocén

An interesting area of protected forest known as Reserva de Xocén (marked by a sign "Sakbej Xocén-Kanxoc" as you leave town), this site encompasses the transition zone between taller forests of S Yucatan and dry thicket of the N, with a range of habitats including dense deciduous and semi deciduous forest and thorny thicket. It's a great area for endemic species, holding perhaps all endemic mammals of the Yucatan peninsula. The area is delightfully unregulated, with freedom to drive at night, trap, and mistnet and there are many interesting caves and cenotes to visit for bats.

Visits to the area are perhaps best organized through Ismael Arellano Ciau and Mike Tun of the local birding guide group "Yucatan Jays." Although birders, both have more than a passing interest in mammals and know the sites to observe many key species, though they will attest that they are far from experts in this regard. Accommodation is either in basic cabins in Xocen itself or in Valladolid/surrounds. We stayed at Hacienda San Miguel about 20 min away, itself a very nice and relaxing place with great food and comfortable rooms.

There is a great list of specialty mammals at or near Xocén, including Gaumer's Mouse Opossum, Yucatan Vesper Mouse, Yucatan Squirrel, Big-eared Climbing Rat, Yucatan Deer Mouse, Yucatan Yellow Bat, Black Mastiff Bat, Hairy-legged Vampire Bat, Margay, Striped Hog-nosed Skunk, and Yucatan Brown Brocket all of which have been seen before. We found all except the Vesper Mouse, Margay, and brocket within a day and night, which attests to the strong mammal watching at the site. The palapa at the reserve entrance holds **Gaumer's Mouse Opossum** (an extremely rare endemic and recent split) and resident **Big-eared Climbing Rats**, while Yucatan Vesper Mouse formerly nested in

the roof and may occur in nearby homes (we have asked Ismael and Miguel to search for places to find this species). Yucatan Deer Mouse is easy to trap at field edges (as is White-footed Mouse; also findable are endemic Gaumer's Spiny Pocket Mouse and rarer, near-endemic Toltec Cotton Rat) and Yucatan Yellow Bat is readily seen flying low over open corridors at nightfall. Nearby backroads are good for night drives—Virginia Opossum, Nine-banded Armadillo, Northern Tamandua, Eastern Cottontail, and Gray Fox are common and with luck Margay, Tayra, Striped Hog-nosed Skunk, Southern Spotted Skunk (near rock walls), and Yucatan Brown Brocket can be seen.



Unlike elsewhere in its range, attractive and tame Big-eared Climbing Rat (*Ototylomys phyllotis*) is a common sighting on night drives and walks in dry forests of the northern Yucatan peninsula.

The surrounding area is full of small caves and cenotes that are great for bats. A nearby ranch holds a beautiful, large cenote with a large colony of **Hairy-legged Myotis**, many **Common Vampire Bats**, and at least 15 superb **Hairy-legged Vampire Bats**, which roost in solution holes in the ceiling. The *Diphylla* are wonderful to observe, but as a cattle ranch, beware of large numbers of tiny ticks in the dry season. Other caves are less interesting, though a cenote in the center of Tixhualactun is dependable for **Black Mastiff Bat**, an unusually common species in the area.



Docile and cute Hairy-legged Vampire Bat is locally common in cenotes and caves of Yucatan state, where it roosts in small groups. Even here, it is nearly impossible to mistnet.

#### D. Other locations

We did not have time to visit the arid zone of the far North coast of Yucatan, but in hindsight it would have been a good idea to have spent one of the 2 nights in Xocen here instead. Juan has been

surveying bats in Dzilam de Bravo and Progreso (N of Mérida) for the last 18 months and while most records are for common species, it's a good area for several rarities and Yucatan endemics.

At Dzilam, endemic Yucatan Deer Mouse is abundant and easy to catch with Sherman traps, while endemic Yucatan Yellow Bat is very abundant and readily caught with mistnets over small cenotes. Endemic Gaumer's Spiny Pocket Mouse should be more common here than in Xocen, but Gaumer's Mouse Opossum, Big-eared Climbing Rat, and Yucatan Vesper Mouse do not occur. Northern Tamandua and Nine-banded Armadillo are common on night drives, while Tayra, Southern Spotted Skunk, Striped Hog-nosed Skunk, Jaguarundi, and Coyote (relict population or recent colonizer) are occasionally seen. This is the best area for endemic Yucatan Small-eared Shrew, but it is still quite difficult to find; Juan has only seen one while driving at night. Many rare bats are known from the area including Dwarf Bonneted Bat (1 capture by Juan), Big-crested Mastiff Bat (no captures but easy to record), and Northern Yellow Bat (<5 captures) but all three are very difficult to catch. Juan knows a roost of endemic Alvarez's Mastiff Bat (Molossus alvarezi) alongside Black Mastiff Bat and Argentine Brown Bat in Santa Clara (near Progreso), where they can be caught if desired. This is a very difficult, localized species so I think it's certainly worth a visit and regret not doing so myself. Next time...

II. ANNOTATED SPECIES LIST: total 41 species (TG = Tres Garantias, CA = Calakmul, XO = Xocen) - Important regional targets are bolded; R = rare species or local specialty, E = regional endemic

Common Opossum Didelphis marsupialis caucae	TG, XO
Virginia Opossum Didelphis virginiana	XO
R/E <b>Gaumer's Mouse Opossum</b> Tlacuatzin [canescens] gaumeri	XO
E Yucatan Black Howler Alouatta pigra	TG, CA
Central American Spider Monkey Ateles geoffroyi yucatanensis	TG
Central American Agouti Dasyprocta punctata	TG
Deppe's Squirrel Sciurus deppei	TG, XO
E Yucatan Squirrel Sciurus yucatanicus	TG, XO
Forest Spiny Pocket Mouse Heteromys desmarestianus	TG
R Big-eared Climbing Rat Ototylomys phyllotis	CA, XO
White-footed Mouse Peromyscus leucopus castaneus	XO
E Yucatan Deer Mouse Peromyscus yucatanicus	XO





Unlike elsewhere in Mexico, *Peromyscus* diversity is low in the Yucatan, but that doesn't mean they are easy to identify! Left: White-footed Mouse (*Peromyscus leucopus*); Right: endemic Yucatan Deer Mouse (*Peromyscus yucatanicus*).

R Toltec Cotton Rat Sigmodon toltecus	XO
Eastern Cottontail Sylvilagus floridanus yucatanicus	XO
R Elegant Myotis Myotis elegans	TG
R <b>Hairy-legged Myotis</b> Myotis keaysi pilosatibialis	CA, XO
E Yucatan Yellow Bat Rhogeessa aeneus	XO
R Underwood's Bonneted Bat Eumops underwoodi	CA
R Black Mastiff Bat Molossus rufus	XO
R Broad-eared Bat Nyctinomops laticaudatus	CA
[Lesser Doglike Bat Peropteryx macrotis] (possible)	XO
Greater White-lined Bat Saccopteryx bilineata	TG, CA
Ghost-faced Bat Mormoops megalophylla	CA
Davy's Naked-backed Bat Pteronotus davyi fulvus	TG, CA, XO
Mesoamerican Mustached Bat Pteronotus mesoamericanus	TG, CA
Lesser Mustached Bat Pteronotus personatus psilotis	CA
R Woolly False Vampire Bat Chrotopterus auritus	CA
R Orange-throated Bat Lampronycteris brachyotis (glimpse/BVD)	CA
Common Big-eared Bat Micronycteris microtis	XO





Greater White-lined Bat (*Saccopteryx bilineata*) (Left) is a common inhabitant of well-lit rooms in archaeological sites, while Common Big-eared Bat (*Micronycteris microtis*) (Right) roosts in small caves and buildings.

R Cozumel Golden Bat Mimon cozumelae	CA
Common Long-tongued Bat Glossophaga soricina	XO
Seba's Short-tailed Bat Carollia perspicillata azteca	CA
Jamaican Fruit-eating Bat Artibeus jamaicensis yucatanicus	XO
Great Fruit-eating Bat Artibeus lituratus	TG
[R Wrinkle-faced Bat <i>Centurio senex</i> ] (probable/glimpse)	TG
Common Vampire Bat Desmodus rotundus murinus	XO
R Hairy-legged Vampire Bat Diphylla ecaudata	CA, XO
Mexican Funnel-eared Bat Natalus mexicanus	CA
Gray Fox Urocyon cineroargenteus fraterculus	XO
R Striped Hog-nosed Skunk Conepatus semistriatus	XO
R <b>Tayra</b> Eira barbara senex	TG
Kinkajou <i>Potos flavus</i>	TG
[R Baird's Tapir Tapirus bairdii] (heard only)	TG
Collared Peccary Pecari tajacu yucatanensis	CA

#### III. KEY TARGETS MISSED

\*I did not include a visit to Cozumel to observe Cozumel Raccoon (*Procyon pygmaeus*) and Cozumel Coati (*Nasua narica nelsoni*), where both are reportedly easy to see (site information on mammalwatching.com should be still valid). As a result, neither was on the target list for the trip.

R Mexican Mouse Opossum *Marmosa mexicana* potential split *M. mayensis* Reportedly common in Southern Yucatan (e.g. Calakmul region) and regularly caught in tree traps, especially in tangles of vegetation in treefall gaps; we tried setting traps in these habitats at Tres Garantias but had no joy.

E Gaumer's Spiny Pocket Mouse Heteromys gaumeri endemic
Abundant in deciduous and thorn forests of Northern Yucatan peninsula, and also further S to RB Sian Ka'an and Northern RB Calakmul; should be abundant at Xocen, but not caught despite 80 trapnights. Perhaps easier to catch in open country further NW around Progreso and Dzilam.

E Yucatan Vesper Mouse Otonyctomys hatti endemic
Formerly observed by Ismael and Mike at the palapa in Xocen, but not seen recently and is likely no longer reliable. Extremely difficult to capture (tree traps baited with fruit and seeds on low vines and hanging logs required) unless resident in human dwellings, where partly habituated and much easier to see. The trouble is finding such a site, as currently none are known to Juan. We've asked Ismael and Mike to keep any eye out for any sites for mammal watchers who visit in the future.

E Yucatan Small-eared Shrew *Cryptotis mayensis* endemic
Seen and photographed once by Juan while night driving in Dzilam in the northern arid zone of
Yucatan. A very rare and difficult endemic to observe, Juan thinks it is most common in the arid zone.

### R Van Gelder's Bat Bauerus dubiaquercus

An unusual species that is abundant in Mexico's Tres Marias Islands but difficult to find elsewhere, this species is perhaps most common in Southern Yucatan peninsula on the Central American mainland, where it is the fourth most common non-phyllostomid (after Pteronotus davyi, Pteronotus mesoamericanus, and Myotis elegans; from surveys at Gallon Jug and PN Mirador-Rio Azul). We tried netting at Tres Garantias but no luck, perhaps that would have changed had we picked a better site...

### R Dwarf Bonneted Bat Eumops nanus

A rare species reportedly common in Northern Yucatan peninsula, around Merida. Appears very local in distribution as according to Juan, very rare even in Dzilam where he has only caught the species once and recorded possible flight calls a handful of times (impossible to make certain IDs of small *Eumops* by flight calls alone).

E Alvarez's Mastiff Bat *Molossus alvarezi* endemic Rare and local endemic (recently split from M. sinaloae) of semiarid N Yucatan peninsula, notably Yum Balam, Ria Lagartos, Mérida, PN San Felipe, and Dzilam; may occur in Xocen. Juan knows a reliable roost site (where they can be netted while emerging) of a few individuals (with many M. rufus and Eptesicus furinalis) at Santa Clara, near Progreso, but for some reason we never incorporated a visit into our itinerary.

### R Big-crested Mastiff Bat Promops centralis

A rare and local species found in large parts of the tropical Americas, this bat is not uncommon in the arid zone of N Yucatan, especially around Dzilam and Progreso, where Juan has recorded the species many times (it has an unmistakeable call), but never caught it... It may occur around Xocen, but we didn't put in concerted effort with the detector here in appropriate thornscrub habitat.

### R Davis's Round-eared Bat Lophostoma evotis

Rare and local species of Northern Central America, from Tabasco to Honduras. Occasionally netted in tall, wet forests of Southern Yucatan peninsula and I hoped for a capture at Burgos, but figured it was quite unlikely as neither Juan nor I know much about it.

### R Wrinkle-faced Bat Centurio senex

Rare and difficult to find elsewhere, this species is irregularly abundant in seasonally-inundated, scrubby low forest (locally called *bajo* or *akalché*) in southern Yucatan peninsula but unpredictable as to exact location; netting over roadside puddles adjacent to fruiting trees is said to be a good method—we tried this, but didn't have any success. I am quite certain I observed one roosting briefly on a night walk at Tres Garantias, but did not have a proper sighting of this fantastic species so let it slide.

### R Margay Leopardus wiedii

Not uncommon in Xocen, where Ismael and Miguel report sightings from time to time, occasionally even during the day. We tried a site where a female and kitten were seen regularly last year (even photographed once at close range by Ismael) but had no luck.

## E Yucatan Brown Brocket Mazama pandora

A widespread endemic of the Yucatan peninsula that is not easy to find, as it is very wary and occurs at low population densities due to hunting. Habitat preferences are the same dense, scrubby, seasonally-inundated thickets as *Centurio* (hence its local name *temazate bajo*; useful to differentiate from *temazate rojo*, or Red Brocket). Regularly seen by local guides at Tree Garantias and Yocan, and

endemic

from temazate rojo, or Red Brocket). Regularly seen by local guides at Tres Garantias and Xocen, and to a lesser extent on the km27 trail in RB Calakmul. Perhaps best searched for by staking out aguadas with tracks in the heat of the day in Southern Yucatan peninsula, rather than night drives.

## R Central American Red Brocket Mazama temama

Not uncommon in tall forests of southern Yucatan peninsula but subject to heavy hunting pressure and rather shy as a result; perhaps easier to find in areas that have been better preserved for longer periods (e.g. Cockscomb Basin). Regularly seen in Tres Garantias and on the Calakmul road, but a bit unpredictable and probably best seen by driving at night or dawn/dusk.

Thanks to Juan, Federico, Mike, and Ismael for a great trip, made even better by a stack of rarities. Mexico remains little-explored by mammal watchers but hopefully trips like this show just how exciting and productive it can be, with a sane schedule. And I haven't even mentioned the wonderful Mayan ruins, great food, beautiful towns, and friendly people who helped us along the way with no expectation of payment. Juan told me he intends to work on a 5-year surveying project on bats and carnivores throughout the Mexican Yucatan peninsula, and I will return to the region once he has perfected plans to find many of these species, after I forget about the plague of chiggers and ticks!