

Lessons from Siquijor Island for the future of Philippine cave bats

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In 2010, two undergraduates from Lawrence University and my colleague, Rai Gomez from Philippine Biodiversity Conservation Foundation, and I in collaboration with the DENR surveyed bat populations in caves on Siquijor Island. Being a relatively small karst-covered island with a long history of human occupation, and very little forest we were interested in learning how cave bats were faring on the island. We visited 20 large caves in order to find out.

Many signs of past cave disturbance

Despite the fear-filled talk of cave-dwelling *aswang*, people apparently have boldly entered caves and exploited cave resources on the island for a very long time. While many caves rarely had human visitors, evidence of past visits was obvious. In some caves all resources worth extracting had been taken years ago—stalactites, phosphate, guano and the bats that produced the guano. Many caves had chambers reminiscent of vast, abandoned and dust-covered mansions in horror movies—eerie and rich with untold stories of more lively days. The wall of one cave declared: “guano discovered here in 1970.”

In other caves old, rotten, fishing nets still clung to walls—remnants of past bat hunts—and dusty Ginebra gin bottles littered the floor, once serving as lanterns for cave explorers. The cave ceilings spoke to us of bat populations past, with dark leopard-spot patterns left where thousands of fruit bats once clung, and dark, dripping streaks possibly left by enormous colonies of insect-eating bats. In one cave, these stains left by bats covered an area equivalent to three basketball courts. Why did they leave? Why haven't they come back, despite human abandonment of the cave? These are questions we would like answered.



A fishing net inside the cave shows a common capture method. ©J. Sedlock

Not all caves were hot and dusty. Some were “alive” and dripping with stalactite-building water from the ceiling and walls and had rivers rushing through them. These water-rich caves

were primarily in areas of the island near remnant forest—the earth’s “sponge” which holds water and releases it slowly into streams and underground. The long-term indirect effects of deforestation underground were evident on the parched southeast side of the island where most of the caves were dry. Beautiful formations formed by once abundant water, were covered in the mud swept in by floods during hard rains.

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Insect-eating bats were found in Siquijor caves

Despite this intense disturbance, we were thrilled to find surviving bat populations which have either tolerated or escaped human disturbance by occupying difficult-to-reach caves and cave chambers. The most frequently encountered, and presumably the most tolerant and resilient, insect-eating species included two species of bent-winged bats (*Miniopterus australis* and *M. schreibersi*), the large and animated diadem round-leaf bat (*Hipposideros diadema*) and the arcuate horseshoe bat (*Rhinolophus arcuatus*).



The little bent-winged bat, *Miniopterus australis*, was found in several caves and appears to be tolerant to cave disturbance. © J. Sedlock

Only three caves had fruit bats

Less common were the large-eyed, seed-dispersing and pollinating cave-dwelling fruit bats. Their habit of roosting in large colonies near the cave entrance makes them highly vulnerable and their large size makes them preferred *pulutan*. We only encountered three colonies of fruit bats on the island. Two were in caves with treacherous vertical entrances (we were told of a man who had recently fallen to his death attempting to reach one population) and the bats in the third occupied a chamber with an extremely high ceiling affording them some protection.

Undiscovered caves may protect bats

Thank goodness for complex topography and the refuge it has provided for many bat populations on Siquijor. I am hopeful that there are caves that remain undiscovered, small unassuming cracks in rock walls that open to vast and lively underground ecosystems out of our grasp. Perhaps these allusive populations can provide a source to repopulate known caves once human behavior has changed and habitats have been restored. I sincerely hope that this happens on other less-disturbed islands before their caves become as degraded as those we witnessed on Siquijor.



Roost stain left by former cave inhabitants. ©J. Sedlock