

Short Note

Vladimir Dinets*

Long-term cave roosting in the spectral bat (*Vampyrum spectrum*)

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Abstract: The spectral bat (*Vampyrum spectrum*) is believed to be a tree-roosting species that never enters caves. In 2008, a single spectral bat was found roosting in a cave on Utila Island, Honduras. Analysis of recent reports and photos available online shows that the same individual is still intermittently present at the same roosting site as of 2016; this are the first data on spectral bat longevity in the wild.

Keywords: behavioral ecology; false vampire; Honduras; longevity; Utila.

The spectral bat (*Vampyrum spectrum* Linnaeus, 1758, formerly known as the false vampire bat), the largest bat of the Americas, is generally rare, with a small number of records scattered across its extensive range (Navarro and Wilson 1982, Reid 2009). It is believed to roost only in trees (Peterson and Kirmse 1969, Navarro and Wilson 1982, Aguirre et al. 2008, Reid 2009). There is one old record of a roost in a church (Nowak 1999), but it apparently was based on sight identification in flight and might be erroneous. Zortéa et al. (2015) caught one specimen at a cave entrance, but it is unclear if the bat roosted in the cave or was attracted from the outside by the presence of bats already caught in the net; the authors excluded this specimen from further analysis based on the spectral bat being “not a cave species”.

On 16 March, 2008 during the last 2 h before sunset I explored a limestone cave locally known as Bat Cave (16°07'09"N, 86°53'07"W) on the island of Utila, Honduras, lying ~30 km from the mainland. The cave, located ~15 m above the sea level, is ~30 m long, and is surrounded by pastures and secondary forests (see Miller 2014 for a more detailed description). No primary or old-growth secondary rainforest exist on Utila, although there

are extensive low-stature swamp forests and mangroves (Vega et al. 1993).

In the first chamber of the cave, ~7 m from the entrance, I found a spectral bat (Figure 1) hanging from a small depression in the ceiling ~220 cm above the cave floor, with a pile of small bones and bird feathers underneath. The pile was about 20 cm high, indicating that the roost had been occupied for a considerable time. As far as I could tell, all bones were of avian origin; the size, color and shape of the feathers suggested doves (*Zenaida* sp.) and small passerines. The bat showed little reaction to the presence of observers and remained in place even after being photographed with a flash at close range.

Other bats found in the cave included numerous *Glossophaga soricina* Pallas, 1766, a few *Natalus mexicanus* Dalquest and Hall, 1949, two small clusters of *Artibeus jamaicensis* Leach, 1821, one small group of *Lonchorina aurita* Tomes, 1863, one *Carollia castanea* Allen, 1890 and one *Phyllostomus discolor* Wagner, 1843. From February 2014 to March 2014, Miller (2014) found the same assemblage (including one spectral bat, C. Miller pers. comm.) minus *C. castanea* and *P. discolor*; the disappearance of the two rarer species could be due to disturbance as the cave is regularly visited by tourists. Also in March 2014, the same individual I photographed in 2008 (as evident from ear pigmentation patterns, with two dark dots present in the same part of one ear) was photographed by S. Clayson roosting in the same circular depression in the cave ceiling (Ruscoe 2014). It was apparently present there regularly because it was advertised as a local tourist attraction (see <http://www.utila-iguana.de/visit-tours.php>). The bat was still seen regularly as of February 2016; there have been no sightings elsewhere on the island and no sightings of more than one spectral bat (A. Martinez pers. comm.).

There are no data on the spectral bat's longevity in the wild, but it has lived for 5.5 years in captivity (Greenhall 1968, Navarro and Wilson 1982, Nowak 1999), and other bat species can live for over 30 years (Lewis 1995; Wilkinson and South 2002), or, in at least one case, over 40 (Podlutzky et al. 2005) years, so it not particularly surprising that the same individual has been present in the cave from

*Corresponding author: Vladimir Dinets, Psychology Department, University of Tennessee, Knoxville TN 37996, USA, e-mail: dinets@gmail.com



Figure 1: A spectral bat (*Vampyrum spectrum*) day-roosting in a cave on Utila Island, Honduras.

2008 to 2016. It is possible that there is just one spectral bat on the island, as normally spectral bats are found in family groups (Greenhall 1968, Navarro and Wilson 1982, Nowak 1999); it could be a vagrant that has settled on Utila, rather than a regular resident. That would not be the first possible island vagrancy record for this species as the only known specimen from Jamaica could also be a vagrant (Genoways et al. 2005). Another possibility is that spectral bat is a seasonal visitor to the cave (or to the island in general), since all records are from February to April. There is no record of migratory behavior in the spectral bat, but this species is generally very poorly known. In any case, the bat's ability to survive in absence of primary rainforest suggests that the spectral bat is not as dependent on undisturbed habitats as currently thought (Aguirre et al. 2008), and that it can utilize cave roosts in absence of large hollow trees.

An interesting question is: why does not this known predator of bats hunt in caves? There were no bat remains underneath the roost, and some *G. soricina* were roosting within 5 m from it. Hunting bats in caves would provide spectral bats with a large food resource, but it has never been reported. One possible explanation is that spectral bats mostly hunt in the dark by scent (as suggested by Vehrencamp et al. 1977), which might be difficult in a scent-saturated environment of caves containing bat colonies. Another possibility is that such a large bat does not

have enough maneuverability to hunt roosting bats on cave walls and ceilings.

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