BEHAVIORS OF NESTLING AND JUVENILE BLACK VULTURES IN NORTHWESTERN MEXICO

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The Black Vulture (*Coragyps atratus*) is a common carrion-eating bird in much of the Americas (Ogada et al. 2012). Studies in North, Central, and South America have described general behaviors such as nesting, bathing, and drinking (McHargue 1981, Stolen 2000, Sazima 2011). But there are few reports of the vocal sounds made by vultures (Blumstein 1990) and no published sonograms. Here we describe some characteristics of the nest of a Black Vulture in Mexico and publish the first sonograms of the vocalizations of two nestlings and a juvenile.

Torote Mountain (27° 53′ 50″ N, 110° 52′ 30″ W) is located near "Las Playitas" beach at Guaymas Bay, Sonora, Mexico. This mountain is covered by desert vegetation and contains many small caves. On 7 April 2012, in a difficult climb to reach one cave ~60 m above sea level, we found a nest of the Black Vulture with a brood of two chicks. We measured the cave's dimensions and placed a motion-detecting camera (Wildview Xtreme Series, STC-TGL4M) at the nest three times for three days each time from March to May 2012 to photograph the vultures' behavior. The camera was set to take three photographs at 1-minute intervals each time its motion sensor activated it. The camera remained posted on the ground ~5 m away from the entrance of the cave, tied to a branch of a Palo Blanco (*Acacia willardiana*). In May and June, we photographed the brood and recorded its vocalizations with a Fujifilm Finepix S2000 HD digital camera. We analyzed the audio recordings with the software Raven Lite 1.0 (Charif et al. 2006). The sonograms shown here are samples of recordings of calls of two young chicks vocalizing simultaneously and one call of a juvenile.

The nest cave was in solid rock with a floor of soil. The outer part or entrance to the cave was well illuminated and wide (Figure 1A), while the inner part provided narrow access to a small darker chamber of depth ~2 m (Figure 1B). During the first two months after hatching, the nestlings moved around the entrance of the cave, where their parents fed them by regurgitation several times during daylight (about every 2–3 hours) (Figure 1C, D). The nestlings were active both day and night; in daylight the birds took dirt baths and sometimes lay on their sides on the ground with their legs fully extended (Figure 1E). They grew their black juvenile plumage at an age of ~3 months (Figure 1F) yet did not fledge until the age of ~5 months. Notice that the young vulture's beak is fully black in contrast to that of the adult, whose beak tip is white (Figure 1C, D, F).

We recorded what were presumably defense or warning calls, described for the adult Black Vulture as grunts or hisses (www.allaboutbirds.org/guide/Black_Vulture/sounds). Sample recordings obtained from a distance of 3 m from these two young birds are shown in Figure 2A. When threatened, the nestlings bent forward with their heads down and spread their down-covered wings (Figure 1B). Bouts of hissing lasted ~10 sec, followed 2 sec later by a short (~600 msec) hiss (Figure 2A). The birds then remained silent for several minutes before starting another round of hissing. The frequency range of their vocalizations was up to 2 kHz (Figure 2A). The sonograms show the chicks' calls to be similar in pattern to the warning calls of juveniles and adults. Only one offspring survived. On 30 June 2012 we observed it ~50 m from the nest. When the bird saw one of us, it jumped up on the rocks and bushes since it was not mature enough to fly. It reached a flat rock, then regurgitated, and made hisses of ~500 msec in a range of frequency up to 9 kHz (Figure 2B). Its hisses were shorter than its calls as a nestling but otherwise similar, as indicated by its sonogram.

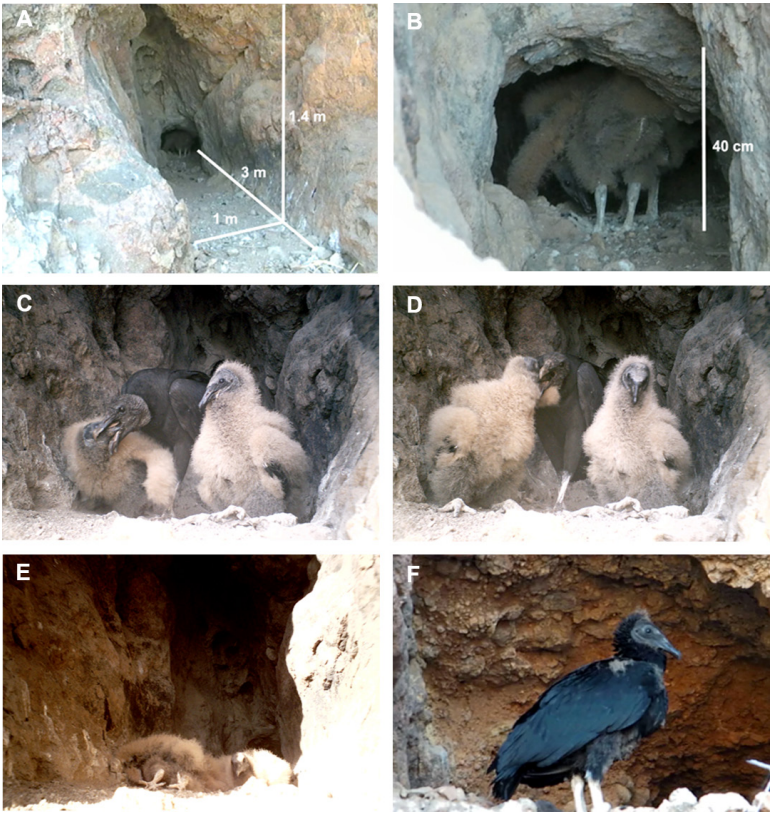

Figure 1. Nest of the Black Vulture found inside a cave on Torote Mountain, Sonora. (a) Entrance to cave. Note the birds near the center of the photo. (b) Two young Black Vultures in what we called their defensive position; these birds exhibited this behavior and hissed when threatened. (c, d) Feeding by regurgitation. (e) Common manner of resting. (f) Young Black Vulture ~3 months after hatching.

Note that the sonogram shown in Figure 2B includes sounds made by other local birds and ambient noises.

Our report may help clarify some aspects of development of young Black Vultures.

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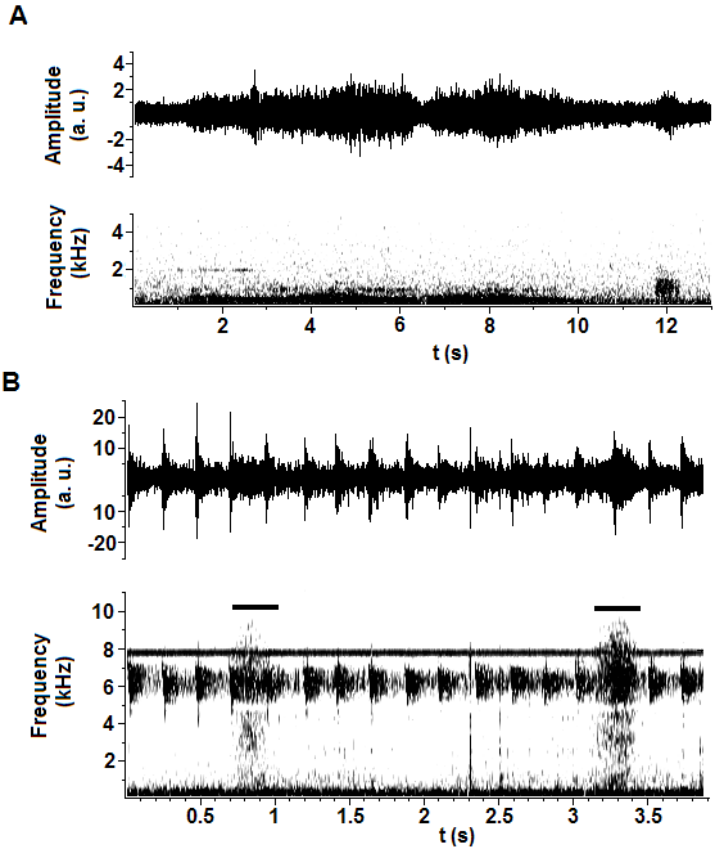

Figure 2. Sonograms of calls of the nestling and juvenile Black Vultures. (a) Relative amplitude of the vocalizations by the two birds inside the cave and frequencies and shapes of their warning calls. (b) Relative amplitude and frequencies of the vocalizations produced by the vulture shown in Figure 1f. This is the pattern of a characteristic hissing produced by a Black Vulture (black lines at 0.7 and 3.1 sec). Note that the amplitude spikes at ~2.2 sec intervals were made from another local bird, and they were intentionally not subtracted to provide a visual reference of another shape of the sound produced by other bird.

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