

## *Oxybelis aeneus*: aggressive interactions with the clay-colored thrush (*Turdus grayi*)

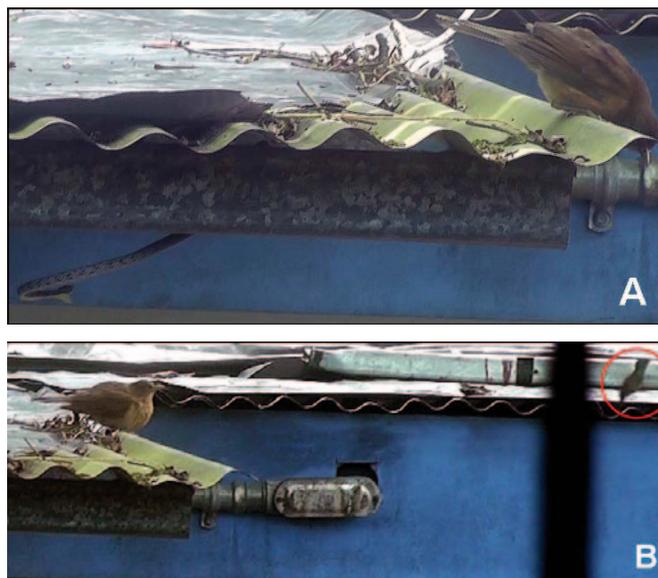
MARCO D. BARQUERO

Sede del Caribe, Universidad de Costa Rica, Montes de Oca, San José, Costa Rica, 2060

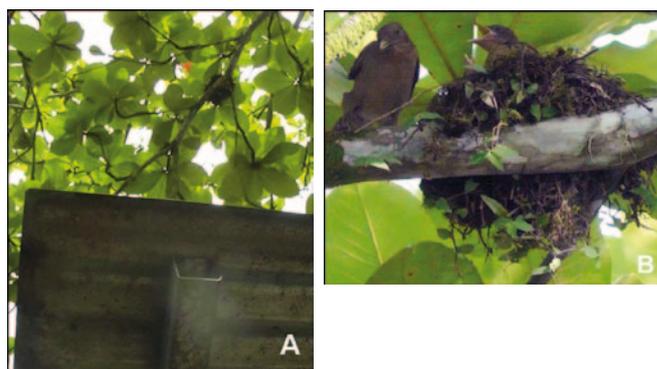
\*Corresponding author Email: marco.barquero\_a@ucr.ac.cr

In this note an aggressive encounter between a brown vine snake (*Oxybelis aeneus*) and a clay-colored thrush (*Turdus grayi*) is reported. The observations took place in the campus of the University of Costa Rica, Limón port city, Costa Rica (9° 59'4" N, 83° 3'40" W), which includes an open, grassy area, and a secondary tropical rainforest (Gutiérrez Calvo, 2012). Observations were carried out 15 m away from the interacting animals, such that individuals were not disturbed. Animals were not captured at the end of the observation period and were identified through photographs and video recorded during the interactions. *Oxybelis aeneus* is a long, slender species with a pointed head, brown dorsal coloration, and black-purplish lining of the mouth (Savage, 2002; Solórzano, 2005), whereas *T. grayi* is a medium-sized, brown bird with a yellowish bill (Stiles & Skutch, 2007).

The encounter occurred on 25 March 2017, when an adult *T. grayi* was observed actively exploring a hollow metal beam (rectangular C-shaped cross-section) that supports a side section of the roof of one building (Fig. 1A). The thrush was first seen at 12:40 h, approaching the roof and repeatedly looking inside the hollow beam. The bird then introduced its head into the beam and the adult brown vine snake emerged from the open side. The bird stayed on top of the roof for about 1 minute and then flew away, while the snake remained immobile with its mouth open showing the dark lining for several minutes after the bird was gone. The snake then returned to the beam and disappeared from sight. This first encounter was not videotaped; however, after approximately 10 minutes the bird returned to the same place and resumed searching around the beam. This time the event was filmed using a HDC-HS60 Panasonic camcorder. The interactions described above were repeated, with the snake again opening its mouth and remaining immobile (Fig. 1A). The thrush was mobbed by a hummingbird (most likely a rufous-tailed hummingbird, *Amazilia tzacatl*), which flew against the thrush repeatedly (Fig. 1B), and the thrush aborted its search after 2 minutes. The clay-colored thrush returned to the roof after c. 11 minutes and was mobbed again by the hummingbird, flying away after 30 s. During this time period, the snake remained in almost the same position and moved towards the beam 39 minutes after the second encounter with the thrush. When the snake was approaching the beam, the thrush reappeared and pecked the snake at its mid-body. No other encounter occurred after this direct attack.



**Figure 1.** Snapshots obtained from a video that recorded the interactions between *T. grayi* and *O. aeneus*, with the bird exploring the place where the snake was hidden (A), and the interactions being halted because of the dives made by a hummingbird (red circle) towards the thrush (B).



**Figure 2.** Pictures showing the beam of the roof where a brown vine snake was hidden and a clay-colored thrush nest above the roof (A), and the chicks observed in that nest two weeks after the interactions between the thrush and the snake (B).

Since the snake was hidden from the bird's sight and not moving, the aggressive behaviour of the thrush towards the snake was a puzzle. The diet of *O. aeneus* is composed mainly of lizards, especially *Anolis* sp., although it also

includes insects, fishes, small mammals, and small birds (Henderson, 1974, 1982; Grant & Lewis, 2010). Adult *T. grayi* are too large (23 cm in length [Stiles & Skutch, 2007]) to be potential prey of *O. aeneus*, but chicks could be easy targets. After exploring the surroundings where the encounter took place, a nest of *T. grayi* was found 3 m above the beam (Fig. 2A). Two weeks after the aggressive interactions, two chicks were observed on that nest (Fig. 2B). The proximity of the snake to the nest could have been perceived as a threat to the chicks and might have prompted the direct attack by the thrush, even when this represents a risky anti-predator strategy.

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