

Bird Mobbing on the Mexican West Coast Boa Constrictor (*Boa sigma*) in Sonora, Mexico

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Mobbing is a noisy and obvious behavior that birds engage in to defend themselves against predators. When a possible predator is discovered, birds begin to emit alarm calls and fly towards the predator, diverting the predator's attention and harassing it. Mobbing usually starts with just one or two birds, however alarm calls can and do quickly attract growing numbers of birds, often of many species, with some individuals sometimes making contact with the predator (Francis et al. 1989, Pawlak et al. 2019). Avian mobbing commonly includes a focus on other birds, mammals, and other vertebrates like reptiles, which include lizards (Salmon 1976), and snakes (Mercado et al. 2002, Jones and Saporito 2016, Schaefer et al. 2019). Here, we document mobbing toward the Mexican West Coast Boa Constrictor (*Boa sigma*) by different species of birds.

Boa sigma is a large New World boid snake endemic to Mexico, and mainly distributed along the Pacific Coast, from Sonora to the west of the Isthmus of Tehuantepec (Card et al. 2016), including the Islas Marias archipelago. The northernmost records are from Sonora, on the Municipality of Bacanuchi (74 km S of Arizona border), where the species can reach elevations of 1,418 m (Van Devender et al. 2020).

On 18 July 2023, we found an adult *B. sigma* (ca. 1.6 m long, including tail) perching in the shade on an old chair below a lemon tree at 0730 h in Real del Alamito, Municipality of Hermosillo, Sonora, Mexico (29.24457°N, 110.83834°W, 284 m elevation). Following our observations, the snake moved to the ground and remained there for few hours. At 1006 h, and a temperature of 37 °C, the snake began to move towards the neighboring property, a 0.3 ha property with several fruit trees species (mango, guava, orange, lemon, grapefruit, and fig), non-native trees, eucalyptus, and several native trees such as mesquite (*Prosopis* sp.), and palo verde (*Parkinsonia* sp.). A few minutes after it started to move, a pair of White-winged Doves (*Zenaida asiatica*) arrived and started to follow the boa on the ground. Shortly after, a Curve-billed Thrasher (*Toxostoma curvirostre*) appeared, which began to make alarm calls. This was immediately followed by more doves, and other bird species began to arrive. At this time, the snake was being actively mobbed by a substantial group of birds (Figs. 1A and 1B). Approximately three species of birds were giving chip notes and alarm calls. Only an individual Curve-billed Thrasher made physical contact with the snake

during our observation, which landed on the tail of the snake for a few seconds. In fact, individuals of this same species of bird were the most aggressive, making faster movements and sometimes opening their wings and jumping toward the snake (Fig. 1B). The boa did not attempt to retreat from the birds or move faster; neither did it attempt to strike out at them or make sudden movements during our observations. The doves, four thrashers, one Rufous-winged Sparrow (*Peucaea carpalis*) and one Cactus Wren (*Campylorhynchus brunneicapillus*) were on the ground following the snake, and the other species were moving between perches close to the ground.

In total, 34 individual birds of six species were mobbing the snake as it moved about 45 m and retreated into a pile of stored materials (Fig. 1C). The bird species included: 24 White-winged Doves, four Curve-billed Thrasher, three Northern Cardinals (*Cardinalis cardinalis*), one Cactus Wren, one Rufous-winged Sparrow, and one Verdin (*Auriparus flaviceps*). The Northern Cardinals and Verdin joined the mobbing group but remained perching in adjacent trees, and did not reach the ground, unlike the other species.

Although mobbing has been observed in other boa species, like the Central American Boa Constrictor (*Boa imperator*; Jones and Saporito 2016), this observation represents the first report of this behavior by birds on *B. sigma*. It is possible that this behavior in the number and diversity of observed bird species was due to nesting activities, since nesting was observed by the White-winged Doves in the area.

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<https://youtu.be/tTaNEJN972o>

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Fig. 1 A-C. A group of birds mobbing the Mexican West Coast Boa Constrictor (*Boa sigma*) in Hermosillo, Sonora, Mexico. Photos by Jorge H. Valdez-Villavicencio.