

## SHORT COMMUNICATION

### Noteworthy records of the northern naked-tailed armadillo, *Cabassous centralis* (Cingulata: Chlamyphoridae), in Guatemala, Central America

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**Abstract** The northern naked-tailed armadillo, *Cabassous centralis* (Miller, 1899), has a fragmented distribution that extends from Chiapas, Mexico, to Ecuador. Throughout its range, it is rare to see or capture individuals. *Cabassous centralis* is reported in only one previous paper for Guatemala; we provide here additional records for the presence of this armadillo in the northern tropical portion of Guatemala. In northern Guatemala *C. centralis* may be a little more common than originally thought. Nonetheless, we discuss the need to promote studies of its population and natural history to provide more information for determining its conservation status.

**Keywords:** geographic distribution, Laguna Lachuá, museum specimens, Petén, Quiché, Sierra Caral

**Registros notables del armadillo de cola desnuda del norte, *Cabassous centralis* (Cingulata: Chlamyphoridae), en Guatemala, Centroamérica**

**Resumen** El armadillo de cola desnuda, *Cabassous centralis* (Miller, 1899), tiene una distribución fragmentada desde Chiapas, México, hasta Ecuador. A lo largo de su rango es raro verlo o capturarlo. *Cabassous centralis* se reporta en un solo documento anterior para Guatemala; aquí proporcionamos registros adicionales de la presencia de este armadillo en la porción tropical del norte de Guatemala. En el norte de Guatemala *C. centralis* puede ser más común de lo que se pensaba originalmente. No obstante, discutimos la necesidad de promover estudios de su población e historia natural, para proporcionar más información sobre su estado de conservación.

**Palabras clave:** distribución geográfica, especímenes de museo, Laguna Lachuá, Petén, Quiché, Sierra Caral

Extant armadillos were traditionally considered a natural group contained within the family Dasypodidae (Gardner, 2005), but recent molecular studies (Delsuc *et al.*, 2016) support splitting the group into two different families: Dasypodidae, which includes only the genus *Dasypus* Linnaeus, 1758, and Chlamyphoridae, which includes all other genera of extant armadillos, including naked-tailed armadillos in the genus *Cabassous*, as well as extinct armadillos of the subfamily Glyptodontinae (Delsuc *et al.*, 2016). There are four currently recognized

species of *Cabassous*, which probably shared a common ancestor during the early Miocene, and diverged from one another during the late Miocene to the Pleistocene (Delsuc *et al.*, 2016).

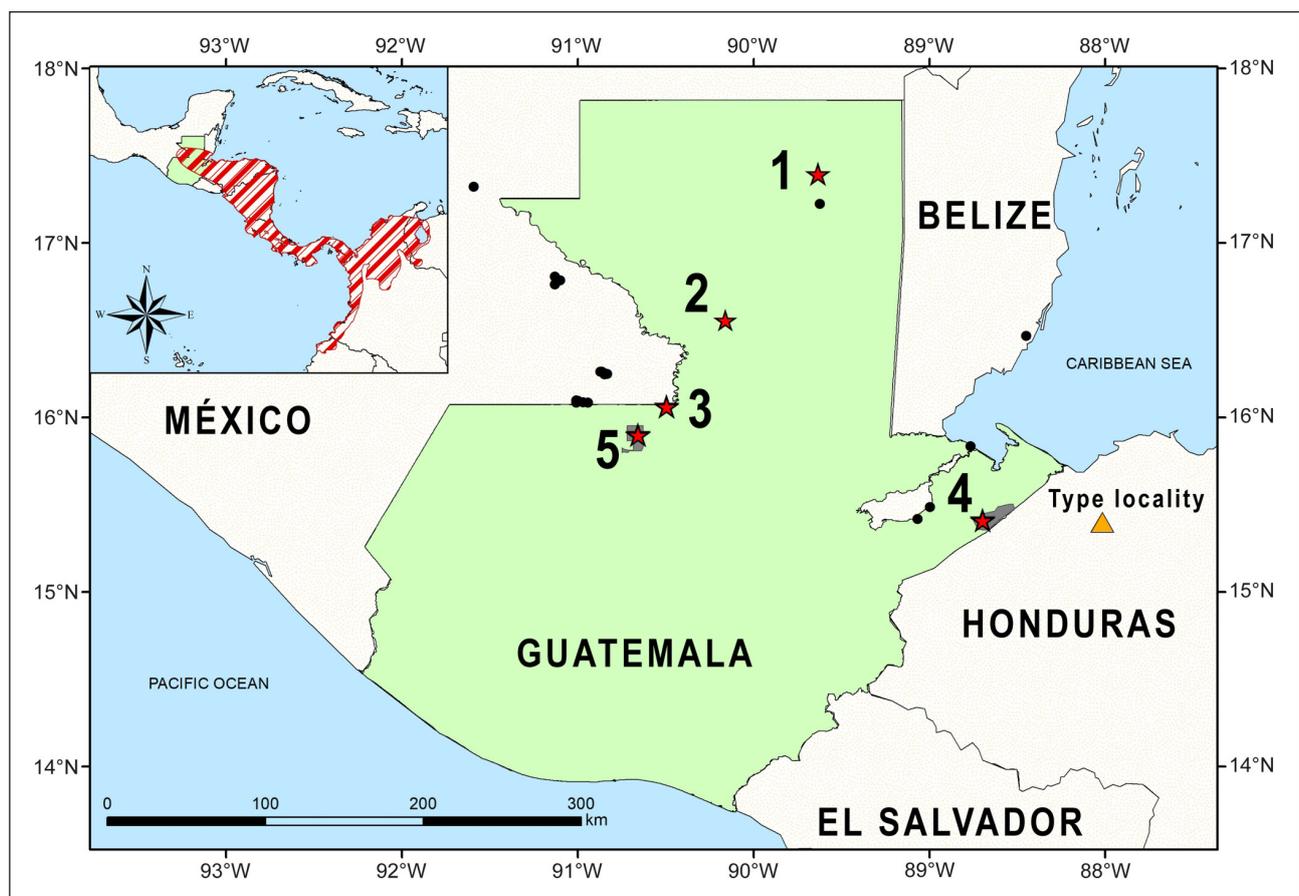
Two species of armadillos are known to occur in Guatemala (McCarthy & Pérez, 2006), the nine-banded armadillo, *Dasypus novemcinctus*, and the northern naked-tailed armadillo, *Cabassous centralis*. *Dasypus novemcinctus* is common and is found and hunted in many areas of the country, whereas *C. centralis* is apparently rare. The northern

naked-tailed armadillo is a medium-sized mammal with a distribution that extends from southeast Mexico through Central America, to Colombia, eastern Venezuela, and northern Ecuador (Hayssen *et al.*, 2013; Tirira *et al.*, 2014). *Cabassous centralis* can be distinguished from *D. novemcinctus* by its smaller size, long and squared carapace shields, 10 to 13 movable bands in the middle of the carapace, wide head, rounded ears, naked tail (from which the common name is derived), and five claws on each foot, the central claw being much longer than the others. In contrast, *D. novemcinctus* has nine movable bands, slender ears, the tail is covered in scutes, and the general body form is narrower on the lateral sides (Reid, 2009).

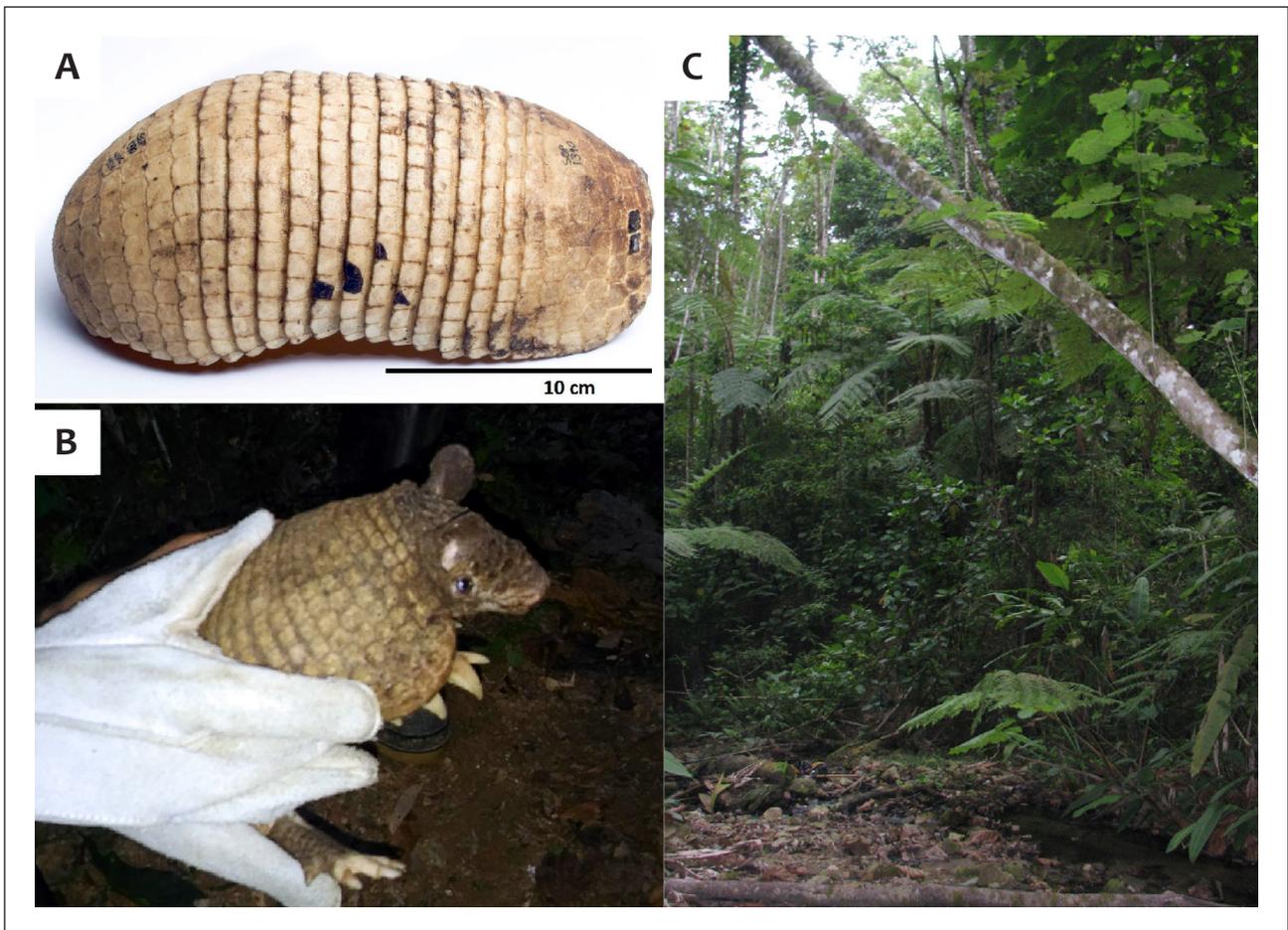
*Cabassous centralis* is usually nocturnal and one of the most fossorial armadillos (Hayssen *et al.*, 2013). Its habits are probably similar to those of the southern naked-tailed armadillo (*C. unicinctus*), which is solitary and spends the majority of its time underground and digging long tunnels (Desbiez *et al.*, 2018). The latter is probably the reason why both species are rarely seen. The International

Union for the Conservation of Nature has classified *C. centralis* in the category of "Data Deficient" (Tirira *et al.*, 2014), due to the limited knowledge of wild populations.

Handley (1950) mentioned that, while there were no verified records for *C. centralis* in Guatemala, it might be possible to find it in places like the mountains of the Department of Quiché, as well as along the Pacific slope of the country. However, at that time there were no specimens associated with any locality. The species was not confirmed to be present in the country until 1989 (Cuarón *et al.*, 1989), when two specimens were collected near the village of Mariscos, in the Department of Izabal, which is located in the tropical Caribbean portion of Guatemala. Besides records from the two collected specimens, Cuarón *et al.* (1989) also included one record based on field observations (western shore of Río Dulce, Izabal), and several verbal records (also from Izabal, and Tikal National Park, Department of Petén). Specimens from Izabal were associated with natural rubber, banana, cocoa, and



**FIGURE 1.** Map of Guatemala and adjacent countries showing old (small black circles) and new records (numbered stars) for the naked-tail armadillo, *Cabassous centralis*. 1. Uaxactún, Petén; 2. Sayaxche, Petén; 3. Quiché; 4. Sierra de Caral, Izabal; 5. Laguna Lachuá, Alta Verapaz. The triangle in Honduras represents the type locality at Chamelecón, Cortés, Honduras. Old records were taken from: Miller (1899), McCarthy (1982), Cuarón *et al.* (1989), González-Zamora *et al.* (2011), Figueroa-de-León *et al.* (2016), Juárez-López *et al.* (2017).



**FIGURE 2.** Carapace of specimen collected at Ixcán, Quiché (A), the specimen captured at Sierra Caral, Izabal (B) and the habitat of *Cabassous centralis* at Sierra Caral, Izabal (C).

corn plantations that also contained some areas of pristine tropical forest.

The objective of this note is to provide additional data on the presence of *C. centralis* in Guatemala that, together with records from Chiapas, Mexico, represent the northernmost limit of the distribution of this species, and of the *Cabassous* genus.

Since the 1990s, as part of various explorations and field work conducted by biologists of the Universidad de San Carlos de Guatemala, we have observed, captured or documented the presence of *C. centralis* in Guatemala. During our work we have followed suggested methods for the treatment of wild animals in the field (Sikes *et al.*, 2011).

In March 1992, during field work near the community of Uaxactún, Department of Petén, Guatemala (17°24'N, 89°38'W, 170 m asl; **FIG. 1, LOCALITY NUMBER 1**), one of us (JRM) recorded the presence of *C. centralis*, based on field information from hunters. Uaxactún is entirely surrounded by pristine tropical forest, in the middle of the Mayan Biosphere Reserve, and is located approximately 25 km north of Tikal National Park. The vegetation at Uaxactún includes *Brosimum alicastrum* Sw., *Calophyllum brasi-*

*liense* Cambess, *Cedrela odorata* L., *Manilkara zapota* (L.) P. Royen, *Swietenia macrophylla* King, *Chamaedorea elegans* Mart., and *Chamaedorea oblongata* Mart. (Morales, 1993; Rhader, 2014), among others. Later, in March 1994, JRM also found a decomposed dead specimen of *C. centralis* on a dirt road outside the town of Sayaxche, Petén, (16°30'N, 90°10'W, 140 m asl; **FIG. 1, LOCALITY NUMBER 2**), but he did not collect it.

Years later, on 16 June 2007, the carapace of an adult specimen of *C. centralis*, sex undetermined, was purchased by one of us (SGP field number 1370, catalogue number USAC 4530; **FIG. 2A**) while collecting small mammals around the community of Aldea Nueva Providencia, 8.5 km N and 31 km E of Playa Grande, municipality of Ixcán, Department of Quiché, ca. 16°04'N, 90°30'W, 170 m asl (**FIG. 1, LOCALITY NUMBER 3**). The local farmers claimed to have recently hunted the animal for food, and only the "armor" remained to be sold to us. The measurements of the specimen's carapace, taken with a common desk rule, were 245 mm long from the base of the right front edge of the carapace to the base of the right rear edge, and 116 mm wide in the center of the carapace from the base of the left edge to the base of the right edge.

Aldea Nueva Providencia is located in a flat area just 1.2 km south of the Guatemala–Mexico border, and 2.2 km south of the Trinitaria–Palenque highway on the Mexican side, in Chiapas. The area was originally dominated by tropical rain forest, some of which still remains inside the large wildlife protected areas on both sides of the border (Chajul and Lacandón on the Mexican side, and Laguna Lachuá on the Guatemalan side). The remaining area is now mainly covered by farm plantations and young regenerated forests (“guamiles”), with African Palm plantations increasing in size every year; some areas close to the Chixoy River are frequently flooded during the rainy season.

In September 2017, we conducted a field expedition to Reserva de Anfibios Sierra Caral, municipality of Morales, in the Department of Izabal, as part of a short training course for students in biology of field methods for the study of vertebrates. The reserve borders Honduras on the east side. Toward the end of the afternoon on 20 September, one of us (JP) captured a live adult *C. centralis* on a trail near the house of the park administration, 7 km S and 15 km E of Morales, Izabal, 15°24'34"N, 88°41'54"W, 531 m asl (FIG. 1, LOCALITY NUMBER 4). The specimen was captured manually, by grabbing the sides of the shell, photographed with a common cell phone, and then later released in the same place (FIG. 2B). The vegetation at Sierra de Caral is similar to the other tropical sites where *Cabassous* has been found previously in Izabal (FIG. 2C).

One additional record on the presence of *C. centralis* in Guatemala was later obtained when interviewing hunters in the community of Santa Lucía Lachuá, 52 km N, 27 km W of Cobán, Alta Verapáz, 15°56'50"N, 90°37'36"W, 169 m asl (FIG. 1, LOCALITY NUMBER 5). The Mayan q'eqchi' people in Santa Lucía Lachuá refer to *C. centralis* as “kamenaq ib'oy”, “kamenaq” meaning dead, and “ib'oy” meaning armadillo. The local Spanish name for this animal is “weche zorro” (fox armadillo). Some farmers consider it poisonous, or a scavenger animal that is said to consume human remains in the local cemetery. These traditional ideas are not widespread, however, because *C. centralis* is hunted for food in other communities. Representative vegetation at Santa Lucía Lachuá includes: *C. odorata*, *Ceiba pentandra* (L.) Gaertn., *Dialium guianense* (Aubl.) Sandwith, *Genipa americana* L., *Psychotria poeppigiana* Müll. Arg., *Spondias mombin* L., *S. macrophylla*, and *Vochysia hondurensis* Donn. Sm. (Ávila, 2004).

*Cabassous centralis* is considered rare in Guatemala, and in other parts of Central America such as Costa Rica (Sáenz-Bolaños & Carrillo, 2009). However, our findings indicate that, although it is not as common as the nine-banded armadillo, the absence of records may be mainly due to the lack of specific studies about the species. The data presented here

confirm the presence of *C. centralis* in the Atlantic tropical portion of Guatemala; however, its presence along the Pacific slope of the country remains uncertain. Because little information is available on the natural history of *C. centralis*, especially near the northernmost limit of its distribution, we consider the IUCN classification of this species as “Data Deficient” correct for Guatemala.

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