

Gasteroid fungi as diet component of the hairy armadillo, *Chaetophractus villosus* (Cingulata, Chlamyphoridae), in the Dry Chaco Region of Paraguay

Hongos gasteroides en la dieta del armadillo peludo, *Chaetophractus villosus* (Cingulata, Chlamyphoridae), en el Chaco Seco Paraguayo

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Abstract

Chaetophractus villosus inhabits the Gran Chaco Basin of South America. The species is considered carnivorous-omnivorous, feeding primarily on plant matter and invertebrates. Here we present the first record of fungus in the diet of the species.

Keywords: Chaco basin, Feeding habits, Foraging behavior, Xenarthra, Dasypodidae.

Resumen

Chaetophractus villosus habita la cuenca del Gran Chaco de Sudamérica. La especie es considerada carnívora-omnívora, alimentándose sobre todo de materia vegetal e invertebrados. Se presenta el primer registro de hongos en la dieta de la especie.

Palabras clave: Forrajeo, Gran Chaco Americano, Hábitos alimenticios, Xenarthra, Dasypodidae.

Chaetophractus villosus (Desmarest 1804) is a common armadillo distributed through the Gran Chaco of Bolivia, Paraguay and Argentina (Wetzel *et al.* 2007, Abba and Superina 2010) that was recently reassigned to the family Chlamyphoridae (Gibb *et al.* 2016). In Paraguay, it inhabits the Dry Chaco region of the country where it can be found in open arid areas, range lands, shrublands, and along roads (Smith 2008). In the Chaco region, the species is mainly diurnal, and is commonly seen foraging in open habitats not far from cover (Merritt 2008). However, in its southern distribution area it has nocturnal activity patterns (Abba and Cassini 2008).

This armadillo is considered carnivorous-omnivorous, and major food items include invertebrates, small vertebrates, plants and carrion (Redford 1985, Noss *et al.* 2010). However, in the Bolivian Chaco, plant materials are the main dietary component for

this species, followed by insects (Bruno and Cuéllar 2000, Cuéllar 2008).

On 16 July 2014 at 12:26, we encountered an individual of *Chaetophractus villosus* along the side of an internal road on Estancia Montania, a cattle ranch (21° 58' 6.92"S; 60° 3' 30.54"W), located in the Dry Chaco region. It was digging in the soil, with claws and nose, foraging. As we approached to within 10 m, the individual left, leaving a small excavation. We observed and photographed an underground gasteroid fungus with white gelatinous gleba, partially eaten by the armadillo (Figure 1).

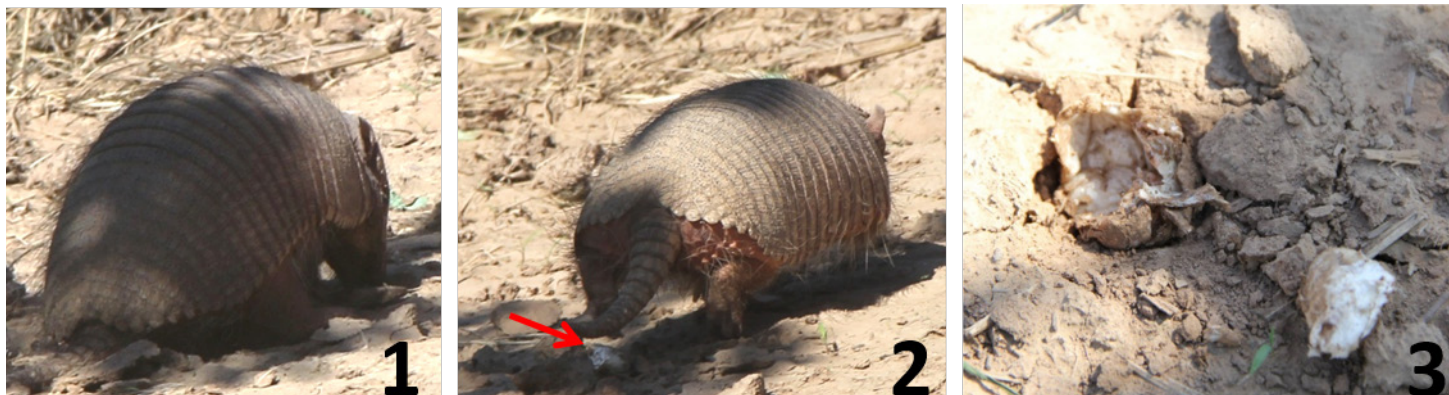
Although several publications regarding diet of chacoan armadillos reported fibers or plant matter among the dietary components of this species (Redford and Eisenberg 1992, Bolkovic *et al.* 1995, Bruno and Cuéllar 2000, Cuéllar 2008, Noss *et al.* 2010), this is the first record that we are aware of, for fungus as

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Fecha recepción: Marzo 15, 2017

Fecha aprobación: Junio 6, 2017

Editor Asociado: Neita-Moreno J



Figures 1-3. *Chaetophractus villosus* feeding on underground gasteroid fungus: 1. *Chaetophractus villosus* digging in the soil and foraging. 2. *C. villosus* leaving the area after detecting human presence. Partially eaten fungus indicated with an arrow. 3. Underground gasteroid fungus with white gelatinous gleba, partially eaten by the armadillo.

part of the diet of *Chaetophractus villosus*. Fungi have also been recorded in the diet of *Zaedyus pichiy*, another armadillo inhabiting semi-arid habitats (Superina *et al.* 2009).

Gasteroid fungi are known to be common and frequent in xeric habitats, due to their independence of water in the spore release process (Kuhar *et al.* 2012). Wallis *et al.* (2012) found that fungi are a source of amino acids and digestible nitrogen for many animal species but the digestibility of the protein is generally low, requiring animals to develop strategies for utilization of these materials. The lack of detailed examination of stomach or fecal contents may be a factor underlying the absence of detection of fungus in the diet of armadillos. However, further investigation is required to clarify the importance of *G. fungi* as a component of the diet of *Chaetophractus villosus* in arid ecoregions such as the Dry Chaco.

Acknowledgments

We thank Robert Owen for the comments on the article, and language corrections.

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