NOTAS SOBRE

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Case reports of common vampire bats *Desmodus rotundus* (Chiroptera: Phyllostomidae: Desmodontinae) attacking wild exotic mammals in Argentina

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ABSTRACT
We present evidence of common vampire bats *Desmodus rotundus* (É. Geoffroy Saint-Hilaire, 1810) attacking two wild exotic mammals; the wild pig *Sus scrofa* (Linnaeus, 1758) and the chital deer *Axis axis* (Erxleben, 1777). Observations were made in El Palmar National Park, Entre Rios province (Argentina) using camera traps. To our knowledge, this is the first report documenting attacks of vampire bats to exotic wild mammals in Argentina.

RESUMEN
Presentamos evidencias sobre murciélagos vampiros comunes *Desmodus rotundus* (É. Geoffroy St.-Hilaire, 1810) atacando a dos mamíferos exóticos salvajes; el jabalí *Sus scrofa* (Linnaeus, 1758) y el ciervo *Axis axis* (Erxleben, 1777). Las observaciones se realizaron en el Parque Nacional El Palmar, Provincia de Entre Ríos (Argentina) mediante cámaras trampa. Este es el primer reporte que documenta el ataque de murciélagos vampiros a mamíferos salvajes exóticos en Argentina.

The common vampire bat (*Desmodus rotundus*) is a hematophagous bat distributed from northern Mexico to Uruguay, and the center of Chile and Argentina (Koopman 1988; Barquez et al. 1999; Delpietro et al. 2017). Domestic livestock introduced during the European colonization of America gave the vampire a more abundant and accessible source of food than wild native animals which enabled population increases throughout its range (Greenhall 1971). At present, *D. rotundus* is abundant in areas with livestock, feeding mostly on cattle, horses, goats, pigs and sheep, and to a lesser extent poultry, wild mammals and humans (Greenhall et al. 1983; Voigt & Kelm 2006; Delpietro et al. 2009; Moya et al. 2015; Streicker & Allgeier 2016). *Desmodus rotundus* poses a threat to livestock, human health and wild mammals due to the direct damage

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of their bites, and as reservoir for rabies. Every year outbreaks of rabies transmitted by vampires kill thousands of cattle, dozens of people, and an unknown quantity of wild herbivores (Delpietro et al. 2009, 2017; Johnson et al. 2014; Streicker & Allgeier 2016). In Argentina, vampire attacks on people are sporadic occurring mainly in sylvatic areas without livestock, and in areas where cattle from which bats fed was removed (Delpietro & Russo 1996; Senasa 2011). Reports of *D. rotundus* attacks and its bites on native or introduced wild species are not abundant, and were recorded in Argentina on marsh deer (*Blastocerus dichotomus*), red brocket deer (*Mazama americana*), capybara (*Hydrochoerus hydrochaeris*), savanna fox (*Cerdocyon thous*), and great fruit-eating bat (*Artibeus lituratus*; Delpietro et al. 2009). Other attacks were reported for Perú on sea lions (*Otaria flavescens*) (Catenazzi & Donnelly 2008); for Mexico on white-tailed deer (*Odocoileus virginianus*) (Sánchez-Cordero et al. 2011); and for Brazil on feral pig (*Sus scrofa*), lowland tapir (*Tapirus terrestris*) and red brocket deer (*Mazama americana* (Galetti et al. 2016; Pignaton Gnocchi & Srbek-Araujo 2017).

In this note we present evidence of common vampire bats attacking two wild exotic herbivores, the wild pig (*Sus scrofa*) and the chital deer (*Axis axis*). Observations were conducted at El Palmar National Park (EPNP), Entre Ríos province (Argentina) (31° 53' 17,55" S, 58° 15' 45,17" W; 19 m.a.s.l.). EPNP has 8500 ha and its main vegetation type is savanna with palm trees (*Butia yatay*), but there are gallery forests along the Uruguay river and several streams (Batista et al. 2014). In this study we used seven camera traps distributed in the EPNP for different purposes. One camera was active 181 days from September 2012 to February 2013, the other six cameras were active 129 days each from April 2017 to March 2018.

Two attacks on wild pigs were observed in a northeastern area of EPNP (31° 51' 58,5'' S, 58° 13' 33,5'' W). A single vampire was recorded at 01:20 hs on October 26, 2012, on the middle-back area of a female pig (Fig. 1). Three days later on October 29 at 20:25 hs, two vampires were recorded near the tail of (probably) the same wild pig. This assumption was based on the similar size and evident lactating state of the pig in both photos. A single vampire was recorded on the left scapular area of an adult male chital deer east of EPNP (31° 52' 25,8" S, 58° 13' 31,1" W) at 21:40 hs on May 22, 2017 (Fig. 2).

To our knowledge, this are the first reports to document attacks of vampire bats to exotic wild mammals in Argentina. Vampires feeding on wild mammals could spread pathogens among their prey, including native mammals as capybaras, foxes and brown brocket deer, due to the absence of sanitary controls on them. The low number of domestic animals inside the protected area (i.e., EPNP) between the years 2006 and 2014 (Maranta personal comments), that include a small group of horses, cows and buffaloes would favor this kind of behavior (Streicker & Allgeier 2016).

Both areas where we documented the vampire attacks were located at 1.5 km from

Figure 1. (a) One *Desmodus rotundus* rides on the middle back of a female *Sus scrofa* in the National Park El Palmar, Argentina; (b) Detail of the photo.

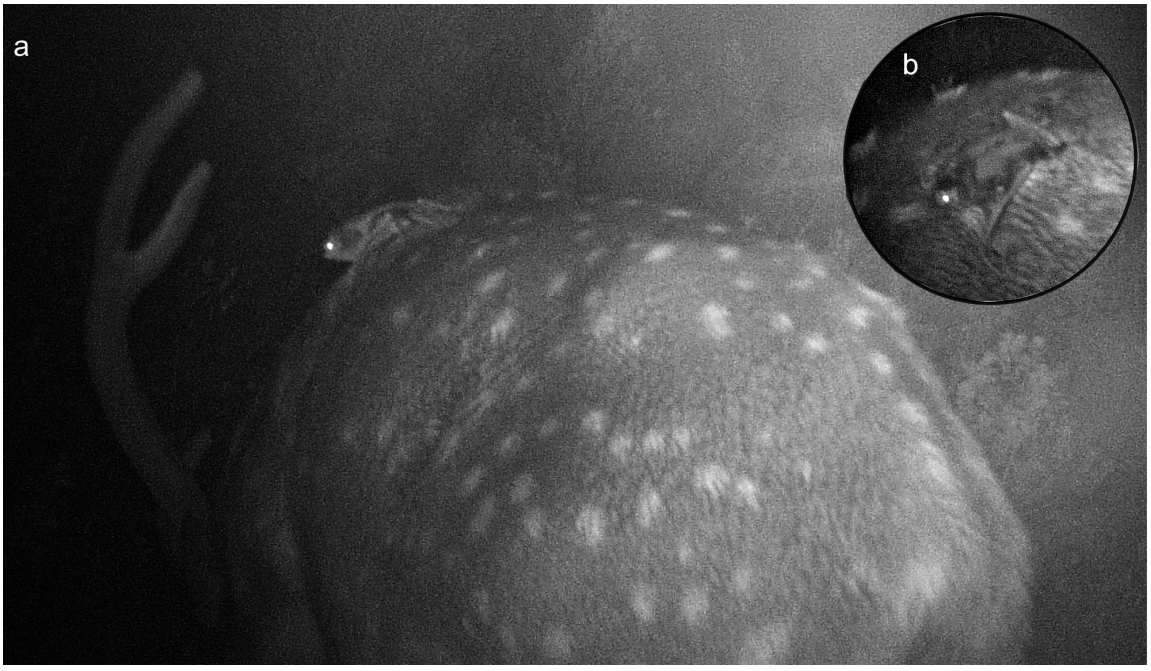

Figure 2. (a) A common vampire bat (*Desmodus rotundus*) rides on the left scapular area of a male axis deer in the National Park El Palmar, Argentina; (b) Zoom on the vampire of another photo.

the camping and houses area of the EPNP, and the vampires were observed sleeping in an abandoned house and in Jesuit ruins inside the EPNP (Maranta personal comments). However, attacks on people were not recorded so far. The lack of attacks on humans in this area is consistent with previous reports indicating that people

are an alternative prey for vampires, that they attack when large or medium-sized herbivores are missing or scarce (Delpietro & Russo 1996; Senasa 2011). Although the risk of vampire attacks on people seems to be minimal and the EPNP are not inside the endemic rabies area, it cannot be ruled out completely. For that reason, people who spend the night in the Park should be warned to sleep in closed places, or protected by nets or metal wire mesh.

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