

## Distribution Update

### New record for bush dog in Amapá State, Eastern Brazilian Amazonia

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## Abstract

Bush dogs are considered one of the lesser-known canids of South America. We report an update on their distribution in the north region of Brazil. Three bush dogs were filmed by a camera trap in Amapá National Forest, Eastern Brazilian Amazonia. The record occurred during data collection for a long-term study of medium and large vertebrates. On 28 March 2014 at 22:13h, three bush dogs passed in front of the camera. This record increases knowledge on the distribution of the species.

Despite its large geographic range, bush dogs *Speothos venaticus* (Lund, 1842) have been proven to be extremely difficult to locate in the wild (DeMatteo and Loiselle 2008, DeMatteo et al. 2011). Thus it is considered one of the lesser-known canids of South America (Oliveira 2009, DeMatteo et al. 2011). Little is known about their biology and ecology (Peres 1991, Aquino and Puertas 1997, Wallace et al. 2002, Oliveira 2009, Michalski 2010). The major threats to the bush dog are habitat loss (Michalski and Peres 2005, Michalski 2010, DeMatteo et al. 2011) and exposure to diseases from domestic dogs (Lima et al. 2009, Oliveira 2009). The bush dog is globally categorized as Near Threatened on the IUCN Red List (DeMatteo et al. 2011), but as Vulnerable in Brazil (Oliveira and Dalponte 2008, Jorge et al. 2013). Across the bush dog's distribution in Brazil, the conservation status of the species varies in different Brazilian biomes where it is found, ranging from Vulnerable (VU) in the Pantanal and the Amazon, Endangered (EN) for the Cerrado, to Critically Endangered (CR) in the Atlantic Forest biome (Jorge et al. 2013). Although bush dogs are reported to be a habitat generalist (DeMatteo and Loiselle 2008), the species has been shown to be absent in forest fragments in the Brazilian Amazon (Michalski 2010). Even though they can be found in disturbed

areas, bush dogs are mostly associated with well preserved areas (Oliveira 2009) or in large forest fragments (Carretero-Pinzón 2013), showing better conservation status in more conserved and less fragmented habitats (Jorge et al. 2013). Here, we report a new record of bush dogs in Amapá National Forest (ANF), a 412,000ha protected area designated for sustainable use, located in the central region of Amapá State, eastern Brazilian Amazonia (0°55'29"N, 51°35'45"W). We also provide information on potential prey species and competitors in the same area.

The bush dog record occurred during a long-term project sampling medium and large vertebrates conducted between October 2013 and May 2014. We sampled a total effort of 900 trap-days and 800km of census along transects distributed along a 25km<sup>2</sup> grid system for long-term biodiversity monitoring in a continuous forest site (Figure 1; Magnusson et al. 2005). ANF comprises predominantly *terra-firme* (non-flooded) tropical forest (Bernard et al. 2006). The study area is adjacent to continuous undisturbed forests and maintains the complete community of medium and large bodied vertebrates. This pro-

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tected area experiences low levels of anthropogenic perturbations (e.g. subsistence hunting), in part because only eight families live on the reserve border, and the nearest city is located 46km away by river (Norris and Michalski 2013).

On 28 March 2014 at 2213hr a camera trap (Bushnell Trophy Cam, 8MP, Overland Park, Kansas, USA) filmed three adult bush dogs in a 40s video (Video 1). Although camera traps may not be an effective method for recording species with low population densities (DeMatteo et al. 2011), our sampling design of a uniform grid of 30 points in an area of 25km<sup>2</sup> (Magnusson et al. 2005) allowed us to maximize our survey of the area. The camera (00°97'N 51°65'W) was 1,250m distant from one of the main rivers of the region (Araguari River) (Figure 1). Bush dogs occur generally near water courses (Strahl et al. 1992, Oliveira 2009), having been recorded in lowland (below 1,500m) forested habitats including primary and gallery forest (Defler 1986), semi-deciduous forest, and seasonally flooded forest (Aquino and Puertas 1997). The species is thought as being predominantly diurnal (Zuercher et al. 2004), but with activity also recorded at night (Lima et al. 2012). During our study, bush dog potential prey species (Oliveira 2009, Wallace et al. 2002) were registered in the area, including armadillos *Dasypus* spp., spotted paca *Cuniculus paca*, red-rumped agouti *Dasyprocta leporina*, red accouchi *Myoprocta acouchy* and Amazonian brown brocket deer *Mazama nemorivaga*. Although other canid species were not recorded, potential carnivore competitors such as ocelots *Leopardus pardalis*, margays *Leopardus wiedii*, jaguarondi *Puma yagouaroundi*, and tayras *Eira barbara* were also recorded in the study area.

Bush dogs have been previously recorded for Amapá State (DeMatteo and Loiselle 2008, Oliveira 2009, Silva et al. 2013) but not recorded by any study in the Amapá National Forest (Bernard et al. 2006). However, only one location is associated with geographic coordinates (same point used by both DeMatteo and Loiselle 2008, Oliveira 2009) (Figure 1), and is a museum record collected in 1932 around the Jari River, in the border between Pará and Amapá States.

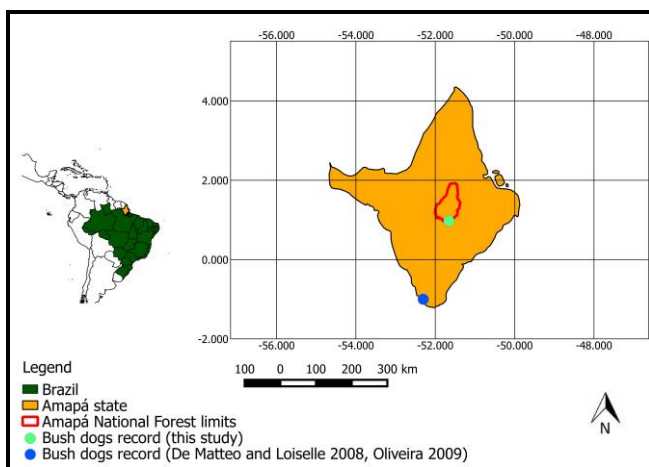


Figure 1. Location of the study region in Amapá National Forest (ANF), Amapá State, eastern Brazilian Amazonia. The green circle indicates the record of bush dogs in our study, while the blue indicates the previous bush dog record from 1932 in Amapá State.

In contrast to many areas across their range, Amapá retains a high proportion of protected areas. Currently ANF experiences low levels of anthropogenic disturbance and little exposure to diseases from domestic dogs. Therefore, it is expected that bush dogs continue to find favourable conditions there. ANF is also surrounded by an extensive area of continuous forest (protected areas continue across the State and into neighbouring French Guiana) that should ensure the long-term survival of a population. Thus, with its low level of forest loss and degradation (INPE 2013) and low human density in most of the state of Amapá (IBGE 2010), this portion of Amazonia may be a stronghold for this rare and elusive canid species.



Video 1. Three bush dogs filmed in a camera trap in Amapá National Forest, Amapá State, Brazil. [\[view video\]](#)

To our knowledge, our record is the first camera trap recording of bush dogs within the state of Amapá. This record is important because bush dogs are difficult to detect due to their low population density and thus little information on the species' distribution exists in Eastern Brazilian Amazonia (Jorge et al. 2013). This is also the second location associated with geographic coordinates for the state of Amapá, approximately 230km distant from the historic record used by both DeMatteo and Loiselle (2008) and Oliveira (2009). Thus, our new record increases knowledge on the distribution of the species in Amazonia, and provides key information for modelling approaches that can be used for conservation initiatives.

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