

First record of *Puma concolor* Linneus, 1771 (Carnivora: Felidae) preying *Odocoileus virginianus* (Zimmermann, 1780) on a palm-oil plantation in the Meta department, Colombia

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Colombia is currently the fourth palm oil crop producer in the world and the top producer in South America (Torres-Carrasco et al. 2013), leading to an accelerated series of changes in many landscapes (Balaguera-Reina & González-Maya 2010). To date few studies have assessed biodiversity in palm-oil plantations in the country, in which large and medium-sized felids (*Panthera onca*, *Leopardus pardalis*, and *Puma yagouaroundi*) have been recorded, however, pumas (*Puma concolor*) have been exclusively recorded in forests and forest-edges (Boron & Payán 2012). Nevertheless, studies regarding ecological interactions and use by these species in these human-made landscapes are still missing.

Pumas occur from Canada to Chile, having the widest range of all wildcats in the Americas (Caso et al. 2014). In Colombia, this species occurs across most of the country from lowlands to Paramos (Solari et al. 2014), however, knowledge about its distribution and ecology is still scarce, hindering the development of accurate conservation plans.

Meta department is located in the Llanos or Orinoco region in Eastern Colombia where only a few confirmed records exist for the species, and in general for Colombia few studies have addressed basic ecological aspects (Suárez-Castro & Ramírez-Chaves 2015). Specifically for the southeastern Llanos, there is a single unpublished record in the Jaguar Natural Reserve (ProAves foundation pers. com.). Herein, we provide the first puma record for the region and the first of a predation event on a natural prey-species (White-tailed Deer) in a man-made landscape (palm-oil plantation) in Colombia.

On April 14th 2014 we found an adult-female White-tailed Deer (*Odocoileus virginianus*) covered with dry grass in the Danta sector, Macondo farm, Mapiripan municipality (3°1'6.04" N; 72°13'30.32" W). The carcass was 260 m from the nearest riparian forest (distance estimated using Geographic Information Systems). The deer had a bite in the nape and did not have intestines, liver or kidneys (Figure 1A). We estimated the measurements of the carcass based on approximations of the body in order to maintain the carcass intact; carcass measured 110 cm in length, 80 cm in shoulder height, and ~35 kg in weight.

We set up a Döerr snapshot® 5 Megapixels digital camera-trap in front of the carcass in order to identify the predator. On April 14th at 18h33, an adult male puma, approximately 80 cm in shoulder height and 176 cm in length (estimated based on fixed references in the picture), was captured by the camera while eating the carcass (Figure 1B). On April 15th and 16th five more pictures (Figure 1C) and two videos were taken before dawn of the same individual eating and dragging the carcass. On both April 17th and 18th we did not record the puma and presumed it had left the area. Overall, the puma fed upon the deer for a total of three days exhibiting scavenging behavior (Bauer et al. 2005), coming back at night/before dawn to eat, and then covering the prey with dry vegetation. Interestingly, the deer died by a bite in the nape, which is quite different from a puma's usual attack (Hoogesteijn & Hoogesteijn 2005).



Figure 1. White-tailed deer (*Odocoileus virginianus*) carcass without intestines and other viscera (A) and male puma (*Puma concolor*) while eating and dragging the carcass at night (B, C) in the Macondo farm, Mapiripán municipality, Colombia.

Highlights of this record include 1) the predation of a natural prey-item by a puma in an palm-oil plantation has never been recorded before; 2) the scavenging behavior showed by pumas in the area, which is recorded for the first time in Colombia; and 3) the first official record of a puma in Mapiripán municipality, due probably to the lack of studies rather than the novelty of the species' presence.

Macondo farm was transformed into palm-oil in 2009; originally this area was dominated by rocky savannahs and grasslands with essentially no forest cover (BioAp 2014). The use by species such as White-tailed Deer and Puma can provide insights on how savannah landscapes transformation affect biodiversity both structurally and functionally. Predation events in anthropogenically modified landscapes by large predators are not common in the literature; even rarer are records of large predators feeding on natural prey in such landscapes. The record here raises several questions concerning how species interact in man-made landscapes, how biodiversity respond to natural habitats, in this case savannahs, modification by increasing canopy cover, and how are functional communities interacting within these human-impacted landscapes.

Palm-oil plantations on savannahs or in areas with no canopy coverage might contribute to conditions for colonization by certain groups of fauna (Balaguera-Reina & González-Maya 2010). These “new” habitats with canopy coverage may offer access to species with large home range requirements such as deer and pumas. However, this hypothesis needs to be tested with additional data that will allow assessing the effects of man-made coverages on the biodiversity in these unique ecosystems.

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