NOTES

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Natural History

Record of the crab-eating fox, *Cerdocyon thous* (Carnivora: Canidae) preying cultivated *Oreochromis niloticus* in Santa Rosa de Cabal, Risaralda, Colombia

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Resumen

El zorro cangrejero (*Cerdocyon thous*, Linnaeus, 1766) es un cánido que vive en parejas o pequeños grupos y se encuentra ampliamente distribuido en la región neotropical, soportando incluso la fragmentación y presencia humana. Presentamos el primer registro de zorro gris, *C. thous*, pescando en un estanque de Tilapia nilótica (*Oreochromis niloticus*, Linnaeus, 1758) cultivado en una zona rural del municipio de Santa Rosa de Cabal, Colombia. Realizamos un muestreo con fototrampeo en la Estación Piscícola del campus de la Corporación Universitaria Santa Rosa de Cabal (UNISARC). Dos cámaras trampa estuvieron activas las 24 horas desde el 23 de febrero hasta el 1 de marzo del año 2024, acumulando 14 trampas-noche. Se obtuvieron 19 registros de observación de dos individuos de *C. thous* alrededor de uno de los estanques, y se registraron específicamente 10 eventos de pesca evidentes. El zorro cangrejero es considerado oportunista, que aprende comportamientos con facilidad con el fin de conseguir un beneficio, asimismo adoptan diferentes métodos para conseguir sus presas. Es posible que el método de pesca fuera aprendido con anterioridad y reforzado al tener una alta disponibilidad de recursos en la zona donde fue documentado.

Palabras clave: Zorro cangrejero, fototrampeo, dieta, depredación, tilapia nilotica.

Abstract

The crab-eating fox (*Cerdocyon thous*, Linnaeus, 1766) is a canid that lives in pairs or small groups and is widely distributed in the neotropical region, even withstanding fragmentation and human presence. We present the first record of the gray fox, *C. thous*, preying on individuals of Nile tilapia, *Oreochromis niloticus* (Linnaeus, 1758), cultivated in a rural area of the municipality of Santa Rosa de Cabal, Colombia. We conducted photo-trapping sampling at the Fish Farming Station of the campus of the Corporación Universitaria Santa Rosa de Cabal (UNISARC). Two camera traps were active 24 hours a day from February 23 to March 1, 2024, accumulating 14 traps-night. There were 19 records of observation of two individuals of *C. thous* around one of the ponds, and 10 evident fishing events were specifically recorded. The crab-eating fox are considered opportunistic, easily learning behaviors in order to make a benefit, and they adopt different methods to obtain their prey. It is possible that the fishing method was previously learned and reinforced by the high availability of resources in the area where it was documented.

Key words: Crab-eating fox, photo trapping , diet, depredation, Nile tilapia.

The crab-eating fox (*Cerdocyon thous*, Linnaeus, 1766) is a canid that lives in pairs or small groups and is widely distributed in the neotropical region (Dutra-Vieria et al. 2021), even withstanding fragmentation and human presence (Silva *et al.* 2020). It is considered an omnivorous species, feeding opportunistically on plants, arthropods and vertebrates (Gatti et al. 2006), and is thus considered a pest controller and seed disperser (Rocha et al. 2008). Although reviews of its diet have been elaborated (Assis et al. 2023), its large dietary breadth suggests that knowledge of its trophic ecology and species-level information on its prey is still incomplete (Dutra-Vieira et al. 2021). This paper presents the first record of the crab-eating fox, preying on individuals of *Oreochromis niloticus* (Linnaeus, 1758) cultivated in a rural area of the municipality of Santa Rosa de Cabal, Colombia.

The Nile tilapia (*Oreochromis niloticus*) is native to North Africa and Israel, inhabits freshwater bodies, and is a highly cultivated species due to its high productive yield, its ability to adapt to adverse conditions and its acceptance in the market (Amoussou et al. 2016). In Colombia, tilapia production is in high demand due to its profitability, ease of production and year-round availability. It is the second country in its export with more than 8.000 tons per year. It is estimated that 50% of the nation's fish farming stations cultivate this species, with approximately 5,000 farms dedicated to its production (DANE 2023), thus representing a great economic livelihood for the Colombian fish farming sector.

The sampling was carried out at the fish farm station of the Corporación Universitaria Santa Rosa de Cabal (UNISARC) campus El Jazmín, with coordinates 4,9116, -75,6241, WGS84, at an altitude of 1.629 masl, an average temperature of 20,1°C and annual rainfall of 2.716 mm (Federación Nacional de Cafeteros de Colombia 2019). The UNISARC fish farm has an area of 4.152,02 m² which is delimited in mesh and has several ponds of different sizes and treatments; around it there are offices, crops, roads and a forest fragment (Figure 1). Since UNISARC personnel reported several cases of dead fish outside a pond in the fish farm, we placed two Bushnell camera traps in the area. Photo-trapping began on February 23th until March 1st, 2024, and we programmed the camera traps to be active 24 hours a day, thus completing 14 traps per night.

Nineteen observation records of two *C. thous* individuals were obtained around one of the ponds, which has an area of 172,75 m², and specifically 10 fishing events were recorded (Figure 2). In that pond there were about 500 planted fish and about 1.000 rearing individuals. We identified their activity pattern between 22h00 and 05h15. We conducted a resampling with camera traps between July 29 to August 14, 2024, in order to document new possible predation records, in which we obtained 3 records of *C. thous* around the pond but no fishing events. This suggests an ease of obtaining individuals when there were more fish in the pond.

FIGURE 1. Study area. Fish Farming Station of the campus of the Corporación Universitaria Santa Rosa de Cabal, Risaralda, Colombia.

In the most recent review of the diet of *C. thous* (Assis et al. 2023), stated that fish are infrequently recorded in the diet of this canid; *C. thous* has been documented preying on fish stranded in irrigation canals (Macdonald & Courtenay 1996), However, no records on farmed species and specifically of *O. niloticus* were previously obtained. This species tolerates anthropogenic disturbances and fragmented landscapes (Lemos et al. 2011). Thus, the presence of the crab-eating fox near human settlements can be frequent (Facure et al. 2003). The activity pattern observed in the crab-eating foxes fishing at the ponds coincides with observations made in literature elsewhere (Maffei & Tabe 2003; Faria-Corrêa et al. 2009). This nocturnal activity could be attributed to the minimal risk of accessing the ponds since the personnel leaves the campus around 18h00. Gray foxes are considered to be an opportunistic species, where they learn behaviors easily to obtain a benefit, and adopt different methods to obtain their prey (Arruda-Bueno & Motta-Junior 2004; Canesini et al. 2008), therefore it is possible that the fishing method was learned beforehand and reinforced by having a high availability of resources in the area where it was documented. This type of interaction could generate economic impacts on fish farmers and harm the survival of crab-eating foxes, thus reminding us of the importance of environmental education and the search for coexistence strategies.

FIGURE 2. Records of *C. thous* preying on *O. niloticus* at the Fish Farming Station on the UNISARC campus **a.** Two individuals of *C. thous* searching for prey on 28-02-2024 2h40. **b.** Individual eating on 28-02-2024 5:13 h. and **c.** 29-02-2024 23h53.

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