

Noteworthy record of *Puma yagouaroundi*'s elevational distribution

Registro notable en la distribución altitudinal del *Puma yagouaroundi*

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Despite the wide distribution of the jaguarundi (*Puma yagouaroundi*) in America, it is considered a rare and elusive species from which little is known throughout its distributional range. Its altitudinal distribution ranges from sea level to around 3,200 m, but it generally occurs below 500 m. A direct encounter with a jaguarundi was documented during a routine walk in the Sierra de los Cuchumatanes (Huehuetenango, Guatemala) and specific data on the location, time of day, and behavior of the individual were recorded. We observed and photographed an adult male at 3,559 m in the Parque Regional Municipal Todos Santos Cuchumatán. This is the highest altitudinal record for the species and reflects its plasticity to inhabit in a great variety of ecosystems and climatic conditions.

Key words: Elevation profile; Guatemala; jaguarundi; Sierra de los Cuchumatanes.

A pesar de la amplia distribución del jaguarundi (*Puma yagouaroundi*) en América, es considerada una especie rara y elusiva, de la cual se conoce poco a lo largo de su rango de distribución. El intervalo de su distribución altitudinal es desde el nivel del mar hasta alrededor de los 3,200 m, pero generalmente se encuentra por debajo de los 500 m. Durante una caminata rutinaria en la Sierra de los Cuchumatanes (Huehuetenango, Guatemala), se documentó un encuentro directo con un jaguarundi y se registraron datos específicos sobre la ubicación, la hora del día y el comportamiento del individuo. Observamos y fotografiamos un macho adulto a 3,559 m en el Parque Regional Municipal Todos Santos Cuchumatán. Este es el registro a mayor altitud para la especie y refleja su plasticidad para habitar en una amplia variedad de ecosistemas y condiciones climáticas.

Palabras clave: Guatemala; jaguarundi; perfil altitudinal; Sierra de los Cuchumatanes.

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The jaguarundi *Puma yagouaroundi* is a medium-sized carnivore species widely distributed in America. Its distribution ranges from southern United States, throughout México and Central America, to Southern Argentina ([de Oliveira 1998](#); [Herrera-Montes et al. 2008](#); [Caso et al. 2015](#)). It occurs in an altitudinal range varying from sea level to around 3,200 m and in several ecosystems such as arid, dry, tropical, montane, moist and pine-oak forests, swamps, savannas, dry shrubs, grasslands, riparian areas, and subalpine paramos ([Cuervo et al. 1986](#); [de Oliveira 1998](#); [Herrera-Montes et al. 2008](#); [Reid 2009](#); [Solarí et al. 2013](#); [Caso et al. 2015](#); [Nascimento and Lima 2016](#); [Kasper et al. 2017](#); [Mármol-Kattán et al. 2019](#)).

In contrast to other felids with which jaguarundi coexists, this species has a predominantly diurnal behavior, hunting mainly during the daytime and during the evenings (e.g., jaguar, ocelot, puma). Furthermore, individuals are sparsely distributed and make use of large home ranges ([Crawshaw](#)

[1995](#); [Michalski et al. 2006](#); [de Oliveira et al. 2010](#); [Di Bitetti et al. 2010](#); [Monterrubio-Rico et al. 2012](#); [Nascimento and Lima 2016](#); [Kasper et al. 2017](#)). Although they are agile while moving in trees and skillful swimmers, they are considered mainly terrestrial where they hunt a great variety of small vertebrates such as rodents, opossums, rabbits, birds, and lizards ([McCarthy 1992](#); [de Oliveira 1998](#); [Tófoli et al. 2009](#); [Giordano 2015](#); [Nascimento and Lima 2016](#); [Kasper et al. 2017](#); [Escobar-Anleu et al. 2020](#)).

The jaguarundi also occurs in disturbed and fragmented habitats including agricultural lands, secondary vegetation near water, and even in secondary forests near populated areas where they have been observed crossing roads ([Guix 1997](#); [Trovati 2004](#); [Lyra-Jorge et al. 2007](#); [Tófoli et al. 2009](#); [de Oliveira et al. 2010](#); [Giordano 2015](#); [Escobar-Anleu et al. 2017](#); [González et al. 2021](#)). The species is listed as Least Concern in the Red List of Threatened Species of the

International Union for Conservation of Nature (IUCN); however, the current population trend appears to be decreasing (Caso *et al.* 2015). Habitat loss and fragmentation are the major threats for the species, but jaguarundis are also threatened by hunting, road kills and human vandalism (Herrera-Montes *et al.* 2008; Caso *et al.* 2015).

The primary objective of this contribution is to report the highest elevation record for the jaguarundi, exceeding 3,500 m and to document the first observation of the species within the Parque Regional Municipal Todos Santos Cuchumatán, located in the Sierra de los Cuchumatanes, Huehuetenango, Guatemala. Furthermore, this contribution assesses the elevational distribution of the species to better understand the implication of the new record.

The Parque Regional Municipal Todos Santos Cuchumatán is located in the Sierra de los Cuchumatanes, which is located at Todos Santos Cuchumatán municipality, Huehuetenango department, northwestern Guatemala (Figure 1; CONAP 2016). The Sierra de los Cuchumatanes is the highest and largest non-volcanic mountain complex in Northern Central America, as well as the most diverse geological unit in the region, with altitudes ranging from 500 to about 3,900 m (Savage 1982; Donnelly 1989; Donnelly *et al.* 1990).

The geological diversity and the broad altitudinal range are reflected in a great variety of ecosystems, such as mountain forest, subtropical pluvial forests, pine-oak forests, coniferous moist forest and subalpine grassland and shrublands (Matson *et al.* 2012; CONAP 2016).

In order to contextualize our observation and to better understand the elevational distribution of the jaguarundi, we performed an elevation profile using the information available in the Global Biodiversity Information Facility dataset (GBIF.org 2023). We downloaded data under the search terms "*Puma yagouaroundi*" and "*Herpailurus yagouaroundi*". Only records with geographic coordinates that could be attributed to a particular collection specimen, photograph, or observation were considered in this study. In total, we found 2,797 specimens and occurrence points.

On April 7, 2022, at 12:38 hr, we observed and photographed an adult male of *P. yagouaroundi* on the northwestern slope of the Parque Regional Municipal Todos Santos Cuchumatán. The observation was made in the subalpine grasslands and shrublands (15° 33' 35" N, 91° 35' 34" W, WGS84; 3,559 m; Figure 2). We deposited the photograph in the USAC Photographic Mammal Collection (USACF) under collection number USACF00016.

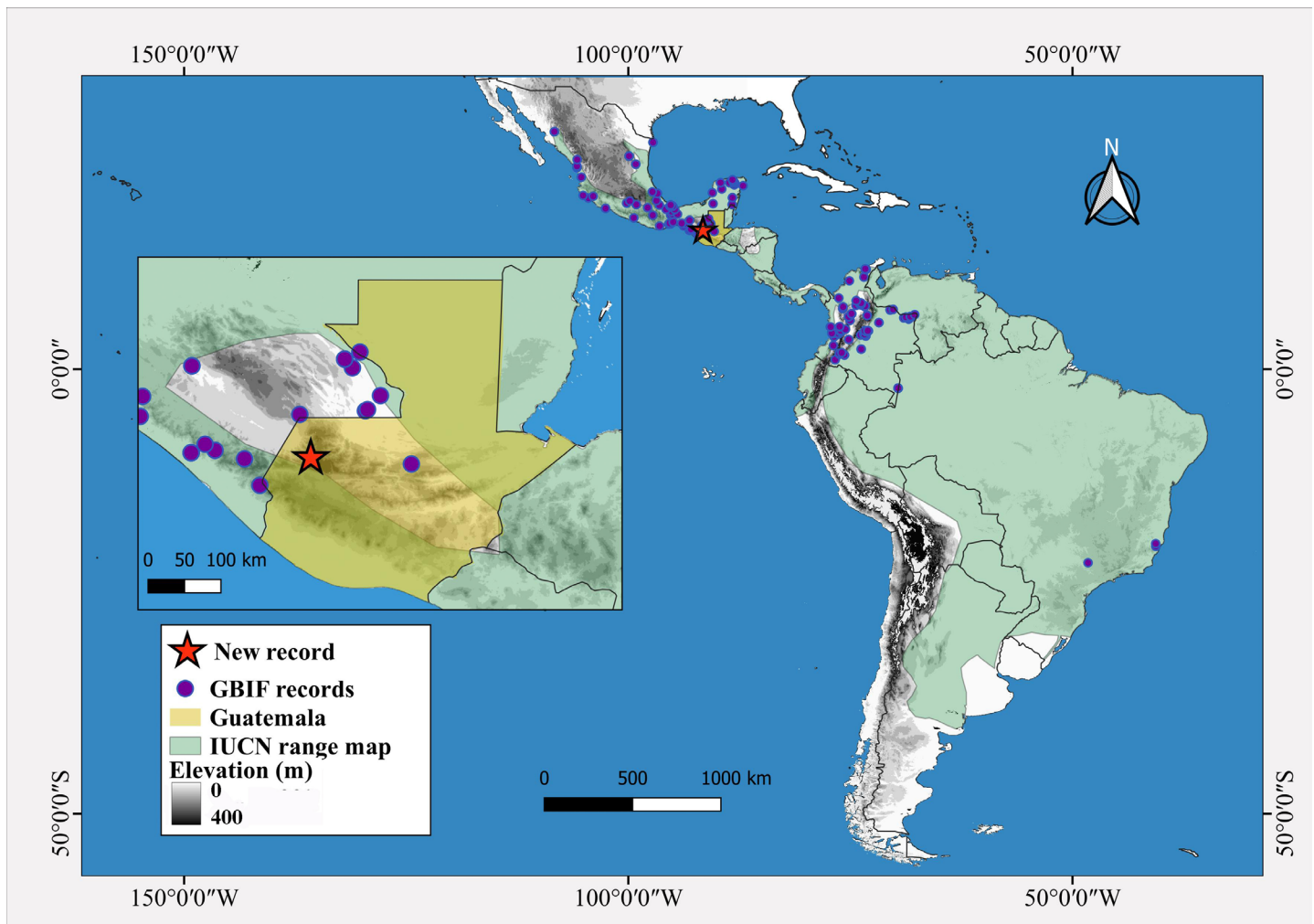


Figure 1. Distribution polygon of *Puma yagouaroundi* in the Americas according to the IUCN (Caso *et al.* 2015). Red star indicates the new record, and blue dots the previous records or collection localities (GBIF.org).



Figure 2. Adult male of *Puma yagouaroundi* in the Parque Regional Municipal Todos Santos Cuchumatán, Sierra de los Cuchumatanes, Huehuetenango, Guatemala. Photograph: E. Matías-Ramos.

Based on the elevation profile, we observed that the 73 % of records along the continent are below 500 m, with the 98.5 % below 2,500 m (Figure 3). To our knowledge, previous to this report the highest elevation record that could be assigned to a museum specimen, or a particular photograph or observation, was at 3,142 m, in Cauca department, Colombia (GBIF.org 2023).

The jaguarundi has a wide altitudinal range distribution with records ranging from 0 to 3,200 m (Cuervo et al. 1986; de Oliveira 1994, 1998; Herrera-Montes et al. 2008; Solari et al. 2013; Caso et al. 2015). Cuervo et al. (1986) mentioned that in Colombia the species is distributed in moist forest up to around 3,200 m; however, it is important to clarify that the elevation limit is not associated with a particular

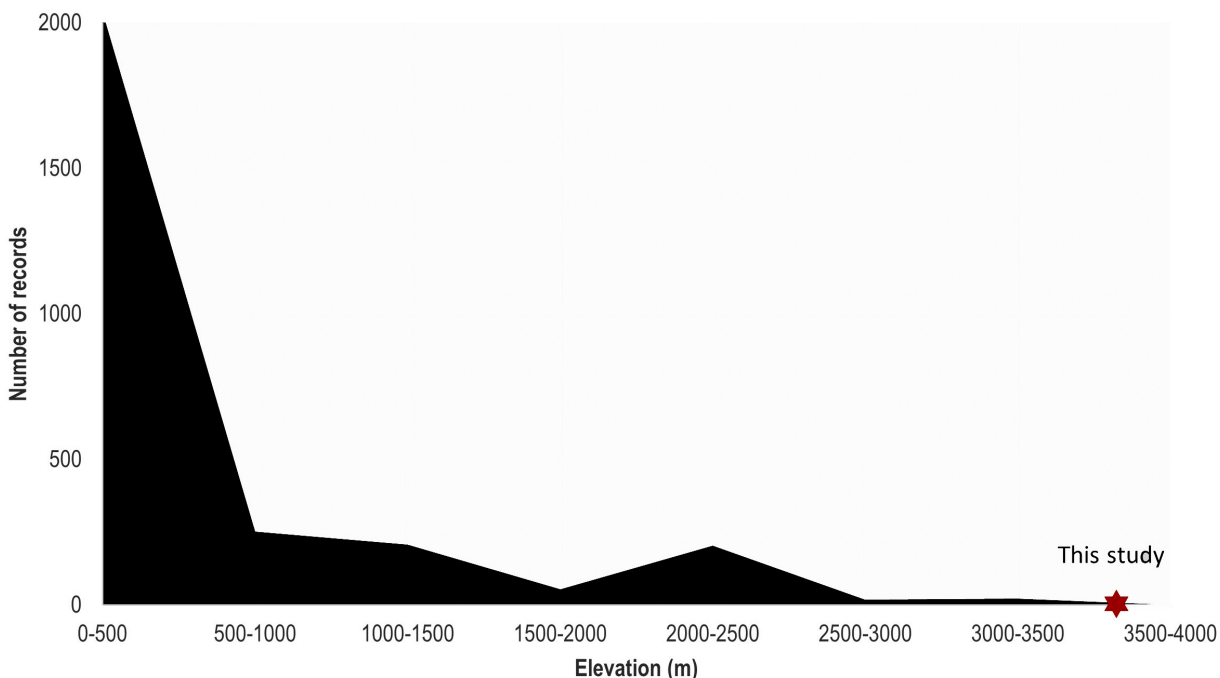


Figure 3. Elevation profile of *Puma yagouaroundi* across its distributional range, based on museum specimens, this study and occurrence records obtained from the Global Biodiversity Information Facility (GBIF).

record or locality. Since the highest altitudinal record was at 3,142 m (GBIF.org 2023), our record increased in 417 m the previously known elevation limit of the species.

Within the distribution range of jaguarundis, this elusive feline has been mostly reported or collected in lowland regions throughout the Americas, where tropical humid ecosystems are predominant. However, there are some jaguarundis reported at elevations above 3,000 m, particularly in Colombia (GBIF.org 2023). Remarkably, it has now been recorded for the first time at elevations above 3,500 m in Guatemala, indicating that the species may have a greater elevational and ecological range than previously thought.

This is the first time that the jaguarundi is recorded in the Sierra de los Cuchumatanes and represents the highest altitudinal record across the species' distributional range. These findings contribute to a better understanding of the ecological and biogeographical distribution of the jaguarundi, which is important for conservation efforts and the management of this species in the region. This study also highlights the importance of monitoring the wildlife of the Sierra de los Cuchumatanes in order to ensure the long-term conservation of its unique habitats.

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