

# New records of grison (*Galictis vittata*) in Campeche, México

## Nuevos registros del grisón (*Galictis vittata*) en Campeche, México

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The grison is a carnivorous mammal of the family Mustelidae listed as threatened in México. There are few records and information on different aspects of its ecology. The objective of this note was to report new records of grison in Campeche. From January 2017 to June 2022, 30 camera-trap stations were installed in natural and artificial water bodies within the Calakmul Biosphere Reserve to capture and identify wildlife. Additionally, roadkilled individuals were recorded by vehicle tours along the Campeche roads. Records were also searched in international databases, books, and published articles. With a sampling effort of 15,000 camera trap nights, we captured 2 separate grison photographs in the Calakmul Biosphere Reserve and 6 records of roadkilled animals in Campeche. This note documents the presence of grison in several habitats of Campeche. The lack of information on the species might be due to multiple reasons. The sampling methods target large animals and the greatest sampling efforts are performed in protected natural areas with a high conservation level. We found that most records correspond to disturbed sites with secondary vegetation. The fact that many records were of roadkilled animals suggests that this species is susceptible to the impact of roads in Campeche.

**Key words:** Calakmul; camera-trap; carnivores; mammals; Mustelidae.

El grisón es un mamífero carnívoro perteneciente a la familia Mustelidae, que en México está clasificado como amenazado. Existen pocos registros e información sobre diferentes aspectos de su ecología. El objetivo de esta nota es reportar nuevos registros de grisón en el estado de Campeche. De enero de 2017 a junio de 2022 se instalaron 30 estaciones de fototrampeo en cuerpos de agua naturales y artificiales dentro de la Reserva de la Biosfera Calakmul para identificar fauna silvestre que los utiliza. Adicionalmente, se obtuvieron registros de individuos atropellados derivado de recorridos realizados en carreteras de Campeche. Se buscaron registros en bases de datos internacionales, en libros y artículos publicados. Con un esfuerzo de muestreo de 15,000 noches/cámara, se obtuvieron 2 registros independientes de grisón por fototrampeo en la Reserva de la Biosfera Calakmul, y 6 registros de animales atropellados en carreteras del estado de Campeche. Los registros en esta nota indican la presencia del grisón en diversos lugares de Campeche con hábitats variables. La falta de información previa sobre la especie puede deberse a diversas razones, los métodos de muestreo son dirigidos a animales grandes, los mayores esfuerzos de muestreo se realizan en áreas naturales protegidas en hábitats con mayor grado de conservación. Encontramos que la mayoría de los registros se dieron en sitios perturbados con vegetación secundaria. El que varios registros hayan sido animales atropellados, sugiere que esta especie es susceptible de los efectos de las carreteras en el estado de Campeche.

**Palabras clave:** Calakmul; cámara-trampa; carnívoros; mamíferos; Mustelidae.

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The grison (*Galictis vittata*) is a medium-sized carnivorous mammal of the family Mustelidae. This species has a small head, elongated body, and short legs and tail ([Kaufmann and Kaufmann 1965](#); [Álvarez-Castañeda et al. 2015](#)). The body is coated by gray dorsal fur and a mixture of light hairs that extends to the flanks, legs, and tail. This species has

a white stripe that crosses the forehead, continues below the ears, and ends diagonally towards the beginning of the neck and forelimbs. The eyes, face, neck, chest, limbs, and belly are blackish ([Yensen and Tarifa 2003](#)). The grison is a solitary animal with terrestrial habits and diurnal activity ([Kaufmann and Kaufmann 1965](#)), although it can also

be active at night (Sunquist *et al.* 1989). It feeds on small mammals, birds, amphibians, reptiles, fish, invertebrates, and fruit (Leopold 1959; Bisbal 1986; Sunquist *et al.* 1989; Vaccaro and Canevari 2007; Hidalgo-Mihart *et al.* 2018); in captivity, it can also consume plants (Dalquest and Roberts 1951; Ewer 1973).

The species has been recorded at altitudes from sea level to 2,200 m, but is more common below 500 m in some localities (Bornholdt *et al.* 2013; Escobar-Lasso and Guzmán-Hernández 2014). The distribution ranges from central-southern México through Central America to northern South America, inhabiting areas of tropical and subtropical forests such as the Amazon basin. It has not been found in adjacent biomes, such as savannas, deserts, mountain grasslands, and most of the forest in eastern South America (Bornholdt *et al.* 2013; Cuarón *et al.* 2016). In México, there are records of this species in southern Tamaulipas, eastern San Luis Potosí (Chávez 2005; Contreras-Díaz *et al.* 2020), Sierra Norte de Puebla (Lucas-Juárez *et al.* 2021), Oaxaca, Chiapas, and Tabasco (García-Morales and De Bonilla-Cervantes 2021); it has also been reported in the Yucatán Peninsula, where Campeche has the lowest number of records (Contreras-Díaz *et al.* 2020). This mustelid inhabits a wide range of habitats, such as tropical forests, grasslands, arid regions, tropical dry forests, secondary vegetation, crops, and suburban areas (Estrada *et al.* 1993; Gallina *et al.* 1996; De la Torre *et al.* 2009; Pérez-Solano *et al.* 2018). It also lives in sites adjacent to permanent water bodies such as rivers, streams, and wetlands (Cuarón *et al.* 2016). Recently, grison records have been obtained in open and disturbed environments and fruit crops (García-Morales and De Bonilla-Cervantes 2021; Soto and Brito 2022). The grison is one of the least studied mammals in México. It is listed as Threatened in NOM-059-SEMARNAT-2010 (SEMARNAT 2010), while the IUCN has listed it as Least Concern (Cuarón *et al.* 2016).

There are few records and information on the ecology of this species (Hernández-Hernández *et al.* 2018), which is one of the least studied mustelids (Bornholdt *et al.* 2013). Since it was first recorded in Campeche (Escalona-Segura *et al.* 2002), there has been scarce information produced in the state, particularly in the west (Guzmán-Soriano *et al.* 2013; Vargas-Contreras *et al.* 2016). For this reason, the objective of this note is to report new records of grison for the state of Campeche, Yucatán Peninsula.

The records reported herein are located in Campeche, Yucatán Peninsula, between coordinates 17° 49' – 20° 51' N and 89° 06' – 92° 27' W (INEGI 2020). The state of Campeche comprises 57,507 km<sup>2</sup>, where the major vegetation types are evergreen tropical forest, tropical deciduous and subdeciduous forests, savannas, mangroves, coastal dunes, *petén*, and secondary vegetation (Flores-Guido and Sánchez-González 2010; Noriega-Trejo and Arteaga 2010). Regarding the physiography, it is classified into 3 areas: lowlands (north), plateaus and hills (center and south), and the southwest plains comprising a wetlands zone (Bautista-Zúñiga *et al.* 2005). The prevailing climate is warm, with

summer rains. The annual mean temperature is 26.2 °C, and the annual mean precipitation is 1,272.8 mm (Mendoza-Vega and Ku-Quej 2010).

As part of the project “Monitoring of water bodies in the Calakmul region”, from January 2017 to June 2022, 30 camera-trap stations were placed adjacent to natural and artificial water bodies within the Calakmul Biosphere Reserve (southern Campeche) to capture and identify the local wildlife using them (Contreras-Moreno *et al.* 2019, 2020; Borges-Zapata *et al.* 2020; Simá-Pantí *et al.* 2020; Delgado-Martínez *et al.* 2021; Contreras-Moreno *et al.* 2022). At each station, a digital camera trap of one of the following models was installed: Bushnell (TropyCam; Outdoor Operations LLC.), Browning (Strike force; Browning Trail Cameras), or Cuddeback (Cuddeback IR; Non-Typical Inc.). Cameras were affixed 50 cm above the ground on tree trunks adjacent to the water bodies, and were set to capture photographs 24 hr a day, with 5 sec between each. The sex of the organisms was determined by the presence/absence of visible sexual organs (testes).

Additionally, incidental records of the grison, *G. vittata* were noted through non-systematic tours on the roads of Campeche from January 2017 to July 2022. Previous records were also gathered from international biodiversity databases, such as the Global Biodiversity Information Network (REMIB, in Spanish; <http://www.conabio.gob.mx/remib/>) and the Global Biodiversity Information Facility (GBIF; <http://www.gbif.org>). This information was completed through a literature survey (including capture and release, direct observations, camera trapping, and tracking data) conducted in Google Scholar (<http://www.scholar.google.com/>) and the Mammal Networked Information System (MaN; <http://www.manisnet.org/>).

With a sampling effort of 15,000 camera trap nights, we captured 2 records of *G. vittata*. Furthermore, 6 roadkilled individuals of the species were recorded during road surveys (Table 1; Figures 1 and 2). The first photograph was captured on 22 February 2017 at 11:49 hr in the Ejido Conhuas (km 7), municipality of Calakmul (18° 27' 38.52" N, 89° 52' 39.94" W). The presence of testicles allowed the identification of an adult male walking in a tropical subdeciduous forest near crops and grasslands. The second photograph, captured on 21 January 2019 within the buffer zone of the Calakmul Biosphere Reserve (km 40; 18° 14' 32.81" N, 89° 52' 3.06" W), belongs to an adult of indeterminate sex. The dominant vegetation in the site is tropical subdeciduous forest.

Six roadkilled grison individuals were recorded along the 5,000 km traveled on Campeche roads between the years 2017 and 2022 (Table 1). All individuals were adult males crossing roads surrounded by secondary vegetation (*acahuales*).

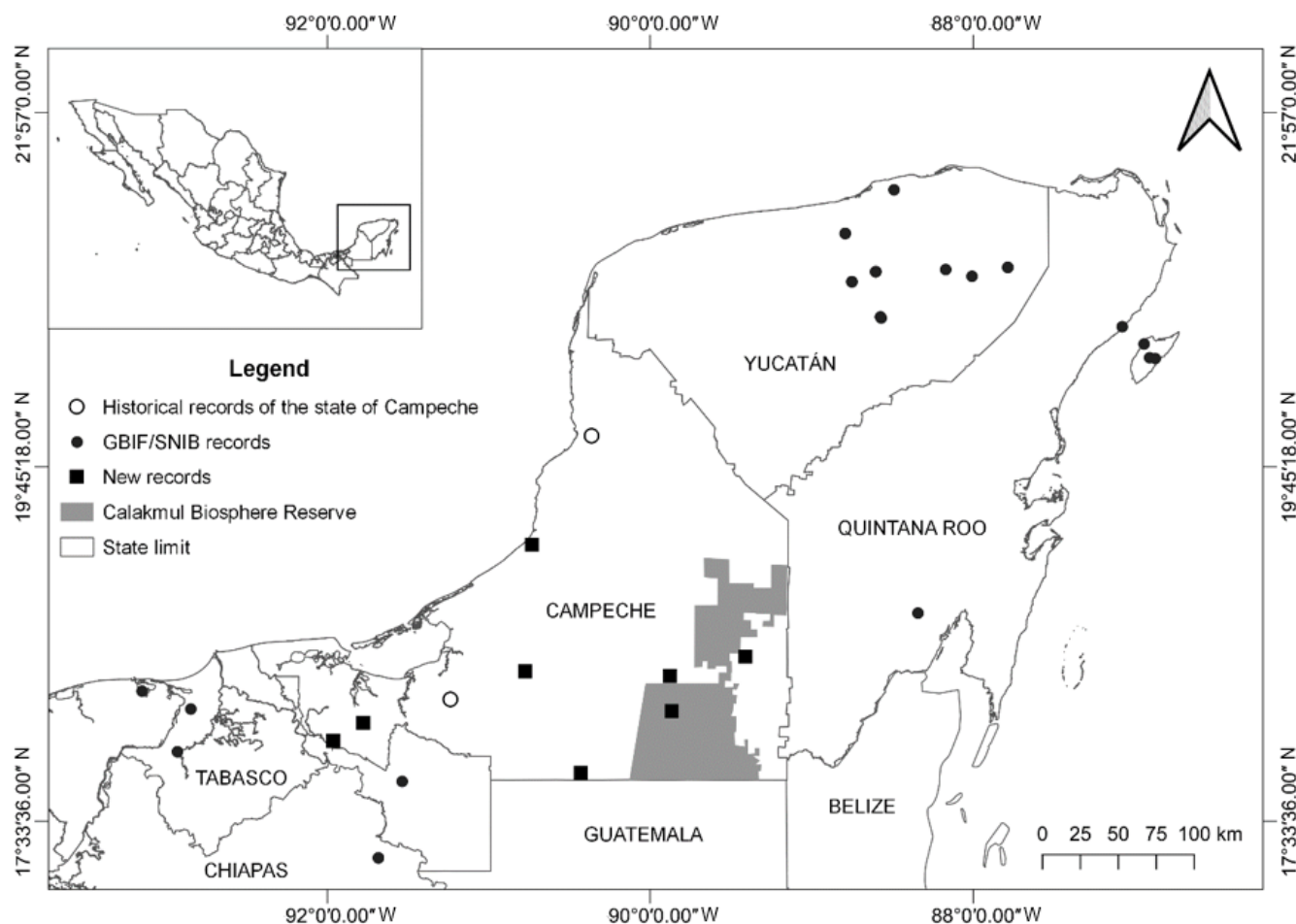
The records reported herein show the presence of grison in multiple sites of Campeche with different habitats. However, records of the species for this state are scarce. The lack of information on the species might be due to several reasons, *e.g.*, sampling methods do not target medium-

**Table 1.** New records of grison (*Galictis vittata*) in Campeche, México.

Municipality	Study site	Coordinates	Year of record	No. of records	Record type
Calakmul	Conhuas (km 7)	18° 27' 38.52" N 89° 52' 39.94" W	2017	1	Photographs
Palizada	Ejido Tumbo de la Montaña	18° 10' 12.55" N 91° 46' 39.22" W	2017	1	Roadkilled
Palizada	Carretera Santa Adelaida-Palizada	18° 03' 31.11" N 91° 57' 48.70" W	2018	1	Roadkilled
Escárcega	División del Norte	18° 29' 23.25" N 90° 46' 27.40" W	2019	1	Roadkilled
Calakmul	Reserva de la Biosfera de Calakmul (km 40)	18° 14' 32.81" N 89° 52' 03.06" W	2019	1	Photographs
Candelaria	El Desengaño	17° 52' 09.34" N 90° 26' 16.25" W	2021	1	Roadkilled
Champotón	Carretera Escárcega-Champotón	19° 16' 27.15" N 90° 43' 57.16" W	2021	1	Roadkilled
Calakmul	Carretera Xpujil-Zoh Laguna	18° 34' 50.62" N 89° 24' 40.31" W	2022	1	Roadkilled

sized mammals (such as the grison). Although camera trapping is extensively used in México, it has only gained increasing importance in Campeche in recent years (Contreras-Moreno et al. 2019; Borges-Zapata et al. 2020; Contreras-Moreno et al. 2020; Delgado-Martínez and Mendoza

2020; Simá-Pantí et al. 2020). However, this method has targeted mainly large-sized mammals (Contreras-Moreno et al. 2022), and the height, direction, and position of the camera are usually not intended to capture medium-sized species (Delgado-Martínez et al. 2022).



**Figure 1.** Location of the new grison records (*Galictis vittata*) in Campeche, México (black squares). Historical records are marked by circles (Escalona-Segura et al. 2002).



**Figure 2.** a) and b) Grison specimens (*Galictis vittata*) recorded in Campeche, México, by camera traps; c) to e) roadkilled individuals.

The lack of grison records for Campeche might also be due to the fact that studies have been conducted mainly in protected natural areas (ANP, in Spanish) where the habitat has a high conservation level. Most records reported in this note were obtained in disturbed sites with secondary vegetation, as in other regions of México ([García-Morales and De Bonilla-Cervantes 2021](#); [Soto and Brito 2022](#)).

The fact that several of the recorded grisons were roadkilled suggests that the roads of Campeche impact the species mortality when these animals attempt to cross these roads. The disturbance exerted by roads on grison populations in México is currently unknown. However, in species with low densities and small population sizes, road collisions with motor vehicles, although being rare events, may become a major mortality factor that reduces the survival of local populations ([Maehr et al. 1991](#)). This is worrying because Mexican environmental regulations recognize the grison as a threatened species ([SEMARNAT 2010](#)). Specialized studies on the effects of road characteristics on medium-sized mammals such as the grison are needed in Campeche and throughout México.

The records reported in this note are evidence of the presence of grison in Campeche, southeastern México.

However, information on this species remains scarce, so further research on wild mammals should consider medium-sized carnivores such as the grison within their sampling design.

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