





## New records of Jaguar (*Panthera onca*) in the department of Cesar, Colombia

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### Resumen

Presentamos nuevos registros de Jaguar (*Panthera onca*) del departamento de Cesar, en la región del Caribe de Colombia. Además, reportamos algunos incidentes de muertes por caza ilegal y colisión de vehículos en dos zonas de conservación importantes: la Serranía del Perijá y la Sierra Nevada de Santa Marta. Estos registros son el resultado de evaluaciones de biodiversidad y proyectos de conservación del Programa de la Red de Fauna Silvestre de CORPOCESAR y constituyen un esfuerzo por documentar la distribución y el conflicto entre humanos y jaguares para las poblaciones más al norte del país.

**Palabras clave:** Cámaras trampa, Programa de compensación forestal, Río Tucuy.

### Abstract

We present new records of Jaguar (*Panthera onca*) from the department of Cesar, in the Caribbean region of Colombia. In addition, we report some incidents of deaths due to illegal hunting and vehicle collision in two important conservation zones: the Serranía del Perijá and Sierra Nevada de Santa Marta. These records are the result of biodiversity assessments and conservation projects of the wildlife Network Program of CORPOCESAR and constitute an effort to document the distribution and the conflict between humans and jaguars for the northernmost populations of the country.

**Key words:** Camera trap, Forest Compensation Program, Tucuy River.

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Although the Jaguar *Panthera onca* (Linnaeus 1758) used to be found from the southern United States to Northern Argentina, this species has lost a high proportion of its original natural habitat and some subpopulations are believed to be extinct (Wilson & Reder 2005; Medellín et al. 2016; De la Torre et al. 2017; Quigley et al. 2017). Currently, the IUCN categorizes the jaguar as Nearly Threatened (NT) globally (Quigley et al. 2017). However, the colombian environmental authorities consider the inter-Andean populations as Vulnerable (VU; Rodríguez-Mahecha et al. 2006; MADS 2017). In addition, the Convention on

the Conservation of Migratory Species recently included the jaguar in appendices I and II, and the Lima declaration on illegal wildlife trade declared the jaguar as an emblematic species of the Americas, because of its importance in maintaining the integrity and the functionality of ecosystems.

In Colombia, the Jaguar is distributed across the whole territory, from sea level to 3200 m.s.l (Payán & Soto 2012; Solari et al. 2013; González-Maya & Jiménez-Ortega 2015). The information for the department of Cesar is scarce, although ProCAT Colombia and Corpocesar (2010), found that less than 1% of the landscape constitutes high quality habitat for the species, and only between 10 and 34% of the areas have medium quality habitats. Researchers have assessed the Jaguar distribution in the region and the potential areas for conservation, but there are only a few occurrence records available (González-Maya et al. 2013; Payán-Garrido et al. 2016; Zárrate-Charry et al. 2018; GBIF 2020). The uncertainty about the jaguar subpopulations in the department of Cesar overshadows the biogeographical importance of the zone, as this territory hosts two large subpopulations between the Serranía del Perijá-Catumumbo and the Sierra Nevada de Santa Marta (Arias-Álzate 2012; Payán et al. 2013; González-Maya & Jiménez-Ortega 2015; De la Torre et al. 2017).

Considering the biogeographic significance that the department of Cesar plays for the species and the scarce information available, we present nine novel records of jaguars in the department corresponding to six live specimens, two confirmed illegal hunting events and one roadkill during the last four years (Figure 1 and 2; Table 1).

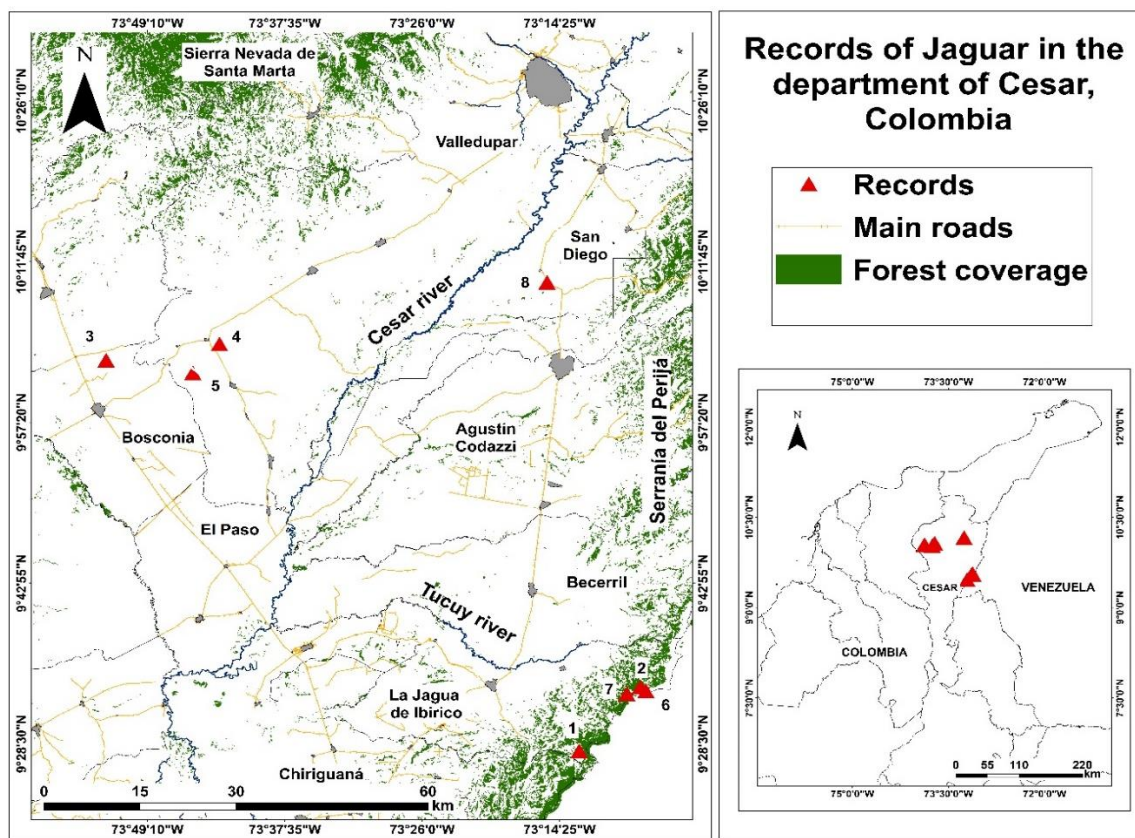


FIGURE 1. Records of Jaguar reported between February 2017 and January 2020 in the department of Cesar, Colombia. The numbers correspond to the IDs shown in Table 1.

In 2017, we recorded two animals from the Serranía del Perijá: one dead adult individual killed by illegal hunting within the Forest Compensation Program (PCF) area in the Sororia river basin and a living individual that attacked livestock in the Tucuy river basin. In 2019, the Wildlife Network program of CORPOCESAR recorded six individuals: one dead individual illegally hunted, one alive individual confiscated by CORPOCESAR's illegal wildlife control operations, and a couple of jaguars (female and male) that have been included as Conservation Objects of the program and were monitored during 2019. These four individuals are from the Sierra Nevada foothills. In addition, two individuals were recorded by camera traps within the PCF in the Tucuy river basin in the Serranía del Perijá.

Finally, in 2020 a dead individual was recorded due to vehicle collision on a national road in the foothills of the Serranía del Perijá. We identified and characterized all the records as independent, based on the individuals' spot pattern, except for the specimen that was recorded attacking livestock within the PCF in 2017 in the Tucuy river basin.



**FIGURE 2.** Jaguar individuals recorded in the department of Cesar between February 2017 and January 2020. **A.** Foot and jaw of a dead individual in the vereda El Tolima, Serranía del Perijá; **B.** Adult male specimen hunted in the Vereda Altos de la Mina, El Copey municipality; **C.** Adult female specimen killed by a vehicle collision in San Diego municipality **D.** Couple of jaguars in Valledupar municipality; **E.** specimen captured in camera trap in the Serranía del Perijá.

**TABLE 1.** Records of jaguar (*P. onca*) reported between January 2017 and January 2020 in the department of the Cesar, Colombia.

ID	Locality	Record	Latitude	Longitude	Elevation (masl)	Date
1	La Jagua de Ibirico Municipality, La Victoria de San Isidro, vereda El Tolima, farm Los Jardines.	Dead individual reported by the environmental division of Drummond Ltd.	9,46466	-73,21291	2.207	01/02/2017
2	La Jagua de Ibirico Municipality, La Victoria de San Isidro, vereda Zumbador, farm los Angeles.	Incidental attack on cattle during Project "Forest Compensation Program" in La Victoria de San Isidro	9,54998	-73,14594	1.613	15/06/2017
3	Bosconia Municipality, Vereda Altos de Mina, before the El Copey toll road Bosconia-El Copey.	Dead individual reported by Environmental Police	10,04865	-73,87766	103	01/03/2019
4	Valledupar Municipality, Caracolí, farm Santa Inés.	Alive individual captured in control operatives of the CAVFFS-Cesar	10,072972	-73,71833	113	12/03/2019
5	Valledupar Municipality, Los Venados, vereda Las Mercedes, farm Las Colinas, the jaguar cave.	Two individuals (female and male) monitored to by Red de Fauna y Flora del Cesar	10,029653	-73,755719	118	24/03/2019
6	La Jagua de Ibirico Municipality, La Victoria de San Isidro, vereda Alto de las Flores, farm La Laguna	Record of trail camera in the Project "Forest Compensation Program" in La Victoria de San Isidro	9,560190	-73,12720	1.893	08/05/2019
7	La Jagua de Ibirico Municipality, La Victoria de San Isidro, vereda Alto de las Flores, farm El Silencio	Record of trail camera in the Project "Forest Compensation Program" in La Victoria de San Isidro	9,554230	-73,119010	1.845	09/05/2019
8	San Diego Municipality, national road between San Diego and Agustín Codazzi	Wildlife Vehicle collision	10,165000	-73,25800	113	24/01/2020

The specimens recorded by camera traps in the Serranía del Perijá (PCF), were the result of a sampling carried out in an area of approximately 4,000 ha with a total of 13 double stations at a distance of 0,5 to 1,5 km (sampling effort of 2.326 camera-days). In this survey, we identified a large percentage of jaguar prey species, including species from the families Cervidae, Cuniculidae, Dasyproctidae, and Tayassuidae. The couple of jaguars recorded in the Sierra Nevada was the result of one-year monitoring in an area of 2.500 ha with a total

of six stations separated between 1,0 to 1,5 km (sampling effort of 420 camera-days). In this area, we recorded few potential prey species (one individual of the genus *Dasyprocta* and two individuals of the genus *Sylvilagus*). Despite the low sampling effort, we suggest that the scarce availability of natural prey, along with habitat fragmentation, are fundamental factors driving human-wildlife conflict in the area (Hoogesteijn 2003; Peña-Mondragón & Castillo 2013). The same is suggested by the results of surveys carried out with farmers, who also highlighted illegal hunting activity in this area.

Although these new records do not represent a range extension for the species, they do provide new information for a data poor region (Zárrate-Charry et al. 2018) and for the northernmost population in the continent (de la Torre et al. 2017). We expect that this information contributes to the knowledge of this emblematic species and to future research focused on the development of new strategies but also strengthening the existing conservation policies and approaches (ProCAT Colombia and CORPOCESAR 2010; Castaño-Uribe et al. 2013). This could be achieved through the construction of conservation agreements with local communities, mitigation of conflict and effective law enforcement in this isolated yet important Jaguar population.

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