

CLOSING DISTRIBUTION GAPS OF *Crocodylus acutus* ACROSS THE CARIBBEAN SLOPE AND CENTRAL GUATEMALA

The American crocodile (*Crocodylus acutus*) is distributed across 29 countries but faces severe threats in parts of its range, including local extirpations. It is globally classified as "Vulnerable" by the IUCN and listed under Appendix I of CITES (2017). In Guatemala, *C. acutus* is considered Critically Endangered and is listed as Category 1 by the National Council of Protected Areas (CONAP), due to small and fragmented populations, outdated data, and high extinction risk.

Since 2021 projects have been developed to determine the distribution of wild populations of *C. acutus* within Guatemalan territory. To date, its presence has been recorded in 6 of the 22 departments that comprise the country. In 2025, monitoring efforts were conducted along the Motagua River, which borders Zacapa and Izabal departments; subsequently, in Río Dulce and the Chocón Machacas Biotope in Izabal; and in Alta Verapaz covering the Cahabón and Polochic rivers, as well as Las Victorias Park. Monitoring activities were carried out in May (dry season), August, and November (rainy season). During May, boat-based surveys were limited due to low water levels, particularly in the Motagua River within Zacapa and Izabal, recording depths ranged from 0 to 60 cm; therefore, walking surveys were conducted instead. A total of 6 km were surveyed on foot along the riverbanks in the Motagua river, without detecting any individuals in both departments. However, local community members from Morales municipality, Izabal, have reported the presence of the species in this side of the river.

Also, the surveys conducted in May in Río Dulce (18 km) and Chocón Machacas Biotope (16.2 km), by boat, crocodile detection was not possible due to the high presence of spear fishers, and local residents mentioned during the dry season crocodiles remain isolated in areas with dense vegetation, which hinders boat access to these sites. Then, in Panzós municipality, Alta Verapaz, an adult of *Crocodylus acutus* was spotted beneath a bridge in polluted waters, with an estimated length of approximately 2.3–2.5 m (fig,1).



Fig. 1 *Crocodylus acutus* (adult) beneath a bridge in Panzós, Alta Verapaz (May, 2025)

This individual has established a refuge in the area, using a cave and an intermittent river as habitat within the surrounding area; therefore, its

capture was not possible due to the inaccessibility of the site by boat and the distance that prevented the crocodile from being noosed. As a part of the sightings, we include an adult specimen of *Crocodylus moreletii* (approximately 2m -total length-) who inhabits a lagoon in Las Victorias National Park, located in Cobán, Alta Verapaz which is administrated by National Institute of Forests -INAB- (fig. 2). This information is significant, as local authorities have reported the presence of this species in Alta Verapaz, which may be considered a department of high importance due to its status as a zone of



Fig. 2 *Crocodylus moreletii* (adult) in Las Victorias National Park, Cobán, Alta Verapaz. November, 2025

sympatry for both species (*C. acutus* and *C. moreletii*).

Several factors hindered the implementation of nocturnal monitoring surveys in May, including: (i) limited access to water bodies due to low water levels (0–60 cm in depth); (ii) fishing activity in the departments of Zacapa and Alta Verapaz is limited, with some community members requesting fees of approximately USD 100.00 – 150.00 per night of surveing; nevertheless, boat

operators with more affordable rates and knowledge of areas where crocodiles have previously been sighted were eventually secured; and (iii) the size of the boats (18–25 ft), which made it impossible to transport them by vehicle from one water body to another, thereby requiring survey routes to be adjusted to access multiple sites exclusively by water. It is important to note that Zacapa presented the greatest challenges for crocodile surveys, as much of the Motagua River is bordered by private properties associated with illegal activities, where access is restricted and poses a risk to the safety of technical personnel. A meeting was held with local authorities from the CONAP Regional Office, where it was discussed that reports of crocodiles in this department have been scarce, with few individuals occurring on private lands. Consequently, a joint decision was made to discontinue monitoring activities in this department.



Fig. 3 From left to right: Mr. Oscar González (crocodile team member), Mr. Antonio Paiz (Regional Director of CONAP, Izabal), Mr. Byron Salguero (Wildlife Director of CONAP, Izabal), Mr. Samuel García (project volunteer and worker from Centro de Estudios Conservacionistas (CECON) and M.Sc. Valerie García

Nevertheless, during August and November we could report an increase in crocodile sightings and the presence of the species was confirmed in areas where they had not been historically reported (e.g Motagua river (Izabal) and Polochic river (Alta Verapaz) . Preliminary results indicate that in the Motagua River (Izabal), a total of 107 crocodiles were recorded along 79.9 km, resulting in an encounter rate (ER) of 1.33 crocodiles/km. In Río Dulce, five crocodiles were observed over 6.7 km surveyed, yielding an ER of 0.74 crocodiles/km. Regarding monitoring efforts in Alta Verapaz, 10 crocodiles were recorded along 22.7 km in the Polochic River, with an ER of 0.44 crocodiles/km (fig. 4 and fig. 5).

Fig 4. *Crocodylus acutus* monitoring sites and distances surveyed. May to November, 2025.

Fig 5. *Crocodylus acutus* and *Crocodylus moreletii* sightings from May to November, 2025.

The data suggest that the areas occupied by these individuals are characterized by low levels of disturbance and dense vegetation, which provide suitable conditions for foraging and protection, particularly for hatchlings and juveniles. In contrast, surveys conducted in the Cahabón River were unsuccessful throughout the three months of monitoring. This may be attributed to the river's strong current and rocky substrate, which hinder navigation and reduce the likelihood of crocodile detection.

Crocodile records from these sites help address existing knowledge gaps regarding the distribution of *Crocodylus acutus*, facilitating the identification of conservation priorities for the species and the development of periodic monitoring programs that promote effective

human–crocodile coexistence. This is particularly relevant in Alta Verapaz, where no previous monitoring of this type has been conducted and knowledge of the species remains limited.

It is noteworthy that one of the key strengths of this project is the active involvement of multiple stakeholders, providing opportunities for their participation and building local capacity to conduct crocodile monitoring activities. Participating organizations include governmental institutions such as: (i) the Center for Conservation Studies (CECON); (ii) local offices of the National Council of Protected Areas (CONAP) in Alta Verapaz and Izabal; and (iii) staff from Las Victorias National Park; as well as non-governmental entities, including: (iv) Corporación Manatí (private sector) and (v) Urban and Rural

Community Development Councils (COCODES)
(community sector) in Alta Verapaz.



Fig 6. Team members (Oscar, Diana and Valerie) collecting morphological data from *C. acutus* in Alta Verapaz. Nov, 2025



Fig. 7 Oscar González and Samuel García (volunteer) collecting data from *C. acutus* in Izabal. Nov. 2025



Fig 8. Capacity building in crocodile monitoring and morphological data collection, to: A. Mr. Junior Gómez (volunteer from CECON), B. Jaqueline López (staff member from CONAP, Río Dulce, Izabal) and C. Mr. Noé Ortega (park ranger from CONAP, Izabal)