Crocodile Specialist Group Steering Committee Meeting
Agadir, Morocco
(12 May 2026)

Latin America & the Caribbean

The CSG Regional Office for Latin America and the Caribbean (LAC) has carried out its activities continuously for more than 19 years in the Province of Santa Fe, Argentina, playing a fundamental role in regional coordination and in supporting the activities of the CSG.

During the reporting period, one of the main lines of work was the ongoing management and updating of the regional database, built from information generated by CSG contacts and members and maintained in permanent communication with the CSG Executive Office. This tool is essential for facilitating internal communication, strengthening information exchange, and providing support in matters related to SRAS funding, among other administrative and technical tasks.

The Regional Office also carried out significant scientific dissemination activities through the distribution of publications received from various authors. An updated database of studies and reports on different crocodilian species and a wide range of topics is maintained, organized by year of publication and by species, and is available to any interested party.

Additionally, regional contacts were regularly informed about activities conducted at both regional and global levels, including courses, workshops, meetings, congresses, symposia, and other relevant events. This action contributed to promoting the active participation of researchers, technicians, students, and other stakeholders involved in CSG activities. Under the CSG contact category, numerous individuals actively involved in crocodilian-related activities have been identified through recommendations, many of whom are now CSG members. The continuous updating of non-member contacts seeks to ensure efficient and sustained information exchange with diverse stakeholders across the region.

Within this framework, the Regional Office aims to establish a network of veterinary professionals specialized in crocodilians in Latin America, with the objective of strengthening collaboration, technical exchange, and capacity building among veterinarians working in research, conservation, management, and animal health. To date, approximately 57 individuals have responded to the "Veterinary Actions" form, nine of whom are current CSG members. One of the most positive and strategic aspects of this emerging network is the inclusion of professionals who are not currently formal members of the CSG, which will broaden participation, improve regional representation, facilitate knowledge exchange, and generate opportunities such as joint project development, training initiatives, and coordinated responses to health challenges related to crocodilians. A first virtual meeting is planned, and the CSG Veterinary Working Group will be informed in order to coordinate joint strategies on how to proceed in these cases.

Institutional and Academic Cooperation
The CSG Regional Office for Latin America and the Caribbean actively facilitates cooperation among academic institutions, scientific bodies, non-governmental organizations, and other entities. It provides information and support to specialists, researchers, government officials, and undergraduate and graduate students across Latin America and the Caribbean, promoting knowledge exchange and capacity strengthening in the region. The Office also encourages all contacts and members to share their activities and outputs with the broader regional community through the coordination of the Regional Office.

Regional Workshop - El Salvador, September 2025
During the reporting period, the Regional Office, together with the Regional Chair, actively participated in the organization of the CSG Regional Workshop in San Salvador, El Salvador. The event brought together 61 participants from 10 countries, strengthening regional coordination and technical exchange on crocodilian conservation and management.

Activities included national status reports, identification of regional conservation priorities through exercises coordinated by international specialists, and 35 scientific presentations addressing research, management, health, and human-crocodilian interactions. The workshop was attended by environmental authorities from El Salvador, providing strong institutional support to the event.

As a highlighted activity, the First Women in Crocodilian Conservation Roundtable was held, promoting the visibility of female membership within the CSG and encouraging inclusive and participatory conservation approaches. Overall, the workshop contributed to updating the regional status assessment, consolidating cooperative networks among countries, and laying the groundwork for future joint actions in Latin America and the Caribbean. A summary of the event was published in Newsletter 44(4) - 2025.

Social Media
The active presence of the Regional Office on social media, particularly Instagram and Facebook, is reflected in a sustained increase in followers. However, the challenge remains for individuals interested in crocodilians to independently identify the official LAC channels, although gradual improvement is observed in this regard. Every 15 days, the accounts reach approximately 161 profiles, of which 51% are followers and 49% are non-followers. Currently, the Instagram account averages approximately 3500 monthly post views and has 752 followers.

The Facebook account currently has 1325 followers; however, the average number of interactions per post does not exceed 100, reflecting trends consistent with the current dynamics of this platform. In contrast, Instagram currently shows greater dynamism and visibility potential, especially for visual and environmental content, highlighting the need to prioritize differentiated communication strategies according to each social media platform.

Prepared by: Pablo Siroski and Lucía Fernández

Argentina

- Applied Molecular Ecology Laboratory (LEMA-ICiVet-UNL). Information provided by Pablo Siroski
LEMA-ICiVet-UNL is consolidating its position as a regional reference center in crocodilian physiology, immunology, ecotoxicology, and forensic genetics in South America, with primary focus on *Caiman yacare* and *Caiman latirostris*. The laboratory integrates molecular biology, comparative physiology, functional ecology, and adaptive management tools to support science-based conservation and sustainable use policies.

Since the last Steering Committee meeting, the following has been achieved.

Publications

Samuel Hilevski, Charlie Manolis, Pablo Siroski. A true facultative carnivore? Effects of replacing ground chicken carcasses with soybean meal on the growth of captive broad-snouted caiman (Caiman latirostris) and its economics implications. J Anim Physiol Anim Nutr. 2024;1–8. DOI: 10.1111/jpn.13958

Pereyra, Eugenia, Paula Bona, Pablo Siroski, Anusuya Chinsamy. María. Ontogenetic and interelemental study of appendicular bones of Caiman latirostris Daudin, 1802 sheds light on osteohistological variability in crocodylians J. Morphol. 2024;285:e21687. https://doi.org/10.1002/jmor.21687

Siroski, P.A.; Ciocan, H.; Hilevski, S.; Larriera, A. Increasing Population Status of Broad-Snouted Caiman (Caiman latirostris) Based on Sustainable Use Strategies in a Managed Protected Area in Santa Fe, Argentina. Animals 2024,14,1288. https:// doi.org/10.3390/ani14091288

Chacón, C.F., Parachú Marcó, M.V., Poletta, G., Siroski, P. 2024. Lipid metabolism in crocodilians: a field with promising applications in the field of ecotoxicology. Environmental Research, 252(4)119017. doi.org/10.1016/j.envres.2024.119017.

Cainelli, J., Cordero, T., Parachú Marcó, M.V., Hilevski, S.; Siroski, P.A. 2025. Egg windowing and plastic culture system in Caiman latirostris embryos, improving hatching success and offer potential management applications. Zoo Biology, 1-5, https://doi.org/10.1002/zoo.21892

Chacón, C.F., Parachú Marcó, M.V., Siroski, P.A., Poletta, G.L. 2025. Identification and tissue-specific expression of genes involved in lipid metabolism in broad-snouted caiman. Journal of Zoology, https://doi.org/10.1111/jzo.70071

Pacheco-Sierra, G.; Amavet, P.; Siroski, P.; Piña, C.; Patrón-Rivero, C.; Yáñez-Arenas, C. 2025. "Hybridization patterns and evolutionary clues in broad-snouted caiman and yacare caiman: Insights from phylogeographic and ecological analysis". Journal of Zoology. doi:10.1111/jzo.70013.

Mestre, A.P., Leiva, P.M.L., Iungman, J.L., Viotto, E.; Amavet, P.; Lábaque, M.C.; Piña, C.I.; González, M.A.; Simoncini, M.A. 2025. Flaxseeds and thymol feed as dietary supplementation for Caiman latirostris: effects on immune status, meat quality and intestinal morphology. Trop Anim Health Prod 57, 378. https://doi.org/10.1007/s11250-025-04626-x

Martin, P.; Pacheco-Sierra, G.; Mestre, A.P.; Siroski, P; Amavet, P. 2025. "Identifying caimans (Crocodilia: Alligatoridae) of Argentina using barcodes." Journal of Experimental Zoology part A. Ecological and Integrative Physiology, 1–9, https://doi.org/10.1002/jez.70060.

Ortíz, R.N., Zamboni, P., Tentor, F., Larriera, A., Siroski, P.A., Parachú Marcó, M.V. 2026. Long-Term assessment of reproductive parameters on broad-snout caiman populations in agroecosystem areas of Central-Northern Santa Fe, Argentina. Journal of Zoology

PhD Students
- Camila Felisa Chacón, PhD candidate in Veterinary Sciences at the National University of the Litoral. **Topic:** Evaluation of environmental contaminant exposure on lipid metabolism in the broad-snouted caiman (*Caiman latirostris*), its potential reproductive impact, and the implications for sustainable use programs.
- Ramiro Ortiz, PhD candidate in Veterinary Sciences. **Topic:** Evaluation of strategies adopted by the broad-snouted caiman (*Caiman latirostris*) in response to climate change.

Postdoctoral Students
- Samuel Hilevski. **Topic:** Study of the composition and function of the digestive system microbiome in juvenile *Caiman latirostris* fed different diets.

Undergraduate Thesis

- Irupé Casse. **Title:** Conjunctivitis and dermatitis in captive-reared broad-snouted caimans (*Caiman latirostris*) and their relationship with skin coloration.
- Nicole Agustina Beznosko. **Title:** From Breweries to Caimans: Incorporation of Brewer's Yeast (*Saccharomyces cerevisiae*) and Enzymes as Dietary Supplements in the Ex Situ Feeding of the Broad-Snouted Caiman (*Caiman latirostris*).

Master's Thesis

- Jordi Humberto Segura Yanes. **Title:** The American Crocodile (*Crocodylus acutus*) and Its Contribution to Tourism in the Barra de Santiago Ramsar Site, El Salvador.

PhD Dissertations

- Trinidad de los Ángeles Cordero Gil. **Topic:** Immunogenetic study of the broad-snouted caiman (*Caiman latirostris*) aimed at identifying potential components for diagnostic and therapeutic applications.

Ongoing Projects

- Comprehensive evaluation of the impact of environmental contamination caused by agricultural waste on the native species *Caiman latirostris*.
- Immunogenetic study of the innate and adaptive immune system of caimans as a tool for identifying potential components for diagnostic and therapeutic applications.
- The broad-snouted caiman (*Caiman latirostris*) as a bioindicator of disturbance generated by agricultural production systems.
- Evaluation of reproductive parameters in the broad-snouted caiman (*Caiman latirostris*) under a climate change scenario.

- Laboratorio de Ecología Aplicada (Centro de Investigación Científica y de Transferencia Tecnológica a la Producción, CICYTTP - CONICET). Information provided by Melina Simoncini

It should be noted that during these two years there has been no funding from the Argentine Government for scientific research; therefore, many of the activities carried out were conducted on a low budget, financed with the researchers' own funds, or supported by resources already available from previous years.

Summary of Research Conducted to Date: During this period, we worked on the modeling of body condition data from wild female *Ca. latirostris*, with the aim of distinguishing reproductive from non-reproductive individuals. We recorded and published the observation of maned wolves (*Chrysocyon brachyurus*) preying on *Ca. latirostris* nests using camera traps. In another study, we proposed that caiman nests function as microhabitats and play an ecological role of varying importance depending on the degree of environmental disturbance. We also published a report on phallic malformations and abnormalities in crocodilians.

In a scientific publication, we proposed stable isotope analysis as a tool to certify the origin (captive or wild) of skins or leathers (tanned and untanned) in *Ca. latirostris,* which could also be applied to other species. For *Caiman yacare,* we evaluated dietary patterns in the wild and showed that, although individuals increase in body size and incorporate larger prey, they continue to feed on small prey such as invertebrates. In contrast, in captive *Ca. latirostris* individuals, we supplemented their usual diet (chicken and dry commercial feed) with ground flaxseed and thymol (an antioxidant), resulting in positive effects on the immune system, meat quality, and even intestinal morphology. Improvements were observed not only in a product such as meat, but also in the overall health and welfare of the animals in captivity.

In collaboration with researchers from Brazil, we published a theoretically based study in which we proposed how the sustainable use of wildlife can affect behavioral, ecological, and evolutionary processes, using crocodilians as a model. In addition, a book published by FEALQ (Pernambuco, Brazil) is currently in press, to which we contributed a chapter on the nutrition of South American crocodilians.

In November 2025, in San Cristóbal de las Casas, Mexico, we participated in the 16th CIMFAUNA (International Congress on Wildlife Management in the Amazon and Latin America), organized by COMFAUNA (Community for Wildlife Management in the Amazon and Latin America), which brought together approximately 360 participants. A particularly noteworthy event was the symposium entitled *"Conservation and Use of Crocodilians in Latin America: A Look at the Present, Reflections on the Future"* (Coordinator: Javier Benítez Moreno). The symposium, which included 16 oral presentations and attracted a substantial audience, was highly successful. Speakers presented research on crocodilians covering a wide range of topics, including the application and adaptation of new technologies for crocodilian monitoring, their role as indicators of ecosystem health, sustainable use and management, conservation initiatives led by the private sector, and strategies aimed at promoting coexistence between crocodilians and human populations.

In addition, the symposium featured the participation of a group of female conservation scientists who addressed myths and realities surrounding crocodilians, with a particular focus on women in science and their contributions to crocodilian conservation. Their presentations provided valuable perspectives on both the progress achieved and the challenges that remain in their professional development within this field.

During the concluding session and the question-and-answer period, participants raised questions, shared suggestions, and discussed potential improvements that could be incorporated into ongoing and future projects. This exchange fulfilled the primary objective of the symposium: to promote knowledge sharing on crocodilian conservation, strengthen professional ties, foster collaborative networks, and present future perspectives for crocodilian research and conservation in Latin America.

Overall, the symposium generated very positive impressions. We highlight the importance of, and express our appreciation for, these types of collaborative spaces, which are supported by organizations such as the CSG, COMFAUNA, and other institutions involved in nature conservation.

An important aspect to emphasize is that COMFAUNA is currently chaired by Dr. Simoncini, and that several other CSG members serve on COMFAUNA's board of directors and participate actively in its activities. This strong institutional overlap significantly enhances coordination between both groups, reinforces their linkages, and creates concrete opportunities for collaboration. Such integration is expected to strengthen partnerships, expand opportunities for interdisciplinary project development, increase the visibility of research teams, and contribute to the consolidation of scientific and management networks that are robust and sustainable over time. Indeed, during the CIMFAUNA, Lonnie McCaskill and Carlos Piña presented a workshop on drones and wildlife.

Future and ongoing work: We will continue our research activities along several complementary projects. At present, we are preparing contributions for the Morocco meeting (CSG 2026), including studies on temperature-dependent sex determination and the effects of constant versus fluctuating incubation temperatures. We are also investigating how maternal investment in hormones and fatty acids deposited in eggs may influence the sex of *Ca. latirostris* hatchlings incubated at temperatures that produce mixed sex ratios. In addition, we are exploring potential applications and uses of caiman eggshells.

We are continuing field-based monitoring of caiman populations using camera traps, drones, and the application of artificial intelligence, as well as evaluating different dietary supplementation strategies for captive rearing. Furthermore, we will pursue ongoing research on female reproduction, maternal behavior, interactions with nest predators and visitors, and the effects of extreme climatic events (droughts and floods) associated with climate change.

Theses completed during 2024-2026 period

Pierini, Sofía E. (2025). Nesting behavior of the broad-snouted caiman (*Caiman latirostris*) in environments with different degrees of anthropization, and the influence of climatic variables on the onset of nest construction and clutch success. PhD dissertation, Universidad Nacional de Córdoba (Córdoba), Argentina.

Valli, Florencia E. (2026). Maternal influence and its interaction with climatic variables in the sex determination of *Caiman latirostris.* PhD dissertation, Universidad Nacional del Litoral (Santa Fe), Argentina.

Post-fire demographic responses, reproductive dynamics, and range shifts in *Caiman yacare* and *Caiman latirostris.* Gerardo Gabriel Vega (Argentina). Information provided by Gerardo Vega

During early 2022, Corrientes Province experienced extensive wildfires that affected more than 10,000 km², including large portions of the Iberá wetland system, one of the most important strongholds for *Ca. yacare* and *Ca. latirostris* in Argentina. These fires, associated with prolonged drought and extreme climatic conditions, represent one of the most significant recent disturbance events in the region and provide an opportunity to assess crocodilian demographic responses to large-scale habitat alteration.

Post-fire monitoring during the 2023 reproductive season included 23 days of fieldwork across six lagoons with contrasting fire histories (double-burn, single-burn, and unburned sites). Standardized nocturnal spotlight surveys were conducted and body condition was categorized. Maximum counts per lagoon were used as indices of relative density. Apparent densities were higher in double-burn lagoons (432.2 ± 139.7 ind. km^{-1}), followed by single-burn (162.4 ± 15.5 ind. km^{-1}) and unburned lagoons (149.1 ± 56.1 ind. km^{-1}). However, 71 percent of assessed individuals were classified as thin or emaciated, and unburned lagoons showed a higher proportion of individuals in good body condition. The elevated counts in burned areas are interpreted as aggregation and increased detectability resulting from vegetation loss, reduced refuge availability, and altered trophic structure rather than actual population growth. These findings suggest short-term redistribution and nutritional stress following disturbance.

Reproductive output was markedly affected. Intensive nest surveys conducted in 2023 and 2024, including ground searches and drone-based monitoring, detected no active nests, indicating temporary reproductive suppression consistent with habitat degradation and environmental stress. From a demographic perspective, this represents a cohort gap that may influence age structure and future recruitment. In 2025, reproductive activity resumed, with fourteen nests recorded within a 2.29 km² area, including confirmed nests of both species. This recovery of nesting activity suggests early ecosystem resilience and the reestablishment of recruitment processes.

Additionally, confirmed nesting and successful hatching of *Ca. latirostris* were documented in April 2024 in Gualeguaychú, Entre Ríos Province, representing verified reproduction in the southern portion of the species' regional distribution. This record may reflect ongoing range adjustments under changing environmental conditions.

Collectively, these observations highlight the sensitivity of crocodilian demographic parameters to extreme climatic events, while also demonstrating adaptive capacity and early signs of recovery under favorable post-disturbance conditions.

Trade structure and export dynamics for *Caiman yacare* and *Caiman latirostris* - Information provided by Walter Prado

Current export activity involving Argentine crocodilian products remains limited and highly concentrated. At present, there is a single authorized exporter of *Ca. yacare*. In recent years, commercial operations have included the importation of raw skins of *Ca. c. fuscus* for domestic processing and subsequent re-export as finished leather components, primarily cuts intended for boot manufacturing. These operations are conducted under applicable CITES provisions governing import, processing, and re-export of Appendix-II specimens, with corresponding documentation and traceability requirements.

With respect to *Ca. latirostris*, exports are restricted to finished leather goods, principally handbags, and are likewise managed by a single exporter. No export of raw or semi-processed skins of this species is currently reported. The trade structure is therefore characterized by low diversification in terms of operators and product categories, with limited industrial scale and a focus on value-added manufactured goods rather than bulk raw material exports.

From a governance perspective, this concentrated export structure facilitates administrative oversight and traceability, although it also reflects the reduced scale of commercial activity compared to historical periods of higher production. Trade volumes remain aligned with national regulatory frameworks and CITES requirements, and current operations are conducted within established legal parameters.

Continued monitoring of production, processing, and export dynamics remains relevant to ensure compliance, maintain traceability standards, and evaluate the role of sustainable use within broader conservation strategies for both species.

Skin Exports								
Year	**Species**	**Raw**	**Tanned**	**Manufacture**	**Total**	**EU**	**Mexico**	**Colombia**
2024	***C. latirostris***	0	702	131	833	131	702	0
2024	*C. yacare*	1	0	3720*	3721	3720	0	1
2025	***C. latirostris***	0	0	110	110	110	0	0
2025	*C. yacare*	0	0	2325*	2325	2325	0	0
* *En su gran mayoría cortes para la confección de pares de botas. (mostly for boots)*								

Belize

The following update on Belize is provided by several authors in regard to current research, population status, and human-crocodile interactions.

Ambergris Caye. Prepared by: ACES Wildlife Rescue

Human-Crocodile Interactions Patient Intakes: 52 (33.1%) of intakes were American Crocodile

- 1 Dead on Arrival
- 1 Euthanasia (police assistance and permission from Belize Forest Department)
- 40 released
- 10 dead (recovered eggs from nest destruction, eggs no longer viable)

Reasons for Admission:

- 10 relocation and release
- 7 entrapments (entrapped by barriers during natural movement, more development of natural pathways)
- 1 displaced by habitat loss
- 2 physical trauma (human cause)
- 2 incidents of nest destruction (same nest site 2 years in a row. First yielded 19 hatchlings released, second year nest disrupted week after laying. 10 eggs recovered but no longer viable)
- 4 intakes due to illegal activity

- 1 DOA natural causes
- 1 Euthanasia (by police support and permission from Belize Forest Department)

Hotline Reports
- 100 conflict calls (crocodiles under homes, in yards, nearby, taking pets...)
- 12 calls reporting illegal activity (feeding, harassment)
- 2 calls reporting nest disturbance (same site, Benny's construction sand pile. 2 years in a row)
- 2 calls displaced by habitat loss
- 3 calls inappropriate human intervention (captured and brought home)
- 3 reports of nesting crocs
- 21 calls were advice given only
- 8 reports of entanglement or entrapment (plastic bags, fishing gear, or caught by physical barriers)
- 2 reports physical trauma
- 3 reports of observed deceased croc

Population Survey by Ciaran O'Mordha: 199 American Crocodiles Observed
- 59 (30%) eyeshines
- 44 (32%) hatchling/yearling
- 32 (23%) juvenile
- 20 (14%) sub-adult
- 44 (31%) adult

To add to this general summary, we have seen an increase in conflict caused by an unprecedented amount of habitat loss and destruction. Lagoons are being filled, mangroves cut down, dredging in protected areas, trash, and human development continues to move into crocodile habitat. Calls to action by stakeholders to authorities are ignored.

Poor practices by bar establishments at Secret Beach involve improper trash disposal, and food scraps being tossed in the area causing an increase of calls in that area as crocs are drawn to food sources. There has been an increase in inappropriate human interaction by residents and tourists, observed through social media. More residences have been built in croc habitat leading to conflict as residents fear for safety, pets are taken or crocodiles end up in yards.

We have worked extensively to provide education and support to residents, regarding peaceful coexistence. Another conflict we have struggled with is support from law enforcement. There are no forestry officers on the cayes, and our attempts to have enforcement support has not taken place. We have had support by local police, but there is a lack of knowledge of wildlife law, and officers who have supported us often don't understand why they are there, and sometimes are part of the problem.

Hybridization in Belize. Prepared by: Helen Sung
Hybridization presents both a conservation challenge and an evolutionary opportunity - particularly where natural hybrid zones intersect with human-modified landscapes. Recent advances in genomics have reshaped our understanding of hybridization, revealing its role in facilitating adaptation and diversification, especially in dynamic environments. For her PhD dissertation, Helen investigated the evolutionary and conservation implications of naturally occurring hybridization between two Mesoamerican crocodile species in Belize: *C. acutus* (American crocodile) and *C. moreletii* (Morelet's crocodile). Analyses revealed widespread admixture, the presence of two genetically distinct *C. acutus* lineages in Belize, and evidence of both ancient and ongoing hybridization. Salinity tolerance - a key ecological trait delineating species boundaries - was investigated using genome-wide association scans and two candidate loci were identified, including a previously uncharacterized sodium channel gene (*SCN5A*-like) in archosaurs. These findings suggest that introgressed variants may contribute to physiological adaptation in hybrid populations. Finally, the role of adaptive introgression in shaping hybrid genomes was assessed and genomic regions under selection linked to environmental stress response, osmoregulation, and metabolism where identified. Notably, introgression patterns were asymmetric, with directional gene flow shaping distinct genomic regions through historical versus recent admixture. Together, these findings suggest that hybridization in crocodylians is not merely a consequence of anthropogenic disturbance but may serve as a mechanism of evolutionary innovation. This work deepens our understanding of hybridization in long-lived vertebrates and underscores the importance of recognizing hybrids as valuable contributors to biodiversity. By integrating genomic and ecological perspectives, these findings aim to inform conservation strategies for species affected by hybridization, particularly those subject to uneven legal protections and complex evolutionary trajectories.

Comparison of morphology to genetics of *C. acutus* and *C. moreletii.* Prepared by: Theo Bousseau
This study evaluates whether skull and body morphometrics can reliably identify *C. acutus*, *C. moreletii* and their hybrids in Belize in the absence of genetic data. We analyzed three datasets: field measurements from 890 live individuals; linear and geometric morphometric data from 25 museum/field skulls (CRC, BWRC, The Belize Zoo, ACES); and a matched set of 273 live individuals with both morphology and genomic data. Field sampling and taxonomic assignments were conducted by the original teams in collaboration with the Crocodile Research Coalition (CRC). Analyses across datasets show that morphological differences are most pronounced in adults and remain detectable, though less distinct, in younger specimens. Among the variables examined, the most consistently larger in CA are Snout Length (SL), Head Length (HL), Snout-to-Orbit (SVL), and Total Width (TW). In contrast, Maximum Head Width (MAX W) normalized by size (MAX W/Total Length or MAX W/HL) is typically higher in CM, reflecting a broader, less elongate head. Therefore, a compact

key can discriminate *C. acutus* between *C. moreletii* using one pro-CM width ratio (like MAX W/TL) plus two pro- *C. acutus* elongation metrics (like SL/TL or HL/TL). Hybrid morphometrics often closely match (and sometimes overlap) those of either *C. moreletii* or *C. acutus* and only rarely present an intermediate phenotype. In practice, *C. acutus* and *C. moreletii* can be differentiated by measuring Maximum Head Width together with two of the parameters that are consistently larger in *C. acutus*.

Additionally, comparisons between genetic and morphological data indicate four genetic classes: genetically "pure" *C. moreletii* and *C. acutus*, plus two hybrid groups. One hybrid group is genetically close to *C. moreletii* and cannot be distinguished from *C. moreletii* by morphology alone, whereas the other is genetically closer to *C. acutus*, though not to the same degree as the "pure" groups. Certain width-related metrics such as Premaxilla W and MAX W/TL can flag candidates in this hybrid group because they tend to be higher, but they do not provide definitive evidence on their own. Overall, morphology aligns with genomics for species-level identification (especially in adults), while genetic data remain necessary for confident hybrid classification.

Some additional traits not monitored in this study offer a consistent way to preliminarily assess an individual's genetic class such as the presence of a preorbital ridge, the shape of the premaxillary suture, or scutellation patterns, which can indicate whether a specimen aligns more with *C. acutus* or *C. moreletii*, or exhibits atypical features suggestive of hybridization.

Effects of Heavy Metals and Water Contaminants in Juvenile and Adult *C. moreletii* in various waterways in Belize. Prepared by: Andrea Torzone (student)

I conducted a study investigating how heavy metals and water contaminants affect the immune health of juvenile and adult *C. moreletii* across six waterways in Belize. From July to August 2025, we captured 43 crocodiles during standardized nocturnal surveys, recorded morphometrics and body condition scores, and collected blood samples for hematological and immunological analyses, along with scute samples for heavy metal testing. Each crocodile was microchipped and safely released at its capture site. Preliminary blood chemistry and hematocrit results show site-specific differences in health, with crocodiles from the suspected polluted New River Lagoon exhibiting lower body condition scores and irregular hematological profiles compared to individuals from less impacted systems. These early findings suggest contaminant-related stress may already be affecting immune function, with additional immunological assays currently underway. In the New River Lagoon specifically, I frequently observed signs of poor health in the field, including emaciation, visible fight wounds, areas of necrotic tissue, and more lethargic or wary behaviour during capture. These physical and behavioural indicators further support the concern that environmental degradation may be negatively impacting crocodile health in this system.

Summary of crocodile surveys throughout Belize. Prepared by: Jonathan Triminio

From April 2024 through 30 December 2025, countrywide crocodile monitoring surveys were conducted across Belize to assess populations of the American crocodile (*C. acutus*) and Morelet's crocodile (*C. moreletii*). Surveys consisted of nocturnal eyeshine surveys (NES) to estimate relative abundance and encounter rates, as well as capture surveys to support population assessments and individual-level data collection. Survey effort and results are summarized by district below.

In the Corozal District, two nocturnal eyeshine surveys were conducted, during which a total of 43 crocodiles were observed. This corresponded to an average encounter rate of 0.77 crocodiles per kilometer surveyed. One capture survey was conducted in this district, resulting in the capture of 10 individual crocodiles.

In the Orange Walk District, four nocturnal eyeshine surveys were completed, yielding a total of 208 crocodile observations and an average encounter rate of 1.96 crocodiles per kilometer. A total of 11 capture surveys were conducted, during which 49 individual crocodiles were captured.

In the Belize District, eight nocturnal eyeshine surveys were conducted, with 273 crocodiles observed. This district exhibited the highest average encounter rate at 3.25 crocodiles per kilometer surveyed. Four capture surveys were carried out, resulting in the capture of eight individual crocodiles.

In the Stann Creek District, 14 nocturnal eyeshine surveys were conducted, during which a total of 38 crocodiles were observed. The average encounter rate was 0.58 crocodiles per kilometer. Capture effort in this district was comparatively high, with 31 capture surveys conducted and 60 individual crocodiles captured.

In the Toledo District, three nocturnal eyeshine surveys were conducted, resulting in 26 crocodile observations and an average encounter rate of 1.3 crocodiles per kilometer. Six capture surveys were conducted, during which 15 individual crocodiles were captured.

No nocturnal eyeshine or capture surveys were conducted in the Cayo District during the reporting period. Across all districts, a total of 31 nocturnal eyeshine surveys were conducted, during which 588 crocodiles were observed. In addition, 53 capture surveys were completed countrywide, resulting in the capture of 142 individual crocodiles. These results demonstrate substantial spatial variation in crocodile abundance and encounter rates across Belize, while highlighting the value of combined nocturnal eyeshine and capture survey approaches for long-term population monitoring and management.

Prepared by: Marisa Tellez

Bolivia

The National Program for the Conservation and Sustainable Use of the Yacare Caiman (*Ca. yacare*) continues to operate at a very low level of implementation, with limited harvest levels primarily focused on meat utilization.

On 10 July 2025, an expert workshop was convened to conduct an "Analysis of the current status of Yacare Caiman management in Bolivia: Technical recommendations." The event brought together governmental authorities, specialists, and institutions involved in the conservation and sustainable use of the species.

This initiative was motivated by discussions with the General Directorate of Biodiversity and Protected Areas, in response to the need to consolidate the experience of all stakeholders involved in caiman management in Bolivia. The objective is to integrate technical criteria into a consolidated expert opinion to be reflected in a formal publication and a policy brief, with the aim of establishing clear management guidelines for *Ca. yacare* in the country.

The discussions were structured around a series of key thematic areas, ranging from social dimensions to illegal trade and market dynamics. Core topics included the leather market, illegal trafficking, compliance with CITES requirements, and the meat trade. Additional discussions addressed the current management framework, which was considered outdated and in need of revision, as well as the incorporation of recent genetic data, which has revealed a more complex population structure than previously understood.

The intention is to compile all contributions and recommendations into a consolidated technical document. It is important to note that the discussions focused specifically on *Caiman yacare* and did not formally include other species such as the black caiman (*Melanosuchus niger*), although potential implications related to trafficking and meat trade were acknowledged.

Prepared by: Alfonso Llobet

Bonaire

In October 2024, an American crocodile (*C. acutus*) was recorded on Bonaire, specifically in the Sorobon-Lac Bay area on the southeastern coast of the island. The animal was first observed on 8 October in a highly frequented coastal zone, prompting local authorities to close Lac Bay and Sorobon to the public as a precautionary safety measure. This event attracted considerable local attention because crocodiles are not part of the island's commonly recognized fauna and the sighting represented a highly unusual occurrence for Bonaire. Subsequent scientific interpretation treated the event as the first documented record of *C. acutus* for the island, within a broader context of regional range re-expansion by the species in the southern Caribbean.

Following the initial sighting, local authorities and STINAPA Bonaire carried out an intensive search and monitoring effort. According to local news coverage, the animal repeatedly used the mangrove-lined margins of Lac Bay, which made tracking and capture difficult. Search efforts reportedly involved drones, nets, kayaks, boats, and direct visual surveillance. The crocodile was eventually captured on 26 October 2024 and moved to a temporary secure location. Press reports described the individual as a young male American crocodile measuring approximately 2.34 m in length.

Shortly after capture, the animal died. Initial public communications indicated that stress associated with capture and transfer was suspected as the principal cause. Later reporting based on the necropsy findings indicated that the crocodile most likely died from capture myopathy, a stress-related pathological condition associated with prolonged pursuit, restraint, handling, or transport. The necropsy reportedly found the animal to be in good nutritional condition and without evidence of prior disease or major trauma, reinforcing the interpretation that the fatal outcome was linked primarily to the capture event itself.

From a regional perspective, the Bonaire record is important for two reasons. First, it provides evidence that *C. acutus* are capable of reaching islands of the southern Dutch Caribbean, most likely through natural marine dispersal and assuming that it was not deliberately introduced or escaped as an illegal pet. Second, it illustrates the institutional and operational challenges that can arise when large crocodilians appear in insular territories with little recent experience in managing them. The scientific paper that later analyzed the case placed the Bonaire occurrence within a wider pattern of recovery and redistribution of coastal populations in northern South America and emphasized the need for clearer protocols, public communication strategies, and preparedness measures for future crocodile appearances on Caribbean islands.

Prepared by Pablo Siroski

Brazil

1. **North Region**

The Mamirauá Institute was established in April 1999. It is a social organization funded and supervised by the Brazilian Ministry of Science, Technology, and Innovation, that carries out its activities through programs focused on research, natural resource management, and social development, primarily in the Middle Solimões region, in the state of Amazonas. The objectives of the Mamirauá Institute include conducting applied science and fostering innovation in the adoption of strategies and public policies for the conservation and sustainable use of Amazonian biodiversity. The Fauna Management Program of the Mamirauá Institute, created in 2020, develops technical and scientific activities to enable management systems for culturally exploited wildlife species in the Amazon, especially within the Mamirauá Reserve, in the state of Amazonas. The Program is coordinated by Diogo de Lima (Animal Scientist), with a team composed of Fernanda Silva (Biologist), Joice Maciel (Animal Scientist), André Coelho (Biologist), and João Carvalho (traditional knowledge specialist).

Annual activities include monitoring nesting areas and conducting population surveys in two sectors of the Mamirauá Reserve: the Jarauá sector and the Aranapu sector. Both areas have a long history of sustainable natural resource use, particularly fisheries, and have shown average densities close to 100 caimans per kilometer of riverbank, indicating the feasibility of sustainable management. In March 2025, a preliminary management plan model for the Jarauá sector was presented, discussed, and approved by local managers, and subsequently presented to the Deliberative Council of the Mamirauá Reserve. After being updated, the plan will be submitted to IBAMA for capture authorization. Considering annual averages of around 5000 caimans counted, the sector has the legal potential to harvest approximately 500 black caimans (*M. niger*) per year. However, due to the small capacity of the local slaughter facility (30 caimans/day) and the still limited knowledge of the regional market, an agreement between the managers' association and the technical advisory team of the Mamirauá Institute established that annual quotas will be gradually increased until reaching the maximum feasible level. Thus, also considering the five-year gap since the last harvest (28 black caimans in 2020), a small-scale harvest of approximately 100 sub-adult individuals is planned for the second half of 2026.

Since 2021, meetings have been held with the Amazonas Environmental Protection Institute (IPAAM) and IBAMA to discuss the exemption from environmental licensing and from registration in the Federal Technical Registry (CTF) for the floating caiman slaughter facility (PLANTAR), due to its small scale, high seasonality, and use by traditional communities. In November 2025, IPAAM and the Government of the State of Amazonas granted the environmental licensing exemption for PLANTAR, the first exemption granted to a slaughter facility in Amazonas based on state environmental legislation (Law No. 3785/2012). This exemption now allows the continuation of the development of caiman management plans in the Jarauá sector of Mamirauá Reserve, enabling new harvests in 2026 with lower costs and a more streamlined bureaucratic process.

The Mamirauá sector, another area of interest, has a history of tourism activities and densities above 50 caimans per kilometer, demonstrating potential for caiman-based scientific tourism. Negotiations and pilot activities toward this objective have been carried out since 2024.

Finally, in an effort to meet the growing demand related to caiman management in the Amazon, the Mamirauá Institute has adopted a capacity-building strategy focused on training multipliers. Since 2019, it has provided professionals with basic tools for the design, monitoring, and evaluation of community-based caiman management projects in protected areas in the Amazon. In 2025, the 4th course was held, with the participation of 14 individuals from community associations, fisheries agreements and colonies, and public licensing and regulatory agencies.

Reported by: Diogo Lima

Researchers from the Laboratory for the Characterization of Environmental Impacts (LCIA) at the Federal University of Tocantins (UFT), Northern Brazil, have been conducting studies on crocodilians in the state of Tocantins and surrounding regions. Projects carried out by LCIA/UFT aim not only to expand ecological and biological knowledge of crocodilians, but also to assess environmental impacts associated with land-use change, human presence, and contaminant exposure on these species.

Between 2021 and 2024, more than 60 water bodies - including rivers, streams, and inland lakes - were surveyed within the Araguaia National Park (PARNA) and the Cantão State Park (PEC), an important high-biodiversity ecological corridor located in the Cerrado-Amazon ecotone. Through active searches in the study areas, more than 30 nests of *M. niger* (Black caiman) were recorded, based on a sampling effort exceeding 1000 km traveled from field bases to aquatic habitats. Throughout this period, basic information on the reproductive biology of the black caiman was collected, including nest density, egg morphometrics, clutch size, hatching success, and incubation temperature, among other parameters. These studies are part of research projects coordinated by Prof. Thiago C.G. Portelinha (UFT) and of the Masters thesis defended in 2025 by Barthira R. Oliveira. In her Masters thesis, Barthira presented data on the reproductive ecology and nesting habitat characteristics of *M. niger* in the northern portion of PARNA.

In addition to reproductive studies, *M. niger* populations in the same region have been monitored since 2023 in the Javaés and Coco Rivers, with the objective of relating caiman population density to human presence, particularly during the dry

season (May-October), when beach tourism intensifies. These studies are ongoing and are part of a project funded by the Tocantins Foundation for Scientific and Technological Support (FAPT), through the FAPT/Naturatins call.

In Palmas, the capital of Tocantins, LCIA/UFT researchers are also conducting studies on urban crocodilians. The biologist and master's student Maria Júlia Meneses Dias (PPGCiamb) and the undergraduate student in Biological Sciences Marco Antonio Rodrigues Lima, both supervised by Prof. Thiago C.G. Portelinha, are developing their research in urban streams that cross the city of Palmas. These studies focus on the effects of urbanization on demographic (ie abundance, density, and sex ratio) and reproductive patterns of *Paleosuchus palpebrosus* (Dwarf caiman) and *Ca. crocodilus* (Spectacled caiman).

Reported by: Thiago C.G. Portelinha

2. Northeastern Region

In 2025, the Projeto Jacaré, affiliated with the Interdisciplinary Laboratory of Reptiles and Amphibians (LIAR.) at the Federal Rural University of Pernambuco (UFRPE), coordinated by Dr. Jozelia Maria de Sousa Correia and researchers Dr. Ednilza Maranhão dos Santos and Dr. Rafael Sá Leitão Barboza, became affiliated with the Laboratory of Ecology, Conservation and Movement of Vertebrates (ECOMOV) at the Federal University of Pernambuco (UFPE), coordinated by Dr. Paulo Braga Mascarenhas Junior.

Research on crocodilians in Northeastern Brazil has been conducted since 2014, with the objective of deepening the biological and ecological understanding of Atlantic Forest species. These studies investigate aspects related to abundance, spatial distribution, reproductive ecology, health, diet, ethnoherpetology, ethology, bioacoustics, and population genetics of wild populations of the broad-snouted caiman (*Ca. latirostris*) and the dwarf caiman (*P. palpebrosus*). In addition to conservation-oriented research, the project also promotes scientific outreach and popularization in schools and local communities, as well as academic training and capacity building of environmental agents for best practices in the capture, handling, and safe release of caimans in urban areas.

In 2025, Projeto Jacaré conducted field research involving nocturnal spotlight surveys, captures, biometric measurements, marking, and biological sampling in its main study areas: the Aldeia-Beberibe Environmental Protection Area (APA) and its surroundings (-7.975685° S; -34.952857° W), the largest Atlantic Forest fragment embedded within an urban matrix in the Recife metropolitan region, Pernambuco state; the Tapacurá Reservoir (-8.041770°; -35.193090°), a large water body located in the municipality of São Lourenço da Mata, approximately 60 km from Recife; and the urban stretch of the Capibaribe River within the city of Recife. Research is also conducted on caimans rescued from the metropolitan region in partnership with the Wildlife Screening Center (CETRAS-Tangará), linked to the Pernambuco state environmental agency.

Research activities have focused on the systematic monitoring of the reproductive ecology of *Ca. latirostris* since 2015. These efforts have ensured the continuity of long-term reproductive datasets, which are essential for understanding the species' ecology in Northeastern Brazil and for supporting studies on reproductive success, nest mortality, sex ratios, environmental impacts, and the evaluation of new research methodologies aimed at addressing additional guiding questions.

Regarding bioacoustics, studies describing the vocal repertoire of *Ca. latirostris* hatchlings are in their final stages prior to publication. Recordings of hatchlings under different behavioural contexts and of adults are being archived in a robust database. A small working group has been established with Brazilian researchers interested in crocodilian bioacoustics, studying different species, to promote mutual collaboration, develop shared databases, and advance thematic research demands. Initial efforts have also been made toward the creation of a global crocodilian bioacoustic database, currently involving researchers from Brazil, Thailand, and the United States, with plans to expand and organize these data with broader international collaboration.

Research focusing on the ethnozoology and ethology of caimans has been expanded to include urban caiman populations in neighborhoods of Recife. Dialogue has already begun with local residents surrounding the Apipucos reservoir to conduct research related to caiman behaviour, as well as to understand the relationships between fishers, residents, and caimans in this urban environment.

Research partnerships were strengthened throughout 2025, including collaborations with the Mamirauá Institute (IMD) during the 77th Annual Meeting of the Brazilian Society for the Advancement of Science (SBPC), and with the Caiman Program of the Instituto Marcos Daniel (IMD) in Itaúnas, Espírito Santo.

Below are the results achieved and activities currently underway (2025):

Postdoctoral project

1. Rafael Sá Leitão Barboza: Reproductive dynamics of the broad-snouted caiman (*Caiman latirostris*) in the Atlantic Forest: a long-term study in Pernambuco.

Graduate projects

1. Rafael Sá Leitão Barboza: From reproductive ecology to local ecological knowledge of a crocodilian, the broad-snouted caiman (*Caiman latirostris*). (UFRPE/PPGBio. Defense in February 2025, with CSG support)
2. Carlos Fernando Rodrigues Neto: Parasitic ecology and ecotoxicology of *Caiman latirostris* (Daudin, 1802) in the Capibaribe River Basin. (UFRPE/PPGBio. Defense in July 2025, with CSG support)
3. Gabriela Lima de Barros Lucena: Comparative analysis of non-lethal methods for sex identification in hatchlings of *Caiman latirostris* (Daudin, 1802) in a natural Atlantic Forest population of Pernambuco. (UFRPE/PPGBio. Started August 2025)
4. Gabriel Brandão de Mello Netto: Urban caimans: influence of urbanization on the distribution and abundance of *Caiman latirostris* (Daudin, 1801) in the urban area of Recife, Pernambuco. (UFPE/PPGBA. Started August 2025, with CSG support)

Undergraduate projects

1. Malu Caminha: Fauna associated with nests of the broad-snouted caiman (*Caiman latirostris*) at the Tapacurá Ecological Station. UFRPE - Undergraduate research.
2. Italo Moraes da Silva: (1) Agonistic interactions in the broad-snouted caiman (*Caiman latirostris*) in the Recife metropolitan region; (2) Diet of the broad-snouted caiman *Caiman latirostris* in the Capibaribe River, Recife, Pernambuco. UFRPE.
3. Daniela Pedrosa Barreto: Educational books as pedagogical tools for caiman conservation. UFRPE.
4. Douglas Vinícius Xavier de Santana: Description of the vocal repertoire of Atlantic Forest caimans from Pernambuco. UFRPE.
5. Mayara Yasmin de Souza Bezerra: Diagnosis of the urban caiman population in the Apipucos reservoir, Recife, Pernambuco. UFRPE.
6. Maria Júlia de Oliveira Galvão: Linear morphometrics associated with sex identification of the broad-snouted caiman (*Caiman latirostris*) in a natural Atlantic Forest population of Pernambuco. UFRPE.
7. Laila Cristine da Mota Aragão: Floristic and phytophysiognomic characterization of reproductive sites of the broad-snouted caiman (*Caiman latirostris*) in an Atlantic Forest fragment in Pernambuco. Internship - UPE.
8. Isabela Araújo: Behavioral patterns of the broad-snouted caiman under intense urbanization in the Apipucos reservoir, Recife, Pernambuco. UFRPE.
9. Kelvin dos Santos Bezerra: Between the urban and the wild: local relations, perceptions, and knowledge about caimans in the Apipucos reservoir, Recife, Pernambuco. UFRPE.

Communications/published articles

1. Barboza, R. S. L., Silva, M. G. N., Souza Neto, C. F. R. de, Mascarenhas-Junior, P. B., Caminha, M. M., Santos, E. M. dos, & Correia, J. M. de S. (2025). First record of twin hatchlings in *Caiman latirostris* (Daudin, 1802) in the Atlantic Forest, Brazil. Journal of Environmental Analysis and Progress, 10(3), 176-180. https://doi.org/10.24221/jeap.10.3.2025.6916.176-180
2. Mascarenhas-Junior PB, Simões, Pedro Ivo, Anjos, Haggy Rodrigues, Barboza, Rafael Sá Leitão, Santos, Ednilza Maranhão & Correia, Jozelia Maria de Sousa Correia (2025). Temporal fluctuations in the sex ratio of a broad-snouted caiman (*Caiman latirostris*) population in a highly impacted Atlantic Forest of Brazil. Wildlife Research 52, WR25066. doi:10.1071/WR25066
3. Barboza RSL, Brandão G, Mascarenhas-Junior PB, Santos EM, Correia JMC. Methods for capturing hatchling crocodylians in mound nests. Studies on Neotropical Fauna and Environment. (No prelo).
4. Barboza RSL, Correia JMS, Souto A, Diniz GTN, Schiel N. "Are there caimans here?" Influence of multiple drivers on local ecological knowledge about an apex predator. Frontiers in Amphibian and Reptile Science. (No prelo).
5. Silva IM, Barboza RSL, Santos EM, Correia JMS. *Caiman latirostris* (Broad-snouted Caiman). Nest mortality. Herpetological Review. (No prelo).

Congresses / symposia / scientific meetings

1. 7th Annual Meeting of the Brazilian Society for the Advancement of Science (SBPC), July 2025, Recife, Pernambuco – Round table held in partnership with the Mamirauá Institute (IMDS) and the Interdisciplinary Laboratory of Amphibians and Reptiles (L.I.A.R - UFRPE).
Research, outreach, and conservation at the human-wildlife interface (Diogo Lima, Rafael Barboza, and Jozelia Correia).

2. XI Brazilian Congress of Herpetology, August 2025, Manaus, Amazonas

a. Symposium:

- Crocodilians in Brazil – from rarity to abundance: use, conflict, opportunity, science, and education for conservation.
- Invited talk: Female leadership in caiman research and knowledge in Brazil (Jozelia Correia).

b. Abstracts presented:

1. Assessment of body condition scores in populations of *Caiman latirostris* in the Atlantic Forest of Pernambuco (Richard Moura, Paulo Mascarenhas Junior, Rafael Barboza, Ednilza Santos, Jozelia Correia).
2. Diet of the broad-snouted caiman, *Caiman latirostris* (Daudin, 1802), in the Capibaribe River, Recife, Pernambuco (Ítalo Silva, Jozelia Correia).
3. Parental behavior of females at nests of the broad-snouted caiman, *Caiman latirostris*, in the Tapacurá Ecological Station, Pernambuco (Malu Caminha; Rafael Barboza; Gabriela Lucena; Gabriel Brandão Netto; Nicola Schiel; Antônio Souto; Ednilza Santos; Jozelia Correia).

4. Methods for capturing hatchling crocodilians in mound nests (Rafael Barboza, Gabriel Netto, Ednilza Santos, Paulo Mascarenhas Junior, Jozelia Correia).
5. Systematic review of molecular techniques used to assess genetic diversity in crocodilians (Gabriel Netto; Jozelia Correia; Paulo Eleutério Souza).
6. Morphological traits associated with sexual dimorphism in hatchlings of *Caiman latirostris* in a natural Atlantic Forest population from Pernambuco (Gabriela Lucena, Rafael Barboza, Paulo Duarte Neto, Fabrício Sá, Jozelia Correia).
7. GPS telemetry as a tool for evaluating maternal care behavior in female broad-snouted caiman (*Caiman latirostris*) in Northeastern Brazil (Paulo Mascarenhas Junior, Rafael Barboza, Malu Caminha, Gabriela Lucena, Carlos Rodrigues, Pedro Simões, Jozelia Correia).
8. "Are there caimans here?" How age and education level influence local ecological knowledge about an apex predator (Rafael Barboza, Jozelia Correia, Antonio Souto, George Diniz, Nicola Schiel).
9. Two in one: the first record of free-ranging twin hatchlings of *Caiman latirostris* in Brazil (Malu Caminha; Rafael Barboza; Mayara Negromonte; Carlos Neto; Paulo Mascarenhas Junior; Ednilza Santos; Jozelia Correia).
10. Small calls, major functions: characterizing the vocal repertoire of broad-snouted caiman (*Caiman latirostris*) hatchlings (Rafael Barboza, Jozelia Correia, Antonio Souto, Larissa Sugai, Nicola Schiel).
11. Parasitological assessment of the broad-snouted caiman (*Caiman latirostris*) in Northeastern Brazil (Carlos Neto, Jozelia Correia, Jaqueline Oliveira).

Courses/educational activities

Within the scope of university outreach and environmental education, activities were developed through projects funded by the Ministry of Science, Technology and Innovation (MCTI/CNPq), particularly the project "Life in Water, Life on Land: science connecting oceans, biodiversity, health, and climate change in my country - Pernambuco". These initiatives promoted the integration of science, environmental education, and society, engaging local communities and schools surrounding the study areas.

The traveling and interactive exhibition "The Incredible World of Atlantic Forest Amphibians and Reptiles" continued to be presented in local schools and during the 30th edition of SBPC Jovem 2025. This event was part of the 7th Annual Meeting of the Brazilian Society for the Advancement of Science (SBPC) and aimed to stimulate interest in science, technology, and innovation among primary and secondary school students, fostering direct interaction with researchers and discussions on the role of science in social transformation.

Theoretical and practical training was provided to environmental agents of the Municipal Civil Guard of Vitória de Santo Antão (Pernambuco), focusing on best practices for the capture, handling, and safe release of caimans in urban environments.

Reported by Jozélia Correia

Since 2025, a new research group has been studying urban crocodilian populations across the northeastern Atlantic Forest of Brazil. The Vertebrate Ecology, Conservation and Movement Laboratory (ECOMOV), based at the Federal University of Pernambuco, is coordinated by Associate Professor Dr. Paulo Braga Mascarenhas Júnior.

During its first year of activities, the ECOMOV team focused on three main study areas: the protected Atlantic Forest fragment of *Mata do Buraquinho* in João Pessoa (Paraíba state); the municipality of Ilha de Itamaracá, located on the northern coast of Pernambuco; and the urban stretch of the Capibaribe River basin in Recife (Pernambuco state). At *Mata do Buraquinho*, an urban Atlantic Forest remnant, research focuses on understanding the distribution and population parameters of broad-snouted caimans (*Ca. latirostris*) and dwarf caimans (*P. palpebrosus*). This area represents a critical refuge for crocodilians within a highly urbanized matrix. Studies conducted there go beyond population surveys, adopting an integrative approach that involves local governmental agencies and military police to emphasize the importance of protecting this area for caiman persistence, as well as to mitigate human-crocodilian conflicts and illegal hunting previously documented in the region.

Research in the municipality of Ilha de Itamaracá focuses on remnant populations of broad-snouted caimans inhabiting an extremely degraded environment. Rapid urban expansion has led to the destruction of wetlands, leaving only a few remaining water bodies, such as small channels and ponds, mainly in the eastern portion of the island. Additionally, reports of caiman poaching persist in the area. With support from the local government, the project aims to assess caiman distribution and develop strategies to reduce the impacts of urbanization on these populations.

The third study area, and arguably the most complex, is the Capibaribe River basin in Recife. Broad-snouted caimans occur throughout the basin, from upstream to downstream sections, often in areas with little riparian vegetation and intense human disturbance. This study is conducted in partnership with the Interdisciplinary Laboratory of Amphibians and Reptiles (L.I.A.R.) of the Federal Rural University of Pernambuco, coordinated by Dr. Jozelia Correia. The project involves multiple conservation stakeholders, including local fishing communities, environmental protection agencies, and research groups in universities. Its main objectives are to understand patterns of caiman distribution and health in a highly polluted and degraded urban environment, as well as to mitigate human-crocodilian conflicts.

Reported by: Paulo Braga Mascarenhas Jr.

Crocodilians of the state of Ceará

Since 2022, I have been mapping crocodilian records in the state of Ceará using data from the scientific literature, social media, local news outlets, and field expeditions. Three crocodilian species occur in the state of Ceará, northeastern Brazil: *Ca. crocodilus*, *Ca. latirostris*, and *P. palpebrosus*.

Caiman crocodilus was previously recorded in the municipalities of Trairi, Caucaia, and Crateús, within the Parnaíba and Metropolitan River basins (Roberto & Loebmann, 2016); however, the record from Trairi was erroneous. Based on preliminary results, I have updated the distribution of *Ca. crocodilus*, which is now confirmed for the Parnaíba, Acaraú, Coreaú, Curu, Metropolitan, and Lower Jaguaribe river basins. Some populations found in the Lower Jaguaribe River Basin and in the Metropolitan Region of Fortaleza - specifically in the municipalities of Horizonte, Palhano, Beberibe, and Itaitinga, may represent introduced populations and require further investigation.

New expeditions to these areas are planned to conduct interviews with local communities and collect DNA samples in order to determine the origin of these populations. There are indications of illegal captivity of caimans in some areas of Ceará, as well as intentional introductions into ponds by local residents to reduce fish stocks on their properties.

P. palpebrosus was recorded in the Parnaíba River Basin and in the Litoral Basin along the western coast of Ceará, in the municipalities of Trairi, Itapipoca, and Amontada. In the Litoral Basin, I have initiated a new project to estimate the species' distribution, habitat use, population density, threats, and local community perceptions. New occurrence records were identified in the municipalities of Amontada, Itapipoca, and Trairi. In these areas, *P. palpebrosus* inhabits gallery forests and forested streams near the coast (Figure 1), often close to coconut plantations and sand dunes. Local residents hunt the species for food and also use its skin for medicinal purposes. Nests are constructed at the beginning of the rainy season. Local people also collect eggs and maintain them in captivity until hatching (Figure 2); some respondents reported that individuals may be traded in exchange for other goods.

Figure 1. A - nest of *P. palpebrosus*, near a stream in a gallery forest in the municipality of Itapipoca, Ceará; B juvenile individual of *P. palpebrosus* captured by local people in a fish hook; C - egg of *P. palpebrosus*; D - rescued female *P. palpebrosus* from Mundaú beach, in the municipality of Trairi, state of Ceará.

Figure 2. A - Hatchlings of *P. palpebrosus* from eggs collected by local people; B- captured female in the same locality, in the municipality of Itapipoca, state of Ceará.

Caiman latirostris was recorded for the first time in the state of Ceará in 2022 (Barreto-Lima *et al*. 2022). That publication reported an individual rescued in the Lower Jaguaribe River Basin, in the municipality of Tabuleiro do Norte. To investigate the occurrence of the species in the region, I initiated a project in 2024 with an undergraduate student from the Universidade Estadual do Ceará. We conducted field surveys and interviews with local residents along the Jaguaribe and Banabuiú rivers. The results were presented at the Brazilian Congress of Herpetology in Manaus in July 2025. We found new records of *Ca. latirostris* in the region, in the municipalities of Morada Nova, Russas, Icó and Quixeramobim, and traced a possible origin of the species to an illegal breeding facility operating in 2009; following an exceptionally rainy season, flooding allowed some individuals to escape. No evidence of nests or juveniles was found, and field surveys failed to detect any individuals in the surveyed areas. Additional surveys are still needed to verify whether other individuals persist in the region; however, there is currently no evidence of established populations (Roberto *et al*. 2025).

In 2025, the Ceará Red List was published. Two crocodilian species were assessed: *Ca. crocodilus* was classified as Least Concern, and *P. palpebrosus* as Vulnerable (Guilhon *et al*. 2025).

Related references:

ROBERTO, I.J; LIMA, M.; SILVA, A.R.A.; MACIEL, M.W.L.; SILVA, P.G.M.; ROCHA, I.S.; AMORIM, J.W.P.; MOREIRA, T.S. EM BUSCA DO JACARÉ-DO-PAPO-AMARELO (*Caiman latirostris*) NA REGIÃO DO BAIXO VALE DO JAGUARIBE, CEARÁ. In: XI Congresso Brasileiro de Herpetologia, 2025, Manaus. Anais do XI Congresso Brasileiro de Herpetologia, 2025.

GUILHON, B.F; SANTOS, T.C.; LIMA, L.S.; BORGES-NOJOSA, D.M.; MELO, A.C.B.; BEZERRA, C.H.; KOCHHANN, D.; MACHADO, D.A.N.; LOEBMANN, D.; CASTRO, D.P.; ARAÚJO, F.L.; ROBERTO, I.J.; ARAÚJO, K.C.; CAVALCANTI, L.B.Q.; BORGES-LEITE, M.J.; SOUZA, P.F.M.; MACIEL, R.P.; GONZALEZ, R. C.; BENÍCIO, R.A.; RIBEIRO, S.C.; QUIRINO, T.F.; CASSIANO-LIMA, D.; FERNANDES-FERREIRA, H.; ÁVILA, R.W. *Paleosuchus palpebrosus*. In: Livro Vermelho dos Animais Ameaçados de Extinção do Ceará : Vol. 2 : Répteis e Anfíbios. - Fortaleza, C.E.: Ed. dos Autores, 2025. p. 72-78.

Systematics and taxonomy of the genus *caiman* (crocodylia, alligatoridae);

Goals: Review the taxonomy of the *Ca. crocodilus/yacare* complex using an integrative taxonomy framework

Results: We had finished the genomic species delimitation analysis, and delimited four putative species in the complex: *Ca. crocodilus*, *Ca. yacare, Ca. c. fuscus* and *Ca*. sp. in the western Amazon. The results were presented at the Brazilian Herpetology Congress, in Manaus, in July 2025. We are now writing the final drafts of the manuscript, including scale counts, geometric morphometrics and species delimitation analysis. We plan to submit the manuscript in March 2026.

ROBERTO, I. J; POLO, E.; HERNANDEZ-RANGEL, S.M.; FARIAS, I.P.; Hrbek, T. DELIMITAÇÃO DAS ESPÉCIES DO COMPLEXO *Caiman crocodilus/yacare*: UMA ABORDAGEM GENÔMICA. In: XI Congresso Brasileiro de Herpetologia, 2025, Manaus. Anais do XI Congresso Brasileiro de Herpetologia, 2025.

Other activities and related publications:

I also have been working in the CSG Taxonomy group and in the Brazilian Fauna Catalogue, in the Crocodylia section:

Zaher H, Nascimento PM, Toledo DGP, Roberto IJ, Morato SAA 2025. Caimaninae in Catálogo Taxonômico da Fauna do Brasil. Disponível em: <http://fauna.jbrj.gov.br/fauna/faunadobrasil/28579>. Acesso em: 29 dez. 2025

Other Publications 2024-2025:

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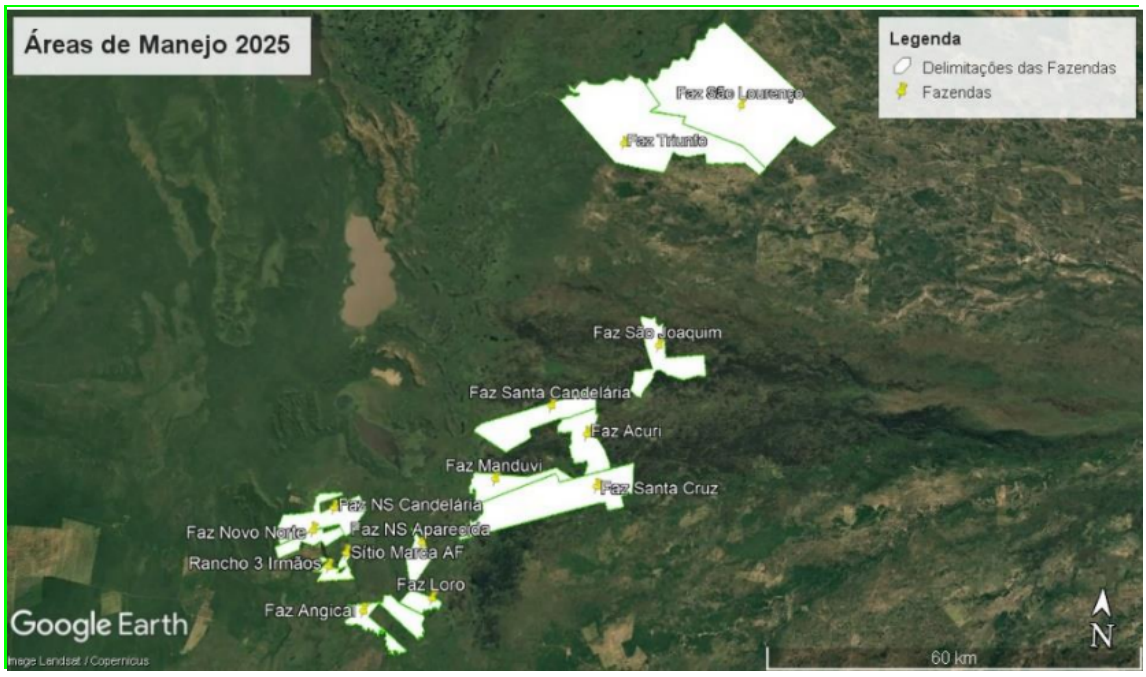
Reported by: Igor Joventino Roberto

3. Midwest region

Pantanal region

Location of monitored areas and areas subjected to nest collection.

The farms associated with the Caimasul Project, where *Ca. yacare* populations are monitored and nests are subsequently collected, are located in sub-areas of Paraguai, Castelo, and Paraguai Mirim, in the municipality of Corumbá-MS, Brazil.



Environmental Variables

The Ladário limnimetric gauge is used to express the water dynamics of the area used in management. This data, provided by the Brazilian Navy, are used to monitor habitat availability and water dynamics, which help define predictive relationships between flood levels and the reproductive potential of alligator populations.

Wildfires are part of the natural cycle of the Pantanal, playing an important ecological role. During the dry season (May to September), the biome becomes more susceptible, especially in years of severe drought, such as those caused by El Niño. These fires can be natural, caused by lightning, and help in the regeneration of vegetation, nutrient recycling, and the creation of diverse habitats.

Impacts 2024: There was an increase in the number of fires caused by the dry season and also by human factors, caused by deforestation, requiring prevention policies and environmental management to ensure the sustainability of the Pantanal. Proper fire management and the preservation of traditional practices, such as egg collection, are fundamental pillars for ensuring the sustainability of the Pantanal. These conservation initiatives not only respect the natural cycles of the biome but also promote a balanced coexistence between human needs and environmental preservation.

In 2025, an improvement in river water levels and a decrease in fires were observed. In regions commonly affected by fire, significant recovery of degraded areas was observed. The more intensive action of regulatory bodies, coupled with existing legal penalties for infractions related to the use of fire for control, pasture renewal, and deforestation, has accelerated the regeneration time of habitats, especially in managed areas.

Population Survey 2025

As required by regulations, the following elements are detailed: date and time of inventories, farms, corresponding sub-regions and sub-areas, geographic coordinates, air and water temperatures (initial and final), area covered, water level, number of caiman observed, and estimated density per hectare. In 2025, air temperatures range from 21.4°C to 30°C and water temperatures range from 23°C to 29.9°C, respectively. During the censuses, flashlights were used, allowing the

observation of animals at an estimated distance of up to 250 m from the boat. Based on the distance traveled, it was possible to calculate the sampled area, which in the same year varied from 25 to 123 ha. The number of caimans observed ranged from 16 to 843 individuals per census, totaling 1994 caimans, resulting in densities ranging from 0.28 to 9.05 caimans per hectare. The population structure recorded in 2025 was characterized based on the observation of 1994 caimans, distributed across 13 farms located in 3 sub-areas of the Pantanal in 15 independent censuses.

Class I individuals represented 0.3% of the total observed, while classes II, III, and IV corresponded to 18.6%, 34.1%, and 36.2%, respectively. Considering that individuals in classes III and IV are reproductive adults, they totaled 70.2% of the observed population. Approximately 10.8% of the total observed individuals were registered without a defined class. Calculations to predict the total number of nests are based on the population census, the size structure and sex ratio of the population, as well as temperature data and the availability of aquatic environments during the period of minimum water level recorded in the year. As stipulated in IBAMA Normative Instruction No. 7, of 30 April 2015, collection is limited to a maximum of 40% of the total number of nests predicted for each farm. In the 13 farms, totaling an area of 93,481 hectares, of which 63,936 ha are wetlands, 31,469 m were covered, corresponding to a sampled area of 880 ha. In this survey, 1,994 animals were observed, resulting in a density of 2.27 individuals per hectare and a total estimate of 117,586 caimans in the region. Of this total, 79,359 are classified in classes III and IV, considered reproductive adults, with 39% being females. Estimating that only 30% of these females are capable of nesting, a total of 13,543 nests is predicted. With the maximum quota of 40% allowed for collection, the established limit would be 5417 nests.

Ranching

Year	# Caimans observed	Harvested area (ha)	Nest quota authorized	Nest quota requested	Nests Collected	Eggs Collected
2017	143,169	38,378	9,702	2.451	747	21,338/21.628
2018	135,856	55,349	8,233	3.810	1.336	32,270
2019	145,628	42,319	4,617	2,7305	1,374/ 1.777	35,453
2020	129,172		8,199	2.000	379	9,257
2021	6,857	64,244	28.887	2.000	442	10,902
2022				1.835	1,002	24,595
2023				1.824	1.173	29,498
2024				3.553	1.359	39,270
2025	843	51.889	2000	1.400	857	24,634

Caimasul is also expanding its farming project, with the number of eggs collected growing each year.

Reported by: Eduardo Borges

4. **Southeast Region**

PROJETO JACARÉS MINEIROS - Research and conservation actions on the broad-snouted caiman (*Caiman latirostris*) in Minas Gerais, southeastern Brazil.
Ca. latirostris is widely distributed in South America and plays a key ecological role in freshwater ecosystems. In Brazil, despite the species being currently classified as Least Concern, local populations may be affected by habitat alteration, pollution, illegal hunting, and increasing human pressure. Minas Gerais state occupies a central portion of the species' distribution and represents an important area of connectivity between southern and northeastern populations.

Here, I present the main research and conservation actions developed in Minas Gerais through the Jacarés Mineiros Project, a long-term initiative coordinated by myself (André Yves), and focused on understanding population ecology, conservation genetics and investigating the trophic interactions involving *Ca. latirostris* and its functional role in regulating aquatic community structure. The project is primarily conducted in the Rio Doce State Park, one of the largest continuous remnants of Atlantic Forest in southeastern Brazil and a key refuge for crocodilians in the region. Research activities include population monitoring based on standardized nocturnal surveys, capture-mark-recapture protocols, assessments of population structure and sex ratio, and the investigation of trophic ecology using stable isotopes of carbon and nitrogen. Additional approaches include bioacoustic monitoring, telemetry studies and the evaluation of environmental contamination, aiming to build an integrated understanding of the species' ecology across multiple lagoons within the park.

Beyond research, the project actively collaborates with protected area managers, governmental agencies and local stakeholders, providing scientific data to support conservation planning and environmental awareness initiatives. By combining long-term monitoring, integrative methodologies, and close interaction with management authorities, the Jacarés Mineiros Project has been contributing to the development of a practical and theoretical framework for crocodilian population monitoring in Brazil.

These actions highlight the importance of protected areas in maintaining viable populations of *Ca. latirostris* and reinforce the role of integrative, long-term research as a foundation for crocodilian conservation in human-modified landscapes. Important steps have been taken, but much work still lies ahead.

Reported by: André Yves

The Caiman Program - Atlantic Forest Caimans is a well-established research and conservation initiative focused on the Broad-snouted Caiman (*Ca. latirostris*), and is recognized as a key program for crocodilian conservation in Brazil.

Using the caiman as a flagship species, the program aims to promote integrated conservation of crocodilians and the Atlantic Forest ecosystems through six strategic pillars:

1. **Transformative Environmental Education:** Environmental Education is one of the central pillars of the program, as it directly connects society to the socio-environmental conflicts associated with crocodilian conservation. It is understood as a continuous process aimed at transforming individual and collective values, skills, and attitudes toward nature conservation. In 2025, the Caiman Program directly benefited 697,714 people through Environmental Education initiatives. Program activities emphasize that the environment is a shared space among all living beings, encouraging the overcoming of strictly anthropocentric perspectives and fostering a more balanced, ethical, and respectful relationship between humans and nature.

2. **Ecological Research and Monitoring:** In 2025, the Caiman Program conducted ecological monitoring of crocodilian populations in river basins located in the states of Espírito Santo, Minas Gerais, and Mato Grosso, Brazil. This resulted in a total of 13 academic outputs including: 1 Master's dissertation; 2 PhD theses; 3 Undergraduate research projects and scientific works. These outputs reinforce the program's role as a center for applied scientific knowledge generation for crocodilian conservation.

3. **Wildlife Rescue and Rehabilitation**: In 2025, 28 *Ca. latirostris* were rescued and rehabilitated after being found in conflict situations, at risk, or presenting clinical impairment. The program achieved a 100% rehabilitation success rate, demonstrating the effectiveness of the technical protocols adopted for handling, veterinary care, rehabilitation, and post-recovery management.

4. **Public Policies for Nature Conservation:** The Caiman Program actively contributed to environmental governance processes by participating in seven environmental councils at international, national, and state levels, representing organized civil society. This engagement strengthens the integration of crocodilian conservation into policy-making processes and promotes evidence-based environmental decision-making.

5. **Training of Young Researchers:** In 2025, the program trained 18 students from three different countries: Brazil, Portugal and Paraguay. Capacity-building activities included technical and scientific training, fieldwork experience, academic production, and international exchange.

6. **Conservation Communication:** In 2025, the Caiman Program achieved 142 spontaneous media insertions in national and international media outlets. All media coverage focused on the conservation of Brazilian crocodilians and their habitats, significantly expanding public outreach, raising awareness.

The outcomes achieved in 2025 reaffirm the Caiman Program as a strategic initiative for the conservation of crocodilians and the Atlantic Forest. By integrating science, education, public policy, communication, and social engagement, the program makes a significant contribution to regional conservation efforts and to the global objectives of the CSG.

Reported by: Yhuri Nóbrega

Brazilian crocodilians research groups

In Brazil, several scientific studies have contributed to the understanding of the biology, ecology, and conservation of crocodilians, resulting, for example, in advances in sustainable management, habitat rehabilitation, and the formulation of public policies. During a presentation at the 11th Brazilian Congress of Herpetology, held in August 2025 in the city of Manaus, Brazil, Prof. Thiago C.G. Portelinha addressed the importance of crocodilian research, highlighting the benefits generated by accumulated scientific knowledge. He also presented an overview of the main research groups affiliated with universities, NGOs, and governmental agencies, emphasizing their lines of research, interinstitutional collaborations, and expected trends for future crocodilian research in Brazil.

Through searches in indexed scientific databases (ie Scopus and Web of Science), social media platforms (ie Instagram), and an online form widely disseminated through multiple channels, information was collected on researchers (ie academic background, institutional affiliation, and years of experience), research groups (ie institutional links, duration, and areas of activity), geographic scope (ie biome, state, and region), target species, and fields of knowledge. A total of 23 research groups were identified as actively working with crocodilians in different regions of Brazil. Most of these groups were affiliated with universities - mainly public institutions - and were coordinated by researchers holding a tertiary degree. The majority of the groups had been conducting research for more than 10 years, mainly in the Southeast, Northeast, and Northern regions of the country.

Among the six crocodilian species occurring in Brazil, most research groups focused their studies on *Ca. latirostris*. The main difficulties reported by these groups included lack of financial resources, logistical constraints for fieldwork execution, challenges in establishing partnerships and institutional support, and the absence of systematically collected data.

This synthesis demonstrated that mapping research groups working with crocodilians was essential for understanding current research coverage, thematic trends, and regional gaps, as well as the structural and logistical challenges faced by researchers. Such assessments provided a strategic basis for strengthening collaborations, guiding funding priorities, and improving long-term conservation and management of crocodilian populations in Brazil.

Reported by: Thiago C.G. Portelinha

Crocodylia Brasil - CrocBR
The symposium and roundtable on Brazilian crocodilians, organized by Crocodylia Brasil during the Brazilian Herpetology Congress (2025), provided a comprehensive and forward-looking assessment of the conservation, management, and future prospects of these species in Brazil. The sessions highlighted the successful recovery of caiman populations, while emphasizing the new challenges this success poses for coexistence, management, and public perception. Key themes included the growing role of female scientific leadership, the central importance of environmental education, and the effectiveness of sustainable management models such as farming and ranching in reducing poaching, supporting research, and engaging local communities.

The discussions also underscored the importance of advanced scientific approaches, particularly genetics and genomics, to guide conservation strategies and public policies. Case studies from the Pantanal and the Amazon demonstrated how community-based and socio-bioeconomic models can align sustainable use with species recovery, including the black caiman. Comparative reflections on national and international conservation strategies raised critical questions about balancing protection with socio-economic development. Overall, the events marked a milestone for Brazilian crocodilian research by fostering unprecedented dialogue, inclusion, and collaboration among regional groups. They reflected the maturity of the field and reinforced the consensus that the future of crocodilian conservation in Brazil depends on integrated science, education, sustainable management, and active community participation.

Reported by: Ronis Da Silveira, Thiago G.C. Portelinha, Robinson Botero-Arias, Pablo Siroski and Luís Bassetti

Prepared by: Luís Bassetti

Colombia

During the 2024-2025 reporting period, various research, monitoring, conservation, and capacity-building activities were carried out in Colombia across different areas related to crocodilians. These actions were implemented by independent researchers and professionals linked to academic projects, technical consultancies, and institutional and community coordination processes.

Research and Conservation Advances
Catalina Pinzón Barrera served as a consultant for WCS - Colombia Program, conducting activities focused on locating, counting, and differentiating wild and reintroduced populations of the Orinoco crocodile (*Crocodylus intermedius*) in the Tomo River and Caño Terecay, Vichada Department. In parallel, she supported awareness processes and data collection on human-Orinoco crocodile interactions as input for coexistence planning with communities surrounding El Tuparro National Natural Park.

Together with Camila Durán-Prieto, Catalina developed the first comprehensive Human-Orinoco Crocodile Contingency Response Protocol for the Tomo River and Caño Terecay, as an outcome of a diploma course developed by colleagues from Mexico in 2024. Additionally, she updated the SMART database design for crocodilians, consolidating monitoring information collected during 2024-2025 for the four species present in this protected area.

Simultaneously, Catalina provided technical advisory support to the Ciénaga Grande de Santa Marta Flora and Fauna Sanctuary in updating the monitoring methodology for the *C. acutus*, and supported park rangers in successfully renewing this species as a Conservation Object Value (VOC) in 2025. She also participated in the consolidation of the Colombian Network for Research, Outreach, and Conservation of Crocodilians (CROColombia), serving on the coordinating team of the first Crocodilian Symposium held during the Colombian Herpetology Congress (1-5 December, Santa Marta). She is currently working on publications derived from these conservation projects.

Researcher Clara Sierra supervised an undergraduate thesis focused on the population dynamics of *C. acutus* and *Ca. c. fuscus* in Cispatá Bay, San Antero Municipality, Córdoba Department. At the time of reporting, the environmental authority had not advanced in formulating or implementing a management plan for *C. acutus*, and therefore the sustainable use strategy has not been enacted. A call is made to the Ministry of Environment and Sustainable Development and to Colombia's CITES Scientific Authority to advance this strategy in accordance with international commitments.

Juan Salvador Mendoza completed his master's thesis at Universidad del Norte on *C. acutus* populations along the coastal edge of the Sierra Nevada de Santa Marta, including nesting monitoring. A protocol for managing human-crocodile interactions was implemented, along with zoning measures to prevent accidents in areas heavily visited by national and international tourists. He is currently conducting remote nest monitoring using camera traps to study parental behavior and predation by natural predators and introduced species such as feral dogs.

Since 2021, the National University of Colombia, through the Roberto Franco Tropical Biology Station, has conducted genetic studies of the *ex situ* population of *C. intermedius* under its custody and one of the two remaining *in situ* populations in the Arauca Department. Results demonstrated that the *ex situ* population constitutes a genetic reservoir that should be used to establish *de novo in situ* populations. They also allowed the organization of breeding stock to maximize genetic diversity and define the management purpose of the approximately 500 individuals maintained *ex situ*. Low effective population size and intermediate genetic diversity were identified in the *in situ* population, supporting egg ranching as a short-term conservation strategy.

Based on this information, 11 individuals of *C. intermedius* were released in the Tomo River (Vichada) to establish the first of five *de novo* population in the Colombian Orinoquia. In 2024, this population was reinforced with 14 additional individuals, and monitoring of previously released individuals was conducted.

Parallel to this, under an agreement between the Faculty of Veterinary Medicine and Animal Science and the Regional Autonomous Corporation of Cundinamarca (CAR), population studies of *C. acutus* were conducted (2023-2025) in the Magdalena, Negro, and Bogotá rivers within CAR's jurisdiction. The study aims to assess biological and genetic conservation status, characterize human–crocodile interactions, and implement environmental education actions.

John Jairo Gómez González is developing conservation actions for *C. acutus* and *Ca. c. fuscus* along the Colombian Caribbean coast, particularly in La Guajira and northern Bolívar. Activities include population assessments, reproductive ecology studies, and human-crocodilian risk management with community participation.

Felipe Hernández has led research and applied management processes for *C. acutus* in Cundinamarca, integrating genetics, ecology, and socio-environmental components. His master's thesis validated microsatellite markers that identified eight management units, revealing alarmingly low genetic diversity and a scenario consistent with an extinction vortex. Populations in the Bogotá and Negro rivers show signs of recovery but remain fragile due to hunting pressure. In the Magdalena River, no stable population was identified, only dispersing individuals, with high levels of conflict reported with fishermen. Environmental education initiatives were implemented, including the booklet "Lena, the Magdalena Crocodile" and outreach talks. Preparations were also made at the Confiscated Wildlife Care and Research Center (CAIMAINC) to support CAR and train first responders in managing "problem" individuals.

Ex-situ management included genetic analysis of breeding individuals in a commercial facility to evaluate inbreeding, conservation value, and release recommendations. Satellite tracking of six relocated individuals and ecotoxicology studies are ongoing to improve coexistence strategies.

Animal Welfare in Captive Crocodilians
Ayazo-Toscano *et al*. conducted a systematic review under PRISMA methodology on animal welfare in captive crocodilians. Of 429 records identified, 49 met eligibility criteria. Most studies were from Oceania (33%) and North America (31%), while South America represented only 8%. *C. porosus* and *C. niloticus* were the most studied species. The review highlighted significant knowledge gaps in South America, representing an opportunity for further research.

Genetic Markers and Traceability
An interdisciplinary study genotyped breeding stocks of *C. acutus* using defined genetic markers to implement a traceability system ensuring the origin of skins produced in farms. This system will allow genetic verification of skins or derived products, strengthening control and legality in species utilization.

Congenital Malformations in *Crocodylus acutus*
A study conducted by Colombian and Portuguese researchers identified 42 types of congenital anomalies in eggs from a captive breeding facility in Turbaná, Bolívar. Limb and tail malformations represented approximately 29% of anomalies observed, highlighting the importance of reproductive and health monitoring in *ex situ* management systems.

Trade
The crocodilian production sector in Colombia has historically focused on *Ca. c. fuscus* and *C. acutus*. Since 2007, the number of operational farms has declined significantly. *C. acutus* farms decreased from 17 to 9, while *Ca. c. fuscus* farms decreased from 48 to 29. Annual exports of *Ca. crocodilus* skins remain stable at approximately 400,000 skins. For *C. acutus*, exports increased from approximately 900 to 4800 skins in 2024-2025, primarily due to the release of accumulated stocks rather than increased production capacity.

Final Considerations
Activities during 2024-2025 demonstrate important advances in research, monitoring, conservation, and institutional coordination for crocodilians in Colombia. However, challenges remain regarding the implementation of management plans and sustainable use strategies, which require strengthened institutional commitment and continuity in future reporting periods.

Prepared by: John A. Calderon Mateus

Costa Rica

The National System of Conservation Areas (SINAC), the governmental authority responsible for wildlife management in Costa Rica, has not yet officially approved standardized protocols and procedures for managing human-crocodile interactions. Although protocols were drafted in 2020, they were not formally adopted. Subsequent revised versions were also prepared but remain unofficial. As a result, interaction cases continue to be addressed individually without a standardized operational framework.

The only officially adopted instrument is the "Joint Operational Protocol between the different police forces under the Ministry of Public Security and the National System of Conservation Areas for the use of lethal force in emergency situations involving humans and crocodilians." This protocol essentially authorizes law enforcement agencies to kill crocodiles in cases of attacks or imminent threat.

During the last reporting year, only one non-fatal attack by *C. acutus* was documented. Consequently, public concern has remained relatively low, and there has been limited political or social pressure regarding perceived overpopulation or proposals to authorize hunting.

Within the Legislative Assembly, Bill No. 24752, titled "Law for the Control of Crocodiles and Caimans in Costa Rica," is currently under discussion. The bill was introduced in December 2024 and reviewed by the Environmental Commission in February 2025. It has received comments and critiques from multiple organizations that have identified substantive weaknesses in its content. As of the reporting period, the Bill has not advanced further in the legislative process.

The project "Management of Human-Crocodilian Interactions in Costa Rica: The Case of the Nicoya Region" has been actively training government officials and community members in the northern Pacific region of the country on coexistence strategies and management of human-crocodile interactions.

Additionally, the project "Use of Remotely Piloted Aircraft Systems (RPAS) as a Tool for Monitoring Crocodilian Populations and Their Habitat" is currently being implemented. The initiative aims to develop a standardized protocol for counting and monitoring crocodilians using drone-based methodologies.

Reported by: Laura Patricia Porras Murillo

Cuba

Crocodile conservation in Cuba includes *in situ* management through three breeding facilities dedicated to *C. rhombifer* and seven dedicated to *C. acutus*. These institutions prioritize conservation and research objectives, with particular emphasis on ranching and release programs within the natural distribution range of each species. However, these programs face several constraints that limit expected outcomes. Currently, the infrastructure of these breeding centers requires renovation, as well as reorganization of the captive populations. The Cuban Crocodile Specialist Group (GECC) has undertaken actions to strengthen technical capacity and has provided information on the development of projects with external funding. One such action was a meeting held within the framework of the Environmental Convention conducted in Havana in July. This event provided an opportunity to bring together representatives from all Cuban breeding facilities and specialists from zoos in the United States. The meeting also included the participation of CSG Co-Chair Alejandro Larriera.

Work on *ex situ* populations focuses on the two species of the genus *Crocodylus* occurring in the Cuban archipelago. Currently, the only wild population of *C. rhombifer* is restricted to the southwestern region of the Zapata Peninsula, where it occurs in sympatry with *C. acutus*, with which it hybridizes extensively both in captivity and in the wild. The principal threats currently identified for *C. rhombifer* include: (a) illegal hunting associated with the meat market; (b) habitat modification and loss; (c) loss of genetic identity due to hybridization; and (d) human exploitation of prey species that form part of the diet of juvenile and adult individuals.

The main actions currently being implemented include: strengthening environmental education and awareness campaigns directed at local communities and tourists visiting the Zapata Swamp; maintaining systematic sampling of wild populations and incorporating molecular analyses of captured individuals to estimate population size of *C. rhombifer* and update assessments of hybridization levels within the core area of the wild Cuban crocodile population; implementing assisted reproduction techniques to maximize genetic diversity in captivity using genotypes adapted to current ecosystem conditions in the Zapata Swamp; maintaining the genetic identity of *C. rhombifer* in captivity through systematic genetic characterization of individuals incorporated into the Zapata breeding stock; continuing release actions of *C. rhombifer* individuals from the Zapata breeding facility into protected areas within the Zapata Swamp Protected Area of Managed

Resources (APRM); and strengthening ecosystem health in habitats supporting *C. rhombifer* to enhance resilience to climate change.

C. acutus in the Cuban archipelago occupies an estimated distribution of approximately 128 km² within fragmented habitats. The species prefers brackish aquatic ecosystems but can also inhabit rivers, lagoons, and freshwater reservoirs. Approximately 30 nesting localities have been reported in Cuba, with the most significant areas including the Guanahacabibes Peninsula, Zapata Swamp, southern Camagüey, southern Las Tunas and Granma provinces, and the Isle of Youth. This species faces several threats, including: (a) illegal hunting associated with the meat market; (b) habitat transformation and loss; and (c) hybridization with *C. rhombifer*, particularly in the Zapata Swamp. Ongoing research is focused on assessing the impact of hybridization on the genetic integrity of both species.

Current priority actions include: systematic sampling of natural populations to update distribution range and current population estimates within the Cuban archipelago; molecular studies of individuals captured across all reported localities to confirm the species' true distribution; strengthening ecosystem health in habitats supporting *C. acutus* to enhance resilience to climate change; developing new management options aimed at improving animal welfare in captive *C. acutus* populations while contributing to conservation of wild populations; and environmental education initiatives to increase awareness among communities living near *C. acutus* habitats.

Prepared by: Gustavo Sosa Rodríguez

Dominican Republic

In May 2024, a new integrated conservation initiative took shape at Lago Enriquillo, Dominican Republic, combining head-starting, field-based research, and community outreach to advance the recovery of *C. acutus*. The program was initiated with the collection of the first head-start cohort in May 2024, coinciding with a technical workshop hosted by the Dominican Ministry of Environment and Natural Resources at Lago Enriquillo. The workshop brought together representatives from the El Salvadorian Ministry of Environment and Natural Resources, the Crocodile Research Coalition, and Clemson University, and focused on population monitoring techniques, applied conservation strategies, and research approaches for crocodile populations, strengthening regional capacity and collaboration.

The first cohort of head-started crocodiles was successfully released in February 2025, followed by the collection of a second cohort in May 2025 to ensure continuity of the program. Post-release monitoring began in May-June 2025, when individuals from the first head-start cohort were recaptured to collect morphometrics, assess body condition, conduct gastric lavage, and deploy satellite transmitters on three crocodiles. To enable direct comparison of post-release performance, wild crocodiles from the same cohort were also captured and sampled using identical protocols, including satellite telemetry.

Follow-up capture events in August and November 2025 extended post-release monitoring, with both head-started and wild crocodiles from the same cohort assessed for growth, and body condition, to support seasonal and temporal comparisons of post-release success.

During the 2025 nesting season at Lago Enriquillo, egg laying began in early February and hatchings extended through June, with a total of 39 nests and 659 eggs recorded across six of the nine known nesting beaches. La Charca was the most important nesting site, accounting for the highest number of nests and eggs, although it exhibited one of the lowest hatching success rates, suggesting the influence of environmental or disturbance-related factors. Hatching success, clutch size, and egg dimensions varied among nesting sites, reflecting differences in female condition and local environmental conditions affecting incubation.

Additional research efforts have focused on population monitoring and ecological assessment of crocodiles in Lago Enriquillo. Two systematic boat surveys conducted in May and June of 2024 and 2025 provided baseline data for population size estimation. Ongoing capture surveys allow for repeated collection of morphometrics, body condition data, and biological samples, including blood and scute tissue for ecotoxicology analyses. Fecal samples are collected to investigate microplastic ingestion, while stomach content analyses contribute to diet research. Complementary biodiversity surveys at the field site document the presence of sympatric species, providing context for ecosystem interactions and informing conservation strategies for the American crocodile and its habitat.

Poaching and illegal removal of crocodiles were documented in recent years, underscoring ongoing threats to the Lago Enriquillo population. In 2024, marked crocodiles originating from the lake were seized by authorities in Santo Domingo, indicating illegal capture and transport beyond the study area. In 2025, multiple crocodiles were unlawfully removed from Lago Enriquillo and relocated to a concealed sewage pond in a nearby town. During the same year, one crocodile equipped with a satellite transmitter was illegally taken; the transmitter was deliberately cut off and left behind. Access to the lake was further obstructed when individuals blocked a primary entry route by cutting trees and cacti and setting them on fire, apparently to prevent researcher access to the site. On 6 June 2025, a male American crocodile was accidentally captured in an artisanal trap; fortunately, it was discovered by park rangers and safely released. These

incidents highlight persistent anthropogenic pressures on the population and emphasize the importance of continued monitoring, enforcement, and community engagement to support effective conservation outcomes.

Concurrently, an educational outreach program was implemented in local schools near the field site during May–June 2025 to promote conservation awareness and community engagement. These efforts expanded to a national audience with the inaugural World Crocodile Day event held at the Dominican National Museum of Natural History in June 2025, increasing public visibility and support for crocodile conservation in Lago Enriquillo.

Reported by: Ramon Joel Espinal

Ecuador

Information about Black Caiman in the Lower Ecuadorian Amazon: Evidence of increasing survey difficulty and likely hunting pressure

Long-term monitoring of *M. niger* in the Ecuadorian Amazon reveals a concerning shift: what was once a relatively straightforward species to survey in lowland blackwater systems has become increasingly difficult to detect, identify, and approach. Recent fieldwork conducted in August 2024 along the Cocaya River, and in December 2024 and January 2026 along the Lagartococha River (at the southern and eastern boundaries of the Cuyabeno Wildlife Production Reserve) highlights a marked decline in detectability and a pronounced change in animal behavior. While environmental factors such as water level and precipitation influence detection probability, the available evidence strongly suggests that hunting pressure, particularly illegal cross-border (Ecuador-Peru) hunting, is the primary driver of these changes. The implications are serious, both for population monitoring and for the conservation status of Black caiman in Ecuador.

Historical context: From detectable to elusive

Black caiman populations across the Amazon basin were heavily depleted during the early 20th century due to commercial hunting for skins. In Ecuador, populations are largely restricted to blackwater wetlands in the provinces of Napo, Orellana, and Sucumbíos. Since 2017, standardized nocturnal spotlight surveys have been implemented to monitor populations in areas such as Cocaya and Lagartococha rivers. Earlier surveys, particularly those conducted in Lagartococha in 2017, demonstrated that black caiman were relatively easy to detect and approach. Encounter rates averaged approximately 1.1 detections/km (CI 95% ± 0.2), and observers were typically able to approach individuals closely enough to confirm species identity and estimate body size. These conditions allowed for robust application of hierarchical N-mixture models (Naveda-Rodríguez *et al.* 2020) and meaningful comparisons over time. In contrast, the most recent surveys in the Cocaya and Lagartococha rivers show a dramatic departure from these earlier conditions.

Key findings from the latest surveys (August 2024, December 2024, January 2026)

Fieldwork has been conducted over 12 nights, covering more than 100 km of river transects. A total of 28 caiman detections were recorded. However, only four individuals could be identified to species level (including both Black caiman and Spectacled caiman), while the remaining 85% of detections consisted solely of eyeshine observations without taxonomic confirmation. The most striking observation was behavioral: Caimans exhibited highly evasive and cryptic behavior. Individuals submerged or retreated before the survey team could approach. Standard protocols, such as turning off the motor and approaching quietly by paddle, were ineffective in most cases. As a result, it was impossible to obtain reliable data on species identity, size structure, or abundance. The dataset could not be analyzed using the established statistical framework, effectively rendering the survey unsuitable for population estimation or trend analysis.

Environmental factors *vs.* hunting pressure

High water levels during the survey period likely contributed to reduced detection rates. When rivers and lagoons flood, caimans can disperse into inundated forests, where dense vegetation obstructs visibility. This effect is well documented and can significantly lower encounter rates. However, environmental conditions alone do not explain the magnitude of the observed changes. Previous surveys conducted under similar hydrological and climatic conditions yielded much higher detection rates and allowed for close approaches to individuals. The critical difference appears to be behavioral avoidance. The consistent inability to approach caimans indicates a strong learned response to human presence. This type of behavior is widely associated with sustained hunting pressure. Although no direct evidence of hunting was recorded during the survey, multiple reports from local people indicate a persistent presence of illegal hunters, particularly from Peru. Given the location of the Cocaya and Lagartococha Rivers; very close to the Peruvian border (Cocaya), and along the Peruvian border (Lagartococha), it is highly plausible that this area is subject to regular illegal hunting incursions.

There is little doubt that hunting is the main factor explaining both the reduced detectability and the pronounced behavioral changes observed in black caiman populations in the Cocaya and Lagartococha rivers. Key lines of evidence include: A sharp decline in identifiable detections compared to historical surveys, strong evasive behavior preventing close approach, inability to apply standard monitoring methods due to lack of reliable observations, and local reports of ongoing illegal hunting activity. Large crocodilians are known to rapidly develop avoidance behavior in response to hunting and other human activities (*e.g.* Ron *et al.* 1998, Ahizi *et al.* 2021, Portelinha *et al.* 2022). Over time, this can lead not only to reduced detectability but also to local population declines, particularly when hunting is unregulated.

Implications for monitoring and conservation
The increasing difficulty of surveying Black caiman has two major implications. First, standardized spotlight surveys rely on the ability to detect and approach individuals. When caimans become too evasive, this method fails, preventing accurate estimation of population size and trends. This undermines long-term monitoring efforts and limits the ability to assess conservation status. Second, behavioral changes of this magnitude are strong indicators of human pressure. Even in the absence of direct evidence, the observed patterns suggest that Black caiman populations in the lower Ecuadorian Amazon may be under significant threat from illegal hunting.

To address this situation, immediate action is needed: i) Strengthen control and surveillance to deter illegal hunting; ii) Enhance cross-border coordination to address transboundary poaching; iii) Adapt monitoring methods and explore complementary approaches (eg drones, environmental DNA) that are less dependent on close encounters; iv) Engage local communities to implement community-based monitoring and reporting of illegal activities; and/or, v) develop a sustainable harvesting management plan with appropriate regulatory mechanisms that sets non-detrimental harvest limits. The behavioral shift described here not only complicates population monitoring but also raises serious concerns about the medium- to long-term conservation status of the species in the region. Without urgent intervention to control or at least manage, illegal hunting, both the population and our ability to monitor it effectively will continue to decline.

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***Crocodylus acutus* populations** (Information provided by Francisco Villamarin)
A project focusing on *C. acutus* populations in southern Ecuador aims to evaluate mercury biomagnification patterns across trophic levels and to investigate the phylogenetic relationships between Ecuadorian and Peruvian populations. The study is being developed collaboratively by the Universidad Regional Amazónica Ikiam and the Escuela Politécnica Nacional del Ecuador, with the goal of generating baseline information relevant to the conservation, ecological assessment, and regional management of this species.

Reported by: Galo Zapata-Ríos& Robinson Botero-Arias

El Salvador

The National Program for the Conservation of Crocodilians (PNCCC) is a strategic initiative of the Government of El Salvador aimed at safeguarding *Ca. crocodilus* and *C. acutus*. These species play a critical role in maintaining the ecological balance of aquatic ecosystems but face ongoing threats from habitat loss and illegal hunting. The program implements monitoring, rescue, environmental education, and international cooperation actions aimed at population recovery.

Key Results (2024)
During 2024, the program focused on expanding territorial knowledge and improving management techniques:
- Discovery of populations**:** Two new caiman populations were identified in the eastern region of the country, where no previous official records existed.
- Reproductive success and nest management**:** Monitoring efforts led to the detection of 16 crocodile nests (11 *ex situ* and 5 *in situ*) and 6 caiman nests. Of the 385 eggs transferred to the Zapatero Canal nursery facility, 319 hatchlings successfully emerged, were marked, and subsequently released into their natural habitats.
- Technical strengthening**:** New capture equipment was developed to enhance safe handling procedures, and additional monitoring routes were established in both western and eastern regions of the country.
- International cooperation**:** Technical staff participated in exchange programs in the Dominican Republic (Lake Enriquillo National Park) and Mexico (Nayarit) to receive specialized training in human-crocodile conflict management and advanced monitoring methodologies.

Key Results (2025)
In 2025, efforts were characterized by consolidation of human-wildlife conflict management and enhanced public outreach:
- Conflict management**:** Successful removal and relocation operations of *C. acutus* individuals were conducted in high public-use areas, including Playa Km 59 and Playa Amatecampo, mitigating risks of negative human-crocodile interactions.
- Monitoring and nest protection**:** Ten *in situ* caiman nests were monitored within Natural Protected Areas (NPAs),

ensuring nest integrity against predation and anthropogenic threats.

- Strategic transfer**:** The program supported the transfer of individuals from the former National Zoo to FURESA under strict animal welfare protocols.
- Education and signage**:** In collaboration with the University of El Salvador (UES), preventive signage was designed for habitats with crocodilian presence. Additionally, 15 environmental education workshops were delivered, reaching approximately 500 students across five schools.
- Regional leadership**:** El Salvador hosted the CSG Regional Workshop, positioning the country as a regional reference in crocodilian management and monitoring under international standards.

General Conclusions for the CSG

The PNCCC has demonstrated increasing capacity in collecting critical biostatistical data and implementing adaptive management strategies for both species. The integration of local communities, academic institutions, and international organizations has been fundamental in strengthening environmental governance in key sites such as the Barra de Santiago Ramsar Site and the Los Cóbanos Conservation Area. The results achieved over the past two years provide a solid foundation for informed decision-making aimed at ensuring the long-term survival of crocodilians in El Salvador.

Prepared by: Jordi Humberto Segura Yanez

French Guiana

Caiman Species in French Guiana

French Guiana hosts four crocodilian species: *M. niger*, *Ca. crocodilus*, *Paleosuchus palpebrosus*, and *P. trigonatus*. These species occupy rivers, wetlands, floodplains, and forest streams across the territory, but their levels of scientific knowledge and conservation concern differ significantly.

Ca. crocodilus is the most widespread and well-documented species. It occurs in a broad range of habitats, including disturbed environments, and is frequently recorded. Its population status is relatively well understood compared to other species.

The two dwarf caimans, *P. palpebrosus* and *P. trigonatus*, are associated with forested freshwater systems, especially small streams. Their cryptic behavior and low detectability result in limited records. Consequently, their distribution and population status in French Guiana remain poorly quantified.

M. niger (black caiman) is the species of highest conservation concern. It is classified as Near Threatened in French Guiana and occurs in isolated populations at the northeastern limit of its range. Available information is fragmented and largely based on localized observations rather than systematic surveys. Key areas of occurrence include the Kaw-Roura wetlands, the Mahury River, and the Approuague-Oiapoque region, but quantitative data on abundance are lacking. These populations are considered ecologically significant due to their isolation and potential genetic uniqueness.

Across all species, a major limitation is the lack of comprehensive monitoring in remote wetland habitats, leading to significant spatial gaps in knowledge.

Illegal gold mining represents the main emerging threat to aquatic ecosystems in French Guiana. The use of mercury in gold extraction leads to contamination of river systems, where it is converted to methylmercury and accumulates within aquatic food webs. Evidence from regional investigations indicates high levels of contamination in fish and associated health impacts in human populations, particularly in indigenous communities.

Caimans are likely highly exposed to mercury due to their trophic position as predators feeding on fish. Bioaccumulation and biomagnification processes suggest that all four species may be affected, although direct measurements are lacking. Potential impacts include neurological impairment, reduced reproductive success, and chronic physiological stress.

The risk is particularly relevant for *M. niger*, given its isolated populations and uncertain status. For *Paleosuchus* species, the lack of baseline ecological data limits the ability to assess impacts. Even for *Ca. crocodilus*, long-term exposure may have sublethal population effects.

Quantitative information on caiman abundance in French Guiana is very limited and uneven among species. The only species with site-based estimates is *M. niger*, for which local studies in Kaw-Roura report densities of around 11 individuals per kilometer in optimal wetland habitats, although such values are not representative of the wider region, where populations are likely patchy and lower in density. For *Ca. crocodilus*, despite being widespread and frequently observed, no standardized density estimates are available for the territory. Similarly, for *P. palpebrosus* and *P. trigonatus*, there are no quantitative abundance data, mainly due to low detectability and limited field studies. Overall, the lack of robust, territory-wide estimates reflects a major knowledge gap rather than true population scarcity.

Caiman conservation in French Guiana is constrained by limited data and increasing environmental pressure. Priority actions include improving population assessments, focusing on key regions, and evaluating mercury contamination in crocodilian tissues to better understand risks and inform conservation strategies.

Reported by: Benioit Thoisy and Robinson Botero-Arias

Guatemala

Crocodile research in Guatemala has progressed in recent years. In 2013, the most recent nationwide survey of *C. moreletii* was conducted across 10 different water bodies, confirming presence in the study sites and concluding that populations had remained relatively stable (Corado *et al*. 2020), based on comparisons of encounter rates with earlier studies conducted by Lara (1990), Castañeda (1998), and Lara, Queral-Regil and Castañeda (2000).

In 2021, an additional study focused on *Crocodylus acutus* in three rivers of Izabal Department (Río Dulce, Río Sarstún, and Río Polochic), providing updated information on its distribution and status in eastern Guatemala.

In 2022, a new study of *C. moreletii* was conducted in Petén in response to human-crocodile conflict at Lake Petén Itzá, at the request of the National Council of Protected Areas (CONAP). As part of this project, a management plan for the conservation of *C. moreletii* in Lake Petén Itzá was developed. This document serves as a practical tool for governmental and non-governmental organizations in managing public safety risks associated with crocodiles and provides a framework for evaluating and preparing strategies, actions, and policies by key institutions responsible for wildlife management in the Petén region.

Subsequently, in 2024, nocturnal surveys were conducted along Guatemala's southern Pacific coast (Retalhuleu, Suchitepéquez, Escuintla, Santa Rosa, and Jutiapa) to determine sites of presence of *C. acutus*. Among the monitored areas, presence was confirmed at three sites: (i) Río Nahualate, Suchitepéquez (incidental observation), (ii) a private African oil palm plantation within the same department, and (iii) a shrimp farm in Jutiapa. In the latter two sites, higher numbers of crocodiles were recorded compared to state-protected areas. These findings suggest significant anthropogenic pressure on the species and limited tolerance for its presence throughout much of the southern coastal region. The study also documented areas of presence of *Ca. crocodilus*, as well as illegal consumption and sale of meat and live individuals in municipal and local markets.

Currently, monitoring is being conducted along the Motagua River in Izabal and in additional areas not previously covered in the 2021 project, with the objective of surveying the entire department. Alta Verapaz has also been included, where the presence of *C. acutus* has already been confirmed and both fatal and non-fatal human-crocodile incidents have been reported.

It is important to highlight that the 2024-2025-2026 monitoring efforts have been made possible through collaboration with CrocDocs (University of Florida) and financial support from CrocFest and the Rufford Foundation (2021-2025).

Prepared by: Valerie García

Jamaica

Crocodylus acutus in Jamaica faces numerous threats including illegal hunting, habitat loss, illegal capture and possession. Although typically shy and docile, misconceptions about the species' behaviour have fuelled fear and negative human-crocodile interactions. Over the past six years, however, there has been significant progress in strengthening conservation and research efforts for the species at a national scale.

The first island-wide crocodile assessment in Jamaica was completed in 2022, and this has since guided future conservation priorities. This was a collaborative project between the National Environment and Planning Agency (NEPA), the University of the West Indies (UWI), Mona Campus, and the University of Florida (UF) Croc Docs, spearheaded by Treya Picking. One hundred and five spotlight surveys were conducted across 35 habitats over a two-year period (2020-2022), and 1974 geolocations were compiled from historical and current data. The results confirm crocodile presence across the historical south coast range, with small, scattered populations on the North Coast. Crocodiles were found in both artificial and natural habitats, demonstrating their ability to adapt and persist in a changing environment. Seven Crocodile Conservation Units (CCU) were identified as high-priority habitats for the long-term conservation of *C. acutus* in Jamaica. This research will be published in April 2026.

The National Environment and Planning Agency, which has the mandate to ensure the conservation of *C. acutus* under both national laws and international agreements, has increased efforts to support wildlife rescue efforts for protected species. This has included increased financial support to rescue facilities such as Hope Zoo and the Holland Bay Crocodile Sanctuary, as well as the expansion of its Game Warden network, who voluntarily respond to wildlife incidents including

those involving *C. acutus*. Enforcement of the Wildlife Protection Act (the local legislation that protects the species) has also received a significant boost, with substantial increases to the maximum fines and prison terms for violations. Penalties have risen from a maximum of JMD$100,000 or one year of imprisonment to a maximum of JMD$3,000,000 or three years of imprisonment.

The JamCROC Initiative (Jamaica Crocodile Research, Outreach and Conservation Initiative) founded and spearheaded by Treya Picking, recently produced new educational materials, including a pamphlet, poster, and single page infographic. A radio advertisement was also developed to share key information on crocodiles and promote safe coexistence through the 'JamCroc Wise Rules'. This initiative works closely with environmental organisations, Game Wardens, communities and law enforcement to strengthen research, outreach and capacity building for wildlife response and monitoring. Its key partner is NEPA. Since 2024, NEPA and the JamCROC Initiative have partnered to conduct field surveys and outreach activities. Long-term monitoring is underway across key crocodile habitats and outreach has been conducted in schools, workplaces, communities, public events and through media engagement.

Leighton Mamdeen (NEPA), Treya Picking (JamCROC Initiative) and Joey Brown (Hope Zoo) have partnered to carry out multiple American crocodile training workshops. To date, over 50 participants from various entities and communities have received hands on training in crocodile ecology, incident response and safe handling protocols. These sessions are helping to build national capacity and improve wildlife response.

The Holland Bay Crocodile Sanctuary, run by Lawrence Henriques, continues to play a critical role in rescue, rehabilitation and education. Its headstart program is contributing to the recovery of the depleted population around the Holland Bay wetlands. The annual headstart health screens also provide an opportunity to train biologists and veterinarians from various organizations.

Building on findings from the first island-wide survey, which documented crocodile use of both natural and artificial wetlands, a serious management challenge emerged on 22 April 2025, when multiple dead crocodiles were discovered at the Greater Portmore Sewage Ponds. This government-operated water treatment facility consists of 21 large artificial ponds that historically support a resident crocodile population. Responding to an initial report, NEPA, the JamCROC Initiative, and Hope Zoo rescued a severely emaciated 12-foot male trapped in a dried pond; however, further inspection revealed 12 additional crocodiles (8 adults and 4 juveniles) that had died after becoming trapped in empty ponds for several weeks. The steep, plastic-lined sides of the ponds created an inescapable barrier once water levels receded. Necropsies were conducted, and a full assessment of the incident will be presented by Joey Brown at the 28th CSG Working Meeting in Morocco.

On 28 October 2025, Jamaica suffered a direct hit by Hurricane Melissa, a record-breaking Category 5 hurricane and the strongest recorded hurricane to make landfall on the island. Melissa caused catastrophic destruction across Jamaica, from which communities and infrastructure will take years to recover. There were reports of crocodiles being displaced by the floodwaters, however, telecommunications outages across central and western Jamaica limited reporting in the immediate aftermath. Although Kingston and other eastern areas were spared from the worst destruction, Hope Zoo sustained minor infrastructural damage and lost electricity and water for over three weeks. Many colleagues and facilities in the United States quickly provided much-needed support for the zoo and ongoing recovery efforts. Much thanks is given to Gatorland Global, CrocFest, Fort Worth Zoo, Zoo Miami, and Greater Good Charities. The Holland Bay Sanctuary also sustained minor infrastructural damage and received assistance. Re:wild established a fundraiser to support Game Wardens and Environmental community groups in their long-term recovery, managed locally by the JamCROC Initiative. NEPA and the JamCROC Initiative have been conducting crocodile surveys in key habitats, particularly in western areas that were heavily impacted.

Prepared by: Treya Picking

Mexico

1. Research and new information

Researcher	Project
Pierre Charruau	Genomic insights into saltwater crocodile adaptation and speciation: conservation implications for the Caribbean islands. SMRT Conserve Grant 2024, PacBio.
Ojeda Adame, Ricardo Adrián	Donde la arena es negra: Relatos de criaturas del mar y del pantano. Programa de Estímulo a la Creación y Desarrollo Artístico, Categoría Investigación y Divulgación. Patrimonio Cultural 2025-2026.
Giovany Arturo González Desales	Condición corporal de crocodilianos en ambientes antropizados de la costa de Chiapas. Procedimiento PO-211-04 Investigación científica, DGIP-UNACH. Clave 07/VET/RPR/043/24
Juan Carlos A. Sandoval-Rivera; Universidad Veracruzana	Collaborative environmental education for biodiversity conservation in Veracruz: Towards a living pedagogy of the wetland territories for the care of people and crocodiles. Research in progress (2026-2028).

Asela Marisol Buenfil-Rojas	Integrated assessment of chemical pollution and its impacts in Mexican crocodiles. Research in progress (2021-2027).
Benjamín Castillo Elías, Universidad Autónoma de Guerrero	Vulnerability and risk due to the presence of the American crocodile by hydrometeorological phenomena in the coastal zone of the municipality of Acapulco, Guerrero, Mexico. Research in progress (2025-2027).
Jerónimo Domínguez Laso/COMAFFAS AC	**Abril 2023 a septiembre 2024.** Proyecto de Monitoreo del Cocodrilo de Pantano (*Crocodylus moreletii*) y Cocodrilo de Río (*Crocodylus acutus*) en el Sistema Lagunar Nichupté.
Jerónimo Domínguez Laso/COMAFFAS AC	**Marzo, 2025.** Proyecto para el Conocimiento y Conservación de las Poblaciones Silvestres de Cocodrilo *(Crocodylus acutus)* en el Río Grijalva. "Sumidero Croc". Investigación en curso.
Jerónimo Domínguez Laso/COMAFFAS AC	**Diciembre de 2025.** Receptor del premio "*The Crespo Conservation Award*" y de una beca otorgada por la Fundación de la Universidad de Florida (IFAS).

2. Management and conservation actions

Leader	Project
CONABIO GEC-MX	The Mexican Crocodilian Specialist Group (GEC-MX) adopted its work plan for 2025-2026, which resulted in nine working groups, highlighting the following: ranching of *C. moreletii* and *C. acutus*, use of wild specimens, traceability of skins, human-crocodile interactions and non-extractive use of specimens.
Second National SOS Cocodrilo Mexico Meeting	In 2025, the Second National SOS Cocodrilo México Meeting was held as a national coordination platform that brought together specialists, academics, government authorities, conservation organizations, and interested stakeholders from different regions of the country. The meeting aimed to strengthen the exchange of experiences and the joint development of strategies for the conservation of crocodilians and their habitats, as well as to promote harmonious coexistence between human communities and this protected species, which holds significant ecological, cultural, and socioeconomic value. This national meeting represented a collaborative, multi-stakeholder effort to foster synergies among key actors, raise environmental awareness, and highlight the importance of respectful and sustainable coexistence with wildlife in Mexico.
Jerónimo Domínguez Laso/COMAFFAS AC	**Marzo de 2024.** Curso de Capacitación Individual Especializado en Manejo de Cocodrilianos en Cautiverio. Dirigido a miembro del sector privado empresarial.
Jerónimo Domínguez Laso & Liliana Berenice García Reyes/COMAFFAS AC	**Agosto de 2024.** Participación como instructores invitados con la temática "Conociendo y Cuidando a los Cocodrilos" en el Curso de Verano organizado por nuestros amigos de la CPAMP Centro de Capacitación.
Jerónimo Domínguez Laso/COMAFFAS AC	**25 al 27 de octubre de 2024.** Curso de Capacitación Internacional: Manejo de Cocodrilianos Mexicanos y Experiencias en la Crianza y Estudio del Cocodrilo Cubano (*Crocodylus rhombifer*).
Jerónimo Domínguez Laso & Liliana Berenice García Reyes/COMAFFAS AC	Proyecto: Centro de Rescate y Rehabilitación de Fauna Silvestre "Mundo Cocodrilo", Suchiapa, Chiapas, México. **Desde abril de 2024 hasta diciembre de 2025** hemos atendido 88 especímenes entre 30 cm y 4 m de longitud de las especies *C. acutus, C. moreletii* y *C. crocodilus* de situaciones de interacción humano-cocodrilo como decomisos, localización en zonas urbanas y cuerpos de agua rodeados de asentamientos humanos; maltrato animal y abandono; entregas voluntarias, fugas de mascotas, entre otras. Actividades coordinadas con la autoridad ambiental mexicana, la PROFEPA. Los cocodrilianos atendidos, han recibido refugio, atención médica y algunos son reintegrados a la naturaleza o se mantienen en cautiverio dependiendo de cada caso y su situación social.
Jerónimo Domínguez Laso/COMAFFAS AC	**Enero de 2025.** Curso de Capacitación Individual Internacional Especializado en Manejo de Cocodrilianos en Cautiverio.
Jerónimo Domínguez Laso & Liliana Berenice García Reyes/COMAFFAS AC	**19 al 22 de febrero de 2025.** Taller Internacional de Capacitación Teórico y Práctico "Manejo y Conservación de los Crocodylia en Latinoamérica". Presencial y en línea. Suchiapa, Chiapas. Contando con la participación de 4 instructores nacionales y 6 instructores internacionales.
Jerónimo Domínguez Laso/COMAFFAS AC	**Mayo de 2025.** Curso Especializado: Conocimiento, Legislación, Manejo Adecuado, Contención y Traslocación de Cocodrilos y Caimanes en Vida Silvestre. Dirigido a personal del sector privado de rescate de fauna a cargo de la obra del Tren Interoceánico en Chiapas.
Jerónimo Domínguez Laso & Liliana Berenice García Reyes/COMAFFAS AC	**10 de agosto de 2025.** CrocoKermés Solidaria. Evento con causa para recaudar fondos para el proyecto de conservación de Cocodrilos y Caimanes de Centro de Rescate y Rehabilitación de Fauna Silvestre.
Jerónimo Domínguez Laso & Liliana Berenice García Reyes/COMAFFAS AC	**20 al 23 de agosto de 2025.** Participantes como instructores invitados en el 3° Curso-Taller de Manejo Especializado en Cocodrilianos del Pacífico. San Blas, Nayarit en el Marco del 2° Festival del Cocodrilo en Nayarit. San Blas, Nayarit.

Jerónimo Domínguez Laso & Liliana Berenice García Reyes/COMAFFAS AC	**07 de diciembre de 2025.** 2da edición de la CrocoKermés Solidaria. Evento con causa para recaudar fondos para el proyecto de conservación de Cocodrilos y Caimanes de Centro de Rescate y Rehabilitación de Fauna Silvestre.
Grupo SOS Cocodrilo México	**21 al 25 de julio.** Curso de verano infantil UACAM. San Francisco, Campeche.
Grupo SOS Cocodrilo México	**Junio 2025.** Curso-Taller de atención integral para primera respuesta a la interacción humano-cocodrilo. Tampico, Tamaulipas
César Cedillo	**Mayo 2025.** Taller de conservación y manejo sustentable de cocodrilos ante los retos del cambio climático. La Ventanilla, Oaxaca
César Cedillo	**Mayo 2025.** Taller de capacitación sobre el manejo de cocodrilos para atender contingencias humano-cocodrilo. SEMABICCE. Escárcega, Campeche
César Cedillo	**23 y 24 de octubre de 2024.** 4to. Encuentro infantil de arte, educación ambiental e interculturalidad. La Ventanilla, Oaxaca
César Cedillo	**29 de agosto de 2024.** Protocolo de atención a contingencias humano-crocodilianos y medidas preventivas en el manejo de cocodrilos. Curso
César Cedillo	**Abril a agosto 2025.** Diplomado de Atención Integral de Contingencias Humano-Fauna Silvestre
César Cedillo	**13 de junio de 2024.** Taller de capacitación sobre el manejo de cocodrilos para atender contingencias humano-cocodrilo. SEMABICCE. Carmen, Campeche
César Cedillo	**Mayo 2024.** Taller integral de conservación y aprovechamiento para la sustentabilidad de los cocodrilos mexicanos, La Ventanilla, Oaxaca

3. Production and trade

The farm "Cocodrilos Maya" marketed a total of 3545 crocodiles during the period from April 2024 to January 2026. The resulting products were as follows:

- 1844 salted skins were exported to the European market.
- 1701 salted skins were sold in the domestic market.
- 8000 kg of meat by-products for consumption in the domestic market.

4. International implementation

During 2024, according to the CITES Trade Database, Mexico reported four export events of Crocodylia. One involved export of specimens of *C. moreletii* to Japan for scientific purposes from the wild; and the other three cases involved export of leather products to the USA, Honduras and Guatemala for trade purposes, originating as bred in captivity (source code C).

For the same year, Mexico reported 53 re-export events of Crocodylia: 16 *Alligator mississippiensis,* 19 *Ca. crocodilus,* 17 *C. niloticus*, and one *C. porosus.* These re-export events were also for leather, skins and bones, all for trade purposes. Source codes did vary, 21 events report bred in captivity (C), 13 ranched (R) and 17 of wild origins (W).

Mexico also reported 135 import events, mostly involving importing leather and skin products from the species *A. mississippiensis, Ca. crocodilus, C. niloticus,* and *C. porosus.* Source codes varied, 49 events report wild origins, 31 ranched, 39 captive-bred, 9 events reported as Appendix-I animals bred in captivity, and 4 events reported as animals born in captivity (F).

It is worth noting that the trade information for the year 2025 may have not been captured in the CITES database yet. For that reason, the CITES Management Authority of Mexico (DGVS-SEMARNAT) was consulted. In 2025, they granted 98 CITES authorizations for exports of *C. moreletii*, 97 of them were reported as bred in captivity and one of them was a skin reported from wild origins. 96 were leather and skin products for the USA and one for Germany, the specimen from wild origin was also exported to Germany. DGVS granted four export permits for *C. acutus* reported as wild origin (W) for scientific purposes to the USA.

Regarding the imports for 2025, the Management Authority of Mexico reported 188 imports from Colombia (179), Guatemala (2), Guayana (1), Czech Republic (1) Venezuela (2) and Panama (3). 186 of them for the species *Ca. c. fuscus* with different source codes; 177 reported as bred in captivity, three reported it as Appendix-I animals bred in captivity, three reported as wild origins, and three of them reported as animals born in captivity (F). The other two were for the species *C. acutus* reported as Appendix-I animal coming from the wild (I-W) and for scientific purposes. The Management Authority also reported four re-export events for *Ca. c. fuscus*. All of them were leather and skin products and reported as bred in captivity. They came from Colombia and were re-exported to the USA.

5. Publications

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4. Other issues

Leaders	***Activities***
Two virtual meetings of the GEC-MX, 23 July and 8 October 2025.	During 2025, two virtual meetings of the Mexican Crocodilian Crocodilian Specialist Group (GEC-MX) (GEC-MX) were held on 23 July and 8 October, to discuss the progress and next steps of each working group. The first meeting had 43 participants, and the second had 42 participants. Both meetings covered reviewed topics of interest, including progress in the monitoring of Mexican species, ranching practices, skin traceability, SOS crocodile groups, human-crocodile interaction, and planning for the group's next formal meeting.
Pierre Charruau	2025. Coorganizador, Simposio Estado de conocimiento, conservación y aprovechamiento sostenible del cocodrilo americano (*Crocodylus acutus*) en México. XVII Reunión Nacional de Herpetología, México.
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Pierre Charruau	2025. Nueva especie de cocodrilo. Entrevista Youtube. Serie Cocodrilos del mundo. Río Verde. https://www.youtube.com/watch?v=aS-Nzw-ASA8. 13 diciembre.
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Benjamín Castillo Elías, Universidad Autónoma de Guerrero	2025. Plática a la autoridad del estado de Guerrero referente a la integración de grupo SOS-Humano cocodrilo en Acapulco, Guerrero, México.
Benjamín Castillo Elías, Universidad Autónoma de Guerrero	2025. Apoyo técnico en predio rustico (Cocodrilario Acutus) en el manejo de cocodrilos del municipio de Acapulco, Guerrero.
Benjamín Castillo Elías, Universidad Autónoma de Guerrero	2025. Participación en taller en La Ventanilla Oaxaca con la ponencia magistral de "Efectos del Cambio Climático en la Conservación de los Cocodrilos mexicanos, la Afectación en su Condición Física y Hábitat por la presencia de Huracanes: Estudio de caso: Huracán John en Acapulco, Guerrero"
Jerónimo Domínguez Laso	**10 de septiembre de 2024.** "Experiencias de rescate de Cocodrilos en Chiapas" Programa Digital de Radio Ciudadanía Divergente.
Jerónimo Domínguez Laso	**17 de septiembre de 2024.** Entrevista: "La importancia de la capacitación sobre cocodrilianos". Transmisión Digital de Medios de Comunicación Unidos de Chiapas.

Nicaragua

This report not only compiles research activities conducted during the reporting period but also incorporates historical data, given that over the past 20 years formal studies on crocodilians in Nicaragua have been limited or nearly absent since the work of Buitrago (2001) on the distribution, abundance, and population trends of crocodiles in Nicaragua (Thesis: Utilization of Crocodylia in Nicaragua).

Within the 2024-2025 period, no state-level or academic conservation programs have been identified for *C. acutus* or *Ca. crocodilus*. However, relocation and translocation efforts are known to occur when individuals approach human settlements. The Ministry of Environment and Natural Resources (MARENA) has successfully relocated individuals to wetlands and mangrove areas protected under the National System of Protected Areas (SINAP).

Under Nicaraguan environmental legislation, *C. acutus* (commonly known as "lagarto real") is under an indefinite nationwide hunting ban due to its endangered status, with prohibition of hunting, transport, and trade. For *Ca. crocodilus* ("caimán" or "cuajipal"), harvest is restricted, with hunting, transport, and commercialization prohibited annually from 1 July to 30 September.

Since Buitrago's 2001 study, no formally published research is known at the governmental, NGO, or independent research levels. However, unpublished assessments were reportedly conducted in the lower basin of the Río Grande de Matagalpa in 2015 to meet environmental certification requirements. More recently, in 2025, population estimates of *Ca. crocodilus* were conducted in the San Juan River basin, although specific results have not been made publicly available.

After reviewing these antecedents, it is important to highlight Reserva Natura Managua, is a privately protected area that includes two artificial lakes covering a combined surface area of 55 hectares and storing approximately 3.6 million cubic meters of rainwater, used to irrigate sugarcane during the dry season (Rueda *et al*. 2012). This site represents the only location in Nicaragua where monthly monitoring of *C. acutus* populations is conducted. Monitoring has been carried out since 2021, with published results through 2023, and was resumed in 2024 and continues to date. An average of eight individuals of *C. acutus* are recorded across both lakes. Monitoring consists of nocturnal spotlight surveys, identifying eye shine and approaching individuals to estimate size, while recording geographic coordinates to determine areas of concentration within the conservation area.

At the national level, crocodilians are known to occur in the following areas: Río Coco; Northern Caribbean coastal lagoons; Laguna de Perlas; Bluefields Bay; Lake Managua; La Flor Wildlife Refuge; Salinas Grandes; Puerto Sandino; Estero Real; and the San Juan River basin, including Los Guatuzos Wildlife Refuge and Solentiname Archipelago National Park.

Figure 1: Map of observation sites for *Crocodylus acutus* in Nicaragua. Source: GBIF, 2026.

Reported by: Ariel Salinas

Panama

In recent years, Panama has experienced a marked increase in reported human-crocodilian interactions, particularly along the Pacific coast and in peri-urban environments associated with rapid coastal development. A substantial proportion of

the country's urban infrastructure and tourism activities are concentrated along shoreline areas, resulting in increasing spatial overlap between human settlements and crocodilian habitats. Natural dispersal movements, including those along the Panama Canal watershed connecting Caribbean and Pacific drainages, frequently bring large individuals into highly visible urban settings.

While field observations suggest that crocodilian populations have increased in certain areas and expanded into peri-urban zones, the perception of conflict has been significantly amplified by social media exposure. Repeated circulation of videos and images has contributed to heightened public concern, often exceeding documented incident rates. Public behaviors such as intentional feeding, harassment, or close approach further exacerbate risk.

Over the past four years, the Ministry of Environment, in collaboration with national research institutions, has conducted rapid assessments and systematic surveys along the Pacific region to generate updated information on habitat status and population density. Building upon this scientific foundation, the Ministry of Environment and the Technological University of Panama have initiated a pilot project focused on Panama Bay. The project aims to identify conflict hotspots, assess specific high-risk individuals, and implement targeted management actions. Where relocation is not feasible, regulated control measures are being considered within a formal legal framework currently under administrative review. This pilot initiative is intended to inform the development of a comprehensive management plan for the Pacific region. The approach emphasizes evidence-based decision-making, legal compliance, and avoidance of indiscriminate removals. Concurrently, there is renewed interest in strengthening regulated captive breeding and ranching initiatives, including educational facilities, as part of a broader strategy integrating conservation, conflict mitigation, and sustainable use.

A forthcoming technical publication on habitat condition and population density in the Eastern Tropical Pacific region of Panama is expected to provide additional guidance for adaptive management and regional coordination.

Prepared by: Miryam Venegas-Anaya

Paraguay

A fines de 2024 se inició un monitoreo de caimanes en el Departamento de Presidente Hayes (Bajo Chaco) que incluyó las siguientes estancias ganaderas: Aurora, Rancho Aparte y Aguadita.

Las estancias Aurora y Rancho Aparte se encuentran ubicadas en el municipio de Pozo Colorado. y están dentro de la Ecorregión del Chaco Húmedo. Esta enfrenta grandes amenazas como la deforestación, y sequías pronunciadas entre otras, que impactan directamente en los hábitats acuáticos. Además, el Chaco Húmedo es la ecorregión que, en proporción, cuenta con menor presencia dentro de las áreas protegidas del Paraguay. El primer muestreo en estas dos estancias se realizó de diciembre de 2024 cuando había una sequía extrema, y el segundo muestreo en junio de 2025, en época de aguas muy alta con desborde de algunos ríos.

El conteo de yacarés en Estancia Aguadita se realizó en noviembre de 2025. Esta se encuentra localizada en la Zona Cabo Cano, municipio de Teniente Esteban Martínez, que también se encuentra dentro de la ecorregión del Chaco Húmedo. Sin embargo, la vegetación observada cuenta tanto de bosque húmedo del Bajo Chaco, pero también de bosque xerófito semicaducifolio. Según expresiones de los encargados de la estancia se observaron muy pocos caimanes en esta temporada por el aumento de las aguas, afirmando que con las inundaciones los individuos se trasladan a otros lugares inundados y con más vegetación para resguardarse.

En el año 2026 se seguirán realizando los monitoreos en las estancias citadas y posiblemente en otras zonas del país. Esto proporcionará una línea de base más reciente para los estudios sobre caimanes a fin de contribuir al manejo sostenible y a la conservación de los caimanes. Hasta el momento en los tres sitios muestreados solo se observaron individuos de *Caiman yacaré*, no así de *Caiman latirostris*.

Reported by: Martha Motte and Frederick Bauer

Peru

Significant progress has been made in the conservation and management of *C. acutus* in northern Peru, particularly in the Tumbes region. An assessment guide for the species in northern Peru is currently in the final validation stage and under review by the competent authorities. This technical document will establish standardized guidelines for population monitoring, habitat assessment, threat identification, and priority management actions, serving as a key tool for adaptive conservation planning.

In parallel, AIDER, under its management agreement with the National Service of Natural Protected Areas (SERNANP), is implementing a dedicated monitoring protocol for the "Tumbes crocodile" within Tumbes National Reserve. Field surveys are conducted in coordination with park rangers across Tumbes National Reserve, Cerros de Amotape National

Park, and El Angolo Hunting Reserve. To date, at least three active nesting areas have been identified, followed by reports of juvenile individuals in nearby locations, indicating recent reproductive activity and ongoing local recruitment.

Within this framework, a National Conservation Plan for the Tumbes crocodile is currently under development. The plan aims to integrate interinstitutional efforts, strengthen long-term monitoring, improve habitat management, and define threat mitigation strategies. As part of this comprehensive approach, a pilot rewilding program is being designed, involving the strategic release of individuals originating from the Tumbes breeding facility. Releases will follow strict genetic and ecological criteria, with the objective of reinforcing population nuclei and promoting recovery within the species' historical range.

Additionally, the first Peruvian herpetology congress featured dedicated presentations on crocodilians, marking a milestone in the scientific visibility of *C. acutus* in Peru. This event contributed to strengthening the emerging national research community focused on crocodilian conservation.

Collectively, these initiatives reflect a transition toward a more structured and strategic conservation framework for the American crocodile in Peru, integrating scientific monitoring, national-level planning, and population restoration efforts.

Reported by: Pablo Siroski, Armando Escobedo and Angel Llompart

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Suriname

Caiman Species in Suriname

Suriname hosts four crocodilian species typical of the Guiana Shield: *Ca. crocodilus, P. palpebrosus, P. trigonatus*, and potentially *M. niger*, although the latter lacks confirmed, well-documented populations and is mainly reported anecdotally in border regions. Among these, *Ca. crocodilus* is the most widespread and commonly observed species, while the two *Paleosuchus* species remain poorly documented due to their cryptic behavior and association with remote forest habitats.

Scientific knowledge on caiman populations in Suriname is limited, with no robust estimates of abundance or distribution for any species. Most available information is based on opportunistic observations rather than systematic surveys, resulting in significant knowledge gaps.

Caimans in Suriname are also subject to local use and informal trade. In rural and riverine communities, caimans may be hunted opportunistically for subsistence consumption, particularly in areas where alternative protein sources are limited. Additionally, small-scale capture of juveniles for the pet trade has been reported in the region, although this activity is generally informal and poorly documented. These uses are typically local rather than part of large, organized commercial markets, but may still exert pressure on populations, especially in easily accessible areas.

Environmental pressures such as gold mining further affect caiman habitats through river degradation and increased human presence in remote areas. Together, limited ecological knowledge, localized use, and expanding anthropogenic pressures highlight the need for baseline studies and monitoring to better understand and manage caiman populations in Suriname.

Reported by: Paul Ouboter and Robinson Botero-Arias

Venezuela

1. ***Caiman crocodilus* wild harvest**

   In 2024 and 2025, no wild specimens were harvested, mainly due to low demand for flanks in the international market. Three companies that market Venezuelan flanks maintain a stock in the country of salted and refrigerated skins totaling 112,000 flanks.

2. ***Crocodylus intermedius* conservation program**

   In 2024, 350 Orinoco crocodiles were released and in 2025 another 403 individuals were raised. Unfortunately, the "Back to the Llanos" project, supported by CrocFest, which would have sent 28 *C. intermedius* specimens born in the USA to Venezuela for release was ultimately unsuccessful. These specimens were instead relocated to various zoos in the USA.

   Given the situation in Venezuela, some (not all) international organizations that fund conservation projects are not supporting any Venezuelan institutions, which has directly affected our fieldwork monitoring of released Orinoco crocodiles in their natural habitat, as well as continuing the national census in new locations.

Thanks to the support of the Krokodille Zoo, especially Rene Hedegaard, supporting captive breeding at the Masaguaral Ranch, in 2025 we collected more than 650 individuals of *C. intermedius* between the Cojedes River, with the support of the Dallas World Aquarium, and the Capanaparo River.

Between Masaguaral Ranch and the Leslie Pantin Zoo, we are breeding approximately 500 Orinoco crocodiles for release and donating about 140 to the breeding center run by the Ministry of Ecosocialism.

The Herpetofauna Foundation supported us in the maintenance our truck, boat and outboard motor during 2024 and 2025.

In October 2024, with the support of The Mohamed bin Zayed Species Conservation Found, in Masaguaral Ranch, located in Corozo Pando town, Guarico State, Venezuela, it was done the XIII Course in Ecology and Conservation of the Crocodylia of Venezuela with the participation of 11 park rangers, 3 professionals from the Biological Diversity Office of the Ministry of Ecosocialism, 7 zookeepers from 2 zoos and 1 Orinoco crocodile private farm. This course is totally free of charge to all participants.

3. Other information

In August 2025, the Chairman of the Venezuelan Crocodile Specialist Group participated in the 7th Annual European Croc Networking Meeting in Berlin, Germany, presenting an update on the Orinoco crocodile conservation program in Venezuela.

Unofficially, there are reports of a shipment, with CITES permits, of 38 live *Ca. crocodilus* and 12 *C. intermedius* specimens to a zoo in India. This shipment does not appear on the CITES website.

Prepared by Alvaro Velasco B.
