



**PROACTIVE PROGRAM FOR THE COMMUNITY CONSERVATION
OF THE ORINONO CROCODILE (*Crocodylus intermedius*), IN
COLOMBIA**

CC-052-2019

Version 3

June 01, 2020

**PROACTIVE PROGRAM FOR THE COMMUNITY CONSERVATION OF THE ORINONO
CROCODILE (*Crocodylus intermedius*), IN COLOMBIA**

By: COLOMBIA WILD CORPORATION



This document presents the Institutional Program for the Conservation of the Orinoco Crocodile (2021), which allows us to define within the framework that gives knowledge of the state of the populations of the species, with its current problems, limitations and potentialities, the actions to follow for its recovery and conservation.

In fact, from resolution 0676 of July 21, 2017, issued by the Colombian Ministry of the Environment, in which the species '*Crocodylus intermedius*' is declared in danger of extinction, the initial actions at the head of the COLOMBIA WILD CORPORATION, addressed the elaboration of a general conservation program that would be the product of the agreement of all public and private institutions with direct and/or indirect incidence both in the existing population relicts and in the territories designated as traditional habitats. of the species, subsequently considering the discussion of the draft program with delegates from Profauna de Venezuela and the Crocodile Specialist Group. In this context, the criteria established for each action made it possible to define the activities to be followed, considering the projected duration times, indicators and those responsible, respectively, in addition to determining the instrumental actions that would support the execution of the program. It is then intended that the guidelines established here be adopted by the institutions involved, in such a way that the activities framed within each action are coordinated and carried out appropriately to achieve the proposed goals.

Keywords: Orinoco crocodile, Critically Endangered, endangered species, reptiles.



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1. BIOECOLOGICAL INFORMATION

1.1. Taxonomy:

Order Crocodylia

Family Crocodylidae

1.2. Threat Category:

National: CR C2a(i).

Global: CR A1c+C2a (Crocodile Specialist Group 1996).

1.3. Other common names: Cayman, Orinoco caiman, crocodile, Orinoco crocodile, butterfly caiman.

1.4. Description: Large crocodylian, with a maximum recorded length of 6.8 m M. A. Morales-Betancourt in males (Medem 1958) and 3.9 m in females (Roberto Franco Tropical Biology Station-EBTRF unpublished data). Snout elongated and thin, both in juveniles and adults, with a length that can reach 2 or 2.5 times the width of the base, without preocular elevation. Mandibular symphysis extended to mandibular tooth 6 or to the interdental space of numbers 6 and 7. A row of 2 to 6 (usually 4) post-occipital scales, elliptic and keeled. Light gray dorsal coloration in juveniles and greyish, yellowish or dark gray to blackish in adults (Medem 1981). White ventral region, from the snout to the vent, while the tail has dark spots (Medem 1958). Medem (1981) described three color varieties: light with scattered dark areas; greenish gray with dark spots on the back and dark gray. Iris green to olive green, with vertical black pupil.

1.5. Geographical distribution

Countries: Colombia and Venezuela.

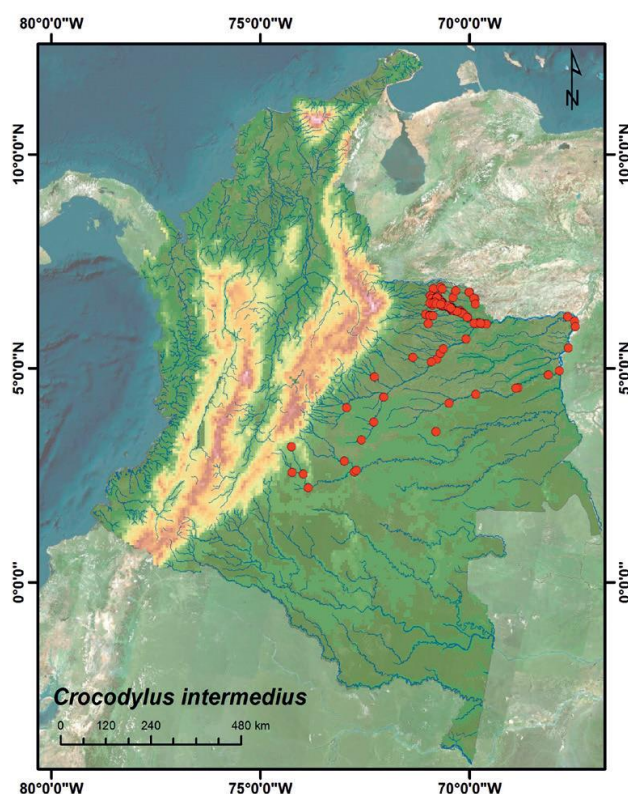
Departments: Arauca, Casanare, Meta and Vichada.

Hydrographic zones:

Orinoco. Sub-basins: Arauca, Bitá, Cinaruco, Guaviare (Ariari, Duda, Guayabero, Güejar, Lozada, Uva), Inírida, Meta (Aripuro, Casanare Cravo Norte, Cravo Sur, Ele, Cuiloto, Cunimia, Cusiana, Guachiría, Lipa, Manacacías, Pauto), Orinoco (Tuparro), Tomo and Vichada (Guarrojo, Muco, Planas, Tillava) (Medem 1981, Lugo and Ardila-Robayo 1998).

Altitudinal distribution: up to 300 m a.s.l. (Seijas 2011). Bioecological aspects It inhabits large watercourses (rivers) and floodplains of the lowlands of the Orinoco basin.

It is more abundant in whitewater systems than in clear water. Larger individuals prefer waters far from the shore, while smaller ones prefer the water-land interface (Llobet 2002, Espinosa and Seijas 2010), in habitats with aquatic vegetation among which they can protect themselves (Antelo 2008). It is a carnivorous species,



although it occasionally consumes carrion (Medem 1958, 1981, Anzola et al. 2012). It reproduces in the dry season (Antelo 2008). It reaches sexual maturity after 2 m in total length (Morales-Betancourt et al. 2013b). It presents a polygynous mating system with multiple paternity (Martensson 2006). Laying is done on large beaches without any inclination or in small, very steep ravines close to riparian vegetation (Thorbjarnarson and Hernández 1993, Llobet 2002), although they can lay on clay-rocky soils (Thorbjarnarson and Hernández 1993) or organic soils. (Thorbjarnarson 1987). It lays an



average of 40 eggs (Castro 2012). Population information Several studies have been carried out to estimate the abundance of the caiman caimán llanero, but unfortunately none have shown any trend towards an increase in the population (Table 4). There are two important population remnants, one in the department of Arauca in the Lipa-Ele-Cravo Norte system and another in the department of Meta, Duda-Guayabero-Lozada system (Lugo and Ardila-Robayo 1998).



In the rest of its distribution some isolated individuals are observed. In the department of Arauca, 122 sites were evaluated on the Arauca, Capanaparo, Cinaruco, Ele, Lipa, Cravo Norte, Cuiloto, Casanare and Meta rivers and the Los Caballos, Cabuyare, Ormedillo, Amarillo, Matepalma and En Medio rivers and the following average abundances: 1.5 ind./site (1999), 1.12 (2004 to 2007) and 0.45 ind./site (2011-2012) (Clavijo and Anzola 2013).

1.6. Use

Currently, due to the small number of individuals that survive in the natural environment, its use is mainly based on the collection of eggs for local consumption and offspring for sale or keeping as pets (Lugo and Ardila-Robayo 1998, Rodríguez and Ramírez 2002, Anzola et al. 2012, Castro et al. 2012). Its skin was highly coveted in the fur industry. Its fat is used medicinally.

1.7. Threats

Directed hunting, since they see in this species a threat to the possible attack on domestic animals or people. There is extraction of eggs for consumption and capture of young for sale as pets (Lugo and Ardila-Robayo

1998, Rodríguez and Ramírez 2002, Anzola et al. 2012, Castro et al. 2012). On the other hand, the inappropriate use of fishing gear (mesh nets and hanging nets) is causing individuals are accidentally trapped and drown (Morales-Betancourt et al. 2013b). They are also affected by the degradation or destruction of their habitat (Ardila-Robayo et al. 2002, Rodríguez and Ramírez 2002). The increase in anthropic intervention in caiman habitats greatly affects the decrease in the availability of habitat and food. Existing conservation measures Prohibition of hunting and collecting eggs (Resolution No. 411 of 1968, Ministry of Agriculture; Resolution No. 573 of 1969, Ministry of the Environment). In July 1997 it was declared an endangered species (Resolution No. 676 of the Ministry of the Environment). Internationally, it is found in Appendix I of CITES.



1.8. Conservation opportunities

There is a national program for its conservation (Procaiman) (MMA et al. 2002). Areas and strategies for their conservation have been identified, having a clear work path (Morales-Betancourt et al. in press). The prairie caiman is listed as a focal species in the Biodiversity Action Plan in the Orinoco Basin-Colombia 2005-2015 (Correa et al. 2006). Likewise, it is a conservation target species in the Guayabero and Duda basins, within the Sierra de La Macarena PNN Management Plan (Zarate et al. 2005), as well as in the Tinigua PNN (Arévalo and Sarmiento 2009). Reintroduction activities have been carried out in the PNN El Tuparro, releasing some 50 individuals in the last two years (<http://www.eltiempo.com/colombia/llano-7-dias/caiman-llanero/16499196>).



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1.9. Proposed research and conservation measures

In the first instance, it is essential to carry out a census and maintain monitoring to know what the real state of the population is. Said monitoring should contemplate and establish the number of individuals, the category of size classes, the proportion of sexes, evaluate the nesting events and viability of the eggs in the natural environment, as well as the genetics of the wild populations. It is necessary to design a methodology that allows unifying the collection of information (biological and demographic) in the field in order to make any study carried out comparable and facilitate decision-making by Procaiman. It is recommended to prioritize in situ management activities in the Lipa-Ele-Cravo Norte and Duda-Lozada-Guayabero systems; carry out censuses in the Guarrojo-Tillava-Planas systems and the Meta and Manacacías rivers, with the aim of confirming whether it is necessary to carry out population reinforcement or carry out in situ management activities in these areas (Morales-Betancourt et al. in press). It is also necessary to study the feasibility of reintroducing individuals or reinforcing populations in prioritized areas that comply with conservation strategies. Finally, it is essential to carry out socialization campaigns and involve local communities in all processes, so that the program has good results.



1.10. Additional observations

Procaiman (MMA et al. 2002) defined a first phase focused on reintroduction and population reinforcement. One of the most important limitations to

carry out the releases was the lack of knowledge of the genetic resource. However, recent research showed the existence of a single evolutionary lineage made up of closely related haplotypes and thus a single historical group populations or Evolutionary Significant Unit (ESU), for which releases can be made without there being a negative genetic alteration on the historical component (Ibáñez et al. 2014). This research was based on individuals present in the EBTRF population (with known geographic origin) from widely dispersed areas that cover a large part of the distribution of the species in Colombia. A more representative sampling of the species distribution is likely to recover greater haplotype diversity. Although the analysis of mitochondrial DNA has allowed the determination of ESU within *C. intermedius*, a complete understanding of the presence of distinct ecological or demographic components (Management Units; MU) requires the realization of an investigation of natural populations with highly variable genetic markers (such as microsatellite markers) to detect and describe genetic differences on a smaller geographic scale between populations.

1.11. Justification

The caimán llanero is cataloged as Critically Endangered since over time its populations have shown no signs of recovery. Its population is severely reduced and fragmented, it is estimated that there are less than 250 mature individuals in Colombia in the natural environment. On the other hand, the threats to the species have not ceased.



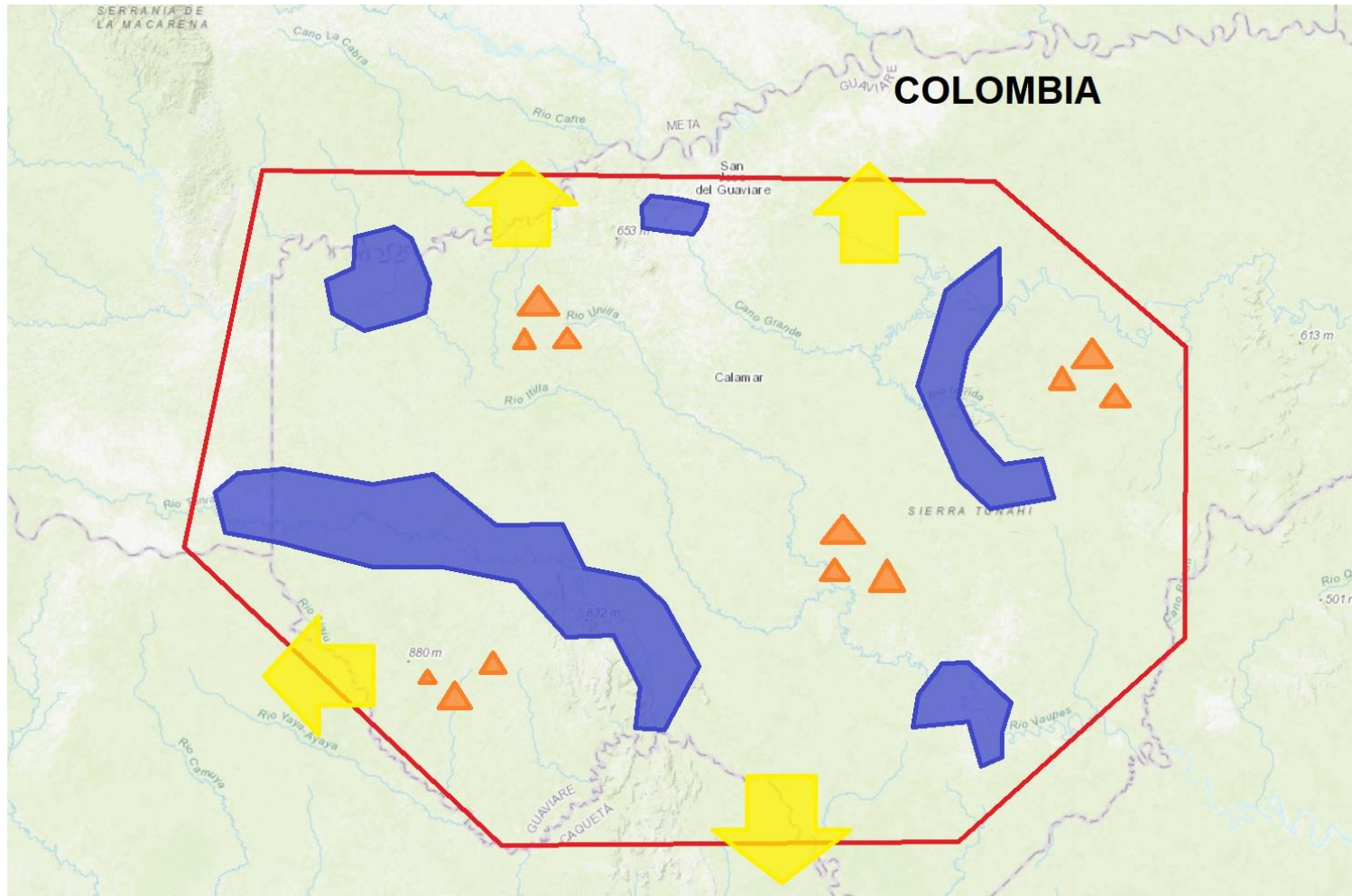
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PROGRAM MAP



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Indications

	Program action area
	C.intermedius populations
	Alligator Illegal Trafficking Area
	Kamsá indigenous cities

Scale



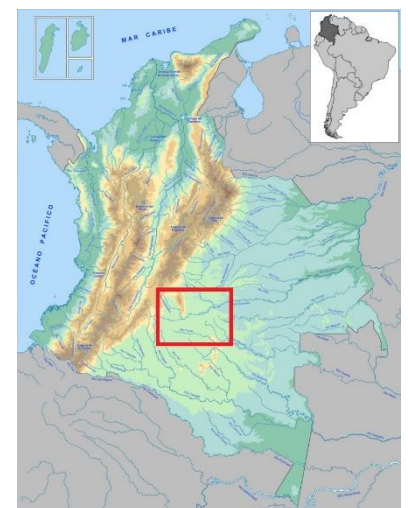
1cm = 5,000meters

Source of information

- IMAP, Colombian Center for Biodiversity Maps
- Colombia wild Corporation
- Google Maps

LOCATION

- 1. Country:** COLOMBIA
- 2. Province:** Guaviare, Meta
- 3. Estimated population:** 180 mature specimens
- 4. Geographic coordinates:** From 2°33'32.8"N 73°15'57.0"W and 2°36'22.9"N 70°55'36.8"W; up to 1°18'17.5"N 71°31'38.8"W and 1°06'22.7"N 73°20'33.6"W





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INTRODUCTION

The Orinoco caiman (*Crocodylus intermedius*) —as it is known in Venezuela— or llanero caiman —as it receives in Colombia— is an endemic species of the Orinoco river basin that crosses the two countries. Poaching, the consumption of their eggs and the lack of an optimal habitat for their population growth threaten their survival.

The Orinoco caiman is classified as Critically Endangered by the International Union for Conservation of Nature (IUCN) and appears in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

"Due to its low population levels, hunting and poaching of nests, even on a small scale and without commercial reasons, are factors that still significantly affect this species today, preventing its effective recovery," Ricardo Babarro, president, tells Mongabay Latam. of the Group of Specialists in Crocodiles of Venezuela.

This species lives in the wild in the lowlands of the Orinoco basin. It is found more frequently in large rivers, streams and lagoons, meandering rivers and floodplains covered with aquatic vegetation.

It inhabits the states (departments) of Bolívar, Apure, Barinas, Guárico, Portuguesa, Cojedes, Amazonas and Anzoátegui in Venezuela; and in Vichada, Meta, Casanare, Arauca, and in Guaviare and the Inírida river that runs in the department of Guainía in Colombia.

The Orinoco caiman is carnivorous and obtains its prey by stalking, that is, it waits for them in the water. The adult alligator feeds mainly on fish, and occasionally on turtles. The youngest and neonates consume fish and insects.

It nests on the exposed beaches of rivers in the dry season, usually January and February, and hatches at the beginning of the rains, between April and May. Its incubation time ranges between 80 and 90 days under natural conditions, but its chronology varies according to the rainfall season.

"Conservation status and priority regional habitats for the Orinoco crocodile: past, present and future", academic research published in February by a group of experts from Venezuela and Colombia, insists on the importance and need to preserve this species. Sergio Balaguera, Colombian and member of the department of biological sciences at Texas Technological University, affirms that "crocodiles are highly relevant (key species) because they are top predators that fulfill the function of regulating other species, such as mammals and reptiles. where they live."

Their droppings, left in rivers and floodplains, are a source of nutrients for algae and zooplankton, which in turn are food for various fish species.

HARD SURVIVAL

In Venezuela, the Orinoco caiman is included in the Official List of Endangered Species according to Decree No. 1486 of 09/10/1996.

Omar Hernández, biologist and member of the Group of Crocodile Specialists of Venezuela (GECV), points out that in the country, in addition to poaching, the Orinoco caiman faces threats such as contamination of the waters of the Cojedes River, which affects adult females. In addition, the changes in its channel cause the loss of laying seasons and the loss and transformation of natural ecosystems.

A non-anthropogenic threat to this species is the predation of nests and hatchlings by fish, birds and lizards, which causes approximately 99% of them to die.

"There is no commercial traffic of the species. I have sometimes found dead caimans in the Capanaparo River and seen their tusks removed, perhaps to sell or simply as a souvenir. They also talk about fat being good for some diseases, but there is no trafficking in these products, it is not seen that they are sold, at least not openly," adds Hernández.

"A census we did in 2013 determined the existence of at least 25 adult females in the Capanaparo River. In the Cojedes River, Ariel Espinoza in his master's thesis found a total of 27 nests, which is equivalent to 27 adult females. In the Manapire river, the engineer Maddy



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Jiménez, in different years, has carried out the search for nests, finding a maximum of five nests in 2005,” says Hernández.

Ariel Espinosa, biologist and researcher at the Venezuelan Institute of Scientific Research (IVIC) and member of the GECV, points out: “According to the latest ecological studies carried out from 2016 to date as part of my doctoral work, more data collected by GECV researchers in different Venezuelan wild populations, does not exceed 600 individuals, which maintains our concern and its status as an endangered species.”

The picture is not more encouraging in Colombia. Starting in the first half of the 20th century, crocodiles were used intensively, associated with the high international demand for the fur industry. The species of greatest interest, such as the caimán llanero, suffered greater pressure due to hunting.

In Colombia, the Orinoco caiman is classified as Critically Endangered in the country's Red Book of Reptiles (2015). The figures prove it. In Arauca, 100 adults have been observed and it is estimated that there are approximately 300 specimens in the departments of Arauca, Casanare, Vichada and Meta, explains Rafael Antelo, scientific director of the Palmarito Foundation in Casanare.

There are two important population relicts, one in the department of Arauca in the Lipa-Ele-Cravo Norte rivers, and another in the department of Meta, in the Duda-Guayabero-Lozada rivers, indicates the Red Book of Reptiles of Colombia. However, studies are needed to clearly define the number of animals that still remain in the wild in Colombia.

CONSERVATION STRATEGIES

Since 1990, the Venezuelan State and the Group of Specialists in Crocodiles of Venezuela, in close collaboration with rural producers, civil society organizations, national universities and organized communities, have developed the Orinoco Caiman Conservation Program. In 27 years of the program, as a result of captive breeding, a total of 9,867 specimens over one year of age have been released, including 13 adult and subadult animals rescued from illegal captivity and returned to the wild.

Some of the releases have occurred in the Santos Luzardo National Park (Apure), the Caño Guaritico Wildlife Refuge (Apure), the Aguaro-Guariquito National Park (Guárico), Hato El Frío (Apure), the Cojedes River (Cojedes), the Wild Fauna Esteros de Camaguán (Guárico) and Embalse Tucupido (Portuguesa), as well as in the conservation herds El Cedral and El Frío (Apure), which have breeding wild populations resulting from the releases of previous years.

“However, only three populations have been established within the El Frío, El Cedral and Santa Rosa herds (Estero de Camaguán Wildlife Reserve), thanks to the fact that they have private surveillance. However, these populations are not in the optimal habitat for alligators, such as the large rivers, they live in lagoons within these herds (cattle farms in the plains region), where certain management is carried out, such as the preparation of beaches for them to nest. ”, adds Hernandez.

The most important wild populations for the conservation of the Orinoco caiman in Venezuela are the Cojedes River System and the Capanaparo River.

The Capanaparo River rises in Colombia, where it is known as Caño Agua de Limón. Unfortunately, despite the release of juvenile alligators, the population of this species has decreased. A census carried out in 2011 by Alejandro Moreno, a biology graduate from the Central University (Venezuela), with the support of Dr. Cesar Molina, determined a population decrease of 63% compared to the size estimated in 2001 by Alfonso Llobet. In the sectors used for samples in 2001, a population of 256 individuals was estimated and in those same sectors, in 2011, the number of 94 individuals was estimated.

Omar Hernández, as director of Fudeci, an NGO dedicated to environmental conservation, has supported and managed resources for these field studies. In 2016, as part of his doctoral thesis, Ariel S. Espinosa carried out population censuses on the Capanaparo River. The information is under analysis and soon to be published.

In 2012, Ariel S. Espinosa and Andrés Seijas published a study in the Ecotropics Magazine on Orinoco caimans



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in the Cojedes River, which evaluated population data between 1998 and 2009.

"The population trend of the Orinoco caiman in these sectors is decreasing as follows: i) with respect to the study by Seijas (1998), by 31%, ii) with respect to Chávez (2000) by 42% and iii) with respect to Ávila-Manjón (2008) by 11%", explain Ariel Espinosa and Andrés Seijas in their article Population decline of the Orinoco Caiman (*Crocodylus intermedius*) in two systems of the Cojedes River in Venezuela.

2. OBJECTIVES

2.1. General purpose

Develop a regional strategy for the conservation of the Orinoco Crocodile (*Crocodylus intermedius*) populations and the different associated aquatic ecosystems, according to the main threats identified in the northeastern sector of the Magdalena department.

2.2. Specific objectives

- Develop research and monitoring projects of the Orinoco Crocodile populations in the different aquatic ecosystems where it is

3. LINES OF ACTION

3.1. Conservation

distributed in the northeastern sector of the Magdalena department.

- Develop participatory strategies that link communities, tour operators, hotels and territorial entities (CORPAMAG, National Parks and the District of Santa Marta) in order to mitigate the main threats to the conservation of the Orinoco Crocodile and its essential habitats, taking into account the cultural, social and economic particularities of the region.
- Design and implement activities for environmental awareness and education that promote knowledge and appropriation of the Orinoco Crocodile and the aquatic ecosystems where they are distributed, as well as the duties and rights that the community has in relation to national biodiversity.
- Build participatory scenarios for inter-institutional articulation between government authorities, private companies, academic and research institutions and associations and local communities, for the construction of an agenda that allows the conservation of the forests where the Orinoco Crocodile lives.

COMPONENT	OBJECTIVE	ACTIVITIES
Population management and protection	Design and establish interdisciplinary management actions that ensure the conservation of Gecko populations, considering surveillance, monitoring, research and responsible use strategies.	<ol style="list-style-type: none"> 1. Promote the implementation of programs that reduce the impact of forestry and agricultural activities, through the application of regulatory strategies and their constant monitoring. 2. Promote sustainable trade that is regulated and traceable to encourage the creation of fair markets and reduce the impacts on populations due to the illegal trade of species. 3. Prepare the protocol of actions for the effective management of the species in each locality, with standardized parameters and supervision and surveillance agreements.



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Integrated habitat management	Avoid activities in areas important to the biology of the species that are incompatible, directly or indirectly, with the long-term survival of the Gecko.	<ol style="list-style-type: none"> 1. Promote the restoration of degraded areas of the Mesophilic Mountain Forest and habitats of distribution of the Gecko most likely to be recovered and establish a monitoring program for restoration projects. 2. Evaluate the Anp Management Plans to involve conservation actions for the species in the execution of the Annual Operational Programs (AOP). Incorporate actions of this PACE in the POAs of the Anp with a Gecko presence. 3. Promote actions for the conservation and restoration of the Gecko habitat, so that the distribution islands of each species are as close as possible. 4. Promote the creation of collaborative networks to coordinate monitoring and protection efforts along the migratory corridors of the species. 5. Ensure connectivity in the canopy in the Gecko distribution sites, to favor the passage of individuals between trees, which increases a genetic exchange of populations and reduces the vulnerability of Gecko.
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3.2. Capacity building, environmental education and social integration

It includes actions focused on strengthening the processes of awareness and environmental education with the community in general, through school environmental projects (PRAE), articulated with citizen and community environmental education projects (PROCEDA), to form values, disseminate and generate ownership of information on the Arahuac lizards, their ecosystems and their management.

OBJECTIVE	ACTIONS	PROJECT	PRIORITY	INDICATORS MANAGEMENT
Strengthening of the PRAE, PROCEDA and PRAU in educational centers for the conservation of the Orinoco Crocodile and its habitats	Develop training for the educational community on issues related to Arahuac lizards	Environmental education program with educational facilities in the area of influence of the conservation plan	Medium term	Number of policies, agreements, strategies developed
Strengthen the CIDEAs and the plan to strengthen teachers in the area of influence of the conservation plan	Develop environmental education strategies aimed at reinforcing the duties and rights that as citizens they have with biodiversity and aquatic ecosystems	Generation of regional policies focused on the conservation and sustainable use of the Orinoco Crocodile populations	Medium term	Number of policies, agreements, strategies developed



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Generate work and research groups on conservation, management and use	Strengthen education ecosystems biodiversity	Environmental education program with educational facilities in the area of influence of the conservation plan	Medium term	Number of policies, agreements, strategies developed
	Generate inter-institutional working groups focused on the planning and management of Arahuac lizards	Cooperation for the conservation and management of threatened fauna potentially dangerous for local communities	Medium term	Number of policies, agreements, strategies developed
	Strengthen research groups focused on hydrobiological resources within educational institutions at the basic and higher level	Knowing the biodiversity of Magdalena	Medium term	Number of policies, agreements, strategies developed
Promote community participation in education and training processes	Strengthen participatory research processes with local communities, with an emphasis on generating ecological information on Arahuac lizards	Scientific citizens in Magdalena: conserving our biodiversity	Medium term	Number of policies, agreements, strategies developed
Train communities in the administration of goods and services	Generate agreements with SENA to train local people in sustainable tourism and production methods in order to provide alternatives for increasing income	Training the community in sustainable tourism and production processes	Medium term	Number of policies, agreements, strategies developed

3.3. Monitoring line

It includes actions to broaden knowledge about the Orinoco Crocodile populations in the northeastern sector of the Magdalena department through the monitoring of populations, the conservation status of their habitats, population genetics, and ethno-zoological relationships with non-native and local communities.

OBJECTIVE	ACTIONS	PROJECT	PRIORITY	INDICATORS MANAGEMENT
	Establish an annual monitoring plan for the populations under a standardized protocol.	Monitoring of Orinoco Crocodile populations in the Río Piedras-Río Don Diego sector.	Medium term	Number of monitoring carried out / number of sectors monitored / number of Arahuac lizards registered



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Evaluate the population, trophic, spatial and reproductive ecology of the Orinoco Crocodile populations in the study area on a temporal and spatial scale.	Generate a centralized database for the collection of Information that allows to be feedback from researchers working in the area with alligators.	Ranges and Habitat Use Assessment	Medium term	Number of monitoring carried out / number of sectors monitored / number of Arahuac lizards registered
	Develop spatial models of species distribution and threats to implement management and conservation actions in areas specific	Development of an environmental database for the monitoring of Arahuac lizards in the department of Magdalena.	Medium term	Number of monitoring carried out / number of sectors monitored / number of Arahuac lizards registered
	Evaluate the trophic and reproductive ecology of Orinoco Crocodile populations	Niche modeling and habitat analysis for the Orinoco Crocodile in the department of Magdalena	Medium term	Number of monitoring carried out / number of sectors monitored / number of Arahuac lizards registered
	Employ satellite and / or UHF telemetry techniques to define the spatial ecology of the species	Evaluation of the trophic and reproductive ecology of the Orinoco Crocodile populations Home	Medium term	Number of monitoring carried out / number of sectors monitored / number of Arahuac lizards registered
	Assess Orinoco Crocodile populations in the area on a genetic scale	Population genetics of the Orinoco Crocodile in the study area.	Medium term	Number of monitoring carried out / number of sectors monitored / number of Arahuac lizards registered

3.4. INFORMATION LINE

It includes actions that allow the dissemination of the information generated on the management, conservation and sustainable use of the Orinoco Crocodile populations in the area. This process will allow the design and implementation of a communication strategy at different scales, with the purpose of positioning the Orinoco Crocodile as an emblematic species for the region, as well as a focal point for the preservation of continental and



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marine aquatic ecosystems. The target audience will be both decision makers, as well as educational institutions and local communities that live with this species.

OBJECTIVE	ACTIONS	PROJECT	PRIORIT Y	INDICATORS MANAGEMENT
Generate information and dissemination mechanisms of both technical and general interest information on Arahuac lizards in the department of Magdalena	Develop a bibliographic platform on Arahuac lizards in the region that allows decision makers, the scientific community and local people to stay informed about this species in the region	Orinoco Crocodile virtual platform in the department of Magdalena	Medium term	Program developed and implemented
	Develop an awareness program on Arahuac lizards for regional radio and television that facilitates the dissemination of information to the local community	The Orinoco Crocodile in the Magdalena. Culture and biodiversity. The Orinoco Crocodile in the Magdalena.	Medium term	Program developed and implemented
	Implement massive outreach campaigns (primers, brochures, billboards, radio spots, etc.) on the rights and duties of citizens for the protection and conservation of the Arahuac Gecko	Rights and duties of citizens towards these species.	Medium term	Program developed and implemented
Generate citizen participation mechanisms for the conservation and sustainable use of populations of Orinoco Crocodile in the department of Magdalena	Generate spaces for the exchange of knowledge and learning between the actors involved on the management, conservation and sustainable use of local aquatic resources	Conservation of aquatic ecosystems through local initiatives	Medium term	Program developed and implemented
	Socialize the "Plan for the conservation, management and sustainable use of the Arahuac lizards in the northeastern sector of the department of Magdalena" with the local communities through participatory tools	Socialization of the "Plan for the conservation, management and sustainable use of the Arahuac lizards in the northeastern sector of the department of Magdalena"	Medium term	Program developed and implemented



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