

Nesting ecology of the American crocodile (*Crocodylus acutus*) in the SETAL Private Natural Reserve, Guatemala

Ecología de anidación del cocodrilo americano (*Crocodylus acutus*) en la Reserva Natural Privada SETAL,
Guatemala

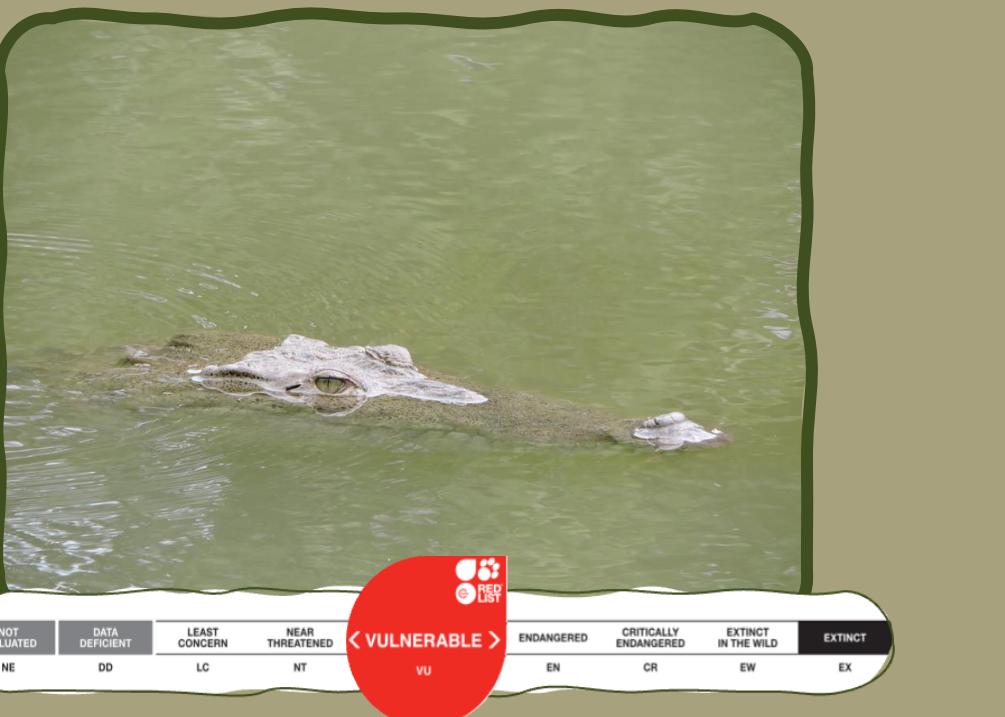


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Introduction

- Vulnerable (IUCN Red List of Species)
- Critically Endangered (Appendix I of the List of Threatened Species - CONAP)

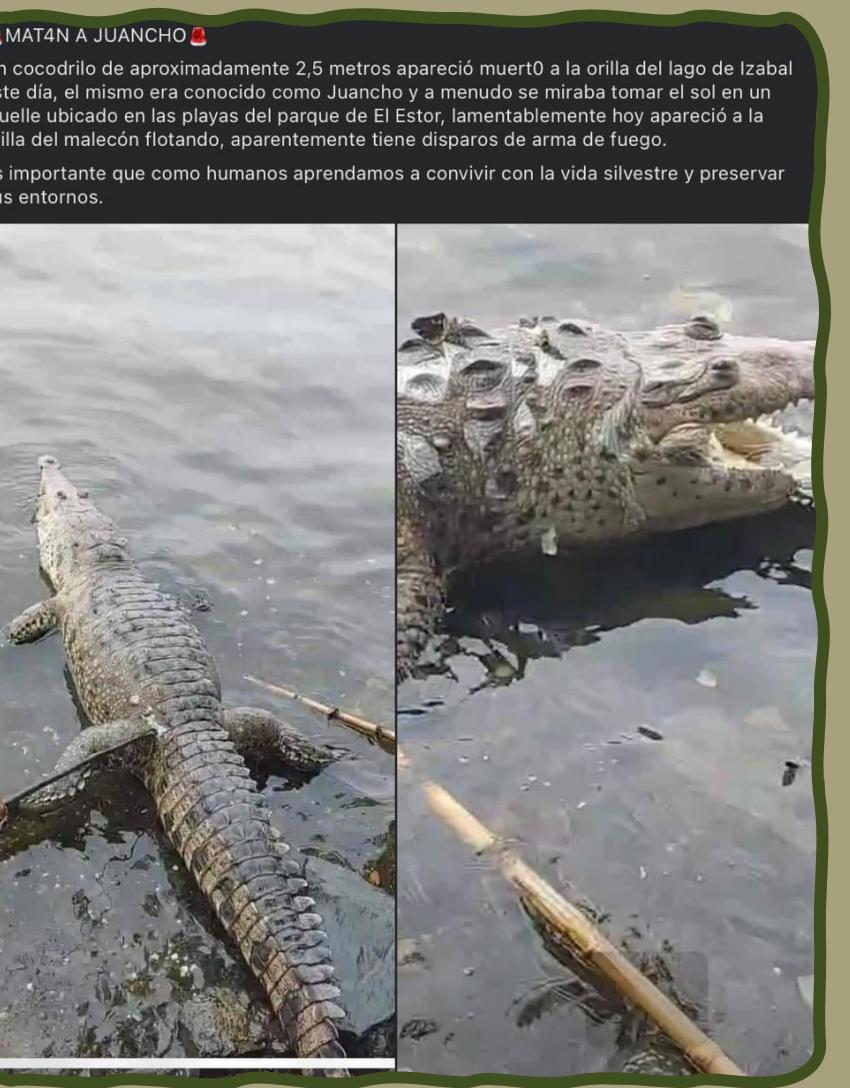
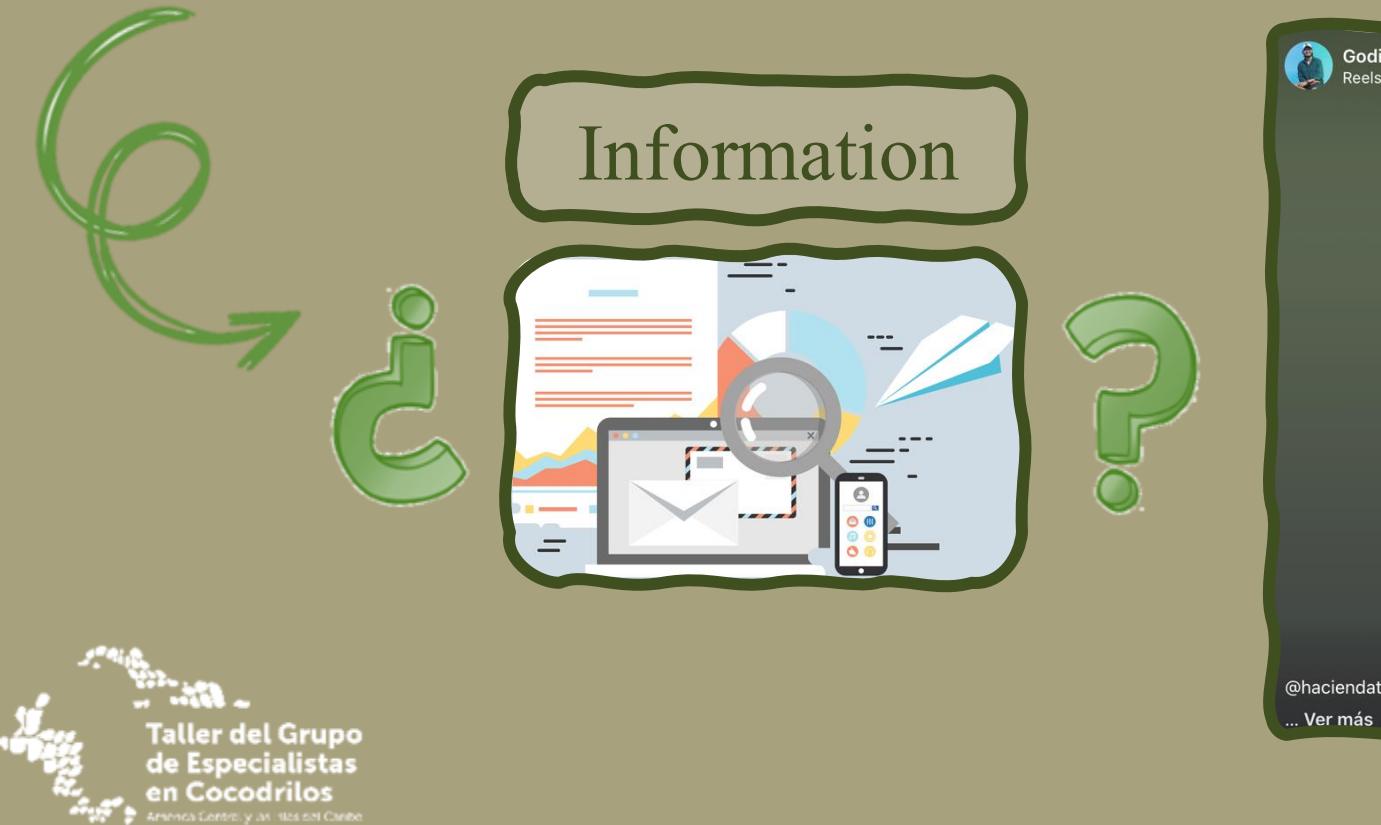


The American Crocodile Monitoring Programme (PMCA), which has been running since 2009 in the SETAL Private Nature Reserve (RNPS), represents one of the most important efforts for the conservation of the American crocodile in the department of Izabal, Guatemala.

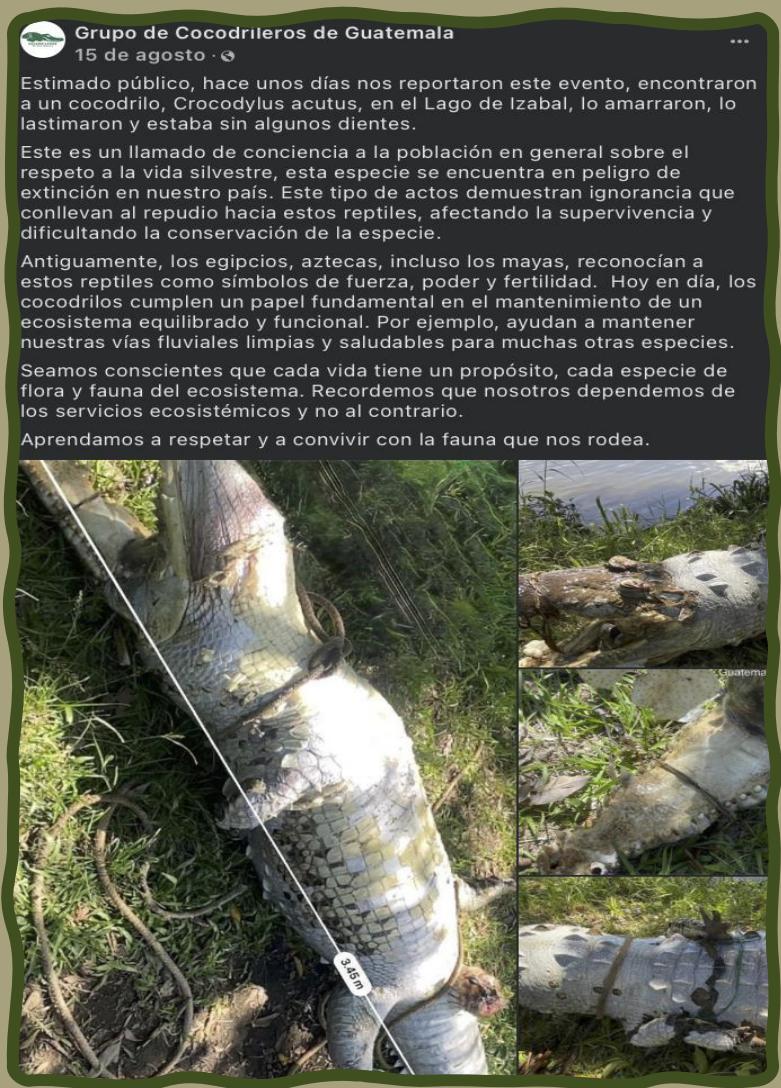


Introduction

Habitat destruction, negative perception, poaching, incidental deaths...



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Group de Cocodrileros de Guatemala
15 de agosto

Estimado público, hace unos días nos reportaron este evento, encontraron a un cocodrilo, *Crocodylus acutus*, en el Lago de Izabal, lo amarraron, lo lastimaron y estaba sin algunos dientes. Este es un llamado de conciencia a la población en general sobre el respeto a la vida silvestre, esta especie se encuentra en peligro de extinción en nuestro país. Este tipo de actos demuestran ingnorancia que conllevan al repudio hacia estos reptiles, afectando la supervivencia y dificultando la conservación de la especie. Antiguamente, los egipcios, aztecas, incluso los mayas, reconocían a estos reptiles como símbolos de fuerza, poder y fertilidad. Hoy en día, los cocodrilos cumplen un papel fundamental en el mantenimiento de un ecosistema equilibrado y funcional. Por ejemplo, ayudan a mantener nuestras vías fluviales limpias y salidas para muchas otras especies. Seamos conscientes que cada vida tiene un propósito, cada especie de flora y fauna del ecosistema. Recordemos que nosotros dependemos de los servicios ecosistémicos y no al contrario. Aprendamos a respetar y a convivir con la fauna que nos rodea.

Introduction

Only a few population and human-crocodile interaction studies have been conducted since the 1990s to date with *Crocodylus moreletii* and *Crocodylus acutus*.

Population monitoring and human-crocodile interaction monitoring
(Castañeda-Moya 1998; Castañeda-Moya *et al.*, 2000a; 2000b; García-Corado *et al.*, 2020; *in press*)

Population monitoring
(Corado-García, *developing*)

Population monitoring, and local perception and knowledge
(Corado-García *et al.*, *in press*)

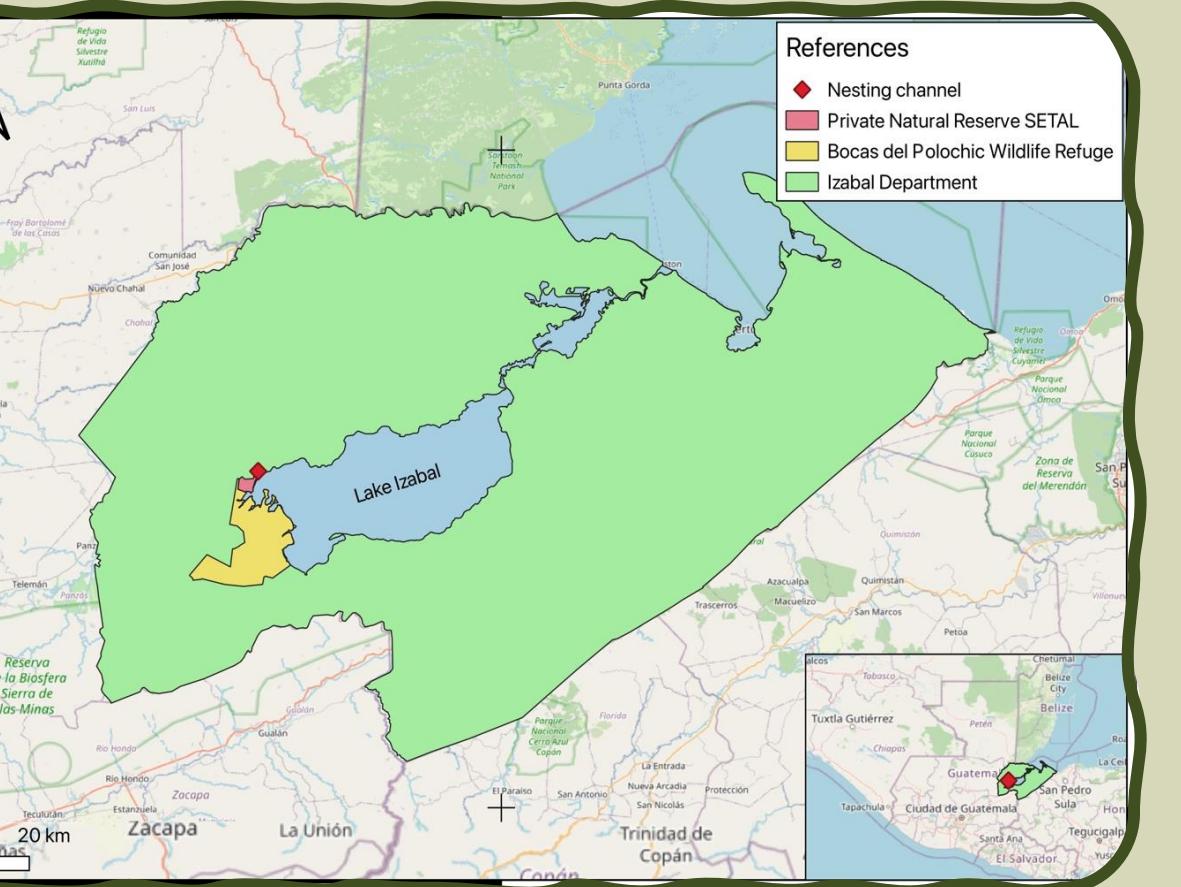
Nesting ecology
SETAL (CGN-ECOSUR)



Methodology

- Study area

The RNPS located at the Department of Izabal in north-eastern Guatemala, covers an area of 617 hectares of which 80% is part of the Bocas del Polochic Wildlife Refuge.



Location of the Setal Private Nature Reserve in relation to the Río Dulce-Lago Izabal watershed in Izabal, Guatemala.



Methodology

- Study area

It is managed by the
Guatemalan Nickel
Company (Compañía
Guatemalteca de
Níquel-CGN).



Methodology

- Field work

Daily surveys were conducted during the canal in the morning and afternoon to search for nests usually from mid February to late March. Once identified, the nest is marked and the data collected.



Habitat/nest characteristics

GENERAL				
<i>Crocodylus acutus</i>	Nido:	Área:	Fecha:	Hora:
Asistentes:				
Punto GPS:	Coord.:			
HABITAT				
Vegetación pionera – Matorral costero – Selva baja con <i>Bursera simaruba</i> – Vegetación secundaria – Mangle rojo – Mangle mixto – Mangle negro – Mangle botonillo				
Distancia al cuerpo de agua:	Distancia al mar:			
Distancia al arbusto más cerca:	Salinidad cuerpo de agua:			
Nido				
Tipo nido:	Material:	Reutilización:		
Ancho:	Largo:	Alto:	Inclinación:	
Profundidad hasta huevos:	Profundidad hasta fondo:			
Dimensiones recamara:	Nº datalogger y profundidad:			
Observaciones:				

HUEVOS

Nº	Ancho (mm)	Largo (mm)	Peso (g)	Fértil	Grietas	Roto	Acreción	Observación
1								
2								
3								

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Female information

56	57	58	Fecha oviposición real:	Fecha oviposición estimada:
			Fecha eclosión estimada:	Fecha eclosión real:
Número de huevos colocados de nuevo en el nido:				
Observaciones:				
Cámara trampa:				
Hembra				
Presente:	Comportamiento:	Observaciones:		
<input type="checkbox"/> No	<input type="checkbox"/> No se mueve			
<input type="checkbox"/> Sobre el nido	<input type="checkbox"/> Huye			
<input type="checkbox"/> Cerca del nido sobre tierra	<input type="checkbox"/> Intimidación			
<input type="checkbox"/> Cerca del nido en el agua	<input type="checkbox"/> Ataque			
Marcada:	Tamaño estimado:	Tamaño real:		
Largo huella pata anterior:	Largo huella pata posterior:			

Methodology

- Field work

Daily tours in the area continue until hatching season, which in most cases is assisted and occurs between late May and early June.

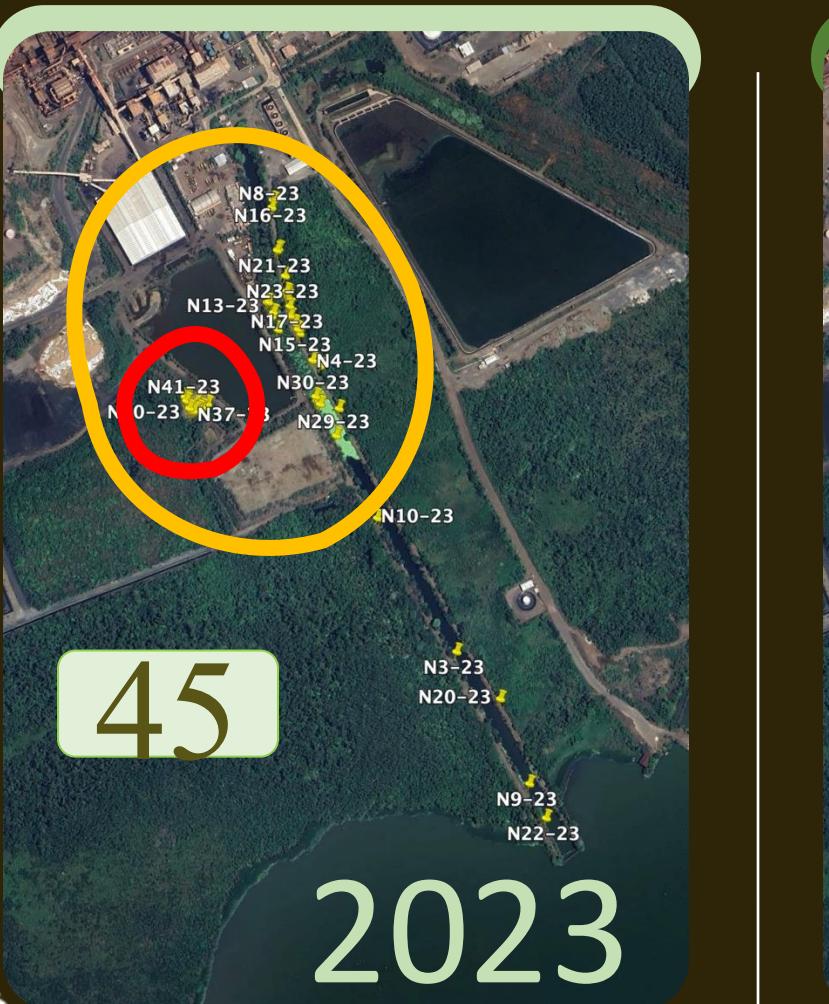


Hatchings information

Hatchlings information



Results



Changes in nesting site selection.

Perhaps due to the climatic conditions of the year, vegetation cover, or availability of the area with respect to some territorial females.

Despite this, the nesting area has increased the number of nesting females. Some are even loyal to a particular nesting site.

Results

Nesting and hatching periods

2023

Feb 7 –
Apr 17

May 3 –
Jun 6

2024

Feb 23 –
Apr 16

May 17
– Jun 4

2025

Feb 25 –
Apr 25

May 9 –
Jun 20

Incubation period

2023

78.01

73-86

2024

80.85

72-103

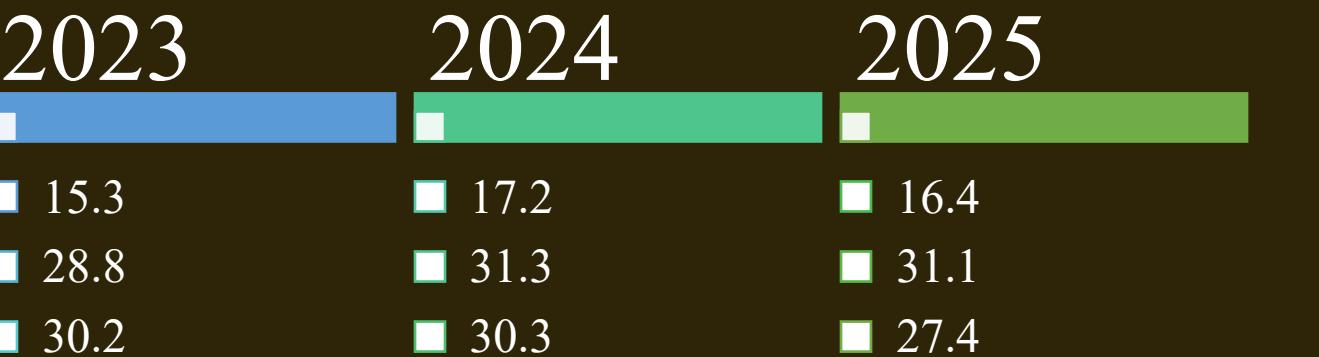
2025

79.6

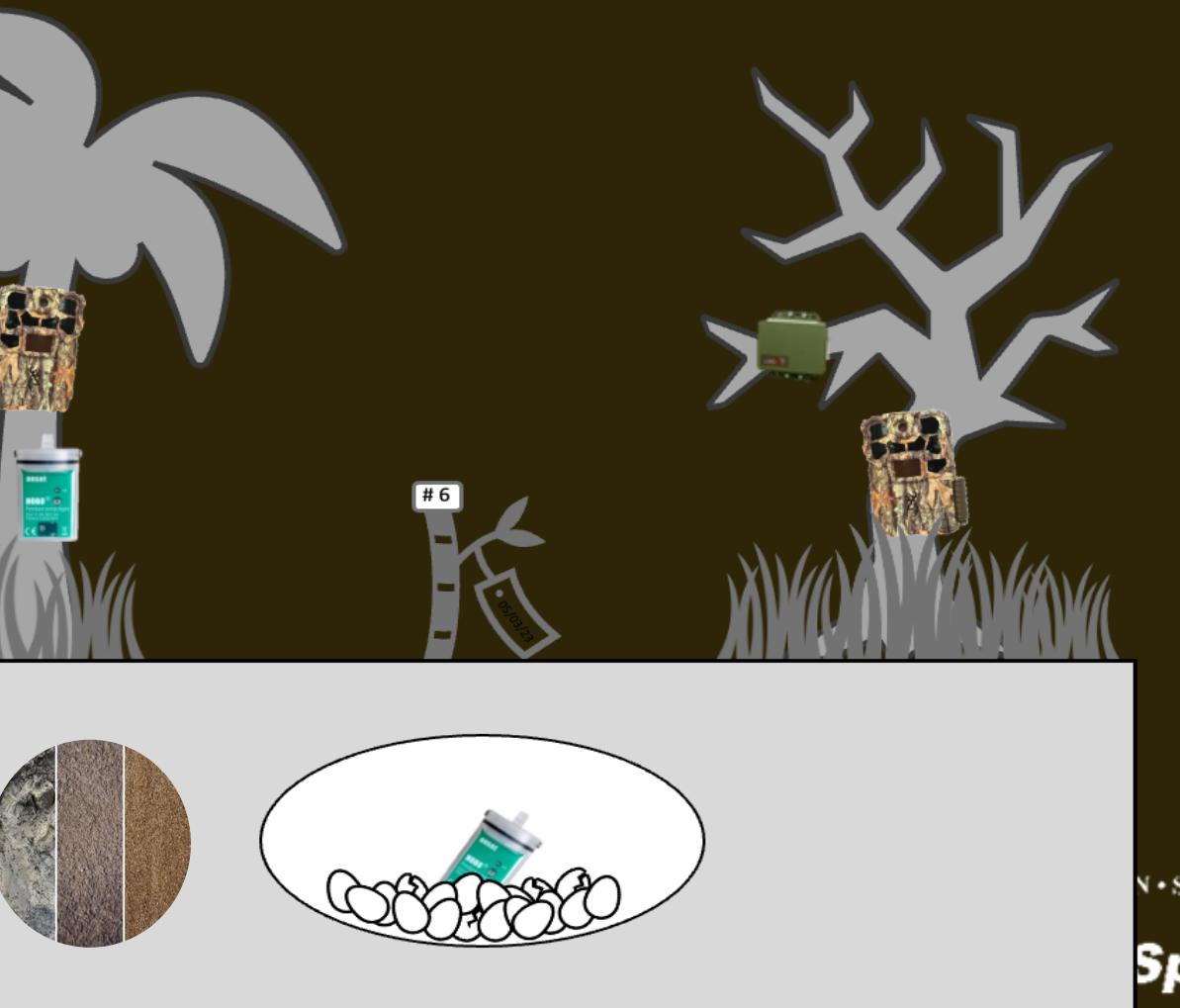
73-89

Results

Nest dimensions



The nest is a common “hole nest”



The substrate consists of silt soil and rocks from mining areas.

The distance from the nests to the water and nearest tree is 4 and 2 average aprox. for each year.



Results

Clutch size

2023	2024	2025
• 28.8	• 31.1	• 31.8
• 6-48	• 4-49	• 17-48



Eggs morphometry

	Length	Width	Weight
2023 n=846	76.81 3.73	47.45 1.77	102.31 10.46
2024 n=1058	76.36 3.93	47.02 1.69	99.05 11.86
2025 n=1511	76.83 4.13	47.09 1.72	110.55 10.77

Results

	TL	SVL	Weight
2023 n=512	26.05 1.06	13.18.45 0.83	68.52.31 6.14
2024 n=714	25.82 1.41	12.90 0.78	66.26 8.33
2025 n=687	26.46 1.01	12.60 0.51	65.54 6.74

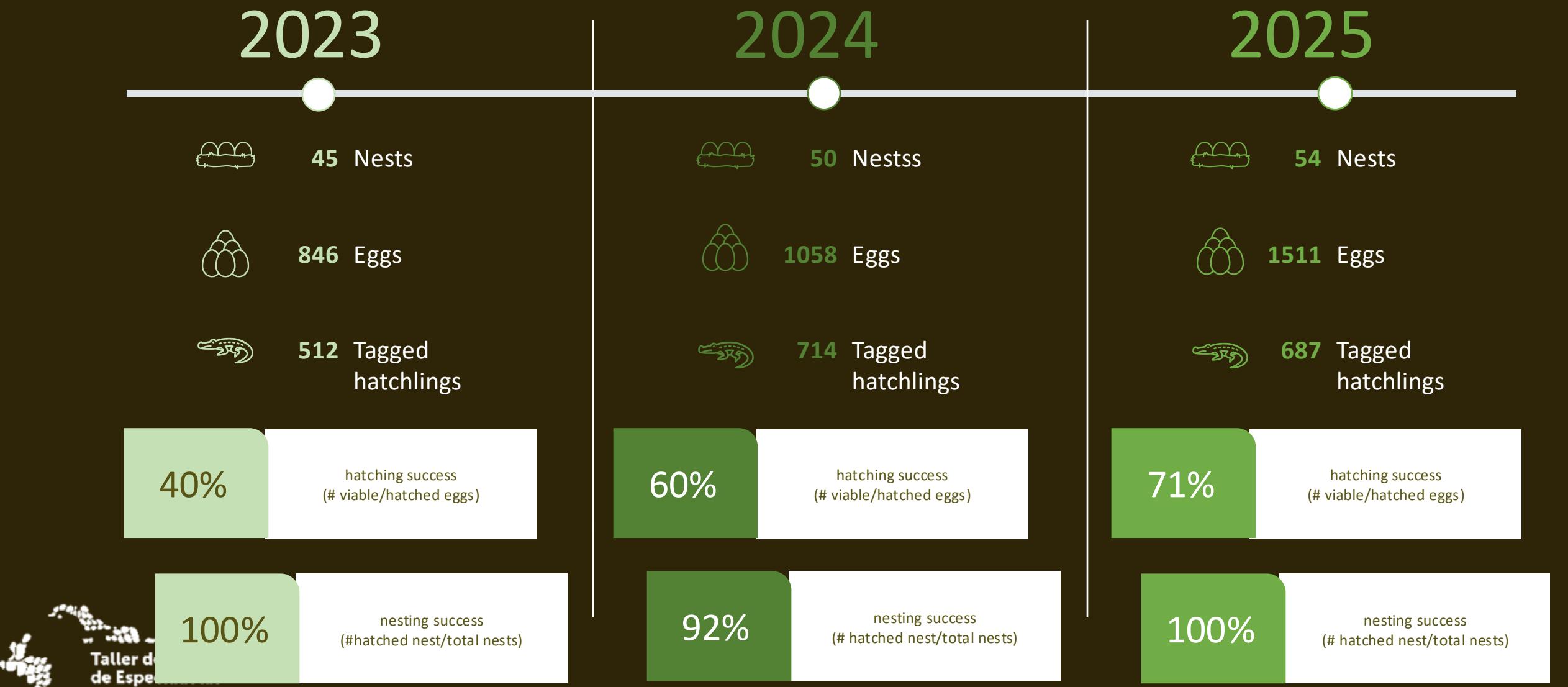


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Results



The number of nests increased over the 3 years of monitoring.

Nesting success is acceptable, but hatching success is not as good as in other places, despite increasing over time.

The increase in nests may be due to the inactivity of the company, but it could also be influenced by sampling efforts during this years.

Results

Communication with local communities about American crocodile conservation efforts.



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Para conocer más sobre el proyecto, escanea aquí

To learn more about the project, scan here



Contacto:

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Agradecimientos

Ciencia y
Tecnología

RESERVA NATURAL PRIVADA
SETAL
EL ESTOR, IZABAL



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Acknowledgements