



Charotar Crocodile Count

9TH Charotar Crocodile Count 2022



Voluntary Nature Conservancy

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8th Charotar Crocodile Count-2022

Counting Crocodile for Conservation

7-9 January 2022

A Citizen Science Initiative By
Voluntary Nature Conservancy



OUR SUPPORTERS



Duleep Matthai
Nature Conservation Trust



ACKNOWLEDGEMENT

Another year, one more Charotar Crocodile Count. Since the corona cases were not being reported on significant scale in India, we were so happy at VNC in anticipation of the fact that this time we will be able to invite participants from across India in event. So, everything was going well, but as the event approached, there were large spikes in corona cases, especially our region. And so, left with no other option, VNC had to postpone the event, just a day before the event date. All the participants were called up and asked to cancel their travel. But a few those had already reached Gujarat, were involved in the count. So, with very few participants, and volunteers of VNC we conducted the 9th Charotar Crocodile Count from 7-9 January 2022. We hope, once the things become normal, we again will have a gathering of individuals from across the country, interested in crocodile research and conservation here in Charotar. It brings us great joy in bringing this report of the 9th Charotar Crocodile Count-2022.

A major thanks you to Dr. Devang Joshi, Registrar (CHARUSAT) and Dr. Bhaskar Pandya, Principal, Indukaka Ipcowala Institute of Management (CHARUSAT) who have been supporting the event since its inception. We hearty thank them for their valuable support and inspiration.

This program wouldn't have been possible without the efforts of VNC's volunteers who helped manage the count and coordinated the team in the field. We thank all the volunteers for their assistance (See page 21-22 for the group photo and list of the volunteers). We additionally thank numerous organisations who have been supporting our aim of conserving crocodiles in Charotar. NAJA India (www.naja.in), has been our associate on numerous ventures, and an ardent supporter in different activities. The Rufford Small Grant Foundation and the Duleep Matthai Nature Conservation Trust supported our initial work on conservation of mugger in Charotar. Further support was provided by Idea Wild. We are thankful to all these organisations for supporting us.

We have put up great drone photographs from Charotar in this report, Please enjoy it.

Crocodile Research Team
Voluntary Nature Conservancy

WHAT IS CHAROTAR CROCODILE COUNT?

Charotar Crocodile Count, born in 2013, is an annual event, designed to bring together a diverse set of participants to understand the importance of muggers and wetland in the present day conservation scenario. This voluntary based initiative while helping us to gain a better understanding of crocodile's status and distribution across the Charotar region and providing participants an opportunity to meet people who live alongside crocodiles, aims at

inculcating a holistic understanding of the subject amongst the participants, who can then become the ambassador of conservation in their respective regions. This program is first of its kind in Gujarat and has generated a very useful population data over the years (2013-2022), which is being used by wildlife managers, researchers and conservation organisations alike.

IMPORTANCE OF CHAROTAR REGION

Charotar region is significant for sustenance of mugger population of Central Gujarat. The region is also an important dispersal and breeding ground for muggers between the meta-populations in Central Gujarat. The region not only hosts an important population of muggers but also multitude of fascinating rich faunal diversity, especially birds. Notable is the largest population of Sarus cranes in the state that survives in Charotar, and other parts of Anand-Kheda districts. However, the reason this population is important is that this population does not survive in any forested or protected area but in village pond and canals amongst the humans. Our research has shown that the local community possesses a significant level of tolerance towards this crocodiles. Moreover, people have learned to

live with the crocodiles around, and are aware of their presence, their behaviour and ecology. This has facilitated a coexistence between humans and crocodiles in this region.

Mahi Irrigation Project irrigates large areas in this region, and therefore an intensive irrigation canal network interlinks most of the water bodies. This extensive network of canal acts as travelling routes for the dispersing crocodiles, and thus favours genetic exchange. These wetlands serve as a lifeline for agriculture in and around the landscape.

CROCODILE POPULATION ASSESSMENT METHOD?

Citizen Science is an exciting, multifaceted way to bring people from all walks of life together for research and conservation. VNC employs citizen science volunteers to collect data, and invited applications from all over the world to be part of this event.

Usually for crocodile counts, a team of 5-10 volunteer, depending on the size of the water body to be surveyed, is allocated to various villages. However this time, we had small teams since most participants were not able to join the event. The crocodile

surveys were carried out using the "Day/Basking Survey", wherein the participants scanned the wetland from a suitable vantage point for the presence of crocodiles on the edge of water, basking areas and in water, and collected information on the number of individual, size, location and activity (if any). The surveys began after 9:30 AM and continued till 2:00 PM.

HOW DOES THIS CROC COUNT HELP?

The count provides an ideal opportunity to understand the population status and distribution of mugger crocodiles in the charotar region.

It also provides the participants a first-hand experience of observing and understanding the mugger crocodiles, their ecology and conservation aspects, and how the villagers harmoniously coexist with muggers.

It also helps participants understand the intimate relationship local communities share with ecosystem.

All relevant information on population observed during the count is shared with concerned authorities for the management purposes.



Table 1: Population estimation of mugger crocodiles (*Crocodylus palustris*) in various villages of Charotar region, Gujarat, India during the 9th Charotar Crocodile Count 2022

		Size Classes					
Sr. No	Village	<1 (Mts)	1.1 to 2.0 (Mts)	2.1-3.0 (Mts)	> 3 (Mts)	Unknown	Total
1	Bhadkad		1	2		0	3
2	Changa		2	2			4
3	Dabhau		7	4			11
4	Dali			1			1
5	Demol		2	7		0	9
6	Deva		27	18			45
7	Devataj						0
8	Gangapur		1	1			2
9	Heranj		13	6			19
10	Khandhali			1			1
11	Laval		0	4		0	4
12	Macchiyel		0	1		0	1
13	Maghrol						0
14	Malataj		0	7			7
15	Marala-Nagrama		1	3			4
16	Navagam		3	1		0	4
17	Petli	1	12	5			18
18	Pij			4			4
19	Roon			2		0	2
20	Sojitra		1	4			5
21	Traj			6	1	2	9
22	Tranja-Kathoda			2		1	3
23	Vaso		6	5			11
Total		1	76	86	1	3	167

How Many Did You Count?

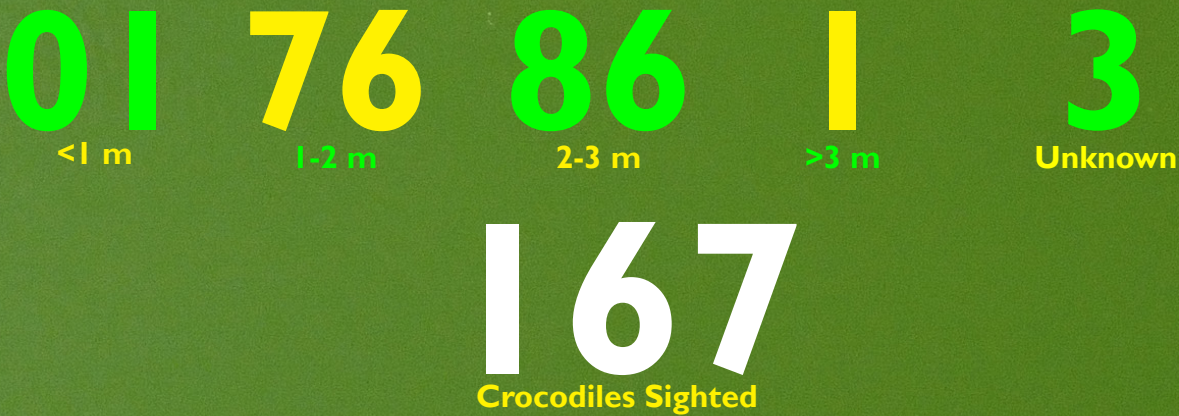
Most of the crocodile sightings came from five villages, with nearly one fourth (26%) of the population (45/167) reported from Deva village alone. Significant populations (>10 individuals) were reported from places like Heranj (19), Petli (18), Vaso (11) and Dabhau (11).

Places like Traj and Malataj, where they reported 24 and 21 crocodile numbers respectively in last year's count, ended up with crocodile numbers as 9 and 7. This low sighting of crocodiles have been the results of factors, such as high level of water in ponds and large scale spread of water hyacinth (*Eichhornia crecipes*). These factors have affected the sightings and detections

of crocodiles. Due to high water levels the crocodiles move into canals, especially into the mud walled canals, and seek refuge there amongst the vegetation, leading to low sightings in ponds. Moreover, many of the ponds were not cleaned up, as they weren't on lease, which is not the usual case. Such a situation impacts the spread of the water hyacinth, which in the absence of any management steps spread wildly across the water surface of pond, leading to low detection of crocodiles. This high growth of water hyacinth also impacts the water quality of the ponds, thus affecting the fish populations, which is the primary food of the crocodiles in this region.



How Big Were The Crocodiles?



COMPARISON OF CROCODILE COUNT DATA OVER THE YEARS (2013-2022)

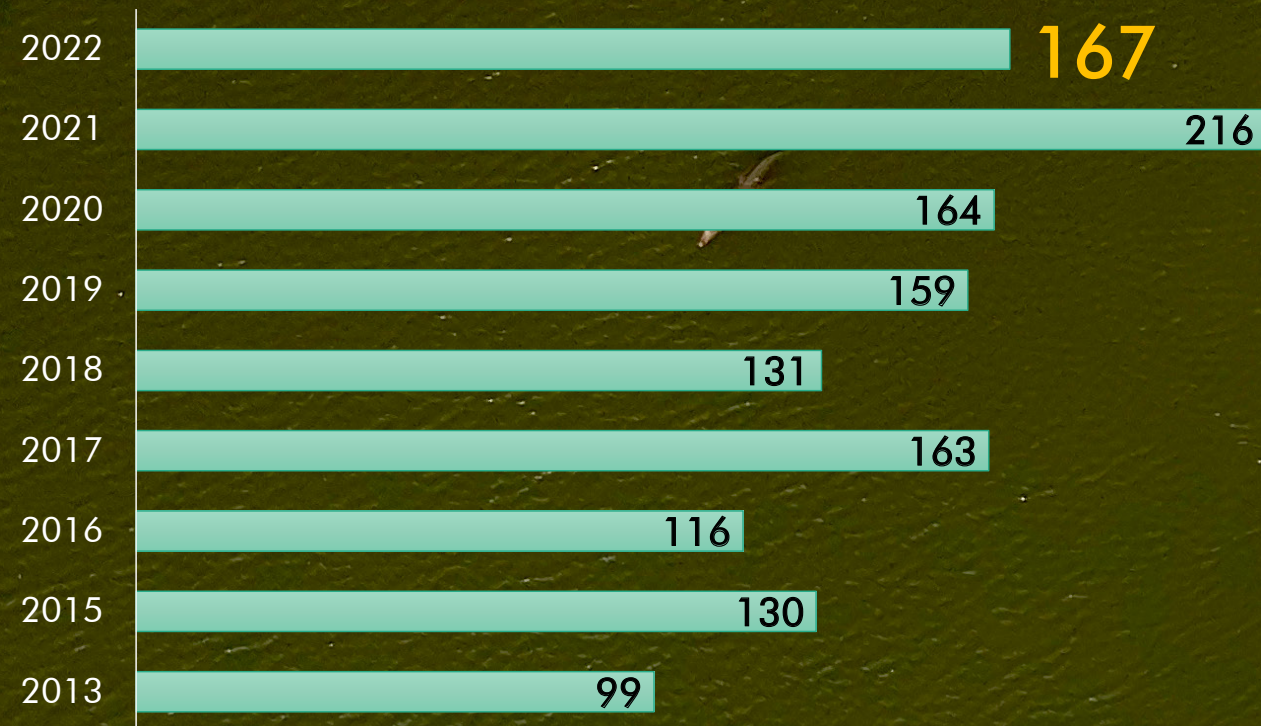


Fig 1. Population estimates of mugger crocodiles in Charotar region counted over the years (2013-2021) during the Charotar Crocodile Count.



A GLIMPSE.... 9TH CHAROTAR CROCODILE COUNT 2022



PARTICIPANTS



Standing (From Left to Right): Chinmay Puranik, Anirudh Vasava, Mehul B Patel, Nikhil Parekh, Abhisek Sahu, Saikat Bera, Miral Patel, Bhaumikchandra Rajdeep, Mehul A Patel, Shubham Parmar.

Sitting (From left to right): Chaturved Shet, Jaimin Makwana, Pruthviraj Patel, Pradhyuman Sindha, Chitra Patel, Marmik Goyani

Voluntary Nature Conservancy

Vidyanagar Nature Club/Voluntary Nature Conservancy (VNC) is registered as Public Charitable Trust Vides No: E/2659/Anand under Bombay Public Trusts Act 1950 in the year 2003 with the main mission of creating environmentally sensitive society. Located in Vallabh Vidyanagar town of Gujarat, VNC has been working actively since its inception with its primary objectives to inculcate love for the environment, and appreciate sustainable living. Started with the idea of sharing the simple joys of bird watching, cycling in the midst of nature, and enjoying being in nature's lap, VNC has grown into an organisation whose working areas now broadly include (1) Environment Education, (2) Research & Conservation, and (3) Awareness & Advocacy. VNC tries to fill up the prevailing gap that exist in the society and education system for environment education and learning, and conducts extensive educational programs in schools and colleges. VNC's wildlife related projects include India wolf monitoring in Kutch, mugger crocodile conservation in Gujarat, understanding and mitigating crop depredation in Little Rann of Kutch, forest owl monitoring in south Gujarat, assessing and mitigating snakebite in Gujarat, capacity building to assist wildlife conservation and citizen science initiative to promote crocodile conservation. VNC carries out various campaigns such as the Snakebite Mitigation Program, Save the Sparrow project, Greenathon (annual marathon), Save the Vulture program, and drives to reduce pollution. Besides this, we also deal with ongoing environmental issues that occur around us, such as illegal cutting of trees, water pollution, and waste management. VNC is accredited by GEF, (Global Environment Facility) and is a member of GEA (Global Environmental Action) & SAYEN (South Asia Youth & Environment Network). VNC is also registered Non Profit foundation as Voluntary Nature Conservancy in USA.

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A person in a blue shirt is seen from the back, looking through binoculars. In the foreground, a crocodile is lying on a grassy bank. Behind the crocodile is a calm pond reflecting the sky and trees. In the background, there are trees, a white van, and some buildings.

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