



**Charotar  
Crocodile  
Count  
2019**

## **6<sup>TH</sup> CHAROTAR CROCODILE COUNT**

*Counting Crocodile for Conservation*

**4<sup>th</sup> – 6<sup>th</sup> January 2019**



*Voluntary Nature Conservancy*

[www.vncindia.org](http://www.vncindia.org)



## 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 owlet 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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## 6<sup>TH</sup> CHAROTAR CROCODILE COUNT-2019

*Counting crocodile for Conservation*

**4<sup>th</sup> –6<sup>th</sup> January 2019**

**A Citizen Science Initiative By**  
*Voluntary Nature Conservancy*



**OUR  
SUPPORTERS**





## WHAT'S CHAROTAR CROCODILE COUNT?

Charotar Crocodile Count, born in 2013 is a annual event, designed to bring together a diverse set of participants from different niche of life 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 (2013-2018\*), which is being used by wildlife managers, researchers and conservation organisations alike.

## HOW DOES THIS CROC COUNT HELPS?

- The count provides an ideal opportunity to understand the significance of biodiversity and how villagers harmoniously coexist with muggers.

- It also helps participants understand the intimate relationship local communities share with ecosystem and understand how muggers indirectly manage ecosystem by functioning as keystone species.

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



\* You can find the old reports of the previous Charotar Crocodile Count at <https://vncindia.org/resource-center/>



## IMPORTANCE OF CHAROTAR REGION

Charotar region is significant for sustenance of mugger population of Charotar and for meta-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. And the most intriguing aspect of these population is that the muggers and the villagers survive along each other without much conflicts, setting a fine example of what we know as "co-existence". 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. Moreover, this population is very much safe compared to other population where habitat destruction and negative attitudes threatens their survival. Our earlier surveys have found that there exists a high tolerance of muggers amongst the people of Charotar. This ecological diversity and richness, in synergy with ecological services, acts as a lifeline for the people living in the region corridor. In order to secure this rich socio - ecological heritage, understanding and working towards protecting this area and the social habitaing this are corridor is of critical importance.

## How Did You Count CROCODILES ?

VNC used an approach called "Citizen Science" to count crocodiles in Charotar. Citizen Science is an exciting, multifaceted way to bring people from all walks of life together for research and conservation. For crocodile counts, a team of 5-10 volunteer, depending on the size of the water body to be surveyed, was allocated to various villages. 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 8:30 AM and continued till 2:00 PM, during which the crocodiles extensively indulged in basking.



# 108

Participants

# 2

Days

# 22

Villages Visited

# 27

Wetlands  
Surveyed

# 159

Crocodiles Sighted

Villages	<1 mt	1-2 mt	>2 mt	Unknown	Total
Bhadkad	0	1	0	2	3
Changa	1	0	0	1	2
Dabhau	0	1	0	11	12
Dali	0	0	0	0	0
Deva	0	9	27	32	68
Devataj	0	0	0	0	0
Gangapur	0	0	0	0	0
Gada	0	0	0	0	0
Heranj	2	3	2	0	7
Kathoda-Tranja	0	2	0	0	2
Khandhali	0	0	0	0	0
Laval	0	0	0	2	2
Maghrol	0	0	0	0	0
Malataj	3	9	4	0	16
Maliyataj	0	0	0	0	0
Marala-Nagrama	0	4	1	2	7
Navagam	0	0	0	0	0
Petli	1	5	2	6	14
Pij	0	0	2	0	2
Sojitra	0	0	2	1	3
Traj	0	4	8	1	13
Vaso	3	2	0	3	8
Subtotal	10	40	48	61	159

## How Many Did You Count?

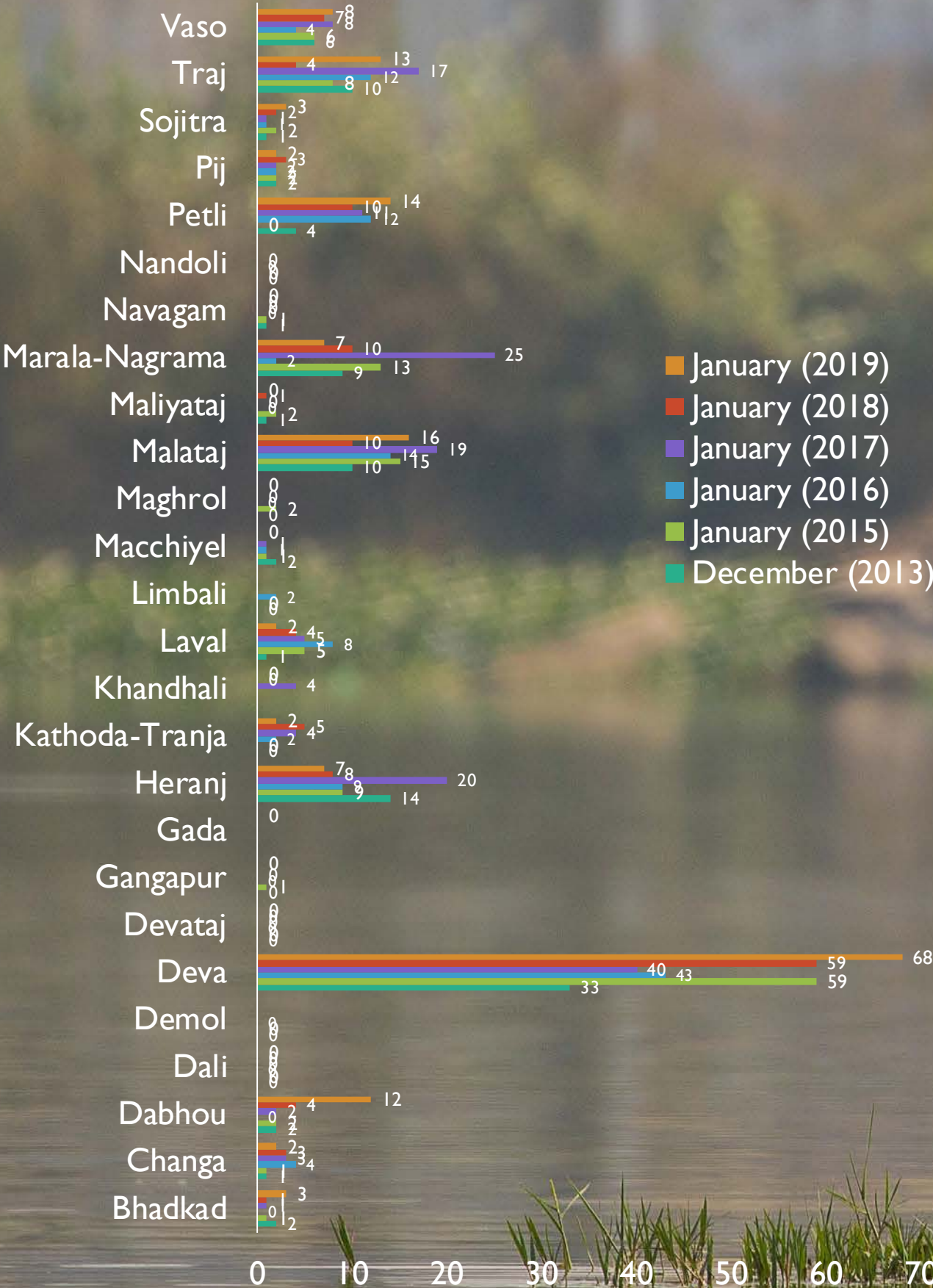
During the two-day count crocodiles were reported from 22 villages, tallying at 159 direct sightings of crocodiles. Most of the crocodile sightings came from 12 villages with nearly one third of the population (68/159) reported from Deva village alone. Significant populations (>10 individuals) were reported from places like Malataj (16), Petli (14), Traj (13) and Dabhau (12). The crocodile populations in Charotar is highly dynamic in response to season, water-level fluctuation and human disturbances. Visibility, size of the wetland, presence of vegetation and experience of the observer also affects the crocodile counting. So this survey is not conclusive enough, and results should be viewed taking the aforementioned factors into account.

## How Big Were The Crocodiles?

Of the 159 individuals sighted directly, **48** were bigger than two meters, **40** were of size between 1-2 meters, **10** were of size less than one meter and rest (**61**) were of unknown size.



How Many Did You Count Compared To Earlier Counts?



Year of the Count	Individuals Sighted
2013	99
2015	130
2016	116
2017	163
2018	131
2019	159



Photo By: Anirudh Vasava



# ROMULUS WHITAKER

## THE SPECIAL GUEST

### INTRODUCTION

Founder, Madras Crocodile Bank Trust.  
 Founder, Chennai Snake Park,  
 Founder, The Andaman and Nicobar Environment Team  
 Founder, Agumbe Rainforest Research Station  
 Member, IUCN-Crocodile Specialist Group

### AWARDS AND RECOGNITION

Whitley Award, 2005  
 Sanctuary-ABN AMRO Lifetime Service Award, 2006  
 Rolex Awards for Enterprise, 2008  
 Salim Ali Award, 2009  
 Padma Shri, 2018.  
 Order of the Golden Ark  
 Peter Scott Award

The words cannot express the joy and honor that VNC felt having received Rom as the chief guest of the 6th Charotar crocodile count 2019. He was extremely happy to see the work that VNC does here in Charotar and offered to help if we needed here. He, along with Janaki and Nikhil, visited Malataj, Petli and Deva villages and interacted with the villagers.

While happy to see that such a healthy population survives in such human dominated landscape, he was equally amazed to witness the mostly peaceful relation between human and crocodile in Charotar. Later, he addressed and motivated the participants at the concluding session held on 6th January 2019 at CHARUSAT, Changa.

He was facilitated by VNC for his contribution to herpetology and conservation with a memento. The memento was presented through the hands of Dr. Devang Joshi, Registrar, CHARUSAT.



Dr. Devang Joshi facilitating Romulus Whitaker with a memento from VNC



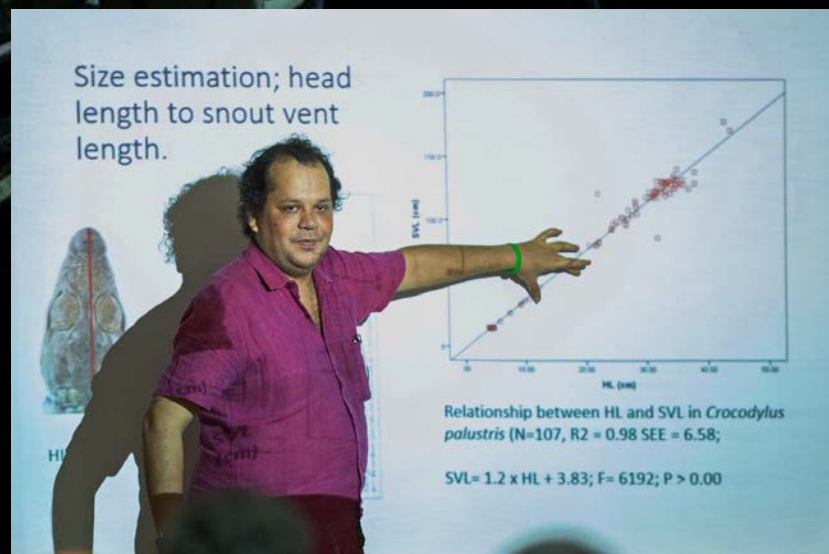


**Janaki Lenin**, wildlife filmmaker and author, stirred up the discussion on human-wildlife conflict, and provided a clear understanding of the issue.

**Dr. Raju Vyas**, a veteran herpetologist and crocodile scientist shared his in depth understanding of the human-crocodile conflict and its mitigation, acquired through his more than 30 years of research on crocodile and conflicts in Gujarat.



## EXPERTS @ CROC COUNT



**Nikhil Whitaker**, a crocodile researcher and Curator at Madras Crocodile Bank Trust, shared his research work on mugger crocodiles in Tamilnadu.

**Soham Mukherjee**, a well-known herpetologist and wildlife rehabilitator, talked about crocodile, conflict and conservation in Gujarat.





# A GLIMPSE....

## 6<sup>TH</sup> CHAROTAR CROCODILE COUNT

### 2019



Anirudh Vasava introducing the Crocs of Charotar to the participants



Dr. Raju Vyas discussing crocodile-human conflict in Gujarat



Participants in the field (Left & Right)



Participants interacting with local villagers



Participants in discussing with the Sarpanch of Petli village



Participants understanding indirect signs in the field



Participants collecting human-crocodile relation data



Participants taking note during a lecture/training



Karl Guyton II, a biology student and participant from USA



Participants and guests listening to speakers.



Romulus & Janaki, listening to Nikhil Whitaker.



Nikhil Whitaker (Left) and Soham Mukherjee (Right) sharing their research work with the participants.







Romulus discussing datasheet with Anirudh, Soham & Raju Vays



Dr. Raju Vyas sharing light moment VNC's team before the field



Diti Dave presenting a token of gift to Dr. Raju Vyas



Jilesh Patel presenting a token of gift to Soham Mukherjee



Romulus Whitaker meets VNC Volunteer



Janaki Lenin with VNC volunteers



Dhaval Patel presenting a token of gift to Dr. Devang Joshi



Het Patel presenting a token of gift to Saurabh Desai



Romulus Whitaker with Mehul Patel, VNC's Environmental Educator



Janaki Lenin addressing the participants



Dhaval Patel giving the vote of thanks



Anirudh Vasava giving the vote of thanks



Romulus Whitaker addressing the participants



Romulus Whitaker receiving the felicitation award from VNC



Romulus Whitaker, Dhaval Patel & Dr. Bhaskar Pandya



Romulus Whitaker, Dhaval Patel & Dr. Devang Joshi



## ACKNOWLEDGEMENT

The 6th Charotar Crocodile Count-2019 was an incredible success! Again! The main credit goes to all the participants and volunteers, who gave two days of hard work to make this event a grand success. It was fantastic to see many faces from different parts of India, and a face from USA as well, together in the field enjoying themselves! Yes, Karl Guyton from USA, flew down to Gujarat to participate in this year's croc count. Thank you everyone who participated! (See page 19-20 for the group photo and list of the participants)

We cannot be more thankful to our esteemed guest Romulus Whitaker, who made this event a very special one with his presence. Romulus, and as we fondly call him "Rom", needs no introduction. Infact many of the participants took part in the event, just to meet him. An inspiration to many and cherished by many herpetologist, naturalist and conservationist, he is well known across the world in the herpetologist fraternity. He has received several international awards including the Rolex Award, Order of the Golden Ark, Peter Scott Award and others in recognition of his contributions to conservation, including the prestigious Padma Shri in 2018. It was an absolute honor for VNC to host him and show him around our field sites and work in Charotar. His visit became one of the memorable times at VNC. Thanks ROM for coming here.

We at VNC were elated to know that Janaki, a well-known wildlife Filmmaker and Author, and Nikhil Whitaker, Curator at Madras Crocodile Bank Trust were also coming along with Rom. A big thank you to both of you for coming here and make this event really a grand one. Janaki generously wrote an article on the crocodiles of Charotar for the BBC. Nikhil enthusiastically shared his research work with the participants and shed light on methodologies used to study crocodiles, which is certainly going to improve upon the methodology that we use in Charotar. We hope the three of you enjoyed your visit as much as we enjoyed having you here. Seeing each of you here and showing so much support made the event a successful and memorable one.

This event would have been possible without the support of Dr. Devang Joshi, Registrar (CHARUSAT) and Dr. Bhaskar Pandya, HOD, Humanities and Social Sciences (CHARUSAT). We thank them from our heart for their support and hosting the event at Changa, and participating in the celebration of this event.

We again thank Dr. Raju Vyas, Retired Zoo Curator (Vadodara) and Soham Mukherjee, a wildlife biologist, both well-known herpetologist, long time collaborators and friends, who readily agreed to be the resource persons and train participants for the event. It is great to have you both here at the count each year.

We acknowledge the media support from Sunil Adesara and the team of Cassidix Media Works, for documenting the event fantastically.

We also thank the Management of Shree Swaminarayan Mandir-Vad-tal, for providing the accommodation.

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. You guys did an excellent job. Congratulation. (See page 21-22 for the group photo and list of the volunteers).

We also thank many organisation who has supported us in the past, and have been supporting our work in Charotar. NAJA Organisation ([www.naja.in](http://www.naja.in)), has been our collaborator on many projects, and continuous to be a supporter in other initiatives as well. The Rufford Small Grant Foundation (RSGF) provided the initial funding that moved our project from a small grass roots project to a large research and conservation project on mugger crocodiles. To RSGF we are forever grateful! Further, Anirudh Vasava received the Duleep Matthai Fellowship from Duleep Matthai Nature Conservation Trust for the work in Charotar. Idea Wild also provide in-kind support to our project. This all boosted the project to great extent. We are aforementioned organizations for supporting us.

Finally but above all, we thank the villagers of Charotar who have accepted this primitive species as co-inhabitant, and are committed to supporting mugger conservation.

Again, on behalf of the VNC and its team, we respectfully acknowledge and thank all the participants, guest, and supporters. This event wouldn't have been a success without all of your support! We look forward to many more events and please keep an eye on our calendar for updates!

Crocodile Research Team  
Voluntary Nature Conservancy



## 6TH CHAROTAR CROCODILE COUNT 2019



Photo By: Cassidix Media Works

### Thank you everyone who participated!

We hope you enjoyed your visit as much as we enjoyed having you here. We heartily thank the participants for the efforts they put in making this event successful. Seeing each of you there and having so much support made the event successful and memorable. Special thanks to Aakash Bhushan, Aakash Kashyap, Aamir Matli, Abishek J.V.R., Aditi Khatsuriya, Aishwarya Joshi, Akanksha Ohdar, Akshita Patel, Aman Ardeshta, Amit Solanki, Amiya Ranjan Mahananda, Ankeet Gaude, Anuja Vartak, Anurag Karekar, Anusriya Hazra, Arijit Chatterjee, Avantika Deep Sharma, Ayush Chandrakar, Bhargav Bhadreshvara, Bhavik Baria, Bhavika Vaghjiani, Chandini Thankachan, Charu Sharma, Chingu Maisnam, Chinmay Gadkari, Dolsy David, Dr D. N. Rank, Dr Madhuri Kodyatar, Eshaan Pahade, Fiza Quraishi, Gaurang Vakil, Gautam, Gayatri Bakhale,

Harsh Mahajan, Harshita Raghav, Hasmita Patel, Hemant Kumar Vadhavana, Hrishitonoy Dutta, Jalmesh Karapurkar, Jignesh Parekh, Jyotsna Nag, Karan Thakkar, Kaushavi Patel, Kautuk Marolia, Kedar Marathe, Keren Sophia Pereira, Utkarsha Chavan, Krupal Patel, Mahesh Raman, Marmik Dhebar, Meet Sharma, Meghna Tiwary, Mehali Patel, Narottam Priyadarshi, Paras Sahu, Praharsh Patel, Prakruti Khatsuriya, Preet Shah, Preet Patel, Pruthviraj Patel, Radhika Rao, Sandesh Amonkar, Shital Patel, Soumya Banerjee, Shourabh Desai, Stuti Anjaria, Tanisha Dagur, Tanvi Sharma, Thasmai H S, Utkarsha Chavan, Vicky Patel, Viral Baraiya, Yash Dabholkar, Yuyutshu Bhattacharya, Shubham Rane, Prina Patel, Runesh Ghag, Shivani Deshpande, Murali Dharan, Syamjith M Krishnan, Yash Patel, R Vignesh, Piyush Dholariya, Vanisha Patel



## GUESTS WITH VNC 'S TEAM & VOLUNTEERS



Photo By: Sunil Adesara

**Standing, From left to right:** Miral Patel, Jignesh Patel, Prathik Patel, Shubham Parmar, Neeraj Parmar, Viral Vadodariya, Girish Patel, Pradhyuman Sindha, Jaimin Makwana, Gunjan Buch, Mukesh Dave, Bhau-mikchandra Rajdeep, Anirudh Vasava, Het Patel, Krutarth Patel, Romulus Whitaker, Janaki Lenin, William Menezes, Dhaval Patel, Kishan Oza, Pavan Patel, Dr. Raju Vyas, Dr. Urvik Patel, Vishal Mistry, Mehul B Patel, Nikhil Whitaker, Niyati Patel, Harish Rathod, Soham Mukherjee, Akanksha Mukherjee.

**Seated, From left to right:** Jilesh Patel, Mehul A Patel, Diti Dave, Manasi Patel, Sathya Narayanan, Neel Talati, Mayur Variya



## MEET VNC's CROC TEAM

**ANIRUDH VASAVA** works with VNC where he develops and manages research and conservation projects. He has broad interest in large predator ecology and human-wildlife conflicts, and has more than seven years of experience in wildlife research. His current research integrates ecological studies with geospatial analysis and human dimensions to develop models for management purposes. He leads and manages the crocodile research and conservation initiative at VNC, and coordinates all the relevant activities. ([anirudh@vncindia.org](mailto:anirudh@vncindia.org))



**DHAVAL PATEL** is the founder and managing trustee of Voluntary Nature Conservancy. Since 1988, he has been actively involved in environment education, awareness and protection, and has more than 20 years of experience in educating the public. He is co-opted member of Animal Welfare Board of India, and is appointed as Honorary Wildlife Warden for Anand district. He is an active part the crocodile research team at VNC, and assist in developing educational programs for creating awareness about crocodiles. ([dsp@vncindia.org](mailto:dsp@vncindia.org))



**MEHUL PATEL** coordinates education as well as wildlife rescue and rehabilitation programs of VNC and is actively involved in mitigation of urban Human-Wildlife Conflict since 2009. He has provided nature education to more than a lakh people in both urban and rural region of Charotar. He has also conducted several educational programs for creating awareness about crocodile. ([mehul@vncindia.org](mailto:mehul@vncindia.org))

**DR. RAJU VYAS** has 30 year's extensive research and field experience in various herpetological projects and has published extensively on the subject. He has been carrying out extensive assessment and mitigation of human-mugger conflicts in the Gujarat state. He is the joint Vice Chair of the IUCN/SSC/ Crocodile Specialist Group - South Asia and Iran, and a member of the IUCN/SSC South Asian Amphibian and Reptile Specialist Group and IUCN/SSC/ Conservation Breeding Specialist Group. He has been an active part of all the projects on crocodile that are being carried out at VNC. ([razoovyas@gmail.com](mailto:razoovyas@gmail.com))



**VISHAL MISTRY** has been involved in wildlife rescue and rehabilitation for more than ten years and has broad experience as research assistance in various research projects. He has assisted in surveys of carnivores, herbivores, vultures, flamingoes, sarus crane, odonates in various parts of Gujarat. In past he has worked with prestigious organisations such as Bombay Natural History Society and Wildlife Institute of India. Vishal is an indispensable part of VNC's Crocodile Research Team, and assist in crocodile monitoring, nest and burrow survey and awareness programs. ([vmistry@vncindia.org](mailto:vmistry@vncindia.org))



**SOHAM MUKHERJEE** is a herpetologist and wildlife rehabilitator based in Ahmedabad. In past he has worked with various organisation such as Madras Crocodile Bank Trust (MCBT), The Gerry Martin Project and Humane Society International. He was instrumental in developing the enrichment and behavioral training programs for crocodilians and other reptiles at MCBT. He is the founder of the organization NAJA ([www.naja.in](http://www.naja.in)) which carries out work on human-crocodile conflict mitigation, snakebite mitigation and python ecology in Gujarat. A long time associates of VNC, he is a collaborator in the human-crocodile conflict mitigation project. ([soham@naja.in](mailto:soham@naja.in))





For further information:

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