

Crocodile Specialist Group Steering Committee Meeting
Double Tree Hilton, Darwin, Australia
(15 April 2024)

South Asia and Iran

BANGLADESH

Crocodylus porosus

The Sunderban mangrove forest in southwest Bangladesh is the stronghold *C. porosus*, and the population was estimated as 150-210 individuals in 2014-2016. The fate of 100 juveniles/hatchlings from the Karamjal Wildlife Breeding Centre, and released on 16 December 2021 is unknown as no monitoring was carried out. Saltwater crocodiles captured by fishermen outside the Sunderbans (Table 2) were released in the Sunderban RF.

Table 2. Records of saltwater crocodiles captured outside of Sunderban Reserve Forest

Year	District	River
April 2022	Bagerhat	Rupsha
July 2023	Barishal	Jayanti

The Forest Department regularly organizes training programs on crocodile conservation for front-line staff, including lectures and hands-on training sessions at Sheikh Kamal Wildlife Centre (KWBC), Gazipur. Adnan Azad assisted FD staff of KWBC, Sunderban Reserve Forest, on harvesting, cleaning and incubation of saltwater crocodile eggs. A solar-powered incubator has been set up at KWBC and staff were trained in the operation.

Crocodylus palustris

Considered extinct in the wild, and all Muggers exist in captive conditions (shrine pond and zoos). In 2004, 40 Muggers were imported from the Madras Crocodile Bank (India) and distributed among zoos and safari parks, as well as Khan Jahan Ali shrine pond and Karamjal Wildlife Centre, Sunderban. However, in recent years Muggers have been captured from rivers and ponds in different parts of the country (Table 1) - captive individuals are reported to have escaped and bred in the wild.

Table 1. Records of Muggers captured from different rivers.

Year	District	River
December 2018	Pabna	Padma (Ganges)
February 2019	Pabna	Padma (Ganges)
July 2021	Faridpur Sadar	Pond
August 2021	Faridpur	Padma (Ganges)
August 2021	Bogra	Jamuna
November 2022	Shariatpur	Padma (Ganges)
October 2023	Faridpur	Bhubaneshwar
October 2023	Narail	Chitra

Gavialis gangeticus

Historically distributed in the Padma (= Ganges) and Jamuna (=Brahmaputra) River systems, no adult Gharials have been sighted in recent years. However, juvenile and hatchling Gharials have often been captured by fishermen almost every year, raising the question of their origin. Interestingly, three Gharials were found basking on a sand bar in the Bhairab River, Abhaynagar, Jessore, in December 2022. There were no previous records of the species from this area in southwestern Bangladesh. The very small Gharial population in Bangladesh is considered to be declining due to habitat loss and opportunistic killing. However, few hotspots have been identified.

Public awareness on the conservation of Gharials has increased, and youth clubs have been formed advocating the conservation of Gharials, and other wildlife. The Team for Energy and Environmental Research (TEER), a student group of Gaibandha Government College, was awarded the Bangabandhu Wildlife Award 2023. Further, the Wildlife

Crime Control Unit (WCCU) of the Forest Department is vigilant and is extending support to youth groups and individuals to rescue wildlife in captivity or captured accidentally or intentionally, and to arrest illegal wildlife trade all over the country.

A captive breeding initiative involving Gharials in different zoos has largely been unsuccessful.

Recent Publications

Rabbe, Md. Fazle, Akter, Sumaiya, Rahman, Md. Mahfuzar, Barkat, Azizul Islam (2023). New insights into the distribution of the Gharial *Gavialis gangeticus* in Bangladesh from the analysis of news reports. The Herpetological Bulletin. 163: 28-30.

Report prepared with contributions from: Md. Fazle Rabbe, Adnan Azad, Dr. Gawsia Wahidunnessa Chowdhury, Saiful Islam, Golam Mostofa and Sahadat Hossain

INDIA

Gavialis gangeticus

1. **Wild Population:** 1500-1600 various-sized animals in Chambal, Katarniaghat, Beas, Hastinapur, Gandak, Corbett National Park, Ken and Son Rivers, with other populations distributed across Ganges, Hugli and Mahanadi.
2. **Captive Stock:** Over 500 sub-adults and adults in 38 captive facilities (CZA, 31 March 2022)
3. **Distribution:** Across India, including Chambal, Son, Ken, Gandak, Kosi, Sarda, main streams of Ganga River, Ramganga and Mahanadi Rivers; and Katarniaghat Wildlife Sanctuary.
4. **Ex-Situ Activities:** Captive-bred and -reared Gharials are being released into Nature through re-introduction programs regulated by the Central Zoo Authority (CZA), Ministry of Environment and Forest, as part of the *ex-situ* conservation policy. The Government of India is developing infrastructure and renovating “Freshwater turtles & Gharial at Kukrail Gharial Rehabilitation Centre, Lucknow” for expanding the conservation breeding program under the Namami Gange Program to Uttar Pradesh Forest Department with a cost of Rs. 3.13 Cr.
5. **Surveys:** In 2023, the State Forest Department carried out a Gharial survey in the Mahandi River and Satkoshia Gorge with the help of the staff of Nandankanan Biological Park, Bhuvneshwar, Orissa. The report is under preparation.

Wildlife Trust of India (WTI) initiated the “Gharial of Gandak River Project” in 2013-14, under the expert guidance of Prof B.C. Choudhury, Subrat Kumar Behera and Samir Kumar Sinha, and other team members of WTI. The aim is to recover the Gharial population in this non-protected river. In 21-28 February 2023, a comprehensive population survey was conducted, covering a 284-km stretch of the Gandak River, from Gandak Barrage to Rewa Ghat Bridge. This survey observed a total of 217 Gharials, comprising 37 adults, 49 sub-adults, 50 juveniles and 81 yearlings.

Saryu River Survey: Dr. Shailendra Singh surveyed a 119-km stretch of the Saryu River from Chahlari ghat to Ayodhya and covering parts of Bahraich, Sitapur, Barabanki, Gonda and Ayodhya districts. There was noted a significant increase in the Gharial sightings, with 174 observations in the present survey compared to 43 individuals (43% females, 5% males and 52% juveniles) recorded previously in a survey conducted by TSA in March 2013.

Ghaghara River Survey: A Gharial survey was conducted in out downstream of the Ghaghara River by the Forest and Chief Wildlife Warden, Environment, Forest and Climate Change Department, Government of Uttar Pradesh, and CSG, Student Research Assistance Scheme recipient Gaurav Vashistha and other team members with financial support by a Conservation Leadership Programme Future Conservationist. A total of 84 Gharials, comprising a high proportion of juveniles, were counted in a 100-km stretch of the Ghaghara River from the Girijapuri Barrage to Chahlari Ghat.

6. **Improving Gharial Hatching Success:** Gharial nesting in the Gandak River faces challenges such as erosion of nesting banks and predation by floodplain predators like jackals. Since the discovery of Gharial breeding in 2016, we have focused our efforts on monitoring and protecting Gharial nests, engaging with local fishing and farming communities playing a crucial role. In 2022, five Gharial nests were located, with three hatching successfully, yielding 148 hatchlings. In 2023, 10 nests were found, but predation by jackals and exposure to gusty winds presented significant challenges. Despite these adversities, 6 nests produced 130 hatchlings. Given the inaccessible

wide floodplain and intensive human activities in the riverine habitat, the need for more trained personnel to monitor this long river stretch is evident.

Proposed Conservation Reserve

A proposal has been proposed to designate the 140-km stretch of the Gandak River as a conservation reserve under the Indian Wildlife (Protection) Act, 1972. This river stretch is home to over 80% of the Gharial population in the river. This initiative has progressed to preliminary community consultations in 24 villages gram panchayats along the proposed river stretch. A comprehensive management action plan is developing, encompassing local biodiversity, threats, ecological services, and community perceptions and recommendations. The concerted efforts of conservation organizations, local communities, and government agencies are vital for the sustained recovery and protection of the Gharials in the Gandak River.

Restocking Activities

The re-stocking and re-introduction programs are well endured, and monitoring activities of the species continue at Ken Wildlife Sanctuary (Madhya Pradesh), Hastinapur Wildlife Sanctuary (Uttar Pradesh) and Beas Conservation Reserve (Punjab) by relevant state forest departments and with the help of WWF-India under the supervision and expert guidance of B.C Choudhury.

Gharial Re-introduction Program in India

Beas Conservation Reserve: The Gharial re-introduction conservation programme was initiated in 2017, under the expert guidance of CSG member Prof B.C Choudhury and Gharials are regularly monitored by Gitanjali Kanwar (WWF, India) and a qualified and dedicated team of individuals from four Wildlife Divisions of the Department of Forests and Wildlife Preservation, Punjab, and WWF-India and aimed to re-establish a breeding population of Gharial in the rivers of Punjab and ensure their long-term survival.

A total of 94 juvenile Gharials (*Gavialis gangeticus*) reared at Deori Gharial Rearing Centre in Morena, Madhya Pradesh, has been reintroduced in five batches since 2017 on different mid-channel islands falling in the Beas Conservation Reserve in Tarn Taran, Amritsar, and Hoshiarpur districts of Punjab. A qualified and dedicated team of individuals from four Wildlife Divisions of the Department of Forests and Wildlife Preservation, Punjab, and WWF-India is constituted to monitor the Gharials and their habitat. 30-40% of the total released Gharials were sighted during field surveys conducted in different seasons throughout the last year. Gharial have dispersed both upstream and downstream of their release location. The farthest upstream location is Chakki River in the Pathankot district of Punjab, India, and the farthest downstream location is Ganda Singh Wala in the Kasur district of Pakistan, located just after crossing the International Border with India.

Hastinapur Wildlife Sanctuary: The Gharials reintroduction and monitoring program is continued in Hastinapur Wildlife Sanctuary. The program was initiated in March 2019 as an initiative by WWF, India, and Uttar Pradesh Forest Department Gharial Conservation Program, under the expert guidance of Prof. B.C. Choudhury. Mr. Sanjeev Yadav and his team members completed the recent monitoring survey. The final report is under preparation.

Species Recovery & Reintroduction at Mahanadi: The program is continuing with the help of Prof. Sudarsan Maharana, Advisor Species Recovery Project, Nandankanan Biological Park and the state Forest Department, Orissa, with technical assistance from CSG members, expert and Indian biologists have taken new implementations for the project 'Special Recovery & Reintroduction of Gharials in Mahanadi.'

Research Activity

Prof. Dr. R.J. Rao studied Ecotourism Prospects in the National Chambal Sanctuary-2023 and Gharial nesting census. The sanctuary is not located on the tourist maps, so many eco-tourists have no information regarding the existence of such well-managed and wildlife-rich areas in the region. Field studies have been conducted in the National Chambal Sanctuary at Rajghat and Palighat to assess the potential of ecotourism and identify factors needed to promote ecotourism.

A survey was carried out by Prof. Dr. R.J. Rao and Dr. R.K Sharma at Gharial Nesting in Chambal River and its tributaries. The Gharial nesting information was gathered from previously identified nesting sites and from new sites identified during the survey. The survey was conducted during the nesting season from 10 March to 15 April 2023 and during the hatching period (ie from 25 May to 30 June 2023. Nesting sites in the Upstream from Pali to Rajghat were surveyed by moving vehicles on the road and reaching individual nesting sites. Nesting sites downstream from Rajghat were visited by moving on motorboats and collecting information from the Madhya Pradesh Forest Department field staff. Processing of the census data and report is in progress.

An SOP (Standard Operating Procedures) for rescuing stranded Gharial *Gavialis gangeticus* is formulated and published with the help of Prof. B.C. Choudhury and Sanjeev Kumar Yadav, with the help of Uttar Pradesh Forest Department and WWF-India. Also, funding support from Thames River Restoration Trust (UK) and the HSBC Water Programme is highly appreciated. We thank Mr. Ravi Singh (Secretary General & CEO, WWF-India), Dr. Sejal Worah (Program Director, WWF-India) and Mr. Suresh Babu (Director, Rivers, Wetlands & Water Policy Programme, WWF-India) for providing infrastructural support and encouragement.

Gharial Ecology Project (GEP)

The GEP launched in the winter of 2007-08 after the mass die-off of Gharial (*Gavialis gangeticus*) in Chambal River, and now it has successfully completed its 16th year with target objectives. The project was designed and directed by renowned crocodylian scientist and CSG member Dr. Jeffrey Lang (Senior Scientific Adviser), an associate with the Director of Madras Crocodile Bank Trust (MCBT). It is facilitated by the State Forest Departments of Uttar Pradesh, Madhya Pradesh, and Rajasthan, as well as the Ministry of Environment, Forests, and Climate Change, Gov't of India. The objectives of the project have three main goals: 1) to develop a comprehensive assessment of Gharials in the National Chambal Sanctuary (NCS); 2) to identify and protect the species' critical riverine habitats; and, 3) to reduce threats and challenges to the species' continued survival.

The GEP field activities continue with the supervision of Jailabdeen A. (MCBT), Pankaj K., Anand K., Guddhu K., The GEP program continues with various scientific aspects: Tracking Gharial tagged with radio telemetry, monitoring seasonal movements, Iridium satellite GPS tracking units, Outreach Activities, Drones deployed, Gharial Population Surveys, Breeding observations/filming, Nest survey Hatching, Creche counts, male transfer to Son Gharial Sanctuary, Capture and tagging Gharial, Head-starts vs. wild juveniles and Gharial communication study.

GEP 2022-2023 Update

The Gharial Ecology Project (GEP) completes its 16th field season in 2023 and it is a brief summary of recent activities during 2022-23. The primary study covers ~450+ km of the lower mainstream Chambal and its tributaries, comprising a major portion of the National Chambal Sanctuary (NCS). Altogether, 31 Gharials outfitted with radio tags (20 from 2021 tagging; 11 from 2020 tagging) were monitored continuously by 3 trackers during 2022, mostly biweekly or monthly, throughout the year. In addition, 5 Iridium satellite units provided detailed information (186-436 data points; for 236-522+ days) on a subadult (a male) and 4 adults (3F;1M). Each individual displayed one of three residential patterns: a) minimal movements (~1 km), b) short movements (~3-5 km), or c) longer movements (>20 km). In 2022, we used DJI quadcopter drones to create 2D and 3D maps of riverine habitats using geo-referenced JPEGs. Drone imagery facilitates species identification (Mugger vs. Gharial), quantification of numbers present, as well as accurate estimates of animal sizes. As in previous years, the GEP field team conducted systematic stationary and boat counts surveys in the NCS, e.g. upstream, midstream, and downstream stretches. In early 2022, the total Gharial population in the NCS was 1673 individuals, consisting of 148 males, 696 females, 442 sub-adults, 262 juveniles, and 125 yearlings. In 2022, 506 Gharial nests were recorded. This number represents an increased nesting effort of 84 nests, relative to the nests tallied in 2021, n= 422. Of the 506, 414 nests hatched, whereas 85 were predated (early= 21; late= 64). Counts at large and small creches are available for 2022 at 15 sites, with nest numbers ranging from 1 to 51. The highest number of hatchlings was in 2015 at Nadigoan, with 51 nests hatched, but hatchling numbers dropped to 880 less than 3 weeks later. In December 2021, the GEP field team transported a big ghara male Gharial (4.9 m TL; ~560 kg BWT) from the lower Chambal to the Son Gharial Sanctuary (SGS) ~800 km, which took 33+ hours from capture to release. In late 2022, we tagged 35 wild Gharials, including 10 more with Iridium GPS units. The majority of tagged Gharial were females (27 of 35), including 16 adults or 'near' adults (>2.9 m total length), and 11 sub-adults (<2.9 m). Two "big ghara" males were also tagged (3.5m and 4.2 m TL), as well as 6 sub-adult males. In December 2022, we also radio-tagged 20 "head-starts" with small VHF radios to track their survival, growth, and movements post-release. Discovery of the importance of the Kuno National Park as a seasonal Gharial habitat, through its connections with the NCS, has spurred a newfound interest by the Madhya Pradesh Forest Department (MPFD) in Gharial conservation and protection in this specially designated and protected area. In 2022, we finished furnishing our new upstream base at Katrinapur, a small riverside village located within a 15-minute walk to the Baroli sandbank on the Chambal River

Gharial genetics: The part of the GEP project, a Gharial genetics study of Chambal Gharial, was completed with the help of Scientists Dr Karthik Vasudevan and Ravi Singh from the Centre for Cellular & Molecular Biology (CCMB).

Being a part of GEP, Dr. Ashutosh Tripathi, and an assistant for conducting targeted village meetings and programs about the Chambal River species, riverside environments, and conservation topics, such as recycling, tree planting, and watershed ecology. The GEP is now a present-day avatar of the Gharial Conservation Alliance (GCA).

Future Action

1. A management plan for other Gharial distribution areas, especially transboundary regions/neighbouring countries, must be communicated with Pakistan and Bangladesh.

2. Extension and monitoring of the new potential sites in the Brahmaputra River systems may be required.
3. Assessment of the success or the effectiveness of the Gharial Conservation program during the subsequent phases of the Gharial Restocking Program. Need for periodic monitoring of restocked/reintroduced Gharials at newer release sites [River Sutlej and Beas (tributaries of Indus)], to assess the success and effectiveness of this conservation program.

Saltwater Crocodile (*Crocodylus porosus*)

1. **Wild Population:** estimated as 3000-3500 at three locations, namely - Andamans (archipelago), Sundarbans (West Bengal) and Bhitarkanika (Orissa).
2. **Captive Stock:** Over 500+ animals of various ages/sizes across captive facilities in India, including Zoos of West Bengal, Orissa, Andhra Pradesh, MCBT, Tamil Nadu and Andaman & Nicobar.
3. **Distribution:** East coast of India, from Orissa to Sundarbans, West Bengal, and Andaman Nicobar.

Andaman-Nicobar Forest Department and Orissa Forest Department have initiated news surveys targeting saltwater crocodile population estimation, habitat assessment, and training programs for field forest staff. Human-crocodile conflict reports involving the species are being reported increasingly from Andaman & Nicobar, Sundarban, West Bengal, Bhitarkanika, and Orissa coastal areas.

Survey & Ongoing Activity

ASCPC BWC - 2024: Annual Saltwater Crocodile Population Count, in the first and second weeks of 10-12 January 2024, was conducted under the expert guidance of CSG member Dr Sudhakar Kar and Sudarshan G. Yadav, DCF, Forest Department, Orissa at the Bhitarkanika Wildlife Sanctuary (BWC) and its surrounding crocodile habitats. The final count revealed a population of a total of 1811 crocodiles, including, 582 hatchlings (0.6 m), 387 yearlings (0.6-0.9 m), 327 juveniles (0.9-1.8 m), 167 sub-adults (1.8-2.4 m) and 348 adults (>2.4 m). There was an increase of 88 crocodiles compared to the January 2023 census results.

Sundarban Saltwater Croc Count: The Saltwater Crocodile Count will begin on 20 January 2024 in the 4600 km² Mangrove Forest of Sundarban Tiger Reserve, West Bengal. The Estuarine crocodile count technique, population assessment and staff training were completed under the direction/guidance of Prof. B.C. Choudhury with the help of the State Forest Department of West Bengal. This will be the third time count after 2012 and 2021.

Outstanding Achievement:

Lifetime Achievement Awarded to Dr Sudhakar Kar, CSG member and former Senior Research Officer of the Odisha Forest Department, was honoured with the "Odisha Wildlife Conservation Award" jointly by Nature and Wildlife Conservation Society of Odisha (NWCSO) and Ever Green Forum, for his dedicated and outstanding research work on Estuarine crocodiles (*Crocodylus porosus*) and other wildlife species over 47 years.

Mugger Crocodile (*Crocodylus palustris*)

Estimation of Wild Population: 10,000 to over 12,000, various aged/sized animals distributed across most Indian States.

Captive Stock: 2400+ (in various captive facilities including MCBT, India: Annual Inventory of Animals in Indian Zoo, CZA, 2022)

Distribution: Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Goa, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Telangana, Uttarakhand, Uttar Pradesh, Orissa, Tamil Nadu, Rajasthan, and West Bengal.

Status: Vulnerable

Survey Activities:

State Forest Departments of Gujarat, Orissa, Maharashtra, Bihar, Goa, some local NGOs, and some individuals, Ph. D Schoolers/Programs have initiated surveys to estimate wild Mugger populations, habitat assessment, citizen awareness, and training programs.

Cauvery River Delta Mugger Count: CSG member Mugger Mr Allwin Jesudasan, Director, Reptile Conservancy Alliance-RCA, a fresh survey carried out in the Cauvery River Delta of Tamil Nadu, estimated 90-100 Muggers of various age groups.

Kerva and Kaliyasot Dam Croc Count: Crocodile Population Count, February 2022, was conducted at Kerva and Kaliyasot Dam, Bhopal, Madhya Pradesh, under the advice of CSG member Dr Rishikesh Sharma and staff members of the State Forest Department, Madhya Pradesh. However, a detailed report shows a total of 22 all-sized Muggers sighted in the survey; the adult population was 9 (40.90%), the population of sub-adult 12 (54.54%) and juvenile 1 (4.54%). The presence of a single juvenile supports a viable breeding population, indicating a positive trend in the Mugger population in Kaliyashot reservoir.

Pench National Park Mugger Count: A Mugger survey was carried out in June 2023 at Pench National Park, Seoni, Madhya Pradesh, by the Forest Department, Madhya Pradesh, with the help of the local TINSAs NGO. A total of 30 animals of various sizes were noted in the waterbodies of the national park.

Charotar Crocodile Count: The program was founded in 2013 as a citizen science initiative devised to bring together diverse participants from around the globe to monitor the crocodile population in the Charotar region in Gujarat, India. Mugger Crocodile Count, January 2023, was carried out in various village waterbodies of Charotar Region, Central Gujarat, India, under CSG member Anirudh Vasava, and volunteers of VNC (Voluntary Nature Conservancy, Ananda, Gujarat), as the Citizen Science incentives. A total of 255 all-sized Muggers were counted in 25 waterbodies of villages.

Human-Crocodile Conflict

Human-crocodile conflict reports involving the species are being increasingly reported from various states of India, led by Gujarat, Tamil Nadu, Maharashtra, Uttar Pradesh, and a few other states.

The direct and indirect instances of HCC (Human-Crocodile Conflict) have been recorded from Gujarat, Maharashtra, Rajasthan, Orissa, Uttar Pradesh, Uttarakhand, Karnataka, West Bengal and Tamil Nadu. Therefore, an action plan will indicate these areas of concern to be immediately addressed.

Mr Bajjuraj M.V., Director Conservation Project, Wildlife SOS (WSOS), work in collaboration with the Uttar Pradesh Forest Department to address human-animal conflict mitigation in the state of Uttar Pradesh. From October 2021 to November 2023, a total of 16 Muggers of various sizes were rescued from human habitation in Firzabad and Mainpuri Districts, U.P. and released into their natural habitat to avoid/mitigate HCC.

Human-Crocodile Conflict Guidelines: A landmark guideline was published by the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India for mitigating HCC, entitled [Guidelines for Mitigating Human-Crocodile Conflict Taking a Harmonious-Coexistence Approach](#). This guideline manual document is prepared under the expert leadership of Prof. B.C. Choudhury, CSG members and other scientists from the Wildlife Institute of India (WII), along with members of the National Technical Group of India, and technical support extended by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) and collaborative project of managing Human-Wildlife Conflict.

Ongoing Activity

An ongoing study, 'Monitoring endocrine physiology of wild Muggers within the human-dominated landscape of Central Gujarat: a molecular approach towards creating a sustainable environment', is being pursued doctoral research focusing on reproductive behaviours and endocrine correlates of Mugger crocodiles (*Crocodylus palustris*) the developed baseline data will further aid in understanding ecological adaptation in free-ranging Muggers across diverse habitats. as a Ph.D. research program by Ms. Brinky Desai. She started an [Early Career Crocodile Network \(ECCN\)](#) along with Dr. Phoebe Griffith from Oxford University in January 2022, where we have regular (every month) online talks by senior scientists in the field from across the globe with our ECCN members, students and individuals from 8 different countries in Asia.

A study is carried out by Utkarsha Chavan, under a PhD program and research on various aspects of the species, including a Population Trend of Mugger Crocodile and Human-Crocodile Interactions, Cooperative fishing and use of flowers and sentient Behaviour, Basking Behaviour and the Use of Riparian Tunnels by Muggers in a Small Stretch of River Savitri River at Mahad, Maharashtra-India.

Brinky Desai and the team developed a method of individual identification of free-ranging Mugger crocodiles by applying deep learning methods on UAV (Unmanned Aerial Vehicle) imagery.

A radio-telemetry study on home range and temperature selection in Mugger crocodiles at a human-dominated landscape of Anakarai Town, Cauvery River, Tamil Nadu, was carried out by Nikhil Whitaker, Curator, MCBT, Tamil

Nadu and its team members Jason Gerad and R Surya, with financial assistance of Rufford Grant and Mahim Pandey Wildlife Foundation and the Madras Crocodile Bank Trust.

The non-profit Voluntary Nature Conservancy-India (VNC-India) has worked to conserve crocodiles and reduce human-crocodile conflicts in Gujarat. VNC has equally focused on research and education. Recently, the organisation celebrated the 'Children Crocodile Festival,' this community-based conservation initiative designed to encourage the local community, especially children living alongside crocodiles in this region, to emphasise their relationship with reptile species. This event is a celebration of Crocodile Conservation through fun and games. Promote wildlife conservation education through various games in the Charotar Region, Gujarat, India. To promote awareness among the children as the next generation of Mugger preservationists/Mugger guardians in the area.

General: Zoo & Captive Crocodilians

Dr. Gowri Mallapur, with the help of Wildlife Institute of India (WII), carried out workshops regarding health, handling and zoo management in numbers of Indian zoos and assisted to Central zoo Authority, India (CZA) in various aspects of captive crocodilians for in-house facilities and health-related issues, including designing and developing a housing guideline for crocodilians in Indian zoos, captive husbandry, management and enrichment and training workshop for zoos keeper and veterinary offices, capacity building and handling of reptiles.

MCBT Report & Activities

Muggers Transfer: In the last two years, Madras Crocodile Bank Trust (MCBT) transported 850 surplus Muggers 2100 km away from the Green Zoological Rescue and Rehabilitation Kingdom, Jamnagar, Gujarat. This was the largest transfer in crocodilian history, without any injuries or mortality of Muggers. Also, it is a great relief for the Croc Bank, which has housed these animals in overcrowded conditions for more than last 25 years.

PhD awarded: Curator of Madras Crocodile Bank Trust, Nikhil Whitaker, completed his PhD degree in September 2023. The research was conducted on various aspects of the Marsh Crocodile on the Cauvery River in Tamil Nadu, including tolerance of salinity, human Mugger conflict, thermal selection in adults, allometric relations between head length, hind foot length, and snout-vent/total body length, nest defence in captivity, and an analysis of the unique phenomena of double clutching Mugger females at MCBT.

MCBT Veterinary laboratory and other facilities have been expanded and updated to carry out some standard protocols and more veterinary research on crocodilian disease diagnosis by the trust with the help of Dr Ruchika Lakshmanan and Dr Bhushan Krishnamoorthy, with external consultants and expert guidance from Drs. Cathy M. Shilton (Principal Veterinary Pathologist, Berrimah Vet Lab, Australia) and Paolo Martelli (Managing Director, Ocean Park, Hong Kong) providing invaluable advice. Also, MCBT reptilian research and crocodilian survey was carried out in collaboration with the Stuttgart Museum, Germany, Ahmedabad University, Gharial Conservation Alliance (GCA) and the State Forest Department of Tamil Nadu, India.

Celebration of Crocodilian Conservation in India

The year 2024 celebrates 50 years of crocodilian conservation in India. The year 2024 is a landmark year for Indian Crocodile Conservation. Crocodile conservation started nationwide in India next only to Project Tiger. It quickly developed local knowledge and skills when international collaboration with UNDP/FAO ended in 1982. The foundation was able to be built and succeed because of research for conservation purposes, as recommended by H. Robert Bustard, who was at that time FAO Chief Technical Advisor.

The Golden Jubilee Year program is in the final stage, and the national and state-wise celebration program schedules will be declared soon by renowned crocodilian scientist Prof. B.C. Choudhury.

Dr. Lala A.K. Singh is the first crocodilian biologist from the nation. He describes a first-person account of how he stepped out of university and was selected as a crocodile researcher to work on Gharial (*Gavialis gangeticus*) and how Dr. Sudhakar Kar and Mr. Binod C. Choudhury were inducted into the project for Saltwater crocodiles (*Crocodylus porosus*) and Muggers (*C. palustris*), respectively.

Dr. Lala Singh presented his journey during the occasion of a book launch on 9 September 2022. The journey through Satkoshia Sanctuary, the field tests we had to undergo for selection, the development of India's first crocodile research base at Tikarpada-Odisha, the central crocodile institute at Hyderabad, and the field camp at Chambal for long-term ecological studies. Among other aspects, Lala narrates experiences of facing dacoits (bandits) in Chambal, capturing wild Gharials for radio-tracking, the Mugger project in Similipal, and the resumption of Gharial breeding in Satkoshia Sanctuary in 2021.

Publications

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Date prepared: 24 January 2024

IRAN

1. The population of Mugger crocodile seems to be stable in the country, although lack of raining remains as a problem.
2. Based on a cooperative paper published on Climate Change effects on Muggers in the region, the future of the species seems to be threatened severely by Climate change, which needs more regional cooperation for conservation (Mobaraki et al. 2023, Last chance to see? Iran and India as strongholds for the Mugger Crocodile (*Crocodylus palustris*). This puts more importance for more serious attention on the subject.
3. Annual budget is allocated by department of environment to provincial office in Sistan and Baluchestan for monitoring and consensus of the species.
4. Drought and lack of raining remains as the main threat for the habitats of the species, although flooding in nesting season is usual too, but the role of 2 main dams (Zirdan and Pishin) seems to be critical in maintaining and supporting the crocodile population. Based on the information gained from local people, crocodile population in Zirdan Dam is increasing. The dam supports the ponds on the dup stream and have made the situation more suitable for the Muggers. Population survey of the dam is planned. Another Dam was constructed in the region, but there was no record of crocodile presence there, but should remain as a source for reintroduction (needs for study).
5. Conservation farm (Pajhoohan Arashid Makoran), continues its work and its stock increased more than 120 crocodiles, providing a secure source for more breeding in future leading to more conservation plans. The plan is under development to act more as a public awareness and education center. In past years several nesting inside the burrows have been recorded in the farm.
6. The guard staff of Department of environment provincial office of Sistan and Bauchestan are continuing their public awareness and education works to may have more control on HCC.
7. In respect to increase legal support, the fine for illegal harvest or killing of any crocodile increased again.
8. Private sectors, charity holding groups and persons, help and support local communities to establish and use pipelines to decreased direct contact with ware bodies.
9. Iran proposes its interest for more regional cooperation on conservation of the species in Baluchistan region and sustainable use schemes.
10. More research work on climate Change effects based on modeling is underway.
11. Iran strongly proposes cooperative work with range states, specially working on Baluchistan region with Pakistan, and relies on its potential in increasing the population size. Moreover, the cooperative genetic work on all range states is recommended. To be considered as a suggestion for steering committee meeting, establishment of Mugger Crocodile Task Force is proposed too.
12. Man-made or artificial habitats remains as a reliable source for Muggers, making close contact with local communities which in turn, increases the HCC possibilities too.

NEPAL

Species and Current Status

In Nepal two species of freshwater crocodiles: Mugger (*Crocodylus palustris*), and Gharial (*Gavialis gangeticus*) occur primarily in major rivers and wetlands in Southern Terai region.

Gharial (*Gavialis gangeticus*)

Distribution: In Nepal, Gharials occur primarily in the Chitwan National Park (Narayani-Rapti River system) and Bardiya National Park (Karnali and Babai rivers). Two former populations of Gharials in Koshi and Mahakali have become extinct. Reintroduction efforts have been initiated to re-establish the Gharial populations with release of captive-raised Gharials from Gharial Conservation Breeding Center (Kasara, Chitwan). In Koshi River 95 Gharials released between 1981 and 2010¹ but no evidence of their survival. Additional 20 Gharials were released in Koshi in 2022. Similarly, 10 Gharials (5 male, 5 female) were released in West Rapti River (Banke National Park) in 2023 The Department of National Parks and Wildlife Conservation is also planning to reintroduce Gharials in Chaudhar River, a tributary of Mahakali River, in Shuklaphanta National Park this year (2024).

Population:

- a) Gharial population in the wild: Recent population survey in Chitwan shows 265 Gharials in Rapti and Narayani Rivers. Details of the population structure is not available for recent survey. Following table shows the population structure based on survey in 2018/2019.

Location	River	Adult	Sub-adult	Juvenile & yearling	Total	Remarks
Chitwan NP	Rapti	36	12	70	118	Poudyal et al. 2018
	Narayani	31	54	16	101	
Bardiya NP	Babai	10	6	3	19	Bashyal et al. 2021
	Karnali	1	0	0	1	
Koshi Tappu WR	Koshi	NA	NA	NA	NA	20 released in 2022
Banke NP	West-Rapti	NA	NA	NA	NA	10 released in 2023
Shuklaphanta NP	Chaudhar	NA	NA	NA	NA	Planned for release of 20 gharials in 2024

- b) Gharial population in the captivity: There are over 800 individuals at Gharial Conservation Breeding Center, Kasara Chitwan NP. Similarly, the Gharial Breeding Center in Bardia has >100 Gharials.

Conservation measures: Gharials are legally protected in Nepal by the 'National Parks and Wildlife Conservation Act 2073'. Gharial Conservation Breeding Center was established in 1978 Chitwan National Park (Kasara) and another breeding center has been established in Bardia National Park. Over 1500 Gharials raised in these breeding centers have been released in the various Rivers. Nepal formulated and implemented the Gharial Conservation Action Plan (2018-2022). Management plans of Chitwan and Bardia has also prioritized Gharial conservation. Various initiatives by community and conservation organizations for Gharial conservation has been initiated to ensure long-term survival of Gharial in Nepal.

Mugger (*Crocodylus palustris*)

Distribution: Mugger crocodile has a wider distribution compared to Gharials. They occur in the rivers and lakes of Koshi Tappu WR, Chitwan NP, Banke NP, Bardiya NP, Shuklaphanta NP. Outside of the PA system, Muggers are also recorded in Ghodaghodi lake, a Ramsar site in western Nepal.

Population: The population survey of Mugger crocodile is not conducted on a regular basis, thus comprehensive information is not available. Survey of Muggers in Chitwan's lakes and ponds showed 245 Muggers in 2014 (Khadka *et al.* 2014). In Koshi, 35 Muggers were reported in 2022 (Lamichhane *et al.* 2022). Basyal *et al.* (2021) reported sighting of 65 Muggers during survey of Gharials in 2019. In Ghodaghodi lake, 26 Muggers.

¹ DNPWC. 2018. Gharial Conservation Action Plan for Nepal (2018-2022) Department of National Parks and Wildlife Conservation, Kathmandu, Nepal.

PAKISTAN

Pakistan is home to two crocodile species:

- i. The Gharial *Gavialis gangeticus*, once a common sight in the rivers in the Indus Basin is now considered to be extinct from within Pakistan (last seen in 1978).
- ii. The Mugger or Marsh Crocodile *Crocodylus palustris* still exists in different areas of Sindh and Balochistan provinces but considered to be extinct from the Punjab province. Some efforts have been made to breed them in captivity in the public sector in Sindh and Balochistan where the progress has been somewhat slow. However, there has been a commendable progress in the Private sector where more than 10 private breeding farms are being managed efficiently. The oldest farm, Jatoi Crocodile breeding center in Nawab Shah is probably the oldest and thriving.

Sindh province

Wild Mugger populations in Sindh occur in DehAkro, Nara canal, Nara desert, Chotiari Reservoir Complex and Haleji lake. Bakar, Paksiri, Makhi, Dangewari lake and Nadiasir lake are important wetlands in Chotiari and DehAkro Complex areas. Captive populations in the public sector are being maintained at Haleji lake, and Khar breeding center in Khirthar National Park. Estimated wild population in Sindh is about 560 individuals.

Balochistan province

The Mugger remains widely distributed in Balochistan with confirmed locations on the Nari, Hab, Titiani, Hingol and Dasht rivers and Nahang and KachKuar. Dasht river and Nahang and KachKuar are close to the Iranian border and reportedly Crocodiles keep on moving from one country to other hence the population remains unsteady. Hingol has the maximum population as compared to other rivers. All rivers in Balochistan flow intermittently i.e. after the rains (which are few and far between) the rivers tend to dry up. Water stays in different sized pools all along the river. Crocodiles occur in these pools. It seems that the people have accepted living with them. No concerted effort has however, been made to estimate the population after 2005 when 92 individuals were reported to occur in the rivers (Zoological Survey Department Records).

The Mugger is considered as a threatened reptilian species in Pakistan. In Province of Balochistan, the population of Marsh Crocodile is confirmed reported in the Hingol River (Hingol National Park and Lasbela District), Dasht River (Kech District), Hub River, Fitiani, KuchKuar, Nahang River (border with Iran), Aari Peer, Nari Gauge River (Sibi District), Dasht River, Gwadar-Turbat, Nahan/Nehang River, Ketch River, Mirani Dam and Nari Gage/ Kacchi River. The Marsh Crocodile was once commonly observed in the Balochistan province, especially in Hingol River, when Hingol was famous for its rich biodiversity, developmental access to the area was restricted and local communities lived in harmony with the creatures of the region. A study on population status, conservation and threats to Marsh Crocodile population was conducted in the Balochistan province. The total number of Marsh Crocodiles was counted 357 in Balochistan including 220 adults, 73 juveniles and 64 hatchlings. In some areas of Balochistan, the mugger still faces threats due to the anthropogenic activities such as hunting, recreation, stealing eggs and hatchlings, destroying nesting habitats, fishing practices, increasing agricultural practices, land encroachment and global warming. Because of lack of funding, conservation activities and breeding programs have not been progressing. To ensure the continued existence of this reptilian species and the overall health of the Balochistan's riverine ecosystem, immediate and concerted efforts towards habitat preservation are of paramount importance. Protecting this unique ecosystem is not only an ecological necessity but also a cultural, social, economic, ecological and historical obligation, as the river holds a significant place in Balochistan's heritage.

Punjab province

The Mugger is considered to be extinct in the province. A captive population is being maintained at Wildlife Breeding Centre Gatwala, Faisalabad. Four adult females and one sub adult male are present at the facility. For the last two years there has been no breeding. In 2020 two adult females had died that reduced the population. Recently two (2) females and one male have been transferred from Lahore Zoo to further restock the facility. Hopefully Efforts are being made to procure an adult male to spur up the process in the hope to start reproduction.

At Bahawalpur Zoo four females, one male and nine hatchlings are being maintained.

Human-Crocodile Conflict

Reports of Crocodile attacking livestock are occasionally received from Nari river, and Dasht river and Nahang and KachKaur areas in Balochistan. No reports of a Crocodile attack on human beings have ever been received. A crocodile was reported to have been killed by the villagers in Mirpur Khas district in Sindh in retaliation of killing a goat. The residents of Mureed Khan Marri village located at Khaan Road, some 12 km from the Mirpur Khascity, claimed that the crocodile had attacked a goat in their village on 8 February 2022. "It [reptile] has killed our goat," said a villager. "We have killed it with an axe," he added.

In a video available with *The Express Tribune*, the villagers can be seen transporting the reptile tied with a rope to another village. “We will hand over the body to a landlord and will get some reward,” the man added. Muhammad Hasham Shar, a local journalist from Mirpur Khas told *The Express Tribune*, that “There is no awareness among the local people about the value of wildlife around.” Criticizing the role of the Sindh Wildlife Department (SWD), Shar said that despite killings of innocent animals, the officials were not taking appropriate measures. “This is not the only incident in Mirpur Khas,” he pointed out. “We see people killing animals regularly and the department [SWD] is aware of these killings,” he said, adding that some influential individuals were supporting the poachers and killers of wildlife. *The local residents said that there were a number of crocodiles in the area and they barely attacked livestock or humans.*

Crocodile population in Pakistan, March 2023

S. No.	Area/Crocodile habitat	Estimated population
Sindh		
1	Chhotiari reservoir complex and adjoining seepage ponds	130-160
2	DehAkro complex and adjoining seepage areas (some lakes in the Sanctuary have dried up)	80-100
3	Nara canal and adjoining seepage pools	80-90
4	Nara desert (some lakes in the Sanctuary have dried up)	30-40
5	Haleji lake	35-40
6	Stragglers in irrigation canals and the fish farms	20-25
Total		375 to 425
7	Khar Breeding Centre, Khirthar National Park (captive)	54-60
8	Manghopir(captive)	120
Balochistan		
1	Hingol River, Hingol National Park	25-30
2	Hub River	25-30
3	Dasht River along Pak-Iran border and adjoining seepage ponds (176 reported in 2007)	70-90
4	Spin Tangi in Harnai	20-30
5	Mirani Dam and adjoining seepage ponds	25-30
Total		165-210
Punjab		
1	Punjab Wildlife Breeding Centre, Gatwala, Faisalabad (captive)	Six females, two males and one juvenile male
2	Lahore Zoo, Lahore(captive)	Stock to Wildlife Breeding CentreGatwal, Faisalabad
3	Bahawalpur Zoo (captive)	

Captive Crocodiles in the Private Sector

Crocodile farming is gaining popularity in the Private sector; more than 50 breeding centers have been established in suburbs of Karachi and interior Sindh and more than 20 in Punjab. Captive Breeding Farms have mostly been established in association with Fish Farms. Captive Breeding Farms are registered with the Government. Because of lack of veterinary cover, survival percentage of hatchlings is however very low. The commercial activities have not yet started in earnest; the only commercial activity is the sale of hatchlings to other crocodile breeding farms for building up their stock. No estimates of number of individuals are available. Sporadic information trickling down is that one farm in Karachi has 45 breeding individuals and another farm in NoshehroFeroze has about 70 breeding individuals. The total number could be anybody’s guess. These breeding farms are however open to the public and the owners earn handsome amounts through gate money. Commercial activities at the captive breeding farms may start now as the sizeable crocodile populations are now available.

Human Crocodile Conflict

Human Crocodile Conflict (HCC) in Pakistan stems from the fear of damage to property and life of both livestock and human beings. Fish eating habit of crocodiles also annoys fishermen who try to entangle crocodiles in fishing nets and subsequently kill them. The fear has also been transmitted into tribal customs and traditions to an extent that not killing a crocodile on sight leads to social taboos.

The conflict mainly arises from the economic losses that the crocodiles are believed to inflict on the fish, as well as livestock that may fall prey to crocodile while visiting the wetlands to drink water or graze near the banks of water bodies. Direct attacks on human beings have recently been reported: *A woman while washing clothes along the bank of Spin Tangi in Harnai was reported to have been dragged into water and consumed in 2017; recently a female teenager*

was attacked by a crocodile that came out of a canal and into the village. The people however forced the crocodile to retreat and then chased it to the canal. An instance of a woman being dragged into river Dasht was reported a few years back. It seems not improbable that many cases might have gone unreported. Two cases of the death of a woman and a child at Halejilake have also been reported in the past. The fear, therefore, remains.

Crocodiles have also been reported to be hunted/killed for their hides but presently there have been few reports of such a trade perhaps due to government vigilance. The fact that in recent years dead crocodiles have been found in water bodies with skins intact thus gives credence to the belief that the crocodile was killed in retaliation for damage to fish, livestock or human beings, and not for its skin.

Because of the fear for life and property, the tribal (especially in Balochistan---Hingol National Park) customs required that the crocodile be killed at the site otherwise it would be *zantalaq* i.e. the wife of the person would stand divorced. The custom however is redundant now with the increasing awareness.

The crocodiles are distributed in areas which do not normally come under surveillance of government wildlife departments hence the occasional killings go unreported. Lack of funds and facilities at the part of government wildlife departments is another reason of slackness in vigil.

Public awareness campaigns and community empowerment projects undertaken by WWF Pakistan in the River Dasht and its watershed areas in the past (2007-14) were helpful in reducing the conflict and making local communities aware of the role of crocodiles in the ecosystem but with the project coming to an end, the awareness campaign was stopped, and the impact of the project vanished. Now only occasional reports of crocodile sightings are made whereas hardly any conflicts are reported. There could only be two possibilities i.e. either there have been no conflicts, or the crocodiles are discreetly removed. Because of low government capacity such incidences remain obscure.

In Sindh specifically because of the presence of WWF teams, awareness education is imparted to the people hence hardly any conflicts are reported.

Another form of damage to wild crocodile populations recently coming into light is the illegal capture of young crocodiles from the wild for local use for captive breeding. These young ones are used to stock the captive breeding farms in the private sector.

Threats to crocodile population and conservation actions

Threats to crocodile population include habitat alteration due to human and natural factors, habitat destruction like construction of dams/reservoirs, drought periods, predation of eggs by feral dogs, shooting by local people (retaliatory killings of nuisance crocodiles), frequent tropical cyclones/high floods in the area, and illegal smuggling of crocodile juveniles/hatchlings.

Based on survey findings, the WWF Pakistan under a World Bank/GEF Funded program started a Conservation Program in Metang and ZarinBaig villages located along Dasht River that continued from 2007 to 2014. Wetland Conservation Committees were formed. The local community-initiated advocacy and awareness raising program on the conservation of Crocodiles. The Program also introduced demonstrations on freshwater conservation initiatives such as efficient irrigation techniques like drip irrigation systems for freshwater conservation, alternate energy models (Solar and Wind) and other Natural Resource Management initiatives with Women Communities to improve their livelihood. This initiative proved to be a step towards building the confidence of communities and they started adopting conservation initiatives. The impact continued even after the end of the project however it has slackened now because of lack of interest on the part of Government. Similar initiatives have also been taken in Hingol National Park where Village Conservation Committees have been formed with similar objectives.

Research and Awareness

- Pakistan Zoological Survey Department has recently been tasked to conduct population surveys throughout Sindh and Balochistan.
- Sindh University Jamshoro has taken the initiative and planned to undertake two research projects financed by Higher Education Commission Pakistan and WWF-Pakistan. The studies are:
 - Temperature-dependent sex determination in Mugger crocodile population in Sindh, Pakistan;
 - Population genetics implications for the conservation of Mugger crocodiles in Sindh, Pakistan.
- Awareness campaigns are being carried out in areas where crocodiles occur;
- Community participation programs have been started in areas where crocodiles occur.

SRI LANKA

The following are few activities carried out in Sri Lanka:

1. An island wide survey was conducted on ‘*The genetic re-evaluation of the Indian black turtle Melanochelys trijuga in Sri Lanka*’ from January to December 2022 by Anslem de Silva, Kanishka Ukuwela, and Suranjan Karunarathna during this survey we were able to check the current status of crocodiles too.
2. The following books were published which included on crocodiles of the country:
 - Anslem de Silva and K. Ukuwela. 2020. *A Naturalist Guide to Reptiles of Sri Lanka*. (2nd Edition. Revised) John Beaufoy Publishing ltd. England. 176 pages. ISBN 978-1-912081-23-3
 - Anslem de Silva, N. P. Daundasekara and S. Karunarathna (2021) *Testudnes and Crocodilians. (An annotated Bibliogprahy and a checklist of the herpetofauna of Sri Lanka)* Vol 1. 209 p + 24 plates. AMP Print Shop, Gampola.
3. A 300-page (90 color photos) monograph of “Crocodiles of Sri Lanka” by Anslem de Silva will be published this year by the Dept. of Wildlife Conservation, Sri Lanka.
4. 16 February 2024 an 11-year boy was killed by a saltwater crocodile while bathing in Kelani River (Kaduwela close to Colombo) along with the grandmother and a friend. This incident will be published some printed media (Sunday leading papers 21.1.2024) which will inform the people about preventive aspects of crocodile attacks.
5. The first comprehensive Mugger National censuses survey was conducted by members of the Department of Wildlife Conservation and Anslem de Silva (Table).

Distribution of Mugger crocodiles in nine provinces, 2015-2017

Province	Number of crocodiles	Water source where the highest Mugger populations were observed
North Province	1362	Largest Mugger population was observed at Kanagarayan aru Iranamadu Tank
North Central Province	965	Largest Mugger population was observed at Yan Oya
Southern Province	1480	Largest Mugger population was observed at Bundala and Yala National Park
Uwa Province	529	Largest Mugger population was observed at Kubukan Oya
Sabaragamuwa Province	496	Largest Mugger population was observed at Walawe Gaga
Western Province	45	Largest Mugger population was observed at Kelani River from Avissawela – down wards
Central Province	88	Largest Mugger population was observed in the tributaries of Bowathenna Tank
North Western	683	Largest Mugger population was observed at Rajanganaya Tank
Eastern Province	1868	Largest Mugger population was observed at Panama Tank
Total	7516	

Source: RATHNASIRI, G.W.R.P., ANSLEM DE SILVA, D.C. MAHANAMA, A. JAYASOORIYA and P. PRIYADHARSHANA (2018). Preliminary report of the status of the Mugger Crocodile (*Crocodylus palustris*) in nine provinces during the years 2015-2017 in Sri Lanka. *Wildlanka* 6(4): 159-167.

Mugger Action Plan

Finally, I am happy that many members of the region contributed important information for the Mugger Action Plan. A specific Conservation and Management Action Plan for crocodiles of Sri Lanka has been a longstanding omission. Thus, the revised and expanded Mugger account for the CSG Action Plan was completed in 2022 by Colin Stevenson, Anslem de Silva, Raju Vyas, Tarun Nair, and Asghar Mobaraki. Since the Action Plans are being coordinated with concurrent revisions to the Red List accounts, Colin Stevenson, has completed the Red List training and is preparing the Red List revision for the species. We are now gathering locality data points from colleagues within the region for the CSG Red List team to prepare an accurate range map, which also will permit the assessment of AOO and EOO to determine the status and criteria we need to assign for the species. The aim is to have the draft Red List account ready for submission and review by the CSG steering committee by 1 April 2024.

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Date prepared: 27 January 2024