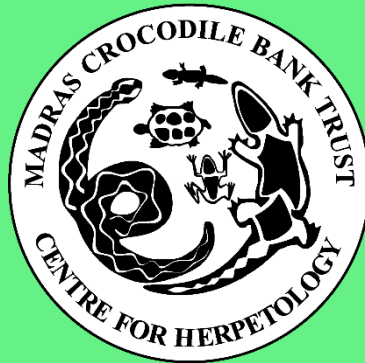


MADRAS CROCODILE BANK TRUST / CENTRE FOR HERPETOLOGY

Post bag No.4, Vadanemmelli Village, East Coast Road, Mamallapuram-603 104, Tamil Nadu, India

Annual Report for the year 2020-2021





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1. Report of the Officer-in-charge

The year 2020-2021 was a challenging one at the MCBT zoo. The onset of the pandemic brought a lot of hardships and unprecedented losses. However, we managed to pull through and continue to provide the best care for all our residents, human and animal. We took every directive seriously and did whatever we could to stop the spread and at the same time keep the zoo animals healthy and staff safe and well cared for. Hand sanitizers, masks and face shields were brought in bulk and distributed among our colleagues. It was difficult to plan the staffing initially because we had no idea how long the lockdown and pandemic would last. We gave some of the office staff the option to work from home, and made other changes to ensure safety for everyone, but continue the work. Some staff were asked to work on a rotation basis to minimize contact. Every staff member underwent a temperature check at the gate. After 3 months of no income, we decided to start a public fundraiser which brought forward many supporters.

Soon after the lockdown was lifted, another tragedy struck. One of our female Aldabra tortoises was stolen from the zoo premises. All our colleagues were grief stricken but managed to pull through to care for the ones that are still with us. The practice of temperature checks, social distancing and sanitizing was continued after the park opened to visitors.

In some good news, our remaining Aldabra female laid two clutches of eggs for the first time; although all eggs seem to be infertile. We were really encouraged by all the births this year. Our gharials produced 10 hatchlings. A clutch of critically endangered Northern River terrapins (*Batagur baska*) and Red-crowned Roofed Turtles (*Batagur kachuga*) hatched and are thriving. Monthly measurements and health check-ups have helped us monitor their growth. Our green anaconda female gave birth to 9 babies. In order to improve veterinary care, a state-of-the-art radiography unit and endoscope were purchased thanks to a CSR grant from a company. Multiple new enclosures were constructed or modified this year, again thanks to specific donations for these projects. Our Cuban crocodiles and African Slender-snouted crocodiles have a new home and are on display for visitors to see. Interpretive enclosures are also under construction to house the BIG-4 snakes of India. A gate was constructed in the partition wall between the male and female Komodo dragons to familiarize the animals to each other. We are hoping this endeavour will be successful and that Croc Bank will have baby dragons soon.

Given the pandemic, the education department conducted many virtual programs with a limited number of participants. We conducted programs on our social media platform on world days such as World Snake Day, World Lizard Day and Snakebite Awareness Day. Our adoption program was well received, with significant support from our well-wishers during the lockdown. A total of 164 individuals and 14 enclosures were adopted from April 2020 to March 2021. Lastly, our education officer, Steffi John virtually presented our work at Future of Zoos and Aquariums - 75th WAZA annual conference with IZE San Diego 2020 and was featured as one of

the faces of IZE on their social media platform during the celebratory week of International Zoo Educators Day.

The snakebite mitigation team conducted 15 education programs through virtual platforms. The team along with its partners from other states like Andhra Pradesh, Madhya Pradesh and West Bengal have successfully organized 57 outreach programs and delivered talks at 12 different conferences/workshops held by various forest departments and medical institutions. Two papers on snake venomics were published in collaboration with the Evolutionary Venomics Lab of the Indian Institute of Sciences. A social survey to assess the utility of personal protective equipment to avoid snakebite was conducted. The team also travelled to other states such as Madhya Pradesh, Andhra Pradesh, Manipur, Assam and Mizoram to meet various stakeholders for future collaborations.

As news of another Covid19 surge arrives, our team has been discussing and planning how to meet this new and perhaps increased challenge.

Allwin Jesudasan

Director

2. History of the Zoo

By the mid-20th century hunting crocodiles was a lucrative enterprise throughout the tropics, and by the 1970s, India's croc populations had been exploited to the brink of extinction. Realizing this fact, the Indian government protected all three species of Indian crocodilian under the Wild Life Protection Act of 1972.

Responding to the need of that time, Rom and Zai Whitaker established the Madras Crocodile Bank Trust in 1976 with the specific goal of securing breeding populations of the three species of Indian crocodile: the mugger (*Crocodylus palustris*), the saltwater crocodile (*Crocodylus porosus*) and the rarest of all, the gharial (*Gavialis gangeticus*).

The Croc Bank was originally designed to be a living genetic repository of crocodiles for safekeeping, to protect and multiply until such time when they could be returned to restock their original wild habitats. This action was initially met with tremendous success, but today, release into the wild has stopped due to shrinking wilderness areas and the lack of suitable habitat.

Today Croc Bank is home to 15 species of crocodilians, three of which are listed by the IUCN as critically endangered with a further three listed as threatened.

As the need for the conservation of reptiles grew, the Croc Bank increased its repertoire to include turtles, lizards and snakes and it came to be known as the Madras Crocodile Bank Trust and Centre for Herpetology in 2003. The Croc Bank now successfully breeds several species of threatened chelonians, including two listed as critically endangered.

The Croc Bank is far more than a typical zoo and in fact our core operation is as much a field-based conservation outfit as it is a collection of captive animals for safekeeping with two permanent field stations and several projects running concurrently.

3. Vision

The Madras Crocodile Bank Trust and Centre for Herpetology (or Croc Bank) was the brainchild of the legendary Romulus Whitaker and a handful of like-minded conservation visionaries who began work on the facility in 1976, in a desperate effort to save India's dwindling crocodilian populations. Today, after more than 40 formidable years of cutting-edge science and grassroots education, the Croc Bank remains a world leader in the field of frontline conservation and the preservation of natural landscapes.

4. Mission

To promote the conservation of reptiles and amphibians and their habitats through education, scientific research and captive breeding. Efforts are focused on, but are not limited to, Indian species and ecosystems and include both in-situ and ex-situ components.

5. Objective

- Conservation breeding of endangered species in captivity and to maintain a gene bank of endangered reptiles.
- Facilitate research and scientific study on reptile behaviour, enclosure enrichment,
- Feed, nutrition and reproductive biology.
- Promote education & awareness amongst visitors on the role of reptiles in the natural world and the importance of reptile conservation.
- Ensure comfortable housing for all reptiles with special emphasis on health care, animal welfare and excellent animal husbandry.

6. About us

S.No.	Particulars	Information
Basic Information about the Zoo		
1	Name of the Zoo	Madras Crocodile Bank Trust/ Centre for Herpetology
2	Year of Establishment	1976
3	Address of the Zoo	Post bag No.4, Vadanemmelli Village, East Coast Road, Mamallapuram-603 104 , Tamil Nadu, India
4	State	Tamil Nadu
5	Telephone Number	+91 9790242683

6	Fax Number	NIL
7	E-mail address	info@madrascrocodilebank.org
8	Website	https://madrascrocodilebank.org/
9	Distance from nearest	Airport: 39.7km
		Railway Station:41.6km
		Bus Stand:0km
10	Recognition Valid upto (Date)	19th August 2022
11	Category of zoo	Medium
12	Area (in Hectares)	3.4
13	Number of Visitors (Financial Year)	Adult : 60,310
		Children : 12,819
		Total Indian: 73,129
		Total Foreigners: 0
		Total Visitors: 73,129
14	Visitors' Facilities Available in Zoo	Snack Kiosk Portable Water Education Centre (All terrain) Wheelchair
15	Weekly Closure Day of the Zoo	Monday

Management Personnel of the zoo		
16	Name with designation of the Officer in-charge	Allwin Jesudasan
	Name of the Veterinary Officer	Dr. Ruchika Lakshmanan
	Name of the Curator	Nikhil Whitaker
	Name of the Assistant Curator	Ajay Karthik/ Ambika Yelahanka
	Name of the Education Officer	Achsah Steffi John
	Name of the Compounder/ Lab Assistant	NIL

Owner / Operator of the Zoo		
17	*Name of the Operator	Trust operated Zai Whitaker, Managing Trustee
18	Address of the Operator	Madras Crocodile Bank Trust Post bag No.4, Vadanemmelli Village, East Coast Road, Mamallapuram-603 104, Tamil Nadu, India
19	Contact details/Phone number of Operator	+91 9487409737
20	E-mail address of Operator	zai@madrascrocodilebank.org

7. Organizational Chart



8. Human Resources

Manpower of the Zoo*

Sl.No.	Designation	Number of Sanctioned Posts	Names of the incumbent
1.	MANAGING TRUSTEE	1	ZAI WHITAKER
2.	DIRECTOR	1	ALLWIN JESUDASAN
3.	ZOO MANAGER	1	SENTHIL THANGAM
4.	CURATOR	1	NIKHIL WHITAKER
5.	ASSISTANT CURATOR	1	AJAY KARTHIK/ AMBIKA YELAHANKA
6.	VETERINARY OFFICER	1	Dr. RUCHIKA LAKSHMANAN
7.	ASSISTANT COORDINATOR – Snakebite mitigation	2	GNANESWAR CH PETER CHRISTOPHER
8.	EDUCATION OFFICER	1	ACHSAH STEFFI JOHN
9.	ACCOUNTANT	2	M. MOHAN M. PAVITHRA
10.	EDUCATION ASSISTANT	1	C. DHANASEKARAN
11.	RESEARCH ASSISTANT	1	V. MOHANASUNDARAM
12.	OFFICE ASSISTANT	2	T. MOHAN C. PURUSHOTHUMAN
13.	COOK	3	G. ASHOK A. KUMARI V. YUVARANI
14.	MAINTENANCE SUPERVISOR	1	L. GUNASEKARAN
15.	MAINTENANCE ASSISTANT	3	S. MOHAN K. ELUMALAI S. JANAKIRAMAN
16.	HOUSEKEEPING	1	M. INDRADEVI
17.	PARK SUPERVISOR	1	R. TANGARAJ
18.	REPTILE KEEPER	4	V. GANGADURAI S. NAGARATHINAM S. SHANTHI G. GOWRI SHANKAR
19.	ENCLOSURE MAINTENANCE	2	V. AMUTHA J. PARIMALA
20.	CROC SHOP KEEPER	1	N. PUSHPARANI

21.	TICKET MACHINE OPERATOR	2	R. GYNANAMURTHY N. SELVAMANI
22.	SECURITY GUARD	3	KRISHNA BAHADUR BUDIBAL SOMAI MAGAR TEK BAHADUR
23.	DRIVER	1	M.RAMU

9. Capacity Building of zoo personnel

Sl.No.	Name and designation of the zoo personnel	Subject matter of Training	Period of Training	Name of the Institution where the Training attended
NIL				

10. Zoo Advisory Committee –

a. Date of constitution: 1976

b. Members

Romulus Whitaker III, the famous “snake man of India”, who is a founder of MCBT.

Zai Whitaker, also one of the founders, and currently Managing Trustee of MCBT.

Samit Sawhny, Managing Director of Barefoot Resorts.

Ashish Gupta, Managing Director of Milesworth Travels.

Kamini Sundaram, Founder and Director, Abacus Montessori School.

M.M. Venkatachalam, Director, Coromandel International Ltd.

Prof Satyajit Mayor, Director, National Centre for Biological Sciences.

Venu Srinivasan, Chairman and Managing Director, TVS Motor Company, India.

c. Dates on which Meetings held during the year

23/04/2020

11/07/2020

10/11/2020

16/01/2020

11. Health Advisory Committee

Dr. RUCHIKA LAKSHMANAN, VETRINARY OFFICER, MCBT
NIKHIL WHITAKER, CURATOR, MCBT
AMBIKA YELAHANKA, ASSISTANT CURATOR, MCBT
ALLWIN JESUDASAN, DIRECTOR, MCBT
SENTHIL THANGAM, ZOO MANAGER, MCBT

12. Statement of income and expenditure of the Zoo

Income

I.	Ticket Sales	92,96,200.00
II.	Research Grants	3,93,52,737.79
III.	Donations & Rent	17026484.82
IV.	Environment Education	2,87,830.00
V.	Adopt an Animal	1428000
VI.	Bank Interest	3803324
VII.	Croc Shop sales	5,47,528.00
VIII.	ANET	548.00
IX.	Other income	71180
X.	ARRS	1393989.38
XI.		
XII.	Total	7,32,07,821.99

Expenditure

I.	Salary and Wages	92,31,914.00
II.	Reptile Feed Costs	32,29,560.00
III.	Maintenance and Upkeep	23,61,109.00
IV.	Pen Maintenance and Upkeep	10,72,676.00
V.	Research	3,42,87,190.96
VI.	Environmental Education Expenses	2,20,851.00
VII.	ANET	1,250.80
VIII.	ARRS	18,75,242.00
IX.	Croc Shop Expenses	4,47,758.00
X.	Administrative Expenses	31,79,845.54
XI.		
XII.	Total	5,59,07,397.30

13. Daily feed Schedule of animals

Sl.No.	Species	Feed item	Quantity	Day of fasting
			Per Week	
1	Cuvier's Dwarf Caiman	Fish	5kg	NA
2	Spectacled Caiman	Fish Chicken	20kg	NA
3	Yacare Caiman	Fish Chicken	3kg	NA
4	Black Caiman	Fish Chicken	1kg	NA
5	American Alligator	Chicken Buffalo	7kg	NA
6	Tomistoma	Fish Chicken	6kg	NA
7	Gharial	Fish	77kg	NA
8	Marsh Crocodile (Mugger)	Fish Chicken Buffalo	1213kg	NA
9	Morelet's Crocodile	Fish Chicken Buffalo	8kg	NA
10	Nile Crocodile	Fish Chicken Buffalo	9kg	NA
11	Saltwater Crocodile	Chicken Buffalo	77kg	NA
12	Siamese Crocodile	Fish Chicken Buffalo	9kg	NA
13	African Slender-Snouted Crocodile	Chicken Buffalo	2kg	NA
14	West African Dwarf Crocodile	Fish Chicken	2kg	NA
15	Cuban Crocodile	Chicken Buffalo	10kg	NA

Sl.No.	Species	Feed item	Quantity	Day of fasting
			Per Week	
16	Northern River Terrapin	Fish Greens	1kg 2kg	NA
17	Leith's Softshell Turtle	Fish	500g	NA
18	Aldabra Giant Tortoise	Greens Fruits Vegetables	3kg 2kg 2kg	NA
19	Indian Star Tortoise	Greens Fruits Vegetables	2kg 1kg 1kg	NA
20	Red-Crowned Roofed Turtle	Fish Greens	1kg 2kg	NA
21	Indian Flapshell Turtle	Fish	2kg	NA
22	Gangetic Soft-Shell Turtle	Fish	1kg	NA
23	Indian Roofed Turtle	Fish	1kg	NA
24	Indian Tent Turtle	Fish	1kg	NA
25	Travancore Tortoise	Greens Fruits Vegetables	2kg 1kg 1kg	NA
26	Three-Striped Roofed Turtle	Fish Greens	2kg 1kg	NA
27	Indian Chameleon	Grasshoppers Superworms Crickets	Miscellaneous	NA
28	Blue Tongue Skink	Greens Fruits Vegetables Grasshoppers Superworms Crickets Mice pinkies (occasionally)	Miscellaneous	NA
29	Basilisk Lizards	Grasshoppers Superworms Crickets Mice pinks (occasionally)	Miscellaneous	NA

Sl.No.	Species	Feed item	Quantity	Day of fasting
			Per Week	
30	Termite Hill Gecko	Grasshoppers Superworms Crickets Mice pinks (occasionally)	Miscellaneous	NA
31	Green Iguana	Greens Fruits Vegetables	1kg 1kg 1kg	NA
32	Komodo Dragon	Chicken Buffalo	2kg	NA
34	Indian Rock Python	Rats	Miscellaneous	NA
35	Reticulated Python	Chicken Rats	Miscellaneous	NA
36	Trinket Snake	Rats	Miscellaneous	NA
37	Common Krait	Rats	Miscellaneous	NA
38	Saw Scaled Viper	Rats	Miscellaneous	NA
39	Rat Snake	Rats	Miscellaneous	NA
40	Common Wolf Snake	Rats	Miscellaneous	NA
41	Russell's Viper	Rats	Miscellaneous	NA
42	Green Anaconda	Rats	Miscellaneous	NA
43	Yellow Anaconda	Rats	Miscellaneous	NA
44	Whitaker's Sand Boa	Rats	Miscellaneous	NA
45	Spectacled Cobra	Rats	Miscellaneous	NA
46	Corn Snake	Rats	Miscellaneous	NA
47	Banded Krait	Rats	Miscellaneous	NA
48	Monocled Cobra	Rats	Miscellaneous	NA

14. Vaccination Schedule of animals

Sl.No.	Species	Disease vaccinated for	Name of the Vaccine and dosage/ quantity used	Periodicity	Remarks
NA					

15. De-worming Schedule of animals

Sl.No.	Species	Drug used	Month
1	Tortoises	Fenbendazole	December
2	Snake	Fenbendazole Metronidazole	December
3	Lizards	Fenbendazole	December

16. Disinfection Schedule

Sl.No.	Species	Type of enclosure	Disinfectant used and method	Frequency of disinfection
1	Marsh Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once a month
3	Dwarf Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once a month
4	Yacare Caiman	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once a month
5	Gharial	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 3-4 months
6	Siamese Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 3-4 months
7	Nlle Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 3-4 months
8	Marsh Crocodile	Open air	Dettol/ Manual cleaning	once in 3-4 months

Sl.No.	Species	Type of enclosure	Disinfectant used and method	Frequency of disinfection
			Potassium permanganate foot dip Annual Dredging to increase water level	
9A	Green Iguana	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 10 days
9B	Water Monitor	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 10 days
9C	Dwarf Caiman	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once a month
10	Marsh Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip Annual dredging to increase water level	once in 3-4 months
11	Saltwater Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 3-4 months
11A	Aldabra Tortoise	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 10 days
12A	Saltwater Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 3-4 months
12B	Saltwater Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 3-4 months
12C	Saltwater Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once a month
13	Gharial	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip Annual dredging to increase water level.	once in 3-4 months

Sl.No.	Species	Type of enclosure	Disinfectant used and method	Frequency of disinfection
14	Spectacled Caiman	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once a month
15	Morelets Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 3-4 months
16	Marsh Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 3-4 months
16A	Saltwater Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once a month
17	Saltwater Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 3-4 months
18	False Gharial	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once a month
19	American Alligator	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 3-4 months
20A	Saltwater Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once a month
20B	Terrapin River (<i>Batagur baska</i>)	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once a month
21	Marsh Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	Twice a month
22	Marsh Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	Twice a month
24	Gharial	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 3-4 months

Sl.No.	Species	Type of enclosure	Disinfectant used and method	Frequency of disinfection
25	Spectacled Caiman	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once a month
26	Spectacled Caiman	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once a month
27	African Slender Snouted Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once a month
28	Nursery	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 10 days
29	Out Office	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 10 days
30	Snake room	Closed room	Dettol/ Manual cleaning	once every week
PP1	Cuban Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 3-4 months
PP2	Marsh Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once in 3-4 months
PP3	Morelets Crocodile	Open air	Dettol/ Manual cleaning Potassium permanganate foot dip	once a month

17. Health Check-up of employees for zoonotic diseases

Sl.No.	Name	Designation	Date of Health Check up	Findings of Health Check up
No health check-up of employees for zoonotic diseases was conducted in the year 2020-2021. One will be scheduled soon (post pandemic).				

18. Development Works carried out in the zoo during the year:

- Cuban Crocodiles, Slender snouted crocodiles and Alligator have been shifted on-display.
- New basking enclosures for snakes and lizards were built.

- In preparation for cyclone NIVAR and the onset of the monsoon, all trees were pruned and dead branches were removed. At risk animals were moved to indoor enclosures.
- Construction has begun on our new enclosures for the 'BIG 4' snakes of India.
- Our café and merchandise store were revamped and are now open to the public with a new look.
- Barrier walls for crocodile enclosures were repaired and reinforced where needed.
- New reptile-themed stone-carved park benches have been placed around the park.
- Roofing for the snake house was renovated so as to allow more natural sunlight into the enclosures.

19. Education and Awareness programmes during the year

PROGRAM	DATE	PARTICIPANTS
Virtual reptile encounter	Aug 23rd	80+
Snakebite awareness for Juniors	Sep 12th	25
Snakebite awareness	Sep 19th	16
Behind the enclosures	Sep 20th	17
Virtual reptile encounter & stories	Oct 1st	22
Virtual reptile encounter & stories	Oct 5th	35
Reptile genius event	Oct 18th	50+
Children's Day special	Nov 14th	62
A Virtual Date	Dec 6th	21
Our Zoo Vet	Dec 20th	14
Snake Walk	Dec 27th	16
Reyaan's virtual reptile party	Dec 30th	16
Snake Walk	Jan 10th	15
Virtual encounter (Navkis)	Jan 21st	10
Snake walk	Feb 7th	14
Can you guess the species	Feb 18th	22
Snake walk (Abacus school)	Feb 28th	17
Snake walk (Abacus school)	March 7th	18

20. Important Events and happenings:

- Blue-tongued skink gave birth for the first time.
- Our Aldabra female laid two clutches of eggs in January and February 2021. This is her first time reproducing.
- Whitaker's boas gave birth to 10 babies.

- Green anaconda gave birth to 9 babies.
- Critically endangered Northern river terrapin (*Batagur baska*), Red-crowned roofed turtle (*Batagur kachuga*) and Three-striped roofed turtle (*Batagur dhongoka*) laid multiple clutches and successfully hatched. All juveniles are being monitored and are doing well.
- Tragically, one female Aldabra tortoise was stolen from zoo premises.

21. Seasonal special arrangements for upkeep of animals: LUCKY HERP 100W UVA/UVB HEAT/LIGHT MERCURY VAPOUR LAMP provided for longer duration during colder months. More basking opportunities for smaller animals during colder months. New basking pits for snakes and lizards have been constructed.

22. Research Work carried out and publications:

- a. Whitaker, N. & M. Srinivasan. 2020. Human crocodile conflict on the Cauvery river delta region, Tamil Nadu, south India. *International Journal of Fisheries and Aquatic Studies* 8(5): 01-05
- b. Vaidheeswaran, G., G.Muthiah, & N. Tsai. 2020. Effects of anthropogenic noise on crocodilians. *Newsletter of the IUCN/SSC Crocodile Specialist Group*. 39 (2): 11 - 12.
- c. Yatin Kalki and Merlin Weiss, Understanding the food habits of the green vine snake (*Ahaetulla nasuta*): a crowd sourced approach, *Herpetology Notes*, volume 13: 835-843 (2020) (published online on 16 October 2020)
- d. Rom Whitaker 18 , The ecological importance of crocodylians: towards evidence-based justification for their conservation, *Biological Reviews* (2020), pp936-959
- e. Chetana Babburjung Purushotham 1 & Benjamin Tapley 2, Checklist of Amphibians: Agumbe Rainforest Research Station, May 2011
- f. Gowda, Agnivamshi & Kalki 2020, *Hemidactylus giganteus* Saurophagy, *Natural History Notes*, pp599.
- g. Kalki & Huizinga 2020. *Minervarya* sp. Predation, *Natural History Notes*, pp566.
- h. Romulus Whitaker, Kingdom of the Cobra, Seminar 735, November 2020 , pp43
- i. The national Chambal Sanctuary – Gharial watching on the river Chambal – September 2020

23. Conservation Breeding Programme of the Zoo:

Red-crowned roofed turtle (*Batagur kachuga*)
 Gharial (*Gavialis gangeticus*)
 Northern river terrapin (*Batagur Baska*)
 Three-striped roofed turtle (*Batagur dhongoka*)

24. Animal acquisition / transfer / exchange during the year

A.	Animals arriving in the Zoo				
	H.NO.	Species	Number (M:F)	From which Zoo	Date of arrival in the zoo
	-	NIL	-	-	-
B.	Animals going from the zoo				
	H.NO.	Species	Number (M:F)	Going to which Zoo	Date of deposition from the zoo
	1	Yellow anaconda (<i>Eunectes notaeus</i>)	4:4:0	ARIGNAR ANNA ZOOLOGICAL PARK, Chennai	06/10/2020

25. Rescue and Rehabilitation of wild animals carried out by the Zoo

Sl.No.	Date of Rescue	Species with number of animals rescued with their sex (M: F:U:T)	Received from	Date of Submission of Report to the CWLW / CZA	Action taken	
					Date and Place of rehabilitation in their habitat	Reasons for housing in the zoo, if not released in their habitat
NIL						



26. Annual Inventory of animals

Form – II

[See Rule 11(1)]

Part – A

Inventory Report for the Year:

Endangered Species*

No.	2019-2020 Annual Report	ANIMAL NAME	SCIENTIFIC NAME	Opening stock on 01/04/2020				Births			Acquisition s			Disposal			Deaths			Closing stock on 31/03/2021			
				M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
1.	Gharial*	<i>Gavialis gangeticus</i>	3	5	43	51			10							0	5	5	5	32	14	51	
2.	Marsh Crocodile*	<i>Crocodylus palustris</i>	650	1048	122	1820										0	2	10	650	1158	0	1808	

No.	2019-2020 Annual Report	ANIMAL NAME	SCIENTIFIC NAME	Opening stock on 01/04/2020				Births			Acquisitions			Disposal			Deaths			Closing stock on 31/03/2021				
				M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T	
3.		Salt-water Crocodile*	<i>Crocodylus porosus</i>	5	5	31	41														14	27	0	41
4.		Northern river terrapin	<i>Batagur baska</i>	1	2	22	25			1											1	2	38	41
5.		Three-striped roofed turtle	<i>Batagur dhongoka</i>	1	4	6	11														1	4	6	11
6.		Indian flapshell turtle*	<i>Lissemys punctata</i>	0	0	54	54			5							2	0	2		15	33	7	55
7.		Gangetic softshell turtle	<i>Nilssonia gangetica</i>	0	0	9	9														0	0	9	9
8.		Red-crowned roofed turtle	<i>Batagur kachuga</i>	14	3	55	72			4											14	3	59	76

No.	ANIMAL NAME	SCIENTIFIC NAME	Opening stock on 01/04/2020				Births			Acquisitions			Disposal			Deaths			Closing stock on 31/03/2021					
			M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T		
9.	Indian Chameleon	<i>Chamaeleo zeylanicus</i>	1	0	0	1															1	0	0	1
10.	Indian rock python*	<i>Python molurus</i>	1	1	17	19															1	18	0	19
11.	Russell's Viper	<i>Daboia russelii</i>	1	0	0	1															1	0	0	1
12.	Spectacled cobra	<i>Naja naja</i>	1	0	2	3															1	0	2	3
13.	Monocled cobra	<i>Naja kaouthia</i>	2	2	0	4															2	2	0	4

*Sex ratio for the marked animals may differ from previous records as the animals were sexed on recommendation from CZA.

Part – B

Other than Endangered Species

No.	2019-2020 Annual Report	ANIMAL NAME	SCIENTIFIC NAME	Opening stock on 01/04/2019				Births			Acquisitions			Disposal			Deaths			Closing stock on 31/03/2020			
				M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
14.		Cuvier's dwarf caiman*	<i>Paleosuchus palpebrosus</i>	1	1	25	27													9	18	0	27
15.		Spectacled caiman	<i>Caiman crocodylus</i>	0	0	40	40										1	1		0	0	38	38
16.		Yacare caiman	<i>Caiman yacare</i>	1	2	0	3													1	2	0	3
17.		Black caiman	<i>Melanosuchus niger</i>	0	1	0	1													0	1	0	1

No.	ANIMAL NAME	SCIENTIFIC NAME	Opening stock on 01/04/2019				Births			Acquisitions			Disposal			Deaths			Closing stock on 31/03/2020				
			M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T	
18.	False Gharial	<i>Tomistoma schlegelii</i>	1	1	0	2														1	1	0	2
19.	American Alligator	<i>Alligator mississippiensis</i>	1	2	0	3														1	2	0	3
20.	Morelet's crocodile	<i>Crocodylus moreletii</i>	1	1	10	12														1	11	0	12
21.	Nile crocodile*	<i>Crocodylus niloticus</i>	2	3	14	19														2	17	0	19
22.	Siamese crocodile*	<i>Crocodylus siamensis</i>	1	1	26	28														3	25	0	28
23.	African Slender-snouted	<i>Mecistops cataphractus</i>	0	2	0	2														0	2	0	2

No.	ANIMAL NAME	SCIENTIFIC NAME	Opening stock on 01/04/2019				Births			Acquisitions			Disposal			Deaths			Closing stock on 31/03/2020				
			M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T	
	crocodile																						
24.	West-African Dwarf crocodile	<i>Osteolaemus tetraspis</i>	1	0	0	1														1	0	0	1
25.	Cuban crocodile	<i>Crocodylus rhombifer</i>	1	3	0	4														1	3	0	4
26.	Leith's softshell turtle	<i>Nilssononia leithii</i>	1	0	0	1														1	0	0	1
27.	Aldabra giant tortoise*	<i>Dipsochelys gigantea</i>	1	3	0	4										1 (theft)				2	1	0	3
28.	Indian star	<i>Geochelone</i>	2	2	8	12														2	10	0	12

No.	ANIMAL NAME	SCIENTIFIC NAME	Opening stock on 01/04/2019				Births			Acquisitions			Disposal			Deaths			Closing stock on 31/03/2020				
			M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T	
	tortoise	<i>elegans</i>																					
29.	Indian roofed turtle	<i>Pangshura tentoria circumdata</i>	0	0	14	14														0	0	14	14
30.	Indian tent turtle	<i>Pangshura tecta</i>	0	0	2	2														0	0	2	2
31.	Travancore tortoise	<i>Indotestudo travancorica</i>	6	22	21	49			1											6	42	2	50
32.	Blue Tongue Skink	<i>Tiliqua scincoides</i>	1	1	0	2			7											1	1	7	9
33.	Basilisk lizards*	<i>Basiliscus basiliscus</i>	0	0	3	3										1				2	0	0	2

No.	ANIMAL NAME	SCIENTIFIC NAME	Opening stock on 01/04/2019				Births			Acquisitions			Disposal			Deaths			Closing stock on 31/03/2020				
			M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T	
34.	Termite hill gecko	<i>Hemidactylus triedurus</i>	1	2	1	4														1	2	1	4
35.	Asian Water monitor	<i>Varanus salvator</i>	1	1	0	2														1	1	0	2
36.	Green iguana	<i>Iguana iguana</i>	1	0	3	4														1	0	3	4
37.	Komodo dragon	<i>Varanus komodoensis</i>	2	1	0	3														2	1	0	3
38.	Reticulated python	<i>Python reticulatus</i>	0	1	0	1														0	1	0	1
39.	Trinket snake	<i>Coleognathus helena</i>	1	2	1	4														1	2	1	4

No.	ANIMAL NAME	SCIENTIFIC NAME	Opening stock on 01/04/2019				Births			Acquisitions			Disposal			Deaths			Closing stock on 31/03/2020				
			M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T	
40.	Common Krait	<i>Bungarus caereuleus</i>	1	1	0	2														1	1	0	2
41.	Saw Scaled Viper	<i>Echis carinatus</i>	1	2	0	3														1	2	0	3
42.	Rat Snake	<i>Ptyas mucosa</i>	1	1	0	2														1	1	0	2
43.	Common Wolf Snake	<i>Lycodon aulicus</i>	1	1	0	2														1	1	0	2
44.	Green anaconda	<i>Eunectes murinus</i>	1	1	2	4			9									3	1	1	8	10	
45.	Yellow anaconda	<i>Eunectes notaeus</i>	0	2	11	13							4	4					0	2	3	5	

2019-2020 Annual Report			Opening stock on 01/04/2019				Births			Acquisitions			Disposal			Deaths			Closing stock on 31/03/2020			
No.	ANIMAL NAME	SCIENTIFIC NAME	M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
46.	Whitaker's sand boa	<i>Eryx whitakerii</i>	1	1	11	13			10										5	7	10	22
47.	Corn snake	<i>Pantherophis guttatus</i>	0	0	2	2													0	0	2	2
48.	Banded Krait	<i>Bungarus fasciatus</i>	3	1	0	4										1	1		2	0	0	2

*Sex ratio for the marked animals may differ from previous records as the animals were sexed on recommendation from CZA.

27. Mortality of animals

SI no.	SPECIES	DATE	SEX	No	CAUSE OF DEATH AS DIAGNOSED BY POST-MORTEM
i.	Marsh crocodile <i>Crocodylus palustris</i>	10/04/2020	UK	1	Autolyzed
ii.	Common sand boa <i>Eryx conicus</i>	22/04/2020	F	1	Septicaemia
iii.	Gharial crocodile <i>Gavialis gangeticus</i>	25/04/2020	UK	1	Emaciated
iv.	Marsh crocodile <i>Crocodylus palustris</i>	24/05/2020	UK	1	Autolyzed
v.	Gharial crocodile <i>Gavialis gangeticus</i>	03/06/2020	F	1	Septicaemia
vi.	Marsh crocodile <i>Crocodylus palustris</i>	15/06/2020	UK	1	Autolyzed
vii.	Marsh crocodile <i>Crocodylus palustris</i>	23/06/2020	UK	1	Cannibalized
viii.	Banded Krait <i>Bungarus fasciatus</i>	12/07/2020	M	1	Emaciated
ix.	Basilisk Lizard <i>Basiliscus basiliscus</i>	20/07/2020	F	1	Emaciated
x.	Indian Softshell Turtle <i>Lissemys punctata</i>	16/08/2020	F	1	Septicaemia
xi.	Marsh crocodile <i>Crocodylus palustris</i>	22/08/2020	UK	1	Cannibalized
xii.	Gharial crocodile <i>Gavialis gangeticus</i>	24/08/2020	F	1	Hepatic lipidosi
xiii.	Green Anaconda <i>Eunectes murinus</i>	09/10/2020	UK	1	Anorexia and Emaciated
xiv.	Marsh crocodile <i>Crocodylus palustris</i>	14/10/2020	UK	1	Cannibalized
xv.	Marsh crocodile <i>Crocodylus palustris</i>	14/10/2020	UK	1	Cannibalized
xvi.	Marsh crocodile <i>Crocodylus palustris</i>	14/10/2020	UK	1	Cannibalized
xvii.	Gharial crocodile <i>Gavialis gangeticus</i>	17/10/2020	M	1	Emaciated
xviii.	Spectacled caiman <i>Caiman crocodylus</i>	20/10/2020	F	1	Autolysed
xix.	Spectacled caiman <i>Caiman crocodylus</i>	23/10/2020	M	1	Autolysed
xx.	Green Anaconda	26/10/2020	UK	1	Anorexia and

	<i>Eunectes murinus</i>				Emaciated
xxi.	Gharial <i>Gavialis gangeticus</i>	01/12/2020	UK	1	Impaction
xxii.	Gharial <i>Gavialis gangeticus</i>	05/12/2020	UK	1	Autolyzed
xxiii.	Indian Flapshell Turtle <i>Lissemys punctata</i>	09/12/2020	M	1	SCUD infection
xxiv.	Banded Krait <i>Bungarus fasciatus</i>	11/12/2020	F	1	Anorexia
xxv.	Gharial <i>Gavialis gangeticus</i>	16/12/2020	UK	1	Impaction
xxvi.	Marsh crocodile <i>Crocodylus palustris</i>	17/12/2020	F	1	Anorexia/ Emaciated
xxvii.	Indian Flapshell Turtle <i>Lissemys punctata</i>	20/12/2020	M	1	SCUD infection
xxviii.	Marsh crocodile <i>Crocodylus palustris</i>	30/12/2020	UK	1	Cannibalized
xxix.	Gharial <i>Gavialis gangeticus</i>	31/12/2020	F	1	Trauma causing intestinal obstruction
xxx.	Marsh crocodile <i>Crocodylus palustris</i>	01/01/2021	UK	1	Emaciated/Autolysed
xxxi.	Marsh crocodile <i>Crocodylus palustris</i>	02/02/2021	F	1	Septicaemia
xxxii.	Gharial <i>Gavialis gangeticus</i>	24/02/2021	F	1	Indigestion leading to impaction
xxxiii.	Indian Flapshell Turtle <i>Lissemys punctata</i>	27/02/2021	UK	1	Anorexia/Emaciated
xxxiv.	Green Anaconda <i>Eunectes murinus</i>	28/02/2021	UK	1	Autolysed
xxxv.	Gharial <i>Gavialis gangeticus</i>	01/03/2021	F		Anorexia/Emaciated

28. Compliance with conditions stipulated by the Central Zoo Authority

Sr. No	Norm No. under RZR, 2009	Condition Stipulated	Time Period to Comply	Since when pending	Status with regard to compliance of the conditions
	AWAITING REPORT FROM LATEST CZA INSPECTION.				

29. List of free-living wild animals within the zoo premises

ARACHNIDS

1. *Argiope versicolor* St. Andrew's Cross Spider
2. *Argiope aemula* Oval St Andrew's Cross Spider
3. *Argiope anasuja* Giant cross spider
4. *Argiope pulchella* Garden cross spider
5. *Gasteracantha geminate* Oriental Spiny Orb-weaver
6. *Gasteracantha mammosa* Asian Spinyback Spider
7. *Cyclosa insulana* Island Cyclosa Spider
8. *Parawixia sp.* Orb-weaver Spider sp.
9. *Tetragnatha sp.* Long-jawed orb-weavers sp.
10. *Leucauge decorata* Decorative silver orb spider
11. *Tetragnatha mandibulata* Big-jawed Spider
12. *Theridion sp.* Tangle-web spiders
13. *Hippasa sp.* Wolf spiders
14. *Citrophora citricola* Tropical tent-web spider
15. *Citrophora cicatrosa* Garden tent web spider
16. *Crossopriza lyoni* Tailed cellar spiders
17. *Oxyopes rufisternum* Lynx spider
18. *Peuceitia viridans* Green lynx spider
19. *Oxyopes sp.* Lynx spider sp.
20. *Pardosa pseudoannulata* Pond wolf spider
21. *Plexippus petersi* Common housefly-catcher
22. *Plexippus paykulli* Pantropical jumper
23. *Telamonia dimidiata* Two-striped jumper
24. *Thomisus pugilus* Crab Spider

25. *Olios milleti* Green crab spider
 26. *Neosparassus sp.* Badge Huntsman Spiders

BIRDS

- | | |
|-----------------------------------|---------------------------|
| 1. <i>Turdoides affinis</i> | White headed babbler |
| 2. <i>Megalaima haemacephala</i> | Coppersmith barbet |
| 3. <i>Merops philippinus</i> | Blue tailed bee-eater |
| 4. <i>Merops orientalis</i> | Small bee-eater |
| 5. <i>Pycnonotus cafer</i> | Red vented bulbul |
| 6. <i>Pycnontus luteolus</i> | White browed bulbul |
| 7. <i>Pycnonotus jocosus</i> | Red-whiskered bulbul |
| 8. <i>Corvus splendens</i> | House crow |
| 9. <i>Corvus macrorhynchos</i> | Jungle crow |
| 10. <i>Hierococcyx varius</i> | Common hawk cuckoo |
| 11. <i>Cacomantis passerines</i> | Indian plaintive cuckoo |
| 12. <i>Streptopelia chinensis</i> | Spotted dove |
| 13. <i>Dicrurus macrocercus</i> | Black drongo |
| 14. <i>Nycticorax nycticoraz</i> | Black crowned night heron |
| 15. <i>Ardeola grayii</i> | Indian pond heron |
| 16. <i>Aegithina tiphia</i> | Common iora |
| 17. <i>Ceryle rudis</i> | Pied kingfisher |
| 18. <i>Alcedo atthis</i> | Small blue kingfisher |
| 19. <i>Halcyon smyrnensis</i> | White throated kingfisher |
| 20. <i>Haliastur Indus</i> | Brahminy kite |
| 21. <i>Milvus migrans</i> | Black kite |
| 22. <i>Haliaeetus leucogaster</i> | White bellied sea eagle |
| 23. <i>Eudynamys scolopacea</i> | Asian koel |

24. <i>Vanellus indicus</i>	Red-wattled lapwing
25. <i>Acridotheres tristis</i>	Common myna
26. <i>Oriolus oriolus</i>	Eurasian golden oriole
27. <i>Otus bakkamoena</i>	Collared scops owl
28. <i>Athene brahma</i>	Spotted owlet
29. <i>Psittacula cyanocephala</i>	Blossom headed parakeet
30. <i>Psittacula krameri</i>	Rose ringed parakeet
31. <i>Copsychus saularis</i>	Oriental magpie robin
32. <i>Accipiter badius</i>	Shikra
33. <i>Nectarinia lotenia</i>	Loten's sunbird
34. <i>Nectarinia zeylonica</i>	Purple rumped sunbird
35. <i>Artamus fuscus</i>	Ashy swallow shrike
36. <i>Apus affinis</i>	House swift
37. <i>Cypsiurus balasiensis</i>	Asian palm swift
38. <i>Dendrocitta vagabunda</i>	Indian treepie
39. <i>Amaurornis phoenicurus</i>	White breasted waterhen
40. <i>Dinopium benghalense</i>	Lesser flameback woodpecker
41. <i>Clamator coromandus</i>	Chestnut winged cuckoo
42. <i>Zoothera citrina</i>	Orange headed thrush
43. <i>Ardea alba</i>	Great egret
44. <i>Egretta garzetta</i>	Little egret
45. <i>Bubulcus ibis</i>	Cattle egret
46. <i>Mesophoyx intermedia</i>	Intermediate egret
47. <i>Phalacrocorax niger</i>	Little cormorant
48. <i>Muscicapa dauurica</i>	Asian brown flycatcher
49. <i>Terpsiphone paradisi</i>	Asian paradise flycatcher
50. <i>Dendronanthus indicus</i>	Forest wagtail

51. <i>Motacilla flava</i>	Yellow wagtail
52. <i>Pericrocotus cinnamomeus</i>	Small minivet
53. <i>Tyto alba</i>	Barn owl
54. <i>Pitta brachyura</i>	Indian pitta
55. <i>Ptyonoprogne concolor</i>	Dusky crag martin
56. <i>Centropus sinensis</i>	Greater coucal
57. <i>Otus bakkamoena</i>	Collared scops-owl
58. <i>Upupa epops</i>	Common hoopoe
59. <i>Orthotomus sutorius</i>	Common tailorbird
60. <i>Prinia socialis</i>	Ashy prinia

LIZARDS

1. <i>Calotes versicolor</i>	Common garden lizard
2. <i>Mabuya carinata</i>	Brahminy skink
3. <i>Sitana ponticeriana</i>	Fan-throated lizard
4. <i>Chamaeleo zeylanicus</i>	Indian chameleon *rare
5. <i>Hemidactylus frenatus</i>	Southern house gecko
6. <i>Hemidactylus leshenaultii</i>	Bark gecko
7. <i>Hemidactylus flaviviridis</i>	Common house gecko
8. <i>Hemidactylus brookii</i>	Brook's gecko
9. <i>Varanus bengalensis</i>	Common Indian monitor lizard
10. <i>Lygosoma punctata</i>	Striped skink

SNAKES

1. *Ptyas mucosa* Indian rat snake
2. *Amphiesma stolata* Stripped keelback
3. *Macrophistodon plumbicolor* Green keelback
4. *Ahaetulla nasuta* Common vine snake
5. *Dendrelaphis tristis* Common Bronzeback tree snake
6. *Lycodon aulicus* Common wolf snake
7. *Lycodon striatus* Barred wolf snake
8. *Eryx johnii* Common sand boa
9. *Bungarus caeruleus* Common krait
10. *Naja naja* Spectacled cobra

