

Lala A.K. Singh

-- shaping wildlife conservation in basins of Mahanadi, Chambal, and Similipal and other achievements

In one more session of follow the leader, Dr. L.A.K. Singh was the speaker. He has been in conservation for 38 years. He was associated with the Odisha Forest Department and is now retired. The talk started with a brief introduction about L.A.K. Singh and before he started talking about his journey through life and through conservation, he was so kind enough to include a slide dedicated to the 10 fellows, our names, and what we told him on the inauguration and by going through our blurbs. He has shaped the conservation in the basins of Mahanadi, Chambal, and Similipal while researching in crocodile conservation (mainly gharial). Dr. L.A.K. Singh was involved in many research such as:

- the radio tracking of gharial,
- designing census techniques for gharial and Mugger,
- checklist and spatial distribution of wetland birds through seasons,
- refinement of tiger pugmark tracking,
- development of census techniques for elephants and other herbivores,
- planning of project elephant based on elephant habitats,
- and LTEM (long-term ecological monitoring) of species

He has been an instructor at Central Institute for Forest Officers. Other than crocodile conservation he was also a tiger researcher.

Dr. L.A.K. Singh has done many conservation activities – he was involved in the conservation and development strategies of gharial and crocodile, and he has done many surveys and monitoring of birds and helped in data collection on the population trends. He divided his presentation into various parts to represent various parts to explain to us how it progressed and he explained all the phrases in great detail. He talked about his childhood and



the experiences he had in the nearby pond and how he developed an interest in wildlife. He has got five publications while his master's. He mentioned how one doesn't need sophisticated instruments to observe, and conservation and research go hand in hand. He believes one cannot conserve without knowing the or about the species which is absolutely true.

His next slide was about his next phase in life, where he got selected for the research position under the government of India (GoI)/Government of Odisha/ United Nations Development Programme (UNDP)/ FAO project for crocodile conservation and was selected for the five-day field test. Not only that, this was the first ever crocodile project in India in which he continued his journey. He talked about his life at Tikarpada forests located in Odisha, on the banks of the river Mahanadi, and the people he met in that village, there were activities of poaching gharial, and to keep control of that gharial guards were made up. Setting up a meteorological station and fixing posts in water to know the water levels in the rivers were the challenges that awaited him there. He started with only 42 hatchlings of gharial which he had to take care of till they grow to a certain length and then reintroduce the successfully.

Crocodile conservation was all about protecting the remaining natural population and rebuilding the population by head starting, monitoring the movement of surviving gharial in the river to achieve a high survival success of captive rearing and

developing a knowledge base about the crocodile, building up trained personnel and involve local communities also in the conservation action. GRACU (Gharial Research and Conservation Unit) was set up for that reason there were also proposals for crocodile farming for commercial utilization but later all three crocodiles were listed as scheduled-I species in the WPA. He also shared stories about the people of the villages he stayed in, the times he spent with them.

Egg collection, translocation, and incubation are one of the most important processes, the best time to collect eggs were within the first week or 50-55 days after the in-situ incubation, eggs were collected from muddy banks are those are the places gharial like to nest. Reptile eggs are very different from avian eggs, it has to be handled with even more caution, the orientation of the egg should be marked as they are kept in nature and it should be kept in the same orientation while incubating them. The eggs must be kept in a winter cover for the gharial hatchlings. After hatching the basic measurements are taken like size and weight. He mentioned that before handling the hatchlings one should use potassium permanganate so that the young ones don't contract any infections and remain healthy. And after the hatchling would grow about 3-4 feet in length, they used to release it in the wild.

He gave other information too on how to measure the gharial, measurement of scutes, and how to interpret these observations to identify an animal. They can also be identified by footprints and tail prints. Differences between a gharial (*Gavialis gangeticus*) and a mugger (*Crocodylus palustris*) how a gharial drags its body while walking and can't really lift its body weight due to weak limbs but a mugger can lift its body while walking. There are methods of identifying individuals from the scute arrangement and lengths on their tails.

Dr. L.A.K Singh also briefly describes the species of crocodiles found in Odisha (India)- which are the *Gavialis gangeticus*, *Crocodylus palustris*,

and *Crocodylus porosus* and talked about the conservation activity he was involved with mugger and gharial in CCBMT field campus on river Chambal at the Deori campus near Morena. He shared a story of the gang of nine men who claimed they were the police but actually weren't, and the time they forgot to bring a matchbox on one of their trips and hence couldn't make any food. Radio tracking and long-term ecological monitoring of animals such as the gharial, the mugger, the Gangetic dolphin, turtle, large raptor, and non-raptor birds and their population trends were also done by him. By 1987 he was associated with CCBMTI for six years as an assistant instructor, instructor, research officer, assistant director, and officer-in-charge and by the same time there were 30 rearing centers, 11 special crocodile sanctuaries, and 20 other wetlands for crocodile rehabilitation had been developed by then.

Tracking

For the gharial radio tracking experiments, the first batch of gharial for the radio tracking experiment was brought from Kukrail to Deori. Techniques to attach the transmitter were developed in Deori Gharial Center, but that didn't sit so well with the locals as of the four transmitters – one wasn't traceable, one was on a treetop, one was found on a dead gharial. Wild-born gharials were captured at Pureini and fitted with transmitters on their tail which gave some understanding of their movements. When a successful method of putting the collar around the gharial came up, it was in its tail region, and the collar that was most useful was the solar collar because it can recharge as the gharial basks in the sun, and surveys were done by tracking the signals from the collar, which were mainly two kinds of signals, one was a stable slow paced signal which usually meant the animal was in a stable position, and the other one was an activity signal which meant that the animal is moving or swimming.

Tiger conservation

He was involved in the conservation of the tiger in the Similipal tiger reserve, where he was also involved in the mugger reintroduction, tiger color

studies, tiger population biology from tracking and herbivore population, giant squirrel nesting, and raptor studies. He talks about the melanistic tigers and developed fourteen color models for the coloration in the tigers and did a study where he predicted the melanistic tigers' population will grow in numbers and their implications because the melanistic tigers were a product of inbreeding depression and hence showed that the populations are severely fragmented and corridors should be built to link the tiger populations so that this could be tackled. Which was confirmed in some molecular studies done recently. He has written a book – 'born black' about melanistic tigers. He has written a tiger tracking pocketbook for forest officers and a guideline for tiger tracking. In his research in the Similipal reserve, he also suggested that the populations are getting stagnant and the carrying capacity is reached which will cause a decline in the population by the year 2008.

Pug marks

Dr. L.A.K. Singh also talked about the pug marks of tigers and leopards and how to identify the marks and tell the difference, the front pug is always larger than the hind pug and the middle two toes in the front pugs almost come to the same levels as the first. The gender of the tiger can also be identified from the pug marks the hind pug mark of the male is a biological square in shape and the pug mark of

a female tiger's hind limb is rectangular in shape. Tiger tracker is a data sheet on which all the survey details are recorded and analyzed which was refined and developed with his help. Also, many other details can be extracted from pug mark details such as the nature of the population, there are usually 2-3 pug marks of female tigers with each male tiger pug mark and usually, with each female tiger, there will be a few cubs pug marks. From the pug marks of the tiger, it could also be identified if it's a cub, male or female. Pug marks also tell a story about population movement, mother- cub bond and separation, and territory shifts.

The session was very informative with much deep knowledge of the course of his life in conservation and what all he did and achieved. Many insights into his personal experiences were also given in the talk. His end note was that every species cannot be conserved everywhere in its previous range, and we have to think of ways in terms of how much effort we have to put to bring a species to green status.

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