भारतीय वन्यजीव संस्थान
Wildlife Institute of India

नमामि गंगे

Report on ONLINE TRAINING WORKSHOP on

"Biodiversity Conservation and Monitoring of Aquatic Species of Ganga Basin"

with forest officials of Pilibhit Tiger Reserve, UP

16th – 18th June, 2020

ONLINE TRAINING WORKSHOP

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"Nature holds the key to our aesthetic, intellectual, cognitive and even spiritual satisfaction".

— E.O. Wilson

Pilibhit Tiger Reserve is in the foothills of the Himalayas, south of Nepal. Covering an area of approximately 800 square kilometres, the reserve sprawls across parts of Pilibhit, Lakhimpur Kheri and Bahraich districts. The PTR is rich in water bodies, with the Sharda and Ghaghara rivers encircling a considerable part of the reserve. The forests of PTR are to home to tigers, leopards, elephants, different species of deer and monkeys and reptiles like mugger and gharials.

Pilibhit Tiger Reserve, being an important protected area in the Ganga Basin, it is essential to address the guardians that secure the landscape on the issues of biodiversity conservation and monitoring of aquatic species. Keeping biodiversity conservation as a priority, even in the Covid-19 pandemic, the Wildlife Institute of India took up the initiative of a three-day online training workshop on "**Biodiversity Conservation and Monitoring of Aquatic Species of Ganga Basin**", with the forest officials of the Pilibhit Tiger Reserve. The training programme was organised by Dr. Sangeeta Angom, Scientist and Training coordinator, WII- National Mission for Clean Ganga. A total of 50 participants attended the programme. The meeting was attended by the Field Director, PTR, **Dr. Raja Mohan,** and his staff, veterinarians, representatives from NGO's and professors from different universities of Uttar Pradesh and Uttarakhand. During this global pandemic crisis, while thousands of people are inside their homes, as mandated

by government orders, forest department officials across India are out on the front-lines of Nature, guarding our wildlife and the forests.

Participants

The online training was attended by a total of 30 participants representing forest officials, veterinary officials, NGO volunteers and professors from universities and colleges.

Day 1

Date: 16th June 2020

Welcome address: Dr. Sangeeta Angom

Inaugural address: Dr. Ruchi Badola and Dr. Syed Ainul Hussain

Dr. Ruchi Badola inaugurated the programme by welcoming Dr. Raja Mohan, Field Director, PTR; Shri Naveen Khandelwal, Deputy Director, PTR; Shri Ashok Kashyap, Range Officer, PTR, and all the participants. She spoke about the integration of scientific and engagement of stakeholders for effective conservation strategies and capacity building among local communities. *Ganga Praharis*, a cadre of skilful and enthusiastic people have made awareness about biodiversity conservation a success along the Ganga river in Phase I of the WII-NMCG collaborative project. Finally, she thanked all the forest officials for their participation in the workshop.

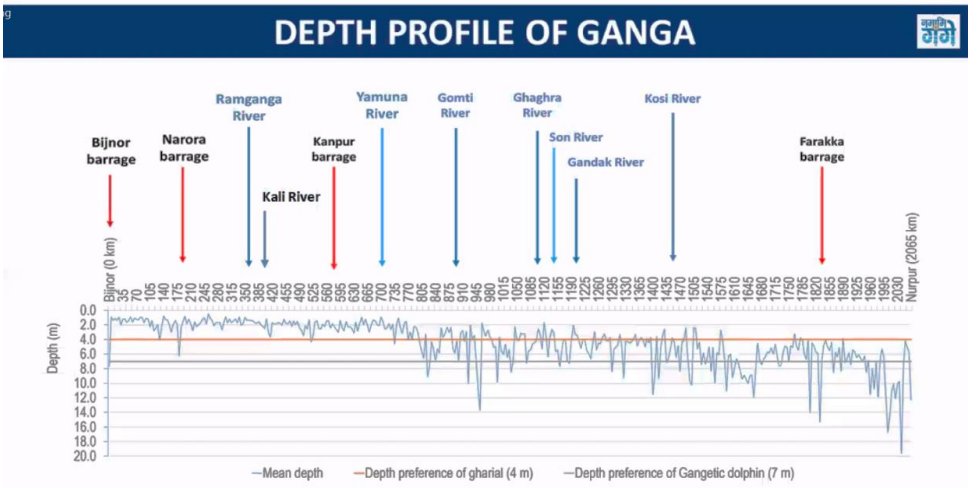
Speakers: 1. Dr. Niladri Dasgupta on "Planning and Management of Aquatic Species Conservation and Maintenance of Ecosystem Services in the Ganga River Basin".

2. Ms. Shuchismita Das on "Monitoring of Birds in Ganga Basin".

Lecture 1: Dr. Niladri Dasgupta on "Planning and Management of Aquatic Species Conservation and Maintenance of Ecosystem Services in the Ganga River Basin".

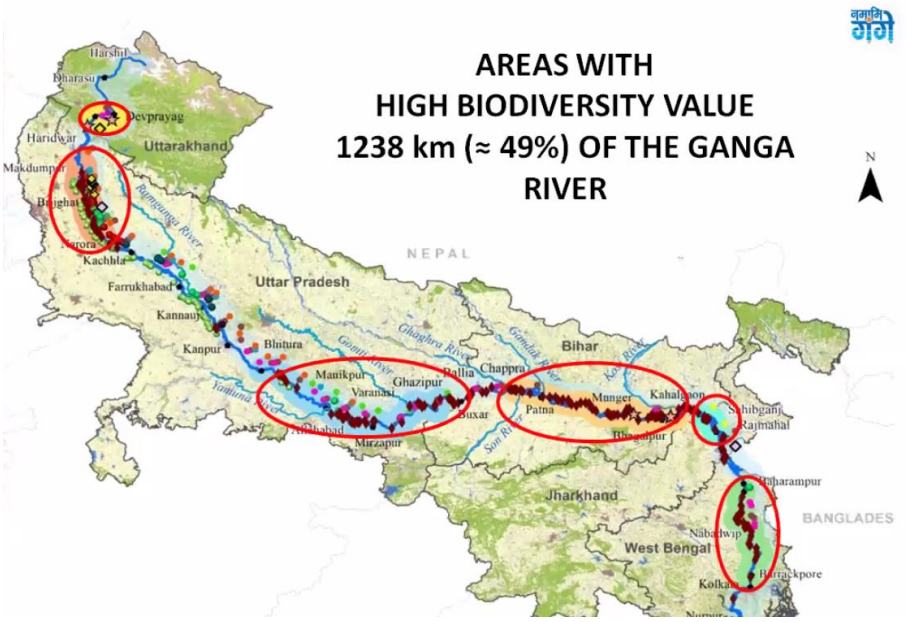
Dr. Niladri Dasgupta is the Project Coordinator of Phase II of the WII-NMCG collaborative project, which has been upscaled to the entire Ganga basin level. He began his talk by explaining about the decline of freshwater species at a rapid rate over the past few decades. The construction of dams and barrages are greatly affecting the free-flowing nature of rivers, thereby converting perennial rivers into intermittent rivers. This fragmentation has affected the habitat of species by fragmentation. The greater biodiversity helps maintain ecological health, and the biological community structure in an ecosystem. Around 20 % of

species found in the Ganga basin are Threatened according to the IUCN Red List. The major threats are over exploitation and unsustainable resource use, pollution, illegal wildlife trade, and poaching. He further stated that the major cause of loss of biodiversity of the Ganga river is the reduction in flow, because of abstraction of water for agricultural purposes. These unsustainable practices are leading to habitat degradation and fragmentation. He further explained that the integration of policies, pollution mitigation measures, restoration of habitat, and sustainable livelihood options, can further the cause of Ganga's biodiversity conservation. He then explained the six major components of the Project, covering all aspects of conservation: (1) Establishment of Ganga Conservation and Monitoring Centre, (2) Planning Aquatic Species Restoration for Ganga, (3) Capacity Building of Forest Stakeholders, (4) Establishment of Rescue and Rehabilitation Centres, (5) Community based conservation programmes for Species Restoration, and (6) Nature interpretation and education for Biodiversity Conservation. The systematic assessment methods used for status monitoring of the Ganga river are: continuous boat surveys, foot survey in mountain areas, flow measurement, threat mapping etc. According to the umbrella species concept, if a top carnivore such as Gharials and Gangetic Dolphin is protected together with its habitat, all other species will be protected. The Gharial, (*Gavialis gangeticus*) used to be common in the Ganga Basin, is now restricted to certain sections of the basin, with a major population in the Chambal River. Resident birds of the Ganga basin nest in sandbars, which is why illegal activities threatening those habitats need to mitigated and the habitats need to be secured. Priority areas for conservation was further mapped after assessing the structural conditions of the Ganga river. Six sites have been identified as biodiversity hotspots. He also spoke about how WII works towards assessing the pollutants in Ganga, i.e. doing the ecological risk assessment. The objectives are to identify the contaminants or priority chemicals, their level,



Depth profile of Ganga River and depth preference of Gharial and Gangetic Dolphin

and identification of the source of such pollutants. Then the degree of exposure and effect of such contaminants in aquatic organisms is assessed. The results after analysis showed that the lower stretch of the river, i.e. in West Bengal, had the highest level of OCPs. The concentration of pesticides will be increased if flow of river is reduced. The Farakka Barrage, reduces the flow of the river, hence the concentration is much higher. In Bihar and Jharkhand, where many tributaries join Ganga, the flow is ample, hence the dilution of OCPs is increased. The proactive participation of the *Ganga Praharis* in biodiversity conservation has been very effective. The development of sustainable livelihood opportunities, especially for women *Ganga Praharis*, thereby helping to develop confidence among different stakeholders, thus further supporting the cause of conservation. The way forward for the Project are intensification of conservation effort in 12 identified sites along the Ganga, ecological, genetic, and ecotoxicological assessments in identified tributaries, upscaling spearhead teams, basin-level training, site-specific livelihood skill development, establishment of Ganga Knowledge Corners at identfiied sites, outreach programmes, establishment of Ganga centralised aqualabs.



Lecture 2: Ms. Shuchismita Das on "Monitoring of Birds in Ganga Basin".

Ms. Shuchismita Das is a Project Fellow in the WII-NMCG. Riverine ecosystems together with different habitat types such as sand bars, braided channels, and pools form a

mosaic of habitats for resident and migratory birds. 128 bird species are found in the Ganga river, including 52 are migratory, and 76 are resident species.

Bird surveys can be defined in three ways: census surveys, sample surveys, and atlas surveys. Surveys are conducted to monitor status of birds, their abundance and distribution. While planning field work, season, weather, survey strategy, species of the bird, behaviour and habitat need to be noted down. For rivers, boat transect or trail transects along the bank can be conducted, and while surveying wetlands, total counts can be performed. In line transect, the observer needs to record those birds within a certain distance and should not count the birds being flushed out because of disturbance. This is helpful in open habitats. Bird density can be calculated using line transects. Point counts are one of several methods used to inventory and monitor bird populations. A point count is a tally of all birds detected by sight and sound by a single observer located at a fixed position during a specified period of time (i.e., 3 min.). Counts are usually conducted in the morning, typically during the breeding season when birds are most vocal and territorial. Counts must also be conducted under suitable weather conditions. Nest monitoring is essential for measuring the reproductive success of a population, which is important for identifying changes in a population's birth rate. Nests can be found either through systematic searching of the birds' preferred habitat or by watching birds for behavioural clues. A researcher can then track the success of each nest by regularly checking nests for signs of hatching, fledging, or predation. Other than species' data, anthropogenic threats, connectivity of wetlands, also need to be taken into consideration.

Day 2

Date: 17th June, 2020

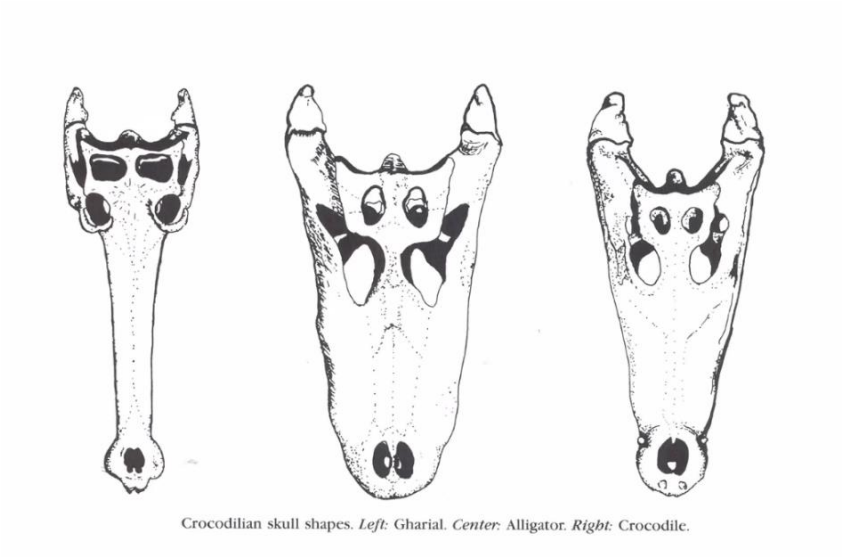
Speakers: 1. Dr. Gopi G.V. on "Monitoring of Crocodiles".

2. Dr. Animesh Talukdar on "Techniques of Rescue and Rehabilitation of Aquatic Species (Turtles and Crocodiles).

Lecture I: Dr. Gopi G.V. on "Monitoring of Crocodiles".

On the occasion of World Crocodile Day, it was an honour to have our senior scientist, Dr. Gopi G.V. to share his experience on working with crocodiles with everyone through this workshop. Dr Gopi G.V. has worked on all the three species of crocodiles found in India, and

would like to share the expertise with everyone. He began by talking about the taxonomic position of Crocodiles. Crocodiles belong to the super order Diapsida, family Crocodilidae. He also explained the difference between alligators and crocodiles, saying that alligators are not found in India, and in case if seizure of illegal alligators occurs in India, it can most probably be the Chinese Alligator. When mouth is closed, alligator teeth cannot be seen, but gharial and mugger teeth can be seen.



Crocodilian skull shapes. *Left:* Gharial. *Center:* Alligator. *Right:* Crocodile.

Differentiation between mugger and saltwater crocodile, one can observe the scutes. Muggers have post-occipital scutes, which are not found in saltwater crocodiles, in this way one can differentiate between mugger and saltwater crocodiles, wherever they are found sympatrically, such as in West Bengal's coastal areas. For marking crocodiles, tail scutes are clipped. Integumentary sense organs (ISO) pores can be observed in crocodiles. These organs help crocodiles sense the external environmental temperature. Crocodiles are cold-blooded animals, which depend on external temperature to regulate their body temperature.

Saltwater crocodiles are euryhaline, muggers and gharial are stenohaline. Crocodiles are highly territorial animals. When there is a saturation of crocodiles in an area, subadults are pushes to other areas, which leads to crocodile-human conflict. He also said that the Bhitarkanika Park on the Orissa coast has achieved the rare distinction of housing the world's largest saltwater crocodile in the wild measuring about 23 feet.

Dr. Gopi also explained the different locomotion patterns of crocodiles on land: belly crawl, galloping, and high walk. Different locomotion types depend on substrate type, disturbance, etc. Based on nest morphology, crocodiles are of two types: hole nesters and mound nesters. Saltwater crocodiles are mound nesters because they mostly inhabit tidal areas, therefore to prevent drowning or inundation of nests, nests of saltwater crocodiles are elevated. The average clutch size of saltwater crocodile is 50, mugger is 28, and gharial is 40. Duration of incubation ranges between 60-70 days. Parental care is very strong in saltwater crocodiles, mugger and gharials. Resource partitioning between gharials and muggers allows them to occur sympatrically in some areas of their distribution range. The Gharial is a

Important features	*Gharial*	*Mugger*	*Estuarine Crocodile*
Snout (adult)	Longest, beak-like, sharply demarcated from head	Short	Longer than mugger, not as long as in Gharial
Post-occipital scutes	May be present	Present in a single row of 4 scutes; all large and distinct	Absent or very indistinct
Nesting season	March/April	Feb./April	May-June
Nest type	In holes on ground (hole nester)	`hole nester'	In a mound of leaves, twigs and soil. (Mound nester)
Nest site/banks	Highly sloppy sand-banks with fine sand	Sand banks, mud banks.	Open areas amid mangroves
Egg size (cm) length & breadth	8-9x6-7 cm	6-8x4-5 cm	8-9x6-7 cm
Egg weight (gm)	95-120	85-90	90-110
No. of eggs per clutch	10 – 97 35	8-45 20	10-75 30
Incubation period (days)	62-65	55-75	75-80
Growth rates (during first 5 year)	45 cm/year	35 cm/year	40 cm/year
Food Hatchlings	Fish	Fish, insect, meat, worms	As in mugger
Food Adults	Fish	Fish, insect, meat, birds	Fish, insect, meat, Birds, mollusks, Prawns
Age at sexual maturity	Male 15+ years Female 10-12 years	Male : 5-6 years Female : 5 years	Male: 10+ years Female: 8 years
Life span	100 years	70 years	100+years
Breeding life	50 years	50 years	…….
Temperament	Timid	Aggressive	Aggressive

specialist species, whereas the Mugger is a generalist species. Gharials prefer sandy substrate. Saltwater crocodiles reside in areas where there is tidal inundation; evolutionarily they are adapted for mound nesting. Parental care is high in saltwater crocodiles. Further explaining about the difference between reptilian and bird eggs, Dr. Gopi stated that reptile eggs do not have the chalaza, which suspends the yolk. Therefore, while lifting eggs for captive rearing, one needs to be careful. It needs to be picked up in the same direction in which they are found in the nest naturally.

Dr. Gopi also spoke about temperature dependent sex determination. Temperature profile of the nest is varied. If above 30°C, it will develop into males, the eggs deep inside the nest will develop into females. External temperature plays a critical role in determining crocodile sex ratio. Because of climate change and global warming, there may a skewed sex ratio, as the species are temperature sensitive. During rear and release programme, we need to take care of the temperature to maintain sex ratio. Cloacal sexing can be done to know the sex of crocodiles. This can be done in juveniles, subadults, and adults, and cannot be done in yearlings and hatchlings. In gharials, presence of *ghara* in adult males can help to distinguish between males and females.

Crocodile population estimation:

Counting is done twice: day count and night count. For counting hatchling population, spotlight survey is done. The darkest night is chosen such as new moon night. A spotlight is shone from a boat and hatchlings or yearlings are counted based on ocular estimation. The light is reflected from the eyes (tapetum lucidum). Counting is done four to five consecutive days for average. Combining these two techniques gives an estimation of all size classes. During nesting season, nest counts are conducted. High nesting numbers, indicates healthy breeding population. If any crocodile is bigger than 12 ft, it will definitely be a female. During census, air temperature, water temperature, wind speed, sunlight etc. can affect crocodile counts. Wherever there are critically endangered species, it is very important to monitor their populations and habitat. Probing technique for nest count. Nesting substrate is hard because of high compaction and moisture content. Repeating surveys every year is monitoring. Population monitoring is very important to understand the fluctuations, and also may help in addressing any immediate threats to the species and its habitat encountered during the survey.

Threats to nesting include predation by feral dogs and trampling by cattle. Threats to gharial populations: entanglement in net, water abstraction, lowering of water level, pollution, feral dogs and cattle. Compensation packages for conflict cases are present. We need to know the case numbers for mitigating conflict cases, which is why monitoring of crocodilians is important. Sand mining removes critical riverside substrate for nesting. Increasing and widespread development has resulted in high demand for sand for construction purposes. Sand removal operates on an industrial scale at some localities on the Chambal River, and also in the Ken and Son Rivers, as well as at unprotected minor locations where gharials and muggers still survive. Major water control structures, including dams, barrages are detrimental to gharial distribution and abundance in all of the river basins in which the species occurs. These structures result in serious habitat fragmentation and degradation, and the gharial being a specialist swimmer, cannot travel across long distances on land.

Dr. Gopi's message for World Crocodile Day: Crocodiles have inhabited the earth since the Triassic Period of Mesozoic Era. They represent a marvellous group of reptiles, threatened by increasing anthropogenic pressures. In areas where humans and crocodiles coexist, people need to be precautious about crocodile presence and avoid going near water during active crocodile periods. There is an urgent need for awareness about crocodilians across India.

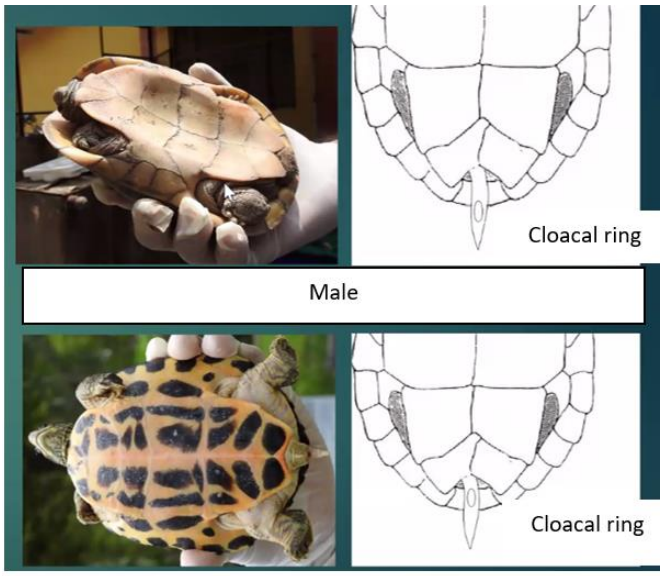
Lecture 2. Dr. Animesh Talukdar on "Techniques of Rescue and Rehabilitation of Aquatic Species (Turtles and Crocodiles)".

"*No rescue is successful until the animal is released back to its natural system*"

Dr. Talukdar is a veterinary doctor. He did M.Sc. in Wildlife Science from the Wildlife Institute of India. He began his lecture by talking about wildlife rescue, and rehabilitation. Wildlife rescue refers to operations that usually involves saving life of the animal, or prevention of additional injuries as a result of natural or human-related accidents to the animal. Wildlife rehabilitation refers to the treatment and temporary care of the injure, diseased, and displaced indigenous animals and the subsequent release of healthy, recovered individuals to appropriate habitats back into the wild. The 2019 report of Traffic said that almost 10000 turtles are confiscated annually. The first responder in any recue situation such

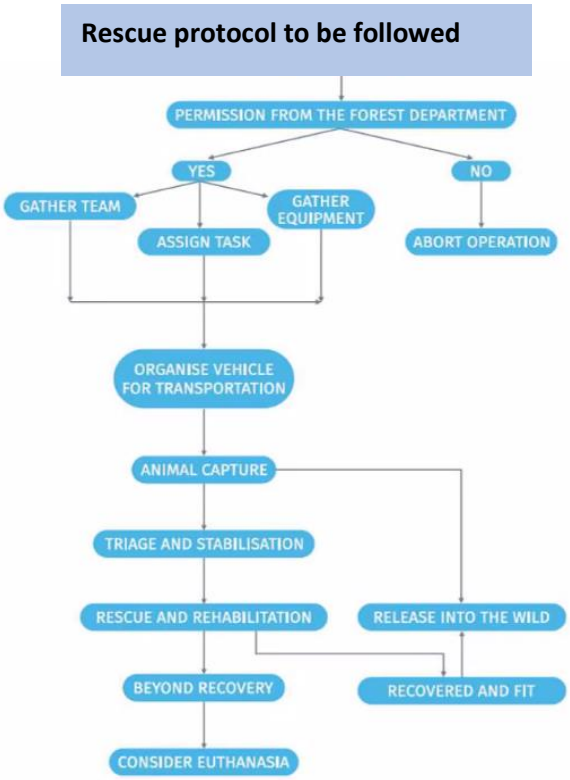
as *Ganga Praharis* are very important to identify occurrence and report them. These stakeholders need to be involved in rescue and rehabilitation centre. Fishermen are very useful in rescue operations of turtles trapped in canals or portions of a river.

The upper shell of turtles and tortoises is called carapace and the lower shell is called plastron. The plastron of males is slightly concave to fit on females during copulation. Handling of turtles and tortoises needs to be done very cautiously. While handling they should not be rotated by more than 90 degrees because they lack a diaphragm with separates the organs of abdominal cavity and thoracic cavity. Mishandling causes distress in turtles as the organs push against the lungs, thus causing breathing issues. Using rubber mats in captivity centres is required to reduce rubbing and injury of the plastron, while the animals crawl out and in of the ponds.



Female

Situation analysis is very important to determine whether human intervention is needed or not. Health issues and stress to the animal is of utmost importance. During seizures, origin of the specimen is not known, turtles are brought to rescue centre, and kept in quarantine for 90 days and then released to their natural habitat. Euthanasia: Mercy killing, in case of very injured individuals which are beyond recovery can be performed.



Handling: Salmonellosis is a zoonotic disease that can be contracted while handling turtles without wearing

gloves. Handling should be kept minimal to reduce stress to the animal. Wooden boxes or plastic crates can be used for transporting turtles. During travelling, speed of the vehicle needs to be constant around 20km/hr. Cages can be used to trap crocodiles, noosing for closing the mouth, covering the eyes. Traps can be set on land, and bait can also be used for trapping. Body condition can be assessed on the basis of morphometry or physical examination. Severely injured animals need vet care and kept under intensive care. Wild to wild transfer can be done in case of mild injured or stressed individuals. Severely injured or confiscated individuals need to be kept in rescue centre before releasing wild. Food needs to be given daily in captive centre. Most softshell turtles are carnivorous. Fish is an important component of their diet which aids in eyesight. Herbivorous turtles can be given carrots, which is important for eyesight. Vitamin A can also be supplemented in diet. In captivity, 35-128 kcal/day per kg body weight of nutrition is required.

Enrichment is essential for turtles to feel in their natural environment. Green netting, artificial aeration of pond, rubber mats around the pond to prevent plastron injury in turtles. In winter, insulation of ponds is done. Preferred optimal temperature is maintained. For cover, hay, duckweed, etc. are used. Basking logs are placed. 20% water is changed every three days, entire water every 15 days, draining once every month. For incubating turtle eggs, TSD needs to be kept in mind and temperature needs to be maintained accordingly for maintaining natural sex ratio. Post release monitoring is essential.

End of session: A short film on Crocodiles was shown at the end of the session that depicted the status of crocodiles in India, and the threats they face.

Day 3

Date: 18th June, 2020

Lecture I: Mr. Goura Chandra Das on "Monitoring of Gangetic Dolphin".

Mr. Goura Chandra Das began his talk by asking the question: why do we need to talk about aquatic species? He stated that many great civilisations began in river basins. All species, flora and fauna including humans are directly or indirectly dependent on rivers. Everything in our ecosystem is interconnected.

Talking about dolphins, Mr. Goura said that many people have a misbelief that dolphins are fish species, but dolphins are actually aquatic mammals. Four species if

freshwater dolphins *viz*. Amazon River Dolphin (*Inia geoffrensis*), Bolivian River Dolphin (*Inia boliviensis*), Tucuxi (*Sotalia fluviatilis*) and the Gangetic Dolphin (*Platanista gangetica*). The Yangtze River Dolphin (*Lipotes vexillifer*) has been extinct since 2007. The Gangetic dolphin has two subspecies: Indus Dolphin (*Platanista gangetica minor*) and Gangetic dolphin (*Platanista gangetica gangetica*). The species used to be a marine dwelling organism, but due to changes in sea level, some individuals got restricted to freshwater ecosystems, where they used to come for food. Thus, evolved the freshwater dolphin species. The Gangetic Dolphin can be considered as an umbrella species because of the following reasons: 1. Apex predator, 2. Bioindicator species (due to pollution in Kanpur, dolphins are not found there; wherever dolphins are present, the pollution in water is low, which is why there are a lot of dolphins in the Vikramshila Dolphin Sanctuary in Bihar). **It is a Schedule I species according to IWPA, 1972, and in CITES Appendix I. It is also the National Aquatic Animal of India, and the State Aquatic Animal of Bihar and Assam**. **The Gangetic Dolphin is Endangered in the IUCN Red List**. Today's workshop is based on the conservation status and how we can help conserve the species so that it does not follow the fate of the Yangtze River Dolphin.

The Gangetic Dolphin resides in wide river stretches where there is minimum human disturbance. The species can be identified by the beak. An individual dolphin surfaces for breathing between 30-120 seconds; this can help researches prevent double count errors. The females are larger than males and adults look greyish brown in colour. During the breeding season between December-March, there needs to be special protection to the habitat of the species. The dolphin has rudimentary eyes, an adaptation to the murky waters of riverine areas. The snout of females is longer than those in females and have a slightly upward curve. Snout length of more than 1 ft is categorized as adult dolphin, and less than 1 ft is sub-adult. This can help in surveying dolphins and reducing errors in estimation. They act as photoreceptors. Dolphins hunt by echolocation and navigate their way through the habitat.

Mr. Goura further stated that *Ganga Praharis* from Bhagalpur, Farakka, Bijnore, Bihar, etc., mostly from fisherman community have been trained in biodiversity monitoring, especially of the Gangetic dolphin. This can help in spreading awareness about dolphins among the community. During survey, the weather conditions and timing need to be considered. Also, one needs to understand the mode of transport to be used for dolphin

survey, such as the depth of the river stretch will determine what kind of boat can be plied for the survey.

Talking about the monitoring of the Gangetic dolphin, and the importance of its habitat, Mr. Goura stated that together with the species' sightings records or encounter rate, the habitat of the species also needs to be monitored. As an indicator species, dolphins indicate that there is abundant fish population and low pollution level, which is why fishermen are often seen fishing in stretches with good dolphin numbers. Data on water quality parameters and human disturbance in dolphin habitats also needs to be collected. Prime dolphin habitats need to be monitored regularly. If the water level decreases, not only will dolphins disappear, so will fishes, which are the livelihood sources of millions of people. The species is not found in all the stretches of a river, it avoids certain stretches. This is because of multiple threats that affect the species: flow modification, habitat degradation, depletion of prey base, water pollution, overexploiation, and invasive species.

Mr. Goura spoke about the recommendations for conservation of the Gangetic dolphin, *viz*. community partcipation, spread community awareness, and habitat protection. The recent incident of fishermen in Murshidabad harassing a dolphin calf, was reprted by Ganga Praharis, who helped rescue the animal and released it back into the water. This is why community involvement is of utmost importance. Because it is the local people that are in the constant vicinity of dolphin habitats and are in the front line for species' conservation together with the forest department.

Lecture 2. Mr. Saurav Gawan on "Monitoring of Turtles in Ganga River".

Mr. Gawan began by stating the importance of monitoring turtles. Before monitoring we need to understand the basic behaviour, ecology, and identification of turtles. Riverine turtles are of two types: hard-shell and softshell turtles. The upper shell of turtles is called carapace, and the ventral shell is called the plastron. The bone connecting the shell to the body of the animal is called the bridge.

He further spoke about the estimation of turtle numbers, using mark-recapture techniques. To mark turtles, scute cutting technique can be implemented. Also, turtles can be marked by tagging with plastic tags, and painting an identification of number on the carapace. The latter two techniques are not very useful as they do not guarantee the lasting of the tags or paint. Passive Integrated Transponder (PIT) tags, sonic transmitters, and satellite transmitters can be used to tag turtles. Morphometric measurements also need to be taken, which are important indicators of the health of the animal.

Mr. Gawan continued his presentation by showing a short film on the turtles and tortoises of Ganga River. The film was an inhouse production of WII. Such films can be very useful in spreading mass awareness about critical conservation aspects. There are around 14 species of turtles (13 softshell turtle and 1 hard-shell turtle species) in the Ganga. Some species are:

1. River terrapin (*Batagur baska*)
2. Red-crowned roofed turtle (*Batagur kachuga*)
3. Three-striped roofed turtle (*Batagur dhongoka*)
4. Spotted pond turtle (*Geoclemys hamiltonii*)
5. Crowned river turtle (*Hardella thurjii*)
6. Indian black turtle (*Melanochelys trijuga*)
7. Indian roof turtle (*Pangshura tecta*)
8. Brown roofed turtle (*Pangshura smithii*)
9. Indian Flapshell turtle (*Lissemys punctata*)
10. Indian narrow-headed softshell turtle (*Chitra indica*)
11. Indian softshell turtle (*Nilssonia gangetica*)
12. Indian peacock softshell turtle (*Nilssonia hurum*)

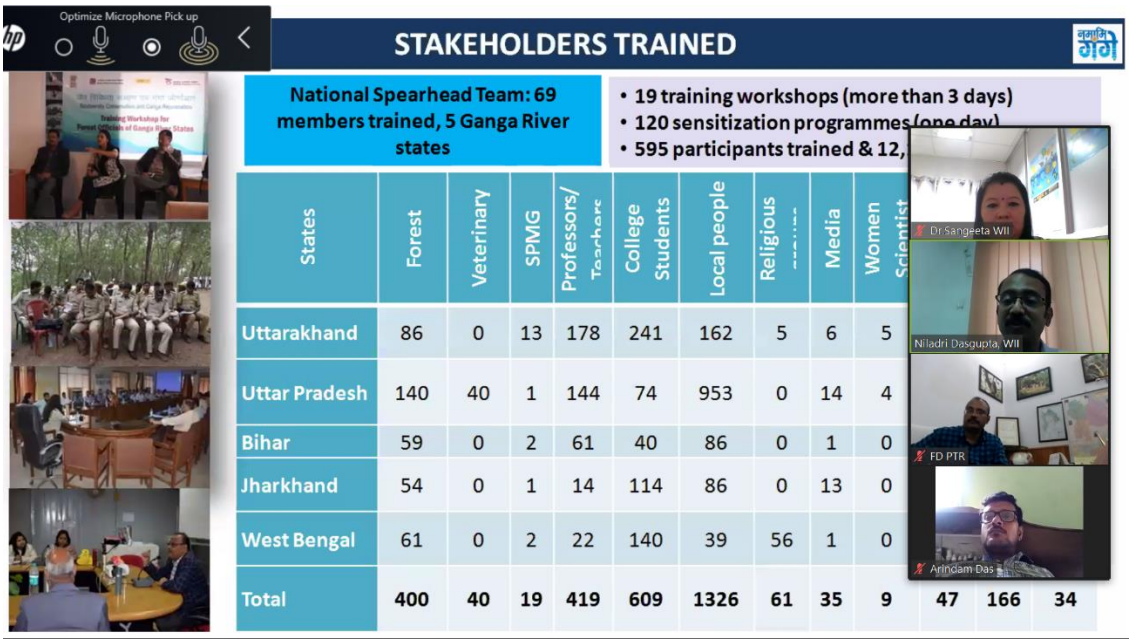
Major threats to freshwater turtle species are habitat degradation, incidental capture in fishing nets, illegal trade as live pets, and direct killing for poaching for meat.

Vote of thanks: Dr. Ruchi Badola thanked the Dr. Raja Mohan, Field Director, Pilibhit Tiger Reserve and his staff. She also thanked the particpants of the training programme.

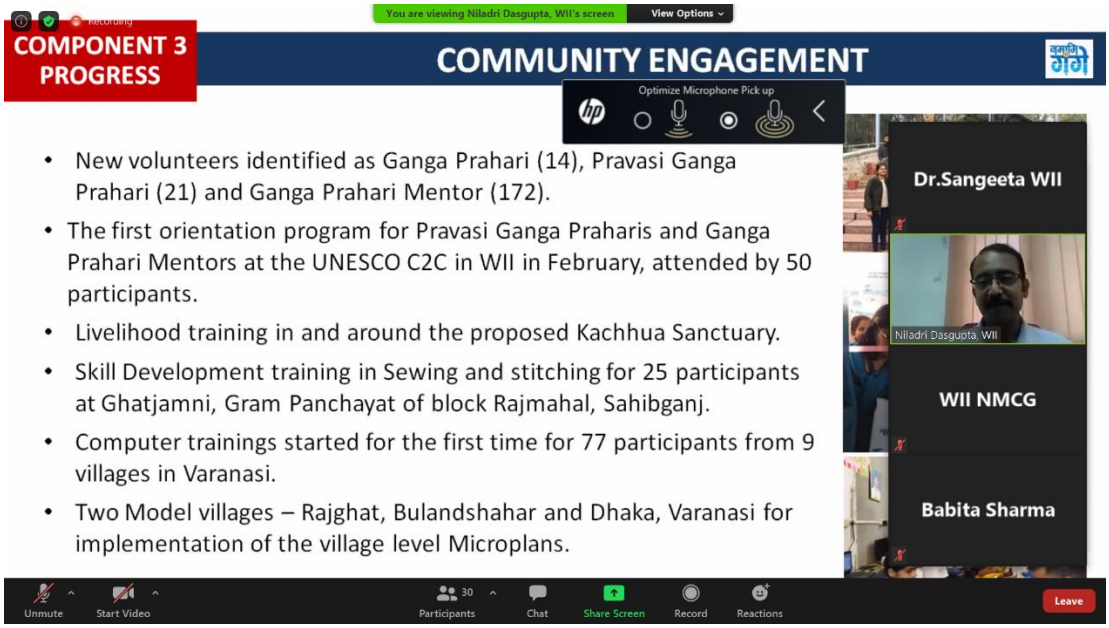
Annexure I: Programme Schedule

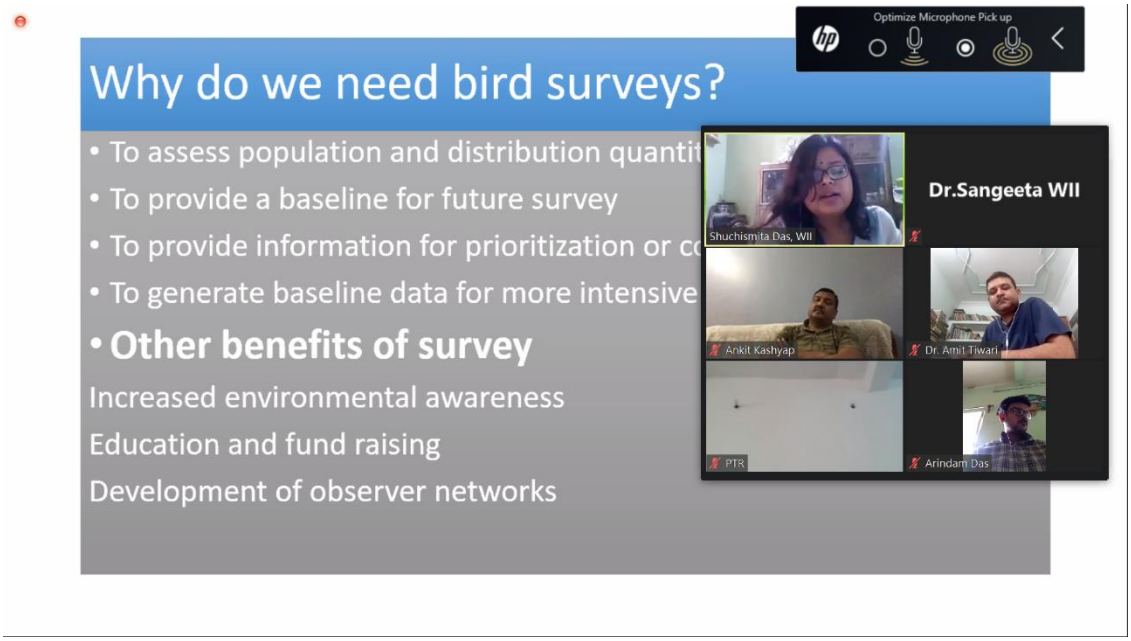
16th June, 2020	**Session I**	**Resource persons**
1100-1110	Welcome of the Participants	**Dr. Sangeeta Angom**
1110-1120	Inaugural Address	**Dr. Ruchi Badola & Dr. S. A Hussain**
1120-1230	Project "Planning and Management for Aquatic Species Conservation and Maintenance of Ecosystem Services in the Ganga River Basin": An overview	**Dr. Niladri Dasgupta**
1230-1300	Monitoring of Birds of Ganga Basin	**Ms. Shuchismita Das**
1300-1310	Group Discussion	
17th June, 2020	**Session II (World Crocodile Day Celebration)**	
1100-1140	Monitoring of Crocodiles	**Dr. Gopi G.V.**
1140-1220	Techniques of Rescue and rehabilitation of Aquatic species (Crocodile and turtles)	**Dr. Animesh Talukdar**
1220-1230	Group Discussion	
18th June, 2020	**Session III**	
1100-1140	Monitoring of Gangetic River Dolphin	**Mr. Goura Chandra Das**
1140-1220	Monitoring of Turtles of the Ganga River	**Mr. Saurav Gawan**
1220-1240	Group Discussion	
1240-1250	Vote of Thanks	**Ms. Monika Mehralu**

Annexure II: PHOTOGRAPHS



States	Forest	Veterinary	SPMG	Professors/ Teachers	College Students	Local people	Religious	Media	Women Scientist			
Uttarakhand	86	0	13	178	241	162	5	6	5			
Uttar Pradesh	140	40	1	144	74	953	0	14	4			
Bihar	59	0	2	61	40	86	0	1	0			
Jharkhand	54	0	1	14	114	86	0	13	0			
West Bengal	61	0	2	22	140	39	56	1	0			
Total	400	40	19	419	609	1326	61	35	9	47	166	34


You are viewing Niladri Dasgupta, WII's screen
View Options
COMPONENT 3 PROGRESS
COMMUNITY ENGAGEMENT
Optimize Microphone Pick up
• New volunteers identified as Ganga Prahari (14), Pravasi Ganga Prahari (21) and Ganga Prahari Mentor (172).
• The first orientation program for Pravasi Ganga Praharis and Ganga Prahari Mentors at the UNESCO C2C in WII in February, attended by 50 participants.
• Livelihood training in and around the proposed Kachhua Sanctuary.
• Skill Development training in Sewing and stitching for 25 participants at Ghatjamni, Gram Panchayat of block Rajmahal, Sahibganj.
• Computer trainings started for the first time for 77 participants from 9 villages in Varanasi.
• Two Model villages – Rajghat, Bulandshahar and Dhaka, Varanasi for implementation of the village level Microplans.
Dr.Sangeeta WII
Niladri Dasgupta, WII
WII NMCG
Babita Sharma
Unmute
Start Video
30
Participants
Chat
Share Screen
Record
Reactions
Leave


Optimize Microphone Pick up
Why do we need bird surveys?
• To assess population and distribution quanti
• To provide a baseline for future survey
• To provide information for prioritization or c
• To generate baseline data for more intensive
• Other benefits of survey
Increased environmental awareness
Education and fund raising
Development of observer networks
Dr.Sangeeta WII
Shuchismita Das, WII
Ankit Kashyap
Dr. Amit Tiwari
PTR
Arindam Das

MEDIA COVERAGE

पीटीआर डीटीआर के साथ डब्लूआईआई ने की जलीय जीव जंतु पर बैठक

पीलीभीत की नदी व तालाबों पर अब डब्लूआईआई की नजर

पीलीभीत, दिव्य प्रकाश ब्यूरो। भारतीय वन्यजीव संस्थान, देहरादून के संयुक्त तत्वावधान में जैव विविधता संरक्षण और गंगा और उसकी सहायक नदियों की जलीय प्रजातियों की निगरानी पर तीन दिवसीय ऑनलाइन प्रशिक्षण कार्यशाला आरम्भ की गयी, जिसमे इसमें पीलीभीत टाइगर रिजर्व,दुधवा टाइगर रिजर्व फील्ड डायरेक्टर डीटीआर संजय पाठक सहित कुल 39 प्रतिभागी उपस्थित रहे।

इस कार्यशाला में दुधवा और पीटीआर की जैव विविधता पर भी विस्तृत चर्चा हुई और थलचर वन्यजीवों के अतिरिक्त जलचर व नभचर जीवों एवं उनके प्राकृत वास संरक्षण के महत्व पर भी बल दिया गया। कोरोना जैसी वैश्विक महामारी संकट के दौरान भारत भर में वन विभाग के अधिकारी कर्मचारी भी

हमारे वन्यजीवों और जंगलों की रक्षा करते हुए प्रकृति संरक्षण में अग्रणी भूमिका निभा रहे हैं। कार्यक्रम का आयोजन एनएमसीजी (नमामि गंगे) संयोजक व डब्ल्यूआईआई के वैज्ञानिक और प्रशिक्षण समन्वयक डॉ संगीता अंगोम द्वारा किया गया था।

कार्यशाला के पहले दिन सुश्री रुचि बडोला, वरिष्ठ वैज्ञानिक एवं डॉ सैयद ऐनुल हुसैन, वरिष्ठ वैज्ञानिक ने विभिन्न मुद्दों पर प्रकाश डाला। साथ ही नमामि गंगे कार्यक्रम के तहत डब्ल्यूआईआई द्वारा किए गए कार्यों के बारे में बात की, और गंगा के संरक्षण के लिए स्थानीय लोगों, वन अधिकारियों, मंत्रियों और वैज्ञानिकों की एकजुट भागीदारी का आह्वान किया।

पारिस्थितिक अखंडता और जैव विविधता के जुड़ाव पर चर्चा की। डॉ निलाद्री दास गुप्ता, वैज्ञानिक डॉ. जी.वी गोपी, डॉ.अनीमेश तालुकदार ने गंगा बेसिन में जलीय पक्षी प्रजातियों के संरक्षण महत्व पर प्रकाश डाला।

कार्यक्रम में उप निदेशक, पीटीआर से फील्ड डायरेक्टर डॉ एच राजा मोहन, डिप्टी डायरेक्टर नवीन खंडेलवाल, सामाजिक वन डीएफओ संजीव कुमार, एसडीओ प्रवीण खरे, वाइल्ड लाइफ फोटोग्राफर बिलाल मियां, दुधवा मनोज कुमार सोनकर, उप निदेशक, बफर जोन, अनिल पटेल, वन संरक्षकध् प्रभागीय वनाधिकारी, कतर्नियाघाट ज्ञान प्रकाश सिंह रेंजर अशोक कश्यप,लीलाधर सोनू सहित 39 अन्य वनाधिकारी व कर्मचारी उपस्थित रहे।

पीलीभीत टाइगर रिजर्व के साथ डब्ल्यूआईआई ने की ऑनलाइन वर्कशॉप, गंगा के संरक्षण पर भी की गई चर्चा

जैव विविधता और जलीय जीव-जंतु के संरक्षण पर मंथन

पीलीभीत | हिन्दुस्तान संवाद

भारतीय वन्यजीव संस्थान देहरादून की ओर से पीलीभीत टाइगर रिजर्व में ह्यजैव विविधता संरक्षण और गंगा व उसकी सहायक नदियों की जलीय प्रजातियों की निगरानीह्न विषय पर तीन दिवसीय ऑनलाइन प्रशिक्षण कार्यशाला शुरू हो गई। इसमें जैव विविधता ओर जलीय जीवजंतु के संरक्षण पर मंथन किया गया।

वर्कशॉप में पीलीभीत टाइगर रिजर्व में पाई जाने वाली जैव विविधता पर भी विस्तार से चर्चा की गई। थलचर वन्यजीवों के अलावा जलचर व नभचर जीवों एवं उनके प्राकृत वास संरक्षण के महत्व पर जोर दिया गया। कोरोना संकट के दौरान देशभर में वन विभाग के अधिकारी व कर्मचारी भी हमारे वन्यजीवों और जंगलों की रक्षा करते हुए प्रकृति संरक्षण में अग्रणी भूमिका निभा रहे हैं। आयोजन नमामि गंगे के संयोजक/डब्ल्यूआईआई के वैज्ञानिक/प्रशिक्षण समन्वयक डॉ. संगीता अंगोम द्वारा किया गया।

पहले दिन रुचि बडोला, वरिष्ठ वैज्ञानिक डॉ. सैयद ऐनुल हुसैन ने जैव विविधता के कई मुद्दों पर प्रकाश डाला। गंगा के संरक्षण पर भी चर्चा की गई। डॉ. निलाद्री दास गुप्ता, वैज्ञानिक डॉ. जीवी गोपी, डॉ.अनीमेश तालुकदार ने गंगा बेसिन में जलीय पक्षी प्रजातियों के संरक्षण पर प्रकाश डाला। एफडी डॉ. एच राजा मोहन, डीडी नवीन खंडेलवाल, डीएफओ प्रभागीय निदेशक संजीव कुमार, एसडीओ प्रवीण खरे आदि मौजूद रहे।

पीलीभीत टाइगर रिजर्व में तीन दिनी ऑनलाइन कार्यशाला में मौजूद वनकर्मी।

Press Releases of Online training workshop: Pilibhit Tiger Reserve, Uttar Pradesh (Biodiversity monitoring of Ganga River Basin).