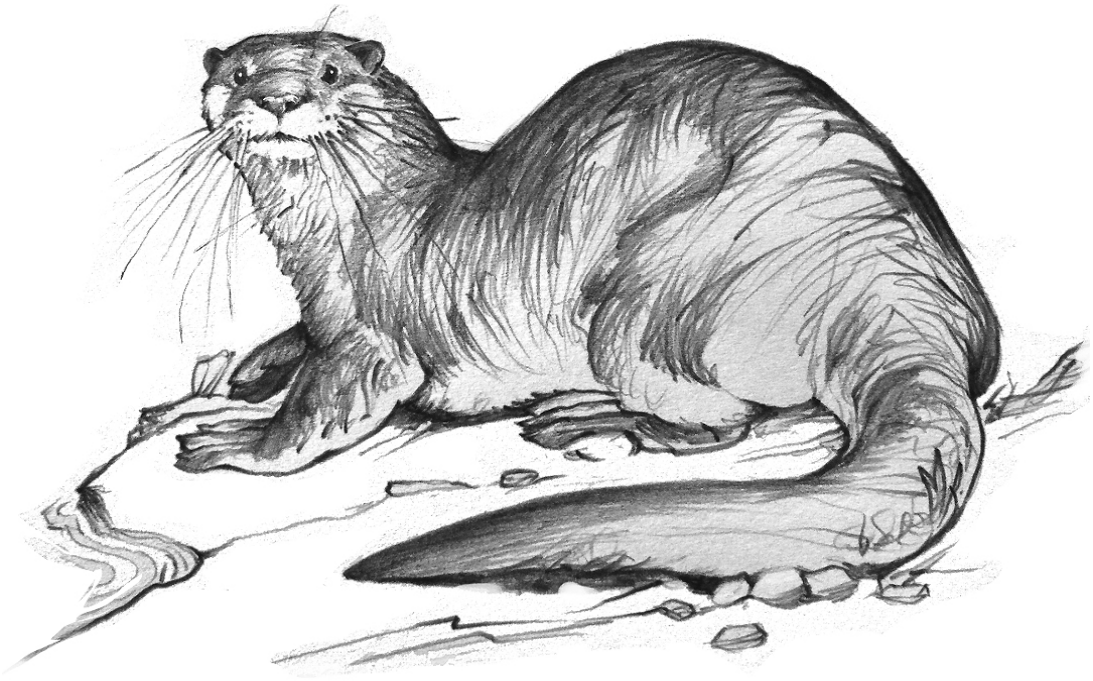
ASIAN OTTER CONSERVATION WORKSHOP

25th – 30th November 2013

Bengaluru, India



EXECUTIVE SUMMARY:

Asia is developing at an unprecedented rate both economically and demographically. Over exploitation of natural resources, including otters for their furs and body parts is just part of the problem. Habitat loss, pollution and the effects of climate change are taking a severe toll on Asian rivers, lakes and mangroves – all prime otter habitats. Freshwater ecosystems provide a wide range of goods and services. Wetlands exhibit extensive biodiversity, function as filters for pollutants, and are important for carbon sequestration and emissions. As top predators in freshwater and wetland ecosystems, the loss of resident otter populations has a profound impact on the local food webs and habitat relationships.

Tropical Asia is home to 4 of the 13 otter species found across the world. India is home to 3 species: Smooth-coated otter (*Lutrogale perspicillata*), Small-clawed otter (*Aonyx cinerea*) and Eurasian otter (*Lutra lutra*).

In this light, the Asian Otter Conservation Workshop was held with the purpose of sharing information about Asian otters, their habitat and conservation concerns and also to help young researchers in planning studies on otters and riverine ecosystems. The workshop was co-organised by the IUCN SSC – Otter Specialist Group (OSG) and the National Centre for Biological Sciences (NCBS), Bangalore and was attended by 11 experts from six countries and 28 participants from eight countries.

Key topics covered in the Workshop:

- Otters in Asia - Overview
- An Otters' River – A hydrologist's perspective

- Illegal Fur Trade
- Field survey techniques
- Molecular techniques
- Social-science research methods
- Fund-raising opportunities
- Population estimation & monitoring
- Conflicts, Perceptions & Mitigation
- Threats & Solutions
- Open source applications to aid monitoring
- Action Plan & Red List re-assessments

OBJECTIVES:

- Train early-career biologists and otter researchers, to enhance their survey, monitoring and law enforcement assistance skills, as well as to increase overall otter conservation efforts
- Increase understanding of hunting and trade dynamics. Provide TRAFFIC intelligence reports on illegal wildlife trade to relevant law enforcement authorities
- Discuss case-studies from across the region to understand decline of otters, and threats to their survival
- Understand the extent of conflict with otters and ways of mitigating these. Also, to involve local fishing communities in conservation efforts

DISCUSSIONS AND TRAINING ACTIVITIES:

The workshop participants spent three days in Bangalore where they attended talks on otter ecology, field survey techniques, molecular techniques, river hydrology, social science research methods and discussed threats to otters in South Asia. They also spent two days visiting otter habitats in both protected areas as well as in human-dominated landscapes.

DAY 1 (25th November)

Dr.Nicole Duplaix (Chair, OSG), Dr. Padma de Silva (Co-ordinator, OSG Asia) and Dr. Syed A. Hussain (Red List authority, OSG) began the session by introducing the Asian otters, OSG, its missions and goals.

AN OVERVIEW OF INDIAN OTTERS by Dr. S.A. Hussain

India has three species of otters, the Eurasian otter, Smooth-coated which is wide spread in its distribution otter and the Small-clawed otter found in the streams and rivers in the Western Ghats and north-east India. The Eurasian and Smooth-coated otters are predominantly fish feeders however; the small clawed otters prefer to feed on crustaceans and aquatic invertebrates. There is found to be an overlap in the ranges of the three otter species in India and therefore differentiating between them in the wild is a difficult task. Close examination of their tracks, body size and weight, rhinarium (the snout) and their diet via spraints and the location of the spraints can help in determining the identity of the species. This however requires a good knowledge of their ecology and behavioural patterns. Studies by Dr. Hussain in the Chambal River have revealed that smooth-coated otters prefer areas that are slightly rocky with shore line vegetation. Smooth-coated otters are social in their behaviour and are known to occur in large groups of up to 20 individuals. They are predominant fish eaters

preferring to feed on fish 15-20 cm long. They are crepuscular (their activity is high during dawn and dusk). Dr. S.A. Hussain's study in the Chambal showed that Smooth-coated otter activity patterns differed greatly between summer and winter as the activity pattern in summer had distinctive peaks as opposed to being erratic during winter. In Periyar, Smooth-coated otters were found feeding on exotic species of fish that have been introduced to help develop fisheries in the area. This indicates that otters could potentially help in keeping invasive fish populations in check.

OTTER FIELD SURVEY TECHNIQUES by Dr. S.A. Hussain

Dr. S.A. Hussain discussed the different methods and techniques used in surveying and monitoring otter populations. The session focused on identification of otter spraints, tracks and finding dens and nesting sites (holts). He also discussed several methods which could be used to identify species range, monitor change in status and distribution of otters, examine habitat-use patterns, assess the impact of development projects on otters and to examine effectiveness of management measures taken with examples of his studies in Periyar, Chambal and Corbett. He stressed on the necessity in being familiar with the ecology and behaviour of the concerned otter species which greatly helps in species identification on field.

AN OVERVIEW THE HAIRY-NOSED OTTER by Dr. Nicole Duplaix

Dr. Duplaix spoke about the rarest of the four Asian otter species, the Hairy-nosed otter, found in parts of south east Asia. Hairy-nosed otters were thought to be extinct when the peat forests they inhabited were largely destroyed and they were no records of them being sighted for three decades. After successive efforts to find remnant populations, it was found that they had colonised other areas outside the peat forest habitats and they were re- discovered in 1998 in Thailand and later in Indonesia, Cambodia and a few other places in south east Asia.

The Hairy-nosed otter is sympatric in distribution with the Small-clawed otter and Smooth-coated otter which makes identifying species through secondary signs very difficult. Dr. Duplaix also stressed on the importance of being informed about species behaviour and ecology. For example, Small-clawed otters have been observed to have communal latrines whereas Smooth-coated and Hairy-nosed otters do not. This distinct behaviour of Small-clawed otters helps to determine their presence in an area using secondary signs. Otter spraints help in determining their presence in the area and can also be used to determine diet. Observations of Hairy-nosed otters in captivity found that the shape and the absence of odour in their spraint is a useful trait to help determine the species from others in the wild.

OTTER FUR TRADE IN ASIA by Dr. William Duckworth

Dr. Duckworth's talk focussed on the illegal trade in wildlife and its impact on otter populations in Asia. The illegal wildlife trade is second only to drugs and is closely followed by the illegal arms trade. In most cases these three are inter-linked. Though all otter species throughout their range countries are protected under CITES, their numbers are still declining. Among all the small carnivores, otters are the most poached species. Their visibility, tendency to get into conflict with fishermen and proximity to human settlements provides poachers easy access. Otter pelts are in very high demand in the fur trade due to their water resistant qualities. Like in many other cases, China is the biggest buyer of otter pelts and they are also a part of the Tibetan traditional attire. A public appeal by the Dalai Lama in 2006 to stop using fur of wild animals has reduced the use of skins of the large cats like the tiger and the snow leopard considerably, but use of otter pelts continue. Investigations have revealed that, for every tiger skin seized by the police and the customs officials, 10 otter pelts are found. The supply source for China's and Tibet's demand for otter skins is India. Powerful and politically connected middlemen are known to control this trade. According to Duckworth, though it is important to track and crack down this trade, it is also important to

look into the social and economic background of the people involved in the trade. Doing so gives an idea of the kind of people who need to be targeted either for rehabilitation or awareness programs. There is therefore an urgent need to understand the perceptive of people towards wildlife in general and otters in particular.

REFLECTIONS ON SURVEYING OTTERS WHERE THEY ARE NOW VERY RARE by Dr. William Duckworth

The talk focussed on designing otter surveys in places where a remnant population might exist and is very rare, and cautionary advice against false positives. He cautioned that local names can differ between generations. E.g.: After the night monkey's extirpation in Costa Rica its Creole name transferred to the Kinkajou. The crab-eating mongoose is often mistaken for otter. It is also a vital to survey in seriously depleted areas to find if any conservable populations of otters still remain, as all species face widespread extirpation. During interviews of local people, it is important to have multiple independent samples. In addition, he pointed out that it is illogical to strike off information from a respondent which is obviously wrong, but at the same time, accept the same respondent's information that is plausible. E.g.: In Laos, many villagers report two types of otter, 'duck-footed' (strongly webbed) vs. 'dog-footed' (weakly webbed, seen to indicate *Aonyx)*. The surveyors thus list 2+ genera of otter as present. However, the villagers also report two types of crocodiles: 'duck-footed' and 'dog-footed', but this information is obviously wrong. While surveyors do not use the respondent's answers for crocodilian occurrence, they not use the same person's information for otters. This may not be entirely reliable.

OTTERS OF THE WORLD by Dr. Nicole Duplaix

In this talk, Nicole Duplaix shared her experience of working on several otters species. Otters play an important role in both fresh water and marine ecosystems. Her talk included

information about otter types, distinguishing species based on baccula, and habitat, diet and threats facing these otter species. Her talk focused on giant otters in Guiana; their habit, otter-prey relations, seasonal fish cycle and water levels, breeding, territories, group structure and dynamics. She highlighted that otter habitats are narrow and linear and are threatened by several factors like deforestation, mining, water quality depletion through mercury and cyanide.

SPEED TALKS:

- **Meaghan Harris** presented her proposed study of surveying otters in Sabah, Malaysia to determine its habitat use, population, and diet in response to habitat loss and fragmentation.

- **Aathira Perinchery** presented her work on Small-clawed otters in Eravikulam National Park, south India. In her study Perinchery determined the factors affecting occupancy and habitat-use by Small-clawed otters in first, second and third order streams and also measured altitude, stream type, stream substrate and ground cover on the banks. It was found that second order streams and pools were highly used by otters .Altitude was also found to be the best predictor for occurrence of otters in the area.

- **Himanshu Pal**ei assessed potential otter habitats both within and outside protected areas. It was found that 5 of the 8 protected areas had otters in them. Niyamgiri hills which are not part of a protected area too has otters. Poisoning of streams by fishermen to catch fish is a serious threat in most of the areas that were surveyed. In addition, the areas outside PA face threats from mining and potential mining activities. Himanshu also discovered the presence of Small-clawed otters in the Eastern Ghats of Orissa, a critical range extension for the species.

- **Dipani Sutaria** looked at the perspectives of fishermen towards otters in the coastal and estuarine areas in Tamil Nadu, India. Semi-structure interviews were used. There was found to be an increase in otter sightings probably due to the frequent influx of fresh water from the dam which have led to an increase in the fish stock. Fishermen using gill nets faced conflicts with the otters whereas, fishermen practicing traditional methods were not affected. Dipani has plans of extending her work to parts of Gujarat and coastal Karnataka.

DAY 2:

INTEGRATING SOCIAL-ECOLOGICAL SURVEYS TO UNDERSTAND SPECIES ECOLOGY by Dr. Krithi Karanth

Krithi Karanth (Wildlife Conservation Society) spoke on the basics of designing social surveys. Most otter surveys include a social component either as formal or informal interviews with the local people and fishermen to determine the presence and location of otters in the area. Otters have large home ranges and are in most cases shy of humans. They are most active during the early hours of day or at night when human disturbance is low. This makes sighting them difficult. In such cases social surveys are very helpful in establishing the presence of the species in the area. She gave detailed insights on the methods of designing and sampling a social survey and analysing data and also noted that it is important to be sensitive and aware of the local customs and culture while planning a survey. She also offered assistance to workshop participants in designing social surveys for their otter studies.

THE GANGES OTTERS by Nachiket Kelkar

Nachiket Kelkar spoke about Smooth-coated otters in the Ganges and the successful attempt by a local NGO, VBREC in rehabilitation of rescued otters in Vikramshila Gangetic Dolphin

Sanctuary. The organisation has conducted otter surveys in Vikramshila for 14 years (1999-2013). They have found otter denning sites in maize fields and alluvial levees. They have also arrived at estimates of gear loss and net damage: 40-50 events per year. Fisherman reported losses of about Rs. 30,000 - 40,000 per year per fisher group (8-10). However, very few perceived otters as harmful animals.

WORKSHOPS:

- An introduction to using occupancy framework for designing surveys and research projects by **Devcharan Jathanna**
- **Nicole Duplaix**, **Padma de Silva** and **Carol Bennetto** discussed funding opportunities for otter research and offered guidance on applying and receiving research funds.
- Using camera traps in otter surveys by **Nicole Duplaix**

SPEED TALKS:

- **Atul Borker** presented his proposed work on otters in Britona, Torda and Netravati Wildlife Sanctuary in Goa, India. He plans to determine the factors affecting the otters and the potential threats in the area along with carrying out activities to bring awareness among locals and school children. He hopes to involve stakeholders in participating in conserving otters in the area.
- **Katrina Fernadez** presented her proposed study on an otter survey along Halatri and Mhadhei rivers in Belgaum district of Karnataka, India.

- **Leela Rajamani** presented her initiative of an otter monitoring program based on sighting reports of Smooth-coated otters in Penang Malaysia with the help of fishermen and other observers.

- **Wanlop Chutipong** looked at the response of otters in human modified systems in the inner Gulf of Thailand using sign-based occupancy surveys. He plans to investigate how otter populations respond to these modifications in terms of their ranging behavior, movement and prey availability. In addition he plans to map their present distribution to match them with historical records available.

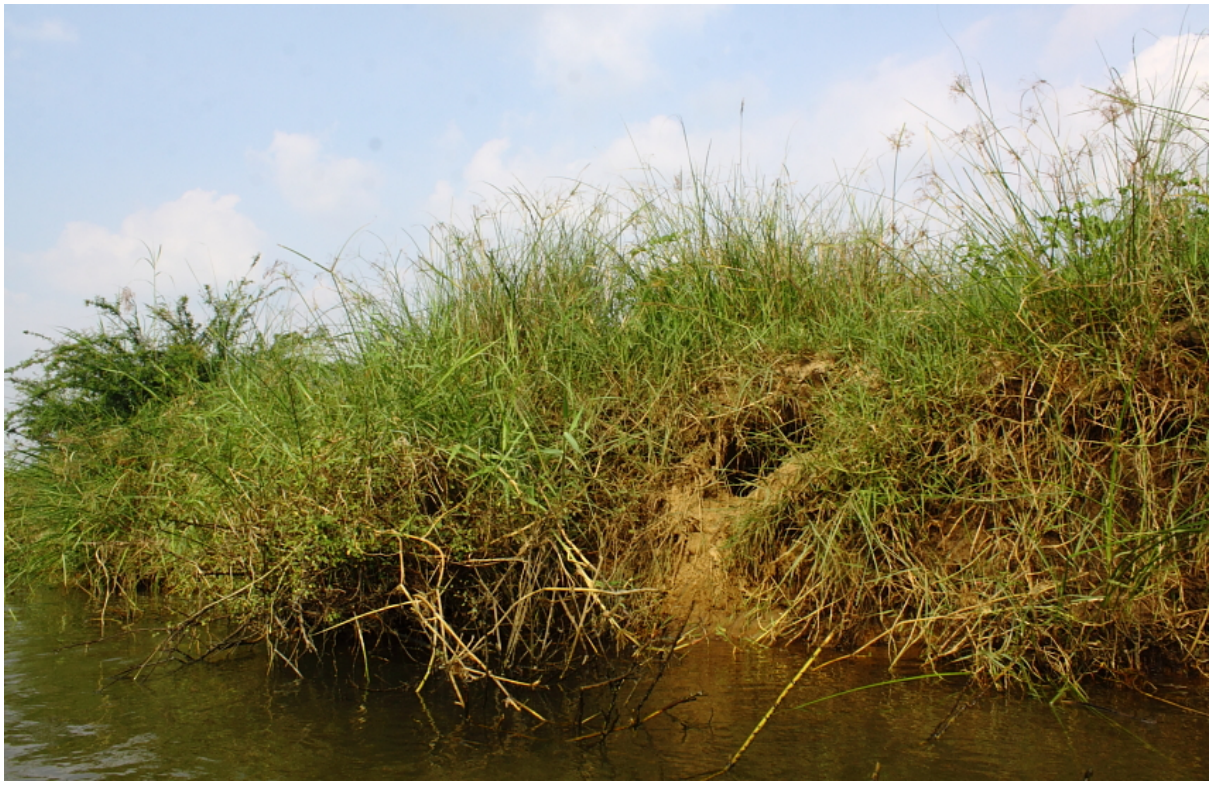
DOCUMENTARY SCREENING

A wildlife documentary titled "AND THEN THERE WERE NONE" by Syed Fayaz on the disappearance of otters from Wular Lake in Kashmir was screened. This documentary throws light on how decades of political unrest and influx of migrant human population has increased poaching of otters in the Kashmir.

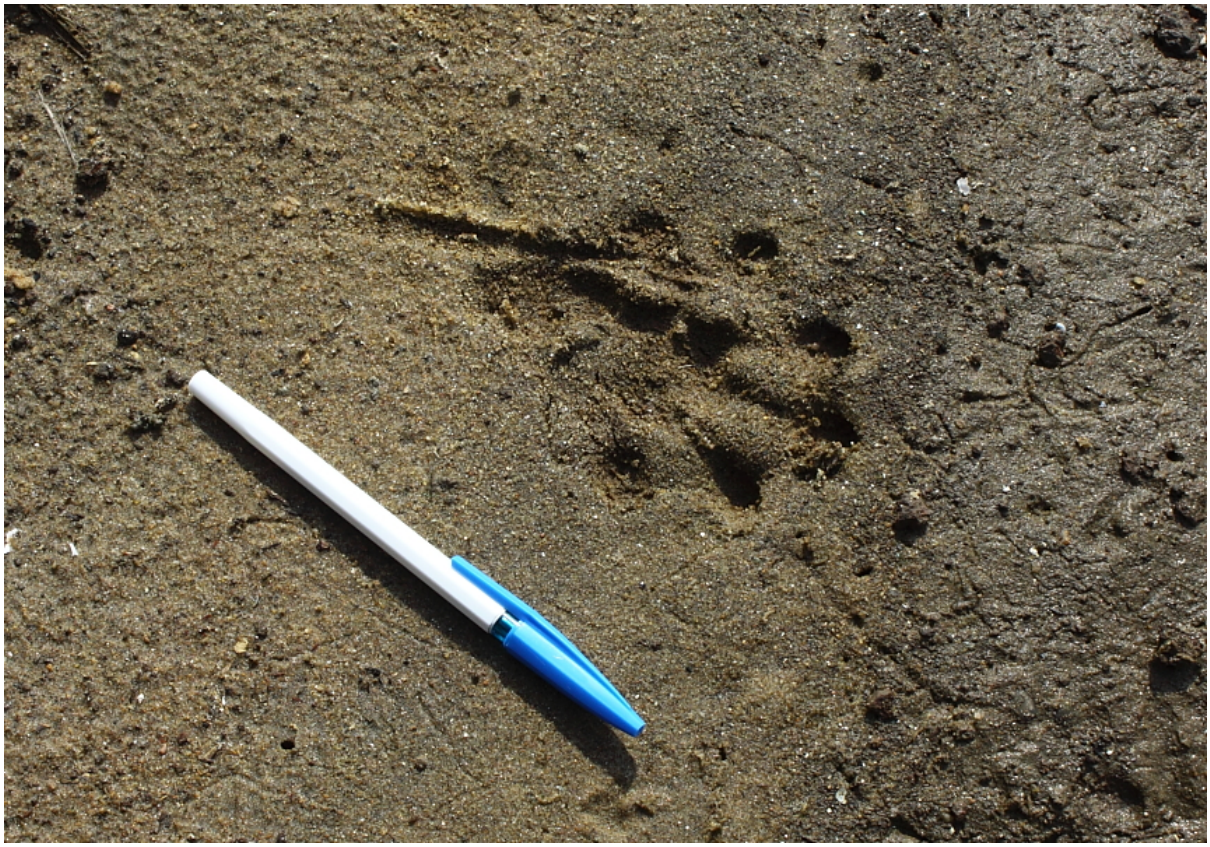
DAY 3 and DAY 4:

The workshop field visit was organised to two places along the River Kaveri. Day one was a visit to Talakad, a human-dominated area with a check-dam and mini hydro power project on the river and agriculture fields around the river. On day two of the field trip, the participants visited the Cauvery Wildlife Sanctuary, a protected area where human activities are restricted. The participants observed otter signs and spraints at both places and participated in discussions about otter behaviour, methods used to conduct otter surveys and otter conservation in linear, modified river stretches.

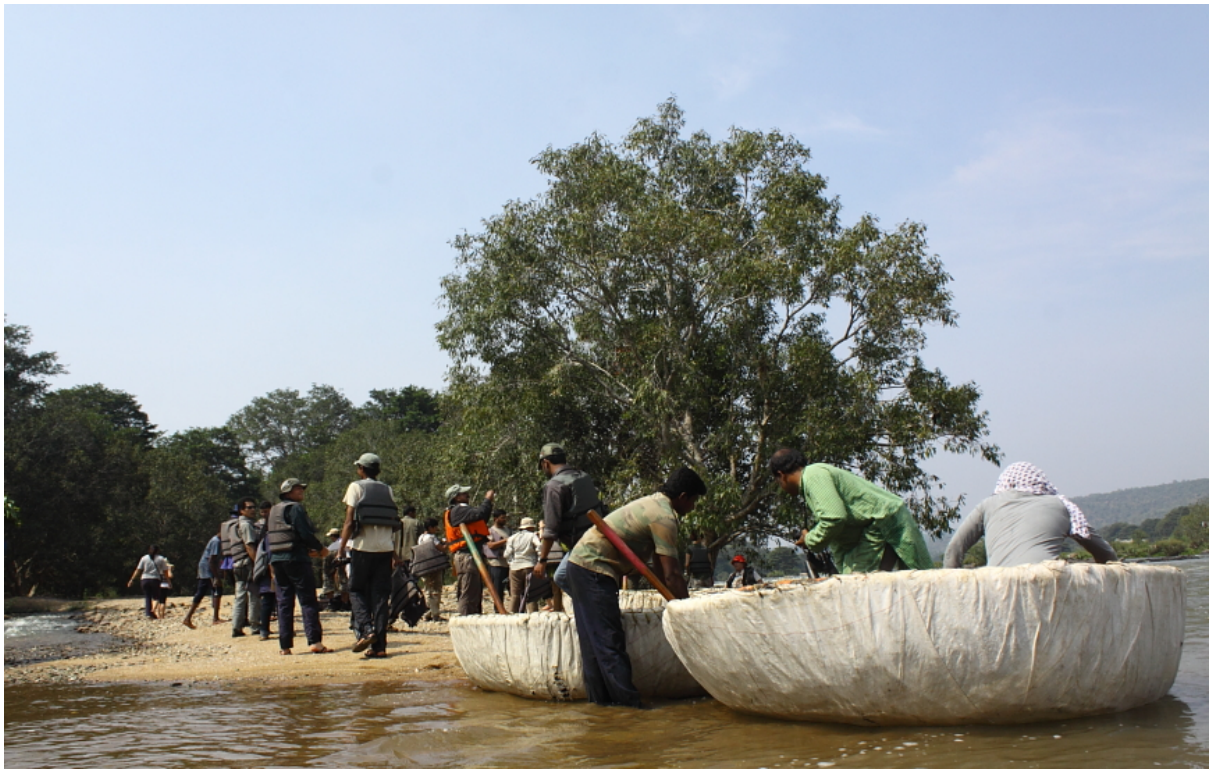
OTTER SPRAINT AT TALAKAD



OTTER DEN ON A RIVER ISLAND IN THE KAVERI RIVER



OTTER FOOTPRINTS ON A SAND BANK



WORKSHOP PARTICIPANTS AT KAVERI WILDLIFE SANCTUARY

DAY 5:

USING MOLECULAR TOOLS FOR OTTER IDENTIFICATION by Dr. Uma Ramakrishnan

Uma Ramkrishnan (National Centre for Biological Sciences) spoke on how genetic tools can be used to determine or identify different species of otters. Molecular studies are now widely used in the field of conservation genetics and forensics. The genetic make-up of an individual otter can help track it back to the region it came from. With trade in illegal otter skins increasing, genetic tools can help in prioritising areas within a country to help target conservation action.

RIVERS - A HYDROLOGIST'S PERSPECTIVE by Dr. Jagdish Krishnaswamy

Jagdish Krishnaswamy's (Ashoka Trust for Research in Ecology and Environment) talk focussed on the hydrological aspects of rivers, which play an important role in the conservation of freshwater dependent species like the otter. Most rivers in India have multiple dams built across them. Dams across rivers bring about changes in the river dynamics downstream. Most Indian rivers have been known to go dry or have extremely low water levels downstream of dams during the summer months as the water is stored in the dams. This has a negative impact on water dependent species like the otters as they cannot move up and down the river. Researchers and conservationists have to work on making policy level changes to ensure a minimum required level of water flow be present in the rivers during the summers which would help minimize the negative impacts downstream.

PROTECTED AREAS FOR OTTERS by Vijay Mohan Raj

Vijay Mohan Raj (IFS, Jungle Lodges and Resorts) spoke about the need of protecting otters beyond the protected area (PA) network, emphasizing the need for long term conservation of

otters in multiple use habitats. He also gave a brief introduction to the legal framework available for the protection of wildlife in India stressing about the need to enforce these laws stringently. “Protected areas are often designated and established based on emotional decisions and not based on their biodiversity value” he said, and highlighted the urgency of including these high biodiversity areas into the PA network. He suggested a “floating” management system where the protection of sand banks and river stretches is shifted as per the pattern of habitat use by the otters. He also says management plans should be put on trial before finalizing it so as to allow modifications and changes to be made if any. He presented a case study on the protection of the Tungabhadra riparian ecosystem along the Tungabhadra River near the world heritage site Hampi. He also encouraged initiating citizen science programs to help build a data base and to help monitor otter populations via sighting records.

ANGLING FOR CONSERVATION by Shyam Aiyappa

Shyam Aiyappa from the Coorg Wildlife Society (CWS) spoke about the activities of the organization including Mahseer angling in Cauvery to help protect the river stretch from illegal activities like dynamite fishing and sand mining. Mahseer is the common name of the *Tor* species found in a few stretches along the Cauvery in south India; a strong hold for both the fish and the otters. The method is being used to keep poachers at bay as the presence of anglers keeps a check on the area and deters illegal activities like poaching and river dynamiting.

DISCUSSION:

A discussion was held by William Duckworth, Nicole Duplaix, Syed A. Hussain, Nisarg Prakash and Gopa Kumar Menon with the participants regarding gaps in knowledge in otter ecology and future research and conservation topics to be worked on.

SPEED TALKS:

- **Meryl Theng** conducted surveys in Singapore where both Small-clawed otters and Smooth- coated otters occur in small discontinuous populations. Researchers in Singapore have observed an increase in frequency of Smooth-coated otter sightings in recent years. Theng in her survey discovered otters to have re- colonised areas from where they had previously gone extinct. A diet analysis from spraints found during the survey revealed variation in the diet of the otters found living in human modified landscapes to the ones found in natural habitats.

- **Shaji M.** presented the results of his study on Smooth-coated otters in Parambikulam Tiger Reserve, Kerala, India. Secondary signs and sightings using line transects along river banks. Camera trapping was also done by installing camera traps in selected locations in the Tiger Reserve. This study shows that otters preferred moist deciduous forests to evergreen and plantations.

- **Gandhiv Kafle** presented his work from multiple otter surveys conducted in Nepal to determine the presence of the three otter species in the various freshwater systems across the landscape.

- **Ruth Davidson** presented her work involving local communities in Malaysia, Indonesia and Thailand to help protect, rescue and rehabilitate otters.

THE HIMALAYAN OTTER NETWORK by Dr. Melissa Savage

Melissa Savage presented her idea of forming a “Himalayan Otter Network” which would include wildlife conservationists, researchers and enthusiasts to monitor otter populations in addition to sharing information, outreach and awareness material.

SAMRAKSHANE ANDROID APPLICATION by Department of Electronic Systems Engineering (DESE), IISc

The DESE has created an android application which can be used for wildlife studies using crowd sensing. The application uses the GPS location of the android device and links it to data entered. Users can presently enter information about otters, crocodiles and fishing cats. The data that can be entered includes animal signs, vegetation, number of otters, den location, type of den, type of spraint and closest village. This data can later be consolidated and downloaded onto the device and integrated onto Google maps.

ACKNOWLEDGEMENTS OF COLLABORATIONS AND SPONSORS:

The workshop was funded by The Mohamed Bin Zayed Species Conservation Fund. The National Centre for Biological Sciences provided logistic support and the Jungle Lodges and Resorts hosted the particpants at Cauvery Wildlife Sanctuary. The workshop also received support from Nityata Foundation and the Nature Conservation Foundation.