

Status of Otter Conservation in India

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THE OTTERS form a well-marked group of species within the mammalian family Mustelidae, adapted for a semi-aquatic life. There are 13 species of otter distributed worldwide except Australia and Antarctica and most oceanic islands. Five species occur in Asia of which three species are found in India:

Eurasian otter *Lutra lutra*

Smooth-coated otter *Lutra perspicillata*

Oriental small-clawed otter *Aonyx cinerea*

DISTRIBUTION

Eurasian otter

It occurs in north India from Jammu and Kashmir, Himachal Pradesh, hills of Uttar Pradesh, Sikkim, in the northeast from Assam, in the east from Orissa, and in the south from Andhra Pradesh (pers. obs), Kerala, Tamil Nadu, Karnataka and Goa (Pocock 1941, Prater 1971). There appears to be some local change in the distribution pattern since the early survey carried out during 1930-1940 as is evident from recent survey conducted by Hussain (1998) in Himalayan regions, but there is no comparable data to conclude that there is significant change in the distribution over the last decades.

Smooth-coated otter

In India it occurs in the north Indian states of Himachal Pradesh, Punjab, plains of Uttar Pradesh, Madhya Pradesh, Rajasthan, Bihar, in the central Indian plateau of Madhya Pradesh, Maharashtra, Goa, Andhra Pradesh, in east and north east in West Bengal, Assam

through Burma, in the south in Karnataka, Kerala and Tamil Nadu (Pocock 1941, Prater 1971).

Oriental small-clawed otter

It occurs in north India from the Himalayan foothills of Himachal Pradesh (Kulu) to West Bengal, Assam hill ranges as well as in southern India, in the higher ranges of the hills in Coorg (Karnataka), Ashambu, Nilgiri and Palani hills (Tamil Nadu) and some places in Kerala (Pocock 1941, Prater 1971).

LEGAL AND CONSERVATION STATUS

All the three species of otters are protected in India under the Wildlife (Protection) Act, 1972 and are listed as endangered. Eurasian and smooth-coated otter are listed under Schedule II while small-clawed otter is listed under Schedule I, which provides complete protection from hunting. Also, Eurasian otter is listed in Appendix I and smooth-coated and small-clawed otter are listed in Appendix II of CITES. India is a signatory to CITES, Bonn Convention, Ramsar Convention, and Biodiversity Convention which are also helpful in otter conservation.

OTTER SURVEY RESULTS

Earlier surveys on the distribution of otter date back to 1920-40 as evident from the published work (e.g. Hinton & Fry (1923) and Pocock (1939). In recent years to assess the status and distribution pattern very few surveys have been conducted. Based on the recommendations of the First Otter Action Plan (1990) few recent surveys that were conducted, were restricted to the foot hills

of Himalayas, Madhya Pradesh and West Bengal (Sanyal 1991, Hussain & Choudhury 1997, Hussain 1998) and to southern India (Nagulu 1996, Nagulu *et al.* 1997). These surveys were carried out in the field based on the methods developed by the Mammal Society (Mason & Macdonald 1986, Hussain & Choudhury 1997). Some of these surveys confirmed that the otter populations are now restricted to Protected Areas and very few sightings were recorded from outside the Protected Areas (e.g. Hussain 1998). Otters are breeding in Corbett and Dudhwa National Park and Katarniaghat Wildlife Sanctuary in north, Kaziranga National Park in northeast, Sunderbans, Bhitarkanika and Coringa in the eastern coast; and Periyar and Nagarhole National Parks in south. Most surveys are incomplete and the results are inconclusive as far as distribution and breeding populations are concerned. Within the Protected Areas wetlands are unmanaged, and increasingly becoming unsuitable for otters (Hussain 1998). Very little information is available on the status of otters from Jammu and Kashmir, Himachal Pradesh, Orissa and the northeast Indian states.

THREATS TO THE SURVIVAL OF OTTER

In India, major threats to otter populations are loss of wetland habitats, reduction in prey biomass, pollution and poaching. Development projects such as dams and barrages, and aquaculture activities took the major toll of wetlands (TERI 1998). Increased human population during the last century, inadequate and ineffective rural development programmes have not been able to address the problems of poverty, forcing people to be more and more dependent on natural resources. Consequently most of the wetlands and waterways do not have adequate prey base for sustaining otter populations. Wetlands and waterways are polluted by eutrophication and accumulation of persistent pesticides such as chlorinated hydrocarbons and organophosphates

through agricultural runoffs. Fortunately since 1990 the overall use of insecticides has decreased from 57945 mt in 1990 to 35486 mt in 1996 showing a positive trend, but still chlorinated hydrocarbons are indiscriminately being used, often the DDT concentration reaching over 4000 µg/litre in some parts of India (CPCB 1994).

Specific threats to different species of otters in India are not different for all the three species. In the broader sense otters are facing following threats.

Eurasian otter: (1) Loss of habitat - the habitats have been altered for the construction of dams or reclaimed for other human use such as paddy cultivation or aquaculture activities along the east Indian coast, (2) poaching by local people for pelt. This has been observed in the hill regions of north India, (3) there is loss of forest cover along the major rivers and catchments as along the Ganges and Yamuna river systems which has affected the otter populations.

Smooth-coated otter: (1) Loss of habitat - the habitats have been altered for the construction of dams as in the case of Central India along the Narmada Basin, (2) reduction in prey biomass because of intensive fishing - as in the case of Uttar Pradesh, Bihar and Madhya Pradesh, (3) poaching - there is frequent intentional poaching of otters for their pelts from many parts of India especially north and northeast India, and (4) stone quarrying and sand mining have affected the population at the local levels.

Small-clawed otter: In West Bengal the primary threats are (1) loss of habitat due to tea plantation along the hills, (2) in the coastal areas loss of mangroves due to aquaculture and human settlements. In Tamil Nadu, Kerala and Karnataka, (3) loss of habitat to tea and coffee plantations are the major threats that affect its populations, and (4) siltation due to deforestation and influx of pesticides into the streams from the plantations.

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STATUS OF OTTER RESEARCH

Initiation of scientific research on otter dates back to 1988 when the International Symposium on Asian Otter was planned (Foster Turley *et al.* 1990). Since then two doctoral works have been carried out on smooth-coated otter. The first is by Hussain (1993) on the aspects of the ecology of the smooth-coated otter in National Chambal Sanctuary and the other being on the ecology of the same species in two different habitats in south India by Satyanarayana (1998). Besides these two works, some short-term studies have also been conducted (e.g. Umapathy & Durairaj 1995, Nagulu *et al.* 1997 and Hussain 1998). No national level co-ordinated research programme exists to assess the present status and related conservation shortcomings.

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RECOMMENDATIONS FOR FURTHER RESEARCH

Some of the projects that are to be undertaken in future should relate to:

1. **Population assessment:** As mentioned earlier, India does not have significant information on the status of otter population. Systematic otter surveys should be the prerequisite for developing conservation action plan for otters. Identity of the species occurring in different parts of India should be established. Four sub-species of Eurasian otter, two sub-species each of smooth-coated and small-clawed otter occur in India. For scientific knowledge it is time to initiate studies to determine the genetic configuration of these subspecies.
2. **Ecological research:** Otters are the top carnivores of the wetland ecosystem. Very little information on the ecology of Eurasian and small-clawed otter is available from India. Research on basic requirements of otters, such as prey and shelter for sustainable reproduction should be given priority while providing funds for research.

3. **Impacts of development projects:** In recent years in India several hundred dams are coming up. The damming of a river has been called as cataclysmic event. By changing the flow of water, sediment, nutrients, energy, and biota, dams interrupt and alter most of the rivers' important ecological process. Otters are considered as an indicator species. It is time that effect of dams on otter and their prey is documented.

4. **Impacts of aquaculture activities and human - otter conflicts:** Aquaculture requires artificial tanks, which are built within the lakes and inter-tidal areas. These obstruct the natural flow of water, fragment the lake and estuaries and disturb their ecology and also affect the aquifers. Aquaculture also discharges large quantities of organic manure, fertilisers and antibiotics in its surroundings. Otters often visits fish farms resulting in human - otter conflicts. A study should be initiated to document the impacts of aquaculture on natural ecosystems and their consequence on otter populations.

5. **Effects of pollution:** Pollution is probably the single most factor causing decline in the population of many fish species (Dehadrai & Ponniah 1997). Reduction in prey biomass affects otter population, and also accumulation of persistent pesticides interferes with the physiology. Studies on the extent of contamination of prey base by organochloric pesticides and subsequent bioaccumulation should be examined.

CONSERVATION INITIATIVES

India has a programme for the conservation of biological diversity and integrity of the biological resources. Under the auspices of this programme Wildlife Protection Act (1972), and Forest Conservation Act (1980) were formulated. In 1952, Government of India established the Indian Board for

Wildlife, which is the chief advisory body to the Government on matters concerning wildlife. The Prime Minister of India chairs this board. Most conservation initiatives have been carried out by the recommendation of this board. Apart from Wildlife (Protection) Act, 1972, over 20 legislations regulate India's environment. Water (Prevention and Control of pollution) Act, 1974 and Water (Prevention and Control of pollution) Cess Act, 1978 are specifically for protecting water resources and wetlands.

India has a very strong network of Protected Areas which is managed by the state Forest Departments. Since 1990, 52 Protected Areas were added to this network. So far there are 85 National Parks and 462 Sanctuaries of which 55 Protected Areas are exclusively for wetlands. All forms of resource extraction from these Protected Areas are prohibited. During 1975 the Government of India initiated a project to conserve three species of Indian crocodiles (Bustard 1980) and several wetland Protected Areas were created. This helps in conserving otters as well. In major National Parks such as Corbett, Dudhwa, Kaziranga, Nagarhole, Bandipur, Periyar and Mudumalai breeding populations of otter exist.

Since 1988, the Government of India has developed a specific wetland conservation policy that provides technical inputs for the conservation management of wetlands. So far around 21 wetlands have been identified and conservation plans developed, but there are very few concerted efforts for documenting the status of otters in these wetlands. Apart from these, under the National Mangrove Programme, 15 mangrove areas have been identified prominent of which are Sunderban, Bhitarkanika and Coringa that have good population of otter. Of the six designated Ramsar sites small populations of otters have been reported from three sites, i.e. Eurasian otter from Chilika Lake, Orissa, and the smooth-coated otter from Keoladeo

National Park in Bharatpur, Rajasthan and Harike lake in Punjab. However, conservation activities specifically aiming at otter species in India have never been developed.

RECOMMENDATIONS FOR FUTURE CONSERVATION ACTION

Developing a practical and comprehensive programme for conserving otters for a developing country like India, which is under severe pressure due to population explosion, poverty and lack of education, is indeed very difficult. Host of such conservation related programmes were developed for other species but rarely effectively implemented. Given a priority, first of all India should take drastic steps to control its population growth, make concerted efforts to develop a sound economic policy and sensitize people towards environment and biodiversity conservation. Here, we propose some measures that should be initiated for conserving otters and their habitats in particular.

- 1. Public awareness programme:** In India conservation and environment are still under low priority. In the twenty first century it is important that people be made sensitive towards conservation of biodiversity. In the course curricula at the primary and secondary school levels, need for conservation of wetlands and watersheds should be introduced. For this purpose academicians from National Council of Education Research and Training, New Delhi need to be sensitised. In the course curriculum of existing training programme for the frontline staff of state Forest Departments a portion should also be dedicated to wetland species such as otter, crocodiles and turtle conservation. Mass public awareness campaigns should be undertaken to educate people, specifically fishermen inhabiting closer to wetland habitats about the ecological role of otters and their wetland habitats. Provision for compensating fish farmers for the losses caused by otters should

be implemented by the respective State Forest Departments.

2. **Status surveys:** Surveys should be encouraged to assess the status of otters and threat to their sustained reproduction. The survey should cover most of the wetlands, reservoirs and rivers, examining occurrence of different species. It is important that areas where all the three species are reported to be occurring e.g. northeast India, Western and Eastern Ghats be given priority. Regional universities should be encouraged to take up such studies.

3. **Availability of funds:** For initiating otter surveys and taking up of public education and awareness programmes, adequate funds should be channelled to various research institutions and universities under the heading of "funds for conservation related projects". This could be done through University Grant Commission (UGC), Council for Scientific and Industrial Research (CSIR), Department of Science and Technology (DST) and Ministry of Environment and Forests, Government of India.

4. **Protection of otters outside of Protected Areas:** National Parks and Sanctuaries consist of only 4.65% of India's land mass where otters are getting incidental protection in one or other ways. However, most of the otter habitats are outside of the Protected Area network. The Ministry of Environment and Forests, Government of India, should prioritise such wetlands/reservoirs and integrated conservation measures for these wetlands should be developed and implemented.

5. **Control of pollution:** There needs to be an increased level of efforts to reduce use of pesticides, discharging industrial effluent and sewage into wetlands and

river ecosystems. Use of organochloric pesticides in agricultural activities should be discouraged. As evident from several studies the concentration of DDT in the Indian environment is high. It is time that there should be a complete ban on the use of DDT in India.

6. **Environment Impact Assessment:** While conducting EIA of any development project adjacent to wetlands and rivers of conservation importance (at least within a radius of 10 km), it is important that the assessment should also be extended to otters and associated aquatic species. Sand mining and stone quarrying along the riverbanks should be regulated within the purview of Wildlife (Protection) Act, 1972.

7. **Review of the scheduled list:** On the basis of current distribution and status of otters in India it is recommended that all the three species should be placed under Schedule I of the Wildlife (Protection) Act, 1972.

8. **Control of poaching and Trade:** Like most other species such as tiger, leopard, elephant or musk deer, despite legal protection otters in India are being poached for pelt. It is believed that the pelts are being exported via Bangladesh and Nepal. This needs to be examined and the enforcement of Wildlife (Protection) Act in its stringent terms should be implemented. Assistance from TRAFFIC-India and NGO organisations such as Wildlife Protection Society at New Delhi in monitoring poaching cases can be solicited. As long as there is demand for wildlife products in the international market people will continue to poach wildlife. India should initiate a dialogue to stop cross border trade on wildlife products, and should appeal to other countries to discourage use of wildlife products.

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