

REPORT

STATUS OF OTTERS IN THE SUNDARBANS TIGER RESERVE, WEST BENGAL, INDIA

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Abstract: Sundarbans is the largest mangrove forest in the world comprising a large network of small rivers and innumerable islands. During February 2010 to May 2010 boat transects were carried out in the Sundarbans Tiger Reserve, India to estimate the sign encounter rates of tiger and its prey species. During these transect surveys otter signs and sightings were also recorded. A total of 237.8 km of transect surveys were carried out in which four sightings of smooth coated otter groups were recorded and otter signs at seven different locations (tracks at six locations and a spraint at one location) were recorded on the mud banks of the forested islands. The mean group size of the smooth coated otter groups was 2.75 (S.E. = 0.85, Range = 1-5) and the encounter rate of the otter signs was 0.03/km (S.E. = 0.01). As the speed of the mechanised boat was maintained at 4.5 km/hr it was not possible to identify the species of otter based on the pugmarks on the mud banks. In the past few decades due to the decline in the fresh water flow in the Indian Sundarbans the biodiversity in this region has been affected to a large extent. These changes may have affected the presence and distribution of otters in this region. Till date there have been no systematic surveys for otters in the Sundarbans Tiger Reserve. This study presents preliminary information on the distribution and abundance of otters in the region but extensive surveys are necessary to generate reliable abundance estimates and distribution patterns for otters in this region.

Keywords: *Lutrogale perspicillata* (smooth coated otter), *Lutra lutra* (Eurasian otter), *Aonyx cinereus* (Oriental small-clawed otter), Animal sign encounter rates.

INTRODUCTION

Sundarbans is the largest mangrove forest in the world created at the confluence of the deltas of rivers Brahmaputra, Ganges and Meghna comprising a huge network of smaller rivers, creeks, channels and innumerable islands (Chakrabarti, 1992). Out of the total area of Sundarbans, 38% falls in India and the rest lies in Bangladesh (Mitra, 2000). Sundarbans is famous for tigers but its water channels and mangrove forests are also the habitat for otters. Three species of otters are found in India, namely the *Lutrogale perspicillata* (smooth coated otter), *Lutra lutra* (Eurasian otter) and *Aonyx cinereus* (Oriental small-clawed otter) (Foster-Turly and Santiapillai, 1990; Hussain, 1993; Prater, 1998; Reuther, 1999; Menon 2003). Throughout India the existing populations of the three species of otters and their habitat have not been surveyed systematically and hence not much information is available on the status of

otter populations in India (Hussain, 1999). All of these three species of otters have been reported from the Indian part of the Sundarbans (Sanyal, 1999) but recently Mallick (2011) reported the presence of only smooth coated otter and Oriental small-clawed otter from the Sundarbans Tiger Reserve.

The Sundarbans Tiger Reserve is located south of the Tropic of Cancer between 21° 32'- 22° 40' N and 88° 05'- 88° 10' E. The Sundarbans Tiger Reserve covers an area of about 2,585 km² (Jhala et al., 2011) and the major rivers flowing through this region are the Matla, Raimangal and Harinbhangra (Mallick, 2011). The area surrounding the Sundarbans Tiger Reserve is densely populated, with the human population density being 1,437.4 persons/km² which is among the highest in India (Jhala et al., 2011). A large chunk of this human population depends on the mangrove forests for their livelihood thus making biodiversity conservation a highly difficult task.

METHODS

In February 2010 the tiger population monitoring exercise was started in the Sundarbans Tiger Reserve, India. During this exercise, boat transects were conducted to estimate the animal sign encounter rates along the banks of the forested islands from the start of February 2010 to mid-May 2010. The boat transects were carried out during early morning hours and late afternoon and evening hours and also according to the low-tide time frame as the mud bank of the islands are exposed only during this time frame. During the survey the speed of the mechanized boat was maintained at around 4.5 km/hr and there were always two observers looking out for signs and animal sightings on the banks of the islands. 8X42 Bushnell binoculars were used during the survey. The focus of these surveys was on tiger signs and the signs of the prey animals but otter sightings and signs were also recorded during these surveys. The Sundarbans Tiger Reserve is divided into 4 ranges, namely the Sajnekhali range, Bashirhat range, National park west range and National park east range. The Sajnekhali and Bashirhat ranges together form the buffer zone whereas the National park west and east ranges form the core zone of the tiger reserve. The boat transects were conducted only in the Sajnekhali and the National park west range (western portion of Sundarbans Tiger Reserve) due to logistic constraints.

RESULTS AND DISCUSSION

In all a total of 237.8 km of boat transect surveys were carried out of which 117.3 km were conducted in the Sajnekhali range and 120.5 km were covered in the National Park west range. During the entire survey a total of four sightings of smooth coated otter groups were recorded totaling 11 individuals and also otter signs at seven different locations were recorded (tracks at six locations and a spraint at one location). Of the four sightings of smooth coated otter groups three were sighted in Sajnekhali range and one was sighted in National Park west range. The mean group size was 2.75 (S.E. = 0.85, Range = 1-5) and in one of these smooth coated otter groups sighted in Sajnekhali range an otter cub was also seen (The smooth coated otters have a smooth, sleek and almost velvety coat which helps in identifying this species). Among the otter signs recorded, four were found in Sajnekhali range and three in National park west range. Since the speed of the boat was maintained at 4.5km/hr it was not possible to ascertain the species of otter based on the pugmark imprints. The encounter rate for otter signs during this study was 0.03/km (S.E. = 0.01). Mallick (2011) reported an encounter rate of 0.009/km for otters in Sundarbans Tiger Reserve. As mentioned earlier, this survey was mainly designed for recording tiger signs and the signs of its prey animals so it is possible that some otter signs were missed and not recorded

during the survey. Hence the encounter rate for otter signs mentioned here may be negatively biased. Also in Sundarbans the tides rise and fall after six hour intervals thus submerging and exposing the banks of the islands periodically. The fluctuation in water level due to tides obliterates the signs deposited on the shoreline of the islands which in turn affect the detection probability of the signs.

CONCLUSION

In the past few decades the freshwater inflow in the Indian part of Sundarbans has largely declined due to the silting up of most of the rivers coming into this part of the delta and thus the increasing salinity in this region has affected the biodiversity of this region (Gopal and Chauhan, 2006). Otters are among the top predators in a wetland ecosystem and hence are good indicators of the health and changes in a wetland ecosystem (Erlinge, 1972). It is likely that changes in the biodiversity of this region over the past few decades may have affected the presence and distribution of the three species of otters in this region. Till date there have been no systematic surveys for otters in the Sundarbans Tiger Reserve. This study presents preliminary information on the distribution and abundance of otters in the region but extensive surveys are necessary in the Sundarbans Tiger Reserve so as to generate reliable abundance estimates and distribution patterns for otters in this region which in future may serve as indicators to the changes taking place in this unique wetland ecosystem.

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RÉSUMÉ

ETAT DES LIEU CONCERNANT LES LOUTRES DANS LES SUNDARBANS DE LA RÉSERVE DU TIGRE, OUEST DU BENGAL, INDE

Le Sundarbans constitue la plus grande mangrove du monde comprenant un large réseau de petites rivières ainsi que d'innombrables îles. De Février à Mai 2010, des transects réalisés en bateau ont été fait dans ces Sundarbans dans la réserve du Tigre en Inde pour estimer le taux de rencontre entre les tigres et leurs proies. Durant ces études de transects, des traces et des observations de Loutres ont été relevées. Un total de 237,8 km de transects a été réalisé au sein desquels 4 observations directes de Loutre d'Asie ont été enregistrés avec également des traces de Loutre qui furent repérées en 7 lieux différents (des pistes en 6 endroits et des excréments à un endroit) sur des bancs de vase d'îles boisées. La taille moyenne des groupes de Loutres d'Asie était de 2,75 (SD = 0,85 ; répartition = 1-5) et le taux de découverte d'autre traces de Loutres était de 0,03/km (SD = 0,01). Comme la vitesse du bateau à moteur était fixée à 4,5km/h, il était impossible d'identifier les espèces de Loutres à partir de leurs empreintes sur ces bancs de vase. Durant les dernières décennies, une diminution de l'apport en eau douce dans les Sundarbans indiennes, ce qui a affecté la biodiversité de cette région de façon très importante. Ces changements ont pu influencer la présence et la distribution des Loutres dans cette région. Jusqu'à présent, aucune enquête concernant les Loutres n'ont été réalisées dans les Sundarbans de la réserve du Tigre. Cette étude reporte donc des informations préliminaires quant à la distribution et à l'abondance des Loutres dans cette région. Cependant, des études plus approfondies seront nécessaires pour estimer l'abondance et acquérir des profils de distribution valides pour les Loutres de cette zone géographique.

RESUMEN

STATUS DE LAS NUTRIAS EN LA RESERVA DE TIGRES SUNDARBANS, BENGALA OCCIDENTAL, INDIA

El Sundarbans es el mayor bosque de manglar del mundo, y consiste en una gran red de pequeños ríos e innumerables islas. Desde Febrero de 2010 a Mayo de 2010, llevamos a cabo transectas en bote en la Reserva de Tigres Sundarbans, India, para estimar las tasas de encuentro de signos de tigre y sus especies presa. Durante estas transectas también fueron registrados los signos y avistajes de nutria. Realizamos un total de 237.8 km de prospecciones de transecta, en los cuales registramos cuatro avistajes de grupos de nutria lisa, y signos de nutria en siete localizaciones distintas (huellas en seis localidades y una feca en una), en las barrancas barrosas de las islas forestadas. El tamaño medio de grupo de nutria lisa fue 2.75 (S.E. = 0.85, Rango = 1-5) y la tasa de encuentro de signos de nutria fue 0.03/km (S.E. = 0.01). Como la velocidad del bote motorizado se mantuvo a 4.5 km/hr no fue posible identificar la especie de nutria en base a las huellas en las riberas barrosas. En las últimas décadas, debido a la declinación en el flujo de agua en los Sundarbans de la India, la biodiversidad en esta región ha sido muy afectada. Estos cambios pueden haber afectado la presencia y distribución de nutrias en esta región. Hasta la fecha, no ha habido prospecciones sistemáticas en busca de nutrias en la Reserva de Tigres Sundarbans. Este estudio presenta información preliminar sobre la distribución y abundancia de nutrias en la región, pero se necesitan prospecciones extensas para generar estimaciones de abundancia y patrones de distribución confiables en esta región.