O B S E R V A T I O N

FIRST PHOTOGRAPHIC RECORD OF SMOOTH-COATED OTTER *Lutrogale perspicillata* IN GOMTI RIVER, UTTAR PRADESH, INDIA

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Abstract: The Smooth-coated otter (*Lutrogale perspicillata*) plays a crucial role as an indicator species and an apex predator in the aquatic ecosystem. This report marks the first sighting of this species in the Gomti River of Uttar Pradesh, supported by photographic evidence. Such records are vital for understanding India's biodiversity and the distribution patterns of species. They contribute significantly to scientific knowledge and inform conservation efforts in the region, emphasizing the importance of monitoring and protecting these essential components of aquatic ecosystems.
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INTRODUCTION

Freshwater ecosystems, despite representing a small fraction of the Earth's surface, harbor about one-third of all vertebrate species, making them exceptionally rich in biodiversity (Dudgeon et al., 2006). However, these ecosystems are increasingly threatened by human-induced changes, such as dam construction, pollution, over-extraction of water, and habitat fragmentation. These changes significantly affect aquatic biodiversity, making freshwater habitats some of the most endangered ecosystems worldwide (Dudgeon et al., 2006; Vörösmarty et al., 2010). Conservation efforts are crucial to mitigate these impacts and protect the unique biodiversity found in freshwater environments. Otters, elusive mammals of the order Carnivora and family Mustelidae (Acharya and Rajbhandari, 2011), are top predators in wetland ecosystems. They thrive in habitats that include intact forests and scrub areas, where they have access to fresh water essential for their feeding needs (Yonzon, 1998; Acharya et al., 2010). Their presence indicates a healthy aquatic ecosystem, as they rely on abundant prey populations and suitable environmental conditions, highlighting their importance in wetland conservation and biodiversity monitoring efforts. Although Smooth-coated otters (*Lutrogale perspicillata*) are widely distributed (Hussain and Choudhury, 1997), there has been no documented evidence of their presence in the main stem of the Gomti River. This knowledge gap likely results from a lack of comprehensive ecological assessments along the entire length of the Gomti River, from its source to its confluence with the Ganga at Ghazipur. The recent photographic documentation marks the first confirmed sightings of smooth-coated otters in the Gomti, highlighting the need for further ecological studies and conservation efforts in this understudied river system.

OBSERVATION

An ecological assessment funded by the National Mission for Clean Ganga (NMCG), Ministry of Jal Shakti, Government of India, was conducted by the Wildlife Institute of India (WII) in 2023 under the project titled "Planning and Management for Aquatic Species Conservation and Maintenance of Ecosystem Services in the Ganga River Basin for a Clean Ganga." During this assessment, a single direct sighting of a smooth-coated otter (*Lutrogale perspicillata*) was recorded in the 929-km-long Gomti River at a location near the Lucknow-Sitapur border of Uttar Pradesh (Fig. 1,3).

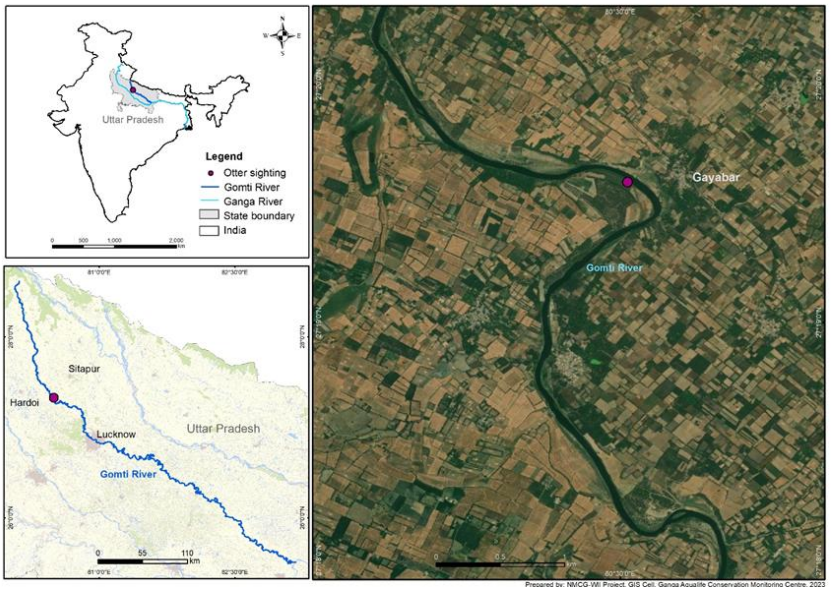

Figure 1. Map of Uttar Pradesh, showing the Gomti River and the current sighting location.

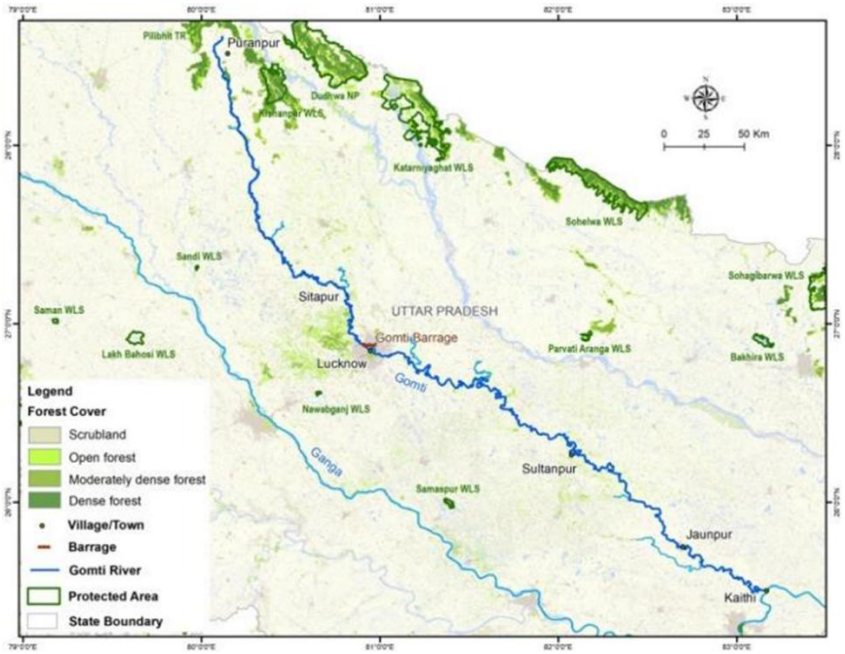

Figure 2. Forest cover in the Gomti Basin.

Figure 3. Survey for the aquatic biodiversity in the Gomti River.

The observation was made on March 5, 2023, near the Gomti River (27°19′35.57″N, 80°30′1.87″E). The otter's appearance, consistent with the description by Gray (1865), featured a dark brown coloration on the upper side and lighter-colored undersides (Fig. 4). This sighting is significant as it represents the first documented evidence of smooth-coated otters in this region, underscoring the importance of continued ecological monitoring and conservation efforts in the Gomti River basin. The Gomti River redistributes the weathered sediments derived from the Himalayas as it flows through the great alluvial fan of the Gangetic plain biogeographic zone (Upper Gangetic Plain – 7A), which is of Pleistocene-Holocene origin (Kumar and Singh, 1978). The upper section of the river is a part of the larger Terai-Arc Landscape and is included in the province of Upper Gangetic Plain 7A (Fig. 2). There is little documented information on the aquatic faunal assemblage of the Gomti River. The area is classified as a Tropical Dry Deciduous Forest according to Champion and Seth (1968). Singh and Chaturvedi (2017) provide a more detailed description, identifying several predominant forest types in this region. These include the northern tropical dry deciduous forest, characterized by species such as *Shorea robusta*, and the northern dry mixed deciduous forest, dominated by *Acacia catechu*. Other types include the general edaphic types of dry deciduous forests, featuring species like *Butea monosperma* and *Acacia arabica*, and the dry tropical riverine forest, which is home to *Terminalia arjuna*, *Acacia catechu*, and *Dalbergia sissoo*. Additionally, the area contains northern tropical thorn forests, which are composed of species such as *Acacia leucophloea*, *Acacia arabica*, *Prosopis cineraria*, and *Zizyphus* spp. This diverse mosaic of dry deciduous and thorn forests provides a range of habitats that support various flora and fauna, including species of conservation concern like the smooth-coated otter.

Figure 4. Sighting of smooth-coated otter in the Gomti River.

DISCUSSION

Otters, particularly the Smooth-coated otter, face significant threats from habitat destruction due to human activities, such as agricultural expansion that has led to the degradation of vital habitats like wetlands, grasslands, and forests (Ottino and Giller, 2004). In India, there have been limited sightings of otters, with only sporadic reports documenting their presence across various regions (Hinton and Fry, 1923; Pocock, 1940; Chitampalli, 1979). However, a recent sighting brings renewed hope for the survival of this declining population. Given that the smooth-coated otter is considered a threatened species, this new sighting, especially outside of protected areas, presents an opportunity for detailed population studies. Such research could inform and develop effective conservation strategies tailored to the species' needs in the region (Gupta et al., 2015).

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RÉSUMÉ: PREMIÈRE PHOTOGRAPHIE DE LA LOUTRE À PELAGE LISSE *LUTROGALE PERSPICILLATA* DANS LA RIVIÈRE GOMTI, UTTAR PRADESH, EN INDE

La loutre à pelage lisse (*Lutrogale perspicillata*) joue un rôle crucial en tant qu'espèce indicatrice et prédateur au sommet de l'écosystème aquatique. Ce rapport constitue la première observation de cette espèce dans la rivière Gomti de l'Uttar Pradesh, corroborée par des preuves photographiques. De tels enregistrements sont essentiels pour comprendre la biodiversité de l'Inde et les schémas de répartition des espèces. Ils contribuent de manière significative aux connaissances scientifiques et éclairent les efforts de conservation dans la région, soulignant l'importance de la surveillance et de la protection de ces constituants essentiels des écosystèmes aquatiques.

RESUMEN: PRIMER REGISTRO FOTOGRÁFICO DE NUTRIA LISA *Lutrogale perspicillata* EN EL RÍO GOMTI, UTTAR PRADESH, INDIA

La nutria Lisa (*Lutrogale perspicillata*) juega un rol crucial como especie indicadora y predador tope en el ecosistema acuático. Este reporte informa del primer avistaje de

esta especie en el Río Gomti, Uttar Pradesh, con evidencia fotográfica. Este tipo de registros son vitales para entender la biodiversidad de India y los patrones distribucionales de las especies. Contribuyen significativamente al conocimiento científico y dan base informativa a los esfuerzos de conservación en la región, enfatizando la importancia de monitorear y proteger a estos componentes esenciales de los ecosistemas acuáticos.