

## SHORT NOTE

### THE PERILOUS VOYAGE OF INDIAN HIMALAYAN 'AMBASSADORS' AMIDST ANTHROPOGENIC PRESSURES AND CHANGING CLIMATIC VARIABLES

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(Received 16<sup>th</sup> November 2015, accepted 31<sup>th</sup> March 2016)

**Abstract:** Otters, the ambassadors of aquatic bodies play a vital ecological role by indicating the health of these threatened ecosystems. Three species of otters, (i.e. Smooth-coated, Oriental small-clawed, and the Eurasian) were historically widely distributed in the Indian Himalayan region. However, otters here are under severe anthropogenic pressures. Additionally, the changing climatic variables in the region could potentially affect these species. Despite the growing threats, few studies on the current status, population and distribution of Indian Himalayan otters have been previously conducted. This article highlights the urgent need for novel scientific and policy-oriented strategies to protect and conserve the otters in the region.

**Keywords:** otters, rivers, anthropogenic stressors, climate change

The Indian Himalayan region is a biodiversity hotspot and contains multiple endemic floral and faunal species (Singh et al., 2011) including otters. These mammalian carnivores belonging to the Family Mustelidae exist at the top of the aquatic food chain, and are indicators of healthy aquatic ecosystems. Globally, 13 species of otters are present however, only three, i.e. Smooth-coated (*Lutrogale perspicillata*), Oriental small-clawed (*Aonyx cinereus*) (Hussain and de Silva, 2008; Hussain et al., 2008), and the Eurasian (*Lutra lutra*) (Ruiz-Olmo et al., 2008) are found in the Indian Himalayan region (Hussain, 1999).

Historically, the Smooth-coated and the Eurasian otters occurred throughout the Indian Himalaya (Hussain et al., 2008; Ruiz-Olmo et al., 2008), whereas the Oriental small-clawed otter was found in the Himalayan foothills and in some protected areas of the Northeast regions (Hussain and de Silva, 2008). However, serious concerns are now being raised by scientists regarding the present status, population and distribution of otters in the region. Very few confirmed sightings have been reported by researchers during field surveys in the past few years. This is not surprising as the ever-increasing anthropogenic stressors coupled with changing climatic variables are affecting the region's aquatic bodies – home to these otter species.

The Himalayan aquatic bodies despite providing both ecological and socio-economic benefits (Gupta et al., 2014a; Gupta et al., 2015a,b), are facing increasing

anthropogenic pressures, e.g. point and non-point sources of pollution, destruction of riverine habitats, and the introduction of invasive species (Gupta et al., 2014a,b,c; Gupta et al., 2015b). Numerous hydro-power projects and associated road networks along rivers have damaged otter habitats due to submergence and altering the flow of rivers (Rajvanshi et al., 2012). The changing climatic variables in the Indian Himalaya too could have an effect on the aquatic bodies and their biodiversity (Gupta et al., 2015c), indirectly affecting the otter population.

There have been reports of conflict between fishermen and otters over fish as the common prey, resulting in killing of otters in the region (N. Gupta, pers. comm. with village communities). The otters are also hunted for food in the north-eastern states and for the fur trade in other areas (Ruiz-Olmo et al., 2008; Hussain et al., 2011; Nawab and Hussain, 2012).

Despite the numerous threats being faced by otters throughout the Indian Himalaya, published texts on otters (Hussain, 1999; Mishra et al., 2006; Datta et al., 2008; Nawab and Gautam, 2008; Aiyadurai et al., 2010; Chutia, 2010; Nawab and Hussain, 2012; Naniwadekar et al., 2013; Nautiyal, 2013; Selvan et al., 2013; Velho and Laurance, 2013; Ghose et al., 2014; Khan et al., 2014; Medhi et al., 2014) focus mostly on presence/absence data. Very few detailed investigations have been conducted until now to assess the status, distribution patterns, or the breeding behaviour of Himalayan otters. Threats such as hunting for trade and conflict with fishing communities have seldom been addressed and investigated.

The authors firmly believe that there is an urgent need for novel scientific and policy-oriented strategies to protect and conserve the remaining population of Himalayan otters. The mere inclusion of these species under various Acts has not helped achieve the conservation targets previously envisioned by scientists. For example, the Smooth-coated and the Oriental small-clawed otter are listed as Vulnerable, and the Eurasian otter as Near Threatened in the IUCN Red List of Threatened Species, 2014. These three species are protected under the Indian Wildlife (Protection) Act, 1972, and listed in the Appendices of the Convention on International Trade in Endangered Species (CITES).

A 'thinking outside the box' approach needs to now be applied for the protection and conservation of Indian Himalayan otters. For instance, otters are common in England living in an anthropogenic landscape despite years of hunting, in Jakarta otters are found in storm-drains, and in artificial environments in Singapore, and in Periyar, South India otters can be spotted in rivers with altered flow.

However, there is a need to first and foremost address the knowledge gaps in order to respond to the existing/emerging challenges facing the otters in the Indian Himalaya. The understanding of various threats to otters in the region, and acquiring the knowledge regarding their current status, population and distribution is vital for the applicability and success of any novel conservation actions in the future.

**Acknowledgements** - The authors would like to acknowledge the DST-NMSHE project.

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## RÉSUMÉ

### **Le Voyage Périlleux Des « Ambassadeurs » De L’himalaya Indien À Travers Les Pressions Anthropiques Et Le Changement Climatique**

Les loutres, ambassadeurs des milieux aquatiques, jouent un rôle écologique majeur en étant le témoin de la santé de ces zones menacées. Trois espèces de loutres (i.e. la loutre d’Asie, la loutre naine cendrée, et la loutre européenne) étaient historiquement présentes sur toute la partie Himalayenne de l’Inde. Cependant, les loutres sont dans cette région sous une pression anthropique importante. De plus le changement climatique dans la région peut aussi affecter ces espèces. En dépit de ces menaces, peu d’études sur le statut actuel, les populations et la distribution des loutres de la partie Indienne de l’Himalaya ont été effectuées. Cet article souligne l’urgence de réaliser des études, et de mettre en place des stratégies de protection pour conserver les loutres de cette région

## RESUMEN

### **EL PELIGROSO VIAJE DE LOS “EMBAJADORES” DEL HIMALAYA, EN MEDIO DE PRESIONES ANTROPOGÉNICAS Y VARIABLES CLIMÁTICAS CAMBIANTES**

Las nutrias, embajadoras de los cuerpos de agua, juegan un rol ecológico vital, al indicar la salud de estos ecosistemas amenazados. En la región India del Himalaya, tres especies de nutrias (nutria lisa, nutria de uñas pequeñas asiática, y nutria eurasiática) estuvieron ampliamente distribuidas históricamente. Sin embargo, las nutrias están aquí bajo severas presiones antropogénicas. Adicionalmente, las variables climáticas cambiantes en la región podrían potencialmente afectar a estas especies. A pesar de las amenazas crecientes, se han conducido pocos estudios sobre el status actual, la población y la distribución de las nutrias del Himalaya Indio. Este artículo destaca la urgente necesidad de estrategias renovadas, con orientación científica y de políticas, para proteger y conservar las nutrias en la región.