

## NOTE FROM THE EDITOR

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Dear Friends, Colleagues and Otter Enthusiasts!

Since I wrote my last editorial many things have not really changed for us. Many countries face more or less strict restrictions and I assume many of us work from home due to the current pandemic. I hope that all your family members and friends are doing fine and that you found your ways to cope with the work and private situation.

I am also well aware that the travel restrictions had impact on many of your projects. I personally know a few people were field had to be postponed or had been completely cancelled due to the inaccessibility of remote areas or simply the fact that cross border travels were restricted or completely forbidden. Living in Luxembourg seeing Germany and France from my windows I was not allowed to enter to any of these countries for several weeks. I can only imagine what impact this may have had on your field work.

I experienced also a huge increase in submissions compared to previous years. Many of us obviously used the time to write up already available data and to see to get them published. I am sorry but this increase together with a high workload in my position lead to long delays from the time point manuscripts were accepted until they went online. We are now trying to work off the pile and hope to be soon back to normal.

Lesley deserves a big thank you from our community. Thank you so much for all the hours spent with the manuscripts and to bring them online and to check last typos and reference lists.



## SHORT NOTE

### SIGHTING OF A SMOOTH COATED OTTER *Lutrogale perspicillata* IN MANAS NATIONAL PARK, ASSAM, INDIA

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**Abstract:** The Smooth-coated otter (*Lutrogale perspicillata*) is a vulnerable mustelid which occurs in wetlands and in low-lying areas. The species was once common in the floodplains of Assam, India, but it is now mostly restricted to protected areas in this region. Here, we report the sighting of this species in Manas National Park (MNP), Assam. The otter was found in the shallow waters of Beki River, with rocky substrate. This note confirms the occurrence of the species in MNP with photographic evidence.

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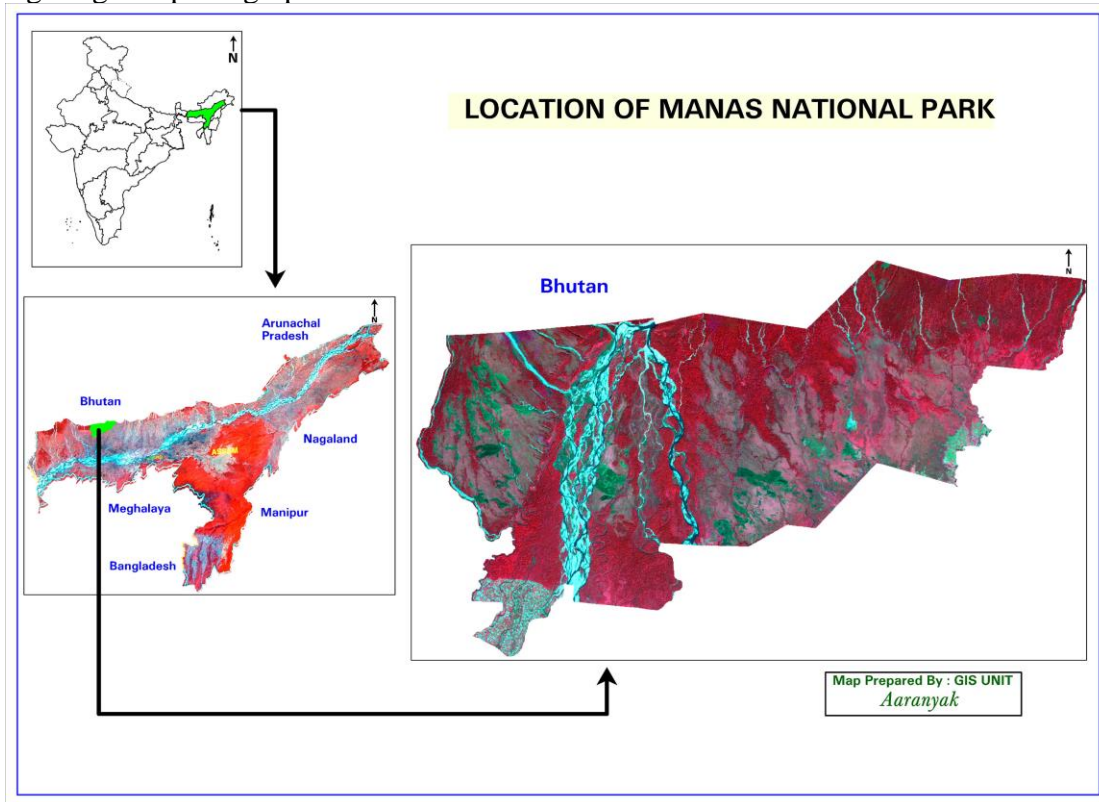
**Keywords:** Smooth-coated otter, Photographic evidence, Beki River

The Smooth-coated otter *Lutrogale perspicillata* mostly occurs in protected areas in South and Southeast Asia, inhabiting the wetlands and low-lying areas (de Silva et al., 2015; Hussain et al., 2018). Once common, this species is currently categorized as Vulnerable (de Silva et al., 2015), owing to an estimated population decline by 30% in the last three decades (Pacifci et al., 2013). It is listed in CITES Appendix II.

The Smooth-coated otter population is comparatively secure in areas where it geographically overlaps with the umbrella species such as Tigers *Panthera tigris*, One-horned Rhinoceros *Rhinoceros unicornis* in India (Hussain et al., 2018). In northeastern India, it occurs in all the eight states, including the northern part of West Bengal, though the present distribution is patchy (Choudhury, 2013). Historically, this otter was abundant in the Brahmaputra and Barak river valleys in Assam. However, the species has become rare in the region, except in the Kaziranga National Park (Choudhury, 2013) where it can still be seen in good numbers.

In Manas National Park (henceforth Manas), located in the northeastern state of Assam in India (Fig. 1), the species has been reported to occur, but no photographic evidence has been recorded in recent times (Lahkar et al., 2018). The Park was subjected to a long period of armed conflict from the late 1980s till the early 2000s. This resulted in the decline of many species, habitat degradation and destruction of park infrastructure (UNESCO, 2005). Since the formation of Bodoland Territorial Council (BTC) in 2003, peace and governance has been restored in the area, and on-ground conservation action has resulted in the recovery of many species (Goswami and Ganesh, 2014; Lahkar et al., 2018; Sinha et al., 2019). Currently, ecological studies are being conducted on a number of species of conservation concern. However, these studies focus mostly on large mammals, with comparatively little attention is

paid to the small mammals of the park. In this short communication, the authors present a sighting and photographic record of the Smooth-coated otter in Manas.



**Figure 1.** Location of Manas National Park

On 23 January 2019, during a visit to the central range of the park (Bansbari), the authors observed an animal's presence on a rocky surface of the Beki River ( $26^{\circ}46'58.76''\text{N}$ ,  $90^{\circ}57'26.09''\text{E}$ ) that flows through the park. On careful observation using Nikon Monarch 8 X 42 binoculars, we identified the species as an adult Smooth-coated otter (Fig. 2). The animal was identified on the basis of its size and from its sleek grey-brown coat with paler grey underside (Menon, 2014). It was observed at 1456 h, for a duration of approximately four minutes. Since this species is known to live and hunt in groups (Hussain and Choudhury, 1997), we scanned carefully for other individuals, but did not find any. The otter was swimming underwater against a strong current, slowly moving upstream. Every 10 seconds or so, the otter would breach the water's surface in the direction of travel before diving back underwater. During each leap, much of the otter's body cleared the water. After a few dives, the animal caught a fish, brought it to the surface and was seen feeding on it on a rock. It was still feeding, when the observation ended.

Where the otter was sighted, the Beki River is a high gradient stream with a rocky bottom and a channel width of approximately 150 meters. The banks of the river were rocky with grassland vegetation. The left bank was a forested hillside, from which the observations were made. The right bank was a sandy floodplain covered with grassland and woodland dominated by red silk-cotton trees *Bombax ceiba*. The altitude was 95 meters above sea level. The otter's location was less than half a kilometer from the border with Bhutan.



**Figure 2.** Picture of the Smooth-coated otter in Manas

Previous sightings of the Smooth-coated otter in Manas have all been anecdotal. During a major camera-trap survey in 2016-17, no otter species were detected (Lahkar et al., 2018). Goswami and Ganesh (2014) mentioned a direct sighting of the Smooth-coated otter in Manas during their survey in 2008, but did not provide any further details such as group size, location and time of sighting. One of the authors (AS) has been working in the park for several years and has sighted the species only thrice (including the present sighting). The author has seen a group comprising of three individuals in a small river in the eastern range of the park (Bhuyanpara, 26°44'3.98"N, 91° 4'51.08"E) on 17 February 2016. When observed, the group was seen hunting but fled away on seeing her. On another occasion, ND has sighted a small group of the otter in a river (26°41'45.80"N, 91° 0'36.11"E) in the central range in February, 2018. AS has also seen the otters in this area of the park in 2017. During opportunistic discussion with the forest guards, and other researchers, they mentioned about the presence of otters in the park. They described that they had seen otters occurring in the wetlands in small groups (3-4), but could not confirm the species. Reportedly, an Asian small clawed otter *Aonyx cinerea* was rescued from a fishing net downstream of the Beki River, outside the boundary of Manas by a team of forest department and IFAW-WTI. This note presents the photographic evidence of the occurrence of Smooth-coated otters in the park. Further ecological studies can establish the current distribution status of the species in the park and its conservation needs.

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## RESUME

### **OBSERVATION DE LA LOUTRE À PELAGE LISSE, *Lutrogale perspicillata*, DANS LE PARC NATIONAL DE MANAS, ASSAM, EN INDE**

La loutre à pelage lisse (*Lutrogale perspicillata*) est un mustélide vulnérable qui est présent dans les zones humides et les zones de basse altitude. L'espèce était autrefois commune dans les plaines inondables de l'Assam, en Inde, mais elle est, actuellement, limitée principalement aux zones protégées de cette région. Nous rapportons, ici, l'observation de cette espèce dans le Parc National de Manas (MNP) de l'Assam. La loutre a été trouvée dans les eaux peu profondes de la rivière Beki au substrat rocheux. Cette note confirme la présence de l'espèce dans le MNP avec des photos preuves à l'appui.

## RESUMEN

### **AVISTAJE DE UNA NUTRIA LISA *Lutrogale perspicillata* EN EL PARQUE NACIONAL MANAS, ASSAM, INDIA**

La nutria lisa (*Lutrogale perspicillata*) es un mustélido vulnerable que vive en humedales y áreas bajas. La especie era antes común en las planicies de inundación de Assam, India, pero ahora está mayormente restringida a las áreas protegidas de esta región. Aquí, informamos el avistaje de esta especie en el Parque Nacional Manas (MNP), Assam. Encontramos a la nutria en aguas someras del Río Beki, con sustrato rocoso. Esta nota confirma la ocurrencia de la especie en MNP, con evidencia fotográfica.

## SHORT NOTE

# APPROACH TO A QUALITATIVE METHODOLOGY FOR THE SEARCH AND DIRECT DETECTION OF THE NEOTROPICAL OTTER (*Lontra longicaudis* OLFERS, 1818)

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**Abstract:** The Neotropical otters (*Lontra longicaudis*) are semi-aquatic mammals. In general, they have the habit of defecating in conspicuous places of the body of water or in adjacent terrestrial ecosystems. Being a non-invasive method, tracking is an important tool for the study of threatened species or animals that are difficult to observe. For this reason, the present work aims to make an approach to a qualitative methodology for the search and direct detection of the Neotropical otter using fresh faeces. During February 2015, two diurnal routes were carried out on Palomino River and Jordan River (Colombia) with 3 and 2 km respectively, searching latrines on riverbeds and banks in conspicuous places, selecting those with fresh faeces (no older than 12 hours) as fixed observation stations to increase the probability of detection of *L. longicaudis*. Five observation points were defined in each river: at the Palomino River 104 latrines were found, 14 of them with fresh faeces and direct observation was achieved four times; 24 latrines were found at the Jordan River, all of them old and therefore, there was no direct detection of the species. The methodology proposed here is purely qualitative and aims to increase the probability of detection and direct observation of the Neotropical otter in the dry season of the year.

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**Keywords:** faeces, tracking, semi-aquatic mammals, Colombia

## INTRODUCTION

The Neotropical otter (*Lontra longicaudis*) is a semi-aquatic mammal with a wide geographical distribution, occurring from Mexico to Argentina (Waldemarin and Colares, 2000; Arellano et al., 2012; Medina-Barrios and Morales-Betancourt, 2019). Generally, they defecate in conspicuous places of water bodies (Wemmer et al., 1996; Kasper et al., 2004; Medina-Barrios and Morales-Betancourt, 2019) or in adjacent terrestrial ecosystems (Medina-Barrios and Morales-Betancourt, 2019). As a result, most studies with the species taking account this behavior for the definition of occurrence areas (Chehébar, 1985; Chehébar et al., 1986; Blacher, 1987; Kasper et al., 2004; Medina-Barrios and Morales-Betancourt, 2019) and for diet studies (Beja,

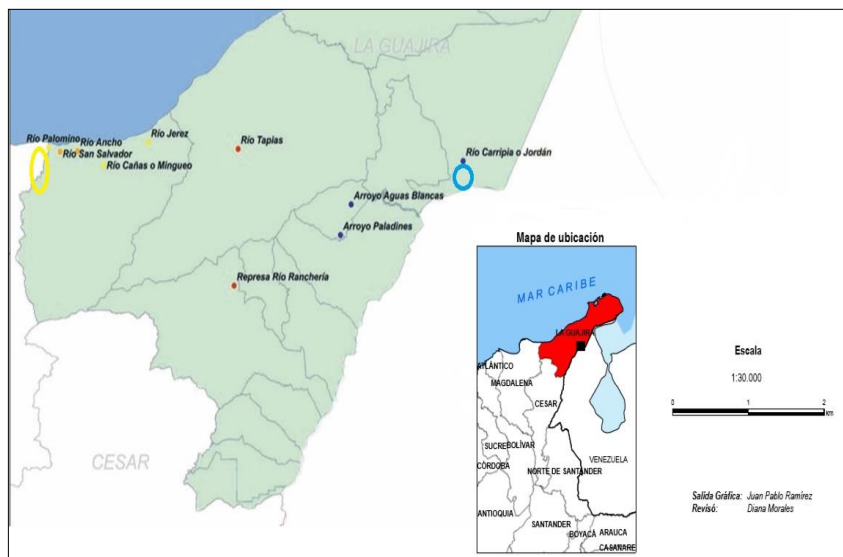
1991; Brezinski et al., 1993; Passamani and Camargo, 1995; Pardini, 1998; Quadros and Monteiro-Filho, 2000; 2001; Kasper et al., 2004; Medina-Barrios and Morales-Betancourt, 2019).

Scats are the most evident and most easily recognizable signal (Liebenberg, 2000; Chame, 2003). In this sense, and being a non-invasive method, scat surveys are an important tool for the study of threatened species or animals that are difficult to observe, and can also be applied to the study of rare or nocturnal animals. Although a well-trained observer is required, its low cost and accessible technology makes scat tracking a good choice for field studies (Chame, 2003).

For this reason, the present work aims to make an approach to a qualitative methodology for the search and direct detection of Neotropical otters in clear water rivers of northern Colombia, using fresh faeces as main indicator; in addition, is a contribution to the knowledge of the species. This study was possible through the agreement signed between the environmental authority of La Guajira (Colombia) and the Omacha Foundation in 2015 for the conservation of the species in the region, with a focus on the Montes de Oca Protective Forest Reserve (Medina-Barrios and Morales-Betancourt, 2019).

## METHODOLOGY

During February 2015, two diurnal routes were carried out in both the middle and the lower part of two rivers (starting at 6:00 hrs and ending at 17:00 hrs), one at the Palomino River (Palomino, La Guajira-Colombia: N 11° 14' 22.2"; W 73° 33' 37.6") and another one at the Jordan River (Montes de Oca Protective Forest Reserve, Carraipía, La Guajira-Colombia: N 11° 10' 02.5"; W 072° 23' 00.3") of 3 and 2 km respectively (Figure 1), searching their riverbeds and banks for latrines in conspicuous places such as rocks and / or stagnant logs, in order to select those that had fresh faeces no older than 12 hours. These places would then be used as fixed observation stations to increase the opportunity of detection of *L. longicaudis* (Medina-Barrios and Morales-Betancourt, 2019).



**Figure 1.** Sites of study in La Guajira (Colombia). Yellow circle: Palomino River; blue circle: Jordan River. Modified of Corpoguajira y Fundación Omacha (2015).

This amount of time was defined since in longer periods the excrement dries up and it is difficult to determine if the deposition is recent. Fresh, viscous spraints, with

or without anal gelatin and a very strong fishy and musky smell were considered fresh (Figure 2). It must be consider that this smell was very pronounced in the early hours of the morning or when the spraint was recently excreted and decreased in intensity as the time passed; however, at the end of the afternoon the scent was still preserved. The color of the faeces was not considered within the established period of time, since these varied according to the diet or the abundance of the food resource.



**Figure 2.** Faeces of *L. longicaudis* recently excreted. Observe viscous excreta and translucent anal gelatin.

Regarding the choice of fixed stations for the observation of *L. longicaudis*, in the Palomino River five points were selected for sighting for a period of nine days and a sampling effort of 41 hours (Medina-Barrios and Morales-Betancourt, 2019) and for the Jordan River, five observation points were selected alike, but for five days and a sampling effort of 42 hours. The difference in the days of sampling and in the choice of places were due to the difficulty of entering the monitored sites (Table 1); in addition, in the selection of the observation sites, it was taken into account that they were hidden at a distance of no less than 20 m from the latrine.

**Table 1:** Observation stations in the Palomino (P) (Medina-Barrios and Morales-Betancourt, 2019) and Jordan (J) Rivers; department of La Guajira, Colombia.

Designation	Geographic position	Meters above sea level
P1	N 11° 14' 54.7"; W 073° 34' 05.4"	16
P2	N 11° 14' 46.6"; W 073° 34' 04.1"	16
P3	N 11° 13' 54.3"; W 073° 34' 04.6"	181
P4	N 11° 13' 02.8"; W 073° 34' 50.9"	22
P5	N 11° 12' 59.4"; W 073° 34' 53.6"	22
J1	N 11° 10' 17.0"; W 072° 22' 52.0"	259
J2	N 11° 10' 03.7"; W 072° 23' 01.9"	257
J3	N 11° 10' 38.9"; W 072° 22' 45.2"	245
J4	N 11° 10' 01.6"; W 072° 22' 57.3"	248
J5	N 11° 10' 37.0"; W 072° 22' 44.8"	247



## RESULTS

### *Palomino River*

In the monitored river segment, 104 latrines were registered, 14 of which contained fresh faeces. Using this methodology of active search for fresh spraints and selection of observation points, it was possible to register *L. longicaudis* four times, in four different days, three of them in the same latrine, observation station P1. The fourth sighting occurred during the morning in the observation station P2 (Table 1), which is approximately 200 m from P1 (Medina-Barrios and Morales-Betancourt, 2019), near the confluence with the sea, and closest to an urban area (Palomino). There was a marked difference in the places of stool deposition: while in the middle part of the river the faeces were found mainly on conspicuous rocks near the shore (in and out of the riverbed), in the lower part of the river the faeces were located on floating or stagnant logs (Figure 3).



**Figure 3.** Latrines found in Palomino River: left, middle part of riverbed; right, low part of riverbed.

### *Jordan River*

Although the Jordan River has ideal conditions to be the habitat of the Neotropical otter and to allow effective sightings, no *L. longicaudis* activity was detected following the methodology proposed in this study, since no fresh or recently deposited faeces were found. Therefore there were no direct detections. A completely dry latrine with pale stool and crumbly upon contact was considered old, there were 24 latrines with quite old faeces; one of those latrines worked also as a feeding site (Figure 4).



**Figure 4.** Latrines found in Jordan River: left, old faeces upon a stagnant log; right, old faeces upon a rock.

## DISCUSSION

Palomino River's latrine surroundings presents characteristics that make them suitable (without being ideal due to anthropic intervention) for otter activity, with shrubs,

herbaceous plants and tree branches on the riverbank in contact with water (Figure 5), as reported by Santos and Reis (2012).



**Figure 5.** Palomino River in lower part. Right, riverbank vegetation; left, otter feeding.

As mentioned by Waldemarin (2004), who found that in areas near margins where the vegetation were more heterogeneous, latrines were grouped into zones with a certain degree of conservation, being used as places of fishing and / or escape, corresponding to the data collected in this study.

This section of the riverbed, in its lower part near its mouth, is a potential place of direct observation of the species to continue monitoring its behavioral repertoires (Medina-Barrios and Morales-Betancourt, 2019) and the way *L. longicaudis* uses this habitat as a foraging area.

Although there is no direct sighting at the stations carried out in the middle part of the river section, using the same time schedule, latrines with fresh faeces were detected, suggesting that possibly in these places the activity patterns are different due to the lower degree of human intervention, as well as having more inconspicuous places to hide when there are people nearby. Even so, the observation sectors in this area of the riverbed represent potential monitoring sites because, the fact that fresh faeces have been found, shows the use of such habitat.

As for the Jordan River, the absence of *L. longicaudis* may indicate a seasonal use that varies according to the rainy and dry periods. However, it is necessary to broaden the search in the river upstream, in addition to monitoring in times of precipitation, to determine whether such climatic factors are used by *L. longicaudis* in movement activities.

Therefore, it is necessary to assess the current state of knowledge of the Neotropical otter in this river with respect to its biology and ecology because such data are still insufficient.

## CONCLUSIONS

The fresh-latrine searching methodology proposed here is purely qualitative and aims to increase the probability of detection and direct observation of the Neotropical otter in the dry seasons of the year, since rains and similar climatic phenomena will affect the traces left by the species; with this methodology, inquiries could be made about current uses of the habitat by Neotropical otters in a given place, seasonality, as well as determining hunting pressures and / or general state of the ecosystem through the presence / absence in areas where historically the species occurred.

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## RÉSUMÉ

### APPROCHE D'UNE MÉTHODOLOGIE QUALITATIVE POUR LE RECHERCHE D'UNE DETECTION DIRECTE LA LOUTRE À LONGUE QUEUE (*Lontra longicaudis* OLFERS, 1818)

Les loutres longue à queue (*Lontra longicaudis*) sont des mammifères semi-aquatiques. En général, ils ont pour habitude d'épreindre dans des endroits bien visibles de la masse d'eau ou dans les écosystèmes terrestres adjacents. En tant que méthode non invasive, ce suivi est un outil important pour l'étude des espèces menacées ou des animaux difficiles à observer. Pour ce motif, le présent travail vise à mettre en œuvre une approche méthodologique qualitative destinée à la recherche et à la détection directe de la loutre à longue queue à l'aide d'épreintes fraîches. En février 2015, deux itinéraires diurnes, de 3 et 2 km respectivement, ont été réalisés le long des rivières Palomino et Jourdain (Colombie). A cette occasion, nous avons cherché des latrines sur les lits des rivières et sur les berges à des endroits bien visibles et avons sélectionné celles contenant des excréments frais (pas plus de 12 heures) comme stations fixes d'observation pour augmenter la probabilité de détection de *L. longicaudis*. Cinq points d'observation ont été définis dans chaque rivière : sur la rivière Palomino, 104 latrines ont été trouvées, dont 14 avec des épreintes fraîches et une observation directe a été réalisée quatre fois ; 24 latrines ont été trouvées au bord du Jourdain, toutes anciennes et par conséquent, il n'y a pas eu de détection directe de l'espèce. La méthodologie proposée ici est purement qualitative et vise à augmenter la probabilité de détection et d'observation directe de la loutre à longue queue, en saison sèche, au cours de l'année.

## RESUMEN

### APROXIMACIÓN A UNA METODOLOGÍA CUALITATIVA PARA LA BÚSQUEDA Y DETECCIÓN DIRECTA DE LA NUTRIA NEOTROPICAL (*LONTRA LONGICAUDIS* OLFERS, 1818)

La nutria neotropical (*Lontra longicaudis*) es un mamífero semiacuático. En general, ellas tienen el hábito de defecar en lugares conspicuos del cuerpo de agua o en ecosistemas terrestres adyacentes. Siendo un método no invasivo, el rastreo constituye una importante herramienta para el estudio de especies amenazadas o animales difíciles de observar. Por tal motivo, el presente trabajo tiene por objetivo realizar una aproximación a una metodología cualitativa para la búsqueda y detección directa de la nutria neotropical utilizando heces frescas. Durante el mes de febrero del 2015 se realizaron dos recorridos diurnos tanto en la parte media como en la parte baja, uno en el río Palomino y otro en el río Jordan (3 y 2 km respectivamente), por sus cauces y orillas para la búsqueda de letrinas en lugares sobresalientes del agua, con el fin de seleccionar aquellas que tuvieran heces frescas no mayores a 12 horas de depositadas, para utilizar estos lugares como estaciones de observación fija y aumentar las probabilidades de detección de *L. longicaudis*. Se realizaron cinco puntos de observación en cada río: en el río Palomino se encontraron 104 letrinas, 14 de ellas con heces frescas y se logró realizar observación directa en cuatro ocasiones; en el río Jordan se hallaron 24 letrinas, todas antiguas y por consiguiente, no hubo detección directa de la especie. La metodología aquí propuesta es netamente cualitativa y pretende aumentar la probabilidad de detección y observación directa de la nutria neotropical en las temporadas secas del año.

## REPORT

### RECENT OBSERVATIONS OF EURASIAN OTTER *Lutra lutra*, INCLUDING WHITE-COATED INDIVIDUALS, IN THE SOUTHERN SIKHOTE ALIN, THE RUSSIAN FAR EAST

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**Abstract:** Eurasian otter (*Lutra lutra*) is a wide-ranging species with third of its range in Russia. Although Eurasian otter is categorized as “Near Threatened” with declining population by IUCN, it is also reported that Primorsky Krai is a region with high density of otter population in the Russian Far East. This study represents empirical data on otters in the south-eastern part of Primorsky Krai and updates existing status on a range map with use of by-catch camera-trapping and live trapping. Data from Lazovsky Reserve and Zov Tigra National Park archives included only white-coated individuals. During 2014-2019 Eurasian otter was camera-trapped 84 times at 18 camera-trap stations, live trapped on 2 occasions and 7 reports of white-coated individuals were obtained by The Chronicles of Nature of the Lazovsky Reserve. The spread of records geographically across the survey area and through the survey period suggests a resident, well established population in this area.

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**Keywords:** *Mustelidae*, range, albinism, color aberration, live trapping, camera trapping

## INTRODUCTION

Eurasian otter (*Lutra lutra*) is a wide-ranging species with one third of its distribution in the Russian Federation where it occurs in all habitats except tundra and northern regions with permanent frost (Oleynikov and Saveljev, 2016).

Mostly solitary, this species is a semi-aquatic predator averaging in weight and body-length of 4.7 kg and 65 cm respectively, with males larger than females. Intraspecific variability is weakly expressed and in the Russian Far East the Eurasian otter's nominative subspecies is the northern otter (*L. l. lutra*) (Krivosheev, 1984).

Otter fur coloration is typically dark brown on the back and lighter on the belly and throat (Krivosheev, 1984). White Eurasian otter have been observed on Sakhalin Island (Vshivtsev, 1972) and also reported as news articles from Northern Europe (Ring, 2016; Fairnie, 2019), but to our knowledge, never reported in the continental part of Russian Far East.

Although the Eurasian otter is classified as “Near Threatened” in the IUCN Red List with a declining population (Roos et al., 2015), Oleynikov and Saveljev (2016) reported Primorsky Krai as a region with relatively high otter numbers in the Russian Far East. However, population numbers and status remain unknown because surveys have not been conducted consistently.

This study represents empirical data on Eurasian otters in the south-eastern part of Primorsky Krai by use of by-catch camera-trapping and live trapping. We also document the species recent occurrence with normal and white color morphs to verify the species continuous existence in area.

## ANIMALS, MATERIAL AND METHODS

Lazovsky Reserve (1,240 km<sup>2</sup> in size) and Zov Tigra National Park (870 km<sup>2</sup>) are protected areas located in south-eastern Primorsky Krai, in the temperate Ussuri broadleaf and mixed forest ecoregion (Laptev et. al, 1995) (Figure 1). The region experiences warm summers (averaging 17.4 °C near the coast of the Sea of Japan and 23.5 °C further inland), and cold winters (averaging -10.4 °C near the coast of the Sea of Japan to -30 °C further inland) (Laptev et. al, 1995), but local climate varies significantly even within Lazovsky Reserve, reflecting distance to the sea. Areas near the sea are generally cooler in summer and warmer in winter, with typically less deep winter snow.

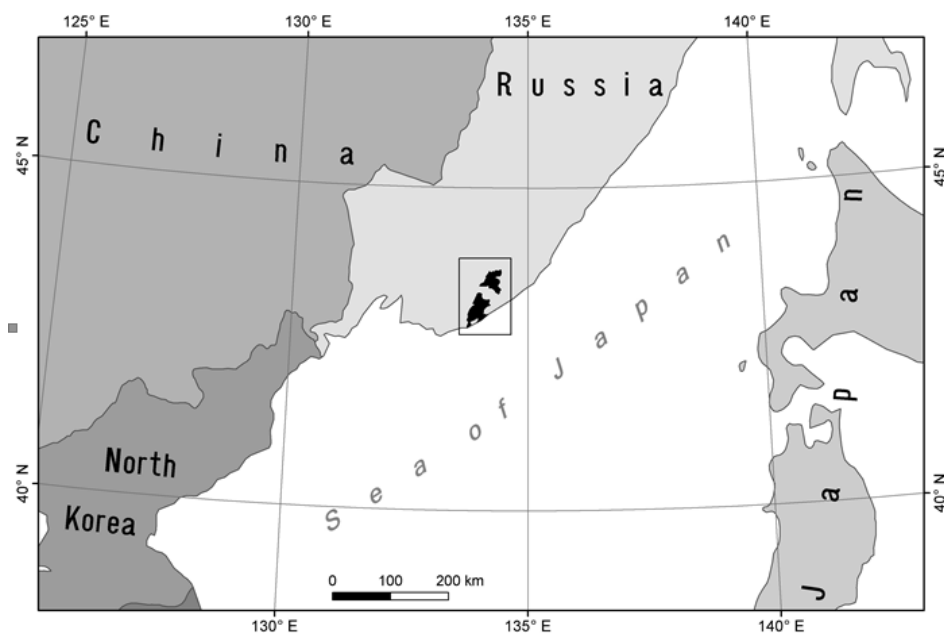


Figure 1. Study site.

Records on otter distribution were obtained using two methods: 1) by-catch in camera traps set for Amur tigers (Kerley and Borisenko, 2010, 2013) and 2) live captures during disease monitoring (Goncharuk et al., 2012). Supplementary information on white coloration was obtained from records in United Administration of Lazovsky State Nature Reserve and Zov Tigra National Park archives.

A research study on Amur tigers (*Panthera tigris*) in the Russian Far East (Kerley and Borisenko, 2010, 2013) established a network of 86 unbaited camera-trap stations (Bushnell Trophy Cam digital camera-traps, Bushnell Co, Overland Park, KS, USA) throughout Lazovsky Reserve and Zov Tigra National Park giving an effective survey area of approximately 2,800 km<sup>2</sup>. Camera-traps stations were spaced no more than 10 km apart on forest roads and trails in places frequented by tigers. Each camera-trap was attached to a tree approximately 45-60 cm from the ground, set to 24 hours operation. The same stations were used throughout the study period of January 2014 to June 2019. Notionally independent records of otter were defined as those photographs taken at least 24 hours apart from others at the same camera-trap station (Kerley and Borisenko, 2013).

Live trapping was conducted in April-June and October-November with use of live animal traps made from wire mesh (Havahart traps, Woodstream Corp., United States) and home-made cages. Fresh fish was used as bait. Live-traps were placed every 250 m along roads, pathways and creeks and were monitored daily. After capture and anesthesia all animals were released back into the wild (Goncharuk et al., 2012). Alpha-2 adrenergic receptor agonist - dexmedetomidine hydrochloride 0,05% (Dexdomitor 0,5mg/ml, "Orion Corporation", Orionintie 1, FI-02200 Espoo, Finland) was used in dosage of 60 mcg per kilogram of body weight for otter sedation with use of isoflurane (Forane, Abbott, USA) as supportive drug for anesthesia maintenance. Dexmedetomidine delivery was performed with hand intramuscular injection by syringe to the hip or shoulder. After the initial injection of dexmedetomidine anesthesia was prolonged with isoflurane. Delivery of isoflurane was performed with use of "Isoflurane and air anesthetic equipment" (International Zoo Veterinary Group, Keighley Business Centre, South Street, Keighley, West Yorkshire BD21 1AG, United Kingdom) (Lewis, 2004). Atipamezole hydrochloride 0,5% (Antisedan, "Orion Corporation", Orionintie 1, FI-02200 Espoo, Finland) was used as a reversal drug in dosage of 10 mg of atipamezole per 1 mg of dexmedetomidine. During recovery, immobilized animals were monitored by us from a distance until they regained consciousness and were able to leave the area on their own accord. Live trapping of non-red book species on the territory of protected area (Lazovsky Reserve in our case) with further release back to the wild does not need special permission besides of approved "Plan of scientific work" which was obtained in due time.

## RESULTS

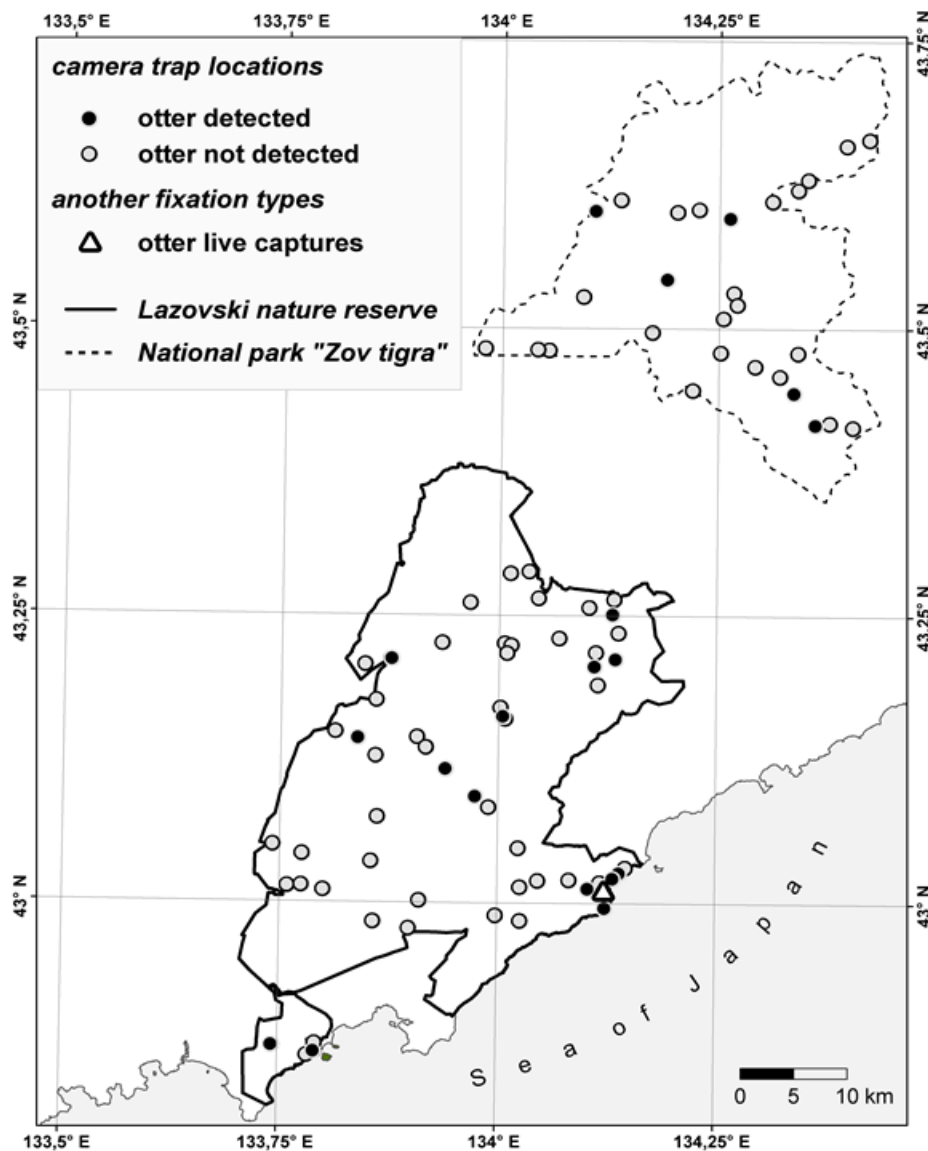
### *Camera traps*

During 39,600 camera-trap days, normal colored otters were recorded as by-catch in tiger habitat 84 times at 18 camera-trap locations and no white individuals were recorded (Fig. 2, Table 1). Animals were mostly nocturnal with only 11 daylight photographs recorded. Records came from an elevation range of 8 - 639 m and mostly near rivers, streams and along the Sea of Japan shoreline. Otter were often photographed alone or, less often, in family groups of two (n=9) and three (n=3; Fig. 3) individuals.

**Live-traps**

During 6,400 cage-trap days two otters were captured; one white and one normal colored individuals (Table 1, 2). The white-coated otter (captured on 29 October 2018) was determined to be a partial albino due to the absence of pigmentation in its' iris (e.g. it had red eyes), but pigmentation in paws and nose had been retained (Fig. 4, 5). This female weighed 4.5 kg and had the following body measurements: body length = 59.5cm; tail length = 35 cm; head length = 12.5cm; front leg length (from humeral joint to distal finger phalanx edge) = 14 cm; hind leg length (from hip joint to distal finger phalanx edge) = 20.5 cm; front paw pad width = 3.2 cm; hind paw pad width = 3.2 cm; and chest circumference = 27.5 cm.

A normal colored female was captured on 5 May 2018, weighing 4.5 kg and had the following body measurements: body length = 59 cm; tail length = 34.5 cm; head length = 14.5 cm; front limb length (from humeral joint to distal finger phalanx edge) = 16 cm; hind limb length (from hip joint to distal finger phalanx edge) = 24.5 cm; front paw pad width = 2.9 cm; hind paw pad width = 2.7 cm; and chest circumference = 27 cm.



**Figure 2.** Locations of camera/live captures of Eurasian otter (black dots and white triangles) against the background of camera traps overall layout (gray and black dots).





**Figure 3.** Three otters in family group captured by camera trap.



**Figure 4.** Live trapped albino otter under anesthesia (general appearance and partial pigmentation on the feet).



**Figure 5.** Live trapped albino otter illustrating lack of pigment in the eyes.

**Table 1.** Normal-colored Eurasian otter locations in Lazovsky Reserve and Zov Tigra National Park recorded from by-catch photographs in camera traps set for tigers (2014-2019) and captured during live-trapping seasons (2019)

River drainage	N° of locations	Latitude N	Longitude E	Elev.	Habitat type	Years
<b>Lazovsky Reserve camera traps</b>						
Tumannaya Mountain	2	42° 59' 45"	134° 07' 25"	69	Oak forest/cliff top above sea	2014, 2016
Egerevka	4	43° 12' 43"	133° 52' 32"	229	Oak /birch <i>Betula</i> riparian mix	2018, 2019
Perekatnaya	1	43° 09' 43"	134° 00' 15"	489	Broadleaf/pine <i>Pinus</i> riparian mix	2017
Koreiskaya pad	1	43° 15' 04"	134° 07' 46"	213	Broadleaf/pine riparian mix	2017
Pryamushka	2	43° 12' 43"	134° 07' 58"	282	Broadleaf/pine riparian mix	2015
Bystruska	1	43° 11' 23"	134° 06' 47"	378	Pine/broadleaf mix	2018
Petrov Bay	41	42° 52' 11"	133° 47' 29"	13	Riparian scrub/adjacent to sea shore	2016, 2017, 2018
Petrovskaya Pad	14	42° 52' 30"	133° 44' 34"	98	Oak/birch mix	2016, 2017, 2018
Benevka	1	43° 06' 58"	133° 56' 18"	272	Broadleaf/pine riparian mix	2018
Benevka	1	43° 05' 32"	133° 05' 36"	339	Broadleaf/pine riparian mix	2019
Proselochnaya	1	43° 00' 44"	134° 06' 12"	41	Broadleaf/pine riparian mix	2016
Proselochnaya	4	43° 01' 34"	134° 08' 20"	75	Oak forest/ridge above sea	2015, 2018
Volunovka	2	43° 08' 34"	133° 50' 15"	200	Broadleaf/pine riparian mix	2015, 2016
<b>Zov Tigra National Park camera traps</b>						
Milogradovka	1	43° 31' 13"	134° 14' 08"	427	Pine/broadleaf mix	2018
Milogradovka	1	43° 24' 24"	134° 20' 02"	501	Pine/broadleaf mix	2018
Milogradovka	2	43° 26' 38"	134° 20' 14"	266	Pine/broadleaf mix	2019
Ussuri	1	43° 35' 45"	134° 15' 44"	639	Pine/broadleaf mix	2018
Ussuri	2	43° 36' 07"	134° 06' 20"	550	Pine/broadleaf mix	2019
Proselochnaya <sup>a</sup>	1	43° 01' 02"	134° 07' 35"	8	Oak riparian	2018

<sup>a</sup>Live-trapped normal colored individual.

**Table 2.** White otter registered in archives of Lazovsky Reserve and captured during live-trapping.

River drainage	Number of locations	Latitude N	Longitude E	Elev.	Habitat type	Comments
Proselochnaya	1	43° 01' 17"	134° 07' 54"	18	Oak riparian	2018, Live trapping
Shumny	1	43° 29' 14"	134° 44' 38"	393	Broadleaf/pine mix riparian	24 Dec 2006 hunter killed a white otter and donated the skin to LZ museum.
Volunovka	1	43° 08' 47"	133° 48' 39"	160	Broadleaf/pine riparian mix	2 May 2015, 2 individuals observed swimming together; one normal colored adult and white immature.
Proselochnaya	1	43° 00' 49"	134° 06' 51"	22	Broadleaf riparian mix	13 Aug 2017, one white individual observed
Proselochnaya	1	43° 01' 00"	134° 07' 35"	22	Oak riparian mix	1 July 2018, 1 white individual swimming
Pechoy	1	43° 31' 20"	134° 47' 47"	468	Broadleaf/pine riparian mix	1987, white otter killed by hunter
Chernaya	1	43° 13' 59"	134° 08' 19"	243	Broadleaf/pine riparian mix	2003, white otter killed by hunter
Perekataya	1	43° 15' 40"	134° 01' 54"	370	Broadleaf/pine riparian mix	LZ 's rangers observed white otter during fishing

Between 1980 and 2018, seven white otters were recorded in the Lazovsky Reserve's Chronical of Nature Archives (Table 2). Four were observed on the protected area, two were captured during fur trapping season outside of protected area and one was killed also outside of protected area by a hunter who donated the skin to the reserve.

## DISCUSSION

The habitat of the tiger and otter are significantly different. An otter, unlike a tiger, is a semi-aquatic predator closely connected with river valleys, streams and the sea coast. Since camera-traps were set specifically to photograph tigers and not otter, results represent a minimum number of otters in the area and not an estimate of population size. None-the-less, the spread of records geographically across the survey area and through the survey period suggests a resident population well established in this area, including rare white coated individuals. This is consistent with Oleynikov and Saveljev (2016).

Albinism can be defined in several different ways, but there are a few distinctive types of albinism depending on certain defining characteristics. True or complete albinism is the total absence of integumentary and retinal pigmentation (Sandoval-Castillo et al., 2006). Partial albinism occurs when pigment is reduced or absent from the skin, feathers, or eyes (Berdeen and Otis, 2011). Leucism or leukism is a form of partial albinism characterized by retention of color in the eyes, bill, and legs but the skin or plumage contains no color pigment (Forrest and Naveen, 2000).

There are discrepancies in these definitions depending on the time of publication and the author. Some older articles have defined albino as an animal with any lack of pigment on the body, while others use the term leucistic for what should, by these definitions, be termed partial (Jehl, 1985; Owen and Shimmings, 1992; Castillo-Geurrero et al., 2005). In our case, the live-trapped white otter did not have pigmentation in the eyes (Fig.5), but pigmentation on the nose and paws had been retained, thus we inclined to think that it was manifestation of partial albinism. Because we had no information on eye pigment for other observations reported here, it is unclear if those white coated otters were true albinos, partial albinos or leucistic animals.

Although aberrantly pale individuals have been recorded in other species of *Lutrinae* subfamily (Procter, 1963; Lariviere, 2002; Costa Toledo et al., 2014), this study represents the first record of partial albinism in Eurasian otter on the mainland Russian Far East and confirms the presence of corresponding genes (Summers, 2009) in the population in Southern Sikhote Alin mountain range.

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## RÉSUMÉ

### OBSERVATIONS RECENTES DE LA LOUTRE EURASIENNE, *Lutra lutra*, INCLUANT DES INDIVIDUS A PELAGE BLANC, DANS LE SUD SIKHOTE ALIN, L'EXTREME ORIENT RUSSE

La loutre eurasienne (*Lutra lutra*) est une espèce dont l'aire de répartition est très étendue dont un tiers se trouve en Russie. Bien que la loutre eurasienne soit classée par l'IUCN comme espèce «quasi menacée» avec une population en déclin, il est également rapporté que le Primorsky Kraï est une région à forte densité de population de loutre dans l'Extrême-Orient russe. Cette étude présente des données empiriques sur les loutres dans le Sud-Est du Primorsky Kraï et réactualise le statut existant de la carte de répartition en utilisant des pièges photos et le piègeage vivant. Les données des archives de la Réserve de Lazovsky et du Parc National de Zov Tigra ne comprenaient que des individus à pelage blanc. Au cours de la période 2014-2019, la loutre eurasienne a été photographiée à 84 reprises par 18 pièges photos, capturée vivante à 2 reprises et 7 données d'individus à pelage blanc ont été retrouvées dans Les Chroniques de la Nature de la Réserve Lazovsky. La répartition géographique des enregistrements dans la zone d'étude et durant la période du suivi suggère une population résidente bien établie dans cette aire.

## RESUMEN

### OBSERVACIONES RECIENTES DE NUTRIA EURASIÁTICA *Lutra lutra* INCLUYENDO INDIVIDUOS DE PELAJE BLANCO, EN EL SIKHOTE ALIN MERIDIONAL, EXTREMO ORIENTE DE RUSIA

La nutria eurasiática (*Lutra lutra*) es una especie de amplia distribución, estando un tercio de su rango geográfico en Rusia. Aunque está categorizada por la UICN como "Casi Amenazada" y con población declinante, también se ha informado que Primorsky Kraï es una región con alta densidad poblacional de nutrias en el extremo oriental de Rusia. Este estudio presenta datos empíricos sobre las nutrias en la parte sud-oriental de primorsky Kraï, y actualiza el status en un mapa de distribución, en base a cámaras-trampa y captura viva. Los datos de los archivos de la Reserva Lazovsky y el Parque Nacional Zov Tigra incluyeron solamente individuos de pelaje blanco. Durante 2014-2019 la nutria eurasiática fue foto-trampeada 84 veces en 18 estaciones de cámaras-trampa, capturada viva en 2 ocasiones, y se obtuvieron 7

reportes de individuos de pelaje blanco en la crónicas naturales de la Reserva Lazovsky. La dispersión de los registros a través de toda el área relevada y todo a lo largo del período examinado sugieren una población residente y bien establecida en este área.

#### **РЕФЕРАТ**

#### **НАБЛЮДЕНИЯ ПО ЕВРАЗИЙСКОЙ ВЫДРЕ *Lutra lutra*, ВКЛЮЧАЯ ОСОБЕЙ БЕЛОГО ОКРАСА, НА ЮЖНОМ СИХОТЕ-АЛИНЕ, ДАЛЬНИЙ ВОСТОК РОССИИ**

Евразийская выдра (*Lutra lutra*) является широко распространённым видом, где одна треть его ареала приходится на территорию России. Хотя МСОП категоризирует выдру, как близкий к уязвимому положению вид со снижающейся численностью популяции, так же сообщается, что Приморский край является регионом с высокой плотностью популяции выдры на Дальнем Востоке России. Данная статья представляет собой набор эмпирических данных по выдре в юго-восточной части Приморского края и дополняет уже существующий статус на карте ареала с использованием животолова и попутных данных с фотоловушек. Данные из архивов Лазовского заповедника и национального парка «Зов тигра» включили в себя только особей белого окраса. В период 2014-2019 Евразийская выдра была зарегистрирована на фотоловушках 84 раза на 18-ти стационарах, в 2-х случаях отловлена живой, и данные о 7 случаях белого окраса у выдры были взяты из томов Летописи Природы Лазовского заповедника. Географическое распределение данных на исследуемой территории за данный период исследования предполагает наличие резидентной, хорошо зарекомендовавшей себя популяции в этом районе.

## SHORT NOTE

### ACTIVITY PATTERNS OF THE NEOTROPICAL OTTER (*Lontra longicaudis*) IN THE RIVER ORINOCO (COLOMBIA)

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**Abstract:** The Neotropical otter (*Lontra longicaudis*), classified as Near Threatened, has the widest distribution of all South American species of the genus *Lontra*. Historically, this otter has always been considered to be a diurnal species despite the fact that only one study has ever investigated its activity cycles. Therefore, knowledge of the activity patterns of the Neotropical otter is still at best anecdotal. In this study, we describe the activity patterns of this otter in an area on the river Orinoco frequented by humans using records obtained by remote camera trapping. Our results seem to indicate that the Neotropical otter in our study area is mostly active at night and at dawn, which indicates that this species' activity cycles are more flexible than once thought.

**Citation:** Garrote, G, Alvarez, A, Asensio, V, Castañeda, B, Marín, B, Bonilla, P and Trujillo, F (2020). Activity Patterns of the Neotropical Otter (*Lontra longicaudis*) in the River Orinoco (Colombia). *IUCN Otter Spec. Group Bull.* **37** (3): 158 - 162

**Keywords:** Llanos orientales, circadian activity, camera trap, circular statistics

## INTRODUCTION

The activity patterns of most animals are related to circadian rhythms and periodic changes in environmental factors (Aschoff, 1966). Carnivores usually exhibit daily cycles of activity, which are probably determined by prey activity and feeding tactics (Zielinski, 1988; Lode, 1995). As well, some may change their activity patterns as a strategy to avoid interspecific competition (Alvarez et al., 2017) or coinciding with human activities (Riley et al., 2008).

The Neotropical otter (*Lontra longicaudis*), is classified as Near Threatened (Rheingantz and Trinca, 2015) and has the largest distribution of all South American *Lontra* species (Redford and Eisenberg, 1992). Nevertheless, critical data regarding



aspects of its biology, demography, and behaviour are still lacking for many parts of its range (Rheingantz and Trinca, 2015).

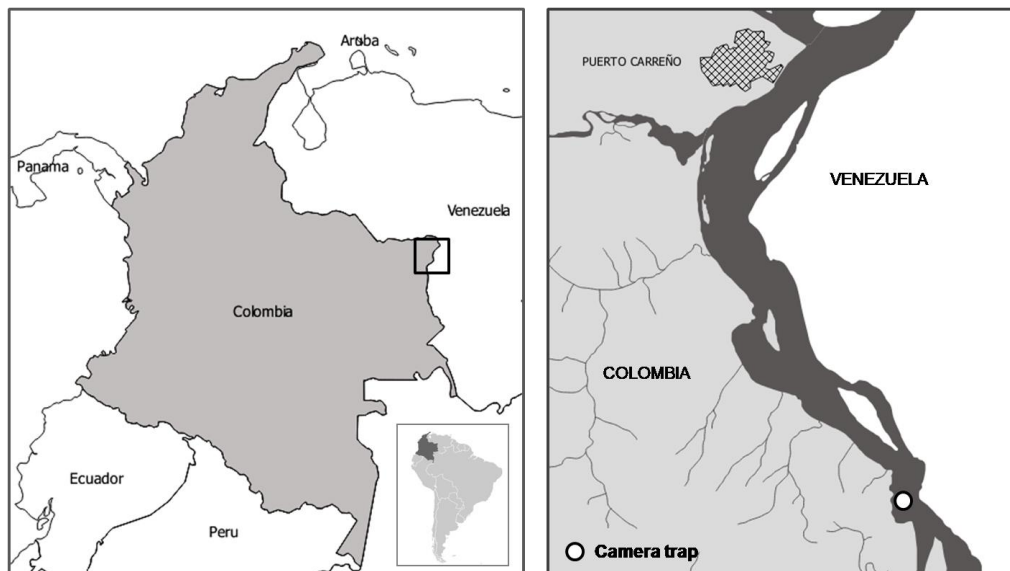
Historically, the Neotropical otter has always been considered a diurnal species (Parera, 1993), although only one study has ever investigated its activity cycles (Rheingantz et al., 2016). The use of camera traps in two regions of Brazil, the Pantanal and the Atlantic Forest have revealed differing activity patterns in each area, this otter being diurnal in the former and nocturnal in the latter. Therefore, knowledge of the activity patterns of the Neotropical otter is at best anecdotal (Rheingantz et al., 2016). In our study, we aimed to describe the activity patterns of the Neotropical otter in an area frequented by humans along the river Orinoco in the Department of Vichada, Colombia.

## METHODS

### *Study area*

The study was carried out along the river Orinoco in the municipality of Puerto Carreño in the northeast of the department of Vichada (E Colombia; 6° 11' 16" N, 67° 28' 23" W: Fig. 1). There are two discernible seasons, dry (December-March) and rainy (April–November) (IGAC, 1996). This area is characterized by the presence of numerous rocky outcrops, which give rise to areas of rapids and backwaters. The Giant Otter (*Pteronura brasiliensis*) is present in the area and both species of otters use these rocky outcrops as sites for their latrines. Commercial and recreational fishing is frequent in the area.

Between 29 January and 28 February 2019, we placed one camera trap (Bushnell R Trophy Cam) opposite the entrance to a holt of a Neotropical otter, following the methodology used by Rheingantz et al. (2016). We used one-hour intervals as independent periods between photographic records (Di Bitetti et al., 2010; Leuchtenberger et al., 2014). The holt consisted of a cove between the rocks of an outcrop on an island in the middle of the river Orinoco.



**Figure 1.** Location of the study area in Eastern Colombia and camera trap location.

### *Statistical analysis*

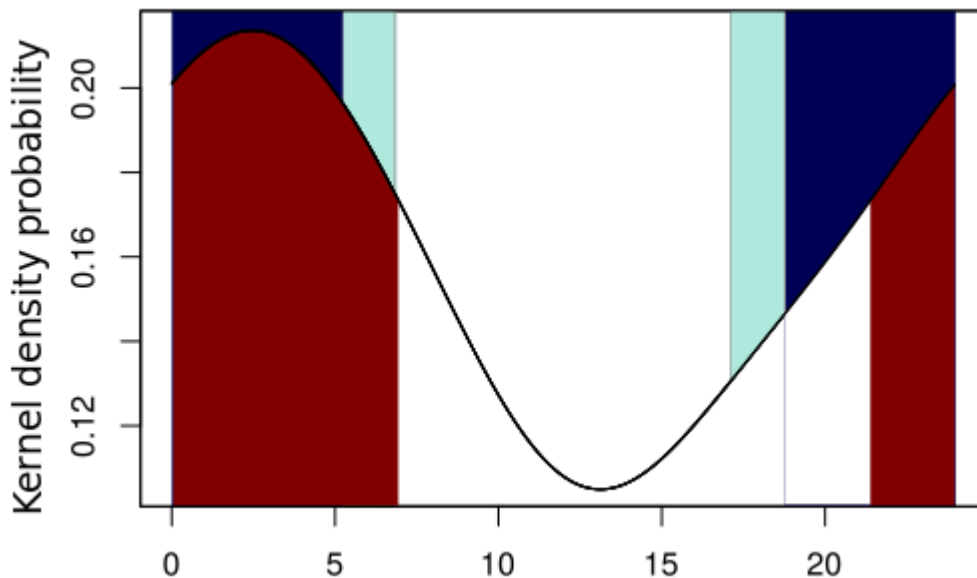
We established a standardized circadian scale with sunrise and sunset times at 06:00 and 18:00, respectively. The raw time information of each record was rescaled to this standardized scale by interpolation based on sunrise and the sunset times at the

site and the date of the record. We described activity patterns using circular kernel density estimations (Oliveira-Santos et al., 2013) that recognize the continuous circular nature of the data. We estimated activity using 50% isopleths.

We evaluated the otters' activity during four periods in the diel cycle (dawn, day, dusk and night) using Ivlev's Electivity Index (Ivlev, 1961). We defined dawn and dusk as the periods when the sun's height is below  $-12^\circ$  and  $+12^\circ$  and measured availability as the proportion of the diel cycle covering each period. The use made by otters of each period was estimated as the proportion of the kernel activity density located within that period. We tested the hypothesis of period selection by otters by resampling (bootstrap with replacement) capture events 1,000 times using the same number of records as the original sample. We rejected the Electivity index selection when the zero value lay within the 2.5% and 97.5% quantiles of the distribution of the simulated Electivity index values. We ran all analyses on R using the *tidyverse*, *circular* and *maptools* packages.

## RESULTS

We obtained 13 independent records from a sampling effort of 30 camera traps/days. Previous studies indicate that a minimum of 10 records is necessary to perform this analysis (Monterroso et al., 2014). The kernel density function (Fig. 2) has a unimodal distribution with the 50% kernel density probability corresponding to the night and dawn periods.



**Figure 2.** Circadian distribution of kernel density probabilities (continuous lines) of activity in the Neotropical Otter (*Lontra longicaudis*) along the river Orinoco using camera trapping. The light blue area indicates the crepuscular periods (the first represents dawn and the second dusk). The dark blue area represents the night, while the dark red area represents the 50% kernel density probability.

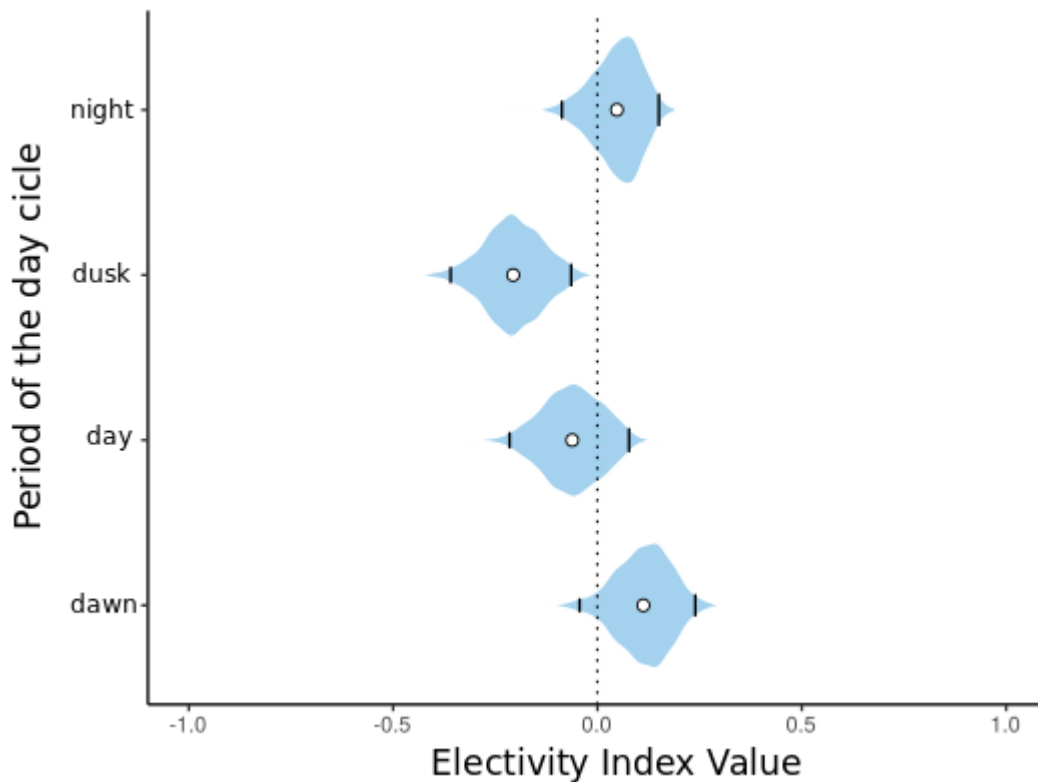
The results of the Electivity index values indicate that otters significantly avoid dusk (Fig. 3). Otters negatively selected the day but positively selected night and dawn, although these latter selections were not statistically significant.

## DISCUSSION

Despite the relatively few photographs obtained, and the fact that we just sampled one holt, our results indicated that the Neotropical Otter in the study area concentrates its activity at night and dawn. This concurs with the findings obtained by

Rheingantz et al. (2016) in the Atlantic forest. These authors point to intense human activity and synchronization with prey species that are mainly crepuscular or nocturnal as possible causes of the predominance of nocturnal activity. During the dry season, this stretch of the Orinoco River is frequented by fishermen that habitually camp out on its banks, sometimes with their families and dogs. Therefore, as in the Atlantic forest, human activity could be a factor driving the nocturnal activity pattern, this time of year, in our study area.

Other main factors that may influence a species' activity patterns as the diet of the Neotropical otter and interspecific competition with the giant otters are unknown for the region and need to be investigated in order to either support or refute these hypotheses.



**Figure 3.** Estimates of Ivlev Electivity Index (EI) for the Neotropical Otter (*Lontra longicaudis*) on the river Orinoco using camera trapping. Each white dot represents the Electivity Index for each period. The light blue area represents the density distribution of all simulated indices. The black lines represent the 2.5% and 97.5% quantiles of the distribution of simulated Electivity index values.

The results presented here must be treated with care due to the small sample size. Nevertheless, these data represent novel information about the activity patterns of the Neotropical Otter in the river Orinoco. As well as attempting to increase the number of activity records of the species, we should also aim to explore aspects such as the influence of anthropogenic activities, diet, foraging strategies related to prey activity, and interactions with the Giant Otter to identifying more clearly which factors modulate activity patterns in the Neotropical Otter in this region.

**ACKNOWLEDGEMENTS** - This study was funded by Fundación Barcelona Zoo and Ayuntamiento de Barcelona. We thank an anonymous reviewer who improved the manuscript.

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## RÉSUMÉ

### MODÈLES D'ACTIVITÉ DE LA LOUTRE À LONGUE QUEUE (*Lontra longicaudis*) SUR LA RIVIÈRE ORÉNOQUE (COLOMBIE)

La loutre à longue queue (*Lontra longicaudis*), répertoriée comme quasi menacée, a la distribution la plus large de toutes les espèces sud-américaines du genre *Lontra*. Historiquement, cette loutre a toujours été considérée comme une espèce diurne en dépit du fait qu'une seule étude ait investigué ses cycles d'activité. Par conséquent, la connaissance des modèles d'activité de la loutre à longue queue est encore au mieux anecdotique. Dans cette étude, nous décrivons, à l'aide d'enregistrements à distance obtenus par des pièges photos, les schémas d'activité de cette loutre dans un secteur de la rivière Orénoque fréquenté par l'homme. Nos résultats semblent indiquer que la loutre à longue queue de notre zone d'étude est principalement active durant la nuit et à l'aube, ce qui indique que les cycles d'activité de cette espèce sont plus flexibles qu'on ne le pensait.

## RESUMEN

### PATRONES DE ACTIVIDAD DE LA NUTRIA NEOTROPICAL (*Lontra Longicaudis*) EN EL RÍO ORINOCO (COLOMBIA)

La nutria neotropical (*Lontra longicaudis*), clasificada como Casi Amenazada, tiene la distribución más amplia de todas las especies sudamericanas del género *Lontra*. Históricamente, esta nutria siempre se ha considerado una especie diurna a pesar de que solo un estudio ha investigado sus ciclos de actividad. Por lo tanto, el conocimiento de los patrones de actividad de la nutria neotropical sigue siendo, en el mejor de los casos, anecdótico. En este estudio, mediante datos obtenidos con cámaras trampa, describimos los patrones de actividad de esta nutria en un área del río Orinoco frecuentada por humanos. Nuestros resultados parecen indicar que la nutria neotropical en nuestra área de estudio está principalmente activa en la noche y al amanecer, lo que indica que los ciclos de actividad de esta especie son más flexibles de lo que se pensaba.

## REPORT

### NEW LOCALITIES OF THE EURASIAN OTTER *Lutra lutra* (Linnaeus, 1758) IN THE UPPER EUPHRATES RIVER BASIN, A REMARKABLE RANGE EXTENSION IN WESTERN IRAQ

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**Abstract:** Records of the Eurasian Otter (*Lutra lutra*) have been confined to the waterbodies of southern, central, and northern Iraq (Kurdistan). Although its status in the Upper Euphrates River Basin in western Iraq is not fully explored, it seems to be rare. In August 2019, two adult Eurasian otters were reported from two new localities in Anbar Province after being strangled by fishing nets. These records represent the first photographic evidence for a remarkable range extension of the Eurasian Otter distribution range in western Iraq.

**Citation:** Al-Sheikhly, OF, Haba, MK, and Barbanera, F (2020). New Localities of the Eurasian Otter *Lutra lutra* (Linnaeus, 1758) in the Upper Euphrates River Basin, a Remarkable Range Extension in Western Iraq. IUCN Otter Spec. Group Bull. **37** (3): 163 - 170

**Keywords:** Eurasian Otter; Fishing; Hunting and trapping; Iraq; Western plateau

#### THE EURASIAN OTTER IN THE MIDDLE EAST

The Eurasian Otter (*Lutra lutra*) is one of the most widely distributed Palearctic mammals. Its zoogeographical range covers parts of three continents: Europe, Asia and Africa (Ando and Corbet, 1966). The species' southernmost range in the Middle East is formed by a patchy distribution of disconnected populations that occur in Turkey, Palestine and Israel, Lebanon, Jordan, Syria, Iran, and Iraq (Roos et al., 2015; Yoxon and Yoxon, 2019).

In Turkey, the Eurasian Otter was once common and widespread throughout western and eastern parts of the country and around the Black Sea (Turan, 1984). Overall, the population has been notably reduced over the past 50 years (Eroglu, 1994). It was recorded from Rivers Dide, Firat, Aras, and Kura in Anatolia as well as in Seyhan, Ceyhan, Asi, Goksu and Aksu in the area of Aegean Sea, and from around Cannakale on the northwestern coast (MacDonald and Mason, 1994). However, a recent increase was noted in the northeastern part of the country associated with the development of aquaculture systems (Conroy *et al.*, 1998). On the other hand, various studies related to the Eurasian otter distribution, habitat selection, and food preferences in Turkey have been carried out over the last 20 years (Toyran and Albayrak, 2019).

In Palestine and Israel, the Eurasian Otter was fairly common. It was recorded from the shores of Lake Tiberias, Lake Huleh, the Sea of Galilee, and the mouth and upper reaches of the Jordan River where they are locally common (Harrison and

Bates, 1991; Dolev et al., 2006). Eurasian otters were also recorded from Dan, the Beteha Valley, Tirat Zevi, Bet She'an Valley, near Akko on the northern coastal plain, and in the borders with Lebanon (MacDonald et al., 1986; Yom-Tov, 1986). Nevertheless, the species has vanished from the southern coastal plain and it is now restricted to En Nimfit Nature Reserve in the northern coastal plain, with a resident population in the Golan Heights (Illani, 1987; 1988). However, since 1960s, the Eurasian Otter population has dramatically declined and more than 100 individuals might still remain in Israel (Yom-Tov, 1986; Shalmon, 1994; Reuther and Dolev, 2000; Dolev and Perevolotsky, 2004). A single record from the Zvulun Valley and Carmel coastal area suggests the existence of a remnant population along the coast, which might be now extinct (Dolev et al., 2006; Guter et al., 2006). More recently, the presence of distinct subpopulations of the Eurasian Otter have been documented in Hula, Harod and Yisrael valleys, in the Sea of Galilee Basin and the Jordan Valley, and the Golan Heights (Cohen et al., 2013).

In Jordan, the Eurasian Otter is restricted to the rivers Jordan, Yarmouk, and Zarka (MacDonald and Mason, 1994; Reuther et al., 2001). While the species is still thriving in the River Jordan, yet its population size is not fully known (Yoxon and Yoxon, 2019).

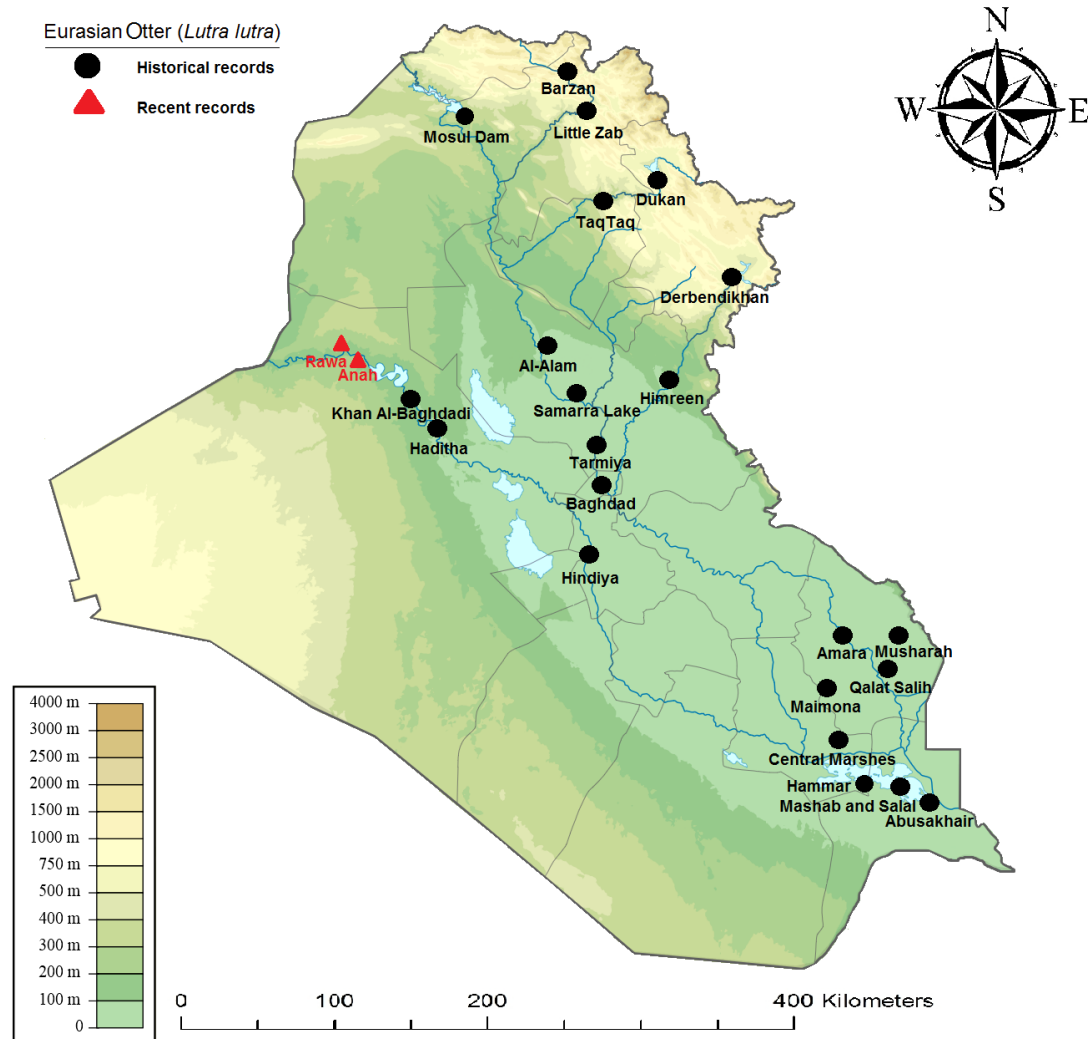
In Lebanon, the Eurasian Otter was recorded at Ammik Swamp (Lewis et al., 1968; Harrison and Bates, 1991). Recently, it was reported from Hima Anjar (Hima Kfar Zabad, Anjar, Beqaa Valley) but believed not to exist elsewhere (Loy et al., 2016; Ramadan-Jaradi et al., 2019).

In Syria, the Eurasian Otter occurs along the Euphrates River from Deir ez-Zor up to Abu Kamal (at the Iraqi border), Al Mayaddin and Doura Europos, but it is absent in the north-westernmost area of Raqqa (Masseti, 2009). The species population has declined over the last 40 years mainly due to the irrigation scheme and river management at Deir-ez-Zor during and following the construction of the Tabaqa dam (Jacques, 1998). It was reported from the Khabur Valley, an island in the Euphrates River at Doura Europos, Halabiyeh, Tell Sheikh, and along the River Khabur, with these sites being all located in the district of Deir-ez-Zor (Kock et al., 1994; Uhrin et al., 2000).

In Iran, the Eurasian Otter is found throughout the country, being absent only from central and southern desert regions. The species has been reported from Gilan, Mazandaran, Azarbajejan, Tehran, Kordestan, Kermanshah, Markazi, Isfahan, Khorasan, Chaharmahal-Bakhtiari, Fars, Khozestan, and Lorestan provinces (Ishunin, 1977; Kiabi, 1993; Tajbakhsh, 1995; Gutleb et al., 1996; Melisch and Rietschel, 1996; Ziaee, 1996; Mirzajanei, 1998, 1999; Mirzaei, 2006). The species can be also found in the Zagros, Elbruz and Koppe-Dagh mountain ranges, in the Iranian Azarbaiejan, in the Hamoon Wetland bordering with Afghanistan, and possibly found on the southern shores of the Caspian Sea (Ziaie and Gutleb, 1997; Conroy et al., 1998). Two subspecies of the Eurasian Otter are recognized in Iran: *L. l. seistanica*, which occurs throughout the country and *L. l. meridionalis* which is confined to the banks of the Heermand River (Eetamad, 1984). The species was reported from Jajrood, Taleghan, and Neka rivers, the Sangar Dam, Gorgan, and Shenrood (Karami et al., 2006). Recent studies (e.g. Mirzaei et al., 2009; 2010; **Hadipour** et al., 2011; Naderi et al., 2017) identified the ecological requirements of this species across Iran.

In Iraq, two otter species are found, namely the Iraq's Smooth-coated Otter *Lutrogale perspicillata maxwelli*, which is confined to the marshes of southern Iraq, and the Eurasian Otter (Al-Sheikhly et al., 2015). The latter occurs in almost all suitable aquatic habitats along the Tigris and Euphrates Rivers mainly in the southern

parts of the country, although few records are known from central and the north (Kurdistan). The Eurasian Otter was reported from Amara, Qalat Salih, Baghdad and Hindiya, the Central Marshes, in the vicinity of Al-Maimona, Abusakhair, Musharah River, rivers of Mashab and Salal in eastern Hammar Marsh, Tarmiya, Al-Alam, Samarra Lake, Himreen, Khan Al-Baghdadi, Haditha, Derbendikhan, Dukan, Little Zab, Barzan, and TaqTaq (Cheesman, 1920; Sanborn, 1940; Hatt, 1959; Harrison and Bates, 1991, Al-Sheikhly and Nader, 2013; Abass, 2013). The first photographic evidence for the occurrence of the species in Al-Hammar Marsh and Mosul Dam in southern and northern Iraq, respectively, was recently provided by Al-Sheikhly et al. (2017) (Fig.1).



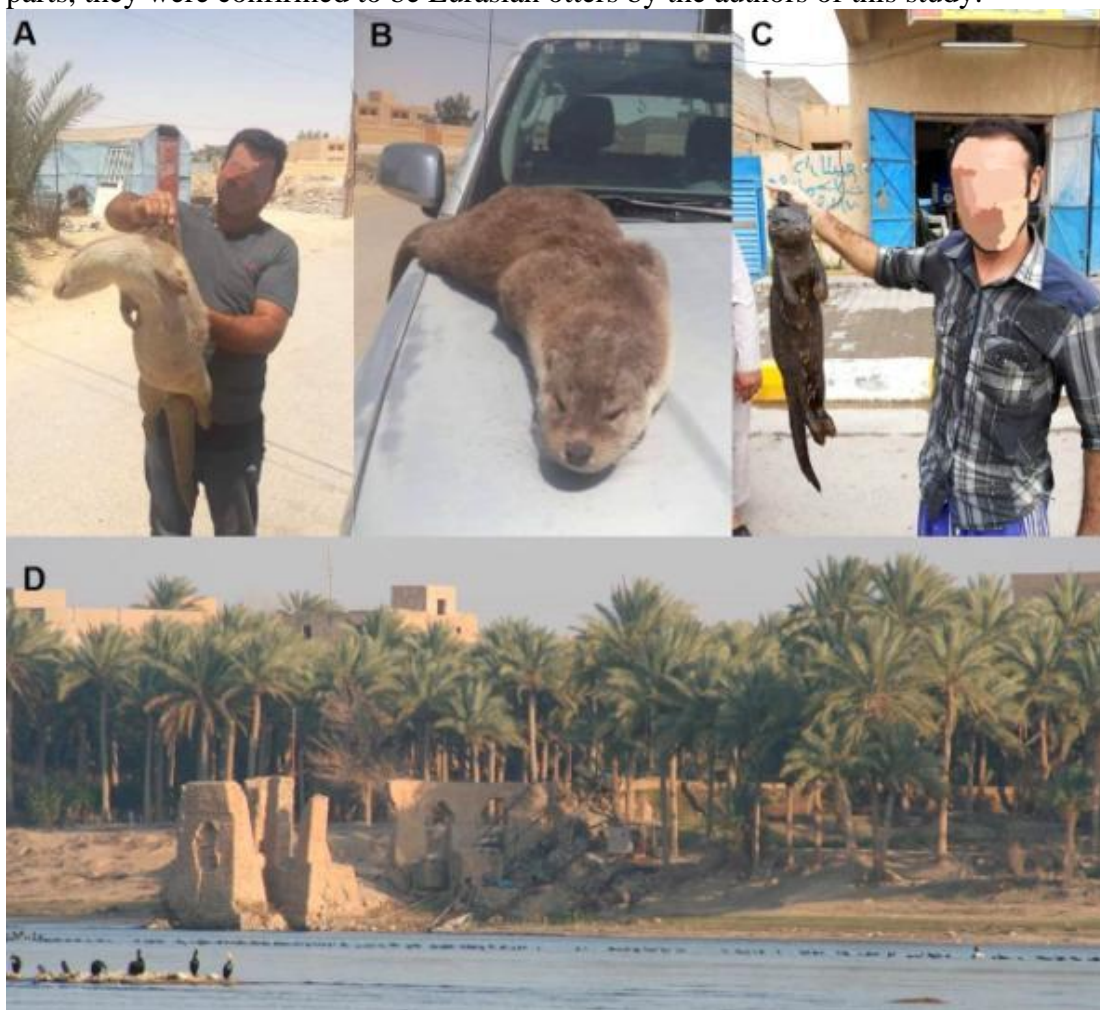
**Figure 1.** The geographical distribution of the Eurasian Otter (*Lutra lutra*) in Iraq with historical and recent records.

### RECENT RECORDS IN IRAQ

In the present study, we report two new localities for the occurrence of the Eurasian Otter in the Upper Euphrates River Basin of the desert plateau in Anbar Province of western Iraq (Fig. 1).

Our recent records are based on photographs of dead specimens supplied by local fishermen and supported by interviews and personal communications. An adult male Eurasian Otter was reported by a local fisherman along the eastern bank of the Euphrates River near Anah (Anah Al-Jadydah) (34°23'N 41°59'E) on 20<sup>th</sup> of August 2019 (Fig. 2A & B). An adult female Eurasian Otter was reported by a local

fisherman from the western bank of the Euphrates River near Rawa (Rawah) (34°28'N 41°54'E), c. 12 km to the northwest of Anah on 22<sup>nd</sup> of August 2019 (Fig. 2C). The habitat of both sites is comprised mainly of riparian vegetation of dense reed beds, *Tamarix* sp. shrubs, *Populus* sp. and *Ziziphus* sp. trees, and Date palm orchards which lined both banks of the Euphrates River and infiltrated by narrow brooklets and runlets (Fig. 2D). Interviews indicated that both otters died after being strangled and drowned in the drift fishing nets that were set by the local fishermen in the main watercourse of the Euphrates River. The local fishermen did not recognize the dead otters at first and referred them as to “Qundis” (Eurasian Beaver: *Castor fiber*, Rodentia). This misidentification did not come as a surprise, as the local fishermen are not used to see Eurasian otters in the streams and waterways of the Euphrates River in western Iraq, where they appear to be extremely rare. However, after a close morphological examination of the dead animals, with a special focus on their cranial parts, they were confirmed to be Eurasian otters by the authors of this study.



**Figure 2.** A and B: adult male Eurasian Otter in Anah; C: adult female Eurasian Otter in Rawa (photos© Yassir Al-Rawi); D: the landscape of the Euphrates River banks in Anbar Province in western Iraq (photo © Ali N. Al-Barazangi).

The status of Eurasian Otter in the Upper Euphrates River Basin in western Iraq is enigmatic; scarce information from unverified reports were obtained from Khan Al-Baghdadi and Haditha (Al-Sheikhly and Nader, 2013). While a small isolated population of the Eurasian Otter might be present in the Upper Euphrates River Basin across the area of western Iraq and eastern Syrian borders, more in general the species



appears to be rare. Jacques (1998) suggested that if Eurasian otters were present in the Euphrates River in eastern Syria, then they might have come from up-or downstream of the bordering countries. More recently, Masseti (2009) reported that a small population of the Eurasian otters is still present in eastern Syria *between the confluence of the Euphrates with the Khabur River* and the border with Iraq. In western Iraq, our interviewers indicated that Eurasian otters may be still found in the Euphrates River and around large lakes (e.g. Al-Qadissyah Lake 34°15'N 42°20'E), as they are attracted by fish abundance and fish in nets, similarly to what had just occurred in the vicinities of Anah and Rawa. Recently, fishing activities in western Iraq has increased after the flooding of the Euphrates River; large fish were probably washed down from upstream countries such as Turkey and Syria (Al-Bayar M. pers. comm., 2019). The two current records reported in our study represent the first confirmed photographic evidence for a remarkable extension of the Eurasian Otter distribution range in western Iraq. The two records described above were obtained ca. 50 km away from the westernmost edge of the species known range in the country, namely Khan Al-Baghdadi and Haditha sites (Al-Sheikhly and Nader, 2013). In addition, the distance between the two recovered dead individuals was ca. 10 km, which is larger than average (7.5 Km) male and within (10.2-19.3 Km) of the female known home range extension in a riverine habitat (Ó Néill et al., 2009). Although further monitoring is certainly required, these records suggest the possible occurrence of at least two distinct subpopulations and mark out a significant expansion of the species range with respect to the previously available data in western Iraq.

## CONCLUSIONS

Besides man-made impacts on aquatic ecosystems, the Eurasian Otter global population is facing a dramatic decline in parts of its distribution, the lack of information from many regions of its range, and the sensitivity of the species to sudden changes in threats; therefore, it has been listed as Near Threatened by the IUCN Red List (Roos et al., 2015). Strangulation and drowning of otters in drift nets and other fishing nets has been highlighted as a major cause of mortality of Eurasian otters from range countries (Reuther and Hilton-Taylor, 2004; Roos et al., 2015). Specifically, besides habitat destruction and illegal hunting and trapping, conflict with fishermen has been highlighted as a major threat to the Eurasian Otter populations in Iraq. Nevertheless, urgent conservation actions are warranted for Eurasian otters throughout the Middle East and Iraq (Al-Sheikhly et al., 2014). In recent years, a conservation program for both Eurasian and Smooth-coated Otter populations was established especially in the southern marshes of Iraq following the collaboration between the University of Baghdad (Iraq) and the University of Pisa (Italy). The main outcomes of such research work dealt with (i) constant monitoring of distribution, size, and habitat preference of both species populations, (ii) genetic identification using molecular DNA markers (e.g. Moretti et al., 2017), and (iii) raising awareness on major threats on both species, which, overall, will significantly help to establishing effective management plans.

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## RÉSUMÉ

### NOUVELLES PRÉSENCES DE LA LOUTRE EURASIENNE *Lutra lutra* (Linnaeus, 1758) DANS LE BASSIN SUPÉRIEUR DE L'EUPHRATE, UNE EXTENSION REMARQUABLE DANS L'OUEST DE L'IRAK

Les enregistrements de la loutre eurasienne (*Lutra lutra*) ont été limités aux plans d'eau du sud, du centre et du nord de l'Irak (Kurdistan). Bien que son statut dans le bassin supérieur de l'Euphrate à l'ouest de l'Irak ne soit pas complètement exploré, elle semble être rare. En août 2019, deux loutres eurasiennes adultes ont été signalées dans deux nouvelles localités de la province d'Anbar après avoir été étranglées par des filets de pêche. Ces enregistrements représentent la première preuve photographique d'une extension remarquable de l'aire de répartition de la loutre eurasienne dans l'ouest de l'Irak.

## RESUMEN

### NUEVAS LOCALIDADES PARA LA NUTRIA EURASIÁTICA *Lutra lutra* (Linnaeus, 1758) EN LA CUENCA SUPERIOR DEL RÍO EUFRATES, UNA DESTACABLE EXTENSIÓN DE SU RANGO DE DISTRIBUCIÓN EN IRAQ OCCIDENTAL

Los registros de Nutria Eurasiática (*Lutra lutra*) han estado confinados a los cuerpos de agua de Iraq del sur, central y del norte (Kurdistan). Aunque su status en la cuenca superior del Río Eufrates en Iraq occidental no está completamente explorado, parece ser rara. En Agosto de 2019 fueron reportadas dos nutrias eurasiáticas adultas, de dos nuevas localidades en la Provincia de Anbar, después de que se enredaran en redes de pesca. Estos registros representan la primer evidencia fotográfica de una destacable extensión del rango de distribución de la Nutria Eurasiática en Iraq occidental.

## ARABIC ABSTRACT

مواقع أنتشار جديدة للقضاعة الأوراسية (*Lutra lutra* (Linnaeus, 1758) في أعلى حوض نهر الفرات, أمتداد جدير بالملاحظة لمدى الأنتشار في غرب العراق  
تتركز مناطق تسجيل القضاعة الأوراسية (*Lutra lutra*) في المسطحات المائية في جنوب, وسط, وشمال العراق (كوردستان). بالرغم من أن الوضع الحالي للنوع في أعالي نهر الفرات غير مكتشف بشكل كامل, إلا أنه قد يبدو نادراً هناك. في أب 2019, تم الإبلاغ عن اثنين من القضاعات الأوراسية البالغة في مناطق أنتشار جديدة في محافظة الأنبار بعد أن أختنقت بشباك صيد الأسماك. تمثل التسجيلات الجديدة الدليل السوري الأول لأمتداد جدير بالملاحظة لمدى أنتشار القضاعة الأ

## REPORT

### A REVIEW OF THE HAIRY-NOSED OTTER (*Lutra sumatrana*) IN BORNEO AND A RECENT SIGHTING AT DANUM VALLEY CONSERVATION AREA, SABAH

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**Abstract:** The Hairy-nosed Otter *Lutra sumatrana* is one of the rarest and least well known of the world's Otters. The species was seen and photographed in close proximity to Danum Valley Field Centre, Sabah, in October 2019. The Danum Valley Conservation Area comprises protected lowland dipterocarp forest and may be the only place currently known to host all four Southeast Asian Otter species. In this paper I describe the sighting, summarise other recent (post 2000) Hairy-nosed Otter records in Borneo and briefly discuss the status and conservation of the species.

**Keywords:** *Lutra sumatrana*, Danum Valley Conservation Area, Sabah

#### DISTRIBUTION AND RECENT SIGHTINGS OF THE HAIRY-NOSED OTTER

The Hairy-nosed Otter *Lutra sumatrana* is endemic to Southeast Asia and is one of four otter species found in the region including the Eurasian Otter *Lutra lutra*, Smooth-coated Otter *Lutrogale perspicillata* and Oriental Small-clawed Otter *Aonyx cinereus*. According to Wright et al. (2008) the species appears to have been generally considered common until the middle of the twentieth century, but by 1977, when it was listed on CITES Appendix II, the Hairy-nosed Otter was thought to be declining. There was concern over its status as no records had been reported for a decade or more until an animal was seen in southern Thailand in 1999 (Kanchanasaka et al., 2003 reported in Wright et al., 2008). A new specimen was also collected in Brunei in 1997 (Sasaki et al., 2009). Since the late 1990s it has been rediscovered in several places, with a small number of observations from scattered localities in Thailand, Indonesia, Vietnam, Cambodia, and Malaysia (e.g. Wright et al., 2008; Baker, 2013; Latifiana and Pickles 2013; Salashour, 2016, see also references in Aadrean, 2015 and Table 1) and a skin found in trade in Myanmar (Shepherd and Nijman, 2014). It has been studied in several locations including Phru Toa Daeng Peat Swamp Forest in Thailand (Kanchanasaka and Duplaix, 2011), U Minh Thuong Nature Reserve in

Vietnam (Nguyen et al., 2001) and Tonle Sap in Cambodia (Poole, 2003; Heng et al., 2007; Wilcox et al., 2016) but neither group sizes nor abundance are known (Aadrean, 2015). The paucity of records and studies of this species do not allow for a complete description of its habitats and altitudinal range. However, it has been reported in flooded forest, peat swamp forests, lowland dipterocarp forest, freshwater swamp forest, and estuaries dominated by *Nypa* and mangroves (IUCN Otter Specialist Group, 2015). Insufficient information is available to estimate population size or the number of mature animals and only limited and fragmented information exists about the full extent of the species' historical geographic range. It remains poorly known and is the rarest of Asia's otter species, listed as Endangered by IUCN (Aadrean et al., 2015) with a decreasing population.

Wright et al. (2008) identified that the island of Borneo should be surveyed wherever possible as it formed part of the species' historic range. Subsequently, there have been a handful of confirmed records from the island (Table 1) including from Kalimantan (Huda et al., 2019) and Sabah, where the species has been reported from three locations; the Kinabatangan River (Hobcroft, 2009), Deramakot (Wilting et al., 2010) and the Lower Segama area (Ishigami et al., 2017). Until their recent study (Table 1) Huda et al. (2019) reported that, as of mid-2019, there had been no records of this species in the southern part of Borneo, south of the 01°15'00.00"S line. Sasaki et al. (2009) surveyed Hairy-nosed Otter specimens lodged in a range of museums around the world and reported 12 from Borneo, of which two are historical specimens from Sabah state (1876 and 1880), four from Sarawak, four from Brunei, and two from Kalimantan. The most recent specimens appear to have been from Brunei (1978, 1986 and 1997), although there do not appear to be subsequent records from there.

**Table 1. Recent (post 2000) records of Hairy-nosed Otter from the island of Borneo**

Date	Location	Habitat	Reference	Comments/verified
<b>Sabah</b>				
2009	Menangol Channel, Kinabatangan river	River channel	Hobcroft, 2009	Trip report – no photographic evidence
2008	Deramakot Forest Reserve	Lowland – commercially logged mixed dipterocarp forest	Wilting et al., 2010	Confirmed sighting. Camera Trap
2016			Brugiere, 2017	Trip report - <i>possible</i> sighting, no photographic evidence Confirmed sighting with photographic evidence
2018			Mike Gordon, <i>pers. comm.</i>	
16 April 2016	Dagat village, lower Segama river area 5° 21'52"N, 118° 46'45"E.	Secondary freshwater swamp forest and lowland dipterocarp forest, with oxbow lakes.	Ishigami et al., 2017	Confirmed sighting with photographic evidence
12 October 2019	Danum Valley Conservation Area - western side of upper reaches of Segama River	Lowland dipterocarp forest	This record	Photographic evidence
<b>Kalimantan</b>				
June and July 2018	Lada Estate, Central Kalimantan Province 02°34'53" S, 111°46'21"E	Transition zone between areas planted with oil palm and mangrove forest in an area of oil palm surrounded by mangroves, peat-swamp and lowland dry dipterocarp forests.	Huda et al., 2019	1,304 camera trap nights gave 4 photos of HNO from 3 locations. One additional HNO was found dead on a road next to a mangrove conservation area.

## SIGHTING OF HAIRY-NOSED OTTER NEAR DANUM VALLEY FIELD CENTRE IN DANUM VALLEY CONSERVATION AREA

In October 2019, I undertook a mammal and bird watching holiday to Sabah, Borneo, including a visit to Danum Valley Field Centre (Fig. 1,2; 4.9647°N, 117.8051°E), a scientific station located on the edge of the 43,800 ha Danum Valley Conservation Area (DVCA). DVCA is a Class I (Protection) Forest Reserve containing the largest remaining area of undisturbed lowland dipterocarp forest in Sabah. It is located in Southeast Sabah, on the western side of the upper reaches of the Segama River (<http://www.borneoforestheritage.org.my/Danum/location.htm>).



**Figure 1.** Map showing the location of Danum Valley Conservation Area  
Credit. Sadalmelik – Own Work. <https://commons.wikimedia.org/wiki/User:Sadalmelik>. Topographic locator map of Borneo. Created with GMT from public domain SRTM data. For non-locator version, see Image:Borneo Topography.png. Left:108 Bottom:-5 Right:120 Top:8  
<https://creativecommons.org/licenses/by-sa/3.0/>. File:Borneo Locator Topography.png. Created: 1 September 2007.

On 12 October 2019 at 3:30 pm, while walking along the entrance track away from Danum Valley Field Centre (DVFC), approximately 1 km from the centre I saw and photographed an otter crossing the track. Just before a left hand bend, a small

stream runs under the road, and an otter appeared from the left hand side of the culvert, crossed the road, stopped briefly, and then disappeared back into the vegetation next to the stream on the other side of the road. I am very familiar with Eurasian Otter but the animal I saw was distinctly different to Eurasian Otter, although broadly similar in size. My initial impression of the otter was that it had a dark pelage and a very distinct and clearly demarcated white chin. On subsequent examination of my photographs, the literature, and consultation with otter experts, the species was identified as Hairy-nosed Otter. This rare species is poorly known, but distinct physically and genetically from its sister species, the Eurasian Otter, from which it is reciprocally monophyletic<sup>1</sup> (Koepfli et al., 2008).



**Figure 2.** Danum Valley Field Centre, October 2019. Photo: ©Debbie Pain

The features that distinguish Hairy-nosed from Eurasian Otter in the field all appeared to be present in the animal observed (Fig. 3). The animal had a darker brown pelage than Eurasian Otter, with the ventral and dorsal surfaces appearing to be the same colour. It had a very distinctive white upper lip, chin and front part of the throat that did not extend down the breast. The enlarged photos (Fig. 3) show a naked rhinarium as a circle around the nostril (whereas Eurasian Otter does not have this) and no greyish fur on the cheeks (as is found in Eurasian Otter) (N. Duplaix, pers. comm. for comments on these identification features). Hairy-nosed Otter is also described as very long and snaky in shape, with a long and slender tail (Wright et al. 2008), and this was consistent with my impression of the animal, and the photographs.

Wright et al. (2008) reported that Sasaki (*pers. comm.* cited in Wright et al., 2008) compared the skull measurements of the four species of otters found in Asia and found that those of Hairy-nosed and Eurasian Otters were very similar, and distinct from Smooth-coated and Oriental Small-clawed Otters. While detailed measurements found a more elongated skull and rounder braincase in Hairy-nosed

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<sup>1</sup> i.e. all of the haplotypes sampled from one species are more closely related to each other than any haplotype from the other species, and vice versa.



Otter, skull shape is considered to be of limited use for distinguishing between Hairy-nosed and Eurasian Otters in the field (Wright et al., 2008), although it may be a useful feature from certain angles with a good close view (e.g. see Figure 5 in Ishigami et al., 2017).

This appears to be the first published record this century of Hairy-nosed Otter from the Danum Valley area although the species has previously been included in a species list for the site (Emmons 2000). Camera trap photos from Danum Valley in 2013 show a mystery animal that may possibly have been either Hairy-nosed or Eurasian Otter, but the photos were not sufficiently clear for a firm identification (<https://www.mammalwatching.com/2013/03/26/mystery-beast-danum-valley-borneo/>). BirdLife International (2020) in their site description of DVCA note the occurrence of Hairy-nosed Otter, but the site description was from 2007 (Yeap et al. 2007 - the species was listed by IUCN as Data Deficient at the time) and the origin and date of the DVCA record is not obvious. All four Southeast Asian Otter species occur on a checklist of the mammals of Danum Valley (<https://www.sunda-islands.com/files/tieredanumvalley.pdf>), although no information is readily available concerning the date or origin of the information on this list.



**Figure 3.** Hairy-nosed Otter photographed on the entrance track to DVFC on 12<sup>th</sup> October 2019; 15:30. Photos © Debbie Pain

The closest records to DVCA of Hairy-nosed Otter are from Deramakot Forest Reserve (Table 1), approximately 20km away. While DVCA comprises 43,800 ha of protected and undisturbed lowland dipterocarp forest, the adjacent Deramakot Forest Reserve comprises 55,507 hectares of commercially logged mixed dipterocarp forest that was logged at least once before the commencement of the current management project, set up to demonstrate good forest management practices (<http://www.deramakot.sabah.gov.my/>). At Deramakot, 49,711 ha has been set aside for log production, 5,778 ha for conservation and the remaining 18 ha for community forestry. Recent records of Hairy-nosed Otter from these two forest sites highlight their importance for the conservation of this rare and threatened species, and of the value of maintaining some level of connectivity between them.



**Figure 4.** Detail of head and neck of Hairy-nosed Otter photographed on the entrance track to DVFC on 12<sup>th</sup> October 2019; 15:30. Photos © Debbie Pain

In their camera trap study at Deramakot Forest Reserve, Wilting et al. (2010) recorded Oriental Small-clawed Otter, Smooth-coated Otter and Hairy-nosed Otter, with records within a 250 ha area. In July 2014, Jon Johnston (Humbolt California State University) photographed a pair of Eurasian Otters near DVFC (Segama river) (Phillipps and Phillipps, 2018). The current record of Hairy-nosed Otter provides recent photographic evidence of the species at Danum which may be the only, or one of only a few places where all four Southeast Asian otter species are currently known to coexist. Additional field data are required to see if this situation occurs over a larger part of the region.

#### **THE STATUS OF HAIRY-NOSED OTTER AND ITS CONSERVATION**

In 2014 IUCN reclassified the rare and declining Hairy-nosed Otter from Data Deficient to Endangered. Increased searching intensity since the beginning of the century has resulted in additional records of Hairy-nosed Otter, from habitat types including undisturbed lowland dipterocarp forest, commercially logged lowland forest areas, peat swamp forests and mangrove and peat swamp in an area of lowland dry dipterocarp and oil palm. The species was also historically reported up to an altitude of 1,200 meters asl in Pa Umur in the Kelabit highlands, Sarawak (Davis, 1958, cited in Huda 2019). However, despite increased searching intensity, records remain few and far between.

It is possible that some individuals, perhaps certain sexes or age groups, are highly dispersive, although this is entirely speculative. After no records from Peninsular Malaysia for almost two decades (Sasaki et al., 2009), an individual Hairy-nosed Otter was seen on the Sungai Relau in Taman Negara in September 2013 (Baker, 2013). However, a subsequent study involving seven months of continuous camera trapping (1,557 camera trap nights), riverbank surveys and observations in and around Taman Negara failed to record the species again (Fernandez 2018). However, this could be because of the species' elusive nature. It is evident that much remains to be known about the ecology of this rare otter.

The lack of published records of Hairy-nosed Otter from the Danum Valley Conservation Area is surprising given the large number of researchers studying the

area's wildlife and ecosystems. While this may result from the species' rarity and elusive nature, it is certainly possible that unpublished records exist from this intensively studied site. Both scientists and wildlife tourists should be encouraged to publish evidence of Hairy-nosed Otter sightings to improve knowledge of the distribution and habit use of the species.

Wild otter populations in Asia are under threat. Suitable habitat continues to decline, human-otter conflicts persist partly driven by a perceived threat to fisheries, and there is substantial illegal trade in live otters, their fur and body parts. In a recent analysis, Gomez et al. (2017) found the illegal trade in the four Asian otter species to be persistent and largely unchecked despite a variety of legal protections existing across their range. Six individual Hairy-nosed Otters (three live and three skins) were seized between 2002 and 2008 in five separate incidents in Cambodia. Unsurprisingly, this rare species was encountered in trade less frequently than the other otter species, but any trade in a species as rare and threatened as Hairy-nosed Otter could threaten its survival. Both improved knowledge and protection of the Hairy-nosed and other Asian otter species are required if their status is to be maintained or improve.

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## RÉSUMÉ

### ÉTUDE DE LA LOUTRE DE SUMATRA (*Lutra sumatrana*) À BORNÉO ET OBSERVATION RÉCENTE DANS LA RÉSERVE NATURELLE DE LA VALÉE DE DANUM, AU SABAH

La loutre de Sumatra *Lutra sumatrana* est l'une des loutres les plus rares et les moins connues au monde. L'espèce a été vue et photographiée à proximité du « Field Center » de la Vallée de Danum, au Sabah, en octobre 2019. La réserve naturelle de la vallée de Danum comprend une forêt de plaine protégée à diptérocarpacées et est peut-être le seul endroit actuellement connu pour abriter les quatre espèces de loutres d'Asie du Sud-Est. Dans cet article, je décris l'observation, résume d'autres observations récentes (postérieures à 2000) de loutres de Sumatra à Bornéo et discute brièvement du statut et de la conservation de l'espèce.

## RESUMEN

### REVISIÓN DE LA NUTRIA DE SUMATRA (*Lutra sumatrana*) EN BORNEO, Y UN AVISTAJE RECIENTE EN EL ÁREA DE CONSERVACIÓN DEL VALLE DE DANUM, SABAH

La nutria de Sumatra *Lutra sumatrana* es una de las más raras y menos conocida de las nutrias del mundo. La especie fue vista y fotografiada en estrecha proximidad al Centro del Valle de Danum, Sabah, en Octubre de 2019. El Área de Conservación del Valle de Danum comprende bosque de diptérocarpáceas de tierras bajas, y puede ser el único lugar actualmente conocido que albergue las cuatro especies de Nutrias del Sureste de Asia. En este trabajo describo el avistaje, resumo otros registros recientes de nutria de Sumatra en Borneo (post 2000), y discuto brevemente el status y la conservación de la especie.

## OSG NEWS

Since the last issue, we have welcomed 4 new members to the OSG: you can read more about him on the Members-Only pages.

**Procássia Barbosa, Brazil:** I am a veterinarian, teaching animal anatomy, animal physiology and wild and exotic animals at the Federal University of Santa Catarina. I am an Executive Director of the Ekko Brasil Institute, working with the Lontra Project on *Lontra longicaudis* morphophysiology, captive management and fieldwork. My interests include Anatomy, reproduction and DNA studies.

**David García Gómez, Mexico:** I am a biologist specialized in marine mammals, including Humboldt Penguins, Caribbean Manatees, bottle-nosed dolphins and Neotropical River Otters. As well as developing welfare, enrichment and operant conditioning programs (for stress-free veterinary care) for these, I am involved in a rescue and rehabilitation program for orphan or captured otters, which has dealt with 15 animals to date. My interests are in the application of new management techniques and animal welfare.

**Frankie King-Smith, United Kingdom:** I am an ecologist who has had involvement, both professionally and in a voluntary capacity, in otter research on and off since 2003, having worked with Chris Matcham, Vic Simpson and Jason Palmer. I am currently setting up Spraint Lab, <https://www.spraintlab.org/>, recording the dietary habits of the Eurasian otter *Lutra lutra* in the UK by analysing the content of otter droppings (spraints) received from professional ecologists, environmentalists and members of the public nationwide. The intention is to build up a long-standing national database of the dietary composition of UK otters.

**Javier Martinez, Spain:** I'm a Spanish veterinarian with a special interest in otter medicine and husbandry, who has been working in Spain and the UK at different zoological collections for the last 7 years. I am currently working with Jason Palmer and the EAZA Small carnivore TAG vet advisor (Guillaume Douay), on a medical research project with ASC and smooth-coated otters to determine the current health status of the captive European populations, the main medical issues (morbidity and mortality), and some prospective research (anaesthesia and kidney disease).