

NOTE FROM THE EDITOR

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Dear Friends, Colleagues and Otter Enthusiasts!

We just have closed issue 31/2 and open with this editorial 2015 and issue 32/1. You can expect the first papers for the new issue soon on the homepage and more are in the pipeline already under review so keep following the development on our website.

I do not have a complete idea about the timeline for the Proceedings from last years International Otter Colloquium in Rio de Janeiro. Come back regularly on the website to see about any new developments. The idea is that whenever articles are reviewed and the proof prints have been approved by the authors they go online in the order they arrive allowing quick responding authors to have the papers published very close to the submission date and solely dependent on their own efforts.

Please feel free to send me photos of otters as we are in need of good pictures for the title pages of future issues! Your help is greatly appreciated.

There has been a change behind the scenes about which many of you may not have even been aware of, but Lesley had to reduce her work as webmaster due to the demand of a very large and intensive project her employer recently received. She will keep the existing website going, but a new webmaster has been appointed, with special responsibility for redesigning the website in a more modern way. We will introduce the new webmaster in the next issue but I am sure everybody agrees that Lesley deserves many flowers and a huge thankyou for having developed the OSG website to what it is today.

Meanwhile there are is good news and the good news is that Lesley decided to continue to support me with the IUCN OSG Bulletin in the future. Lesley was really doing an incredible job with the Bulletin and I would have felt alone without her support in the future. We have, after many years, very good routines in handling this work and all goes so smoothly. Lesley, as in the last sentence of all my editorials - thanks for all your continuing support and I do hope that I will be able to thank you for many issues in the future too!

A handwritten signature in black ink, appearing to be 'A. ...'.

REPORT

OCCURRENCE OF THE SMOOTH-COATED OTTER *Lutrogale perspicillata* (GEOFFROY, 1826) IN PUNJAB, INDIA

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Abstract: Decline in the populations of the Smooth-coated Otter throughout its range of distribution and a perception that it is a 'keystone species' for riverine ecosystem stirred the idea of the presented paper. The species inhabits major freshwater wetlands throughout the south and south-east Asia and often comes into the direct conflict with humans for food and habitat. Further the species is also suffering with neglecting attitude and mismanagement due to lack of baseline information. Thus WWF India initiated the conservation work towards the documentation of the distribution of the species in Punjab in 2010. State wide population assessment surveys and secondary information obtained shows the occurrence of smooth-coated otters along some stretches of Rivers Beas, Sutlej and Ravi and Harike wetland in Punjab.

Key words: Aquatic mammals, Punjab, Smooth-coated otter

INTRODUCTION

Otters are emblematic species for nature conservation in a broad societal context; hence it is often advocated as a model species in the studies for fluvial ecosystem functioning and anthropogenic stress (Norris and Michalski, 2009). The amphibious life style of otters allows them to disperse over wide areas of riverine landscapes, and as a result, they influence the ecological processes of the river floodplain in a direct manner (Khan et al., 2014). Smooth-coated otter (*Lutrogale perspicillata*) play a vital role in balancing the freshwater ecosystems as a top carnivorous species and may therefore significantly influence the overall spatio-temporal dynamics of the ecoregion over a long period of time (Khan et al., 2014). There is little information available on the status of otter populations in India, although there seems to have been a rapid decline due to loss of habitat and intensive poaching (Hussain et al., 2008). Presently, the otter population is severely fragmented throughout its distribution range and isolated populations are restricted mostly to protected areas (Hussain, 1999; Nawab, 2007; Nawab, 2009). Having a semi arid bio-geography, the situation is further grim in the state of Punjab.

Smooth-coated otters inhabit major freshwater wetlands throughout the south and south-east Asia (Nawab, 2009). Being found in one of the world's most human

dominated and economically poor landscape, their ecological requirements often conflict with human food and water security. Though, the species is protected under Indian Wildlife (Protection) Act, 1972 (The Wild Life (Protection) Act, 1972 2008), and listed in appendix II of the CITES (CITES 2014), it is still subjected to poaching for its skin and fat (Shenoy et al., 2006; Nawab and Gautam, 2008; Hussain, 1999; Nawab, 2007, 2009; Hussain et al., 2008). Deficiency of baseline data on its distribution and ecology is another major constraint that hampers the protection of the species in India (Nawab and Gautam, 2008; Hussain, 1999; Nawab, 2007; 2009; Hussain et al., 2008). No reliable estimates of its population are available from India. However, based on the available data, it is projected that the population will continue to decline in future due to habitat loss and hence has been classified as Vulnerable by the IUCN (Hussain et al., 2008). Once commonly found throughout its distribution range, the species started disappearing from a number of its known distribution locations. Shrinking span of distribution limits the species to the protected areas and these isolated sub-populations are still subjected to further anthropogenic threats like construction of large-scale hydroelectric projects, reclamation of wetlands for settlements and agriculture, reduction in prey biomass, poaching and pollution (Shenoy et al., 2006; Nawab and Gautam, 2008; Hussain, 1999; Nawab, 2007; 2009; Hussain et al., 2008).

It is well known that the infrequency of occurrence or absolute absence of high level predator creates a functional void in its specific ecosystem that can trigger a series of linked changes leading to degrade the complexity of its ecosystems, which further creates adverse environment for the low level organisms as well. In order to protect ecosystems as a whole, biodiversity conservation plans should aim to restore the ecologically effective densities of such apex species (Ritchie et al., 2012). Being sensitive towards the environmental changes, smooth-coated otters are suitable indicators for the health of wetland ecosystem (Nawab, 2009). Hence, the presence of otters gives a more accurate, integrative and direct knowledge about the health of the wetland than that of mere facts about a site's contamination status, as we get from chemical or radiological monitoring of environmental health (US EPA, 2002).

Punjab, as the name suggests, the land of five rivers, has water stressed environment and semi-arid biogeography. Highly irrigated landscape of agriculture and dense human population left almost no room for wildlife to occupy but still the state harbors a multitude of wildlife species including endangered aquatic mammals like smooth-coated otter and indus river dolphin *Platanista gangetica minor* (Khan, 2013).

The distribution of smooth-coated otter is reported widespread in Punjab and are locally called *Ludhar* (Singh, 1991). Presently, the population is severely fragmented throughout its distribution range and isolated populations are restricted mostly to protected areas (Hussain 1999; Nawab 2007; Nawab 2009).

MATERIAL AND METHODS

Decline in the populations of smooth-coated otter throughout its range of distribution (Nawab 2007) and a perception that it is a 'keystone species' for freshwater ecosystem stirred the idea of present study. State wide population assessment surveys following Hussain and Choudhury (1997) together with secondary information were carried out during 2010-2012 in Punjab state (India). Water bodies were divided into 25km survey zones using Survey of India's 1:50,000 topographic maps and every 5km was considered a sampling site. At each site presence/absence of otter occurrence was recorded. In order to collect data on the indirect evidences of

otter occurrence such as tracks, spraints, den sites or scent marks the searches were made along the edge of the river, by walking. As an integral part of the survey, interviews with locals (n=97) were conducted to seek information on faunal occurrence. These interviews were conducted at every encounter with locals to seek information on faunal occurrence in the stretch. Questionnaire was verbal, informal and centred on coloured plates of authentic field guides on Indian fauna. The questionnaire survey was including the following procedures. (a) Ask respondents to identify the local aquatic species from pictures. (b) Ask respondents to give a physical description of otter. (c) If the respondents were found to be correct in their identification and descriptions they were investigated further for supplementary information.

RESULTS

The population assessments showed the occurrence of smooth-coated otters along some stretches of Rivers Beas, Sutlej and Ravi and Harike wetland in Punjab (Figure 1). During the field work, eight otter sightings were made in and around the Harike Wildlife Sanctuary. The maximum group size recorded was of seven individuals (2 adults and 5 young ones). The interviews with locals confirm the occurrence of smooth-coated otter in the upper reaches of River Sutlej i.e. between Nangal barrage (31°22'46.5" N, 76°21'51.4" E) and Ropar barrage (31°59'16.5" N, 76°30'43.0" E) whereas the upstream of River Beas till Dhunda Pattan (31°53'37.4" N, 75°34'05.0" E) was found devoid of otter's presence. In case of River Ravi which flows in a zig-zag manner along the international line of control between India and Pakistan, almost homogenous distribution of the species was recorded from Dhanera (32°26'34.2" N, 75°44'42.8" E) to Ganie-ke-Bait (32°02'07.4" N, 75°58'08.1" E). The reason for the avoidance of River Sutlej by the species may be the degraded habitat quality in terms of water pollution and over fishing. Two incidents of otter road kills were also recorded during the study in February 2012. These incidents took place just outside the Harike Wildlife Sanctuary near the Ferozpur Feeder Canal (31°08'33.03" N, 74°56'51.33" E) on the National Highway No. 15 connecting Amritsar and Ferozpur city.

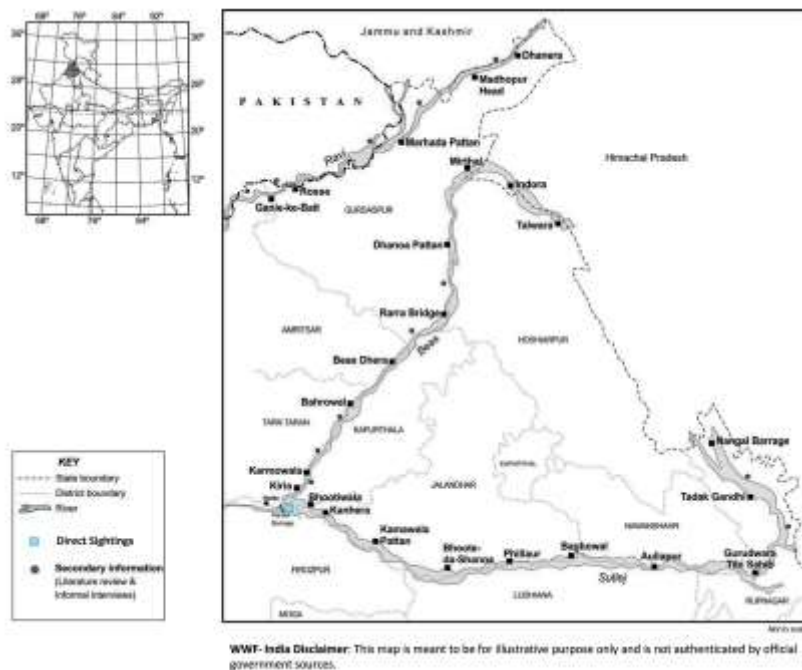


Figure 1. Smooth-coated otter occurrence records

DISCUSSION

It is important to secure the possibilities for animal to pass the roads at least near the protected areas by slowing down the vehicles and responsible driving. Further, the sense of ownership and desire for stewardship towards the conservation of smooth-coated otter and its fragile habitat need to be developed by the way of promoting greater public awareness and by involving local communities in the conservation work. Locals especially youngsters of riverine community should be engaged in conservation practices and if possible pay some stipend for the same, which consequently reduces their direct dependency on the river system.

The local influential persons should be convinced through education and outreach programs as it develop the local leadership for the self-sustainable long term conservation of the species. School children should also be motivated through various creative activities and local school campaigns. Since 2010, WWF India is working towards the documentation of distribution of smooth-coated otter in Punjab together with the aspects of its ecology. The future surviving viability of the species depends on how it was managed in past (Khan, 2013). Therefore, it is recommended to take the initiative to prepare the species management plan for the state which will subsequently unite with other states and help in developing the national action plan for the species.

Acknowledgements - I express my gratitude to the Nokia Corporation for funding this study and the Department of Forests and Wildlife Preservation, Government of Punjab, for permission to conduct this study and for field support. I am thankful to Mr. Ravi Singh, Dr. Sejal Worah, Mr. Suresh Babu and Dr. Asghar Nawab (WWF India) for constant encouragement and support. The help rendered by other colleagues at WWF India is highly appreciated. I am also grateful to Ms. Zarreen Syed (WII, Dehradun) for her valuable comments on the manuscript.

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RÉSUMÉ

DISTRIBUTION DE LOUTRES A PELAGE LISSE *Lutrogale perspicillata* (GEOFFROY, 1826) A PUNJAB EN INDE

Le déclin de la population des Loutres à pelage lisse le long de son aire de distribution et son importance en tant qu'espèce clé dans les écosystèmes des rivières et des fleuves ont motivé la réalisation de ce travail. Cette espèce est majoritairement établie le long des zones humides du Sud et du Sud-Est de l'Asie, et cette distribution entre régulièrement en conflit avec l'Homme sur le point des ressources alimentaires et de l'habitat. De plus, cette espèce souffre d'une attitude négligente et d'une mauvaise gestion essentiellement liées à un manque de connaissances basiques. Donc, la WWF indienne initia un travail de conservation de cette Loutre par la diffusion de documentation concernant sa répartition à Punjab en 2010. Les surveillances et la collecte d'information secondaire de cette population de Loutre à l'échelle de l'État de Punjab ont révélé la présence de Loutres à pelage lisse le long de certains bras des rivières Beâs et Sutlej, et dans la zone humide de Harike.

RESUMEN

OCURRENCIA DE LA NUTRIA LISA *Lutrogale perspicillata* (GEOFFROY, 1826) EN PUNJAB, INDIA

La declinación en las poblaciones de Nutria Lisa en todo su rango de distribución, y la percepción de que es una "especie clave" de los ecosistemas fluviales, motivaron la idea de este trabajo. La especie habita los principales humedales de agua dulce en todo el sur y sudeste de Asia, y a menudo entra en conflicto directo con los humanos, por alimento y por hábitat. Además, la especie también está sufriendo a partir de una actitud de descuido y de mal manejo, debido a la falta de información de base. Por eso, WWF India inició en 2010 un trabajo de conservación dirigido a documentar la distribución de la especie en Punjab. Las prospecciones de evaluación poblacional hechas en todo el estado, y la información secundaria obtenida, muestran la ocurrencia de la nutria lisa a lo largo de algunos tramos de los Ríos Beas, Sutlej y Ravi, y en el humedal Harike, en Punjab.

SHORT REPORT

A ROADKILL RECORD OF A HAIRY-NOSED OTTER (*Lutra sumatrana*) FROM SELANGOR, PENINSULAR MALAYSIA

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Abstract: A fresh hairy-nosed otter roadkill was encountered along the Tanjung Malim-Sungei Besar Road in northern Selangor (Malaysia) in 2005. This appears to be the first fresh record of this elusive species from Selangor since 1929.

Keywords: Selangor, peat swamp forest, incidental road kill, *Lutra sumatrana*

INTRODUCTION

The hairy-nosed otter (*Lutra sumatrana*) is an elusive and rarely encountered animal throughout its native range in Southeast Asia (Wright et al., 2008). Within Peninsular Malaysia, formal records and published sightings of *L. sumatrana* had been recorded from areas close to aquatic habitats (e.g. peat swamps, forested riverine environments) in Perak and Pahang (Sebastian, 1995) and most recently in Taman Negara, Pahang (Baker, 2013).

DETAILS OF SIGHTING

On the morning of the 5th January 2005 around 0900 hrs, the author was travelling along the Tanjung Malim to Sungei Besar road, cutting through the remnant North Selangor peat swamp forest (Figure 1). At around mile stone km 41 to Sungei Besar, two dark forms were sighted along the road on a gentle bend. As the vehicle approached closer one dark form disappeared into the roadside vegetation, leaving the remaining dark form on the road. The vehicle was stopped and the author alighted to check the situation. The prone form turned out to be a recent incidental road kill of an otter, of about 1.2 metres in length, with a large pool of fresh semi-coagulated blood pool around the anterior half (Figure 2-3).



Figure 1. Map of Peninsular Malaysia showing the approximate location (black square) of the road kill sighting.

The freshly dead road kill appeared to be a female hairy-nosed otter, as there was no visible sign of testicles between the base of the hind limbs near the anus. It had a hairy rhinarium, though the diagnostic pale lips, chin and neck region were largely obscured by blood; plus a flattened lateral profile of the head. The identity was verified later by a check using Payne & Francis, 1985; Kanchanasakha et al., 1998; Francis, 2008, and personal communications with Yong D. C. G., Lim K. K. P. and Sivasothi N. (2005).

The site of the road kill is less than four meters away from the nearest water source, a black water creek running parallel to the road, at the edge of remnant peat swamp forest. As the pelage on the otter appears to be wet, it could be that the otter was run over while recently out of the creek. This remnant forest had been degraded, as large sections had been converted to oil palm plantations. The other otter which

had earlier moved off was probably an offspring or its mate, but had remained nearby its fallen counterpart.



Figure 2. *Lutra sumatrana* fresh road kill, possible female ca. 1.2 m length, on road Tanjung Malim-Sungei Besar, 5th January 2005.



Figure 3. Close-up of head region of *Lutra sumatrana* fresh road kill, possible female ca. 1.2 m length, on road Tanjung Malim-Sungei Besar, 5th January 2005.

DISCUSSION

This appears to be the first fresh record of *Lutra sumatrana* in Selangor since 1929. There is a skull deposited in the Zoological Reference Collection (of the Lee Kong Chian Natural History Museum) of a male *L. sumatrana* (ZRC 4.1231),

collected from 7th mile Cheras in Selangor dated 1929. However, the unfortunate circumstances highlight the conflict between anthropogenic influences vs. wildlife. As intact forests (in this case, peat swamp forest) get fragmented, wildlife gets displaced and is forced into situations where natural passage ways are attenuated and fatal situations typically occur for wildlife.

Since 2005, the author had been back to the same area twice and the situation had deteriorated even more. The black water creek has had been replaced by a man-made ditch draining the remnant swamp, the peat swamp forest patches have been further fragmented, and the area for oil palm plantations had increased.

Acknowledgements - Thanks to Dennis Yong for driving and initial identification. Kelvin Lim (Lee Kong Chian Natural History Museum, NUS) and N. Sivasothi (Department of Biological Sciences, NUS), for verifying the identity of the otter. Kelvin Lim, for encouraging me to publish this report due to the rarity of the otter.

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RÉSUMÉ

ENREGISTREMENT D'UNE LOUTRE DE SUMATRANA (*Lutra sumatrana*) ECRASEE AU SELANGOR DANS LA PENINSULE MALAISIENNE.

Une Loutre de sumatrana fraîchement écrasée a été trouvée le long de la route Tanjung Malim-Sungei Besar dans le Nord du Selangor en 2005, en Malaisie. Cela constitue être le premier enregistrement récent de cette espèce insaisissable au Selangor depuis 1929.

RESUMEN

REGISTRO DE UNA NUTRIA DE SUMATRA (*Lutra Sumatrana*) ATROPELLADA, EN SELANGOR, PENÍNSULA MALAYA

Se encontró una nutria sumatrana recién atropellada, en la Ruta Tanjung Malim-Sungei Besar, en el norte de Selangor (Malasia) en 2005. Parece ser el primer registro actual de esta elusiva especie en Selangor, desde 1929.

REPORT

REDISCOVERING THE EURASIAN OTTER (*Lutra lutra* L.) IN FRIULI VENEZIA GIULIA AND NOTES ON ITS POSSIBLE EXPANSION IN NORTHERN ITALY

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Abstract: In Italy otters occur in two small populations in the South, while in the Alps they have been extinct for about 50 years. In Austria, the species is recovering and re-colonizing the Southern part of the country. The first record of the species in the Italian Alps goes back to 2008, when otters were found in the most upper catchment of the River Drau in the Region Trentino Alto Adige – South Tyrol. In the Region Friuli Venezia Giulia (NE Italy), in 2011 and 2012 two otters were found road killed within the catchment of the River Tagliamento. These findings prompted an otter survey, carried out in spring 2014 along the catchment of the upper Tagliamento and the Italian side of the River Slizza-Gailitz, which drains the area of Tarvisio and joins the River Drau in Austria, near Villach. The survey covered an area of 3200 km². A total of 138 bridges and 16 stretches of 600 m were checked along the river banks for otter signs, i.e. spraints and tracks. Otter signs were found at 27 of the investigated sites, in the area of Tarvisio along the River Slizza-Gailitz (Drau catchment), but not in the catchment of the Tagliamento. Like for individuals found in Alto Adige – South Tyrol otters living in the area of Tarvisio belong to the River Drau population in Austria.

Keywords: *Lutra lutra*; distribution survey; Tagliamento catchment; Drau catchment

INTRODUCTION

The Eurasian otter (*Lutra lutra* L.) is currently one of the most endangered mammals in Italy (Loy et al., 2010). During the first half of the 20th century, the species was still widespread throughout the country (Cassola, 1986), while it is now confined to the central and southern part of the peninsula (Loy et al., 2010).

In the Region Friuli Venezia Giulia in the north-eastern part of Italy, the otter went extinct during the 1960s (Lapini, 1986), but available information about its historical distribution in the region is fragmentary. The species had been reported in

the south-eastern province of Trieste (Muggia saltworks-marshes), on the Rivers Timavo and Isonzato and in the surroundings of Grado and Monfalcone (province of Gorizia). Otters were common also in the hilly central part of the region, on the middle course of the River Tagliamento and its tributaries, in the catchment of the River Soča-Isonzo, on the border with Slovenia, in the surroundings of the Marano lagoon and throughout the southern plains. In the western part of the region (province of Pordenone), the species had been recorded on the River Noncello (Lapini, 1986; De Marinis and Lapini, 1994). No sound data are available for the Alps, while in the Julian and Carnic Pre-Alps the species had been reported only rarely (Lapini, 1986) (Figure 1).

In the neighbouring countries, otters are relatively widespread. In Slovenia the most continuous and viable population occurs in the Goričko Nature Park, in the north-eastern part of the country along the Mur Basin (Hoenigsfeld Adamič et al., 2004), but the presence of the species has been also reported on the rivers Idrica and Vipava-Vipacco (Soča-Isonzo catchment) (Hoenigsfeld-Adamič, personal communication). A few records exist also for the Italian side of this catchment in 1984 and in 2008 (Lapini and Bonesi, 2011), that represent the first signs of otter presence in Friuli Venezia Giulia after its extinction during the 1960s (Figure 1).

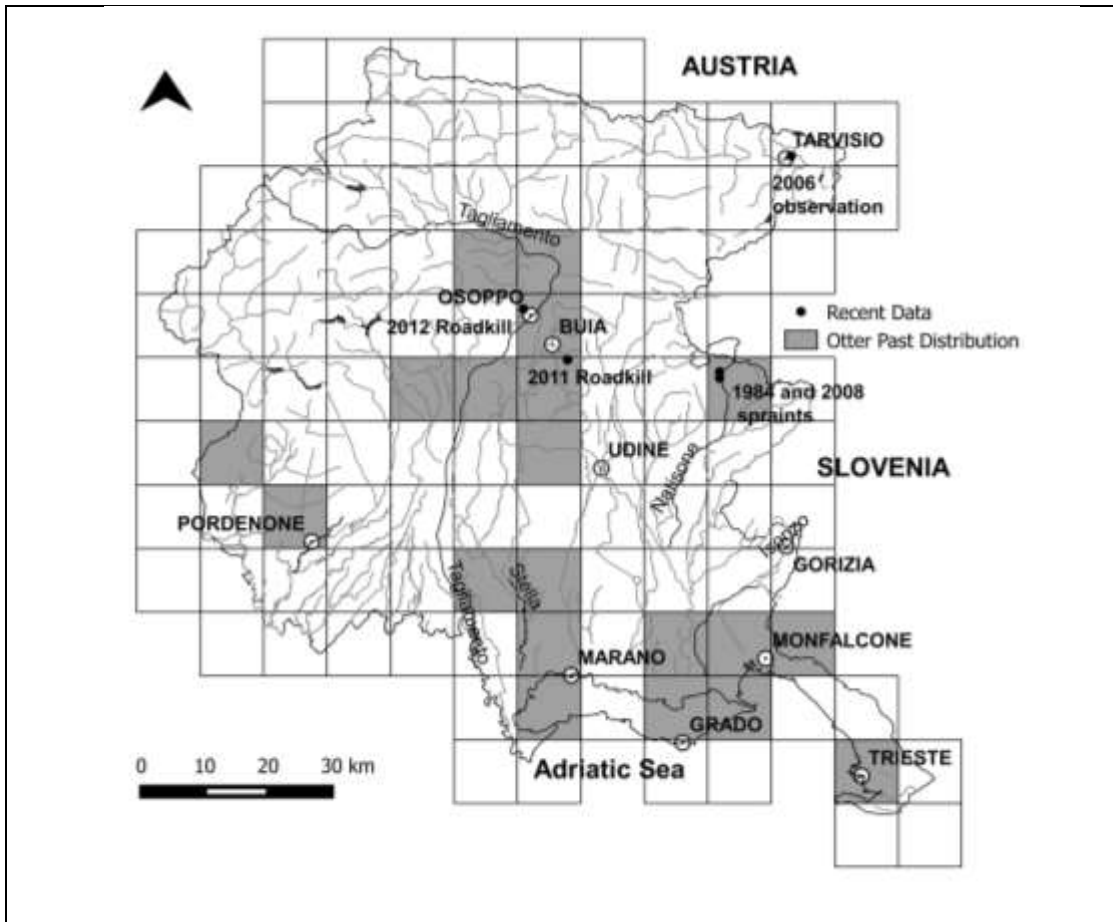


Figure 1. Cartographic UTM 10x10 km grid synthesis of the past distribution of Eurasian otter in the Region Friuli Venezia Giulia, NE Italy (data from 1833 to 1960s). Labeled rivers represent the main water courses where the species was recorded before its extinction in the 1960s. Dark circles represent data from 1984 to 2012, supporting the first evidences that the species was re-colonizing the Region.

In Austria otters are currently expanding west- and southward and are quite common in Carinthia, along the River Gail and its tributaries, which belong to the Drau catchment (Kranz et al 2005; Kranz and Polednik 2009). The border between Italy and Austria is characterized by steep and rocky mountains, reaching high elevations up to ~ 2800 m and by the presence of two possible corridors (approximately 180 km distant from each other), which otters could use to recolonize the river network of northern Italy: one in the area of Dobbiaco (Alto Adige – South Tyrol, ~1200 m a.s.l.), moving along the River Drau and the other one in the area of Tarvisio (Friuli Venezia Giulia, ~600 m a.s.l.), moving along the River Slizza-Gailitz.

In 2008, otter signs were found in the province of Bolzano (Alto Adige - South Tyrol), where the River Drau has its origin (Kranz, 2008). Successive surveys confirmed the stable presence of the species in that area (Righetti, 2011).

The first evidences of a possible return of the otter in Friuli Venezia Giulia date back to the first decade of 2000. In 2006, an otter was sighted near Tarvisio in the internal water-basin of a steelworks along the River Rio del Lago Inferiore, a tributary of the River Slizza-Gailitz, which flows into the River Gail (Paolo Molinari, personal communication). In September 2011, a ~ 6 years old adult male was found road-killed on a secondary road in Treppo Grande municipality (province of Udine) (Lapini and Bonesi, 2011). In August 2012, another male was found dead on a road-bridge of the A23 highway, near the village of Trasaghis (province of Udine), about 10 km away from the previous individual (<http://www2.units.it/lontra/>). Both records were in the catchment of the River Tagliamento (Figure 1).

These recent findings prompted the realization of an otter survey in Friuli Venezia Giulia along the upper and middle part of the Tagliamento catchment and along the River Slizza-Gailitz and its tributaries, which drains the area of Tarvisio and joins the River Drau in Austria, near Villach. The aim of this survey was to investigate whether otters were re-colonizing the river network of the Region Friuli Venezia Giulia and to identify which colonization routes they could follow to re-establish in NE Italy.

METHODS

The otter survey was conducted from end of March to end of May 2014 and included the upper and middle sections of the River Tagliamento (from its source to the confluence with the River Ledra) and its tributaries, the River Slizza-Gailitz and its tributaries and a 20 km long stretch of the River Sava Dolinka in Slovenia. Also the banks of the Lakes Cavazzo, Raibl and Fusine, the Vuarbis swamp and the Italian and Slovenian sides of the Rateče swamp were surveyed.

Otter presence was investigated through searching for spraints and tracks at bridges, which are often used as marking sites (Macdonald, 1984), maximizing the probability of finding signs (Macdonald and Mason, 1988; Chanin, 2003). According to Romanowski et al. (1996) bridges with boulders, natural banks, wooden or concrete ledges underneath were considered as suitable sprainting sites (“suitable bridges”), while those lacking such features were considered unsuitable (“unsuitable bridges”). The survey was conducted on a UTM, 10x10 km grid base. For each 100 km² square, all suitable bridges were checked for otter signs, but no survey of the banks was performed. The bridge was considered as “positive” when at least a single otter sign was found and “negative when no otter sign was found.

When a square included less than four suitable bridges, an approximately 600 m long river stretch was surveyed in place of each missing bridge.

RESULTS

A total of 26, 600 m long river stretches was surveyed for otter presence (total walked length of rivers =15.60 km) and 382 bridges were identified within the investigated area. Out of them, 138 were classified as suitable (36%) and 244 as unsuitable (64%). The majority of the surveyed squares (55%) included at least four suitable bridges (N max suitable bridges per square = 13).

The presence of otters was recorded at 27 of the investigated sites (i.e. suitable bridges + 600 m long river stretches). They were situated along the River Slizza-Gailitz, between the town of Tarvisio (Italy) and the village of Maglern (Austria), and on its right-bank tributaries (Rio del Lago Inferiore, Rio Bianco, Rio del Lago di Raibl, Pri Jalnu), including the banks of the upper Fusine Lake (Figure 2). All these watercourses belong to the catchment of the River Drau. Spraints were also found on both the Italian and Slovenian sides of Rateče swamp, and along the River Sava Dolinka (Figure 2A), up to the village of Kranjska Gora, in Slovenia. Bridges positive for otters belonged to four UTM squares, all located in the north-eastern corner of the region (Figure 2A). The past occasional records suggest the colonization process of this area might have started about eight years ago. No signs of otter were found along the Tagliamento catchment.

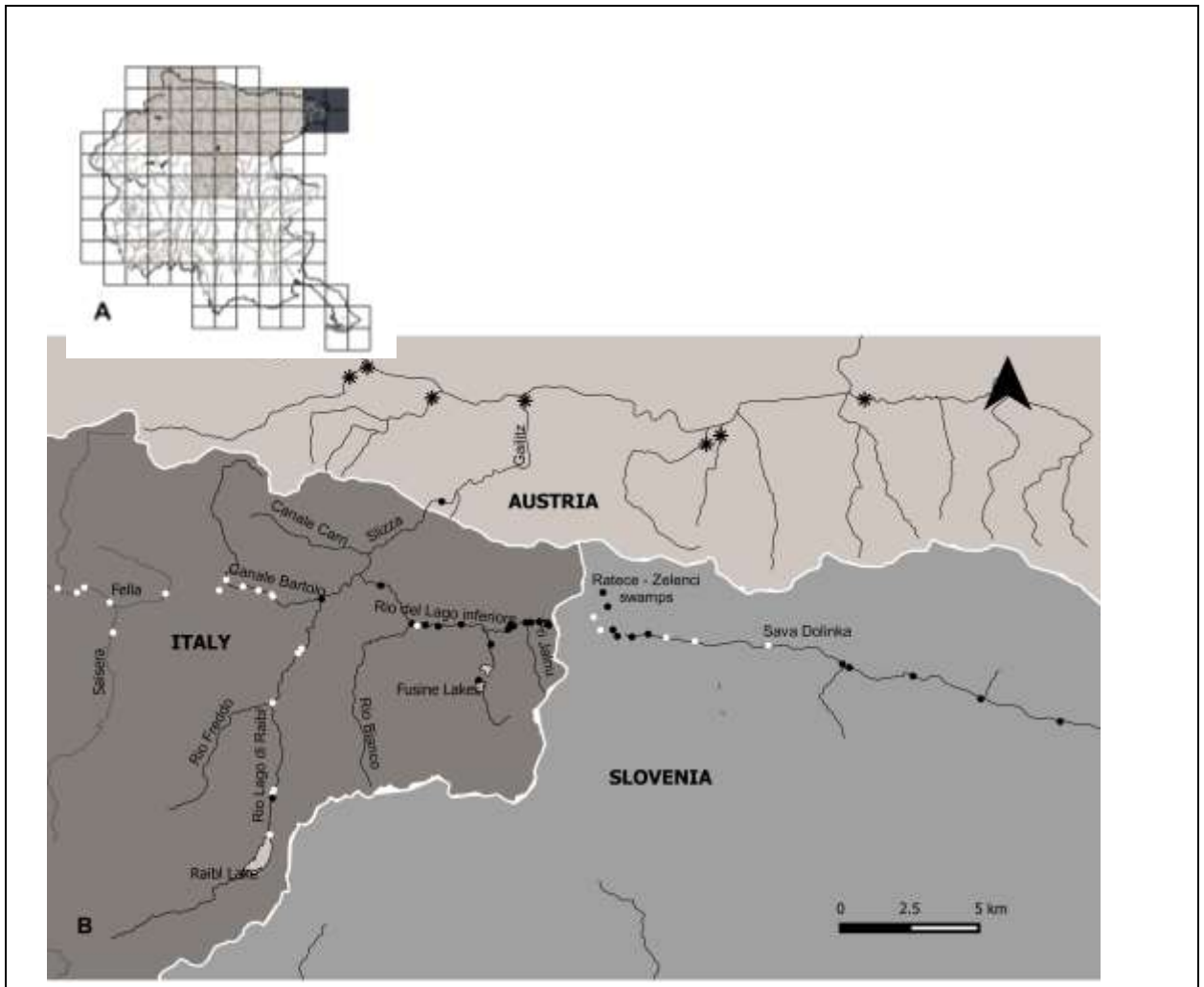


Figure 2. Results of the otter survey in Friuli Venezia Giulia. **A.** Friuli Venezia Giulia river network and UTM 10x10 km grid embedding the Region. Grey squares were surveyed for otter presence and dark grey squares were characterized by otter signs of presence (spraints and tracks). White

squares were not surveyed. **B.** River network present in the Austrian-Slovenian-Italian trans-boundary area: in dark the Slizza-Gailitz catchment (Danube basin), in grey rivers belonging to the Tagliamento catchment (Northern Adriatic basin). White circles represent suitable bridges in Italy and Slovenia which resulted negative for otter spraints, dark circles represent suitable bridges which resulted positive for otter spraints. Asterisks represent localities where the species was detected in Austria in 2009.

Otter tracks of three different individuals walking in group (width: 5.5 cm, 6.0 cm and 7.0 cm) were found both on the Rio del Lago Inferiore, and throughout the Italian side of Rateče swamp, suggesting the existence of a resident family group composed by a female and two yearlings (Sidorovich, 2009). Successively, camera traps set in the area confirmed the presence of a reproductive female (S. Pecorella and R. Pontarini, personal communication) (Figure 3).



Figure 3 - Otter photographed with a camera trap along the Rio del Lago Inferiore (in the Village of Fusine in Val Romana) on the 14th of May 2014 (Photo: M. Pavanello & M. Zupan).

DISCUSSION

Results of our survey confirm that the Eurasian otter has colonized the Italian side of the River Slizza-Gailitz in the area of Tarvisio, close to the border between Austria and NE Italy. About the origin of the individuals living in this area, we can hypothesize that they could have arrived from Austria, through the River Slizza-Gailitz or from Eastern Slovenia through the River Sava Dolinka and the Rateče swamp, or from both directions (Figure 2).

Route through Austria - Otter presence has been reported for the River Gail since 2009 (Kranz et al., 2005; Kranz and Polednik, 2009) and results from our survey confirmed the presence of this species also in the Austrian part of the River Slizza-Gailitz. Although this river crosses the Italian-Austrian border, thereby

potentially constituting a direct route for the return of otters in NE Italy from Austria, the river flows inside a ca. 400 m long artificial tunnel upstream this border, ending with a 5-6 m high artificial waterfall, surrounded by vertical cliffs (Figure 4A). The whole structure represents a potential barrier for otters, which could be avoided only by leaving the river some hundreds meters downstream the waterfall and travelling overland for at least 1 km, climbing a steep bank.

Routes through Slovenia - No systematic survey has been recently performed to update the otter distribution in Slovenia. Few data indicate its presence in the Ljubljana Marshes (ca. 80 km SE of Tarvisio), in Grosupeljska Kotlina (sources of the River Krka, ca. 110 km ESE of Tarvisio), along the Rivers Kolpa and Solta, on the border with Croatia (<http://lutra.si/>) and along the River Kokra, one of the tributaries of the River Sava in the area of Kranj (Pavanello personal observation, Autumn 2014). During our survey it was possible to assess the occurrence of otters in the upper part of the River Sava (e.g. along the Sava Dolinka) up to Kranjska Gora. The watershed between the River Sava and the River Slizza-Gailitz, is a smooth, low saddle (860 m a.s.l.), characterized by the presence of two swamps (Ratece and Zelenci swamps), which could functionally connect the two rivers (sensu Bélisle 2005) and therefore could facilitate otter movements between them (Figure 4B).

Further field investigations and the application of genetic monitoring on otters from northern Italy, Carinthia and Slovenia could clarify the origin of the individuals living along the Italian side of the Slizza-Gailitz catchment and the route they followed to colonize it.



Figure 4. Possible barriers and landscape elements characterizing the routes otters could have followed to colonize the catchment of the Slizza-Gailitz. **A. Route through Austria:** River Slizza-Gailitz flowing inside an artificial tunnel 400 m long, ending with a 5/6 m high artificial waterfall upstream the Italian-Austrian border in Italy (Photo: M. Pavanello Summer 2014). **B. Route through Slovenia:** Zelenci swamp at the source of the River Sava in Slovenia (Photo L. Lapini, Spring 2014).

COLONIZATION OF THE NORTHERN ADRIATIC BASIN

The presence of a reproductive group in the area of Tarvisio is in support of a natural recolonization by otters of suitable watercourses of NE Italy. This could happen through the catchment of the River Tagliamento, which belongs to the Northern Adriatic Basin. In Friuli Venezia Giulia the watershed between the River Slizza-Gailitz and the Tagliamento catchment is the Camporosso saddle. On the

western slope of this smooth and low pass (816 m a.s.l.) the River Fella, a major tributary of the River Tagliamento, flows. On the eastern slope, two kilometres apart from it, the River Canale Bartolo flows into the River Slizza-Gailitz, theoretically representing an easy connection between the Danube basin and the Northern Adriatic basin (Figure 2). Another possible corridor for the re-colonization of the Northern Adriatic Basin is along the Soča-Isonzo catchment, where otters were present in the past (Kryštufek, 1991) and evidences of the presence of vagrants date back to the 1980s and the 2000s (Lapini and Bonesi, 2011; Figure 5). The re-colonization along this catchment could occur either directly along the main course of the River Soča - Isonzo, which crosses the border between Italy and Slovenia in the area of Gorizia, or through some tributaries like the River Nadiža-Natisone and the streams, Ucja-Uccea and Vipava-Vipacco (Figure 5). The only other option for the species to re-colonize the Northern Adriatic basin is in Trentino Alto Adige – South Tyrol, moving southward from the River Drau to the River Adige.

IMPLICATIONS FOR FURTHER RESEARCH

The recent otter expansion in NE Italy has raised the catchments of the Rivers Slizza-Gailitz and Tagliamento to the grade of priority areas for the conservation and expansion of this species in Italy. Given the importance that the new discovered otter nuclei could have for the re-colonization of the Northern Adriatic basin, periodical sign surveys should be carried out both in South Tyrol and Friuli Venezia Giulia, particularly along the catchments of the Rivers Adige, Tagliamento and Soča-Isonzo to update otter distribution and monitor the ongoing recolonization process.

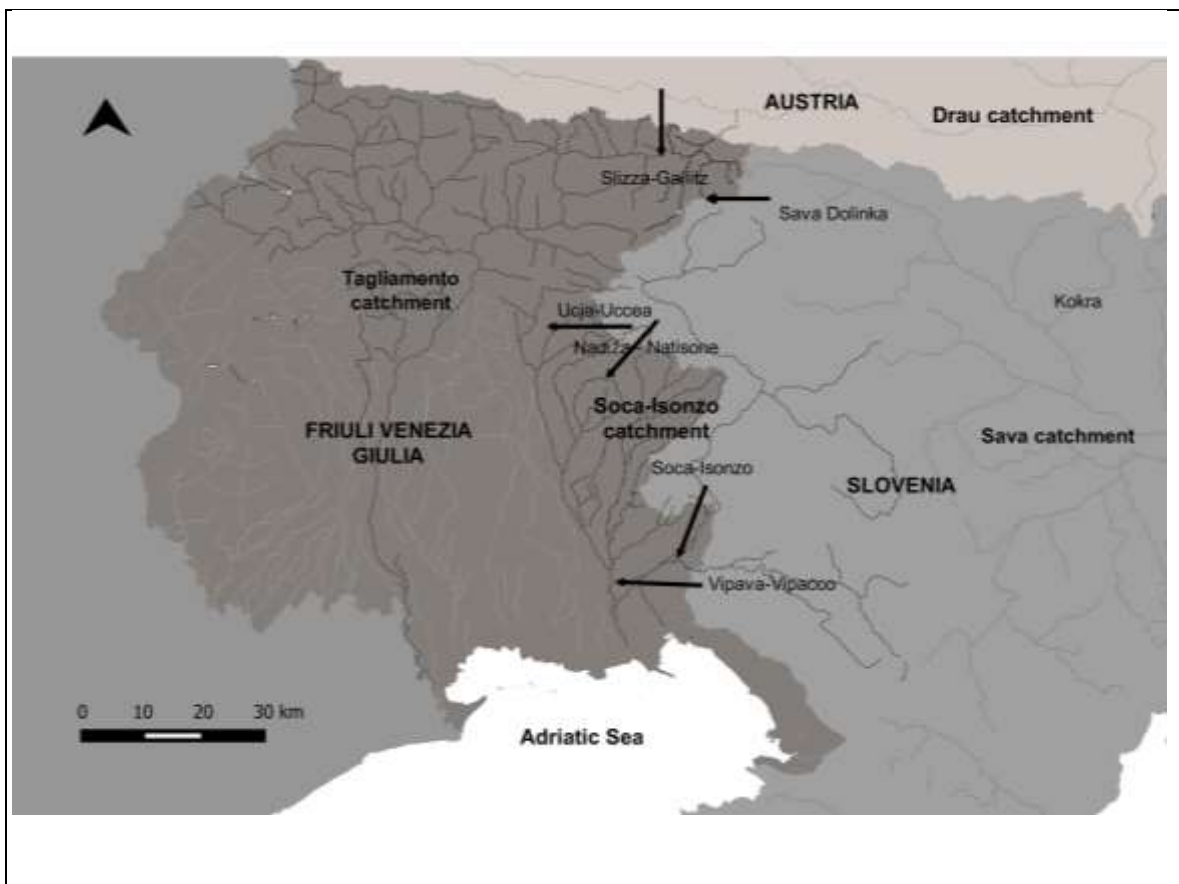


Figure 5. Possible routes otter could follow to re-colonize the Region Friuli Venezia Giulia (black arrows).

Moreover, species distribution and connectivity models should be produced for identifying the existence of functional paths (i.e. suitable connected habitats within catchments, see Cianfrani et al., 2013), which could facilitate the expansion of otters in Friuli Venezia Giulia. Several studies carried out in Europe revealed that for the inter-catchment dispersal of otters, the permeability of the matrix is in the same order of magnitude in importance as the topological position of the available habitats along the river network (e.g. Loy et al., 2009; Carranza et al., 2012; Cianfrani et al., 2013).

With the identification of functional paths, the areas where anthropogenic factors are responsible for low habitat quality might be improved through conservation or restoration programs in order to enhance the expansion and the natural re-colonization of the whole Northern Adriatic basin by otters, as also indicated by the Italian Action Plan for the species (Panzacchi et al., 2011).

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RÉSUMÉ : REAPPARITION DE LA LOUTRE (*Lutra lutra*) EN FRIULI VENEZIA GIULIA ET COMMENTAIRES SUR SA POSSIBLE EXPANSION EN ITALIE DU NORD

En Italie, on trouve deux petites populations de loutre dans le sud du pays, alors que l'espèce s'est temporairement éteinte il y a 50 ans dans les Alpes. En Autriche, l'espèce est entrain de recoloniser la partie Sud du pays. La première observation de loutre dans les Alpes Italiennes remonte à 2008, avec la présence de quelques spécimens dans la partie haute du bassin de la rivière Drave, dans le Trentino Alto Adige. Dans le Friuli Venezia Giulia deux loutres ont été retrouvées mortes sur la route dans le bassin de la rivière Tagliamento. Ces découvertes ont entraîné au printemps 2014 la réalisation d'une étude sur la loutre, le long de la partie haute du bassin du Tagliamento et sur la rive Italienne de la Slizza-Gailitz, qui s'écoule dans la zone de Tarvisio et se jette dans la Drave en Autriche, près de Villach. L'étude couvre une zone de 3200 km². Un total de 382 ponts et 16 sections de 600m ont été vérifiés le long de la berge à la recherche d'excréments et d'empreintes signalant la présence de loutres. Ces indices ont été trouvés sous 15 ponts dans la zone de Tarvisio le long de la Slizza-Gailitz mais aucun n'apparaît dans le bassin du Tagliamento.

RESUMEN : REDESCUBRIENDO LA NUTRIA EURASICA (*Lutra Lutra*) EN FRIULI VENEZIA GIULIA Y NOTAS SOBRE SU POSIBLE EXPANSION POR EL SUR DE ITALIA.

En el sur de Italia, la nutria se distribuye en dos pequeñas poblaciones mientras que en los Alpes la especie se extinguió hace 50 años. En la vecina Austria, la especie se está recuperando y recolonizando el sur. El primer registro de nutria en los Alpes italianos data de una observación en vivo en el 2008, en la zona más alta de la cuenca del río Drau en la región de Trentino Alto Adige. En 2011 y 2012 se encontraron dos nutrias muertas en la cuenca del río Tagliamento, región Friuli Venezia Giulia. Estos encuentros dieron lugar a la realización de un sondeo de la especie durante la primavera de 2014 a lo largo de la cuenca alta del río Tagliamento y el lado italiano del río Slizza-Gailitz el cual riega el área de Tarvisio y se une al río Drau en Austria cerca de Villach. El sondeo cubrió un área de 3200km². Se rastreó un total de 382 puentes y 16 tramos de 600m a lo largo de las orillas de los ríos en busca de señales de nutria, como por ejemplo excrementos y huellas. Se encontraron señales en 15 puentes del área de Tarvisio a lo largo del río Slizza-Gailitz, pero no en la cuenca del río Tagliamento.

REPORT

CITIZEN MONITORING AFTER AN OTTER RESTORATION (*Lontra canadensis*) IN NEW MEXICO, USA

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Photo credit: Michael A. Martinez/Courtesy of Taos Pueblo

Abstract: Citizen reports documenting sightings of river otters (*Lontra canadensis*) and otter sign were collected and analyzed following a restoration program on the Rio Grande watershed in northern New Mexico, USA. From 2008 to 2014, citizens turned in 170 reports of otters, tracks and scats, 51% of which were accompanied by photographs. Citizen science played an important role in documenting the dispersion of river otters from their point of release throughout the watershed.

Citizen science has the potential to provide valuable data about the abundance and distribution of wildlife species. At the same time, those engaged in monitoring wildlife gain a deeper knowledge of and appreciation for the animals they are observing.

We collected sighting reports from citizens for 7 years following a program that restored otters to the State of New Mexico, USA. This note describes the volunteer reporting results from that program and presents a distribution map created from the reports.

Over three years, 2008-2010, 33 North American river otters (*Lontra canadensis*) were released into the northern Rio Grande in New Mexico, a fairly arid state of deserts, grasslands, and mountain ranges in southwestern United States. The Rio Grande is a large river in New Mexico, flowing from north to south through the center of the state, with flows that fluctuate seasonally and from year to year. The high flow season is in late spring/early summer, when snows in the mountains swell streams with meltwaters, but there are sufficient water levels and fish biomass to support a population of otters yearround.

The first release of 10 otters occurred in 2008 (plus 13 released in 2009 and 10 in 2010), near the confluence of the Rio Grande and the much smaller Rio Pueblo de Taos, on Taos Pueblo land. Soon afterwards, report forms were made available at a local environmental organization to interested citizens, river runners, and recreationalists. These forms asked for: 1) observer name, 2) date, 3) location, 3) site description, 4) type of evidence (otter sighting, scat, tracks) with brief description, and 5) general comments/discussion/details. Only reports with a geographic location were entered into a data base. When written reports were submitted that did not use the form, but reported the same data fields, information was translated into the same format. Reports describing known locations, such as named rapids, were assigned a UTM location.

A total of 170 reports were turned in over 7 years, from 2008 to 2014, documenting sightings of otters, tracks and scats. A total of 115 otter sightings were reported, 112 live and 3 dead. About half of the observers reported seeing a single otter (n = 60; 54%), and there were 15 sightings of groups of 2 otters, 15 sightings of 3 otters, 12 sightings of 4 otters, 7 sightings of 5 otters, 2 sightings of 6 otters, and one sighting of 7 otters together. In addition, there were seven reports of young otters, 5 sightings of 3 juveniles and 2 sightings of 2 juveniles together. Otter sign -- tracks and scat -- was also reported. Presence of scat was reported 27 times, and tracks were reported 47 times.

Reports from the main stream of the Rio Grande were 130 (76%), with the remaining 24% of reports from tributaries, mainly the Chama River and the Rio Pueblo de Taos. The map of reported sightings has a geographic bias (Fig. 1), in that the concentration of reports from an area just south of the release site reflects a concentration of recreationalists in a state park along the river. In addition, long stretches of the river north of the release site are in deep and rugged wilderness canyons with little human traffic.

The number of reports varied by year; there were 15 reports submitted in 2008; 56 in 2009; 21 in 2010; 17 in 2011; 17 in 2012; 36 in 2013; and 8 in 2014. However, 34 of the 56 reports made in 2009 were submitted by a restoration team member, and 13 of the 36 reports from 2013 were made by river rafting guides, who were provided with an illustrated guide for identifying otter and otter sign. Taking these factors into account, the number of reports was relatively stable, around 20 per year until 2014, when the number dropped to 8, perhaps because otter sightings had become familiar.

A crucial concern with citizen science reports is reliability. We have reason to have a relatively high level of confidence in the reports. Of the 112 live otters reports, 57 (51%) were supported by photographs. Four photos accompanied the 27 reports of scat, and 11 photos, of the 47 reports of tracks. In addition, notes included in many reports included supporting details. Comments about "snuffling on the bank", "otters on the deck", "eating fish", "observed for several hours" increased confidence that the observers had had a good opportunity to observe the animals. Scat reports included comments on the presence of fish bones and crayfish remains. In one case, a cast was

made of tracks. A large number of the reports, 102 of the total of 170 reports (60%), and 47 of the 115 reports of otter sightings (41%) were made by professional wildlife biologists, veterinarians, or members of state and federal agencies. Five of the 7 the reports of juveniles were made by biologists.

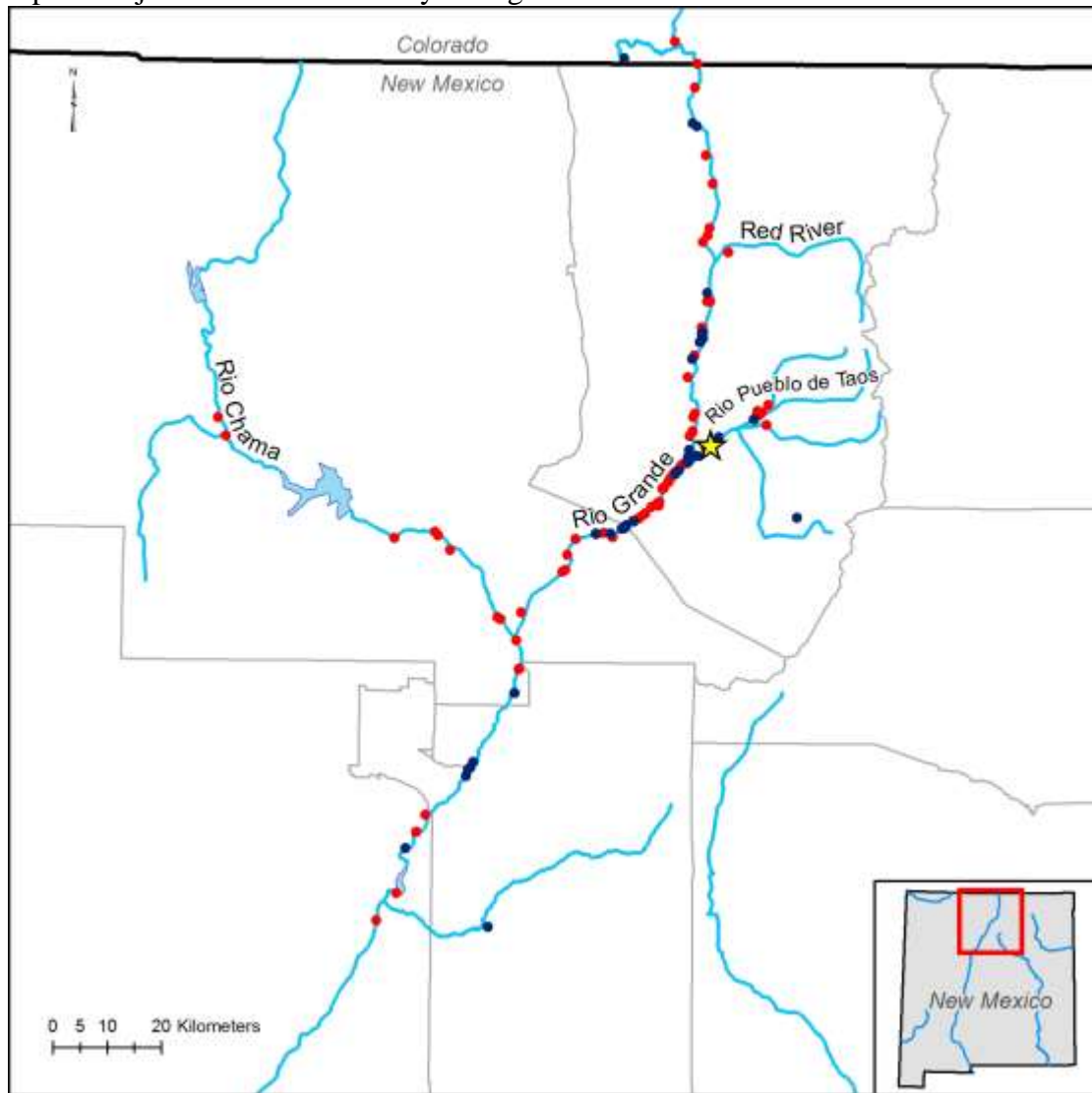


Figure 1. Map sightings of otters, tracks or scat in north-central New Mexico from 2008 to 2014. The map represents a north-central portion of New Mexico. Red dots indicate a sighting of one or more otters; blue dots indicate a report of otter scat or tracks. The yellow star indicates point of otter releases.

A significant contribution was made by observer reports to our understanding of how river otters from a restoration program dispersed throughout the northern Rio Grande watershed. A map of sightings documented where otters travelled to in northern New Mexico, even though they may not have permanently occupied those locations. Just as importantly, interested citizens were engaged enough to submit reports, and no doubt shared their stories with friends. Every river rafting guide sighting meant that a raft full of river runners also shared in the excitement of seeing otters. The reintroduction program in New Mexico generated public enthusiasm and was favorably covered in the media, but the hands-on experience of citizens reporting otter sightings was a positive experience for many.

Acknowledgements - Thanks to the generosity of the citizens who took time to report otter sightings, and to James Stuart, Brian Long, Rachel Conn, Bob MacPherson, Valerie Williams, Taos Pueblo staff, and to a local environmental organization Amigos Bravos for collecting reports.

RÉSUMÉ

UN SUIVI MENE PAR LES CITOYENS APRES LA REINTRODUCTION DES LOUTRES (*Lontra canadensis*) A NEW MEXICO, ETATS UNIS

Les rapports de citoyens documentant les observations des Loutres (*Lontra canadensis*) ainsi que leurs traces, ont été collectés puis analysés en suivant les consignes du programme de restauration du bassin versant du Rio Grande au Nord de New Mexico, Etats Unis. De 2008 à 2014, les citoyens ont retourné 170 rapports mentionnant des Loutres, leurs empreintes ou leurs excréments, et 51% de ces rapports furent accompagnés de photographies. La science citoyenne joue un rôle majeur en documentant la dispersion des Loutres depuis leur point de libération au travers du bassin versant.

RESUMEN

MONITOREO CIUDADANO LUEGO DE UNA RESTAURACIÓN DE NUTRIAS (*Lontra canadensis*) EN NUEVA MEXICO, USA

Colectamos y analizamos reportes de ciudadanos que documentaban avistajes y signos de nutrias de río (*Lontra canadensis*) luego de un programa de restauración en la cuenca del Río Grande, en el norte de Nueva Mexico, USA. Entre 2008 y 2014, los ciudadanos enviaron 170 reportes de nutrias, huellas y fecas/secreciones, 51 % de los cuales fueron acompañados por fotografías. La ciencia ciudadana jugó un importante papel en la documentación de la dispersión de las nutrias por la cuenca, a partir de su punto de liberación.

REPORT

RECENT RECORD OF THE NEOTROPICAL RIVER OTTER (*Lontra Longicaudis*) IN THE CHOLUTECA RIVER TEGUCIGALPA, HONDURAS

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Abstract: We report the presence of the Neotropical river otter (*Lontra longicaudis*) in the Choluteca River, Tegucigalpa, Honduras. To date the information is the second record verifiable of the species in the Choluteca River since one in the 1940s.

Keywords: *Lontra longicaudis*, Tegucigalpa, Honduras, distribution.

The Neotropical river otter (*Lontra longicaudis*) is a semi-aquatic carnivore, the weight of the species is between 13 -16 kg average, and mean size 130 -160 cm (Gallo-Reynoso et al., 2013). The diet is comprised mainly of fish, but also includes insects, birds, reptiles and fruits (Macias-Sanchez and Aranda, 1999; Quadros and Monteiro-Filho, 2000; Platt and Rainwater, 2011). The range of the Neotropical river otter extends from northwestern of Mexico to Argentina (Lariviere, 1999). The species has received relatively little research attention, is classified under Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, 2014) and as “Data Deficient” by the International Union for Conservation of Nature (IUCN, 2014). In Honduras the species is thought to be widely distributed, but has been poorly studied and is listed as a “Species of Special concern” (Vreugdenhil et al., 2002).

In the Central American region knowledge about the species is generally limited and the studies in the region have focused on occasional records and diet consumption. Spinola and Vaughan (1995) studied the diet of the species at biological station la Selva in Costa Rica: they collected spraints, and analyzed the faeces and reported crustaceans and fish were the most common prey. Rheingantz et al. (2014) estimated the distribution of the neotropical otter river, collecting data from 14 countries for a period from 1991 to 2012. In Central America there is only one record

from Costa Rica; beyond that the lack of information shows the importance of research in the region of this species. Herein we report evidence of the Neotropical river otter occurring along the Choluteca River, located in the central region of Honduras.

The Choluteca River (Figure 1) is about 250 km long, draining an area of about 7,848 km²; the drainage includes the capital of Honduras, Tegucigalpa (Reyes, 2001). The river is an important resource for the residents of the city, providing more than 60% of the water for the city (UNAH, 2014). The Choluteca River has experienced significant changes in land use in recent years combining deforestation, conversion to agriculture and human settlement. Deforestation, particularly in the basins, has contributed to sedimentation of river channels and increased potential for flooding on the tributaries; furthermore the proximity to the city has promoted residential, commercial and industrial projects (Procter et al., 2013).

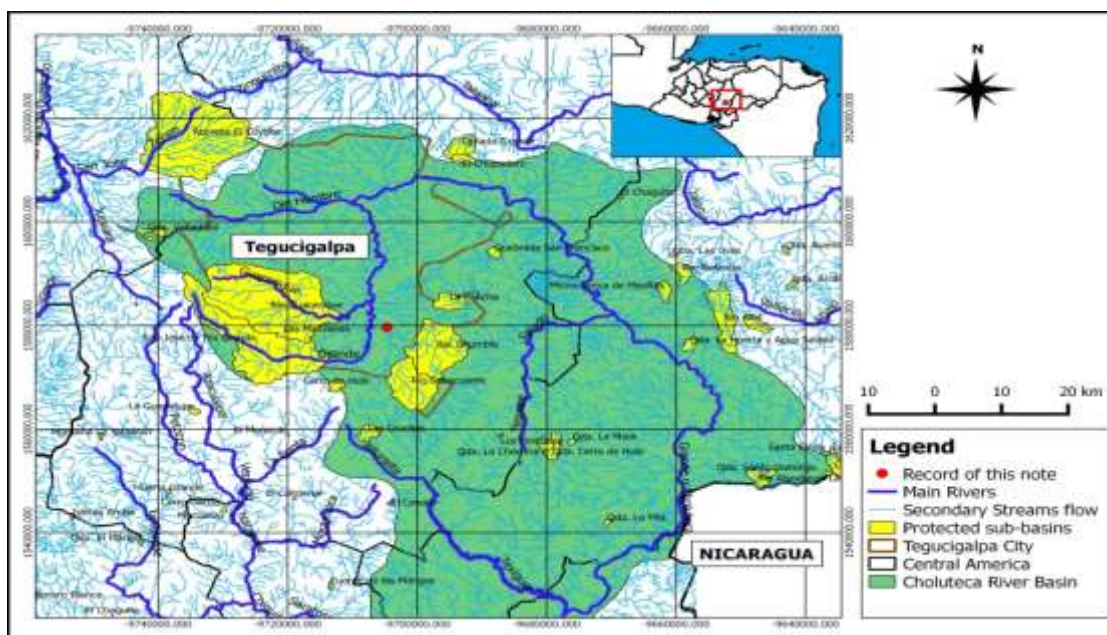


Figure 1. Location map of Choluteca River and the site of the neotropical otter record (UTM coordinates: 14.046595, -87.181252).

On April 1, 2014 a neotropical river otter was killed by children along the Choluteca River in Tegucigalpa city. According the local people the animal was taken from a cave and was beaten to death. The animal was a male, weighed about 2 kg, and total body length (measured from tip of the nose and the tip of the tail) was 65cm (Figure 2); the tail length was the 22 cm. These measurements are consistent in size and weight with a juvenile, according reportsd by Gallo-Reynoso et al., (2013) for the species in Mexico.

A necropsy performed on the carcass showed bleeding associated with lesions to the lung and liver, and hematomas near the right front leg. Tooth replacement was incomplete, the premolars teeth still erupting. The carcass was preserved in 80% ethylic alcohol, and deposited in the mammal collection of the Natural History Museum of National University of Honduras, to provide opportunities for future studies.

The habitat at the site where the Neotropical otter was killed was comprised of riparian vegetation, dominated by a mixture of gallery forest and trees up to 20 m; the predominant species are guarumo (*Cecropia* sp.), cachito (*Mimosa* sp.), paraguaita (*Cyperus* sp.), tuna (*Opuntia* sp.) and guancaste (*Enterolobium* sp.). The area is at an

altitude of 1000 m and is heavily used by local residents for purposes including water supply (Figure 3), extraction of sand from the river, and the banks are used for activities such as roads for livestock and laundry by local communities. Despite



human influence, riparian vegetation structure is still present, and the river contains rocks located adjacent to its banks.

Figure 2. Handling of the Neotropical otter for size and weight measurements.



Figure 3. Extraction by local people for water supply.

On June 12, 2014 we conducted field surveys to locate tracks, scats at latrines, and dens to determine if a population of Neotropical river otters was well established in the area where the carcass was collected. We also conducted interviews of residents to determine if they could provide evidence of the species occupying the area. During surveys we located 37 scats among five latrines, which were found on rocks jutting

out of the river, over a total of 130m of the same stretch of the river. The spraints were distanced between 15 m - 20 m. The largest number of scats found at one place was seven and the lowest was three; the size of scats averaged 8 cm (Figure 4). The scats were mostly dry and were identified according to the description provided by Aranda (2000), with most being composed of bones and fish scales. No dens were



located; however, on the banks of the river there are tree roots that have cavities that could be used as dens: Pardini and Trajano (1999) found that caves under tree roots were one of the most used shelters by *Lontra longicaudis* in southern Brazil.

Figure 4. Scats of *L. longicaudis* in the Choluteca River, Honduras.

Previous to this specimen being found, Goodwin (1942), reports a specimen that had been shot and was found in the Choluteca River. Our report demonstrates that a population of Neotropical river otters still exists along the river, and this is only the second report of the species from this river drainage. The occurrence of a population of the species in the portion of river described in our report is particularly interesting given that the area is highly disturbed by human activity, suggesting that the Neotropical may be tolerant of presence of humans and associated activities. Studies of the Neotropical river otter are needed in Honduras to better understand the species' distribution and to serve as a basis for better developing and conservation practices.

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RÉSUMÉ

ENREGISTREMENT RÉCENT DE LA LOUTRE NEOTROPICALE (*Lontra Longicaudis*) DANS LA RIVIÈRE CHOLUTECA À TEGUCIGALPA AU HONDURAS.

Nous rapportons ici la présence de Loutre du type néotropical (*Lontra longicaudis*) dans la rivière Choluteca (Tegucigalpa, Honduras). Jusqu'à ce jour, ce rapport constitue la seconde véritable preuve de la présence de cette espèce dans la rivière Choluteca depuis la première observation en 1940.

RESUMEN

RECORD RECIENTE DEL NUTRIA NEOTROPICAL (*Lontra longicaudis*) EN EL RIO CHOLUTECA, TEGUCIGALPA, HONDURAS.

Reportamos la presencia de la Nutria Neotropical (*Lontra longicaudis*) en el Río Choluteca, Tegucigalpa, Honduras. Hasta la fecha, es el segundo registro verificable de la especie en el Río Choluteca desde el último realizado en la década de los 40.

SHORT COMMUNICATION

RECENT SIGHTING OF SMOOTH-COATED OTTER *Lutrogale perspicillata maxwelli* IN HAWIZEH MARSH (SOUTHERN IRAQ)

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Abstract: Since 1956, there were very few sightings of Iraq Smooth-coated Otter (*Lutrogale perspicillata maxwelli*) especially after the Iraqi marshlands inundation. In April 2015, male Iraq Smooth-coated Otter was trapped near Al-Edheam, in the northern part of Hawizeh Marsh (Southern Iraq). The recent sighting along with present photographic record represents very rare evidence documenting the occurrence of *L. p. maxwelli* otter in Iraq since the 1950s.

Key words: *Lutrogale perspicillata maxwelli*, Iraq, extinction, survival

In 1956, the Iraq Smooth-coated Otter was described by Hayman as a distinct taxon (*Lutrogale perspicillata maxwelli*) on the basis of a skin from a dead individual and a six weeks old male otter named “Mjbil”. The latter was brought to G. Young Maxwell by Marsh Arabs from a tumulus island village called Daub to the North West of Al-Azair in Hawizeh Marsh (Al-Sheikhly and Nader, 2013; Al-Sheikhly et al., 2014). The newly discovered otter was referred to as Smooth-coated Otter because of both its fur and tail, which were darker and flatter than in the European Otter *Lutra lutra* (Hayman, 1956; Young, 1977). However, the world knew “Mijbil” only from a very few photographs where it was featured with his master G.Y. Maxwell (Maxwell, 1959; 1960). Since then, limited information and photographs concerning this mysterious subspecies were available. For decades, “*maxwelli*” was just a ghost roaming the reed beds of southern Iraqi marshes.

During 1990s, the Iraqi marshes were drained by the previous regime for political reasons and a tragic decline in the marshes biota had occurred. The endemic-to-Iraq Smooth-coated Otter became very rare after marshlands inundation in 2003 and since then its population faced a dramatic decrease in size due to hunting, trapping, and habitat destruction (Al-Sheikhly and Nader, 2013).



Figure 1. Adult male *Lutrogale perspicillata maxwelli* trapped near Al-Edheam Marsh, in the northern part of Hawizeh Marsh (Southern Iraq) on 29th of April 2015. (Photo extracted from video records by Ahmad S. Al-Hassnawi and Abass Al-Ghanami, 2015).

Very recently (April 29th, 2015), local hunters trapped adult male *L. p. maxwelli* near Al-Edheam Marsh, in the northern part of Hawizeh Marsh (31°40'N, 47°45'E) (southeastern Iraq) (Fig. 1). Interviewed people informed us that the otter survived for a while before it died due to both bad trapping techniques and the stress experienced when it was moved from the marsh to nearby urban area. Present photographic record represents valuable yet very rare evidence documenting the occurrence of *L. p. maxwelli* otter in Iraq since the 1950s.



Figure 2. Large *Lutra lutra* male recently hunted by a local angler in the Iraqi marshes (Photo: Kamel Al-Batat, 2015).

Otters' hunting and trapping are not merely historical activities in Iraq, as both Smooth-coated and European Otter are still targeted in the marshes (Fig.2). Indeed, we noted such practices during recent field surveys carried out in southern Iraqi marshes (see Acknowledgments). Furthermore, the conflict between otters and anglers as well as habitat degradation and fragmentation is ongoing with marked effects particularly on the Smooth-coated Otter population (Al-Sheikhly *et al.*, 2014). Recent hunting incident herein reported emphasizes the need for urgent conservation actions to protect this endemic taxon in Iraq. Otherwise, both hunting and trapping along with habitat loss will drag *maxwelli* otter to the edge of extinction.

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RÉSUMÉ : RECENTE OBSERVATION DE LA LOUTRE A PELAGE LISSE LUTROGALE PERSPICILLATA MAXWELLI DANS LES MARAIS DE HAWIZEH (SUD DE L'IRAK)

Depuis 1956, il y a eu très peu d'observations de la Loutre à pelage lisse d'Irak (*Lutrogale perspicillata maxwelli*) et cela spécialement après l'inondation des marais Irakiens. En avril 2015, un mâle adulte de Loutre à pelage lisse d'Irak a été capturé à proximité d'Al-Edheam dans la partie nord du marais de Hawizeh (Sud de l'Irak). Cette récente observation conjointe avec la présente photo ci-dessus constitue une preuve extrêmement rare révélant la présence de la Loutre *L. p. maxwelli* en Irak depuis les années 50.

RESUMEN : AVISTAMIENTO RECIENTE DE NUTRIA LISA *Lutrogale perspicillata maxwelli* EN EL PANTANO HAWIZEH (SUR DE IRAQ)

Desde 1956, han habido muy pocos avistamientos de la Nutria Lisa de Iraq (*Lutrogale perspicillata maxwelli*), especialmente después de la inundación de los pantanos Iraquíes. En Abril de 2015, fue trapeado un macho adulto de la Nutria Lisa Iraquí, cerca de Al-Edheam, en la parte norte del Pantano Hawizeh (Sur de Iraq). Este avistamiento reciente, junto con el registro fotográfico, representa una muy rara evidencia que documenta la ocurrencia de la nutria *L.p. maxwelli* en Iraq desde los 1950s.

ARABIC ABSTRACT

الخلاصة: منذ عام 1956، كان هناك عدد قليل جداً من مشاهدات القضاة (كلب الماء) ملساء الفراء العراقية (قضاة ماكسويل) (*Lutrogale perspicillata maxwelli*) خاصة بعد غمر الأهوار العراقية. في أبريل 2015، أُسر ذكر بالغ من القضاة ملساء الفراء العراقية بالقرب من هور العظم، في الجزء الشمالي من هور الحوزة (جنوب العراق). أن هذه المشاهدة الأخيرة مع التسجيل الفوتوغرافي الحالي تعتبر من الأدلة النادرة جداً والتي توثق تواجد ضرب ماكسويل من القضاة ملساء الفراء في العراق منذ خمسينيات القرن المنصرم.

SHORT COMMUNICATION

FIRST RECORD OF *AMBLIOMMA OVALE* (KOCH, 1844) (ACARI: IXODIDAE) PARASITIZING *LONTRA LONGICAUDIS* (OLFERS, 1818) (CARNIVORA: MUSTELIDAE) IN SANTA CATARINA ISLAND, FLORIANÓPOLIS, SC, BRAZIL

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Abstract: Three female and one male *Amblyomma ovale* (Acari: Ixodidae) were found parasitizing a neotropical otter (*Lontra longicaudis*) (Carnivora: Mustelidae) in Florianópolis, SC, Brazil. This is the first record of the occurrence of *A. ovale* in Santa Catarina Island and the second report of this ectoparasite in a mustelid species in Brazil. *A. ovale* has been reported in wild carnivores in several Brazilian states and is considered one of the main predominant species of the Atlantic rainforest. The *Amblyomma* ticks are primarily responsible for the spread of BSF in humans. Among the species of *Amblyomma* infesting dogs is the *A. ovale* and the proximity between man and the dog favors the parasite sharing. Santa Catarina Island has many rural and wild environments shared by domestic animals, especially dogs, such as the environment where the otter was found in this study. Proper determination of tick species and their distribution in different geographical regions is essential for the understanding of the epidemiology of Rickettsiosis.

Keywords: Ixodidae, ticks, mustelidae, carnivores.

This paper reports the discovery of four specimens of adult ticks attached to *Lontra longicaudis* (Olfers, 1818) (Mammalia: Mustelidae) in the southern part of Santa Catarina Island, state of Santa Catarina, Brazil. Three female and one male *Amblyomma ovale* (Koch, 1844) (Acari: Ixodidae) were collected from an otter killed by a car on Highway SC-401, which leads from Florianópolis to the airport.

The animal was collected and transferred to Ekko Brasil Institute's Otter Project located at Lagoa do Peri, on the southern tip of Santa Catarina Island. The Otter Project carries out research on the species *Lontra longicaudis* and treats injured otters, which are often attacked by dogs or hit by cars. Most of the research is with wild otters but in the last 5 years otters in captivity became also an important focus including studies on hematological and biochemical profile, concentrations of

testosterone, progesterone, corticosterone and estradiol in fecal metabolites excreted by *Lontra longicaudis* individuals, as well as description of reproduction phases. This work represents the beginning of a research program on parasites of neotropical otters in Brazil.

The tick specimens were examined at the Laboratory of Animal Parasitology of the Center for Agricultural Sciences at the Federal University of Santa Catarina (UFSC). Based on taxonomic keys, the ticks were identified as belonging to the species *A. ovale*. According to the taxonomic key created by Barros-Battesti et al. (2006), the analyzed specimens of *A. ovale* show hypostome 3/3; distinct marginal groove, subsequently limiting all festoons; a coppery brown shield with greenish spots (Figure 1a, c); leg I with two contiguous spines, acute, and the long length of the thigh, with the outer leg slightly bent out and slightly longer than the internal one (Figure 1b,d).

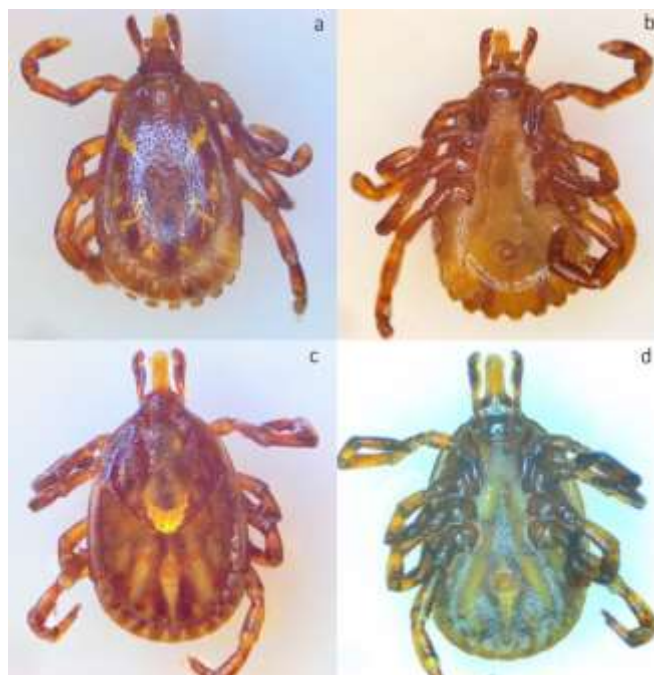


Figure 1. a) male dorsal. b) male ventral. c) female dorsal. d) female ventral. Specimens showing taxonomic characteristics of *Amblyomma ovale*, as described in the taxonomic key of Barros-Battesti et al. (2006). a and c show the coppery brown shield with greenish spots. b and d show legs with two long spines, the outer slightly curved outward and slightly longer than the internal.

One adult male and 3 adult females were identified. The ticks were examined under 40X magnification with 0.37x lenses (Opticam Microscopy Technology®, Opzt Standart Model) and photographed at a resolution of with 1.25x1.25 pixels (μm) (Opticam Microscopy Technology®, Camera OPT 14MP Model).

There are currently 896 tick species cataloged in the world, divided into three families: Argasidae and Ixodidae, which are distributed on all the continents, and Nuttalliellidae, which is restricted to Africa. The family Ixodidae comprises 702 species of hard-bodied ticks (Guglielmone et al., 2010). The tick fauna of Brazil currently comprise 61 species: 9 species of *Ornithodoros*, 3 species of *Antricola*, 1 species of *Argas*, 33 species of *Amblyomma*, 9 species of *Ixodes*, 3 species of *Haemaphysalis*, 2 species of *Rhipicephalus* and 1 species of *Dermacentor* (Barros-Battesti et al., 2006). They are obligate haematophagous ectoparasitic arthropods that can infest various species of vertebrates (Luz et al., 2014).

The genus *Amblyomma* consists of 106 species, from which 45 are found only in the Neotropics. This genus includes the largest ticks with ornate shields. Their main

hosts are amphibians, reptiles, birds and mammals (Guimarães et al., 2001). *A. ovale* is a three-host tick species and the primary hosts in the adult stage are wild carnivores (Labruna et al., 2005b; Barros-Battesti et al., 2006), while birds and small rodents act as its hosts in its immature stages (Labruna et al., 2005b; Szabó et al., 2013b).

Amblyomma ovale is widely distributed, especially in the South American countries, particularly Argentina, Brazil and Paraguay. In Brazil, *A. Ovale* adults have been found parasitizing carnivores in different biomes such as the Amazon Forest (Labruna et al., 2005a), Pantanal (Pereira et al., 2000), Atlantic Rainforest (Labruna et al., 2005b; Szabó et al., 2009; Sabatini et al., 2010) and Cerrado (Szabó et al., 2007). In a study performed in the south of Brasil, Santa Catarina state, between 2006-2008, a total of 260 adult ticks from domestic and wild animals were collected.

Of the 260 adult ticks collected from domestic dogs, 217 belonged to genus *Amblyomma* and 82 to *A. ovale* (Medeiros et al., 2011). Adults of *A. aureolatum* and *A. ovale* were collected in relatively large amounts, both on the vegetation and on dogs during the study in Serra do Mar State Park, state of São Paulo, Brazil. According to the study authors, these two species were not found sympatrically: while free-living *A. aureolatum* were found only in high altitude trails (700 m above sea level), free-living *A. ovale* were found only in low altitude trails (100 m above sea level) (Sabatini et al., 2010).

Adults of *A. ovale* have a preference for carnivores, particularly wild cats (Guglielmone et al., 2003; Martins et al., 2015), but it is not rare to find them parasitizing humans, especially in the state of São Paulo (Guglielmone et al., 2006), western Amazon (Labruna et al., 2005a) and Southeastern of Brazil (Szabó et al., 2006). According to Labruna et al. (2005a), *A. ovale* and *A. oblongoguttatum* are the main species that infest the order Carnivora in the Amazon. In Brazil, Labruna et al. (2005b) found *A. ovale* in *Puma concolor*, *Panthera onca*, *Leopardus pardalis*, *Leopardus wiedii*, *Cerdocyon thous*, *Chrysocyon brachyurus*, *Speothos venaticus*, *Procyon cancrivorus*, *Nasua nasua*, *Galictis vittata*, *Galictis cuja*, *Eira barbara* and *Lontra longicaudis*.

Many parts of the south of Santa Catarina Island still present primary Atlantic Rainforest. Lagoa do Peri, with its five square kilometers of surface water, is the largest freshwater lake along the coast of the state of Santa Catarina, and is considered as a hotspot for the neotropical otter (Carvalho-Junior, 2007). *Lontra longicaudis* is a semi-aquatic carnivorous mammal of nocturnal and crepuscular habits. It belongs to the family Mustelidae, which is widely distributed in South America and lives in environments such as coastal islands, rivers, lakes, sandy and rocky beaches, lagoons and bays (Carvalho-Junior et al., 2012). The need for constant movement forces this animal to use different environments in search of food and mates (Carvalho-Junior, 2007).

The Neotropical otter, which feeds mainly on fish and crustaceans, can make slight changes in some of the prey items of its diet, but the final composition does not change (Quadros et al., 2001; Carvalho-Junior, 2007; Carvalho-Junior et al., 2010a; Carvalho-Junior et al., 2010b). Molluscs, small mammals, birds and reptiles complete the diet of this species, but in a smaller proportion (Alarcon et al., 2004; Carvalho-Junior et al., 2010b; Quintela et al., 2008).

Ticks are widespread and the proximity between urban and forest areas facilitates the movement of parasites between these two environments. Because they are obligate haematophagous arthropods, they are reported as vectors of pathogenic bioagents between animals and humans, which may pose serious public and animal health problems (Szabó et al., 2001; Szabó et al., 2006). Among the major diseases is

Brazilian Spotted Fever (BSF), the main disease passed on by arthropods to humans in Brazil, which is transmitted by tick bites in wild and urban environments and is caused by the bacterium *Rickettsia rickettsii* (Guedes et al., 2011).

Amblyomma ticks are primarily responsible for the spread of BSF in humans. The low host specificity encourages the adaptation and diffusion of species of this genus to different hosts and environments (Perez et al., 2008). In Brazil, a novel strain of *R. parkeri* (strain Atlantic rainforest) was recently reported to cause human disease (Spolidorio et al., 2010).

Rickettsia was shown to be strongly associated with *A. ovale* ticks in the Atlantic rainforest and seems to have a wide range, at least in the south–southeastern Atlantic coast of Brazil (Szabó et al., 2013a). Adults of this species of ticks easily stick to dogs and are often reported in dogs living in rural areas near natural areas (Szabó et al., 2001; Szabó, 2013b; Medeiros et al., 2011). The dog is considered the main transport for ticks between urban and natural environments. Among the species of *Amblyomma* infesting dogs is *A. Ovale*, and the proximity between man and the dog favors parasite sharing (Szabó et al., 2001). The island of Santa Catarina has many rural and wild environments shared by domestic animals, especially dogs, such as where the otter was found in this study. Humans can be *Rickettsia* infected if bitten by ticks during incursions into the forest or by ticks detached from dogs (Sabatini et al., 2010).

In Blumenau municipality, state of Santa Catarina, southern Brazil, in which tick-borne spotted fever illness has been endemic since 2003, a total of 53 dogs were examined for ticks from 25 households surrounded by Atlantic rainforest areas in 2011. A total of 153 adult ticks were collected from dogs. *A. ovale* was the most prevalent species (34% occurrence) and *A. aureolatum* was the second most prevalent (18.9%), followed in a much lesser extent by *R. sanguineus* (3.8%). A total of 6 (7.8%) *A. Ovale* and 4 (9.3%) *A. aureolatum* were infected by the *Rickettsia* sp. Atlantic rainforest strain (Barbieri et al., 2014). The importance of dogs in the epidemiology of the Atlantic rainforest rickettsiosis goes beyond possible *Rickettsia* reactivation in *A. ovale* ticks (Szabó et al., 2013a).

Limiting the access of dogs to wildlife areas can be a viable initiative but it relies on education of owners and government control of free-roaming ownerless dog populations in local environmental conservation areas. The urbanization of environments near lakes and rivers on the island of Santa Catarina resulted in serious changes in the ecosystem with consequent changes in the relationship between ticks and hosts, creating new scenarios for tick-borne diseases. Proper determination of tick species and their distribution in different geographical regions is essential for the understanding of the epidemiology of Rickettsiosis.

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RÉSUMÉ : PREMIER ENREGISTREMENT DE *Amblyomma ovale* (KOCH, 1844) (ACARI: IXODIDAE) PARASITANT *Lontra longicaudis* (OLFERS, 1818) (CARNIVORA: MUSTELIDAE) A FLORIANOPOLIS SUR L'ÎLE DE SANTA CATARINA ISLAND AU BRÉSIL

Quatre tiques dures *Amblyomma ovale* (Acari: Ixodidae), trois femelles et un male, ont été trouvés entraînant de parasiter la Loutre à longue queue des néotropiques *Lontra longicaudis* (Carnivora: Mustelidae) dans la ville brésilienne Florianópolis. Ceci constitue le premier enregistrement de la présence de *A. ovale* sur l'île Santa Catarina et cet enregistrement est le second concernant cet ectoparasite chez les Mustélidés au Brésil. *A. ovale* a été observé sur les carnivores sauvages de plusieurs états brésiliens et est considéré comme l'une des espèces prédominantes des forêts tropicales atlantiques. Ces tiques du type *Amblyomma* sont les principaux responsables de la propagation de la fièvre pourprée du Brésil chez les humains. Parmi les espèces d'*Amblyomma* c'est *A. ovale* qui infeste les chiens, et leur proximité avec les Hommes favorise le passage de ce parasite du chien à l'hôte humain. L'île Santa Catarina présente beaucoup d'environnements ruraux et sauvages qui sont partagés avec des animaux domestiques qui sont essentiellement des chiens, et la Loutre parasitée de cette étude a été trouvée dans une de ces types d'environnements partagés. Une détermination poussée des espèces de tiques et de leur distribution au sein de différentes zones géographiques s'avère donc être essentielle dans l'étude épidémiologique de Rickettsiosis.

RESUMEN : PRIMER REGISTRO DE *Amblyomma ovale* (KOCH, 1844) (ACARI:IXODIDAE) PARASITANDO A *Lontra longicaudis* (OLFERS, 1818) (CARNIVORA: MUSTELIDAE) EN LA ISLA DE SANTA CATARINA, FLORIANÓPOLIS, SC, BRASIL

Encontramos tres hembras y un macho de *Amblyomma ovale* (Acari: Ixodidae) parasitando una nutria neotropical (*Lontra longicaudis*) (Carnivora: Mustelidae) en Florianópolis, SC, Brasil. Este es el primer registro de la ocurrencia de *A. ovale* en la Isla de Santa Catarina, y el segundo reporte de este ectoparásito en una especie de mustélido en Brasil. *A. ovale* ha sido informada en carnívoros silvestres en varios estados de Brasil, y es considerada una de las especies predominantes en la selva Atlántica. Las garrapatas *Amblyomma* son primariamente responsables de la dispersión de la Fiebre Manchada Brasileira en los humanos. Entre las especies de *Amblyomma* que infestan a perros, está *A. ovale*, y la proximidad entre humanos y perros favorece que se compartan parásitos. La Isla de Santa Catarina tiene muchos ambientes rurales y silvestres compartidos por animales domésticos, especialmente perros, como el ambiente donde se encontró a la nutria en este estudio. La adecuada determinación de las especies de garrapatas y su distribución en diferentes regiones geográficas es esencial para la comprensión de la epidemiología de las Rickettsiosis.

RESUMO: TRÊS FÊMEAS E UM MACHO DE *Amblyomma ovale* (ACARI: IXODIDAE) FORAM ENCONTRADOS PARASITANDO UMA LONTRA (*Lontra longicaudis*) (CARNIVORA: MUSTELIDAE) EM FLORIANÓPOLIS, SC, BRASIL.

Este é o primeiro registro de encontro de *A. ovale* na ilha de Santa Catarina e o segundo relato deste ectoparasita parasitando espécies de mustelídeos no Brasil. O *A. ovale* tem sido relatado em carnívoros silvestres, distribuído em vários estados brasileiros e considerado umas das principais espécies predominantes da Mata Atlântica. Os carrapatos do gênero *Amblyomma* são os principais responsáveis pela propagação do BSF em seres humanos. O *A. ovale* está dentre as espécies que infestam cães, e a proximidade entre homem e cão favorece o compartilhamento do parasita. A ilha de Santa Catarina tem diversos ambientes rurais e silvestres compartilhados por animais domésticos, especialmente cães, como o ambiente onde a lontra foi encontrada neste estudo. A determinação adequada das espécies de carrapatos e sua distribuição nas diferentes regiões geográficas é essencial para compreensão da epidemiologia da Rickettsioses

REPORT

AFRICAN OTTER WORKSHOP

20 – 25 July 2015

College of African Wildlife Management, Mweka, Tanzania

Sponsored by: International Otter Survival Fund (IOSF)

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The [IUCN/SSC Otter Specialist Group 1990 Action Plan](#) highlighted the need for global surveys of most otter species to identify their current distribution, status, threats, and conflict areas. This document also recommended public awareness campaigns targeting communities and policy makers regarding the need to conserve wetland, riverine, and lake environments for people and wildlife alike. In 1998 the group identified as one of the priorities for Africa the assessment of current distribution, status and degree of legal protection for African otters ([Proceedings VIIth International Otter Colloquium, Trebon, Czech Republic, 14 – 20 March 1998](#)). In 2004 the group identified Africa as the top priority continent requiring initiation and support of research and conservation activities on otters and the Congo clawless otter (*Aonyx congicus*) as the species most requiring targeted research ([Recommendations IXth International Otter Colloquium, Frostburg, MA; 4 – 10 June 2004](#)). At that time the OSG also identified a pressing need to establish a network of professionals working in environments where otters may be present to assist in gathering current otter distribution and status data as well as training range country biologists in otter identification and survey methodologies. This 2015 workshop was the first Pan-African step taken to fulfill these pressing needs.

It was pointed out that of the 13 species of otter worldwide 12 of them are declining in number, and this includes the four species found in Africa, all currently classified as “Near Threatened” in the IUCN Red List. The Eurasian otter (*Lutra lutra*) is only found in North Africa and so was not included in this workshop as the focus was on sub-Saharan species.

The recent process of assessing the status of the three endemic African otter species (*Aonyx capensis*, *A. congicus*, and *Hydricteis maculicollis* (previously known as *Lutra maculicollis*) for the IUCN Red List of Endangered Species highlighted the urgent need to address the paucity of information on these species. Outside of South Africa and a few recent studies or reports in Benin, Congo, Democratic Republic of Congo, Ethiopia, Kenya, Namibia, Malawi, and Tanzania documented data is, for the most part, over 25 years old. This lack of information combined with increasing human populations, habitat loss or fragmentation, the impact of climate change, pollution, damaging agricultural and fishing practices as well as potentially unsustainable traditional use should alarm otter biologists. Despite what has been viewed as safety in the wide historic distribution of two of these species (*A. capensis* and *H. maculicollis*) literature searches, ad-hoc reporting from communities and available research indicates the distribution of these species is shrinking and that most populations are in decline. To address these issues and the identified need to raise awareness of Africa’s otters the [International Otter Survival Fund](#) organized the first Pan-African Otter Workshop. We report on the topics covered, information shared and actions identified here.

WORKSHOP PARTICIPANT SUMMARY

Attendees represented 10 African nations and two otter conservation organizations from outside the continent. Participants ranged from professionals and community members familiar with and working on otter biology and conservation issues to professionals and researchers working in associated fields such as wetland and marine ecosystem assessment or protection, national park management, ecology, outreach, and wildlife protection within national parks. Every effort was made to

include all biologists currently working on otter issues in Africa but due to scheduling conflicts, budget constraints or other complications some of these professionals were unable to join this workshop. It is hoped however, that these professionals and others interested in Africa's otters and water associated ecosystems will join this network and assist us in gathering status and distribution information as well as raising awareness.

GENERAL PROBLEMS IDENTIFIED IMPACTING OTTERS

Presentations and discussions identified 5 global issues and 8 key problems impacting African otters and their conservation or understanding of their current status and distribution:

Global issues impacting otters:

1. Increasing poverty and lack of job opportunities
2. Damaging agricultural, mining, and fishing practices
3. Climate change
4. Habitat destruction and fragmentation as well as erosion and pollution
5. Lack of infrastructure to address waste disposal and waste dumping in wetland areas.

Specifically impacting otters:

1. Lack of awareness that there are otters in Africa.
2. Lack of research into their distribution, status, ecological requirements in all habitats, and understanding of their behavior.
3. Confusion over their signs, specifically what the track of *H. maculicollis* looks like (at least 3 different tracks are identified as from this species in literature and on the internet).
4. Lack of biologists working on African otters.
5. Lack of effective protection for these species.
6. Human/otter conflicts and the fact that it appears most people who are aware of these species within their range view them as a problem.
7. Lack of funding for work on otters.
8. Lack of educational materials targeting all stakeholder groups, to include communities, students, fishermen and other business people, policy makers on all levels, community leaders, and other biologists working in ecosystems where otters are found.

WORKSHOP TOPICS AND PRESENTATIONS

Presentation topics included an introduction to African otters, their ecology, identification, and behavior; an overview of otters worldwide and their status; the work of IOSF; rehabilitating and raising injured/orphaned otters; an introduction to survey methods and an introduction to spraint analysis as well as an opportunity to look at scat from otters and that of other species that may confound identification.

Highlights of the workshop were presentations on:

- Status of Otters in Africa, Threats and Mitigation by Hugues Akpona in which he covered the range of threats facing Africa's otters, and mitigation efforts;

those that have been successful, not successful and possible future options. This presentation was based on spotted-necked otter research done in Benin by himself and P. Bada as well as ongoing and future work there and in DRC.

- Understanding what otters eat: the uses and limitations of spraints analysis by Nicola Oakes. She reported on their ongoing study of the African clawless in the Cape Town region of South Africa as well as advances in isotope identification of species from spraint and prey identification in fecal remains.
- The Mazu Story by Rita Chapman, Lubama Delphin Kumbi, and Mubuma Chico Lunko of the Kikongo Otter Sanctuary in the Democratic Republic of Congo (DRC). This story of two rescued Congo clawless otter cubs raised and successfully released back into the wild by Delphin, Chico and Rita captivated many around the world in 2010 – 2012. The dedication of Chico and Delphin during and since that time to conserving otters and raising awareness in their local community was an inspiration to all at the workshop. They also helped participants to understand how to approach communities that live daily with otters and their sometimes undesirable impact.
- Engedasew Andarge (Addis Ababa University) currently doing his PhD work on the African clawless otter in and around Lake Tana in Ethiopia shared some of his findings and problems working in communities where otters are viewed as competitors.
- Hetherwick Msiska, Malawi shared the results and observations of monitoring spotted-necked otters in Malawi for several years now and soon will submit for publication two of his survey reports.
- Abdoulie Sawo, The Gambia shared some of the success in mitigating human/wildlife conflict the Department of Parks and Wildlife Management have had with their conservation and community development programs. Their approach has focused on alternative economic activities and working from within the communities.
- Yustina Kiwango, Tanzania, covered some of the environmental issues facing wetlands in Tanzania's national parks and their mitigation efforts to address the natural and man-made causes.
- All of the participants shared what they had, or had not known about otters several times over the course of the workshop which lead to many interesting and productive conversations.
- The practical session on spraint analysis was well received as were the breakout sessions to discuss social issues, mitigation, and educational tools. The only disappointment was due to budget/time constraints and the lack of presence data we did not see otters or their sign during our field trip. This however should be a lesson in the paucity of information on these potentially ecologically important species as top predators in many of their ecosystems. Since the workshop some of the participants have already reported finding signs in their own research area as they now know what to look for.
- Hobokela Mwamjengwa, Outreach Warden on Rubondo Island National Park in Tanzania presented an overview of how the Tanzania National Park Authority (TANAPA) handles their outreach to local communities as well as some of the solutions and problems facing this important otter refuge and the threatened biomes of Lake Victoria.
- Hugues Akpona shared an outreach program implemented in Benin and based on Project Management Conceptual Model (Plan, Do, Check and Act) and suggested that future interventions on otters adopt the same.

As threats to the otters and their ecosystems are the most important factors potentially impacting the status and distribution of Africa's otters these were themes we constantly circled back to and our discussion, conclusions, and preliminary mitigation suggestions will be elaborated on below.

DEALING WITH STAKEHOLDERS: AWARENESS, CONFLICT RESOLUTION, MITIGATION OR "WHAT DO WE DO?"

In addition to ongoing conversations regarding human/otter conflicts in some areas one day was spent discussing 1) Education and public awareness, 2) Interviews, social surveying, and public meetings, 3) Benefit sharing mechanisms or alternative economic activity.

This day was devoted to:

- Exploring methods to encourage stakeholders to be more committed to sharing their environment with otters as well as their conservation.
- Possible solutions to mitigating conflicts between fishermen and otters.
- Ways to help conservationists communicate with, and work with key stakeholders to build sustainable options; particularly methods appropriate for sub-Saharan Africa.

The day began with general global concepts, proceeded on to participants sharing their experiences and concluded with identifying key questions raised during the morning's presentations and discussions. The participants then divided into two groups to develop possible Actions for Otter Conservation.

Key Questions

- How to define priorities for effective public awareness?
- How to maintain engagement of stakeholders to otters' conservation?
- How to sustain awareness programs?
- What are some possible actions to be taken to address otter conservation in Africa?

Outcomes

I - Priorities

- Work jointly with conservationists with compatible focus, e.g. wetlands, riverine, marine, species found in otter environments, etc.
- Develop messages from all points of view/interest/concern to include alternatives for stakeholders at odds with otters
- Identify problems in each area – traditional uses, fur or bush meat trade, economic uses/conflicts, other endangered species, depredation by other species, lack of knowledge, etc.
- Identify partner groups or neutral groups in the area and their issues, problems or potential benefits from otter conservation.
- Integrate political issues and partners and identify leaders in the community

- Find the best communication method for the situation (radio not TV, village meetings, etc.)
- Capitalize on previous awareness initiatives led by other groups, NGOs on the issue of habitat and ecosystem preservation or restoration. Sound resource use is good for ALL.

II - Engagement

- Identify issues and messages important to politicians (national, regional and local level).
- Identify and address the needs of each target group (students, teachers, business, fishermen, etc.) and create messages appropriate for their concerns and needs.
- Remember to share information in appropriate places and formats for target audience/community.
- Timing and format of engagement is important. Be aware of potential conflicts with other NGO messaging, aware of current issues in communities, politics in region, etc.
- Alternative economic activities which meet communities' needs should be developed and presented as a priority to the community. You are on their side as well as that of the otters and ecosystem.
- Value added or win – win solutions and strategies. An example presented was from Java and the use of living fences made from pineapple plants around fish ponds. The otters could not reach the ponds and the owner had the added benefit of pineapples to sell.

III - Sustainability

- Local ownership and involvement is key to sustaining any conservation effort
- Format is important! Be innovative - Fun is Ok!
- Sustainable reusable materials that are durable and cost effective. Resources are limited or non-existent in many Sub-Saharan areas.
- Use opportunities as they arise. Again, be creative and adaptable!
- Maintain all networks (those that support you, those that you support, and those that are important to your target community)
- Share experiences and learn lessons from others in the network
- Do things that are important to communities and compatible to biodiversity.
- Cultivate good will.
- Remember, information not shared or documented is information LOST.

In conclusion all concerned thought it was an excellent workshop with important progress made towards creating a viable beginning of an African Otter Network. There is a long road ahead but the 2015 African Otter Workshop is a start on developing range country partners, activists and researchers as well as collaborating on issue identification and resolution which will assist in preserving at least some refugia for Africa's otters. As a group the following list of actions was agreed upon.

ACTIONS FOR THE AFRICAN OTTER NETWORK

In conclusion the group agreed to the following actions; specific actions were assigned to individuals while others were pledged:

- Creation of an African Otter Network using social media, i.e. google groups or similar to foster communication. This group will be founded with workshop participants but is open to any professional or conservation activist interested in otters or their ecosystems. This has already been done.
- Creation of an Otter Awareness Facebook page open to the public where photos, information, experiences, questions, etc. can be posted and shared. This site can be used by African Otter Network members to post updates on their work to encourage public interest and dialogue, human interest stories associated with their work, etc. Again this has been done (<https://www.facebook.com/AfricanOtter1?fref=ts>). The African Otter Outreach Project (AoTOP), working since 2009, also maintains a Facebook page (<https://www.facebook.com/pages/African-Otter-Outreach-Project/181450325232204>) where information can be shared and the African Otter reporting form can be accessed. Data collected from these reporting forms will be monitored, evaluated, and shared with the professional community by AoTOP.
- Creation of an African Otter website maintained and monitored by IOSF. This website will initially be in English and French with a future option of providing Swahili translations being considered.
- Carry out a practice awareness survey – each participant to ask at least 5 individuals if they have heard of otters, what they have heard and record the age, sex and tribe of or where they live (or lived) if possible. This will be collated and published.
- Creation of Otter sighting or signs reporting forms designed for professionals which can be catalogued and documented for continental status reporting.
- Encourage all participants to share and publish their findings so this information becomes part of a permanent record.
- Develop education tools that can be translated into regional or local languages. For this two drafts of posters have been designed and will be finalized by the IOSF to send to each country to be translated in different languages and widely used.
- Several participants, who are more focused on ecosystems, committed to doing some simple community surveys to assess awareness of and attitudes towards otters.
- Wetland specialists have agreed to assist with questions, etc. when needed.
- All participants pledged to spread the word to other professionals working within ecosystems where otters may be found that we need information on sightings of otters, their tracks, or their scat.
- The group proposed targeting a 2nd African Otter Workshop be held in 2017 and located in another region of Africa to facilitate attendance from other nations.
- As funding is an ongoing issue the network members should work together to share information on sources that are not appropriate for themselves but may assist other members with their work.

- Several participants expressed the wish that surveys be conducted in their region or parks. These ideas should be pursued when possible and participants kept informed and asked to participate.
- All participants pledged to pay more attention to otters in their home regions or finding out if there are otters in their nation/region/park.

Deep gratitude and thanks are extended to the College of African Wildlife Management at Mweka. Mr. Edward Msyani and the entire staff worked hard to make the workshop successful and they succeeded in doing an excellent job. Accommodation, food, transportation and materials were all excellent and all participants are very grateful. We also would like to thank all home institutions for the participants for making it possible for them to come to the workshop. A special thank you goes to the Tanzanian Park Authority (TANAPA) and the Ministry of Tourism and Wildlife in Tanzania for allowing so many of their staff to participate in the workshop.

Finally we again would like to thank the sponsor and donors who made this event possible. However, the biggest thank you goes to all the participants for making the workshop such a success. We are confident they will all continue to share awareness of Africa's otters and work to conserve the otters' future in sub-Saharan Africa.

SHORT COMMUNICATION

HYDROELECTRIC DAMS: THE FIRST RESPONSES FROM GIANT OTTERS TO A CHANGING ENVIRONMENT

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Abstract: The construction of hydroelectric dams has been cited as one of the threats faced by giant otter populations in their distribution areas. However, studies evaluating the impact of reservoirs on these populations are scarce and often restricted to results about the post-filling period. In this study, we present distribution and behavioral data from giant otter populations living in the Teles Pires River and tributaries, located in the municipality of Paranaíta in the State of Mato Grosso, Brazil, during the pre-filling period. The species showed a homogeneous distribution throughout the sample site during the initial monitoring phase; this distribution changed to sparse after the beginning of the work to remove the riparian vegetation, possibly because of intense noise and movement of people. However, otters returned during other campaigns, rebuilding destroyed dens and building new ones in recently exposed bounds, indicating a possible adaptation to the first environmental filter promoted by the project: the structural change of the environment. Two other subsequent important filters challenging the species survival are related to the loss of habitat with the rise of water levels and changes in the composition and abundance of food resources. These factors are being monitored since the filling of the Teles Pires reservoir, beginning in December of 2014, for future comparisons between the two periods.

Keywords: habitat use, deforestation, hydroelectric dams, environmental filter, *Pteronura brasiliensis*.

INTRODUCTION

The construction of hydroelectric dams has been considered a threat to semiaquatic mammal populations due to significant alterations to the environment that has transformed from lotic to lentic (Carter and Rosas, 1997; Leuchtenberger et al., 2013). The main factors that must be taken into account in predicting environmental

impact include changes in the distribution and composition of resources and the presence of humans, which are obvious characteristics of these environments (Carter and Rosas, 1997; Rosas et al., 2007; Oliveira et al., 2015).

Because giant otter (*Pteronura brasiliensis*) populations depend on both the aquatic environment to obtain resources, predominantly fish, and the terrestrial environment to build dens to rest and rear their offspring, they are strongly affected by the dynamics of these ecosystems, especially in terms of seasonality (Utreras et al., 2005; Leutchenberger et al., 2015). Dam projects can also affect such dynamics because the filling of reservoirs influences the availability, distribution, and quality of resources in the water and causes the loss of terrestrial habitats (Carter and Rosas, 1997; Palmeirim et al., 2014).

Studies about the ability of giant otter populations to use habitats changed by hydroelectric projects are still in their infancy. The most significant studies, conducted in the Balbina Lake dam reservoir in the Amazon since 2001, reveal a large number of individuals using the reservoir, which suggests some level of adaptability to changes (Rosas et al., 2007; Cabral et al., 2010). However, these populations have not been monitored prior to the reservoir construction (comparisons between populations are based on data from rivers and creeks adjacent to the lake) and the reported data correspond to the post-filling period only, which does not allow accurate comparisons between pre- and post-filling periods and identification of possible population trends.

Here we present information on the distribution and behavioral aspects of giant otter populations during the reservoir pre-filling period at the Teles Pires hydroelectric power plant (UHE), located in the municipality of Paranaíta, in Mato Grosso, Brazil, particularly after a major change in the environment due to deforestation of river banks for reservoir filling.

MATERIAL AND METHODS

The Teles Pires hydroelectric dam is one among at least five planned dams to be built on the Teles Pires River, one of the major tributaries of the Juruena River. It has a capacity of 1,820 MW of Power and a lake with an area of 152 km² will form. The plant is part of the municipality of Paranaíta, located 60 km from Alta Floresta, in the extreme north of Mato Grosso State. The region is rich in mammals, with at least 37 species of reported medium and large size mammals (Michalski and Peres, 2007). Giant otters particularly have been studied in the region since 2007 (Norris and Michalski, 2009).

The monitoring of giant otters was conducted from June 2012 to September 2014 through ten quarterly campaigns with duration of 10 days each on a stretch of 119 km along the Teles Pires River and its tributaries. Four main sampling areas were delimited including one area located on the Paranaíta River (Area 3; 34 km), the most affected by reservoir filling (Fig. 1).

The monitored stretches are characterized by a high environmental heterogeneity containing dense areas of primary and secondary forests at different stages of succession and with different levels of anthropic intervention. The Paranaíta River is particularly characterized by stones and degraded and exposed banks. The area contains secondary riparian forests that, in some stretches, are significantly accessed by watering cattle. Although the human density is low along this river, some points in the whole stretch are heavily visited by fishermen.

A boat (6 meters long) with a 25 HP engine at a speed of approximately 7 km/h was used to sample and study the distribution of giant otter groups. Both riverbanks were inspected in the search for direct and indirect evidence of the presence of giant otters. When evidence was detected, the site was georeferenced, and its characteristics were recorded and examined. Different groups were identified based on their unique throat markings, allowing a minimum estimate of the studied population (Groenendijk et al., 2005; Leuchtenberger et al., 2012.). However, we did not capture for implanting intraperitoneal radio-transmitters, which is a more robust and efficient method to evaluate the composition and home range of groups (Siveira et al., 2011; Leuchtenberger et al., 2015).

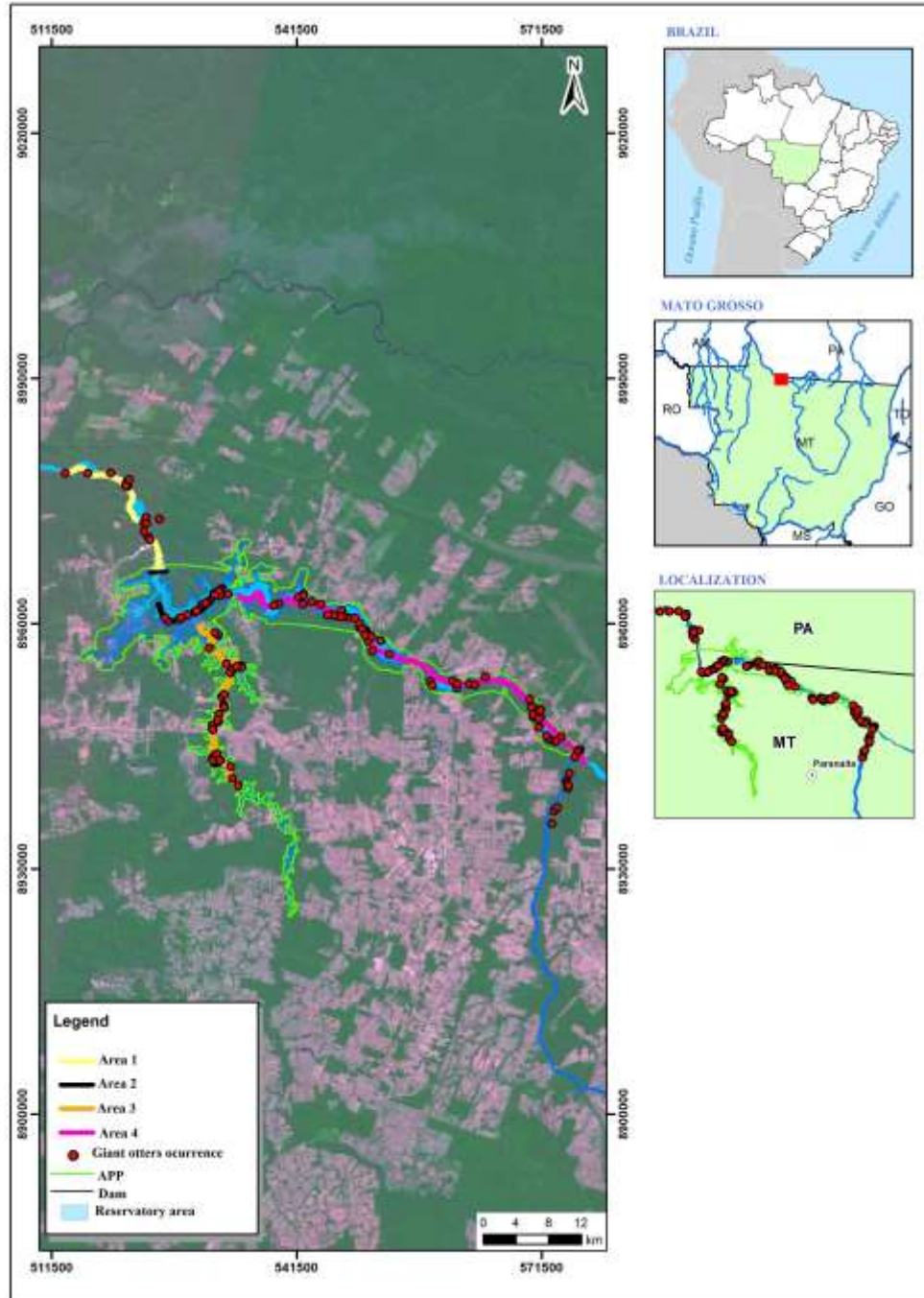


Figure 1. Location of the study area, Northern Mato Grosso State, Brazil. Red dots represent records of giant otters in the sampling area.

RESULTS

A total of 5443 km along the Teles Pires and Paranaíta Rivers was covered throughout ten seasonal campaigns in the search for direct and indirect evidence of giant otter populations. A total of 230 independent observations were recorded including sightings (n=34), footprints (n=63), resting areas (n=49), faeces (n=41), dens (n=25), and campsites (n=16). Through these records, it was possible to identify 18 individuals belonging to eight family groups; however only two groups inhabited the Paranaíta River (Area 3).

The clearing of a large portion of the Paranaíta River margin for the construction of a hydroelectric reservoir (Fig. 2a and 2b) destroyed six previously monitored dens (Fig. 2c and 2d) during the seventh campaign (flooding season), held in December of 2013. Only two old indirect signs of giant otters were recorded during this period. Because of the noise from machines and intense movement of people, we assumed that the otters might have moved to the Teles Pires River or other small tributaries.







Figure 2. Paranaíta riverbank before (a) and after deforestation (b), one of the dens recorded in the previous period (c), same den after being destroyed with the overthrow of the riparian vegetation (d) for filling the Teles Pires reservoir in Mato Grosso.

A group of three individuals were observed resting on fallen tree trunks in the eighth campaign (rainy season), held in March of 2014 (Fig. 3). This observation indicated a possible return of otters to the site. Generally, the number of records drops considerably during this seasonal period because of the expansion of the species' home range into the creeks and the rising of water levels covering dens and banks (Duplaix, 1980).



Figure 3. Two of the three individuals recorded resting on fallen tree trunks near the riverbank areas that had been cleared for the construction of the Teles Pires reservoir, Mato Grosso.

The ninth campaign, performed in June of 2014, was characterized by receding waters. All dens that had been destroyed or obstructed were rebuilt in the same location, indicating fidelity to the den sites, and the increase in dry areas, exposing extended bound areas, allowed the construction of several new dens along the river as well as active resting places and campsites (Fig. 4). In the subsequent campaign, the last one before the filling of the reservoir, these dens were still active.



Figure 4. Resting area (a) and dens (b) built on cleared banks of the Paranaíba River, Mato Grosso.

DISCUSSION

Fragmentation and habitat loss are certainly the main direct and immediate impacts of the implementation of hydroelectric dams on species and can be considered an important environmental filter in the communities (Davies et al., 2000; Canale et al., 2013). Environmental filters are characterized as any type of weather conditions, disturbance regimes, and biotic interactions that may influence the distribution of species through their functional attributes (Keddy, 1992). Thus, species with attributes unsuitable to surviving certain environmental conditions are the first to be eliminated (Keddy, 1992; Henle et al., 2004).

The return of giant otters to a disturbed and completely mischaracterized environment, as evidenced by the construction and reconstruction of dens, resting places, and campsites for shelter, reproduction, and daily activities that include social interactions (Leuchtenberger and Mourão, 2008; Lima et al., 2012; Leuchtenberger et al., 2013), demonstrates that the species overcame the first environmental filter created by the structural habitat alteration. This was probably the result of the species' dispersion capabilities and suggests that the returning otters are trying to adapt to the new conditions where riverbanks are totally devoid of forest.

The next environmental filter created by the construction of hydroelectric dams after deforestation and the consequent structural alteration of the riparian environment will be the flooding of the habitat. Rising water levels will cause a considerable decrease in the number of banks and other structures, resulting in habitat loss. However, at the Balbina hydroelectric plant, an expansion of the area of distribution of giant otters was observed after the formation of the reservoir. The species incorporated various elements of the landscape, including new channels and islands formed, within their home range (Rosas et al., 2007). In addition to habitat loss, changes in water chemistry can affect the composition and abundance of fish and other food resources for the giant otter (Zuanon et al., 2002; Rosas et al., 2007). This will certainly be another filter imposed by the changing environment in the post-filling period.

The ability of this species to overcome environmental filters imposed by the environment will dictate whether they can survive and adapt to the deep and abrupt changes observed with the construction of reservoirs. These changes are often considered as one of the main factors for the decline of giant otter populations (Duplaix et al., 2008). We observed that the giant otter has managed to overcome the first of at least three environmental filters in the studied area, which results from the construction of hydroelectric dams: fragmentation, and consequent habitat alteration. Other long-term studies report that giant otters were able to overcome two types of filters. They were not affected by habitat loss caused by flooding, and maintained their diet composition by increasing their living range to adjacent undisturbed areas (Zuanon et al., 2002; Rosas et al., 2007; Cabral et al., 2010). Nevertheless, Palmeirim et al. (2014) recently demonstrated that, even with the possibility of living area expansion necessitated by flooding, giant otter populations diminished because of reduced habitat quality in the Balbina reservoir.

Thus, even if otters are returning to the degraded areas, there is no guarantee that they can survive the sub-optimal conditions offered by the environment currently being formed. The length of time that these groups will remain in these environments after its complete modification is unknown and must to be studied in the future. In addition, regions with strong forest fragmentation such as the studied region (Michalski and Peres 2005, 2007; Norris and Michalski, 2009) can present low

occupancy capacity for groups of otters, which reinforces the concern with the permanence of these observed groups after the complete filling of the lake and the side effects from this process.

The beginning of the filling of the Teles Pires reservoir occurred in December of 2014, from which it has been possible to evaluate and monitor the influence of other environmental filters on the species. Hence, more years of monitoring these groups are necessary to evaluate the relevant effects promoted by habitat alterations and the level of impact that will result on these already threaten animals.

Acknowledgments - We are thankful for the Teles Pires Hydroelectric Company and the Biota Projects and Environmental Consulting LTDA. for their overall and logistical support in the field. We are also thankful to Diego Silva, Douglas Lara, Uécson Suendel, Rafael Grisostenes, and the field technicians, Edson Dias and Roque Prates, for their important assistance in data collection. Many thanks to Romari Martinez to help us with the abstract in Spanish and Alexandre Vale for creating the sample area map.

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RESUMÉ

BARRAGES HYDROÉLECTRIQUES: PREMIÈRES RÉPONSES DE LOUTRE GÉANTES À UN ENVIRONNEMENT EN MUTATION

La construction des barrages a été identifiée comme l'une des principales menaces qui pèsent sur les populations de loutres géantes dans toute son aire de distribution. Nous présentons la distribution et rapportons le comportement des loutres géantes sur un affluent de la rivière Teles Pires, situé dans l'État du Mato Grosso, Brésil, dans le pré-remplissage du réservoir des Teles Pires hydroélectriques. L'espèce est répartie uniformément au cours de la phase initiale de lo projet, mais avec le début de la déforestation a été observé que les individus étaient absents, probablement en raison de la circulation des personnes. Cependant, ils retourné dans les autres campagnes et reconstruits tous les refuges, ce qui indique une possible adaptation aux changements environnementaux. Les autres grands filtres environnementaux à être remplacés de sorte que les espèces peuvent survivre dans les zones perturbées liés à la perte de l'habitat, avec la montée du niveau de l'eau et le changement dans la composition et l'abondance des ressources alimentaires et les facteurs sont surveillés avec remplissage du réservoir hydroélectrique Teles Pires depuis Décembre 2014.

RESUMEN

REPRESAS HIDROELÉCTRICAS: PRIMERAS RESPUESTAS DE NUTRIAS GIGANTES A UN ENTORNO CAMBIANTE

La construcción de represas hidroeléctricas ha sido citada como una de las amenazas para las poblaciones de nutrias gigantes dentro de su área de distribución. Sin embargo, escasean estudios que evalúen el impacto de reservorios de agua sobre estas poblaciones, y frecuentemente están restringidos a resultados del período después de alcanzar su capacidad. A continuación presentamos datos comportamentales y de distribución de poblaciones de nutrias gigantes que habitan la represa de Teles Pires, en el municipio de Paranaíta, Estado de Mato Grosso, Brasil, durante los períodos de pre-llenado de la misma. Esta especie tuvo una distribución homogénea a lo largo del sitio de muestreo durante la fase de monitoreamiento; esta distribución pasó a ser dispersa luego del comienzo de la remoción de la vegetación ribericina, tal vez debido a los ruidos intensos y a movimientos de personas. A pesar de ello, las poblaciones

volvieron después de otras campañas, reconstruyendo lares destruidos y construyendo nuevos refugios en terrenos recientemente expuestos, indicando una posible adaptación al primer filtro ambiental promovido por el proyecto: el cambio estructural del ambiente. Otros dos filtros subsecuentes que desafiaron la supervivencia de las poblaciones están relacionados con la pérdida de hábitat al subir el nivel de agua y con cambios en la composición y abundancia de recursos alimenticios. Estos factores están siendo monitoreados después del llenado total del reservatorio de Teles Pires desde Diciembre 2014.

CONFERENCE



XIII International Otter Congress Singapore 2016

13th International Otter Congress

3 - 8 July 2016

[NB date change from 2-7 July]

Singapore

Dear friends:

It gives me great pleasure to announce that our next 13th International Otter Congress will take place in Singapore July 3-8, 2016. Please consult the website for more details: <http://www.ottercongress2016.com> If you have any questions about the Congress please email me or Meryl Theng: otterspecialist@gmail.com

Last March, a group of us met with the Singapore Zoo and Wildlife Reserves Singapore who agreed to host the meeting and provide its meeting rooms for the event. Further, OSG member Professor Sivasothi of the National University of Singapore is Co-Chairing the Speakers and Conference topics, with Dr Sonja Luz of Wildlife Reserves Singapore who heads up the Congress Planning Committee. So we are in good hands and the preparations are progressing smoothly. They are assisted by local OSG members Meryl Theng and Dr Katrina Fernandez.

Nicole Duplaix
Chair
IUCN/SSC Otter Specialist Group

OSG MEMBER NEWS

NEW MEMBERS OF OSG

Since the last issue, we have welcomed 21 new members to the OSG: you can read more about them on the [Members-Only pages](#).

Anith Basavaiah, India: I have been working with Nisarg Prakash and the Nityata foundation along the Cauvery river in India studying otters and engaging with local fishermen towards conserving otters and their habitats. I'm very happy to be part of a group with dedicated people working towards conserving these wonderful animals. I look forward to learn about various conservation policies and share experiences with the group.

Alana Chin, USA: Founder and Director of the Sacramento Valley Otter Project, a citizen-science project based at American River College, Sacramento. We have collected, mapped and analysed over 300 public-submitted records of *Lontra canadensis* sightings, and trained 11 river otter surveyors. I am also a researcher on the River Otter Network citizen-science project at Humboldt State University as well as conducting field research on *Lontra canadensis* in agricultural and developed habitats.

Giuseppina de Castro, Italy: I have been surveying otters in the Molise Region since 2004. I am currently surveying along the Molise river for the Italian Action plan, and also involved in non-invasive genetic sampling of otters in the peripheral Italian range with Laura Lerone.

Antonia Galanaki, Greece: I am a zoologist and I first studied otters in my B.Sc. in 1999; since then I have been working in different wildlife projects in Greece. I am very interested in the development of species distribution models to study distributional changes of otters in relation to their habitats for conservation. In February 2015, I started a post-doc research on the impact the otter on aquacultures in western Greece.

Daniel Gallant, Canada: I am a Canadian wildlife biologist interested in mammalian behavior and ecology, as well as in monitoring methods used in wildlife management and conservation. I am also interested in the use of historical sources of information for studying the influence of human activities on biological and ecological change.

Allan Galway, United Kingdom: I have worked at Belfast Zoo for 12 years, caring for many species including Short-Clawed, Smooth-Coated and Spot-Necked Otters. I am vice-chair of the EAZA Small carnivore TAG, co-chair of the BIAZA Small mammal working group and ESB keeper for Marbled polecat and Green acouchi

Gustavo González, Guatemala: I am a veterinarian working with neotropical otters (*Lontra longicaudis*) in a park called Club Auto Safari Chapin, who has two, and also work in another park called FAE, which has four. I am currently rearing two wild orphan cubs.

Sinead Anja Hering, Germany: I am doing my Masters at Aktion Fischotterschutz e.V. on conflicts between the fishing industry and otter conservation, as well as methods of improving otter monitoring. I am also conducting practical trials with fences against otters in the enclosures at Otter-Zentrum.

Pablo César Hernández-Romero, Mexico: I have worked with neotropical otters for seven years, and am a member of the Advisory Group for the Neotropical Otter in Mexico. I am working on the ecology and genetics of the species, and want to establish monitoring and conservation plans where with the participation of local people.

Hauke Hoops, Peru: It would be a pleasure and honor to be part of this group, where I can bring to the table my management and networking capacities and where I would be able to learn from each of the member's specific knowledge which I would share with the FZS team in general and in Peru

Pushpinder Singh Jamwal, India: Working for WWF-India in Ladakh, my interests are in avian fauna, ecology of large carnivores (including *Lutra lutra* and other Indian otters), human-wildlife conflict, and economic valuation of ecosystem services. I am also a keen photographer!

Dane Jorgensen, USA: As lead keeper of our two giant otters at the Birmingham Zoo, my interests align with their husbandry, management, and training. It's my hope to pursue excellence in captive otter care in order to assist the SSP population and benefit these magnificent animals.

David Moyer, USA: I am responsible for the curatorial care of North American river otters at the Calvert Marine Museum and have 17 years of experience with captive otter populations. I actively promote animal welfare of captive species and conservation of their native habitats for a living.

José Pizarro-Neyra, Peru: Although my research about the Marine Otter began with the study of the composition of the diet and behavior, the results of observations allowed the evaluation of topics as the mortality estimation, the interspecific relations, the interaction with fisheries and the perception of the people about this species. Through my work with the "Chungungo" I discovered that marine otter conservation is possible with few funds and a responsible care of fishermen.

Santiago Palazón, Spain: I work on the management of protected and endangered mammals, mainly Eurasian Otter and Eurasian and American mink. I worked on the second and third Spanish Otter Surveys, and am now surveying for the Fourth. I am also coordinator of the Otter Group of the Spanish Society for Mammal Conservation and Study (SECEM). We have been compiling a database of otters killed on roads, and otter sightings.

Gloria Ponce García, Mexico: I work on the ecology and conservation of neotropical otter in Mexico, and its ecological niche modeling and geographical distribution.

Wulan Pusparini, Indonesia: I have been largely involved in large-mammals conservation (Sumatran rhinoceros, Sumatran tiger, and Asian Elephant) through my professional work with the Wildlife Conservation Society. I work mostly in Sumatra, conducting field research on mammal populations, increasing government staff and NGOs partner capacity through training in population estimation, and conflict-mitigation schemes, as well as formulating action strategy. Currently I and my team are concentrating on data deficient small carnivores, such as otters.

Elodie Rey, France: I am an ethologist, and have been curator of small carnivores at Paris Zoo since 2008, and EEP Coordinator for *Lutra lutra* since 2013. I am now planning to do a genetic study of this species in captivity, and to rewrite the husbandry guidelines for it. I am Eurasian Otter contact for the OSG OZ Task Force.

Ellen van Norren, the Netherlands: I am Project leader Ecology at the Dutch Mammal Society and the Chairman of the Dutch Otter Board. In this role I want to positively encourage otter specialists, governments, neighbouring countries and other parties in order to reach our shared aim: the sustainable population of otters as an icon of great water nature in one of the most densely populated parts of the world.

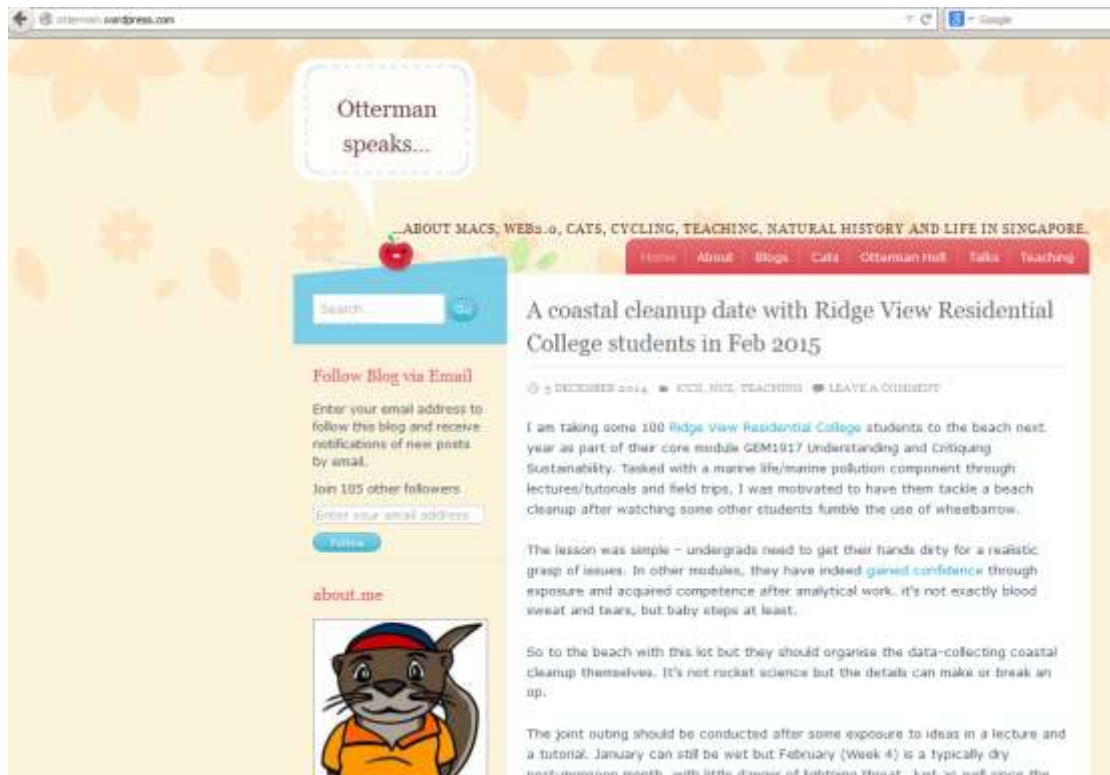
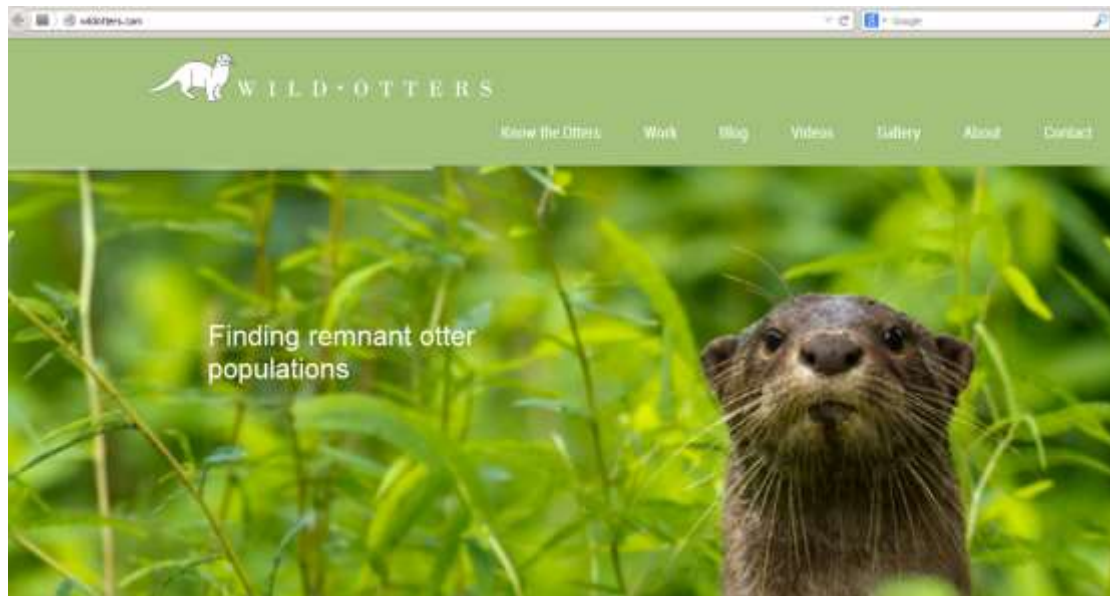
Samantha Walker, UK: I am a BSc student currently preparing a dissertation on giant otters resident in the vicinity of Tacshacocha on the Samiria river, Peru, following four weeks voluntary experience as a research assistant with Operation Wallacea. I hope to carry on working with otters in my future career and would welcome any volunteer opportunities to gain experience.

Patrick White, UK: My primary area of interests in otters is within the context of developing more effective, efficient and evidence-based surveying methods. I am currently working on a project to improve the use of camera technology in identifying and studying structures used by *Lutra lutra*.

VIRTUAL OTTER

Recently an NGO called **Wild Otters** with a vision of long term otter conservation work was founded in India. Currently most of the work is done in Goa (India).

<http://wildotters.com/>



NATIONAL REPORT

FRANCE, 2015

Bonjour,

Voici le neuvième et avant-dernier numéro de l'Echo du PNA Loutre:
<http://www.sfepm.org/pdf/EchoPNA9.pdf>

Nous vous en souhaitons une bonne lecture et nous remercions tous les contributeurs.

L'intervention sur France 3 Limousin, au sujet du premier Havre de Paix dans le Limousin (p. 4) est toujours disponible sur le site de la chaîne. Il faut visionner le 19/20 du 28 novembre.

<http://france3-regions.francetvinfo.fr/limousin/emissions/jt-1920-limousin>

Le sujet est évoqué dans les titres puis à partir de la minute 8:45

L'opération Havre de Paix devrait aussi être le sujet de la chronique Planète environnement sur France Inter, jeudi 24 décembre à 7H20. L'émission pourra être réécoutée ici <http://www.franceinter.fr/emission-planete-environnement>

En attendant d'entamer la nouvelle année et les 6 derniers mois du PNA Loutre, nous vous souhaitons à tous de très bonnes fêtes.

Rachel Kuhn