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**OTTER SPECIALIST GROUP  
BULLETIN**

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## IUCN OTTER SPECIALIST GROUP BULLETIN

The IUCN Otter Specialist Group Bulletin appears biannually. Articles, reports, symposium announcements and information on recent publications are welcome. All submissions should be typed double-spaced. The submission of an electronic manuscript on diskette or by e-mail is strongly recommended. Reports should not exceed 2000 words in length, i.e. not to exceed four printed pages, including diagrams and tables. Articles may be longer. Diagrams, maps and tables should be included as a photocopy ready for reprint! A short abstract for translation into Spanish and French has to be included!

Articles will be fully reviewed. Authors are requested to add a notice as to whether they submit an article or a report.

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## **NOTE FROM THE EDITOR**

This issue of the IUCN OSG BULLETIN has been printed and sent out later than usual, and for this I apologise. On the other hand, I take the number of e-mails I received asking for it as a complement! Obviously, many people are really waiting for the Bulletin.

Historically, the Bulletin has been officially published in April and October, and has always been sent out about 2 months later. Despite this, I encourage everybody to submit manuscripts all year round. The reviewing and revising process always takes quite a lot of time and, more than once, printing has been delayed whilst one manuscript was delayed. In the future, with your help, I will try to again produce the Bulletin closer to October and April.

Unfortunately, only 25% responded last year to renew their subscription, although the subscription remains free for those who cannot afford, or do not want, to contribute. Possibly, many of the people on my address list are no longer working with otters and are no longer interested in receiving the Bulletin; if so, could they please let me know?

In this issue, you will again find the leaflet allowing you to subscribe for another year. Please send me your response as soon as possible as this allows me to plan future issues.

Many thanks go to Pál Gera, Josef Lanszki, Aksel Bo Madsen, José M. López-Martin, Dave Rowe-Rowe, and Irene Østerlund Bruun-Schmidt; all of who provided information on recent publications.

Kevin Roche (Czech Republic) again functions as a reader for those contributions which have not been reviewed by at least one native speaker; whilst Alvaro Soutullo (Uruguay) and Lionel Lafontaine (France) translated the abstracts into Spanish and French. I also have to thank the 'Otter Bulletin Team' for their continuing help, namely Hans van den Berg and Annemarie Gerritsen (Wageningen) and Els Hoogsteede-Veens and Erwin Hellegering of GRAFISCH SERVICE CENTRUM VAN GILS (Wageningen).

Finally, I can now inform you that the work on the proceedings of the conference held in Trebon is now really coming to an end! I will not bother you with stories about crashing computers, lost e-mails, authors not responding etc., but, despite all this, we have now received almost all the manuscripts - so there is hope!

IUCN/SSC OSG GROUP

FROM THE CHAIRMAN'S DESK

Looking back at the results of the OSG's work in the year 2001, I have to state that there was remarkable progress. However, some of the targets declared for this year could not be reached. If I count the numerous queries and project proposals I was confronted with, it seems that otter work - in research as well as in conservation - is continuously increasing. This is also true for the distribution range of the Eurasian otter in many parts of Central Europe. Current data, which I received from Denmark, Germany, Austria, and the UK, confirm that this otter species has begun a remarkable recovery story. I am sure, as increasing numbers of surveys are carried out using the recommended OSG Standard Method, more and more reliable evidence will back up this trend. Recently, Michaela Bodner and I joined a meeting of the Italian otter people, and we were happy to hear that the Standard Method will be used in this country more intensively in the future. Early reports indicate that, though the otter is now probably extinct in northern Italy, the southern population seems to be doing fine.

The Italian meeting also highlighted an aspect that is becoming more and more important for otter research and conservation, genetics. Ettore Randi of the Italian Wildlife Institute presented new data showing genetic differences in the European otter population. It also seems that we now have evidence for genetic variation within the captive population of the Eurasian otter, which is not related to the genetics of *Lutra lutra* of European origin. The Italian authority has therefore decided to stop all efforts to re-introduce otters until there are more data on this aspect.

The recent improvements in genetic analysis methodology will also hopefully support our efforts in increasing our knowledge about the Congo clawless otter, one of the remaining mysteries in otter conservation. Some steps towards this target were made during the last year. H el ene Jacques started data collection from the French speaking side of Africa, and Jan Nel and I did the same from the English speaking side of the continent. When we meet in the middle we will hopefully be able to lift the fog related to this species.

As was planned for the year 2001, Africa was in the focus of OSG's work. The workshop on African otters, moderated by Jan Nel and I as part of the 8th International Theriological Congress in South Africa in August this year, was very successful. Many new contacts were made and some very interesting ideas were raised as to how otter conservation in Africa could be improved.

In addition, the Asian section of the OSG again developed some remarkable activities. Hiroshi Sasaki has prepared a workshop on conservation of otters in Vietnam, which will take place in February 2002. And probably in the same month, Motokazu Ando and Syed Hussain will organise a workshop in India on how to use otters as wetland ambassadors. It is more and more clear that communication, education, public awareness, etc., are all aspects that are proving to be highly efficient tools in (otter) conservation. A very good example is the website for the Giant otter ([www.giantotters.com](http://www.giantotters.com)) and the newsletter 'Friends of the Giant Otter' (contact: [fzsgop@terra.com.pe](mailto:fzsgop@terra.com.pe)), created in Latin America by Jessica Groenendijk and Frank Hajek.

These are only some of the topics reflecting the priorities for next years activities of the OSG. In the foreground I see the finishing of the revision process for the Otter Action Plan. This will require great efforts from all members of the OSG. I really hope that I can count on the support that is indispensable if this ambitious project is to succeed. If the enthusiasm and the cooperation, which marked our teamwork in 2001, can be transferred to 2002, I am sure that we will be able to make it. Let me use this opportunity to thank all members and friends of the OSG who contributed to the work of the group in 2001, and through this founded the basis for our contribution to global biodiversity.

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## REPORT

### TRACKS AND OTHER SIGNS OF THE HAIRY-NOSED OTTER (*Lutra sumatrana*)

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(received 2 August 2001, accepted 5 November 2001)

**Abstract:** The hairy nosed otter (*Lutra sumatrana*), an endemic species and the most rare otter species in Asia, has been rediscovered again in southern Thailand, after many years with no reliable information. Their main habitat appears to lie in two types of swamp forest; pure stands of *Melaluca cajeputi*, and evergreen swamp forest composed of a three-story formation of climax vegetation with a continuous crown canopy. Within the overall hairy nosed otter survey, indirect observations, such as tracks, faeces, and characteristic spraint sites, were collected to obtain more information on the ecological requirements of this species. Spraint composition was also analysed to compare its diet with other otters.

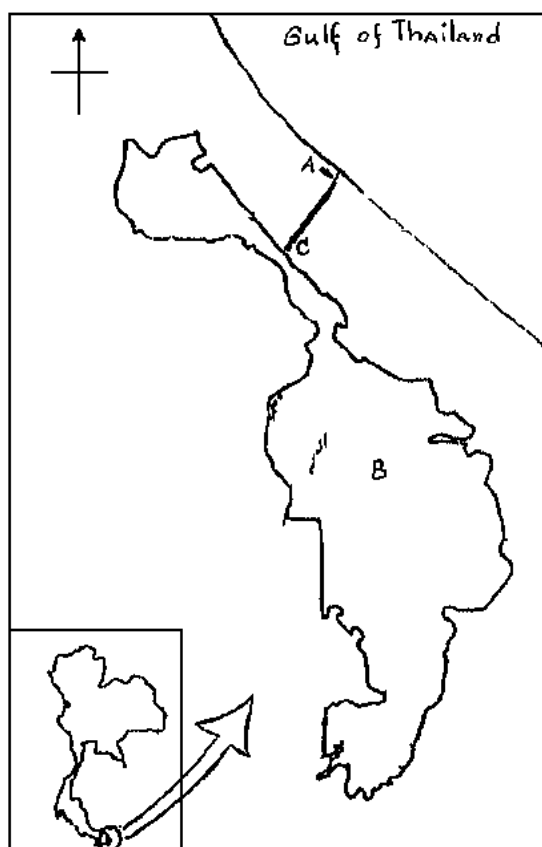
#### INTRODUCTION

Four species of otters are known to exist in Thailand (Lekagul and McNeely, 1977). The smooth coated otter (*Lutra perspicillata*), the Eurasian otter (*L. lutra*), and the small-clawed otter (*Amblonyx cinereus*) are all known to occur and their status has been assessed in many areas (Kruuk et al., 1994; Kanchanasaka, 1996, 1997). Though the hairy-nosed otter (*Lutra sumatrana*) was believed to occur in southern Thailand (Lekagul and McNeely, 1977), there had been no report or reliable information on this otter species for a long time; it was therefore considered to be a highly endangered species within its range in Thailand. The recent rediscovery of the hairy nosed otter in the Toa Daeng peat swamp forest in southern Thailand has allowed us to begin an intensive study of this species, including information on tracks, spraints, spraint sites, and diet composition, allowing us to increase the information available on the hairy nosed otter.

#### METHODS

Observations were made in a patch of swamp forest that was dominated by *Melaluca cajeputi*. This forest patch was about 0.5 km<sup>2</sup> and is situated near a canal connecting the forest to a large patch of peat swamp forest (Fig. 1). Approximately 10 spraint sites were found in this area and 'camera trapping' was used to check on use by the species. Direct observations were made whenever the opportunity arose.

Tracks were studied by collecting a plaster cast of print, and these were compared with the tracks of the smooth coated otter and the Eurasian otter from previously published material (van Strien, 1983; Brown et al., 1983). Spraint sites were recorded and compared with other Asian otters and the size and shape of the spraints were recorded. Spraint composition was analysed in order to differentiate the diet of hairy nosed otters from that of other otters. Diet composition is presented as frequency of occurrence (FO), relative frequency (RF), and bulk percentages (BP). The frequency of occurrence shows the percentage of spraints containing a particular prey item and the relative frequency, the number of occurrences of a particular item as a percentage of the total number of occurrences of all items in the sample (sum = 100%).



**Figure 1.** Location of the study site (click for larger version)  
A = study site, B = Phru Toa Daeng Peat Swamp Forest, C = Canal that connected the swamp to the sea

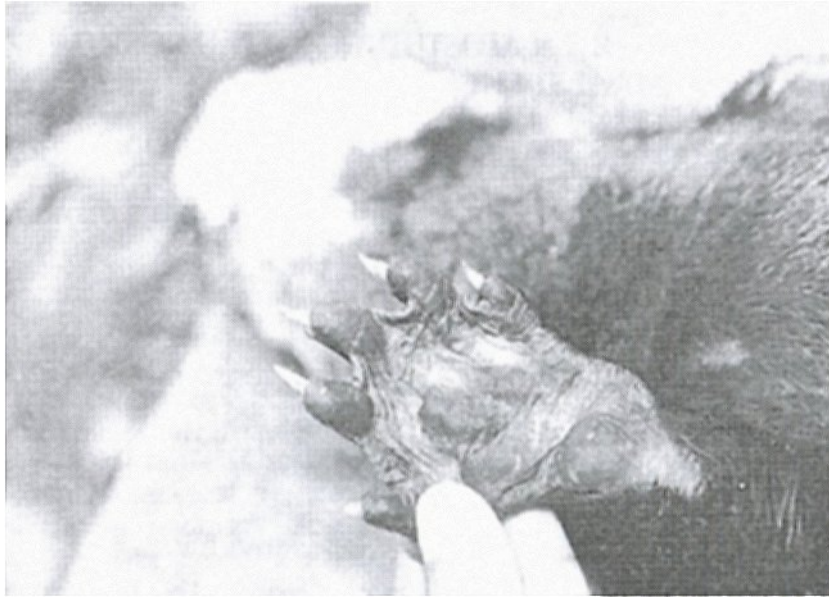
## **RESULTS**

### **Observations**

From information gathered from both 'camera trapping' and direct observation, we estimated that one group of three otters inhabited this area.

### **Description of tracks**

Tracks of the hairy nosed otter showed five toes on each foot, as with other otters. The web between the toes was often clear in soft substrate. The toes are small, pointed and often showed the imprint of the claw on sand or mud. The toe width is about 0.7 to 1.1 cm. The footprint of the hairy nosed otter is both smaller and less oval than the smooth coated otter, but similar to the track of the Eurasian otter, in both size and shape. The first and the fifth toe are not aligned and it is possible to separate the fore and hind feet from the position of the first and the fifth toes, i.e. the first toe in the hind foot is lower than the fifth toe to a much greater degree than in the fore foot. The position of the five toes in the fore foot is therefore more symmetrical than in the hind foot. The fore feet often showed four inter-digital and proximal pads, while the proximal pads are absent in the hind feet (Fig. 2-4). The fore feet are rather smaller than the hind feet (Fig. 4), the approximate width of the fore feet being 5.8 cm (n=24) and the hind feet 6.6 cm (n=16).



**Figure 2.** Fore foot of the hairy-nosed otter showing the interdigital pads



**Figure 3:** Fore foot of the hairy-nosed otter showing the interdigital pads



**Figure 4:** Fore left and hind left track from the plastercast



Although there were distinctions between the tracks of the three Asian otter species, the footprint of the hairy nosed otter and the common otter are very difficult to distinguish. The width of the footprint of the hairy nosed otter is slightly larger than that of the common otter, however, the width of some footprints overlapped with that of the common otter and, though the toe was rather small in size and pointed in shape, they were also very similar.

### **Spraints and Spraint sites**

Hairy nosed otters deposit their faeces, or spraints, at similar sites to the other otter species. Most spraints were found on the ground and, whereas some were found in the shade of a tree, many were found on a mound in the open. Because hairy nosed otters live in swamp forest, where the forest floor is covered by water, many of the spraint sites were on a mound near a tree trunk or on the trunk or root of a fallen tree. Spraint sites could be as close as 2-5 metres apart and were situated near the waters edge, approx. 0.5 to 2 meters from the bank, or on a mound surrounded by water, at least 0.3 metres above the water level. The hairy nosed otter did not appear to produce a large pile of spraints, such as small-clawed and smooth coated otters do; however, they appeared to defecate frequently along a path. Spraints were shapeless, black in color when fresh, and did not have a strong smell like the smooth coated otter. Some spraints contained a green/brown mucous. The size and shape of spraints varied, from a tiny scat, a shapeless dropping (Fig. 5), to a cylindrical spraint (Fig. 6), usually around 1-1.5 cm in diameter. Some spraint sites contained 2-3 shapeless droppings, about 5 x 2.2 cm in size, whereas others had a single dropping, approximately 4.5 x 2.2 cm in size. Spraint sites on a tree trunk or log had both single tiny scats and multiple spraints of small dropping, with the multiple spraints often deposited on the base of a big tree. The single tiny spraint, sometimes containing only mucous, usually placed on a log or tree trunk, were often as close as 1 metre apart.



**Figure 5.** Shapeless dropping of the hairy-nosed otter



**Figure 6:** Cylindrical dropping of the hairy-nosed otter

### Spraint composition

One hundred and twenty two spraints were collected over the nine months between March and November 2000 this period covering both the wet and dry seasons in southern Thailand.

Vertebrae were the remains most often found in spraint (Frequency occurrence: FO = 99.2 %, Relative frequency: RF = 93.8%), most of these being from fish (FO = 98.4 %, RF = 78.6 %), with snake being the second most important item (FO = 18 %, RF = 13.5). Invertebrate remains were also found, including crab and insect, though the latter were only found in small quantities (Table 1). The results indicate that fish were the main food item of the hairy nosed otter throughout the study period, with other vertebrates and invertebrates taken in small amounts.

**Table 1:** Occurrence of different prey categories in spraints

Prey Items	% spraints with (FO)	rel % spraints with (RF)
Fish	98.4	73.6
Frog	5.7	4.3
Snake	18.0	13.5
Mammal	1.6	1.2
Reptile	1.6	1.2
Crab	2.5	1.9
Insect	5.7	4.3

### DISCUSSION

Our observations on tracks suggest that the tracks of the hairy nosed otter and the Eurasian otter are very similar and will be difficult to separate from each other if these two species occur in the same area. However, the tracks of hairy nosed otters and the smooth coated otter are different and can be separated by their size. The tracks of the smooth coated otter are large and often more than 8 cm wide (Kruuk et al., 1993). Whilst the track width of young or small female smooth coated otters can be smaller than 8 cm, their toes will be bigger and their shape oval, whereas the tracks of the hairy nosed otter are rather small and have pointed toes. The tracks of the hairy nosed otter and the small-clawed otter, the other otter species that shares the swamp forest habitat, are completely different in their shape and size. The small-clawed otters' footprints are smaller than 4.5 cm in width and never show claw marks (Kruuk et al., 1993).

According to Kruuk et al. (1993), there was large variation and overlap in appearance among the faeces of the three otter species (*L. lutra*, *L. perspicillata* and *Aonyx cinerea*) and hence evidence from spraint sites should be used with caution. The results of this study supported these findings, with some spraint types of the hairy nosed otter being very similar to those of the smooth coated otter and the Eurasian

otter. However, the type of spraint comprising many small droppings of faeces of the same age on a tree trunk belonged only to the hairy nosed otter.

Analysis of spraint composition indicated that the diet of the hairy nosed otter in this region contained many more fish remains than other vertebrate or invertebrates, similar to the diet of the smooth coated otter; whereas spraints of the Eurasian otter contain roughly equal amounts of amphibian or crab as fish (Kruuk et al., 1994; Kanchanasaka 1997).

**ACKNOWLEDGEMENTS** - The International Otter Survival Fund and the Japanese Otter Research Group financially supported this project. I would also like to thank WWF-Thailand and the International Otter Survival Fund for supporting my participation in the VIIIth International Otter Colloquium.

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## Résumé : Traces et autres Indices chez la Loutre de Sumatra en Thaïlande

Espèce endémique, la loutre de Sumatra (*Lutra sumatrana*), la plus rare de toutes les loutres d'Asie, a été redécouverte au sud de la Thaïlande. Son habitat se compose de deux catégories de forêt marécageuses: les rives vierges à *Melaluca cajeputi* et les forêts sempervirentes à trois strates de végétation climacique et canopée continue. Les traces, épreintes et caractéristiques des sites de marquage ont été étudiées afin d'accroître les connaissances en matière d'observation indirecte pour recenser l'espèce. La composition des épreintes a été également analysée afin de comparer son régime alimentaire avec celui d'autres espèces de loutres.

## Resumen: Huellas y Otros Signos de la Nutria de Hocico Peludo

La nutria de hocico peludo (*Lutra sumatrana*), endémica de Asia y la más rara de las especies de nutrias de la región, fue nuevamente redescubierta en el sur de Tailandia. Su hábitat incluye dos tipos de bosques de pantanos: los arenales de *Melaluca cajeputi* y el bosque perenne de pantano compuesto por una formación vegetal de 3 estratos con dosel de copas continuo. Se estudiaron huellas, fecas y características de los sitios de marcaje para obtener información para realizar relevamientos de estas nutrias mediante observaciones indirectas. También se analizó el contenido de las fecas para comparar su dieta con la de otras nutrias.

## REPORT

### NEW INFORMATION ABOUT THE HAIRY-NOSED OTTER (*Lutra sumatrana*) IN VIETNAM

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(received 2 August 2001, accepted 5 November 2001)

**Abstract:** The Hairy-nosed Otter (*Lutra sumatrana*) is regarded by the IUCN Otter Specialist Group as one of the five species of otter in greatest need of conservation. They are restricted to only a few locations in Thailand, Cambodia and Vietnam. In Vietnam, the first research on the species was done in 1925, but between then and their rediscovery in 2000, there were only five sightings in all. This is a sign of the rarity of the species in the country. The authors carried out two otter surveys (March and November) in Vietnam's Mekong Delta in 2000, and a surviving hairy-nosed otter population was found in the U Minh Thuong Nature Reserve, Kien Giang Province. Their population is threatened by habitat destruction, natural disasters and disturbance.

#### INTRODUCTION

The hairy-nosed otter (*Lutra sumatrana*) is defined by the IUCN/SSC Otter Specialist Group (Foster-Turley et al., 1990) as one of five otter species of top global conservation concern. However, its actual status within its range remains unclear. At present, its existence is recorded in a few localities only in Thailand (Budsabong, 2000), Cambodia (Poole, in press) and Vietnam (Nguyen et al., 2000). In Vietnam, investigation of the hairy-nosed otter can be dated back to 1925; however, scientists had recorded the species on only 5 occasions prior to our re-discovery in 2000 (Table 1, Figure 1). This indicates the rarity of the species in the country.

In 1932, Osgood (in Sivasothi et al., 1994) published the first record of a hairy-nosed otter in Vietnam, a specimen of unknown origin (Annam), based on an analysis of mammals collected between 1925 and 1929. In 1941, Pocock (1941) published two records: one from the Long Xuyen District in An Giang Province (approximately 10°23'N, 105°25'E) and one from Hue town in Thua-Thien-Hue Province (approximately 16°28'N, 107°36'E). Following this, there were no records of Hairy-nosed otters for 36 years. Zoological surveys in North and Central Vietnam found no sign of the species. In Southern Vietnam, war conditions made it impossible for Vietnamese scientists to carry out surveys from the late 1950's through to the early 1970's. A few surveys made by foreign zoologists (e.g. van Peenen et al., 1969) did not find any records of hairy-nosed otter in the area.



**Figure 1.** Localities of previous records of hairy-nosed otter in Vietnam and locality of U Minh Thuong Nature Reserve.

**Table 1:** Records of hairy-nosed otter in Vietnam before 2000

	Collector	Locality	Year	Specimens located in	sex	HB mm	T mm	E mm	W kg
1	Osgood	Annam	1932	?	?	?	?	?	?
2	Pocock	Thua Thien-Hue	1941	British Museum	?	?	?	?	?
3	Pocock	An Giang	1941	British Museum	?	?	?	?	?
4	Truong Minh Hoat	Ca Mau	1977	IEBR	F	520	297	18	3.5
5	Truong Minh Hoat	Can Tho	1977	IEBR	F	625	345	20	3.7

HB = Head-Body length; T = Tail length; E = Ear length; W = Weight  
 IEBR: Institute of Ecology and Biological Resources, Hanoi, Vietnam

After the war, in 1975, Vietnamese scientists started wildlife studies in Southern Vietnam and, in 1977, two specimens of hairy-nosed otter were collected: one in Ngoc Hien District in Ca Mau Province (approximately 8°33'N, 105°15'E), another in Phung Hiep District in Can Tho Province (approximately 9°49'N, 105°50'E). However, economic difficulties in the country did not allow Vietnamese scientists to continue systematic surveys on the Hairy-nosed otter. As a result this otter species was absent from the record of Vietnam mammalian species for another 24 years; until our recent findings. The authors earned out two otter surveys (March and November) in Vietnam's Mekong Delta in 2000, and a surviving hairy-nosed otter population was found in the U Minh Thuong Nature Reserve, Kien Giang Province. The main objectives of the surveys were:

- To assess the present status of the otter population in the U Minh Thuong Nature Reserve;
- To assess the status of the habitat, and any threats to the survival of the otters in the reserve;
- To recommend measures for conservation of the otter population in the area.

## **SURVEY METHODOLOGY**

### **Semi-structured interview with key informants:**

Interviews with selected key-informants, such as forest guards, local hunters, forest users, wildlife traders, etc. were carried out to provide general information on the otter fauna in the area, as well as human impacts (hunting, trading, habitat disturbance) on the otter populations.

### **Direct observations:**

- a. **Transect survey for direct observation of otters and their signs**  
Transects were designed to cover all habitat types, concentrating with more intensity on possible otter areas. The majority of transects followed waterways, such as canals, streams, and swamps; and a number of transects crossed reedstands or *Melaleuca* forests. Direct observation of the otter is ideal but, due to thick vegetation cover, the possibility of direct otter sightings was very low. Therefore otter signs, such as tracks, dropping (spraints), dens, etc., were the main focus of the transect survey. Typical features and abundance of these signs could indicate the species and certain ecological features of the otter population (Kruuk et al., 1986, 1993; 1994)
- b. **Waiting in key sites for direct observation**  
Direct observation is ideal for species identification and behavioural studies. A great deal of effort was put into obtaining direct observations of the hairy-nosed otter for this study. Our approach consisted of waiting by key sites where the animals were known to frequently swim or forage. Several direct observations were obtained during this survey as a result.
- c. **Examining otter specimens and their remains in villages**  
Otters are sometimes kept by Vietnamese in their houses for pets, or for catching fish. Otter pelts are typically sold, or used for traditional medicinal purposes. Living captive otters or their remains, provide valuable materials for species identification and assist in furthering our understanding of the biology of the species.
- d. **Spotlighting**  
Another method used to obtain direct observations was spotlight surveys at night and during the early morning. A head torch was used first for detecting the otters, and then a strong spotlight was used to get a better sighting of the animal. Due to the difficulty of passing through dense forests and reedstands, spotlighting was conducted primarily along canals and dykes clear of vegetation.
- e. **Camera trapping**  
In the U Minh Thuong Nature Reserve, Le Hong Tuyen, a staff member of the CARE/UMTNR Conservation and Community Development Project conducted camera trapping from March to November 2000. Three sets of camera traps were used (Trailmaster TM1000/TM 1500, Goodson and associates Inc.). The camera traps were set for 24 hour activity, with the number of pulses to miss (-P) = 5 and a camera delay of CD = 2 minutes. The camera traps were set in 7 sites representing different habitats.

## **SURVEY SITE - THE U MINH THUONG NATURE RESERVE**

The Vietnamese Government designated the U Minh Thuong Nature Reserve (UMT NR) as a site for the preservation of a wetland habitat with typical peat swamp forest in 1992. The Reserve is located in Kien Giang Province, Southern Vietnam, coordinates: 9°29'- 42'N; 105°01'-09'E (Figure 1). The Reserves' total area is 21,800 ha, divided into a Core Zone and a Buffer Zone. The Core Zone (8,130 ha) consists of about 3,000 ha of tall *Melaleuca* forest, and a large area of dense *Phragmites* reed meadows and open swamp. A perimeter canal and a dyke surround the Core Zone. There are internal crossing canals subdividing the core area into four main internal blocks. Within the Core Zone, earthen dams isolate the perimeter canal from those that radiate from it into the surrounding Buffer Zone, these being used to control water level. A high water level is kept in the Core Zone in order to prevent peat degradation and reduce fire risk.

In general, 5 main habitat types can be distinguished in the Core Zone of the reserve:

- Mature/natural *Melaleuca* forests
- Young planted *Melaleuca* forests
- Canals and open swamps with floating aquatic vegetation
- Dykes with dense *Phragmites* reedstands
- *Phragmites* reed meadow mixed with planted *Melaleuca* trees
- *Eleocharis* grasslands

Mature *Melaleuca* Forest on peat is the characteristic vegetation type of U Minh peatswamps, with *Melaleuca cajuputi* as the dominant canopy tree, and an abundance of ferns. Grasslands are probably a secondary formation occurring on forestlands after the forest cover has been removed by fires or by man-made clear cutting. There are 2 types of grasslands: those dominated by *Phragmites vallatoria* and grasslands dominated by *Eleocharis dulcis*. Open swamps are permanently inundated natural water bodies, which are not occupied by large woody trees, whilst open swamps are covered by various herbaceous species. Diverse plant communities cover the canals and many canal segments in the Core Zone are completely blocked by dense, heavy, floating mats formed of *Eichhornia crassipes* and *Pistia stratiotes*. Dykes (canal banks) are often covered by dense *Phragmites* reedstand.

The Buffer Zone maintains a complicated network of man-made canals. More than 3,000 households, with about 20,000 people, have been living here since 1993. Each household is allocated 4-5ha of land for agriculture and reforestation. Therefore, the vegetation in the Buffer Zone includes rice fields, *Eleocharis* meadows, and young *Melaleuca* plantations.

The climate in the area is tropical monsoon with 2 different seasons: a rainy season, lasting from May to October, and a dry season, from November to April the following year. Average annual rainfall is 2,015mm and the majority of rainfall is concentrated in July, August and September. Hydrological conditions in the Core Zone have considerably changed following the construction of a network of water containing canals and dykes. Before construction of the canal and dyke network, the area was usually inundated during the rainy season, and a large peat area dried out during the dry season, often causing forest fires. In order to prevent the forest fires, the network of canals and dykes was constructed to keep water at a high level all year round. This results in the majority of the Reserve area being permanently inundated. The influences of this artificial change of hydrological conditions on the flora and fauna in general, and specifically on the local otter population, have yet to be evaluated.

## **RESULTS AND DISCUSSION**

Records of hairy-nosed otter in the U Minh Thuong Nature Reserve The survey findings indicate that two species of otter occur in the UMT NR: the small-clawed otter (*Aonyx cinerea*) and the hairy-nosed otter (*Lutra sumatrana*). The forest floor in the Reserve is mostly inundated, and therefore does not maintain footprints and spraints of otter well. It was possible to identify hairy-nosed otter footprints in only three cases. In the first two cases, the footprints were very fresh and were clearly outlined in the mud. These were 5-7 mm wide with marks of long claws. In the third case the footprints were old,

however, the claw impressions were still clearly visible. Due to the presence of the claw imprints we were able to determine that all three were footprints of a *Lutra* species.

Otter spraints were found in 11 cases, of which 7 cases contained primarily fish scales and bones without any discernable crab remains; the other four cases containing mainly crab remains. Otters may change their diet depending on prey availability in the environment. However, many studies indicate that, whilst *Lutra* otters eat mainly fish, small-clawed otters rely more on crabs and molluscs, and less on fish. Therefore, crab/mollusc remains predominate in spraints from small-clawed otters (Lekagul et al., 1988; Medway, 1983; Lim, 1990; Nowark, 1991; all in Sivasothi et al., 1994; Kruuk et al., 1993, 1994). Therefore, it is assumed that the spraints without many crab remains found in UMT NR probably belong to *Lutra* otters.

The direct observation of animals believed to be hairy-nosed otters were obtained in two cases: two large otters were observed swimming in a canal (9°41'H"N, 105°04'25"E) on 27 November 2000, and one large otter was observed in canal 18 near Guardstation 2 (9°36'45"N, 105°03'39"E). It is difficult to be 100% certain that these were hairy-nosed otters, however, the larger body size indicates they were not small-clawed otters.

From March to December 2000, five pictures of hairy-nosed otters were obtained from camera traps on 20 March 2000, 20 June 2000, and 24 June 2000. The pictures clearly show feet with very long claws. The most compelling evidence of hairy-nosed otter presence in the UMT NR comes from four dry skins and one living otter found in villages situated in the Reserve's Buffer Zone.

Skin 1 was found on 4 March 2000 in a farmer's house. The owner reported that he caught this animal on January 2000 in Canal 18, about 200m distant from the Reserve's Core Zone. Measurements taken from this skin are presented in Table 2. This adult male animal was a large and dark otter. Coat color was black on the upper parts and slightly paler on the belly. The skin has whitish patches on the upper lip, chin, cheeks, and throat, but the color is less white than in small-clawed otters. The claws were well developed, strong, long, and downward curving with a very sharp pointed tip. Webbing between the toes is well developed, extending the length of all five digits. The tail, more than half of the total head-body length, is rounded and tapered toward the end. The rhinarium is covered with dense short hair except for a narrow margin surrounding each nostril (Figure 2).

**Table 2:** Measurements of hairy-nosed otter specimens found in U Minh Thuong Nature Reserve

Specimen	Capture Date	Capture Site	HB mm	Tail mm	Weight kg	Claws mm
skin 1	Jan 2000	buffer zone close to core zone	910	455	~ 6	8 – 10
skin 2	March 1999	in reserve core zone	940	580	~ 7	8 – 10
skin 3	December 1999	in reserve core zone	940	400	~ 5	8 - 10
skin 4	29 Feb 2000	buffer zone close to ore zone	430	230	~ 1.2	5
juvenile						

HB - headbody length. Measurements were taken from dry skins, body weights as reported by local hunters





**Figure 2:** Close-up picture of the nose of the skin of Hairy-nosed otter (Skin 1) found on 4 March 2000, in a farmer's house situated just 200m outside the Core Zone of U Minh Thuong showing densely haired rhinarium (click image for close-up)

Skin 2 was found on 7 March 2000 in a farmer's house, who reported that he caught the otter in March 1999 just inside the Reserve's Core Zone. Hairs on the rhinarium of this skin were partly destroyed by insects but can be clearly recognised. Its outer appearance and measurements (Table 2) are very similar to skin 1.

Skin 3 was found on 8 March 2000 in a farmer's house. The otter was caught in December 1999, just inside the Reserve's Core Zone. Its measurements are shown in Table 2 and the outer appearance is very similar to skins 1 and 2.

Skin 4 was found on 20 March 2000 in a farmer's house and was reportedly caught on 29 February 2000. The skin was from a juvenile animal. The otter has a blackish coat, white patches on the chin and throat, well-developed claws and a dense hairy rhinarium.

A local resident caught an adult male hairy-nosed otter (2.7 kg) on 28 September 2000 in the Reserve's Buffer Zone (9°33'52"N, 105°05'10"E) and kept it as a pet in his house. We could not take its measurements but could closely observe this individual. The animal had dark coloration with sharp white patches on the chin, throat and upper chest. The belly was pale. The rhinarium hairy and the claws were very well developed. The animal was kept in a small cage and fed fish, frogs, and snakes.

Otters are reported by local informants to be common in the U Minh Thuong Nature Reserve, though small-clawed otter are believed to be more abundant than the hairy-nosed otter. However, the number of hairy-nosed otters in the UMT NR has not yet been estimated.

#### **THREATS TO U MINH THUONG OTTER POPULATION**

Overall otter numbers in the UMT NR appear to have been reduced significantly in comparison with past population levels. Reasons for this may be, habitat destruction, natural disasters (forest fires, drought, etc.) and extensive hunting in the past. Years of warfare, uncontrolled forest cutting after the war, and frequent forest fires have destroyed much of a once very large and continuous tall peat swamp forest in the area, converting it into large reed/grass meadows and open swamps. A large forest fire occurred in 1993 with smaller scale fires reported almost every year before that. As a result, the current system of canals was constructed around, and inside, the Core Zone as a means of preventing and controlling these fires. This canal system has kept the water levels artificially high over a number of years. For the otters, this intervention has provided an abundant food supply but, on other hand, it has considerably reduced the dry substrates that are very important for their nesting and breeding.

It is reported that, during 1995-1996, hunters from Long An Province arrived with strong metal leg-hold traps. They caught hundreds of otters for their skins. At that time, local wildlife traders bought otter skins at a very high price: 500,000 - 600,000 VND/skin (equal to 50.00 - 60.00 USD/skin) that encouraged local people to actively hunt otters.

Current threats to the otter populations in the areas surveyed are:

- Hunting for meat, medicine, and the skin trade. Although otters are not the primary targets for hunters, the risk for otters is still high. Otters are often chased, or killed, when they come into the Buffer Zone, especially when fishing in farmers' fishponds. Local wildlife traders are ready to buy otters at any time, and otter parts are used locally for some traditional medical treatments.
- Habitat disturbance by Reserve violators. Despite strong efforts by the Reserve's forest guards, human encroachment into the reserve is still extensive. They come to catch fish, hunt wildlife (pangolins, turtles, snakes), and collect honey and medicinal plants. Many fresh tracks of violators, fishing nets, and animal net-traps were found during the survey.
- Potential water quality degradation. Much of an otter's life is confined to the water environment. Floating plants densely cover much of the waters surface, limiting food supply and the otters' fishing capability. Deterioration of aquatic plants causes water pollution in the dry season. Intensive use of motorboats, both in the Buffer Zone and the Core Zone, may lead to water pollution with oil and petrol. Of special concern is the use of pesticides, herbicides, and poisonous rat bait by farmers in the Buffer Zone. Due to the use of these substances, there is a high probability of toxic substances accumulating in the water systems.

#### **CONSERVATION OF OTTERS IN VIETNAM**

All 4 otter species occurring in Vietnam are listed in the Red Data Book of Vietnam (2000) and all are found in one or more national protected areas. Otters in Vietnam are protected through a number of legislation documents. Internationally, Vietnam has signed the Convention on Biological Diversity, the RAMSAR Convention, and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), all of which directly relate to otter protection. However, due to many factors, enforcement of these conservation laws is not strong enough and, therefore, otters remain seriously threatened in the country.

Conservation of the otter is intimately linked to the successful management of the country's wetlands. At present, the best opportunity for conservation of the otter in Vietnam appears to depend on developing some form of multi-use of wetlands, allowing local communities to derive sustainable benefits from these areas. U Minh Thuong Nature Reserve maintains important populations of both hairy-nosed and small-clawed otters. CARE International in Vietnam is supporting the UMT NR in conserving its biodiversity through various programmes designed to assist institutional capacity building, community development, and the development of a comprehensive long-term management plan (CARE 1998). The establishment of a monitoring programme for otter populations in the Reserve, and conducting a campaign to increase public awareness for the need for otter conservation, is now of high priority.

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### **Résumé : Informations Complémentaires sur la Loutre de Sumatra au Vietnam**

La loutre de Sumatra (*Lutra sumatrana*) a été répertoriée, par le Groupe d'Experts de la Loutre de l'IUCN-CSE (Foster-Turley et al.1990), parmi les cinq espèces de loutres devant faire l'objet de mesures imminentes de conservation. Son statut international n'est pas très clair. Sa présence n'est actuellement attestée qu'en quelques stations de Thaïlande (Budsabong, 2000), du Cambodge (Poole, sous presse) et du Vietnam (Nguyen et al., 2000). Au Vietnam, les premières recherches de l'espèce n'ont démarré qu'après 1925, mais toutefois, jusqu'à notre redécouverte en 2000, la loutre de Sumatra n'a été attestée depuis qu'à cinq reprises. Ceci est un signe de la rareté de l'espèce dans ce pays.

### **Resumen: Nueva Información sobre la Nutria de Hocico Peludo (*Lutra sumatrana*) en Vietnam**

*Lutra sumatrana* es considerada por el OSG una de las cinco especies de nutrias de mayor preocupación para la conservación. Su presencia actual está restringida a unas pocas localidades en Tailandia, Cambodia y Vietnam. Antes de su redescubrimiento en el año 2000, en Vietnam la especie sólo había sido registrada en cinco ocasiones. En el año 2000 realizamos dos relevamientos en el delta del Mekong y se encontró una población dentro de la reserva U Minh Thuong, en la provincia de Kien Giang. Los métodos utilizados en el relevamiento fueron entrevistas, transectas para observación directa de nutrias y rastros, análisis de especímenes y restos en poblados, observación directa desde puntos fijos, relevamientos nocturnos y temprano en la mañana con linternas, y trampas fotográficas. Los resultados indican que en la reserva existen dos especies de nutrias, *Aonyx cinerea* y *Lutra sumatrana*. Se obtuvieron fecas, registros directos y fotografías de ejemplares probablemente pertenecientes a la especie *Lutra sumatrana*. La prueba más fehaciente de la presencia de esta especie proviene de cuatro pieles y un ejemplar vivo encontrados en poblados ubicados en la zona de amortiguamiento de la reserva. El número de nutrias en la reserva ha disminuido significativamente en relación con los niveles poblacionales en el pasado. Entre las razones de esa disminución se encuentran la destrucción de hábitat, desastres naturales (fuegos, sequías) y la caza excesiva. Las amenazas actuales son la caza (aunque la presión ha disminuido), disturbios en el hábitat provocadas por individuos que violan las reglamentaciones de la reserva y la potencial disminución de la calidad del agua.

## REPORT

### GIANT OTTER PROJECT IN PERU - FIELD TRIP AND ACTIVITY REPORT - 2000

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**Abstract:** The extension of the Bahuaja Sonene National Park and the creation of the Tambopata National Reserve in 2000 are great steps forward in the conservation of the River Wolf. We argue for the inclusion of Lake Sandoval, the Palma Real river and parts of the Malinousqui river in the National Reserve. The establishment of four new Reserved Zones in Amazonia (8,300,00 hectares) offers great potential for conserving the species. INRENA requested a survey of the Gueppi Reserved Zone - no otters or sign were found but there were some nearby. Updates for the usual areas are presented. We gave advice to tourism companies in the area and designed a scheme for monitoring giant otters and tourism in Tres Chimbadas lake. We observed one of the families of giant otters in Palma Real raising a family, cooperated with the ichthyology department of the San Marcos Museum of Natural History in dietary studies, and began looking at the relationship between the giant otter and the neotropical otter that shares its habitat. Two volumes of the "Friends of the River Wolf" bulletin were issued in July and December, sent to about 130 scientists and other interested people. A pamphlet "Help protect the Forest Giant" was printed and 12,000 copies distributed to schools, companies and tourists in the Protected Areas.

#### INTRODUCTION

The giant otter (*Pteronura brasiliensis*), endemic to the rainforests and wetlands of South America, was upgraded from 'vulnerable' to 'endangered' by IUCN in 2000 and has been listed since 1973 under Appendix I (species threatened with extinction) of CITES. In 1990, the Frankfurt Zoological Society (Help for Threatened Wildlife -FZS) initiated the project "Status, habitat, behaviour and conservation of giant otters in Peru". The key objective of this Project is to increase knowledge and awareness of these unique animals and to develop a comprehensive plan for their conservation in Peru. The progress of the Project has been described continually in the IUCN Otter Specialist Group Bulletin (Schenck, 1999; Schenck and Staib, 1992, 1994, 1995a, 1995b; Schenck et al., 1997, 1999; Staib and Schenck 1994; Groenendijk et al., 2000). The following presents a summarised account of the key activities carried out during 2000.

#### Manu Biosphere Reserve population census

As a follow-up to the two surveys earned out in the Manu Biosphere Reserve in 1999 (see Groenendijk et al., 2000 for maps, and included activity area map), two censuses were carried out during May/June and September/October 2000. The timing, before and then several months after the birthing season, is crucial as it allows more complete data to be collected, particularly with respect to cub survivorship and solitary movements, than if only one census were to be carried out annually.

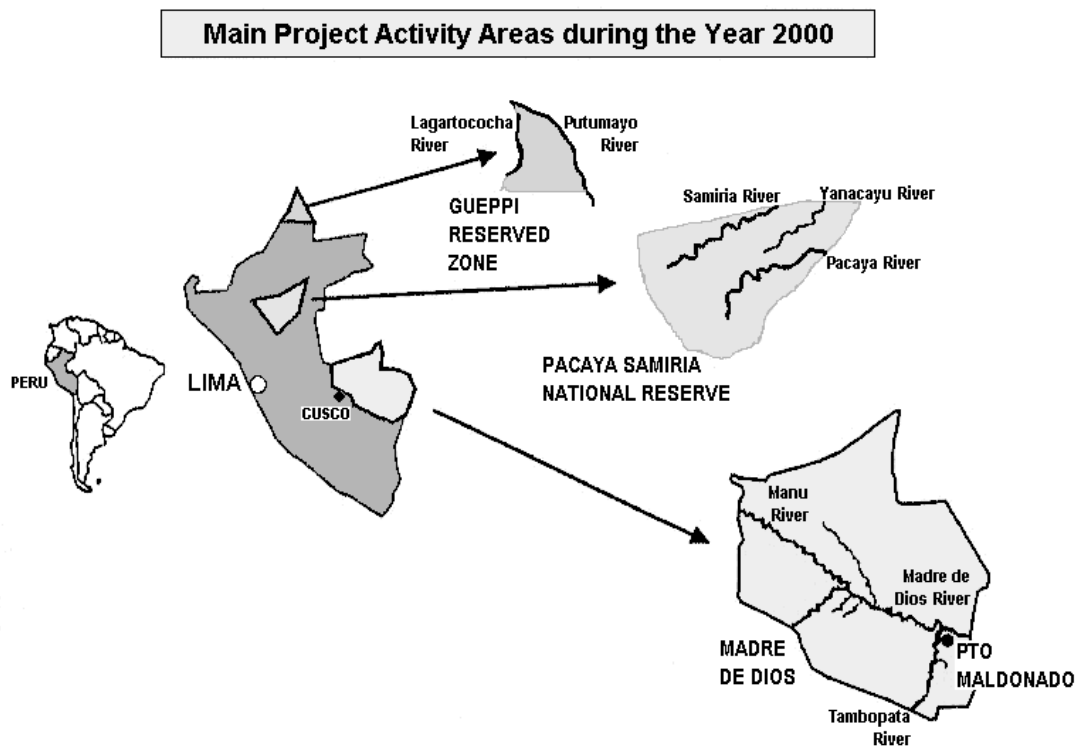


Figure 1: The study area.

The first survey in Manu was conducted between 26.05.00 and 19.06.00. We observed a total of at least 46 different giant otter individuals, of which four were solitaires. The remainders were members of 7 groups, which included at least 8 juveniles. The largest group numbered 9 animals and the average group size was 6. Only one individual was sighted on the Manu River itself. Total direct giant otter observation time was approximately 20 hours. The second census was earned out between 22.09.00 and 31.10.00, at the height of the dry season when most, if not all, cubs born during the year have left the den and are participating fully in group activities. In addition to the Pinquen River, a total of 23 lakes were investigated. We counted at least 66 different Giant otter individuals, of which at least 16 were juveniles, divided into 12 groups with two solitaires. The largest group numbered at least 9 individuals and average group size was 5.3. Two groups were encountered on the Manu River itself. On the Pinquen River, a pair was briefly sighted but not filmed. Total direct giant otter observation time was just over 68 hours. Emphasis was placed on giant otter observation in an effort to establish gender as far as possible.

When comparing the results of the two surveys, a number of key developments are noteworthy. An exciting find is Raya, born in Lake Cashu in 1995, now a member of the reproductive pair in Lake Lagarto. The group that formerly inhabited the Juarez/Garza area appears to have disintegrated; there have been no repeat sightings of the old female Hanni or of Barriga. However, a single remaining member, Daga, first seen in October 1999, has teamed up with an otter from Cashu, and the pair is currently known to inhabit the Juarez area. Surprisingly, the group in Lake Otorongo failed to produce or raise cubs in 2000. Isla continues in Otorongo, although perhaps not in a breeding position. An unusual situation had developed in Salvador since the last 1999 census; the group produced 4 new cubs in 2000 (one of which had died by the time of the second census) and 3 former group members (two adults and one juvenile) split off from the main group but were still frequenting the lake together. Two individuals of the group of 3 (both identified as females) were seen on the River Manu in the company of a male by September/October 2000, having defined a territory on the river in the vicinity of Salvador (as confirmed by the presence of several freshly used dens and campsites, see enclosed maps). This is the first time in the history of the Project that a group has established itself on the Manu River below Lake Maisal. It is important to note here that the breeding female otter in Salvador, identified as Salvadora in 1999 \ (see Project Report in OSGB 17(1) 2000), was in fact a different individual not previously encountered by the Project.

Towards the end of 1999, Ada Castillo, Head of Manu National Park, requested assistance from the project as regards management and monitoring of aquatic habitats in this protected area. The Project agreed to prepare the document "*Proposal for the Management of Aquatic Habitats in the Manu Biosphere Reserve, on the Basis of Indicator Species Monitoring*" which will summarise the management concepts of the Project and give specific management and monitoring guidelines for each known Giant otter habitat in Manu.

### **Mercury study**

Gold mining, although no longer at its peak, is currently still a very important economic activity in the Madre de Dios province, employing tens of thousands of people. During 1999, samples of fish muscle tissue were collected from four oxbow lakes in order to investigate, on a long-term basis, the presence and levels of inorganic, methyl-, and total mercury arising from gold mining activities, in fish species that comprise the bulk of the Giant Otter's diet. The background of the study and the methodology are described in detail in the 1999 Project Report (Groenendijk et al., 2000). The mercury research was continued in 2000. A total of 94 fish tissue samples were collected, as well as 3 samples of fresh otter spraint. Analysis of these samples is currently undertaken at the Institute of Medical Chemistry, University of Veterinary Medicine, Vienna, Austria.

### **Small river research: Palma Real and Patuyacu**

In Peru, very little is known about giant otter habitat use and population dynamics in small rivers (as compared to large rivers with associated oxbow lakes). Following a brief, preliminary survey in September 1998, a long-term research programme was initiated in 1999 into the ecology and distribution of Giant otters on small river systems. The selected study site is the Palma Real watershed, comprising the Palma Real River and its main tributary, the Patuyacu. The background of the study and descriptions of the area are detailed in the 1999 Project report (Groenendijk et al., 2000). On 4 September 2000, a Supreme Decree was signed that more than doubled the size of the Bahuaja-Sonene National Park (now 1,091,496 ha). A new National Reserve now encompasses the lower Palma Real and Lake Sandoval areas. The Project contributed justifications for the inclusion of these two areas in the National Reserve. Three separate surveys were carried out during the course of 2000, the first between 15 February and 4 March, the second between 20 and 29 April, and the third between 9 and 28 August (in the rainy season, at the end of the rainy season, and at the height of the dry season respectively).

During the first visit, giant otters were sighted on three occasions on the Palma Real River. Frustratingly, no neck markings could be filmed during any of the sightings. However, the clustering of observations, dens and campsites coincides with those of a group of 5 observed in September 1998; we believe therefore that the 1998, 1999 and 2000 sightings are of the same group with a permanent territory in this area. No Giant otters were observed during the second field trip, despite fresh signs on both the Palma Real as well as the Patuyacu. In our third survey we observed 3 giant otters on the Palma Real; these we observed again on our return. Two were filmed in such a way that it was possible to identify one as being 'Real', an otter first seen in the September 1998 survey. We found a group of 6 animals on the Patuyacu, including two young cubs. The latter were capable of swimming independently, though inexpertly, but were not yet able to periscope. We estimated their age to be about two months. One otter of the Patuyacu group was later identified as Cara, an individual we had also first seen in September 1998 as a member of a group of 5 on the Palma Real.

We made our first observations of giant otters eating, porpoising, sprainting and rearing cubs in the Palma Real watershed. Looking at the overall survey results for 2000, we can say with reasonable certainty that only one group currently inhabits the Palma Real, at least within the 50km stretch that we investigated during each field trip. The same holds true for the Patuyacu, with only one resident group apparent on this tributary. Furthermore, there are preliminary indications, in both the Palma Real as well as the Patuyacu, that seasonality does not influence the general locations of the home ranges (although it may affect their total lengths).

One of the major limitations of our approach thus far has been the considerable difficulty in filming neck markings, during what are usually very brief sightings. Travelling silently down-river with an inflatable boat proved to be the most effective way by which to encounter and observe giant otters in a more controlled manner, without causing instant panic. We frequently sighted neotropical otters or 'nutrias' (*Lontra longicaudis*) in the Palma Real watershed; all were single (not necessarily different)

individuals, except for one, which was carrying a cub in its mouth. During the third survey, we recorded 6 nutria dens and obtained GPS fixings for at least 35 different spraint sites on the Palma Real (77% of 26 spraints had been deposited on small beaches, sometimes per beach, usually in or near a small depression scratched in the sand; the remaining spraints were placed on logs in the river). We only began to record neotropical otter signs roughly midway through the trip, when we became intrigued by what appeared to be a marked overlap in giant and neotropical otter habitat use, to the extent of even visiting each other's dens and campsites. We collected a total of 13 nutria spraints for later diet analysis. In 2001, a more structured and concerted effort will be made to collect relevant data of both species.

### **Los Amigos river survey**

The Los Amigos River, a white-water, meandering tributary of the Madre de Dios, was first investigated by the Project in November 1991, and again in April 1992 (Schenck, 1992). The Los Amigos runs more or less parallel to a large stretch of the Manu River and thus acts as a potential Buffer Zone to this protected area. On these occasions, two groups (one per trip) of 4 Giant otters each were seen, and a third group was heard. Both old and fresh dens and campsites were found, as well as tracks, in or near 7 oxbow lakes. The Project decided to visit the river again between the 9th and 20<sup>th</sup> of March 2000 in order to establish the current status of the giant otter population in the face of continued human activities.

A total of 221 km were traveled upriver and 30 oxbow lakes were explored, 16 of which were entered with the inflatable boat. Giant otters were twice sighted on the river, a solitary and a group of four. Of those lakes that were entered, 10 showed old and/or fresh signs of giant otter presence. On one lake we encountered a group of 4 giant otters; the reaction of the family indicated that they were very rarely, if ever, confronted by people and certainly had not been hunted. We identified two campsites on the river itself below the Amiguillo tributary, one fresh and one old. The campsite identified as being fresh had again been used when we passed on our return journey, just over a week later. We therefore believe that a third otter group has its territory in the vicinity.

Despite the presence of loggers, it appears that a stable, low-density giant otter population inhabits the Los Amigos River and its oxbow lakes. The fact that the river has reportedly been earmarked for the establishment of 'ecotourism' concessions would be preferable to the continued logging of this still pristine rainforest area, though it is unclear how this initiative is progressing.

### **Lago Sandoval - survey and management plan progress**

Lake Sandoval was surveyed twice in 2000. On the first occasion, giant otters were not observed and there were no recent reported sightings. During the second visit, however, we observed a group of 4 giant otters on each of the four days. One individual was a cub, probably born during the first quarter of the year judging by its size and behaviour. The remaining animals were adult-sized and we were able to identify the breeding female by her elongated teats.

The Lake Sandoval otter group has had low reproductive success in the last three years, producing only 2 litters (1999 and 2000) in the rainy season. In each litter, only one cub reached an estimated 4-6 months of age (when sighted by the Project). Due to this low reproductive success and other factors, such as the dispersal of individuals reaching sexual maturity, the group has reduced in size from 11 members in 1997 to 4 members in 2000.

Lake Sandoval's popularity as a destination for tourism and school children from Puerto Maldonado continues to increase, as does the competition between tourism companies for access to the lake. Legal and social problems between Sandoval Lake Lodge and the tourism operators also remain unresolved. The necessity for implementing a management plan for the lake therefore continues to be urgent. To this end, a final version of the Sandoval lake management plan (first outlined in OSG Bulletin 16 (1) 1999), resulting from 3 work meetings held during the course of 2000 with the Bahuaja Sonene Headquarters and tourism company representatives, was presented to authorities in Lima and Puerto Maldonado. The design of the Interpretation and Control Centre proposed in this plan has already been completed, with construction aimed to begin during 2001.

### **Tres Chimbadas survey and management**

Tres Chimbadas is a 46-hectare oxbow lake situated on the left margin of the Tambopata River, approximately 2 hours upriver by boat from Puerto Maldonado, and then half an hour's walk from the river inland. Only one tourism company currently operates on the lake, namely Rainforest Expeditions, which co-runs the nearby Posada Amazonas Lodge, together with the Ese'jeja native community of Infierno. Roughly 3,000 tourists entered the lake during the year 2000, approximately the same number that visited the whole of the Manu Reserved Zone within the same period. It is expected that numbers of tourists visiting the lodge, and hence the lake, will continue to increase at a rate of 20% per year (Herrera, 2000). Other tourism companies may wish to visit the lake in the future and may even build lodges in its vicinity. Freelance guides also bring groups to the lake, about twice a month, and a number of schools and institutes periodically visit in groups of about 40 people. In addition to the high number of visitors from outside, members of the local community fish on the lake. Although, according to Herrera (2000), cattle ranching is no longer a major activity in the area, there may be other threats of which we are personally not yet aware.

Tres Chimbadas was visited by the Project on two occasions in 1990 and 1991, when 4 and 0 giant otters were encountered respectively, and most recently on the 16th and 17th of April 2000, when we observed a family of 8 individuals, as well as 1 solitary. Taking the aforementioned actual and potential threats into consideration, along with the fact that Tres Chimbadas is otherwise an excellent habitat for giant otters and a stepping-stone for giant otter populations in neighbouring watersheds, the Project decided to advance a comprehensive, dynamic management plan for the lake. 'Rainforest Expeditions' was advised as to which measures, proposed by the Project over the years, could be adopted with immediate effect to protect the resident otter family. In addition, we assisted in the design of a monitoring questionnaire to be completed on every occasion that guides took tourists to the lake. Analysis of the data collected during 2000 suggests that the measures currently adopted are adequate under the given conditions. However, there is concern on the part of the Project that with more tourists, more visits to the lake, and perhaps more tourism companies operating in the area in the future, pressure on the otter group will increase greatly.

### **Gueppi Reserved Zone survey**

The project was requested by INRENA to establish whether giant otters are present in the recently created Gueppi Reserved Zone (1997), a region of 626,000 hectares situated at the northern tip of Peru, near the border with Ecuador. This is a lowland forest area, linked by the Aguarico River to the Cuyabeno Faunistic Reserve and Yasuni National Park in Ecuador. With the eventual Project objective of developing a national giant otter distribution map in mind, as well as supporting INRENA's initiatives for justifying permanent protected status for the area, it was decided to conduct a survey in the area.

The Lagartococha forms the border between Peru and Ecuador. It is a blackwater river, the lower section of which flows through a wetland of more than 30 lakes. We investigated 16 lakes, as well as the river, but found no evidence to indicate that giant otters inhabited the area. However, a native communities representative told us that he had seen giant otter campsites two years ago on an unprotected tributary of the Napo called Aoshiri. When we visited the area, we found very fresh dens and campsites half way through the second day on the main river. Twice we noted giant otter tracks on the riverbank; they were so fresh, water had not yet drained into the clay soil. Unfortunately, we could not avoid scaring the group with the sound of our engine, so we did not manage to see it.

In conclusion, we suspect that the River Lagartococha is not currently inhabited by giant otters, and probably has not been for as much as a decade or more. Victor Utreras confirmed that giant otters are absent on the Ecuadorian side as well (pers. comm.). We believe that hunting, intensive commercial fishing (in former years) and the constant presence of army personnel along the course of the river, created intolerable pressures on the local giant otter population. However, given the recently established protected status of the Gueppi Reserved Zone, the lack of surveys on the Gueppi River itself and the River Angusilla (also within the Reserved Zone), and our confirmation of the presence of giant otters on Quebrada Aoshiri, it is reasonable to hope that, in the long-term, this region may be re-colonised by the species if given the opportunity.

Several mornings were spent at the Quistococha zoo in Iquitos, where they hold 3 adult female giant otters and a recently acquired male cub, which had been confiscated by local authorities; unfortunately,



it was not clear where he had come from. Another young male otter was also recently donated to the zoo. It is worrying that cubs continue to be taken illegally from the wild to be kept as pets, and we feel that this reflects a general lack of awareness in northern Peru, not only of the giant otter's protected status, but also of its biology and behavioural ecology. A concerted, long-term effort towards increasing understanding of the need to help giant otters in this region should be initiated.

### **Pacaya Samiria National Reserve Giant otter Project**

Sandra Isola carried out the second field period of the project 'Determination of the Distribution and Abundance of the giant otter in the Pacaya Samiria National Reserve' between May and August 2000 in the Samiria river basin, following an unusually prolonged rainy season (Groenendijk et al., 2000). Only old indirect signs of giant otter presence were found, although there were unconfirmed reports of sightings by park guards and loggers. The main threats identified were logging, illegal tourism, and conflicts with fishermen. Since there are indications that the Samiria river-basin is inhabited by the species, it is recommended to undertake an evaluation of this zone during the height of the dry season when giant otters are more restricted.

### **Promotion**

In July 2000, the first issue of the 'Friends of the giant otter' (Groenendijk, 2000) bulletin was launched. Two have been produced so far, the second in December 2000. The purpose of the newsletter is to bring together all those who are involved with, or interested in, giant otter conservation, to act as a networking tool with which to increase communication and cooperation. It was first intended only for Peruvian 'friends', but the bulletin is increasingly being sent further abroad, particularly to other South American countries. A growing number of about 100 people receive the Spanish version and about 25 people receive the English copy by e-mail. If you wish to be added to the list, please contact Jessica Groenendijk.

During May 2000, a German film crew representing the TV channel Bayerischer Rundfunk visited Manu with the aim of filming a documentary on giant otters and their conservation. Excellent footage of natural giant otter behaviour was obtained in Lake Salvador, and key activities of the Project were also filmed. It is hoped that, when the documentary is eventually aired in Germany, it will help to increase awareness of the plight of this umbrella and flagship species. Initial efforts have also been made to release a Spanish version of this film on Peruvian TV. Also during the year, the BBC completed the filming of a documentary focusing on giant otter/black caiman (*Melanosuchus niger*) interactions on Lake Salvador.

The construction of a Project education and promotion website was initiated during 2000 and the site is nearly complete for launching. It will be hosted at: [www.giantotters.com](http://www.giantotters.com) but will also eventually be accessible via [www.loboderio.com](http://www.loboderio.com) as the Spanish-speaking community is an important audience for the site. Finally, 15,000 copies of a Project leaflet 'Help Protect the Jungle Giant - Giant Otters, A Unique and Endangered Mammal' were produced in September to aid tourists and local people in getting to know the giant otter, and to initiate appropriate behaviour when visiting areas inhabited by the species.

**ACKNOWLEDGEMENTS** - We would like to thank the Frankfurt Zoological Society-Help for Threatened Wildlife (FZS) for their financial support. The project in Pacaya Samiria received additional collaboration from the World Wildlife Fund and the Conservation Data Centre at La Molina University. We are grateful to INRENA, especially the staff and gamewarden of the Manu Biosphere Reserve, the Bahuaja-Sonene National Park, the Pacaya Samiria National Reserve and the Gueppi Reserved Zone for their co-operation. Sincere thanks are also due to the San Marcos Natural History Museum, the Peruvian NGO Pro Naturaleza and our Peruvian field assistants.

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**Résumé : Projet Loutre Géante au Pérou - Expedition et Raport d'Active - 2000**

La loutre géante (*Pteronura brasiliensis*), espèce endémique des forêts tropicales et zones humides d'Amérique du Sud, a vu son classement IUCN remonter de 'vulnérable' à 'en danger' en 2000, et figure depuis 1973 à l'annexe 1 de la CITES (espèce menacée d'extinction). En 1990, le projet intitulé "Statut, habitat, comportement et protection des loutres géantes au Pérou" a été initié par la Société Zoologique de Francfort - Aide en faveur de la faune menacée (FZS). L'objectif de base de ce projet consiste à développer les connaissances et la sensibilisation à ces animaux si particuliers, et mettre en oeuvre un plan global pour leur protection au Pérou. L'état d'avancement de ce projet a été régulièrement détaillé dans les bulletins du Groupe d'Experts de la Loutre de l'IUCN (Schenck and Staib 1992, 1994, 1995; Schenck, Staib, Storch 1997; Schenck, Groenendijk, Hajek 1999; Groenendijk, Hajek, Isola, Schenck, 2000). Ensuite, un compte-rendu synthétique des actions-clés menées en 2000 est présenté.

**Resumen: Informe Anual del Proyecto de Conservación de la Nutria Gigante en Peru**

La ampliación del Parque Nacional Bahuaja Sonene y la creación de la Reserva Nacional Tambopata son grandes pasos tomados durante el año 2000 hacia la conservación del Lobo de Río: el Proyecto presentó justificaciones a la Jefatura de dicha área para la inclusión del Lago Sandoval, el río Palma Real y partes del río Malinousqui a la Reserva Nacional. La declaración de cuatro nuevas Zonas Reservadas en la Amazonía durante este año, sumando más de 8,300,00 hectáreas, ofrece un gran potencial de oportunidades para la conservación de la especie.

Durante el 2000, el censo de Lobos de Río en la Reserva de Biosfera del Manu dio como resultado 66 individuos. Se filmaron un total de 26 nuevas manchas; 11 de estas eran de las 16 crías nacidas durante el año. El número total de manchas para la población del Manu desde el censo de 1999 es de 79. La presencia de nutrias gigantes también fue confirmada en las quebradas Condeja y Yanayacu, dos pequeños afluentes del río Alto Madre de Dios.

La colaboración del Proyecto con el Instituto Nacional de Recursos Naturales - INRENA - fue avanzada al redactar un primer borrador de la "Propuesta para un plan de Manejo de Habitats Acuáticos de la Reserva de Biosfera del Manu, en base a monitoreo de especies indicadoras", con el continuo trabajo hacia la implementación del Plan de Manejo del Lago Sandoval, con avances hacia una estrategia nacional para la conservación *in situ* de la especie (INRENA 1999) y un viaje de reconocimiento, a solicitud de INRENA, a la Zona Reservada Gueppi. En el Gueppi no se observaron nutrias gigantes ni signos indirectos de presencia, sin embargo se identificó una familia en el cercano río Aoshiri. El hecho de que muy pocas personas con las cuales hablamos han visto o conocían el lobo de río, en un trayecto de más de 1500 kilómetros de la cuenca del Napo, demuestra el estado vulnerable de la especie y la urgencia de incentivar investigación y educación en el norte del Perú.

El Proyecto también realizó monitoreos en el río Amigos y los lagos Valencia, Sandoval y Tres Chimbadas para actualizar datos poblacionales. Se aconsejó a empresas turísticas hacia un manejo del Lago Tres Chimbadas y se ayudó a diseñar una actividad de monitoreo de nutrias gigantes y turismo en dicho lugar. Se pudo también avanzar significativamente en las investigaciones en el río Palma Real. Gracias a una mayor permanencia en el campo se pudo llegar a tener observaciones de alimentación, conducta y crianza de una camada de cachoirs de uno de los dos grupos de nutrias gigantes identificadas en el área. Se trabajó en cooperación con el departamento de ictiología del Museo de Historia Natural de San Marcos en la determinación de la dieta. Se empezó a investigar relaciones con la nutria neotropical que comparte el habitat con el lobo de río en esta zona.

Dos tomos del boletín "Amigos del Lobo de Río" se produjeron en julio y diciembre, los cuales fueron distribuidos a unos 130 científicos, estudiantes e interesados. Se produjo un folleto informativo "Ayuda a proteger el gigante de la selva" y se distribuyeron 12,000 copias a Áreas Protegidas, compañías turísticas y colegios. En varias ocasiones se participó en eventos para la promoción de investigación y conservación de esta especie.

## REPORT

### **T DISTRIBUTION OF THE NEOTROPICAL OTTER *Lontra longicaudis* IN THE VENEZUELAN ANDES: HABITAT AND STATUS OF ITS POPULATION**

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**Abstract:** The current distribution and status of *Lontra longicaudis annectens* on the Southern slope of the Venezuelan Andes was established by carrying out interviews with local people. Following this, 25 rivers were surveyed for direct evidence of the presence of this species. The species was recorded on 23 of these rivers, and a clear decreasing trend in the species' population was detected. Based on these results, the main threats for the species appear to be reduction of their natural habitat and the contamination of watercourses, with illegal poaching of secondary importance. It is suggested that more detailed studies are carried out to quantify species' abundance, identify more precisely the potential factors determining population decrease, and detect optimal sites for its protection.

#### **INTRODUCTION**

The Neotropical river otter *Lontra longicaudis* is widely distributed in America, ranging from central Mexico to southern Peru and Uruguay (Wilson and Reeder, 1992). Three sub-species are believed to occur in Venezuela: *Lontra longicaudis enudris* and *Lontra longicaudis longicaudis* south of the River Orinoco, and *Lontra longicaudis annectens* to the north (Larivière, 1999). The latter is distributed throughout the Lago de Maracaibo Basin (Zulia State), the Andes, and the central chain of mountains (Bisbal, 1989; Linares, 1998) and is considered as data deficient by the IUCN (Reuther, 1999). In Venezuela, *L. l. annectens* is considered the most threatened species due to the significant destruction of its original habitat and the contamination and reduction in water bodies (Rodríguez and Rojas-Suárez, 1995). Until the beginning of this research programme (July, 1999), the occurrence of this sub-species on the southern slopes of the Venezuelan Andes had only been referenced in recent literature by a single visual record. Our main objective was, therefore, to confirm the occurrence of *L. l. annectens* along a strip of ca. 340 km on the southern flank of the Venezuelan Andes, evaluate the current status of its population, and describe the characteristics of the habitat with which the species is associated.

#### **STUDY AREA**

The study area covers a surface area of about 7700 km<sup>2</sup>, altitudes range from 200 to 700 m, and piedmont and mountain landscapes predominate (Fig 1). The average annual temperature fluctuates between 16 and 20°C and there is a marked seasonality in precipitation. The annual average precipitation varies between 1300 and 1800 mm per year. The original vegetation is made up of moist and semi-moist forest, presently reduced and fragmented. Although some unmodified forest remains, areas devoted to growing coffee, subsistence agriculture and extensive cattle raising predominate.

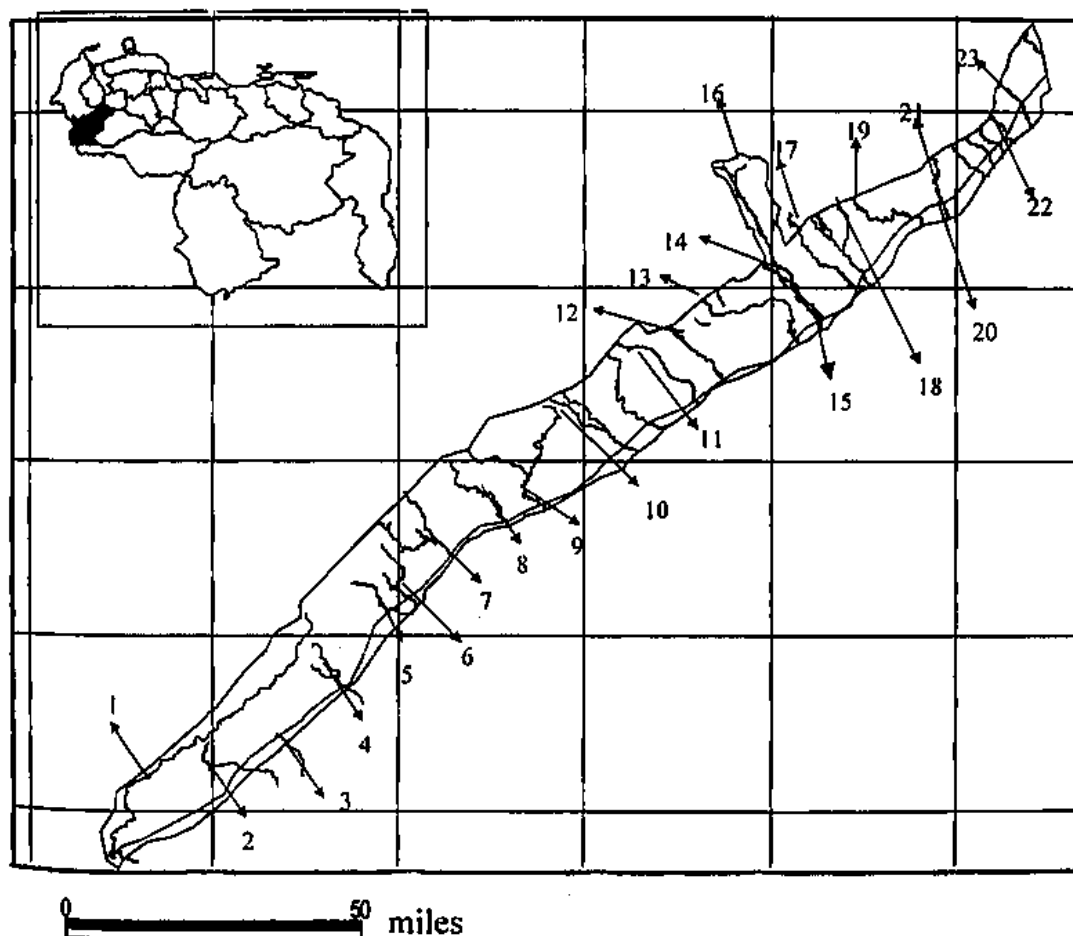


Figure 1: Location of the study area and sampling sites on the Southern slope of the Venezuelan Andes.

## METHODOLOGY

The current distribution and population status of *L. l. annectens* was assessed in the following manner:

1. Preliminary sampling sites were chosen at localities where species' occurrence had been confirmed or was suspected (based upon cartographic information on hydrology, vegetation and current use of land obtained from a GIS map projection of 1:250,000).
2. Every site was visited and local people interviewed in order to gather information on the occurrence and abundance of the species. With the aid of semi-structured and dynamic questionnaires, we asked questions about the current and past occurrence of the species, current and past abundance, recent sightings, and potential uses of the species (e.g. poaching, as pets, magic or religious use, others). Additional sampling sites were added based upon the information provided by locals and other researchers working in the area.
3. At each sampling point, surveys of about 600 m, both upstream and downstream from the initial point (see Macdonald 1990), were undertaken with the aim of detecting latrines or other signals revealing the presence of the species.
4. In order to establish abundance and use of habitat, we gathered data on the number and spacing of latrines, as well as recording their geographical position with a GPS receiver (Magellan 315; precision = 10m).
5. Bodies of water and adjacent areas were characterised using the following parameters: water quality (physical/chemical characteristics, hardness, and transparency; measured using Oximetro YSI 5IB, and a Secchi disc), vegetation (type and cover, stratification, life forms), and human pressure (accessibility, distance and size of the nearest human settlement).

## RESULTS AND DISCUSSION

This study provided new information regarding the distribution of *L. l. annectens* in Venezuela. The presence of otters was confirmed in 23 of the rivers draining towards the Southern slope of the Venezuelan Andes (Table 1, Fig. 1) and, in 14 of these rivers, signs of the presence of the species were collected or detected, including latrines, direct observation, presence of holts, and animals killed by dogs. Another nine localities counted as positive arose from the information provided by interviews with locals or data provided by other researchers. In one case a visual record of the species was obtained on the River Tucupido, Portuguesa State (González and Utrera, 2000), and the carcasses of two animals killed by dogs were found on the River Morador, also in the Portuguesa State. Only on two of the rivers where otter presence was suspected did we not find any evidence. However, on one of these (Paguey), locals assured us that otters were abundant in the past. Analysis of the results of the interviews suggests a decreasing trend in the species' population as most of those interviewed knew the otter and had frequently observed it, but that it was currently scarce and had disappeared in some localities.

**Table 1.** Sampling sites, geographic location, altitude, type of record and degree of human intervention

Location	State	Coordinate N	Coordinate W	Altitude a.s.l	Type of record	Degree of Intervention
Escaguey	Barinas	08°34'44"	70°29'03"	220	L	high
Paguey	Barinas	08°33'02"	70°29'35"	200	N	high
Las Acequias	Barinas	08°24'58"	70°42'09"	230	L-RM	middle
Bumbura	Barinas	08°19'32"	70°47'11"	295	L	low
Socopó	Barinas	08°15'17"	70°50'26"	225	L	high
Curbatí	Barinas	08°33'10"	70°36'17"	380	L	low
Caparo	Barinas	07°41'21"	71°27'00"	320	L	high
Capitanejo	Barinas	07°59'30"	71°00'52"	320	L	low
Sta. Barbara	Barinas	07°46'17"	71°17'03"	220	L	low
Quiu	Barinas	08°10'57"	70°54'05"	420	L	low
Sto. Domingo	Barinas	08°46'34"	70°23'58"	460	OP	high
Masparro	Barinas	08°55'35"	70°14'13"	380	L	middle
Boconó	Portuguesa	08°57'49"	70°07'23"	320	OP	high
Tucupido	Portuguesa	09°02'46"	70°03'45"	330	L-OdOP	middle
Guanare	Portuguesa	09°14'11"	69°55'48"	200	OP	high
Chabasquén	Portuguesa	09°22'05"	69°59'06"	650	N	low
Anús	Portuguesa	08°08'18"	69°56'24"	240	OP	low
Las Marías	Portuguesa	09°15'20"	69°46'23"	330	OP	low
Portuguesa	Portuguesa	09°14'58"	69°50'26"	460	OP	low
Morador	Portuguesa	09°17'08"	69°40'23"	335	L-Ope-RM	low
Ospino	Portuguesa	09°24'32"	69°29'42"	325	L-RM	high
Guache	Portuguesa	09°31'04"	69°21'19"	240	OP	high
Bumbum	Portuguesa	09°33'05"	69°21'36"	340	L	middle
La Reirosa	Portuguesa	09°22'16"	69°30'09"	240	OP	high
Acarigua	Portuguesa	09°37'14"	69°20'31"	360	OP	high

L: latrines;

RM: dens or holts;

OP: observations realised by other researchers or local people;

OdOp: direct sights realized by other people;

Ope: animal killed by dogs

A variable density of latrines per kilometre (1 to 4 latrines/km) was quantified throughout the survey area, the highest density being recorded on the River Ospino. Latrines were generally located on large stones in the main watercourse. Although the number of otters cannot be quantified based on the number of latrines, the number of signals may be correlated with their abundance (Macdonald, 1990; Soldatelli and Blacher, 1996). With this in mind, based upon both the number of signs and the distance between them, we estimated the presence of two or more family groups on the 7 km survey distance along the River Ospino. On this basis, the variability in latrine density was interpreted as an indication of the differing abundance of this species in the study area.

In general, watercourses were transparent, and had a maximum width of 40 m and a maximum depth of 1.8 m in pools. The rivers mainly had a moderate slope with an average water speed of 0.88 m/sec, and had a substrate predominantly comprised of gravel, large stones, and some sand. The average environmental temperature recorded was 32°C, and 26.1°C in the water. Usually, areas adjacent to these small rivers did not maintain much cover, a high level of riverine vegetation only appearing about 30 m away from the watercourse. The vegetation was usually modified by human activity and consisted mainly of perennial trees and shrubs, forming two or three strata with heights that varied between 15 and 25 m. There were also numerous climbing plants, epiphytes, and grasses. The degree to which each site suffered from human intervention is indicated in Table 1.

In the areas where the species was recorded, the minimum distance between the nearest human settlement and the sites where otters lived was measured in order to establish the tolerance of otters to human pressure. Such distances ranged from 300 m to 5 km. Although these are small settlements (1,000 to 2,000 inhabitants), we detected sites where human presence was very close and where the animals seemed not to be affected.

There has been a significant reduction in the original habitat in the region studied (Paredes, 1997; 2001) and the resulting disruption of hydrological systems and the resulting fragmentation of habitat are seen as the major contributing factors to the drop in numbers and range of this species (Rodríguez and Rojas-Suárez, 1995). In addition, based upon our own studies of habitat quality and interviews with local people and fishermen, we identified deforestation, contamination of water, and changes in the beds of watercourses as other major threats. Secondary threats include poaching for fur and incidental death caused by hunting dogs.

This study provided evidence for the presence of *L. l. annectens* in a strip of ca. 340 km on the southern slope of the Venezuelan Andes, where the species had not been recorded before. We also detected a clear decreasing trend in the population through interviews with local people. We consider that recent human colonisation of the areas adjacent to the otters natural habitats may significantly affect their survival in the future. None of the sites where otters were recorded is legally protected. However, there are two National Parks and other protected areas adjacent to the study area where no sampling has been carried out to date.

Due to the apparent population status of this sub-species in Venezuela, we strongly suggest that further intensive studies are initiated to quantify otter abundance, to identify more precisely the potential factors influencing population decrease, and to identify sites for more intensive protection.

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**Résumé : Répartition Actuelle de la Loutre le Rivière Sud-Américaine *Lontra longicaudis annectens* le Versant Sud des Andes Vénézuéliennes. Caractérisation des Habitats et Première Évaluation du Statut des Populations**

Nous avons interviewé les populations locales du versant sud des Andes vénézuéliennes, afin d'y déterminer la répartition actuelle et le statut des populations de loutres de rivière sud-américaine *Lontra longicaudis annectens*. Pour confirmer leur présence, nous avons ensuite contrôlé 25 rivières différentes. Bien que 23 d'entre elles se soient avérées effectivement positives, une régression des populations de loutres a été clairement constatée. Sur la base de ces résultats nous en avons déduit que les principales menaces qui pèsent sur l'espèce sont la réduction de leurs habitats naturels et la contamination des cours d'eau, secondairement le braconnage. Nous envisageons d'engager des études plus poussées pour estimer l'abondance de l'espèce, discerner plus précisément les facteurs potentiellement responsables du déclin des populations, et identifier des sites optimaux pour sa protection.

**Resumen: Distribución de la Nutria de Río Neotropical *Lontra longicaudis annectens* en los Andes Venezolanos. Hábitat y su Estado Poblacional**

Con el objeto de determinar la distribución actual y el estado poblacional de *Lontra longicaudis annectens* en la slope sur de los andes de Venezuela, se realizaron entrevistas a pobladores rurales en el área de estudio. Posteriormente se efectuaron muestreos en 25 ríos con el fin de detectar evidencias de la presencia de esta especie, a través de registros directos e indirectos. Se registró dicha especie en 23 de los ríos visitados y se detectó una clara tendencia en la disminución de sus poblaciones. Con base a los datos obtenidos se determinó que el peligro más inminente que debe enfrentar la especie corresponde a la reducción de sus hábitat naturales, contaminación de los cuerpos de agua y en menor importancia la cacería ilegal. Proponemos efectuar estudios más detallados con el fin de cuantificar su abundancia, precisar los factores que influyen sobre la disminución de sus poblaciones y determinar lugares idóneos para su protección.

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Hello,

I am working as a paleontologist on the evolution and paleobiology of carnivorous mammals. From the Eocene locality Messel in Germany, a coprolit was reported containing a lower jaw of a primate. It was supposed that the coprolit came from *Buxolestes piscator*, an otter-like pantolestid.

Is there anything reported of modern, wild otters feeding on tetrapod carrions?

Thank you very much in advance!

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Abt. Messelforschung  
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Colleagues

I have a contract to make recommendations for monitoring otters (and their habitat) in Special Areas for Conservation, designated under the EU Habitats Directive. The UK is required to report on the 'condition' of these sites in relation to otters and I assume that the same applies in other countries. This is separate to the National Otter Survey schemes and needs to work in relatively small areas (such that there might be only 8-12 national survey sites within some of them). It will therefore be necessary to adopt a different approach. The sites are mainly rivers and snow tracking is not an option in the UK. It is likely that only a few days work per year will be allocated to this.

I would be very interested to know of any other EU countries where work on this is under way or from anyone who has experience of devising a long term, low cost monitoring scheme on a local basis.

Thanks very much.  
Best wishes  
Paul Chanin  
North View Cottage, Union Road, CREDITON, Devon, EX17 3AL UK  
Tel.: 01363 774072

**LAST MINUTE NOTES**

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(State: December 18, 2001)

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