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

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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°23N, 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.

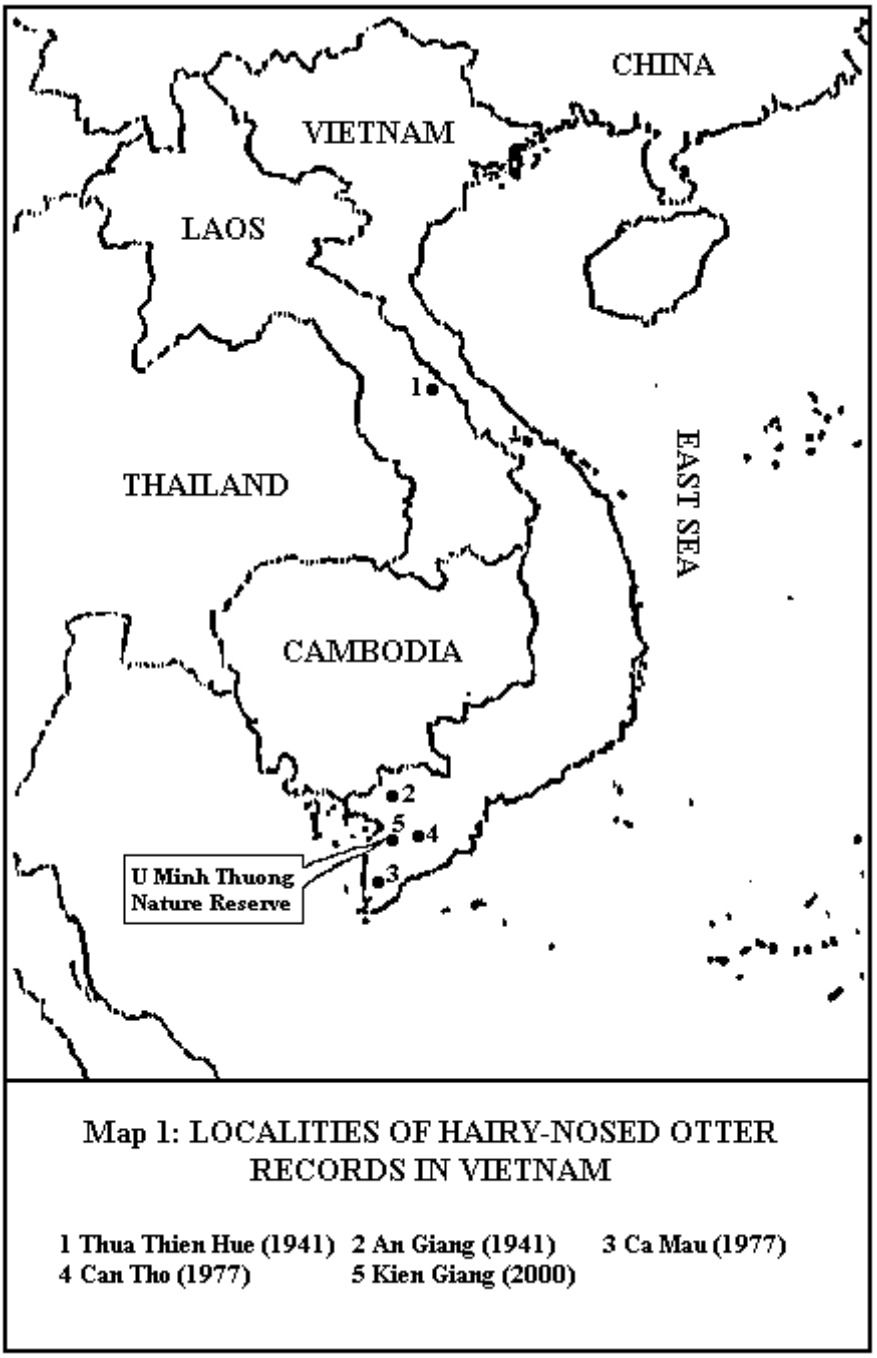

Figure 1. Localities of previous records of hairy-nosed otter in Vietnam and locality of U Minh Thuong Nature Reserve.

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	9441	British Museum	?	?	?	?	?
4	Truong Minh Hoat	Ca Mau	1977	IEBR	F	520	297	18	3.5
5	Truong Minh Hoat	Can Tho	977	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 form 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 vegatation 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 juvenile	29 Feb 2000	buffer zone close to ore zone	430	230	~ 1.2	5

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 Complementaired 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'UICN-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 especimenes y restos en poblados, observación directa desde puntos fijos, relevamientos nocturnos y temprano en la mañana con lintemas, 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 actuates 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.