

## **NOTE FROM THE EDITOR**

Many of you attended the VII. International Otter Symposium, which was held in Trebon from 13.-20.3.1998. In my opinion we had a very fruitful congress with many interesting presentations, both orally and on posters. There were also many interesting discussions in the bar and lounge of the Hotel. In addition - and very important for our group - we had the chance to meet friends again or to make the first personal contact with colleagues whom we only know from publications or e-mails. It was a great pleasure for me to meet so many of the subscribers of the *IUCN OTTER SPECIALIST GROUP BULLETIN*. Thank you all for the encouraging comments you gave me. I hope that I can fulfill all the expectations for the next issues of the Bulletin, which I will edit until we meet for the VIII. International Otter Symposium in Chili, around the end of 2001.

In the last issue I included a letter on the financial problems of the Bulletin. Many of you responded to this, either by sending money or by giving a contribution to me in Trebon. The list of these names is too long to be included in the Editorial Note. Nevertheless, Dr. V. Nagulu should get a particular mention as he prepared a poster on the otter in India which was sold to many of the attendants of the Trebon meeting. The whole proceeds of this action were donated to the Bulletin and I express my great thankfulness towards him and the Asian Otter Group for this overwhelming gift.

Presently, the larger part of the printing costs of the next Bulletin (no. 15/2) are already financed. The money for the postage still has to be found. In Trebon it was decided (see Recommendations in this issue) that, in the near future, those of you who can afford it should contribute to the Bulletin. I will inform you in the next Bulletin how this can be organized in a most cost effective way. Nevertheless, this will be voluntary and nobody will be removed from the mailing list.

Kevin Roche (Trebon) will function as a reader for those contributions, which are not reviewed by at least one native speaker. Jessica Groenendijk and Frank Hajek are acknowledged for the translation of a short notice. I have to thank the „Otter Bulletin Team“ Barbara Gutleb-Rainer (Oosterbeek), Hans van den Berg (Wageningen) and Els Hoogsteede-Veens (GRAFISCH SERVICE CENTRUM VAN GILS, Wageningen) for all their invaluable help with this issue. Without the help of Tobias the envelopes would have been later at the postoffice.

## IUCN/SSC OSG GROUP

### FROM THE CHAIRMAN'S DESK

For those of you who did not join the VII. International Otter Colloquium and the meeting of the IUCN/SSC OSG in Trebon (Czech Republic) it might be a surprise that you do not get this notice from the desk of Padma de Silva. Due to personal reasons, she decided to retire as chairperson of the Otter Specialist Group (OSG) and to change to the position of the co-ordinator for Asia.

Padma took over the chair of the OSG in 1994, from Pat Foster-Turley, and she has done an excellent job since then. In Asia particularly, due to her efforts, otter protection has made great progress. The establishment of an Asian Secretariat was made possible by funds obtained from Japan. The Asian Otter Newsletter became an important link and source of information for otter people both in and outside the Asian region and several meetings of otter specialists and concerned parties from Asia and abroad contributed to the progress of otter work in this region. Padma also oversees the interests of the OSG within IUCN and the Species Survival Commission (SSC). We all have to thank Padma for the excellent work she has done these past four years, I personally wish her good health and I am sure she will have great success as co-ordinator for Asia. I would also like to include Syad Hussain, who has acted as Asian co-ordinator over recent years, in this message of thanks. I am very thankful that he will continue to be engaged in the group as a data-base co-ordinator for Asia.

On April 15 1998, David Brackett, chairman of the SSC, invited me to accept the position of chairman of the OSG and I subsequently agreed. For those of you who do not know me I would like to provide a short introduction. My name is Claus Reuther and I was born in 1950. I have been married since 1974 and am the father of two sons and one daughter (and grandfather of one granddaughter). After my training as a forest engineer, and a second study in environmental protection, I worked for several years as a forest officer with special tasks in nature conservation. In this way I started my otter work in 1974. In 1979, I founded the German Campaign for Otter Protection (Aktion Fischotterschutz) and organised the 1st International Otter Colloquium. Since 1987, when I established the German Otter Centre, I have been the fully employed Director of Aktion Fischotterschutz and the Otter Centre and am responsible for more than 60 employees of this non-profit organisation. I became a member of the IUCN/SSC Otter Specialist Group in 1981 and, since 1983, have been the co-ordinator for Europe. I have worked with otters in both captivity and in the wild, mainly with *Lutra lutra*, though excursions to Asia, Africa and North-America have given me the opportunity to gain knowledge and experience for most of the other otter species as well.

My main goals as chairman of the OSG for the next triennium, before the IUCN congress scheduled for the year 2000, will be:

- I. the preparation of a manifesto for the OSG, defining the fundamental goals of otter protection and the preconditions for a sustainable co-existence of otters and man on the basis of suitable habitats,
- II. the revision of the Otter Action Plan,
- III. the establishment of an information network within the OSG as well as between the OSG and specialists or institutions outside the otter world.

To ensure that the OSG will fulfill these aims it will be necessary for all members to participate in the groups' work and contribute their particular experience. To all those who have done this before, through a high level of volunteer commitment, I want to express my special thanks. I invite all members of the OSG and all people interested in otters to accompany my chairmanship with constructive criticisms and to help me in making the OSG's work a success for nature conservation.

Claus Reuther

Aktion Fischotterschutz e.V.

OTTER-ZENTRUM

D-29386 Hankensbüttel

GERMANY

Phone +49-5832-98080

Fax +49-5832-980851

e-mail: [Aktion.Fischotterschutz@t-online.de](mailto:Aktion.Fischotterschutz@t-online.de)

## IUCN/SSC OSG GROUP

### MINUTES MEETING IUCN/SSC OTTER SPECIALIST GROUP 14 MARCH 1998, 14:00, TREBON/CZECH REPUBLIC

The Chair, Prof. Padma de Silva, opened the meeting by welcoming the participants, including Mr. Mariano Gimenez-Dixon of the IUCN Secretariat. The main issue to be discussed was the revision of the Otter Action Plan. After this the members present introduced themselves.

Mr. Mariano Gimenez-Dixon spoke about the role of the IUCN, the Species Survival Commission (SSC) and its Specialist Groups (SGs). The IUCN is now 50 years old, consisting of (i) a central Secretariat in Gland, Switzerland, (ii) the member organizations, which may be NGOs or Government organizations, and (iii) the commissions, which constitute a worldwide network of volunteers. One of these commissions is the Species Survival Commission, with the aim of conserving biological diversity through study and restoration and management of species and habitats. The speaker outlined the SSC activities in some detail. Questions were asked about maximum membership of any one SG (answer: as many as possible), how does IUCN finance SGs (answer: IUCN can only help with printing, otherwise the SGs have to find funds themselves. IUCN does not interfere with SG activities, only appoints the chairman after consultation with the SG concerned). How does the Red Data Book work, which criteria are used? (in answer a discussion of 'scale' of vulnerabilities in the Red Data Book, and the geographical scales as applied).

Claus Reuther talked about the structure of the Otter Specialist Group (OSG) and its regions. He announced that Padma de Silva will retire as Chairperson, whilst from now on she will continue as coordinator of the Asian Region and run the Asian Secretariat. Dr. Hussain will focus on the construction and maintenance of an otter data base for Asia. Padma has suggested that Claus Reuther should be the next chairman of the OSG. Claus asks for a vote, and there is no dissent from the meeting, so the IUCN will be asked to appoint Claus.

As to further regional coordinators, Prof. Jan Nel will be responsible for Africa, Gonzalo Medina for Latin America, Dr. Paul Polechla for North America, Dr. Jim Estes for sea otters, Claus Reuther for Europe. The question is asked about how to get information from the Middle East, should it be a special region? Claus will attempt to find a special representative there. It is decided that for our regions the border between Asia and Europe will be the Ural Mountains, e.g. Siberia will report to the Asian Secretariat.

Claus introduces the outline for a new action plan. The reason for the update is that the old AP is now 10 years old, we have more information, the otter situation has changed, political boundaries have changed. Also the previous AP was rather vague and did not reach the appropriate management circles. The update was discussed with the IUCN representative, and various recommendations were made on practical issues. Then Claus presented a provisional outline for a revision. There were various comments from the floor:

- I. there should be clear definitions of the objectives: what do we want from otter conservation, what is the purpose?
- II. the AP should expose in which fields and areas there is ignorance about status of otters, management needs, ecological questions, etc.
- III. some people wanted a section dedicated to field techniques, others argued against this.
- IV. it should be clear exactly who the targets were for the AP; in this context managers are more important than scientists and SG members.
- V. it should not be too large and complicated.
- VI. problems of habitat management should be included, the AP should not just be about otters alone.
- VII. there is a need for peer review by section.
- VIII. the controversy of re-introduction should be aired and discussed.
- IX. where the Red Data Book does not meet the need of individual countries (because of its global approach), the AP should comment on this and make clear national recommendations.

Claus suggests that a board of editors be appointed, consisting of the regional coordinators plus one additional person for each continent, who will be responsible for getting the contributions from different countries and who will revise these and get feedbacks. The lay-out of the AP should be ready by mid-1998, all contributions should be in before the end of 1998, revisions and feedback through 1999, and the final draft ready by early 2000. He invites further comments on the AP to be made at a meeting on the last day of the colloquium.

After a coffee break Claus reconvenes the meeting, discussing communication. Arno Gutleb will continue to edit the Bulletin, and Claus comments on its excellent success. He questions whether the Asian Newsletter should continue to be published separately, as everyone would want to know what is going on. He stresses the need for financial support for the Bulletin, and there is a suggestion from the floor to send a hat round for a collection.

Claus suggests that a home-page is started on the WWW, and asks for volunteers. The IUCN representative offers moral support and advice, contacts, etc. In the months after this meeting Claus will produce a leaflet on the role of the IUCN/SSG/OSG. He also suggests that a 'Manifesto' of the OSG should be reviewed every so often, and one should reconsider the fundamental positions of the OSG. Do we still consider the otter as an 'indicator species', or as a 'flag-ship'?

Claus explained that the organization of the present (7th) Otter Colloquium was beset by set-backs, with the original organizer (Chile) withdrawing at a late stage, and the second option (Poland) proving far too expensive. Nevertheless, despite the short preparation time the organization of the colloquium had been a success. For the organization of the following (8th) colloquium there was again an offer from Chile, and this was (again) accepted. There was a discussion about the timing, and it was agreed that this should be planned for 2001. Claus suggested that the various meetings needed to discuss progress of the Action Plan should be independent of the next colloquium.

There was no other business, and at 17:10 Claus closed the meeting, thanking all present.

Hans Kruuk

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## IUCN/SSC OSG GROUP

### RECOMMENDATIONS AND RESULTS VII. INTERNATIONAL OTTER COLLOQUIUM (IOC) TREBON/CZECH REPUBLIC, MARCH 14 - 20, 1998

The IUCN/SSC Otter Specialist Group (OSG) and the participants of VII. IOC agreed on the following results of VII. IOC and recommendations for further work in otter conservation.

◆ **World-wide they:**

- I 1. reiterate that the protection and support of remaining otter populations needs top priority in otter conservation world-wide;
- I 2. recommend that the Ramsar Convention Bureau be asked to include the presence of an otter population as one of the criteria for designating Ramsar sites;
- I 3. recommend it be made mandatory to conduct pre- and post ecological studies for any project planned that is likely to impact otter populations or wetland areas in that region;
- I 4. accept that otter predation at fish-farms can cause serious economic damage.  
The conditions suitable for intensive fish production are also otter habitat and the artificially high densities of fish placed in such natural surroundings increase their attraction or value to otters; research into technical methods to assess and prevent fish farm depredation must be initiated in order to minimise conflicts and has priority over solutions like killing or translocating otters;
- I 5. strongly encourage further research on various aspects of otter biology to improve current knowledge;
- I 6. recommend that permits for keeping otters in captivity only be given to those persons and institutions that will provide these animals with at least the minimal requirements as described in existing or OSG husbandry guidelines for each species. Continued exhibition of otters by these individuals/institutions should be subject to periodic review;
- I 7. emphasize that before an otter harvest (including trapping for translocation) can be allowed population demographic data must be provided that demonstrate this action will not pose a threat to that population;
- I 8. recommend the initiation of an IUCN/SSC OSG tissue bank. It is further recommended that location options for the establishment of such a tissue bank be assessed and proposed, and that necessary standard information, and appropriate procedures and methods for the collection of these tissue samples be compiled;
- I 9. suggest the necessary information be compiled for the exchange of tissue samples for scientific and conservation purposes according to CITES.

◆ **For Europe they:**

- II 1. reiterate that due to the obvious recovery tendencies of *Lutra lutra* in Europe all available financial and personnel resources should be used to support this development, particularly through habitat management. The efforts to develop an Otter Habitat Network Europe (OHNE) should be supported by

all governments, national and international agencies and otter specialists;

- II 2. are deeply concerned about the increasing number of otter reintroduction projects in Europe that do not follow IUCN reintroduction guidelines.

The group has therefore established a Reintroduction Advisory Committee (RAC) for Europe that develops criteria for otter reintroduction projects. Elected members of this committee are:

Claus Reuther, Germany (Chairman and co-ordinator Europe of OSG)

Addy de Jongh, The Netherlands (Director Otterpark Aqualutra)

Alfred Melissen, The Netherlands (Studbook keeper *Lutra lutra*)

Hans Kruuk, Scotland (former chief scientist Institute for Terrestrial Ecology)

Arno Gutleb, Austria (Pollution expert of OSG)

Jordi Ruiz-Olmo, Spain (Chief scientist of the otter translocation project Spain)

It is strongly recommended that for every project proposal the OSG is contacted via the country's national OSG representative and the members of the RAC will evaluate the proposal. It is stressed once again that a scientific approach, raising of public awareness and a proper monitoring, evaluation, and documentation of the project are essential;

- II 3. are concerned by the use of Rotenone in Norwegian river systems as a method to eradicate the Atlantic salmon (*Salmo salar*) parasite (*Gyrodactylus salaris*). Norway signed the Berne Convention in 1986 and under this they are obliged to protect the habitat of specific species including the otter. As the short-, and longterm effects of Rotenone are not fully understood further studies on the effects of this treatment on the otter, waterfowl and birds of prey (sea eagle etc.) are urged to be carried out. It is suggested that recent techniques in molecular biology be used for these studies;

◆ For **North-America** they:

- III 1. encourage enforcement of current wetland regulations and promote the development of new regulations that further ensure protection of the utilizable otter and wildlife habitats in the West. Protection of riparian habitats through grazing restrictions should be encouraged. Also, land managers in western states should be encouraged to develop strategies to retain adequate water supplies necessary to maintain wildlife populations dependent on riverine and associated habitats;

- III 2. recommend that North Americans should be commended for extensive efforts to restore extirpated otter populations through implementation of reintroduction projects. However, future and ongoing reintroduction projects should follow IUCN guidelines, particularly regarding:

- a. using sources of otters from the nearest viable populations that evolved under similar environmental conditions,
- b. implement strategies which maintain genetic variability in reintroduced populations,
- c. clearly define long-term management goals for reintroduced populations;

- III 3. recommend that research on the status and genetic viability of the Sonoran river otter subspecies (*Lontra canadensis sonora*) should be given top priority.

◆ For **Latin America** they:

- IV 1. encourage the funding and supervision of research on otters with priority placed on the determination of distribution, habitat requirements, poaching, limiting factors or conservation threats, human impact, and ecology (feeding, behaviour and population ecology).

◆ For **Africa** they recommend that:

- V 1. validity of *Aonyx congica* be confirmed genetically;
  - V 2. valid information be obtained on the distribution, status, degree of legal protection and the prevailing, and possible threats for all species of otters in the African countries;
  - V 3. areas where otters possibly can occur in Africa (but presently are not documented) be identified and surveys initiated;
  - V 4. countries in Africa, where conflict exists between man and otters for freshwater fish resources be identified, and the extent of conflict quantified as far as possible;
  - V 5. the extent and degree of hunting for skins (for trade) of otters in Africa be identified.
- ◆ For **Asia** they recommend:
- VI 1. to promote the incorporation of known otter needs into EIAs;
  - VI 2. to urge governments considering the use of organochlorines (including in the fight against malaria), to take into account the interests of otters and that environmentally sound methods of pest management be considered, developed, and used;
  - VI 3. to promote better cooperation with NGOs and GOs active in wetland conservation and sound artificial wetland use (e.g. ricefields, general and pond fisheries);
  - VI 4. due to the many otter taxa proposed for the region, the geographical setting of the Asian and particularly the Oriental faunistic region to assess the genetic variability of Asian otters to enable correct conservation measures;
  - VI 5. to conduct reliable field assessments including spraint collection for further taxonomic analysis of the *Lutra lutra/Lutra sumatrana* question;
  - VI 6. to re-assess the viability of *Lutra nippon* on a comparative regional basis using larger sample sizes from otter species of the Asia Far Eastern region;
  - VI 7. to initiate more research on human/otter interaction (otters' role in ricefields; otters' predation on pest crabs; otters' predation on introduced bullfrogs in South Korea; general fisheries issues; otters' predation on target species in fish- and prawn-ponds; otters' predation on pest species in fish- and prawn ponds);
  - VI 8. conduct baseline surveys in regions largely uncovered by representatives so far (Syria; Lebanon; Jordan; Iraq; Kuwait; Arabian Peninsula; Afghanistan; Asian CIS: Kazakhstan, Turkmenistan, Tajikistan, Uzbekistan, Kirgistan; Pakistan; Bangla Desh; Bhutan; Nepal; mainland and insular China; Taiwan; DPR Korea; Mongolia; Vietnam; Laos; Cambodia; Brunei Darussalam; Malaysia: Sarawak and Sabah; Indonesia: Sumatra and Borneo; Philipines: Palawan);
  - VI 9. follow-up survey activities in the following countries: Turkey; Israel including the Palestine Areas; Iran; Russian Federation; South Korea; Japan; India; Sri Lanka; Thailand; Malaysia; Singapore; Indonesia: Java;
  - VI 10. assess habitat requirements of Asian otters and trends in wetland habitat availability by using, e.g. GIS methods;
  - VI 11. gain a better understanding of otters in the socio-cultural context in Asia (religious and philosophical



context; legends and tales; art; consumptive and non-consumptive use of otters; use for medicinal purposes);

VI 12. publication and awareness material/events/media activities on Asian otters are developed.

◆ As **group internal results** the members of OSG:

VII 1. accepted the wish of Padma de Silva to retire from the position of chair of the OSG. They thank her for the work she did in this position since 1994. The group accepted her suggestion to continue her work within the OSG as a co-ordinator for Asia and as a deputy chairperson of the OSG. The group also thanks Syad Hussain for his former work as co-ordinator for Asia and is happy that he agreed to continue his work within the group as a data base co-ordinator for Asia. The members of the OSG unanimously elected Claus Reuther as the new chairman of OSG and asked IUCN/SSC to appoint him to this position. The OSG co-ordinators are asked to develop procedures and guidelines for future decisions and/or elections of an internal nature;

VII 2. wish to thank Arno Gutleb for his excellent work as the editor of the OSG Bulletin. They are happy that he offered to continue this work. All members of the OSG are asked to contribute to the bulletin and to use it as a platform of information transfer and for the discussion of specific questions related to otter conservation and research. To reduce the high personal economic risk of Arno Gutleb all members of OSG are reminded to subscribe to the bulletin. The members of OSG request that the Asian subgroup include its "Asian otters newsletter" into the OSG Bulletin.

VII 3. thank Philip Bacon and Peter Eulberg for offering to establish a homepage in the world wide web for the OSG. Philip Bacon will clarify if the server of ITE/GB can be used for this and he is prepared to maintain the website. Peter Eulberg offered to compile and to layout the website. All members of the OSG are asked to contribute to the website and to ensure that it acts as a platform for an up-to-date information transfer;

VII 4. are asked to focus interest on the situation of otters in the Middle-East. Everybody who has contacts to people or institutions in this region which can contribute to otter conservation are asked to give this information to the chairman of OSG. As long as no experienced person is available who can act as a co-ordinator for the Middle-East this region will be looked after by the chairman of OSG supported by the co-ordinators for Asia and Africa;

VII 5. feel that it is necessary to define basic positions for otter protection and research. They request the chairman of OSG arrange discussions within the group and consult with external experts to:

- a. define the aims and priorities of the group regarding of otter conservation,
- b. formulate fundamental positions on topics like re-introduction activities, solutions for the conflicts with fish production, guidelines for habitat management etc.
- c. standardize or give guidelines for methods of research (such as survey methods in Europe, interpretation of scat analyses, post-mortem examination procedures, analysis of pollutants etc.);

VII 6. resolved that the European subgroup should have a meeting in 1999. The co-ordinator is asked to decide if this meeting will be held in connection with the 3rd European Congress of Mammalogy in Finland or if the group will follow the invitation of Marjana Hönigsfeld to meet in Slovenia. Main topics of this meeting will be:

- the revision of the Otter Action Plan for Europe,
- a workshop on the standardisation of the "standard" survey method,
- a workshop for the definition of otter specific guidelines for re-introduction activities (within the framework of the IUCN regulations for re-introductions)
- a workshop on the progress of the European otter habitat network;

- VII 7. decided to accept the invitation of Gonzalo Medina to held the VIII. International Otter Colloquium in the year 2001 in Chile;
- VII 8. decided to revise the Otter Action Plan. They started this work by revising the draft for the contents and structure of the action plan formulated by Claus Reuther. The following board of editors was appointed:  
Claus Reuther (editor in chief)  
Michaela Bodner  
Gonzalo Medina  
Christof Schenck  
Padma de Silva  
Syad Hussain  
Paul Polechla  
Jan Nel  
Jim Estes  
Alexander Burdin  
It is planned to publish the revised Otter Action Plan in the year 2000;
- VII 9. decided to establish an e-mail link-up as a method of improving communication between all individuals and facilities working with, or interested in, otters in captive situations. This includes zoos, otter centres, rehabilitation facilities, field researchers, veterinarians, university students, laboratory scientists and dieticians. A central library and e-mail site was selected. This will be [jrsotter@iserv.net](mailto:jrsotter@iserv.net), maintained by Janice Reed-Smith. All individuals interested in sharing and receiving information on keeping otters in captivity are requested to send their e-mail addresses, species of interest, and area of expertise to the above address;
- VII 10. welcome the announcement of Marc and Christiane Linet from Belgium to set up the "Linet otter prize" which will honour conservation activities of young people for the protection of any otter species and which will be awarded each second year with a sum of 2,000 USD.

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## ARTICLE

### THE DISTRIBUTION AND STATUS OF THE EURASIAN OTTER (*LUTRA LUTRA*) IN ASIA - A PRELIMINARY REVIEW

CONROY Jim<sup>1</sup>, MELISCH Roland<sup>2</sup>, and CHANIN Paul<sup>3</sup>

<sup>1</sup> Institute of Terrestrial Ecology, Banchory Research Station, Banchory,  
Aberdeenshire AB31 4BY, Scotland

<sup>2</sup> Umweltstiftung WWF-Deutschland, Hedderichstr. 110, 60591 Frankfurt, Germany

<sup>3</sup> Department of Continuing Adult Education, University of Exeter, Cotley,  
Streatham Rise, Exeter, Devon EX4 4PE, England

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#### ABSTRACT

In this paper we review the available literature on the distribution of the Eurasian otter in Asia. We have also collated unpublished information from a number of contemporary sources. We report on the situation of the otter in 32 'countries' showing that in the majority of these the otter population is declining or has declined, but that in eleven, the status of otters is unknown. Otters are known to be afforded some protection in 12 countries but in a quarter of these they are still persecuted despite this. We note that few systematic surveys have been carried out in Asia and suggest that the method used for otter surveys in Europe may be unsuitable in some Asian countries. It would be beneficial to investigate alternative methods which might provide standardised repeatable surveys in countries with a lower road density than Western Europe.

Keywords: otter, *Lutra lutra*, status, Asia

#### INTRODUCTION

There are possibly six species of otter occurring in Asia - the Eurasian (*Lutra lutra*), smooth-coated (*Lutrogale perspicillata*), hairy-nosed (*Lutra sumatrana*), Asian small-clawed (*Aonyx cinerea*), and Japanese (*Lutra nippon*) [see page 22] and sea otter (*Enhydra lutris*). Here the distribution and abundance of one of these, the Eurasian otter is reviewed. This species has been described as having *one of the widest distributions of all Palearctic mammals* (Corbet, 1966). Its range extends from Ireland in western Europe to the Kamchatka Peninsula in eastern Asia, and from the Arctic to the southern shores of the Mediterranean. In Asia, it is found as far south as Sumatra in Indonesia (Corbet and Hill, 1992). This review uses the nomenclature and taxonomy given in Corbet and Hill (1992). Throughout its range several sub-species have been identified, and many synonyms have been proposed. In fact, such is the confusion concerning the taxonomy of the species that Pocock (1939) stated. *There has been greater confusion over the names and characters of the otters of British India than of any other group of mammals inhabiting those districts of the Oriental region.* This situation may reflect the difficulties to be dealt with when evaluating older and historical accounts. Corbet and Hill (1992) have tried to revise the classification.

In Europe there is a fairly extensive database on otter distribution and status, and, in several countries, e.g. Britain, information on otters has been collected over a number of years, (see Conroy and Chanin, in press), but the situation in Asia is far less clear. Reviews of the status of the otters in Asia by Foster-Turley and Santiapillai (1990) and de Silva (1995a) clearly show the paucity of information of the species over much of the continent. These reports and new information on the status of the Eurasian otter are summarised here. This paper clearly demonstrates that there are still large areas of the continent where little is known about these animals, and it is hoped that this review will stimulate further integrated research into their status. There are omissions from the paper - some accounts, especially from China and Russia have not been translated, and consequently have not been available to the authors.

In many countries throughout its Asian range, the species is still hunted for its pelt, for food, as sport and/or persecuted as a pest. According to Foster-Turley and Santiapillai (1990), otters in Asia are being threatened by a combination of habitat destruction, hunting and environmental pollution.

Over the past 40 years there have been marked declines in the number of animals throughout much of its

range, particularly in western Europe, and concern expressed for the survival of the species in several countries (von Müffling, 1977; Reuther, 1980; Mason and Macdonald, 1986). Less detailed information from Asia suggests that in many countries in Asia there have been declines in numbers and reduction of ranges, and concern is expressed about the conservation of the species in many parts of the continent (Foster-Turley and Santiapillai, 1990; de Silva, 1995a).

Otters are afforded some protection in twelve countries and none in a further three, while we have no information for the remainder. However the effectiveness of this protection may be questioned since there continue to be reports of otters being persecuted in some countries where they are theoretically protected: Turkey, China and India. There are also reports of persecution in a further three countries where the level of protection is unknown (Afghanistan, Mongolia, Nepal) and in Vietnam, where they are not protected.

## THE EURASIAN OTTER IN ASIA

### Near and Middle East - Turkey, Israel and Palestine, Jordan, Syria, Lebanon, Iraq, Iran, Afghanistan

The species was once widespread and common throughout **Turkey** (Turan, 1984), with healthy populations in the western and eastern parts of the country (M. Eroglu, pers. comm.). According to Kumerloeve (1967) in Smit and Van Wijngaarden (1976), 30,000 otters were killed annually. It is now considered endangered in the south and threatened in the north, the population having been reduced over the past 50 years, the main cause of the decline being habitat destruction, and river management (Eroglu, 1994). In recent years there has been an increase in the number of otters in the north-east part of the country, associated with the development of a fish pond culture. There is, however, some evidence that this population might again be on the decline because of illegal killing, despite the fact that the species is currently protected throughout the country (M. Eroglu, pers. comm.).

In **Israel** the otter has disappeared from the coastal plain, but it is still found in good numbers throughout the catchment of the River Jordan. In June 1994, a survey of 54 sites found that 25 (53%) had evidence of otters, a decline of 26% from a similar survey carried out in 1986 (Macdonald et al. 1986; Shalmon 1992; B. Shalmon, pers. comm.). The otter is protected and considered "endangered" by the Nature Reserves Authority (B. Shalmon, pers. comm.).

The **Jordan** population is restricted to the three permanent rivers in the country, and is considered threatened (Foster-Turley and Santiapillai, 1990). Because the species occurs in Israel and Jordan, Foster-Turley and Santiapillai (1990) assume that the species also occurs in **Lebanon** and **Syria**.

Hatt (1959) showed evidence of otters on the upper sections of the Euphrates River in **Iraq**. He also reported *plentiful of otters* from the Hindiya Barrage (some 95km south of Bagdad on the Tigris River) and concluded that *it seems probable that the species ranges through all the major streams of Iraq from the Persian Gulf to the northern frontiers*. Thesiger (1964), recounting his experiences with the marsh Arabs, writes of the otter as being common around Zirki, where it breeds on floating islands. He also tells that over a period of two months, 40 animals were killed by a single hunter. The current status of otters in Iraq is unknown.

There is little detailed information from **Iran**. Gutleb et al. (1996) reviewed current knowledge, and according to Tajbakhsh (1995) the otter can be found on most rivers throughout the country, being absent only from the central desert region, this, in part, being confirmed by more specific information supplied by Ishunin (1977) for north-east Iran. Misonne in Melisch and Rietschel (1996) recorded the species as present from the west, north and east of the country, but absent from the central and south. Ziaie and Gutleb (1997) report that the species can be found in the Zagros, Elbruz and Koppe-Dagh mountain range and in Iranian Azarbaiejan. It is present in the Hamoon Wetland bordering with Afghanistan and possibly found on the south shores of the Caspian Sea.

The situation in Iraq, and to a lesser extent in Iran will have been affected by the recent hostilities, also by the

fact that more than one species is found there e.g. Hatt (1959) pointed out that two of the three species brought from southern Iraq by Gavin Maxwell were smooth-coated, and only one a Eurasian.

Until recently, the most comprehensive work on the distribution of the otter in **Afghanistan** was Hassinger (1973), who compiled the data available to 1968. More recently, Melisch and Rietschel (1996) published 22 distribution records from throughout the country. They showed the species was widely distributed. Otters are still hunted in the country and the skins are highly prized (Niethammer, 1983; Nauroz, 1974 in Melisch and Rietschel, 1996).

### **Cis - Russian Federation, Tadjikistan, Turkmenistan, Kazakhstan, Uzbekistan, Kirghizstan**

**Russia** extends from eastern Europe through Asia to the Pacific Ocean. Within this area are many republics and provinces. Information from such a vast country is, as would be expected, patchy. In this paper, no attempt is made to separate Russia into that part in Europe and that part in Asia. Also, there has been little research on otters since the collapse of the Soviet Union, most references therefore refer to the overall region. The otter is distributed throughout the country with the exception of the tundra. It became extinct on the Kuril Islands at the beginning of the 20th century and more recently has disappeared from many waterways in the regions of Krasnodar and Kursk (Bytchkov and Chachin, 1994). On the basis of census returns, Rozhnov and Tumanov (1994) estimated the Russian population to be in the region 60,000 individuals in 1987 - 27,000 in the European sector; 3,500 in the region of the Urals and 30,000 in the Asian sector. There is a decrease in density from west to east. In the European sector, the otter population is thought to have been stable over the past decade, but overall numbers have declined by 30-40% since the 1930s and 1940s when the population was thought to number 80,000-100,000.

The annual estimate of the condition of the "hunting animal resources" is undertaken by the State Service of Hunting Resources in Russia and summarised every five years. Borisov (1996) described the latest figures relating to the otter. Between 1991 and 1995 numbers dropped from 60,400 to 52,600 animals, a decline of 13% over the five year period. Declines were recorded in all but one of the 12 regions listed, with the greatest decline 17.5% in the Far East. Unfortunately, we have been unable to find details of how these figures were arrived at.

Kranz et al. (1995) confirmed the presence of the species in the Zabaikalsky National Park from the eastern shore of Lake Baikal, Siberia. Zholnerovskaya et al. (1994), while compiling the mammalian collections in Novosibirsk museum found evidence of the recent occurrence of otters from Sakhalin Island, Kargasoksky District (Tomskaya Region), Todzhinsky District (Tuvinskaya Autonomous Region) and the mid-reaches of the Pur River (Tyumenskaya Region). The status is Northern Magadan district, Chukotka or Koryak is unknown.

In the Far Eastern Primorye Province, R. Melisch confirmed the presence of the species in January/February 1997. This was close to the Japanese sea front, between the towns of Olga and Terney. On an earlier visit, the presence of the species was confirmed throughout the Province, but the evidence as to whether or not the species was on the decline or stable remains contradictory.

Two sub-species *L. l. seistanica* and *L. l. meridionalis* were listed in the RED DATA BOOK OF THE USSR (Vol. 1) published in 1984 and both are protected in the Russian Federation. Hunting and trapping are regulated on a Provincial basis, according to the gamebag regulation of the Federal Game and Hunting Management Department. Each year, 500 bags are realised from a total of 1,500 licenses issued.

In **Tajikistan**, the presence of the Eurasian otter was confirmed by Zholnerovskaya et al. (1994) from museum specimens collected in the Tigrovaya Balka reserve (Kurgan-Tyube Region).

Marochkina (1995), while collecting material from eastern **Turkmenistan**, confirmed the presence of the

Eurasian otter from the Amudariya River, the Amudariya River Islands in the desert and the Karakumsky Canal. In the Amudariynsky Reserve, tracks of Eurasian otters are regularly seen. Twenty otter are believed to live in the Lebapsky Velayat, a man-made hydro system. The species is protected in the Amudariynsky Reserve and the Kelifsky Preserve.

*Lutra lutra seistanica* is mentioned as being present in **Kazakhstan** and **Uzbekistan** (Anonymous, 1977, 1983).

At present the species is protected in some, but not all of the republics (Romanowski, 1991). According to Pereladova et al. (1998), *L.l. seistanica*, the subspecies occurring in the Central Asian republics of the former Soviet Union, is listed, and therefore protected, in the Red Data Books of Kazakhstan, Turkmenistan, Tajikistan, Uzbekistan, Kirghiztan. It is considered rare in both Tajikistan and Uzbekistan.

### **East Asia - Mongolia, North Korea, South Korea, Taiwan, China, Japan**

According to Stubbe et al. (1989) otters still exist in three areas in **Mongolia**, but at low densities. The species is listed in the Red Data Book of Mongolia 1987, and should therefore be protected in that country. There are, however, reports of Eurasian otter pelts being on sale between 1985 and 1994, some reportedly from the Changai Mountains of Central Mongolia (H. Mix in litt. 1998).

There is no information from **North Korea**. In **South Korea** the species was once widely distributed throughout the country, but it is now considered rare. Ando (1995) reported that spraints are found on most coastal areas, but are less common on rivers. After surveying the country from 1992 to 1996, Sasaki et al. (1998) found the species to be present throughout the country but in decline in most places due to wetland reclamation and fisheries conflicts. Despite being declared a National Monument in 1982, there was evidence of a decline over the next decade, and the author is not optimistic about the future of the species in that country.

The otter is found throughout **China**, but like the other species found there, numbers have decreased in recent years (Foster-Turley and Santiapillai, 1990). This species, and *Aonyx cinerea*, are listed under The Schedules of Nationally Protected Fauna and Flora in China. The Eurasian otter is found in the provinces of Sichuan, Yunnan, Shaanxi, GaoLi, Guangxi, Fujian, Zhejiang, Heilongjiang and Jiangsu.

Despite being protected, the otter is still hunted. It is highly valued as a fur bearer and illegal killing has resulted in its decline; hunting returns showed that the number of pelts reported in 1980-82 was 382; 6.75% of the 1950s total (Sheng, 1992). The species also provides material for traditional Chinese medicine. R. Melisch will review this in a forthcoming paper entitled "The consumptive use of otter species".

Tieyi (1992) considered the Eurasian otter to be endangered after a sharp decline in numbers along the Yangtze River during the 1960s and 1970s. The author predicted that it would become extinct in the area following the construction of the Three-Gorge Dam.

Xu et al. (1983) reports that the species is found throughout Hainan, part of China, where it has been described as a new sub species *L.l. hainana*.

According to Foster-Turley and Santiapillai, (1990) otters were found in Hong Kong, now part of China, in the north-west New Territories in the 1960s, but with the exception of one found in 1986, the species had not been recorded since then. In December 1997, however, R. Melisch and L. Young found fresh spraints of *L. lutra* in the Mai Po Nature Reserve in the New Territories of Hong Kong (Melisch et al., 1998). The area is mangrove swamp marshes with brackish-water fish ponds. The species is also found in Tibet (Smit and van Wijngaarden, 1976; L. Young in litt. 1997).

Foster-Turley and Santiapillai (1990) state that the species was recorded in **Taiwan**, but there is no recent information about its status.

Following the analysis of DNA taken from a 30 year-old carcass Suzuki et al. (1996) proposed that the otter found on the islands of Honshu, Kyushu and Sjikoku in **Japan** was not a subspecies of *L. lutra*, but should be considered as a separate species which they named *L. nippon*. Because of this, only the island of Hokkaido in Northern Japan had been included as being within the range of *L. lutra*, where a separate subspecies *L. l. whitleyi* occurred. However, according to H. Sasaki and T. Shinohaha (pers. comm.) this form of the Eurasian otter is now thought to be extinct on Hokkaido.

*L. nippon* is now also thought to be extinct in Japan, where the last animal was found in 1986. Sasaki (1995) reported that the otter was widely distributed throughout the country until the 1920s. The population, thought to number about 20 in the early 1970s, was restricted to Shikoku Island. No animals have been seen since 1983, and few signs have been recorded; these too have been decreasing (Akoi, 1995). The species has been protected, as a national monument, since 1965.

### **Southern Asia - India, Pakistan, Sri Lanka, Bangladesh, Nepal , Bhutan**

Three species of otters occur on the Indian subcontinent, viz. *Lutra. lutra* the smooth-coated otter *Lutrogale perspicillata* and the Oriental small-clawed otter *Aonyx cinerea*. The smooth-coated otter is distributed throughout the country from the Himalayas southward, but the other two are restricted to the Himalayas, north of the Ganges and to southern India. They are considered to be absent from central India (Pocock, 1949; Prater, 1980; Foster-Turley and Santiapillai, 1990; Hussain, 1993; Hussain and Choudhury, 1977; Hussain, in press).

The existing populations of otter species in **India** and their habitat are being surveyed (Hussain, in press; Nagulu et al., 1997). In the north Indian plains, otters are either extinct and getting extremely rare outside the protected areas. In upper Gangetic plains small isolated breeding populations, species unconfirmed, are found in the Corbett and Dudhwa Tiger Reserves, the Katarniaghat Wildlife Sanctuary (Uttar Pradesh) (Hussain, in press.), and the Valmiki Tiger Reserve in Bihar (S.A. Hussain, unpublished data). In north-west India, otters have been reported from the Kashmir valley, from the Trans Himalayan region of Ladakh and also from Himachal Pradesh.

The Eurasian otter has been observed along the eastern coast in particularly from the Sunderbans (Sanyal, 1991), the Bhitarkanika Wildlife Sanctuary in Orissa, and the Koringa Wildlife Sanctuary in Andhra Pradesh (S.A. Hussain, unpublished data). In addition, it has also been reported from the Manjira Wildlife Sanctuary, and the Nagarjuna Sirisailam Tiger Reserve in the Deccan plateau of Andhra Pradesh (S.A. Hussain, unpublished data). *L. lutra* was recorded from the Mudumali Wildlife Sanctuary and from the Eastern Ghat of Tamilnadu, especially from Hogenakkal and Sathnur.

Both smooth-coated and Eurasian otter has also been reported from the Nagarhole National Park in Karnataka. There are large breeding population of otters in the Periyar Tiger Reserve, the Waynad and Idukky Wildlife Sanctuary (Western Ghat). It is believed that all three species are sympatrically distributed in the Western Ghat. However there has been no detailed work in this region to confirm the statement. There are no data on otter distribution from the north-east Indian states where it is believed that all three species are found. Tate (1947) included Assam within the range of the Eurasian otter.

It has only been in recent years that otter surveys have been carried out in this country. Previous work on Indian otters has mostly involved observations on captive animals (Desai, 1974; Acharjyo, 1983), with occasional notes on their occurrence from different parts of the country (e.g. Hinton and Fry, 1923; Pocock, 1939; Chitampalli, 1979) and a few studies on their feeding habits (e.g. Wayre, 1978). All three species of

otters are protected under the Indian Wildlife (Protection) Act, 1972, which prohibits both trapping and killing. In India, the major causes of decline in otter populations is the destruction of otter habitats for the construction of dams and barrages, declining prey availability because of intense over exploitation by man, pollution of waterways and wetlands, and to some extent poaching.

According to local legend, in Ladakh, and the adjacent countryside of the Indus valley, snow leopards (*Panthera uncia*) mate with otters along the river banks in winter. These legends arose because local residents regularly found tracks of both species together (J. Fox pers. comm.).

Like India, the otter in **Pakistan** is rare, and it is restricted to areas away from human populations (Foster-Turley and Santiapillai 1990). According to Roberts (1977) the species was rare along the Pakistan/Afghanistan border by the 1970s. It formerly occurred in all northern river systems to an altitude of 3,500m, and is known as the Himalayan otter (Chaudry, 1991). In recent years there has been a serious decline in the populations, it is currently rare in the accessible mountain regions, but absent from the plains areas. Today, it has partial protection, but bounties were paid on otters until 1970 (Chaudry, 1991).

*Lutra lutra* is the only species of otter found in **Sri Lanka**. It occurs in all river systems, where it is moderately plentiful, but numbers have declined in recent years (Phillips, 1984). However, de Silva (1991a) surveyed six rivers in 1990, and found evidence of otters at 68% of the sites visited, while in the south west highlands, otter presence was established at nearly 85% of the sites visited (60 from 71) (de Silva, 1991b). According to de Silva (1995b), the species in Sri Lanka has been squeezed out of much of its former range.

In **Bangladesh**, the population was once widespread, but the otter is now very rare, and is absent from large tracts of the country (Foster-Turley and Santiapillai, 1990; de Silva, 1995a). It is interesting, however, that Rahman (1995) and Rahman (1996) when discussing endangered, rare and uncommon mammals of that country makes no mention of the otter.

From a recent survey in a lake area of 46 km<sup>2</sup> in western **Nepal**, Acharya and Gurung, 1994 concluded that the species was still common in the area. Population estimates of between 1,000 and 4,000 animals were based on interviews with local people. These figures are, however, considered by the authors to be exaggerated. Conflicts between man and otters are common place due to competition for fish. There is an increasing number of reports on the occurrence of otters from Nepal (S. Hussain, pers. comm.).

Little is known about the status of the species in **Bhutan**, but according to de Silva (1995a), the species is found in the Terai region of the Himalayas, of which Bhutan is a part. She also reports that the otter (no species mentioned) moves upstream in the summer to altitudes of 3,500m following migrating fish. According to material deposited in the Zoologische Museum in Hamburg, there is evidence that both Eurasian and smooth-coated otters co-existed along the Jankosh River in 1957 (H. Schliemann, pers. comm.). The current status is not known.

### **Southeast Asia - Myanmar (Burma), Cambodia, Laos, Malaysia, Indonesia, Thailand, Vietnam**

As has been recently discussed and highlighted at the 7th International Otter Colloquium, Trebon, March 1998, *Lutra lutra* cannot be clearly identified separately from the hairy-nosed otter (*Lutra sumatrana*) in the field. Any reports of either species have thus to be treated with caution in those regions where both species potentially occur sympatrically or parapatrically. Gaining a better understanding of the *L. lutra/L. sumatrana* complex is thus a priority point of action recommended by the IUCN Otter Specialist Group in order to enable correct conservation measures.

In **Myanmar (Burma)**, the otter is not protected by national law. It occurs in upper Burma, but was considered rare (Salter, 1983). Its present status is unknown.



Foster-Turley and Santiapillai (1990) state the species was recorded in **Cambodia**, but there is no recent information about its status.

The species may be one of four otter species found in **Laos**, but no detailed work has been undertaken on these animals (de Silva 1995a). Otters are still traded in this country. Osgood (1932), reviewing material collected between 1928 and 1929, referred to a specimen from Phong Saly in northern Laos. After surveying Sekong Province and Hongsa Special Zone, Bergmans (1995) reviewed the existing literature on the mammals of Laos. He found reports, but no recent hard evidence for the presence of *Lutra lutra* in the country.

The Eurasian otter is found on the island of **Sumatra** and the western regions of **Indonesia**, where it is considered threatened (Foster-Turley and Santiapillai, 1990; Asmoro and Kusumawardhani, 1995). Initially, Melisch et al. (1994) found evidence suggesting that the species might be found on **Java**, but more recent investigations suggest that this claim was due to misidentification; Melisch et al. (1996) undertook extensive field surveys, and examined museum collections, and from these studies concluded that the Eurasian otter never reached Java. The island of Borneo is politically separated among three countries (Brunei, Sarawak and Sabah which belong to Malaysia; and Kalimantan, the Indonesian part). Payne et al. (1985) list *L. lutra* from the island, but stated its status as uncertain. Reviewing the literature on the mammalian fauna of Borneo, we found no evidence of the species from that island. There is, however, evidence of a *Lutra* sp. from the island, but, partially because of the *L. lutra/L. sumatrana* complex, we cannot be certain as to which species this is.

None of the four species of otters found in Indonesia is currently protected, although their status is threatened (Kusumawardhani et al., 1994). Along the **Malaysian Peninsula**, there has been only one record of the species, which according to Foster-Turley and Santiapillai (1990), was recorded in 1978 on Langkawi Island. Sivasothi and Nor (1994), however, reviewed the status of the species in the area and pointed out that there are only two records, both from 1900 (Flower, 1900; Miller, 1900); the first is unconfirmed, the second a female from Pulau Langkawi. It is this last named that Foster-Turley and Santiapillai (1990) refer, mistaking the reference in Medway (1978) to a recent record and not one made over 70 years previously. Sivasothi and Nor (1994) stated that the species might not have lived in Malaya this century.

Foster-Turley and Santiapillai (1990), believed that the species might already be extinct in **Thailand**, Lekagul and McNeely (1997) reported the presence of the otter from the mountainous part of the country, Kruuk et al. (1993, 1994) found it to be abundant in the Uthai Thani Province in west Thailand, while Pierce et al. (1990) recorded the species in the southern part of the country. According to Kruuk et al. (1993) the original distribution of the species was in the north and north-west of the country. All otters in Thailand have been protected since 1961, being listed under Schedule 1 of the Wild Animals Preservation and Protection Act.

In **Vietnam**, the current status of the species is uncertain, it has, however, been identified as living in seven of the northern provinces of that country *viz.* Kuangbinh, Hatinh, Nghean, Laitiau, Hoabinh, Bacthai, Zalam and Phang-Vong Island (Rozhnov et al., 1993). In 1989-90, 43 one-kilometre sections of river were surveyed in the Thainguen Plateau, and 331 spraints collected (Kuznetsov et al., 1996). Anh et al. (1995) report the species range is restricted to north of the 17th Parallel, and live in both marine and freshwater habitats. The species remain unprotected in the country, where they are killed for both food and their pelts.

## SUMMARY

With the inevitable changes in political boundaries which take place from time to time, for example the break up of the former USSR, it is very difficult to make realistic comparisons in otter populations over long periods of time for an area as large as Asia. We have collected information for 32 'countries' in this review attempting as far as possible to recognise current 'states' while taking account of the fact that some historical records may correspond to different political circumstances.

Of these 32 we have no recent factual information for four: Iraq, Syria, Lebanon, and North Korea, although previous authors have assumed that otters are present in Syria and Lebanon, as they occur in neighbouring countries. Otters are believed to be extinct in Laos and Malaya. Of the remaining 26 countries there are implications of declines in otter populations (use of words such threatened, endangered, rare, declining; presence of otters in red data books) for 17 with a further seven where otters are known to be present but their status is unknown.

In Sri Lanka the otter may be widespread and 'moderately plentiful' or have been 'squeezed out of much of its former range'. In Thailand, where Eurasian otters were considered to be extinct by Foster-Turley and Santiapillai (1990), they are apparently now present in mountainous parts of the country and the south and abundant in one province in the west. This seems likely to reflect a lack of sound data for the earlier authors rather than a real increase in the population.

Otters are afforded some protection in twelve countries and none in a further three, while we have no information for the remainder. However the effectiveness of this protection may be questioned since there continue to be reports of otters being persecuted in some countries where they are theoretically protected: Turkey, China and India. There are also reports of persecution in a further three countries where the level of protection is unknown (Afghanistan, Mongolia, Nepal) and in Vietnam, where they are not protected.

Systematic surveys have been carried out in very few countries and only in Israel and Vietnam have standardised repeatable surveys been carried out on a basis comparable with those in Europe.

Overall, the most significant feature of this review is the lack of information on the status and distribution of otters in Asia. At a time when the situation in Europe is becoming increasingly well known it seems appropriate to press for further work on the otter in the eastern part of its range. The standardised survey methods used in Europe depend on searching large numbers of sites but relatively short stretches of waterway at each one. These may be appropriate in countries with relatively high human densities and consequently numerous metalled roads but quite inappropriate in countries where access to waterways by road is only possible at infrequent intervals. One might suggest therefore that the IUCN Species Survival Commission should investigate alternative methods of surveying otters in such countries with a view to providing a standard repeatable method which could not only be used to assess the current status of otters but to provide a baseline against which to monitor future changes.

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## REFERENCES

- Acharjo, L.N. (1983).** A note on the longevity of two species of Indian otters in captivity. *J. Bombay Nat. Hist. Soc.* **8**: 636.
- Acharya, P.M., Gurung, J.B. (1994).** A report on the status of the common otter (*Lutra lutra*) in Rupa and Bengas Tal, Pokhara Valley. *Tigerpaper* **21**: 21-22.
- Akoi, A. (1995).** Decline of the Japanese otter and its conservation in Kochi Prefecture. *Proc. Korea-Japan Otter Symp.* pp. 20-21.
- Ando, M. (1995).** Deterioration of otter habitats in Korea during past ten years: comparison with Japan's case. *Proc. Korea-Japan Otter Symp.* pp. 32-33.
- Anh, P.T., Dang, N.X., Santiapillai, C. (1995).** Conservation of otters in Vietnam. In: **Reuther, C., Rowe-Rowe, D.** (eds.) *Proc. VIth. Intern. Otter Coll. Habitat* **11**: 59-62.
- Anonymous (1977).** Rare and endangered mammals and birds of Kazakhstan. Alma-Ata, Nauka, 80-83. [In Russian].
- Anonymous (1983).** Red Data Book of Uzbekistan SSR. Volume 1. pp. 23-24. Tashkent. [In Russian].

- Asmoro, P.B., Kusumawardhani, L. (1995).** Otter conservation in Indonesia. *Proc. Korea-Japan Otter Symp.* pp 52-53.
- Bergmans, W. (1995).** On mammals from the People's Democratic Republic of Laos, mainly from Sekong Province and Hongsa Special Zone. *Z. Säugetierkunde* **60**: 286-306.
- Borisov, B.P. (1996).** The otter (*Lutra lutra* L.). In: **Lomanov, I.K.** (ed.) Resources of major species of hunting animals and hunting lands of Russia (1991-1995) pp. 141-145. Izdvo TsNIL Okhotdepartamenta Minsel'khozproda, Moscow. [In Russian].
- Bytchkov, V.A., Chachin, G.V. (1994).** The present condition of the river otter in Russia and problems of its conservation. In: Seminar on the Conservation of the European otter (*Lutra lutra*), Leeuwarden, the Netherlands, 7-11 June 1994. pp. 95-97. Council of Europe, Strasbourg.
- Chaudry, I.U. (1991).** Otters in Pakistan. In: **Reuther, C., Röchert, R.** (eds.) Proc. Vth. Intern. Otter Coll. Habitat **6**, 71-72.
- Chitampalli, M.B. (1979).** Miscellaneous notes. 1. On the occurrence of the common otter in Maharashtra (Itiadh Lake-Bhandara District) with some notes on its habits. *J. Bombay Nat. Hist. Soc.* **76**: 151-152.
- Conroy, J.H.W., Chanin, P.R.F. in press.** The distribution and status of the Eurasian Otter (*Lutra lutra*) - a Review. *Mammal Rev.*
- Corbet, G.H. (1966).** The Terrestrial Mammals of Western Europe. Foulis, London.
- Corbet, G.H., Hill, J.E. (1992).** The mammals of the Indomalayan Region. A systematic review. Oxford University Press, Oxford.
- Desai, J.H. (1974).** Observation on the breeding habits of the Indian smooth-otter *Lutra perspicillata* in captivity. *Int. Zoo. Yearbook* **14**: 123-124.
- de Silva, P.K. (1991) a.** A survey on the distribution of the otter (*Lutra lutra*) in some selected areas of Sri Lanka. In: **Reuther, C., Röchert, R.** (eds.) Proc. Vth. Intern. Otter Coll. Habitat **6**: 75-78.
- de Silva, P.K. (1991) b.** Distribution of the otter *Lutra lutra* in the Highlands of Sri Lanka. *IUCN Otter Spec. Group Bull.* **6**: 2-5.
- de Silva, P.K. (1995) a.** The status of otters in Asia and south east Asia. In: **Reuther, C., Rowe-Rowe, D.** (eds.) Proc. VIth. Intern. Otter Coll. Habitat **11**: 33-35.
- de Silva, P.K. (1995) b.** Man's interference with otter habitats in Sri Lanka. . In: **Reuther, C., Rowe-Rowe, D.** (eds.) Proc. VIth. Intern. Otter Coll. Habitat **11**: 56-58.
- Eroglu, M. (1994).** The status and habitat destruction of the otter (*Lutra lutra* L.) in the eastern Black Sea region of Turkey. In: Seminar on the Conservation of the European otter (*Lutra lutra*), Leeuwarden, the Netherlands, 7-11 June 1994 .Pp. 81-83. Council of Europe, Strasbourg.
- Flower, S.S. (1900).** On the mammalia of Siam and the Malay Peninsula. *Proc. Zool. Soc.* 3 April 1900, 306-379.
- Foster-Turley, P., Santiapillai, C. (1990).** Action plan for Asian otters. In: **Foster-Turley, P., Macdonald, S.M., Mason, C.F.** (eds.) Otters: an Action Plan for their Conservation. pp. 52-63. IUCN, Gland, Switzerland
- Gutleb, B., Rautschka, R., Gutleb, A.C. (1996).** Some comments on the otter (*Lutra lutra*) in Iran. *IUCN Otter Spec. Group Bull.*, **13**: 43-44.
- Hassinger, J.D. (1973).** A survey of mammals of Afghanistan resulting from the 1965 Street Expedition (excluding bats). *Fieldiana Zool.* **60**: 1-195.
- Hatt, R.T. (1959).** The Mammals of Iraq. Misc. Publ. Mus. Zool. Michigan (Publication No. 106). 113 pp.
- Hinton, A.C.M., Fry, T.B. (1923).** BNHS's mammal survey of India, Burma and Ceylon. *J. Bombay Nat. Hist. Soc.* **29**:, 415-428.
- Hussain, S.A. in press.** Conservation status of otters in the Tarai and lower Himalayas of Uttar Pradesh, India. In: **Dulfer, R., Gutleb, A.C., Nel. J.A.J.** (eds.) Proc. VIIth Int. Otter Coll. Trebon, Czech Republic, 13-19 March 1998.
- Hussain, S.A. (1993).** Aspects of ecology of smooth-coated otter (*Lutra perspicillata*) in National Chambal Sanctuary) PhD Thesis.
- Hussain, S.A., Choudhury, B.C. (1997).** Status and distribution of smooth-coated otter *Lutra perspicillata* in National Chambal Sanctuary. *Biol. Cons.* **80**: 199-206.

- Ishunin, G.I. (1977).** Distribution and numbers of the Persian otter. Rare and endangered mammals and birds of the Kazakhstan, Alma Ata. [In Russian].
- Kranz, A., Knollseisen, M., Gutleb, A., Elmeros, M., Leonards, P.E.G., Toman, A. (1995).** Aspects of the ecology of otters (*Lutra lutra*) in the Zabaikalsky National Park, Siberia. *Lutrolo* **6**: 9-12.
- Kruuk, H., Kanchanasaka, B., O'Sullivan, S., Wanghonga, S. (1993).** Niche separation in three sympatric species of otter, *Lutra lutra*, *L. perspicillata* and *Aonyx cinerea*, in Huai Kha Khaeng, Thailand. *Biol. Conserv.* **69**: 115-120.
- Kruuk, H., Kanchanasaka, B., O'Sullivan, S., Wanghonga, S. (1994).** Identification of tracks and other signs of three species of otter, *Lutra lutra*, *L. perspicillata* and *Aonyx cinerea*, in Thailand. *Nat. Hist. Siam Soc.* **41**: 23-30.
- Kusumawardhani, L., Melisch, R., Asmoro, P.B. (1994).** Suatu telaah mengenai upaya perlindungan jenis berang-berang di Indonesia. [A review of otter species conservation in Indonesia.] Prosiding Simposium Pertama mengenai Berang-Berang di Indonesia. Peranan Berang-berang bagi Manusia. Bogor, 7 April 1994. PHPA/AWB-Indonesia, Bogor. [In Indonesian with English summary].
- Kuznetsov, G.V., Baranauskas, K., Pham Trong Anh, Mickevičius, E. (1996).** Some data on Eurasian otter (*Lutra lutra barang*) in Vietnam. *Ekologija (Vilnius)* **4**: 33-36.
- Lekagul, B., Mcnelly, J.A. (1977).** Mammals of Thailand. Association for the Conservation of Wildlife, Bangkok.
- Macdonald, S.M., Mason, C.F., Shalmon, B. (1986).** A survey of otters in Israel. *Oryx*, **20**: 233-236.
- Marochkina, V.V. (1995).** Materials on carnivorous mammals of Eastern Turkmenistan. *Lutrolo* **5**: 20-23.
- Mason, C.F., Macdonald, S.M. (1986).** Otters: Ecology and Conservation. Cambridge University Press, Cambridge.
- Medway, Lord (1978).** The Wild Animals of Malaya (Peninsular Malaysia) and Singapore. Oxford University Press, Kuala Lumpur.
- Melisch, R., Rietschel, G. (1996).** The Eurasian otter *Lutra lutra* in Afghanistan. *Bonn. Zool. Beitr.* **46**: 367-375.
- Melisch, R., Asmoro, P.B., Kusumawrdhani, L. (1994).** Pengenalan berang-berang di Indonesia khususnya yang terdapat di Jawa Barat. (Otters in Indonesia with special reference to West Java.) Prosiding simposium Pertama mengenai Berang-Berang di Indonesia. Peranan Berang-berang bagi Manusia. Bogor, 7 April 1994. pp. 1-18. PHPA/AWB-Indonesia, Bogor. [In Indonesian with English summary].
- Melisch, R., Kusumawardhani, L., Asmoro, P.B., Lubis, I.R. (1996).** The Otters of West Java - a survey of their distribution and habitat use and a strategy towards a species conservation programme. PHPA/Wetlands International-Indonesia Programme, Bogor.
- Melisch, R., Young, L., Sadovy, Y. (1998).** Eurasian otter (*Lutra lutra*) still present in Hong Kong. *IUCN Otter Spec. Group. Bull.* **15**: 44-46.
- Miller, G.S. (1900).** Mammals collected by Dr. W.L. Abbott on Pulo Lankawi and Butang islands. *Proc. Biol. Soc., Washington* **13**: 187-193.
- Nagulu, V., Vasudeva, Rao, V., Srinivasulu, C., Ramana Rao, J.V. (1997).** A preliminary survey of otters on the Malabar coast and the adjoining hill reservoir and streams. *IUCN Otter Spec. Group Bull.* **14**: 30-34.
- Nauroz, M.K. (1974).** Raubtiere (Mammalia - Carnivora) Afghanistans. Thesis. University of Bonn, Bonn. [In German].
- Niethammer, J. (1983).** Die Säugetierfauna Afghanistans. *Mitt. Dtsch. Orient Inst.* **22**: 211-228. [In German].
- Osgood, W.H. (1932).** Mammals of the Kelley-Roosevelts and Delacour Asiatic expeditions. *Field Mus. Nat. Hist. Zool.* **18**: 262. (Publication No. 312).
- Payne, J., Francis, C.M., Phillipps, K. (1985).** A Field Guide to the Mammals of Borneo. The Sabah Society and WWF Malaysia, Kota Kinabalu and Kuala Lumpur.
- Pereladova, O., Krever, V., Williams, M. (1997).** Biodiversity conservation in Central Asia - analysis of modern situation and project portfolio. WWF Russian Programme Office, Almata, Ashgabad, Bishkek, Dushanbe, Tashkent and Moscow.
- Phillips, W.W.A. (1984).** Manual of the Mammals of Sri Lanka (Part III). Wildlife and Nature Protection

Society of Sri Lanka.

- Pierce, G.J., Harding, M., Spray, C.J., Vitale, A., Stuart, E., Conacher, A., Readman, F., Galbraith, C., Robinson, I. (1990).** Otters of Lake Songkla, southern Thailand. *Otters, J. Otter Trust.* **2** (4): 25-32.
- Pocock, R.I. (1939).** Notes on some British Indian otters, with description of two new subspecies. *J. Bombay Nat. Hist. Soc.* **41**: 514-518.
- Pocock, R.I. (1949).** The fauna of British India, including Ceylon and Burma. Volume 2, Mammals. Taylor & Francis, London **2**, 265-317.
- Prater, S.H. (1980).** The Book of Indian Animals. Bombay Natural History Society, Bombay.
- Rahman, H.K. (1996).** Bangladesh protected areas: wildlife. *Tigerpaper* **23**: 9-13.
- Rahman, S. (1995).** Wildlife in Bangladesh: a diminishing resource. *Tigerpaper* **22**: 7-14.
- Reuther, C. (1980).** Zur Situation des Fischotters in Europa. In: **Reuther, C., A. Festetics** (eds.) *Der Fischotter in Europa. Verbreitung, Bedrohung, Erhaltung.* pp. 71-92, Oderhaus Göttingen, Selbstverlag. [In German].
- Roberts, T.J. (1977).** The Mammals of Pakistan. E. Benn, London and Tonbridge.
- Romanowski, J. (1991).** Otters in Eastern Red Data Books. *IUCN Otter Spec. Group Bull.* **6**: 11-13.
- Rozhnov, V.V., Kuznetsov, G.V., PhAm Trong Anh (1993).** New data on the distribution of small carnivores in Vietnam. *Lutreola*, **2**: 14-15.
- Rozhnov, V., Tumanov, I.L. (1994).** The status of the river otter in Russia. In: Seminar on the Conservation of the European otter (*Lutra lutra*), Leeuwarden, the Netherlands, 7-11 June 1994. pp. 91-94. Council of Europe, Strasbourg.
- Salter, R.E. (1983).** Summary of currently available information on internationally threatened Wildlife Species in Burma. FAO, Rangoon.
- Sanyal, P. (1988).** Status of otters in West Bengal, *IUCN Asian Otter Spec. Group Newsletter*, **1**: 17.
- Sasaki, H. (1995)** History of river otters in Japan. *Proc. Korea-Japan Otter Symp.* pp. 16-17.
- Sasaki, H., Ando, M., Young, H.S., Yoon, M.B., Won, S.S. (1998).** Ecological study of the Eurasian river otter in Korea. Presentation at the Seventh International Otter Colloquium (IUCN/SSC Otter Specialist Group), March 14-19, 1998, Trebon, Czech Republic.
- Shalmon, B. (1992).** Status of otters in Israel. *IUCN Otter Spec. Group Bull.* **7**: 42.
- Sheng, H. (1992).** The mammalian resources and management in China. In: **Bobek, B., Perzanowski, K., Regelin, W.** (eds.) *Global Trends in Wildlife Management.* pp. 427-431. [Trans. 18th IUGB Congr. Krakow 1987] Swiat Press, Krakow-Warszawa.
- Sivasothi, N., Nor, B.H.M. (1994).** A review of otters (Carnivora: Mustelidae: Lutrinae) in Malaysia and Singapore. *Hydrobiologia* **285**:, 151-170.
- Smit, C.J., van Wijngaarden, A. (1967).** Threatened Mammals in Europe. Council of Europe, Strasbourg.
- Stubbe, M., Chotolcht, N., Dawaa, N. (1989).** Der Fischotter (*Lutra lutra*) in der Mongolischen Volksrepublik. *Populationsökologie marderartiger Säugetiere.* **1**, 71-76. [In German].
- Suzuki, T., Yuasa, H., Machida, Y. (1996).** Phylogenetic position of the Japanese river otter *Lutra nippon* inferred from the nucleotide sequence of 224 bp of the mitochondrial cytochrome *b* gene. *Zool. Sci.* **13**: 621-626.
- Tajbakhsh, H. (1995).** Hunting in Iran - from the beginning until today. The Museum of Natural Traditions and Wildlife of Iran, Tehrhan, Iran. [In Farsi with English summary].
- Tate, G.H.H. (1947).** Mammals of Eastern Asia. MacMillan, New York.
- Thesiger, W. (1964).** *The Marsh Arabs.* Longmans, London.
- Tieyi, X. (1992).** Protected wild mammals in the Three Gorges area, China. *Tigerpaper* **19**: 18-20.
- Turan, N. (1984).** The Hunting and Wild Animals of Turkey; Mammals. pp. 100-101. Ongun Kardesler matbaacilik Sanayii, Ankra.
- von Müffling, S. (1977).** Fischotter in Europa. Loizenkirchen. [In German].
- Wayre, P. (1978).** Status of otters in Malaysia, Sri Lanka and Italy. In **Duplaix, N.** loc.cit., pp. 152-155.
- Xu, L. et al. (1983).** The birds and mammals of Hainan Island. Science Press, Beijing.
- Zholnerovskaya, E.I., Shvetsov, Y.G., Kalabin, S.L., Lopatina, N.V. (1994).** Catalogue of collections of

the Zoological Museum of the Biological Institute, Siberian Branch, USSR Academy of Sciences. Mammals: To the consisting of the state cataster of the animal wildlife. Novosibirsk: Nauka Publ., Siberian Branch 1989. [In *Lutreola* **4**: 23-32].

**Ziaie, H., Gutleb, B. (1997).** New comments on otters in Iran. *IUCN Otter Spec. Group Bull.*, **14**:, 91-92.

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## ARTICLE

### OTTER RECORDS AND OTTER CONSERVATION PERSPECTIVES IN ANDHRA PRADESH, INDIA

NAGULU Vangala, VASUDEVA RAO Vaidyula, SATYANARAYANA Deeti,  
and SRINIVASULU Chelmalala

*Wildlife Biology Section, Department of Zoology, Osmania University, Hyderabad - 500 007, India*

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#### ABSTRACT

The distribution and status of smooth-coated otter (*Lutra perspicillata*) in Andhra Pradesh, India was assessed. A total of 74 sites in mangrove and estuarine habitats, riverine habitats, and along tanks and reservoirs were surveyed for the presence of otters. Thirty-five (47.3%) sites were otter positive, of which maximum sites were along tanks and in riverine habitats. Broad based conservation measures are proposed for long term sustenance of smooth coated-otters in the state.

keywords: otter, *Lutra perspicillata*, status, India

#### INTRODUCTION

The smooth-coated otter (*Lutra perspicillata*) is one of the most endangered and threatened mammals of India (Tikader, 1983) and faces a great threat due to ever increasing human disturbance in preferred habitats. The smooth-coated otter is distributed throughout India from Himalayas southwards and has been reported from the states of Karnataka, Kerala, Andhra Pradesh, Madhya Pradesh, Maharashtra, Gujarat, Punjab, Himachal Pradesh, Uttar Pradesh, Bihar, West Bengal and Mizoram (Prater, 1971; Hussain and Choudhary, 1988; Hussain, 1993; Foster-Turley and Santiapillai, 1990). It is seen to inhabit large rivers and their associated tributaries, estuaries and coastal mangrove swamps, and requires undisturbed forest or scrub adjacent to the water (Mason, 1990).

Hussain (1993) reported the lack of information on the status of otter populations in India. According to Foster-Turley and Santiapillai (1990), all three species of otter present in India are more or less restricted to National Parks and Wildlife Sanctuaries and are threatened in many areas due to reduction in their prey biomass, poaching and habitat degradation. Little information exists on otter populations outside protected areas in India, and with this in mind a study was carried out to assess the distribution of smooth-coated otters in both protected and unprotected areas in Andhra Pradesh, India.

#### STUDY AREA AND METHODS

To ascertain the present status and distribution of smooth-coated otter in Andhra Pradesh, India, a survey was conducted covering coastal areas, wetlands, riverine habitats, perennial and non-perennial water tanks and other potential otter habitats. Surveys were conducted in selected tracts of the state after considering the distribution trends of the otter in the past. Otter presence or absence was recorded through direct and indirect evidence. During the surveys, care was taken to ascertain that all the study sites were of comparable size. In each habitat, group structure composition and habitat conditions were recorded. The relative status of otter populations at positive sites was estimated by a combination of visual records and indirect evidence. Depending on the relative density of the estimated otter population and occurrence of positive otter signs, the status of otter populations at these sites were categorised as abundant, normal or sparse. Interviews with local people and fishermen were also conducted to evaluate the distribution of the species.

#### RESULTS AND DISCUSSION

In Andhra Pradesh, the smooth-coated otter has a more or less patchy distribution, with the strongest population in the mangrove and estuarine habitat of East Godavari District within the limits and adjacent areas

of Coringa Wildlife Sanctuary; followed by Kolleru Lake in Krishna District and Mantralayam in Kurnool District (Fig. 1).



Figure 1: Study area Andhra Pradesh, India

Of the 23 districts in the state, 10 had positive signs of otters, recorded at 35 sites (Table 1). All the other sites surveyed (n=39, 52.7%) remained negative with no evidence of otter occurrence. Regarding habitat, signs were registered most frequently around water tanks (14.9%), followed by riverine habitats (13.5%), mangrove and estuarine habitats (9.4%), reservoirs (6.8%) and estuaries (2.7%) (Table 2).

Table 1: Status of the smooth-coated otter (*Lutra perspicillata*) in Andhra Pradesh, India

| S. No | District      | Site              | Habitat | No. of Groups | Group Size | Total Population | Status   |
|-------|---------------|-------------------|---------|---------------|------------|------------------|----------|
| 1     | East Godavari | Thallarevu        | M & E   | 8             | 3 - 7      | >125             | Abundant |
|       |               | Plantation        | M & E   | 15            | 2 - 8      | >135             | Abundant |
|       |               | Metlapalem        | M & E   | 11            | 3 - 12     | >150             | Abundant |
|       |               | Sarihaddu Kaluva  | M & E   | 14            | 2 - 10     | >200             | Abundant |
|       |               | Dindodivari Canal | M & E   | 13            | 2 - 12     | >250             | Abundant |
|       |               | Kandikuppam       | M & E   | 22            | 4 - 16     | >450             | Abundant |
|       |               | Biccavole         | T       | 3             | 2 - 4      | >20              | Sparse   |
|       |               | Ravulapalem       | RB      | 4             | 3 - 12     | >45              | Sparse   |
|       |               | Narsapuram        | T       | 8             | 2 - 8      | >60              | Normal   |
| 2     | West Godavari | Adavi Kalanu      | T       | 3             | 2 - 4      | >20              | Sparse   |
| 3     | Krishna       | Intheru           | E       | 8 - 10        | 2 - 9      | >70              | Normal   |
|       |               | Kolleru           | T       | 10 - 20       | 2 - 6      | >150             | Abundant |
|       |               | Kona              | E       | 5 - 10        | 4 - 8      | >100             | Normal   |
| 4     | Guntur        | Nizampatnam       | M & E   | 10 - 15       | 5 - 10     | >100             | Normal   |
|       |               | Amaravathi        | RB      | 5 - 10        | 3 - 5      | >50              | Normal   |
| 5     | Kurnool       | Manthralayam      | RB      | 10 - 12       | 5 - 8      | >150             | Abundant |
| 6     | Adilabad      | Kadam             | R       | 10            | 5 - 10     | >90              | Normal   |
|       |               | Bajpeta           | RB      | 4 - 6         | 3 - 10     | >50              | Sparse   |
|       |               | Tulasipeta        | RB      | 4 - 6         | 3 - 10     | >50              | Sparse   |
|       |               | Adalithimmapuram  | RB      | 4 - 7         | 3 - 15     | >70              | Normal   |
|       |               | Lanja Madugu      | RB      | 4             | 4 - 6      | >60              | Normal   |
|       |               | Chennur           | RB      | 5             | 3 - 6      | >40              | Sparse   |
| 7     | Karimnagar    | Upper Manair      | R       | 7             | 5 - 8      | >40              | Sparse   |
|       |               | Lower Manair      | R       | 5             | 4 - 6      | >30              | Sparse   |
|       |               | Shanigaram        | T       | 3             | 3 - 6      | >20              | Sparse   |



|    |          |              |    |   |        |     |        |
|----|----------|--------------|----|---|--------|-----|--------|
|    |          | Dharmapuri   | T  | 3 | 3 - 6  | >20 | Sparse |
|    |          | Gaderu       | T  | 5 | 2 - 4  | >15 | Sparse |
|    |          | Madevapur    | RB | 4 | 2 - 6  | >15 | Sparse |
| 8  | Khammam  | Kinnerasani  | RB | 5 | 6 - 10 | >15 | Sparse |
| 9  | Warangal | Rammapa      | T  | 5 | 2 - 8  | >50 | Normal |
|    |          | Lakhnnavaram | T  | 7 | 4 - 10 | >60 | Normal |
|    |          | Pakhal       | T  | 5 | 2 - 8  | >50 | Normal |
|    |          | Eturnagaram  | T  | 8 | 6 - 10 | >80 | Normal |
| 10 | Medak    | Manjira      | R  | 5 | 5 - 12 | >70 | Normal |
|    |          | Singoor      | R  | 5 | 2 - 8  | >50 | Sparse |

**Key :** M & E - Mangrove and Estuarine Habitat, T - Tank, RB - River Bank, E - Estuarine Habitat, R - Reservoir

**Table 2:** Comparison of otter positive and negative sites in different habitats (n = 74 sites)

| S.No. | Habitat Type                   | No. of Positive sites | %*   | No. of Negative Sites | %*   | Total % of Positive Sites |
|-------|--------------------------------|-----------------------|------|-----------------------|------|---------------------------|
| 1     | <b>Mangroves and Estuaries</b> | 7                     | 63.6 | 4                     | 36.3 | 9.4                       |
| 2     | <b>Tanks</b>                   | 11                    | 57.8 | 8                     | 42.1 | 14.9                      |
| 3     | <b>River Banks</b>             | 10                    | 42.1 | 4                     | 58.3 | 3.5                       |
| 4     | <b>Estuarine</b>               | 2                     | 33.3 | 4                     | 66.6 | 2.7                       |
| 5     | <b>Reservoirs</b>              | 5                     | 35.7 | 9                     | 64.2 | 6.7                       |

\* the percent value within each habitat

The number of groups sighted varied between 3 and 22. Groups varied between 2 and 16 individuals at the study sites, with total estimated populations ranging between 15 -450 animals. Regarding population status, 8 (22.9%) sites showed abundant distribution, 13 (37.1%) sites showed normal distribution, and 14 (40.0%) sites showed sparse distribution of otters.

The smooth-coated otter is abundantly distributed along the mangrove and estuarine habitats of East Godavari district with healthy population recorded from 6 sites. This can probably be attributed to increased prey availability during the tidal influxes. Similar observations elsewhere in the world (Foster-Turley, 1992; Chakraborti, 1993) point out that prey availability is the main requirement for good populations in these types of habitats. Similar habitat is to be found in Nizampatanam, in Guntur District. Here, a rather large population of about 100 otters was also recorded (Prasad, 1992).

At estuarine habitats, where mangrove vegetation was sparse as a result of large scale clearance for development of aquaculture farms, such as Intheru, Pedapatnam and Kona in Krishna District, the otters were considered as normally distributed.

In the case of riverine habitats, distribution was abundant, with about 150 otters, only at Mantralayam, in the Kurnool district, downstream of the river Tungabhadra. At other sites (along the rivers Godavari and Krishna) populations ranged from normal to sparse. It was noted that the frequency of sightings of otters at these sites was higher with respect to their population density. This can be attributed to the availability of preferred prey along the river course and the adjacent paddy fields, as recorded at Ravulapalem in East Godavari District.

The population status of the smooth-coated otter at water tanks and reservoirs was maximal at Kolluru Wetland, whilst the status varied at other sites in Warangal, Medak and Adilabad districts. Most of these water tanks are perennial and are connected to major rivers, or their tributaries, and are utilised by the State Fisheries Department for piscicultural activities. Availability of food and escape routes, in the form of numerous canals originating from these tanks and reservoirs make them good potential otter habitats. At Pakhal Tank, though otters were seen, sightings were sporadic when compared to the sightings in the canal system associated with the tank.

Habitat suitability, as well as human disturbance factors, cannot be over looked as factors affecting the utilisation patterns of these water tanks and their associated canals. Otters have been reported as completely missing from areas where a good population previously existed. This is mainly attributed to the increase in pollution levels and acidity in the waters of these regions. Mason and Macdonald (1989) described a direct

correlation between water pH levels and otter usage and indicated that the Eurasian otter (*Lutra lutra*) avoided waters with low pH.

However, it is important to note that smooth-coated otters have tolerated a little alteration in their habitats (in the form of aquaculture and pisciculture farms) as shown by the populations existing at the mangrove and estuarine habitats in Andhra Pradesh, where they remain in high numbers compared to other habitats. This is mainly due to the availability of alternative food in the surrounding areas and the relative safety due to inaccessibility of habitat. Studies conducted by Macdonald and Mason (1983) and Chehébar et al. (1986) indicate that the otters have disappeared from areas where no suitable habitat remains, and when habitat destruction goes on the otters are compelled to make use of small reservoirs and canals with less disturbance, ample food and good vegetation cover, as found in the cases discussed by Macdonald et al. (1986) and Melquist (1984).

## CONSERVATION PERSPECTIVE

Based on the survey, the following conservation measures will enhance the survivability of otters, both within and outside various protected areas in Andhra Pradesh:

- a) Control of habitat destruction by means of checking deforestation, promoting afforestation at highly degraded otter habitats and checking the removal of fallen trees near potential otter sites as these can serve as hiding sites;
- b) Checking overexploitation of resources by man, biotic interference and excessive piscicultural and aquacultural practices;
- c) Improvement of natural prey biomass in potential otter areas by implementing stringent management strategies;
- d) Control of poaching activities in potential otter sites by employing an additional task force;
- e) Creating awareness among the locals about the importance of otters as apex carnivores in the aquatic ecosystem through eco-development programmes in otter habitats.

In the aquatic ecosystem where it abounds, the otter represents an apex animal of the ecological pyramid. There is increasing realisation that small mammal conservation has taken a back seat to general conservation measures that emphasise large predator mammals. Keeping in view the Fishery/Wildlife and Wildlife/Man interface, such status surveys should be regularly taken up. The information reported herein should serve as base-line data for the future management and conservation needs of this endangered species.

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## REFERENCES

- Chakraborti, K. (1993).** An ecological review of otter in the Mangrove ecosystem of Sunderbans. *Tigerpaper* **20** (1): 19-21.
- Chehébar, C.E., Gallur, A., Giannico, G., Gottelli, M.D., Yorio, P. (1986).** A survey of the southern river otter *Lutra provocax* in Lanin, Puelo and Los Alerces National Parks, Argentina, and evaluation of its conservation status. *Biol. Conserv.* **38**: 293-304.
- Foster-Turley, P. (1992).** The conservation aspects of the ecology of Asian small clawed and smooth-coated otters on the Malay Peninsula. *IUCN Otter Spec. Group Bull.* **7**: 26-29.
- Foster-Turley, P., Santiapillai, C. (1990).** Action plan for Asian Otters. In: **Foster-Turley, P., Macdonald, S.M., Mason, C.F.** (eds.) Otters : An action plan for their conservation. IUCN/SSC OSG, IUCN Gland Switzerland. pp. 52-63.
- Hussain, S.A. (1993).** Aspects of ecology of smooth-coated Indian otter, *Lutra perspicillata*, in National

Chambal Sanctuary. Ph. D. Thesis. Aligarh Muslim University, Aligarh, India.

**Hussain, S.A., Choudhary, B.C. (1988).** A preliminary survey of the status and distribution of the smooth-coated otter, *Lutra perspicillata*, in the National Chambal Sanctuary. *Proc. I. Int. Seminar Asian Otters*. October, 1988, Bangalore, India.

**Macdonald, S. M., Mason, C. (1983).** Some factors influencing the distribution of otters (*Lutra lutra*). *Mamm. Rev.* **13**: 1-10.

**Macdonald, S. M., Mason, C. F., Shalmon, B. (1986).** A survey for otters in Israel. *Oryx* **20**: 233-236.

**Mason, C. (1990).** An introduction to Otters. In: **Foster-Turley, P., Macdonald, S.M., Mason, C.F.** (eds.) *Otters: An action plan for their conservation*. IUCN/SSC OSG, IUCN Gland Switzerland. pp. 4-7.

**Mason, C.F., Macdonald, S.M. (1989).** Acidification and Otter (*Lutra lutra*) distribution in Scotland. *Water, Air Soil Pollut.* **43**: 365-374.

**Melquist, W.E. (1984).** Status of otters (Lutrinae) and spotted cats (Felidae) in Latin America. Report to IUCN. College of Forestry, Wildlife, and Range Sciences, University of Idaho. 267 pp.

**Prasad, N.S. (1992).** An ecological reconnaissance of mangroves in Krishna Estuary: Plea for conservation. In: **Singh, K. P., Singh, J. S.** (eds.) *Tropical Ecosystems: Ecology and Management*. pp. 215-227.

**Prater, S.H. (1971).** *The Book of Indian Animals*. 3rd edition. B. N. H. S., Bombay, India.

**Tikader, B. (1983).** *Threatened Animals of India*. Zoological Society of India, Calcutta.

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## ARTICLE

### THE SMOOTH-COATED OTTER *LUTROGALE PERSPICILLATA* IN VIETNAM

J. W. DUCKWORTH<sup>1\*</sup> and LE XUAN CANH<sup>2</sup>

<sup>1</sup>WWF Indochina Programme, International PO Box 151, Hanoi, Vietnam;

<sup>2</sup>Institute of Ecology and Biological Resources, Nghia Do, Tu Liem, Hanoi, Vietnam

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#### ABSTRACT

The smooth-coated otter (*Lutrogale perspicillata*) has been recorded in Dak Lak, a Vietnamese province and the status of otter species in Vietnam is discussed.

Keywords: otter, *Lutrogale perspicillata*, status, Vietnam

#### INTRODUCTION

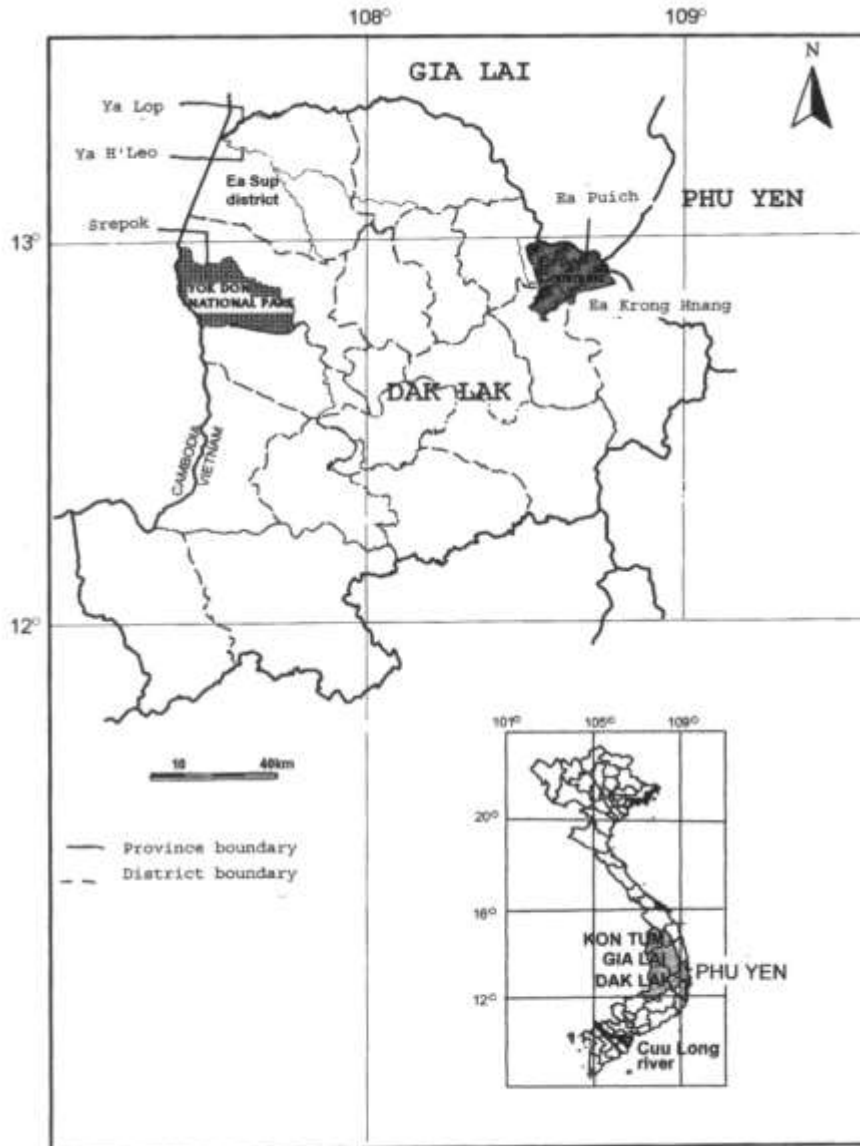
The smooth-coated Otter (*Lutrogale perspicillata*) occurs through most of tropical Asia (Foster-Turley and Santiapillai, 1990, Corbet and Hill, 1992). It was categorised by IUCN (1996) as Globally Threatened: Vulnerable. It has been regarded as very rare in Vietnam and Pham Trong Anh et al. (1994) even speculated that it might already be extinct. However, in general the status of all otter species in Vietnam is very poorly known (Foster-Turley and Santiapillai, 1990). This note documents two recent sightings at one locality in the south of the country and puts them in the context of previous records.

#### STUDY AREA AND METHODS

Three months were spent in Dak Lak Province during April - July 1997 surveying for mammals, primarily large ungulates, Asian Elephant *Elephas maximus* and large carnivores (Le Xuan Canh et al., 1997). Three areas were visited (Fig. 1): Ea So, an isolated area of grassland and deciduous woodland in the north-east of the province; Yok Don National Park; and Ea Sup District (north of Yok Don). Dak Lak Province lies on the Tay Nguyen Plateau, the only part of Vietnam with extensive areas of lowland open deciduous forest. The three survey areas probably hold the best large areas of such habitat remaining in the province. Substantial lengths (over 15 km) of little-degraded streamside forest exist along both banks of three main rivers in the west, the Srepok, Ya H'leo and Ya Lop; all flow within the Mekong catchment. The major rivers in Ea So, the Ea Krong Hnang and Ea Puich, have shorter and more degraded lengths of forest and drain east across Vietnam to the coast in Phu Yen Province. In a South-east Asian regional context, this, lowland riverine forest, is the most threatened habitat in the area.

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\* address for correspondence: East Redham Farm, Pilning, Bristol BS35 4JG, UK



**Figure 1:** Dak Lak Province showing localities mentioned in the text; insert shows location of named provinces in Vietnam.

Approximately 250 sq. km of Ea So ( $12^{\circ}49'-13^{\circ}01'N$ ,  $108^{\circ}31'-108^{\circ}44'$ ) are remote enough from villages to be potential habitat of the target species. The area is currently afforded no protected status, although as a result of the survey, a proposal for protection has received at least provincial-level support. Much of the area (in total  $104 \text{ km}^2$ ) is open grassland supporting bushes at varying densities, with some extensive areas covered with barely penetrable tangles. Along the many small streams a riverine association resembling an intergrade between evergreen and mixed deciduous forest occurs. North of the Ea Puich, forest cover is much more extensive although large grassy glades are present even here.

The Ea Krong Hnang runs around much of the area. In the east it is a wide river and maps indicate several stretches of braiding with associated rapids and perhaps sandbars. Many small streams cross the area but the Ea Puich seems to be the only one flowing year round and possessing well developed riverine forest. In most places it is less than 12 m across. There are many rapids and at least one major waterfall; in the season of low-flow much bare rock is exposed in the channel. Permanent natural waterholes seem relatively few but many artificial ponds have been constructed by a group of soldiers stationed in the area.

Fieldwork took place in Ea So over 8 April - 8 May 1997, during which period only a few days were spent around the Ea Puich. A wide range of methods was used to maximise possibilities of detecting the target mammal species: direct observation by day and night, sign searches and interviews. However, the focus on the target species meant that it was inappropriate to devote much special effort to walking forest rivers searching

for sprints and other signs of otters.

## RESULTS

In the Ea So survey area, three smooth-coated otters were seen along a remote rocky stretch of the Ea Puich on 25 April 1997 at 15h30 and six (not all fully grown) were seen just upstream of the first site on 3 May 1997 at 05h00. Otters can be difficult to identify in the field but the first group was photographed and the second was observed at only 6 m range. The first group was unaware of the observer as he watched them for 30 minutes, the second fled on seeing him.

## DISCUSSION

### Status of smooth-coated otter in Vietnam

The only previous indications of the species from Vietnam are from the provinces of Dak Lak (Tran Hong Viet, 1994) and Kon Tum (two specimens from Sa Thay District collected during 1977-1983; Dao Van Tien and Tran Hong Viet, 1984, Tran Hong Viet, 1990), and a villager's report from Cuu Long (Pham Trong Anh et al., 1994; Pham Trong Anh, pers. comm.). The Natural History Museum, London, holds an adult female labelled merely "Annam"; this was collected by Vassal but there is little possibility of ever fixing a locality as he travelled widely in Annam (see, e.g., Bonhote, 1907). It is presumably the specimen referred to by Pocock (1941), and, mistakenly, as collected by Pocock in 1941 by Pham Trong Anh et al. (1994). Osgood (1932) traced no Vietnamese records of the species, and Van Peenen et al. (1969) cited only Pocock (1941).

It is unlikely that naturally the species is scarce in southern Vietnam: Osgood (1932) described it as "the most common otter of the Mekong" and although most streams in Vietnam are not in the Mekong catchment (see, e.g., Fig. 1 in Rainboth, 1996), they support in the south habitat similar to that in the Mekong basin. The belief that the species is rare in Vietnam may stem from the limited and disrupted work in southern Vietnam (as a result of decades of hostilities) and a recent concentration of fieldwork in mountainous areas more likely to support Eurasian otter *Lutra lutra* (see Corbet and Hill, 1992). Further survey in Dak Lak Province, particularly along rivers of the west (which drain into the Mekong) might prove the species to be considerably more widespread than has hitherto been believed. In the highland areas of the Tay Nguyen Plateau, *Lutra lutra* appears to be well-distributed; it was surveyed at two areas at 600-900 m asl in Gia Lai Province by Kuznetsov et al. (1993). However, studies on sympatry of otters in Huai Kha Khaeng, Thailand (Kruuk et al., 1994) suggest that extensive overlap is likely between the two in sites occupied on the Tay Nguyen Plateau.

No otters were found in the western survey areas in 1997, but Eurasian otter was listed for Yok Don NP by Dang Huy Huynh et al. (1990, 1995). The possibility that these records and indeed some others from Vietnam, refer to *Lutrogale perspicillata* should be re-examined, especially as Dang Huy Huynh (1994) admits no records of *Lutra lutra* from south of 16°15'N (some 350 km north of Yok Don).

There is little historical information on otter status in Vietnam. Monestrol (1952) after decades of hunting in Indochina (mostly in Vietnam), stated that otters occurred throughout, on even the smallest patches of water, from mountain streams to the coast, and even on offshore islets. Large groups were found on big water courses. He describes one observation of a group of at least 12-15 fishing together, from which he was able to kill five at one shot. Unfortunately, Monestrol often did not identify mammals (other than big game) to species. He does not indicate that he noticed that more than one species of otter was present in Indochina, so it is difficult to know what significance to give to his description of the otters of Indochina as very similar to those of Europe, with fur formed of fine and close, but not thick, hair. Nonetheless, the suggestion that otters were commonly encountered during time in the field is so different from today's situation in Vietnam (and Laos; Duckworth, 1997) that it is clear that numbers have dropped considerably or that they have become markedly shyer.

## Threats to riverine habitat in Dak Lak Province

Several lengths of little-degraded riverine forest remain in western Dak Lak because the province, until recently, supported very low densities of people, and the rivers draining into the Mekong were barely used for trade as they flow out of Vietnam into Cambodia. Most other rivers in Vietnam flow eastward to the sea and have been much more heavily settled along their lengths as they are more useful as arteries of communication.

However, human population in Dak Lak Province has doubled in a decade: this is the fastest growth rate in any Vietnamese province (Vu Tu Lap and Taillard, 1994). The province is a major development zone. New settlers have moved illegally into areas peripheral to Ea So and the population in the Ea Sup area is also growing, although such problems do not yet affect Yok Don NP. Broadscale degradation of habitat is occurring in Ea So and parts of Ea Sup. Fire, set for a variety of intentional and unintentional reasons, is the main threat to streamside forest and has already damaged badly that along the Ea Krong Hnang. Further clearance of natural habitat for conversion to agricultural land will inevitably increase the risks of fire damage. No information was gathered on threats specific to otters, such as direct persecution.

## Recommendations for further survey work

During a recent survey programme in Laos, otters proved much more difficult to see than were many other small carnivores (Duckworth, 1997). Further surveys for otters in Vietnam should involve specific searches for signs. The identification of sympatric South-east Asian otters by sign is covered by Kruuk et al. (1993), although they do not discuss the signs of Hairy-nosed Otter *Lutra sumatrana*, which might occur in parts of Vietnam (Dang Huy Huynh, 1994). For surveyors lacking considerable past experience of separating the four South-east Asian otter species on the basis of signs, the cautionary words of Kruuk et al. (1993) about the identification of signs to species should be heeded. It is highly desirable that species identifications from new areas be supported by close direct field observations, physical remains or the checking of live animals in the possession of local people.

The entire forested lengths of the Srepok, Ya H'leo, Ya Lop, Ea Krong Hnang and the Ea Puich rivers should be walked or where possible boated in the low-flow season (December - April) to search for otters and their signs. During periods of high flow, signs are more difficult to find as sites are not so obvious and the irregular fluctuations in water level wash many away. Mason and Macdonald (1987) specifically warn against conducting spraint surveys in Europe after unseasonal spates, and such events are even more problematical in tropical areas. These rivers are wide enough potentially to support the highly threatened community of sand-bar birds (Small Pratincole *Glareola lactea*, River Lapwing *Vanellus duvaucelii*, terns *Sterna* spp. and perhaps Great Thick-knee *Esacus recurvirostris*; see Duckworth *et al.* in press) as well as other river channel bird species (the globally near-threatened Oriental Darter *Anhinga melanogaster* and fish-eagles *Ichthyaetus* spp. and the globally threatened Masked Finfoot *Heliopais personata*). It is thus desirable for birds to be surveyed concurrently with otters.

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## REFERENCES

- Bonhote, J.L. (1907).** On a collection of mammals made by Dr. Vassal in Annam. *Proc. Zool. Soc. London* '1907': 3-11.
- Corbet, G.B., Hill, J.E. (1992).** The mammals of the Indomalayan region. Oxford, U.K. Natural History Museum Publications and Oxford University Press.
- Dang Huy Huynh (ed.) (1994).** [Checklist of mammals in Vietnam]. Hanoi: Publishing House Science and Technics. [In Vietnamese.]
- Dang Huy Huynh, Cao Van Sung, Pham Trong, Hoang Minh Khiem (1990).** Wild mammals in deciduous

- forest Yokdon. [Selected collection of scientific reports on ecology and biological resources (1986-1990)] 13-16. [In Vietnamese with English summary and title.]
- Dang Huy Huynh, Cao Van Sung, Le Xuan Canh (1995).** A report on the survey for biological resources in Yok Don National Park, South Vietnam. Hanoi, Institute of Ecology and Biological Resources.
- Dao Van Tien, Tran Hong Viet (1984)..** [List of mammal species of Sa Thay District]. *Tap Chi Sinh Hoc [J. Biology, Hanoi]* **6** (2): 28-30. [In Vietnamese.]
- Duckworth, J.W. (1997).** Small carnivores in Laos: a status review with notes on ecology, behaviour and conservation. *Small Carniv. Conserv.* **16**: 1-21.
- Duckworth, J.W., Timmins, R.J., Evans, T.D. (1998).** The conservation status of the River Lapwing *Vanellus duvaucelli* in southern Laos. *Biol. Conserv.*, **84**(3): 215 - 222
- Foster-Turley, P., Santiapillai, C. (1990).** Action plan for Asian otters. pp. 52-63. In: **Foster-Turley, P., Macdonald, S.M., Mason, C.F. (eds.)** Otters: an action plan for their conservation. Brookfield, Illinois: IUCN/SSC Otter Specialist Group.
- IUCN (1996).** The 1996 IUCN Red List of Threatened Animals. Gland, Switzerland: IUCN.
- Kruuk, H., Kanchanasaka, B., O'Sullivan, S., Wanghongsa, S. (1993).** Identification of tracks and other signs of three species of otter, *Lutra lutra*, *L. perspicillata* and *Aonyx cinerea* in Thailand. *Nat. Hist. Bull. Siam Soc.* **41**: 23-30.
- Kruuk, H., Kanchanasaka, B., O'Sullivan, S., Wanghongsa, S. (1994).** Niche separation in three sympatric otters *L. perspicillata*, *Lutra lutra* and *Aonyx cinerea* in Huai Kha Khaeng, Thailand. *Biol. Conserv.* **69**: 115-120.
- Kuznetsov, G., Baranauskas, K., Pham Trong Anh (1993).** The Eurasian Otter on the Thainguen Plateau (Vietnam). *IUCN Otter Spec. Group Bull.* **8**: 12-13.
- Le Xuan Canh, Pham Trong Anh, Duckworth, J. W., Vu Ngoc Thanh, Lic Vuthy (1997).** A survey of large mammals in Dak Lak Province, Vietnam. Hanoi: WWF/IUCN.
- Mason, C.F. Macdonald, S.M. (1987).** The use of spraints for surveying otter *Lutra lutra* populations: an evaluation. *Biol. Conserv.* **41**: 167-177.
- Monestrol, H. de. (1952).** Chasses et faune d'Indochine. Saigon: Portail.
- Osgood, W. H. (1932).** Mammals of the Kelley-Roosevelts and Delacour Asiatic expeditions. Field Mus. *Nat. Hist. Zool. Series* **18**: 193-399.
- Pham Trong Anh, Nguyen Xuan Dang, Santiapillai, C. (1994).** Conservation of otters in Vietnam. *Tigerpaper* **21**(4): 16-20.
- Pocock, R.I. (1941).** The fauna of British India, including Ceylon and Burma. Mammalia volume 2. London: Taylor and Francis.
- Rainboth, W.J. (1996).** Fishes of the Cambodian Mekong. Rome: FAO.
- Tran Hong Viet (1990).** Danh Sach Loai Thu Tinh Gia Lai - Kon Tum. *Tap Chi Sinh Hoc [Journal of Biology, Hanoi]* **13**(2): 16-22. [In Vietnamese.]
- Tran Hong Viet (1994).** [List of mammals at present known from Tay Nguyen - Vietnam]. *Tap Chi Sinh Hoc [Journal of Biology, Hanoi]* **16**(4): 1-8. [In Vietnamese with English summary and title.]
- Van Peenen, P.F.D., Ryan, P.F., Light, R.H. (1969).** Preliminary identification manual for mammals of South Vietnam. Washington, Smithsonian Institution, USA.
- Vu Tu Lap, Taillard, C. (1994).** An atlas of Vietnam. Montpellier, France: RECLUS.



## ARTICLE

### EURASIAN OTTER (*LUTRA LUTRA*) STILL PRESENT IN HONG KONG

MELISCH Roland<sup>1</sup>, YOUNG Lew<sup>2</sup>, SADOVY Yvonne<sup>3</sup>

<sup>1</sup> WWF Germany & TRAFFIC-Europe Germany, Hedderichstr. 110,  
D-60591 Frankfurt (M.), Germany; e-mail: melisch@wwf.de

<sup>2</sup> WWF Hong Kong, G.P.O. Box 12721, No.1 Tramway Path, Central,  
Hong Kong; e-mail: maipo@wwf.org.uk

<sup>3</sup> Department of Ecology and Biodiversity, The University of Hong Kong,  
Pokfulam Road, Hong Kong; e-mail: yjsadovy@hkusua.hku.hk

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**ABSTRACT.** The Eurasian otter *Lutra lutra* still occurs in low numbers in Hong Kong's Mai Po Nature Reserve. The status of the Asian small-clawed otter *Aonyx cinerea* remains doubtful.

Keywords: otter, *Lutra lutra*, status, Hong Kong

#### BACKGROUND AND INTRODUCTION

The Hong Kong status of the Eurasian otter *Lutra lutra* was referred to as being very rare or extinct by Hill and Phillipps (1981) and possibly extinct by de Silva in 1993 and 1998. There was only one definite observation record dating back to early 1986 (Foster-Turley and Santiapillai, 1990, Foster-Turley, 1991). The record referred to Mai Po, an area comprising mudflats, mangrove forests and some 1,200 ha of traditionally managed fish-ponds situated on the southern banks of Deep Bay (Shenzhen River estuary) in the northwestern New Territories of Hong Kong Special Administrative Region (SAR). The area was designated as a Site of Scientific Interest (SSI) in 1976, but there was no active management for environmental education or conservation until 1984, when WWF Hong Kong began to take over management control. Today WWF Hong Kong jointly manages the area with the Agriculture and Fisheries Department of the Government of Hong Kong SAR. The Mai Po Nature Reserve (MPNR) covers a total of 380 ha (including 110 ha of mangroves), and comprises mainly traditionally managed shrimp ponds, locally called 'gei wais'. For a geographical overview see Irving and Morton (1988). In Hong Kong, all otters are protected under the Wild Animals Protection Ordinance since 1976.

#### NEW FINDINGS

However, Eurasian otters have been sighted and footprints spotted irregularly in MPNR over the last eight years. The reports prompted the authors to check for evident signs on the spot. In early December 1997, while on a short field excursion to MPNR, we could confirm fresh spraints of the Eurasian otter.

Single spraints were found on steel drums supporting a floating boardwalk which guides visitors through the mangrove forest. The size of the area is unlikely to support large numbers of otters and the possibility of genetic exchange with possible otter populations from other areas of Deep Bay remains unclear.

On 14 April 1996, one male Eurasian otter (total length 65 cm, tail length 24 cm) was run over by a car in the reserve. Subsequent gut examination of the otter (by YS) gave evidence of predation on tilapia (*Oreochromis mossambicus*) due to the presence of pharyngeal plates and scale remains. A few seeds of unknown origin were also found in the stomach. A fresh spraint found and analysed in 1997 also contained remnants of fish hardparts (scales, spines and vertebrae). Tilapia are the most abundant fish in the shrimp-ponds at Mai Po and also present in the fish-ponds around the reserve. In Hong Kong, tilapia are mainly considered as a non-commercial fish. Although we are aware of a lack of systematic otter surveys, we would like to remark that

tracks and spraints were more commonly found during the winter months. This may just coincide with the practice of fishermen draining their fish-ponds stocked with mullets, carp and tilapia for harvesting, thereby making prey more available for otters.

No signs of the Asian small-clawed otter *Aonyx cinerea*, once believed to occur in this area too (Foster-Turley and Santiapillai, 1990), were found.

## OUTLOOK

Together with Inner Deep Bay the wetlands around Mai Po were designated a Ramsar Site in 1995 and are now China's seventh Ramsar Site. However, wetlands and species conservation cannot be achieved by legal designation alone, but are heavily dependent on active support from all levels of the community. Wetlands adjacent to Hong Kong at the neighbouring coast of China suffer from an increase of coastal development projects and water pollution. In Hong Kong, Mai Po (though small in size) still harbours fish- and shrimp-ponds and mangrove forests almost all suitable as otter habitat. MPNR is visited by some 40,000 visitors per year. These not only include local and international birdwatchers, which are attracted due to the area's outstanding importance for migrating birds along the East Asian/Australasian Flyway. Also many members of the public visit the reserve to find out more about it. MPNR's role in wetland conservation and education purposes is furthermore depicted by the fact that 1/4 of the total annual visitors are local students on specially guided visits representing 400 primary and secondary schools. Tours are organized by WWF Hong Kong and sponsored by the Government's Education Department. Thus the authors would hope that this short note will stimulate further interest into assessing the status and habits of an extremely rare mammal species within one of the keystone wetlands in southern China.

## REFERENCES

- de Silva, P.K. (1993).** The otter in the wetland ecosystems of South and South-East Asia and the impact of human activities on its survival. In: **Copal, B., Hilbricht-Ilkowska, A., Wetzel, R.G.** (eds.) Wetlands and ecotones: Studies on land-water interactions. pp. 217-225. National Institute of Ecology, New Dehli.
- de Silva, P.K. (1998).** The status of otters in the Asian region. Abstracts 7th International Otter Colloquium March, 14-19, 1998, Trebon, Czech Republic. IUCN/SSC Otter Specialist Group.
- Foster-Turley, P. (1991).** The status of otters in Asia. *Habitat* **6**: 21-25.
- Foster-Turley, P., Santiapillai, C. (1990).** Action Plan for Asian otters. In: **Foster-Turley, P., Macdonald, S.M., Mason, C.F.** (eds.) Otters - an action plan for their conservation: p. 55. IUCN, Gland.
- Hill, D.S., Phillipps, K. (1981).** Hong Kong animals. Government Printer, Hong Kong.
- Irving, R., Morton, B. (1988).** A geography of the Mai Po marshes. WWF Hong Kong, Hong Kong.

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## ARTICLE

### A PRELIMINARY SURVEY ON THE STATUS OF OTTERS IN URUGUAY

SOUTULLO Alvaro<sup>1</sup>, GARBERO Ramiro Pereira<sup>1</sup>, GONZALEZ Enrique M.<sup>2</sup>

<sup>1</sup> VIDA SILVESTRE, Sociedad Uruguaya para la Conservación de la Naturaleza. Colonia 1884/903, 11200 Montevideo, Uruguay. e-mail: vida-silvestre@geocities.com.

<sup>2</sup> Museo Nacional de Historia Natural. Casilla de Correo 399, 11000, Montevideo, Uruguay

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**ABSTRACT.** New data on the distribution of the Neotropical river otter (*Lontra longicaudis*) as well as new records of the giant otter (*Pteronura brasiliensis*) in Uruguay are provided. The information presented was gathered from otter sighting surveys completed by Uruguayan researchers, wildlife technicians and environmentalists. New localities for both species, comments on the behaviour and data about the habitats used by the Neotropical river otter were obtained. The information about distribution was completed by an examination of records from zoological collections and literature. This survey confirms that the Neotropical river otter is at least fairly common in Uruguay. The conservation status of the giant otter is uncertain. Although considered extirpated for many years, a recent sighting of two individuals has been reported. This information has to be confirmed.

keywords: otter, *Lontra longicaudis*, *Pteronura brasiliensis*, status, Uruguay

#### INTRODUCTION

The current distribution of the Neotropical river otter (*Lontra longicaudis*) includes all the Latin American countries from Mexico to Argentina, but excluding Chile. Its conservation status is, however, unknown in some of these countries (Chehébar, 1990; Parera, 1996).

Bocage (1992) reported Neotropical river otters as scarce in Uruguay, with healthy populations only remaining in the area of Bañados de Rocha (eastern part of the country). Chehébar (1990) considered the species widespread throughout the country, with main populations seeming to be in the area of Bañados del Este, Tacuarembó and Esteros de Farrapos.

The former distribution of the giant otter (*Pteronura brasiliensis*) probably included every country from Panama to Uruguay and northern Argentina (Parera, 1996) except Chile. The current distribution is fragmented, with recorded populations in Ecuador, Colombia, Brazil, Venezuela, Peru, Bolivia, Paraguay, Surinam, French Guyana and Guyana (Chehébar, 1990; Parera, 1996). If they have not been actually extirpated from Argentina and Uruguay, they are probably the most threatened mammals in these countries (Parera, 1996 and pers. obs.).

There are no previous surveys on the distribution and conservation status of Lutrines in Uruguay. The group is represented in national zoological collections by only 18 specimens of *L. longicaudis* and a single skull of *P. brasiliensis* collected in 1963.

The main objective of this survey was to establish the current distribution of otters in Uruguay.

#### MATERIALS AND METHODS

An otters sightings survey was carried out in Uruguay between September 1997 and March 1998. Forms for this survey were distributed by mail to more than 80 Uruguayan researchers, environmentalists and wildlife technicians. For Neotropical river otters the survey was restricted to sightings of otters or their tracks recorded within the last ten years. There was no restriction for records of giant otters.

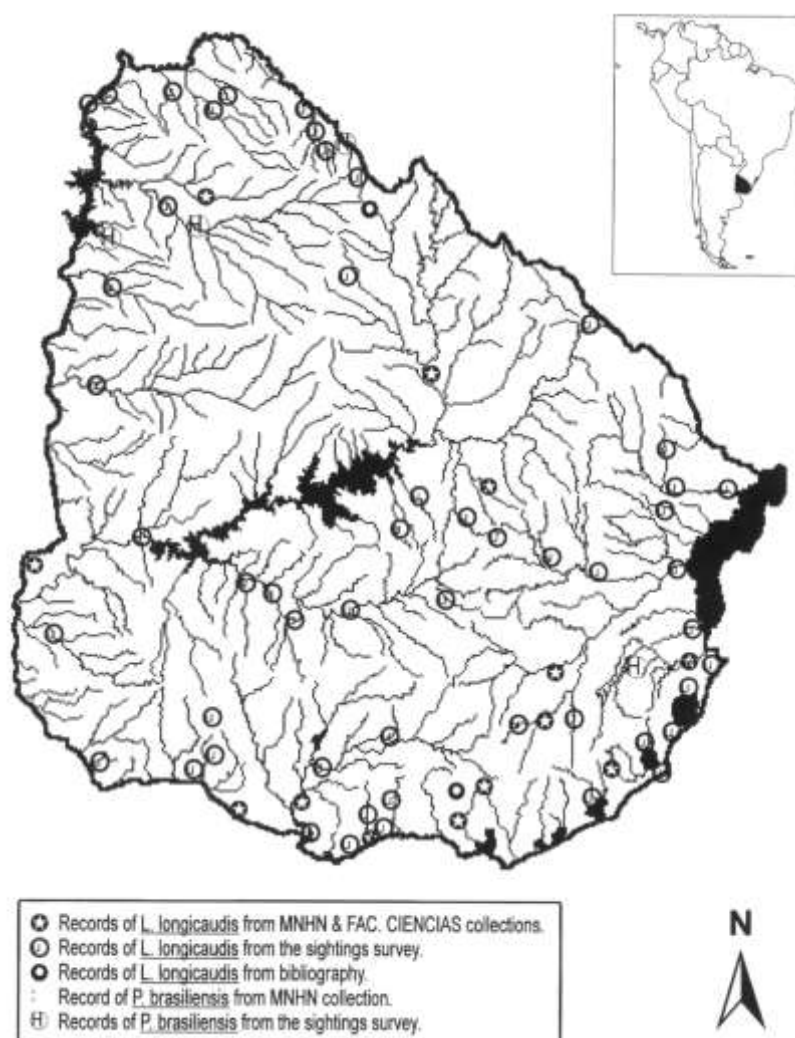
For *L. longicaudis*, each form was to be filled with the information of a single sighting (only the most recent observation was recorded if otters or tracks had been observed in that locality on more than one occasion).

Each form also requested information about the date of the sighting, the locality, the number of otters observed, how many times otters were observed there and the time of the day when the animals were seen. The following information was also requested for each locality. Considerations about the main threats to their conservation, characteristics of the stream where the observations were made (kind of stream, depth and width), characteristics of the river banks (abundance of plant cover and morphology), and observations on the behaviour of the animals (e.g. vocalisations).

The information about distribution was completed with records from material conserved in the Museo Nacional de Historia Natural de Montevideo (MNHN) and the Facultad de Ciencias zoological collections, and data from literature.

## RESULTS

A total of 71 forms were returned. Fifty eight new localities for *L. longicaudis* and six new records for *P. brasiliensis* were added to those already known. These results have tripled the number of localities known to be inhabited by otters in Uruguay (see Table 1 and Figure 1).



**Figure 1:** Map of the main rivers and streams of Uruguay indicating places of otter records

Comments about behaviour, as well as data about the characteristics of the habitats used by Neotropical river otters were also obtained. In a preliminary analysis of the collected data, no preference for specific habitats was detected. All reported sightings were diurnal. Incidental capture of this species in “nutrias” (*Myocastor coypus*) traps were reported (J. A. Fernandez, and R. M. Spinola, pers. com.). Three road-kills were recorded.

Table 1. Records of otters from Uruguay

| GENUS            | DEPT.       | LOCALITY   | YEAR  | RECORD | SOURCE              |
|------------------|-------------|--|-------|--------|---------------------|
| <i>Pteronura</i> | ARTIGAS     | RIO CUAREIM - RINCON DE PACHECO                              | 1960  | Skin   | SURVEY              |
| <i>Pteronura</i> | CERRO LARGO | Ayo. SAUCE c/ RIO NEGRO                                      | 1963  | Skull  | MNHN 1266           |
| <i>Pteronura</i> | ROCHA       | BAÑADO DE INDIA MUERTA                                       | 1930? | Skin   | SURVEY              |
| <i>Pteronura</i> | ROCHA       | UNCERTAIN  | 1950? | Skin   | SURVEY              |
| <i>Pteronura</i> | SALTO       | Ayo. ITAPEBI - ZONA CASACADA SALTO GRANDE                    | 1977  | Otter  | SURVEY              |
| <i>Pteronura</i> | SALTO       | RIO URUGUAY c/ Ayo. ITAPEBI                                  | 1979  | Otter  | SURVEY              |
| <i>Pteronura</i> | SALTO       | RIO ARAPEY GRANDE - O DEL PUENTE ARTIGAS - RUTA 4            | 1996  | Otter  | SURVEY              |
| <i>Lontra</i>    | ARTIGAS     | Ayo. ÑAQUIÑA - TRAMO MEDIO                                   | 1997  | Otter  | SURVEY              |
| <i>Lontra</i>    | ARTIGAS     | ISLA DEL ZAPALLO - RIO URUGUAY                               | 1996  | Track  | SURVEY              |
| <i>Lontra</i>    | ARTIGAS     | PIEDRA PINTADA - RIO CUAREIM - 20 km AGUAS ARRIBA DE ARTIGAS | 1997  | Otter  | SURVEY              |
| <i>Lontra</i>    | ARTIGAS     | RICARDINHO - RIO CUAREIM - 50 km AGUAS ARRIBA DE ARTIGAS     | 1997  | Otter  | SURVEY              |
| <i>Lontra</i>    | ARTIGAS     | PASO DEL INFIERNO - Ayo. YUCUTUJA GRANDE                     | 1998  | Otter  | SURVEY              |
| <i>Lontra</i>    | ARTIGAS     | Ayo. CATALAN GRANDE - CURSO MEDIO                            | 1988  | Otter  | SURVEY              |
| <i>Lontra</i>    | ARTIGAS     | Po. MARCELO - Ayo. CATALAN GRANDE c/ Ayo. CATALANCITO        | 1997  | Otter  | SURVEY              |
| <i>Lontra</i>    | ARTIGAS     | PARADA CAMAÑO - Ayo. PELADO                                  | ****  | Otter  | SURVEY              |
| <i>Lontra</i>    | ARTIGAS     | RICARDINHO - RIO CUAREIM - 50 km AGUAS ARRIBA DE ARTIGAS     | 1997  | Otter  | SURVEY              |
| <i>Lontra</i>    | ARTIGAS     | PARADA CAMAÑO - Ayo. CUARO GRANDE                            | 1998  | Otter  | SURVEY              |
| <i>Lontra</i>    | ARTIGAS     | RIO URUGUAY c/ Ayo. MANDIYU                                  | 1980  | ****   | MNHN 3287           |
| <i>Lontra</i>    | CANELONES   | PARAJE MOSQUITO (SOCA)                                       | ****  | Otter  | SURVEY              |
| <i>Lontra</i>    | CANELONES   | BARRA DE CARRASCO  | 1996  | Otter  | SURVEY              |
| <i>Lontra</i>    | CANELONES   | LAGUNA DEL CISNE   | 1997  | Skin   | SURVEY              |
| <i>Lontra</i>    | CANELONES   | Ayo. PANDO   | 1997  | Otter  | SURVEY              |
| <i>Lontra</i>    | CANELONES   | ATLANTIDA - Bdo. TROPA VIEJA                                 | 1958  | ****   | MNHN 792            |
| <i>Lontra</i>    | CANELONES   | RIO STA. LUCIA - AGUAS CORRIENTES                            | 1993  | ****   | MNHN 3408           |
| <i>Lontra</i>    | CANELONES   | PANDO - Ayo. MOSQUITO  | 1980  | ****   | MNHN 2963           |
| <i>Lontra</i>    | CANELONES   | ATLANTIDA - BAÑADO DEL CISNE                                 | 1954  | ****   | MNHN 287            |
| <i>Lontra</i>    | CERRO LARGO | LAGUNA FORMOSA c/ RIO NEGRO - 15 km N SIERRAS DE ACEGUA      | 1997  | Track  | SURVEY              |
| <i>Lontra</i>    | CERRO LARGO | Ayo. CHUY  | 1997  | Otter  | SURVEY              |
| <i>Lontra</i>    | CERRO LARGO | RIO TACUARI c/ LAGO MERIM                                    | 1996  | Otter  | SURVEY              |
| <i>Lontra</i>    | CERRO LARGO | PUNTAS Ayo. CORDOBES   | 1992  | Otter  | SURVEY              |
| <i>Lontra</i>    | CERRO LARGO | ESTANCIA EL TAMARI - Ayo. TACUARI                            | 1997  | Otter  | SURVEY              |
| <i>Lontra</i>    | CERRO LARGO | Ayo. CORDOBES - CERCA DE CERRO CHATO                         | 1988  | Otter  | SURVEY              |
| <i>Lontra</i>    | CERRO LARGO | Cda. BRAVA   | ****  | ****   | MNHN 3196           |
| <i>Lontra</i>    | CERRO LARGO | Ayo. CORDOBES  | 1975  | ****   | MNHN 2849           |
| <i>Lontra</i>    | COLONIA     | Ayo. CUFRE c/ RUTA 1   | 1998  | Track  | SURVEY              |
| <i>Lontra</i>    | COLONIA     | Ayo. SAN PEDRO c/ RIO URUGUAY                                | 1987  | Otter  | SURVEY              |
| <i>Lontra</i>    | DURAZNO     | RIO YI c/ Ayo. CABALLERO                                     | 1996  | Otter  | SURVEY              |
| <i>Lontra</i>    | DURAZNO     | RIO YI - 8 Km AGUAS ABAJO DE DURAZNO                         | 1997  | Otter  | SURVEY              |
| <i>Lontra</i>    | DURAZNO     | Ayo. LAS CAÑAS - CAPILLA DE FARRUCO                          | 1996  | Otter  | SURVEY              |
| <i>Lontra</i>    | DURAZNO     | EL MEMBRILLAR  | ****  | ****   | SURVEY              |
| <i>Lontra</i>    | DURAZNO     | Ayo. CHILENO GRANDE c/ CHILENO CHICO                         | 1998  | Otter  | SURVEY              |
| <i>Lontra</i>    | FLORES      | RIO YI c/ Ayo. PORONGOS                                      | 1997  | Otter  | SURVEY              |
| <i>Lontra</i>    | FLORIDA     | RIO STA LUCIA - PASO PACHE                                   | 1997  | Track  | SURVEY              |
| <i>Lontra</i>    | FLORIDA     | Ayo. ILLESCAS c/ Cda. DE LA VICTORIA                         | 1997  | Track  | SURVEY              |
| <i>Lontra</i>    | FLORIDA     | RIO YI c/ Ayo. TIMOTE  | 1995  | Otter  | SURVEY              |
| <i>Lontra</i>    | FLORIDA     | Ayo. ILLESCAS - NE CAPILLA DEL SAUCE                         | 1997  | Otter  | SURVEY              |
| <i>Lontra</i>    | FLORIDA     | CHAMIZO PASANDO SAN RAMON                                    | 1994  | Otter  | SURVEY              |
| <i>Lontra</i>    | LAVALLEJA   | RUTA 8 CERCA DE MARISCALA                                    | 1995  | Otter  | SURVEY              |
| <i>Lontra</i>    | LAVALLEJA   | AGUAS BLANCAS  | ****  | ****   | MNHN 3263           |
| <i>Lontra</i>    | LAVALLEJA   | Ayo. PIRANGA - 9ª SECCION                                    | 1957  | ****   | MNHN 288            |
| <i>Lontra</i>    | LAVALLEJA   | Ayo. SAUCE - CERCA DE SOLIS DE MATAOJO                       | 1991  | Otter  | BARDIER, 1992       |
| <i>Lontra</i>    | MALDONADO   | Ayo. PAN DE AZUCAR   | 1963  | ****   | MNHN 1935           |
| <i>Lontra</i>    | MALDONADO   | CERRO SALAMANCA  | 1968  | ****   | MNHN 1328           |
| <i>Lontra</i>    | MONTEVIDEO  | LAGUNA PARQUE LECOCQ   | 1997  | Track  | SURVEY              |
| <i>Lontra</i>    | MONTEVIDEO  | LAGUNA PARQUE LECOCQ   | 1996  | Otter  | SURVEY              |
| <i>Lontra</i>    | PAYSANDU    | RIO QUEGUAY  | ****  | Otter  | SURVEY              |
| <i>Lontra</i>    | PAYSANDU    | RIO QUEGUAY GRANDE - 25 km N DE PANDULE - RUTA 90            | 1995  | Otter  | SURVEY              |
| <i>Lontra</i>    | RIO NEGRO   | CERCA DE FRAY BENTOS   | 1984  | ****   | MNHN 2966           |
| <i>Lontra</i>    | RIVERA      | Ayo. GAJO DEL LUNAREJO                                       | 1996  | Otter  | IBARRA et al., 1998 |
| <i>Lontra</i>    | ROCHA       | Km 290 RUTA 9  | 1997  | Otter  | SURVEY              |
| <i>Lontra</i>    | ROCHA       | Ayo. ALFEREZ c/ Ayo. AIGUA                                   | 1996  | Otter  | SURVEY              |
| <i>Lontra</i>    | ROCHA       | Ayo. BALIZAS - ENTRE LAGUNA Y RUTA 9                         | 1997  | Otter  | SURVEY              |
| <i>Lontra</i>    | ROCHA       | CANAL N°2 c/ CANAL ANDREONI                                  | 1997  | Otter  | SURVEY              |
| <i>Lontra</i>    | ROCHA       | POTRERILLO   | 1995  | Otter  | SURVEY              |
| <i>Lontra</i>    | ROCHA       | POTRERILLO - LAGUNA NEGRA                                    | 1997  | Otter  | SURVEY              |
| <i>Lontra</i>    | ROCHA       | Ayo. SAN LUIS - CERCA DE 18 DE JULIO                         | 1997  | Otter  | SURVEY              |

|        |                |   |      |       |           |
|--------|----------------|---|------|-------|-----------|
| Lontra | ROCHA          | Ayo. ROCHA - PUERTO DE LOS BOTES                  | 1995 | Otter | SURVEY    |
| Lontra | ROCHA          | Ayo. BALIZAS c/ OCEANO ATLANTICO                  | 1990 | Otter | SURVEY    |
| Lontra | ROCHA          | LAGUNA DE CASTILLOS - ESTANCIA BARRA GRANDE       | 1996 | Otter | SURVEY    |
| Lontra | ROCHA          | LAGUNA NEGRA                                      | 1960 | ****  | MNHN 979  |
| Lontra | ROCHA          | Ayo. SAN MIGUEL                                   | 1989 | ****  | MNHN 3231 |
| Lontra | ROCHA          | RUTA 9 Km 230                                     | **** | ****  | MNHN 3228 |
| Lontra | SALTO          | RIO DAYMAN - TERMAS                               | 1995 | Otter | SURVEY    |
| Lontra | SALTO          | ALREDEDORES DE LA CIUDAD DE SALTO                 | **** | Otter | SURVEY    |
| Lontra | SALTO          | RIO ARAPEY - TODA SU EXTENSION                    | **** | Otter | SURVEY    |
| Lontra | SALTO          | RIO URUGUAY                                       | **** | Otter | SURVEY    |
| Lontra | SALTO          | RIO DAYMAN - TODA SU EXTENSION                    | **** | Otter | SURVEY    |
| Lontra | SALTO          | RIO ARAPEY GRANDE - COLONIA RUBIO                 | 1997 | Otter | SURVEY    |
| Lontra | SALTO          | CERRILLADAS DE Ayo. ARAPEY CHICO                  | 1957 | ****  | MNHN 285  |
| Lontra | SAN JOSE       | PUERTO ARAZATI                                    | **** | ****  | ZVCM 1173 |
| Lontra | SAN JOSE       | 4 km NE DE ECILDA PAULLIER                        | **** | Track | SURVEY    |
| Lontra | SAN JOSE       | SIERRA DE MAHOMA                                  | **** | Otter | SURVEY    |
| Lontra | SORIANO        | TAJAMAR A 500 m DEL RIO NEGRO                     | 1989 | Otter | SURVEY    |
| Lontra | SORIANO        | RIO SAN SALVADOR - CERCA DE DOLORES               | 1992 | Otter | SURVEY    |
| Lontra | TACUAREMBO     | RIO NEGRO - LAGO RINCON DEL BONETE - ISLA ARENOSA | 1996 | Track | SURVEY    |
| Lontra | TACUAREMBO     | Ayo. TRES CRUCES - GAJO MEDIO TRAMO SUPERIOR      | 1991 | Otter | SURVEY    |
| Lontra | TACUAREMBO     | RIO TACUAREMBO GRANDE                             | **** | ****  | MNHN 3277 |
| Lontra | TREINTA Y TRES | RIO OLIMAR - CIUDAD DE TREINTA Y TRES             | 1997 | Otter | SURVEY    |
| Lontra | TREINTA Y TRES | Ayo. OTAZO  | 1996 | Otter | SURVEY    |
| Lontra | TREINTA Y TRES | CHARQUEADA - PASO EL PELUDO                       | 1997 | Otter | SURVEY    |
| Lontra | TREINTA Y TRES | Ayo. LAS PAVAS - 5 km NE DE VALENTINES            | 1990 | Otter | SURVEY    |

## DISCUSSION AND CONCLUSIONS

The survey data, the zoological records and the published data strongly suggest that Neotropical river otters occur throughout Uruguay. Within the last ten years Neotropical river otters have been observed at least in 17 of the 19 political divisions ("Departamentos") of the country. There is no reason to assume that they have been extirpated from those where no recent records have been reported. No conclusions about the areas of the country that support the main populations of this species can be inferred from our survey.

The Neotropical river otter should be considered at least as a fairly common species in Uruguay. Despite this, their populations might be decreasing, and further research should be carried out to discern whether this suspicion has actual fundamentals.

The results of this research suggest that the former consideration of the species as scarce in the country (Bocage, 1992) was due to the lack of information and not because of actual conservational features.

Although some authors suggest that river otters are nocturnal and crepuscular animals in Uruguay (Gonzalez, 1983; Saralegui, 1996; Ibarra et al., 1998), all the sightings reported in this survey were diurnal. We conclude from this data that in Uruguay these animals are, at least in part, also active during the day. Whether they are mostly diurnal or crepuscular and nocturnal in Uruguay is not clear yet. Parera (1996) reports this species as diurnal in Argentina, and considers that they become more nocturnal when they are disturbed.

The situation of the giant otter in Uruguay is uncertain. Although Redford and Eisenberg (1992) present four localities for this species in Uruguay, there is only one documented record (Ximenez et al., 1972). This paper presents two localities where they were observed in the late seventies, as well as a sighting of two individuals foraging in 1996. This would be the most southerly record for the species over the last 20 years. As the species is currently thought to be extirpated in Uruguay, and the latest record has to be confirmed, further observations are necessary to confirm the occurrence of the giant otter in Uruguay. Accurate surveys to assess the status of this species should be carried out immediately.

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## REFERENCES

- Bardier, G. (1992).** Uso de recursos y características del habitat del “Lobito de río” *Lutra longicaudis* (Olfers ,1818) (Mammalia, Carnivora) en el Arroyo Sauce, SE de Uruguay. Boletín de la Sociedad Zoológica del Uruguay, (2ª época) **7**, 59-60, Montevideo.
- Bocage, A. (1992).** Mamíferos del Uruguay. Servicio Divulgación Científica, División Cultura, Intendencia Municipal de Montevideo, 112 p.
- Chehébar, C. (1990).** Action Plan for Latin American Otters (pp:64-73). In: **Foster-Turley, P., Macdonald, S.M., Mason, C.F.** (Eds.) Otters: an action plan for their conservation. I-IV+1-126 p. IUCN, Gland.
- Gonzalez, J.C. (1983).** Los mustelidos del Uruguay. *Almanaque del Banco de Seguros del Estado (Montevideo)*, **66**: 227-229.
- Ibarra, R., Lombardi, R., Wayson, C. (1998).** Mamíferos (pp:73-77 and 111-113). In: **Berrini, R.** (Coord.) Cuenca superior del Arroyo Lunarejo. Ministerio de Vivienda Ordenamiento Territorial y Medio Ambiente/Dirección Nacional de Medio Ambiente & Sociedad Zoológica del Uruguay, 1-10+1-153 p., Montevideo.
- Parera, A. (1996).** Las “Nutrias Verdaderas” de Argentina (2ª Ed.). *Boletín Técnico. Fund. Vida Silvestre Argentina (Buenos Aires)*. **21**: 1-38,.
- Redford, K. H., Eisenberg, J.F. (1992).** Mammals of the Neotropics. The southern Cone. Vol. 2. Chile, Argentina, Uruguay, Paraguay. The University of Chicago Press, 430 p.
- Saralegui, A. (1996).** Lobito de Río *Lontra longicaudis* (Olfers, 1818). Parques Municipales de Montevideo, Serie Fauna Silvestre del Parque Lecocq. *Departamento de Cultura, Intendencia Municipal de Montevideo y Vida Silvestre, Sociedad Uruguaya para la Conservación de la Naturaleza* **3**: 1-4.
- Ximenez, A., Langguth, and R. Praderi. (1972).** Lista sistemática de los mamíferos del Uruguay. *Anales del Museo de Historia Natural de Montevideo*, **7**: 1-49.

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## SHORT NOTICE

### **DISTRIBUTION AND MONITORING OF THE NEOTROPICAL OTTER IN THE EL REY NATIONAL PARK, SALTA PROVINCE, ARGENTINA**

GIL Guillermo

*Delegación Técnica Regional Noroeste, Administración de Parques Nacionales. Santa Fe 23,  
4400 Salta, Argentina. E-mail : parques@ciunsa.edu.ar*

**Translation from Spanish: Jessica Groenendijk, Frank Hajek**

A sampling method was adapted for the detection of the Neotropical Otter (*Lontra longicaudis*) in the water courses of the Yungas (cloud forest) and transition to Chaco Serrano (semi-xerophytic forest) environments of the National Park, with the objective of determining its distribution and with the intention of monitoring the species over several years. Secondly, habitat data is taken and faeces are collected for their possible analysis. Based on a proven method, field experience and the suggestions of specialists, a series of data sheets were prepared to be completed during the survey, principally covering habitat data and types of markings encountered. The sampling sites are stretches along river banks, 600 meters in length by 20 meters in width, located every 4 km. The site is positive if at least one marking is found, otherwise it is negative. It is considered preferable to carry out sampling over a large area, every 5 years or so, rather than over a limited area but with a higher frequency. The locating of dens is important as these are sites which deserve protection or special monitoring.

Once the project had been formulated, it was put into practice in the field and 15 sites were surveyed between August and November 1997, which, together with 2 trial sites, totals 16 positive and 1 negative result. In general, evidence of otter presence was abundant. A second phase of the project is planned in order to complete the first batch of sites monitored and then ensure continuity of this monitoring. It is intended to cover, in order of priority; the lower, middle and upper sectors of the sub-watershed encompassed by the park.

The Park rangers support and are being trained by this project. We invite those interested in analysing the scats to contact the above to carry out a joint investigation.



## L I T E R A T U R E

- Anonymous (1978).** Red List of the Moldavian SSR. Otter (*Lutra lutra*). (for further information please contact: J. Shergalin, Merktrans, Vaike Ameerika 8, EE 0001 Tallinn, Estonia).
- Anonymous (1978).** Red List of the Kasachian SSR. Otter (*Lutra lutra*). (for further information please contact: J. Shergalin, Merktrans, Vaike Ameerika 8, EE 0001 Tallinn, Estonia).
- Brouwers, E. (1996).** De Otter “ En speelse spetter”. (Aminal, Belliardstaat 14-18, B-1040 Brussel, Belgium).
- Burdin, A.M., Gorbics, C.S., Staedler, M.M., Van Blaricom, G.R. (1997).** 6th Joint U.S. - Russia Sea Otter Workshop. Presentations and Agenda. Abstracts.
- Carss, D.N., Elston, D.A., Morley, H.S. (1998).** The effects of otter (*Lutra lutra*) activity on spraint production and composition: implications for models which estimate prey-size distribution. *J. Zool.* **244**: 295-302. (Inst. Terr. Ecol., Banchory Res. Station, Banchory AB31 4BY, Kincardine, SCOTLAND).
- Collis, R.O., Foster, G., Ross, H.M. (1996).** Isolation of *Yersinia ruckeri* from an otter and salmonid fish from adjacent freshwater catchments. *Vet. Rec.* **139**: 169. (Vet. Sciences, Vet. Centre, Drummondhill, Stratherrick Road, Inverness IV2 4JZ, UK).
- Dubuc, L.J., Krohn, W.B., Owen, R.B. (1990).** Predicting occurrence of river otters by habitat on Mount Desert Island, Maine. *J. Wildl. Manag.* **54**: 594-599. (Dept. Wildlife, 240 Nutting Hall, University of Maine, Orono, ME 04469, USA).
- Ewijk, K.J. Van, Knol, A.P., De Jong, R.C.C.M. (1997).** An otter PVA as a preparation of a reintroduction experiment in the Netherlands. *Int. J. Mamm. Biol.* **62**: Suppl. 2, 238-242. (de Jong, POB 1528, NL-8901 BV Leeuwarden, THE NETHERLANDS).
- Foster, J., Turner, C. (1991).** Insects and otter diet. *Entomologist* **110**: 166-169. (National Rivers Authority, Southern Region, Guildbourne House, Chatsworth Road, Worthing BN11 1LD, UK).
- Foster, G., Ross, H.M., Hutson, R.A., Collins, M.D. (1997).** *Staphylococcus lutrae* sp. novae, a new coagulase-positive species isolated from otters. *Int. J. Syst. Bacteriol.* **47**:, 724-726. (SAC Veterinary Services, Drummondhill, Inverness, Scotland).
- Gray, L.E., Ostby, J., Wolf, C., Lambright, C., Kelce, W. (1998).** The value of mechanistic studies in laboratory animals for the prediction of reproduction effects in wildlife: endocrine effects on mammalian sexual differentiation. *Environ. Toxicol. Chem.* **17**: 109-118. (Endocrinol. Branch, Repr. Toxicol. Div., Natl Health and Ecol. Effects Res. Laboratory, Research Triangle PK, NC 27711, USA).
- Gutleb, A.C., Kranz, A., Nechay, G., Toman, A. (1998).** Heavy metals in tissues of the otter (*Lutra lutra*) from Central Europe. *Bull. Environ. Contam. Toxicol.* **60**: 273-279. (Div. Toxicology, Wageningen Agricultural University, Tuinlaan 5, NL-6703 HD Wageningen, The Netherlands).
- Henson, K.L., Raskin, R.E., Deem, S.L., Vaughn, K.L. (1997).** What is your diagnosis? A river otter with anemia (Haemobartonella-like infection). *Vet. Clin. Path.* **26**: 18-19.

- Jahans, K.L., Foster, G., Broughton, E.S. (1997).** The characterization of Brucella strains isolated from marine mammals. *Vet. Microbiol.* **57**: 373-382. (Broughton, E.S., Cent. Vet. Lab., Addlestone KT15 3NB, Surrey, United Kingdom).
- Jurisch, C., Geidezis, L. (1997).** Minimum passage rate of fishes through the digestive tract of otters *Lutra lutra* Linne, 1758 (Mustelidae). *Mammalia* **61**: 123-126. (Inst. Zool., Univ. Erlangen-Nuernberg, Goennerstr. 44, D-96050 Bamberg, GERMANY).
- Kakela, R., Hyvarinen, H. (1996).** Site-specific fatty-acid composition in adipose tissues of several northern aquatic and terrestrial mammals. *Comp. Biochem. Physiol. B.* **115**: 501-514. (Dept. Biology, University of Joensuu, POB 111, FIN-80101 Joensuu, Finland).
- Kannan, K., Guruge, K.S., Thomas, N.J., Tanabe, S., Giesy, J.P. (1998).** Butyltin residues in southern sea otters (*Enhydra lutris nereis*) found dead along California coastal waters. *Environ. Science Technol.* **32**: 1169-1175. (Michigan State Univ., Inst. Environ. Toxicology, Dept. Zoology, Natl. Food Safety Toxicol. Center, E Lansing, MI 48824, USA).
- Keymer, I.F. (1995).** Some wildlife disease problems in eastern England. *J. British Vet. Zool. Soc.* **1**: 2-6. (The Old Smithy, The Green, Edgefield, Melton Constable, Norfolk, NR24 2AL, United Kingdom).
- Kikuchi, S., Nakajima, M. (1993).** *Corynosoma enhydri* (Acanthocephala) from sea otters *Enhydra lutris*. *Jap. J. Parasitol* **42**: 331-339. Kikuchi Biomedical Inst., 19-10 Rinkan 2-chome, Yamato-shi, Kanagawa 242, Japan).
- Kirkwood, J.K., Sainsbury, A.W. (1997).** Diseases and other considerations with wildlife translocations and releases. *Proc. Symp. Veterinary Involvement with Wildlife Reintroduction and Rehabilitation.* 12-16. (for further information please contact: Scullion, F.T., 16 Cranlome Road, Ballynahaye, Ballygawley, Co Tyrone BT70 2HS - United Kingdom).
- Kollars, T.M., Lizotte, R.E., Wilhelm, W.E. (1997).** Gastrointestinal helminths in the river otter (*Lutra canadensis*) in Tennessee. *J. Parasitol.* **83**: 158-160. (Inst. Arthropodology and Parasitology, Georgia Southern University, Statesborough, GA 30460, USA).
- Knischewski, M. (1997).** Freilandbeobachtungen am Eurasischen Fischotter (*Lutra lutra* L. 1758) auf Shetland. (Hauptstr. 13, D-91077 Dormitz, Germany)
- Knollseisen, M. (1996).** Fischbestimmungsatlas als Grundlage für nahrungsökologische Untersuchungen. *BOKU-Reports Wildl. Res. Manag.* **12**: 94pp. (Inst. Wildlife Biology and Game Management, Peter Jordan-Str. 76, A-1190 Vienna, AUSTRIA).
- Kruuk, H., Jones, C., McClaren, G.W., Gorman, M.L., Conroy, J.W.H. (1997).** Changes in age composition in populations of the Eurasian otter *Lutra lutra* in Scotland. *J. Zool.* **243**: 853-857. (Inst. Terr. Ecol., Banchory Res. Station, Banchory AB31 4BY, Kincardine, Scotland).
- Lambert, W.D. (1997).** The osteology and paleoecology of the giant otter *Enhydritherium terraenovae*. *J. Vert. Paleont.* **17**: 738-749. (Univ. Florida, Dept. Zool., Gainesville, FL-32611, USA).
- Lovett, L., Kruuk, H., Lambin, X. (1997).** Factors influencing use of freshwater pools by otters (*Lutra lutra*) in a marine environment. *J. Zool.* **243**: 825-831. (Inst. Terr. Ecol., Banchory Res. Station, Banchory AB31 4BY, Kincardine, Scotland).
- Mason, C.F. (1998).** Decline in PCB levels in otters (*Lutra lutra*). *Chemosphere* **36**: 1969-1971. (Dept of

Biology, University of Essex, Wivenhoe Park, Colchester CO4 3SQ, United Kingdom).

**Pertoldi, C., Loeschke, V., Madsen, A.B., Randi, E. (1997).** Developmental stability in the Eurasian otter (*Lutra lutra*) in Denmark. *Ann. Zool. Fennici* **34**: 187-196. (Department of Ecology and Genetics, University of Aarhus, Building 540, Ny Munkegade, DK-8000 Aarhus C, Denmark).

**Poole, K.G., Elkin, B.T., Bethke, R.W. (1998).** Organochlorine and heavy metal contaminants in wild mink in western Northwest Territories, Canada. *Arch. Environ. Contam. Toxicol.* **34**: 406-413. (NW Territories Dept. Resources, Wildlife and Fisheries Div., Wildlife Econ. Dev., 600 5102 50th Avenue, Yellowknife, NT X1A 3S8, Canada).

**Rakhilin, V.K. (1967).** Ecology of the otter (*Lutra lutra* L.) on sea and sea shores. *Bull. Moscow Soc. Naturalists, Biol. Ser.*, **72**: 122-123. (for further information please contact: J. Shergalin, Merktrans, Vaike Ameerika 8, EE 0001 Tallinn, Estonia).

**Rjabow, L., Sokolow, M. (1988).** Hunting and Game Biology. Stone marten and otter in the area of Woronesch. (for further information please contact: J. Shergalin, Merktrans, Vaike Ameerika 8, EE 0001 Tallinn, Estonia).

**Roberts, W.E. (1997).** Anura: *Leptodactylus pentadactylus* (*Rana ternero*, smoky frog). Predation. *Herpetol. Rev.* **28**: 84-85. (Mountain Res. Cent., 408 Traphagen Hall, Montana State Univ., Bozeman, MT 59717-3490, USA).

**Roberts, W.E. (1997).** Anura: *Rana pretiosa* (spotted frog). Predation. *Herpetol. Rev.* **28**: 86. (.address - see above).

**Rukovsky, N. (1994).** Tracks of river otter. *Hunt and Hunting Industry.* **4**: 10-11. (for further information please contact: J. Shergalin, Merktrans, Vaike Ameerika 8, EE 0001 Tallinn, Estonia).

**Ruiz-Olmo, J., López-Martin, J.M., Delibes, M. (in press).** Otters and pollution in Spain. *Symp. Zool. Soc. London.* (Generalitat de Catalunya, Dept. d'Agricultura Ramaderia i Pesca, Subdirecció General de Conservació de la Natura, Gran Via de les Corts Catalanes, 612-614, 08007 Barcelona, Spain)

**Ruprecht, A.L (1996).** Materials on the distribution of the beaver (*Castor beaver* L.) and the otter (*Lutra lutra* L.) in Poland. *Przegląd Zoologiczny* **40**: 235-241. (ul. Polna 12 "A" m. 27, 87-720 Ciechocinek, Poland).

**Satyanarayana, D. (1997).** Studies on smooth-coated otter (*Lutra perspicillata*) in two ecological different habitats in South India with special emphasis on its conservation. PhD Thesis, Osmania University. (for further information please contact: Nagulu, V., University of Osmania, Dept. Zoology, Hyderabad 500 007, India).

**Schenck, C. (1997).** Vorkommen Habitatnutzung und Schutz des Riesenotters (*Pteronura brasiliensis*) in Peru. Shaker Verlag. ISBN 3-8265-3126-4. (www.shaker.de or e-mail: info@shaker.de).

**Serfass, T.L., Whary, M.T., Peper, R.L., Brooks, R.P., Swimley, T.J., Lawrence, W.R., Rupprecht, C.E. (1995).** Rabies in a river otter (*Lutra canadensis*) intended for reintroduction. *J. Zoo Wildl. Med.* **26**: 311-314. (School of Forest Resources, Forest Resources Laboratory, Pennsylvania State University, University Park, Pennsylvania 16802, USA).

**Sikora, S. (1984).** Studies on the occurrence of otter (*Lutra lutra*) in Poland. (in Polish with English abstract). *Poznanskie Towarzystwo Przyjaciół Nauk Wydal Nauk Rolniczych I Lesnych.* 253-268. (Katedra Zoologii

AR, ul. Wojska Polskiego 71c, P-60625 Poznan, Poland).

**Sikora, S. (1984).** An otter *Lutra lutra* (L.) of black coloration. *Przegląd Zoologiczny*, **28**: 553-554. [in Polish] (.address see above).

**Sikora, S. (1987).** Behaviour of adult otters *Lutra lutra* L. in conditions of farm breeding. (in Polish with English abstract). *Poznanskie Towarzystwo Przyjaciół Nauk Wydal Nauk Rolniczych I Lesnych*. 205-215. (.address see above).

**Sikora, S. (1992).** The behaviour of otter (*Lutra Lutra*) connected with its places of shelter in conditions of enclosed breeding. (in Polish with English abstract). *Rozniki Akademii Rolniczej W Poznaniu*. 183-196. (.address see above).

**Spelman, L.H., Jochem, W.J., Sumner, P.W., Redmond, D.P., Stoskopf, M.K. (1997).** Postanaesthetic monitoring of core body temperature using telemetry in North American river otters (*Lutra canadensis*). *J. Zoo Wildl. Med.* **28**: 413-417. (Smithsonian Inst., Natl. Zool. Park., Dept. Animal Health, 3001 Conneticut Avenue, Washington, DC 20008, USA).

**Spelman, L.H., Sumner, P.W., Karesh, W.B., Stoskopf, M.K. (1997).** Tiletamine-zolazepam anaesthesia in North American river otters (*Lutra canadensis*) and its partial antagonism with flumazenil. *J. Zoo Wildl. Med.* **28**: 418-423. (.address see above).

**Stoskopf, M.K., Spelman, L.H., Sumner, P.W., Redmond, D.P., Jochem, W.J., Levine, J.F. (1997).** The impact of water temperature on core body temperature of North American River otters (*Lutra canadensis*) during simulated oil spill recovery washing protocols. *J. Zoo Wildl. Med.* **28**: 407-412. (N Carolina State University, Coll. Vet. Medicine, Env. Med. Consortium, 4700 Hillsborough St., Raleigh, NC 27606, USA).

**Thewissen J.G.M., Fish, F.E. (1997).** Locomotor evolution in the earliest cetaceans: functional model, modern analogues, and paleontological evidence. *Paleobiol.* **23**: 482-490. (Coll. Med., Dept. Anat., Rootstown, OH 44242, USA).

**Tjumin, B.N. (1990).** Diet of the otter in the autonomic Republic Komi. (for further information please contact: J. Shergalin, Merktrans, Vaike Ameerika 8, EE 0001 Tallinn, Estonia).

**Tölgyesi, G. (1997).** At the point of no return. (Electronical Group of Hód-Mezőgazda RT., H-6800 Hódmezővásárhely, Hungary).

**Udewitz, M.S., Ballachey, B.E. (1998).** Estimating survival rates with age-structure data. *J. Wildl. Manag.* **62**: 779-792. (US Geol. Survey, Biol Resources Div., Alaska Biol. Science Center, 1011 E Tudor Road, Anchorage, AK 99503, USA).

**Wolfe, M., Norman, D. (1998).** Effects of waterborne mercury on terrestrial wildlife at Clear Lake: Evaluation and testing of a predictive model. *Environ. Toxicol. Chem.* **17**: 214-227. (Toxicol. Task Force, 1233 W Hills RD, Philomath, OR 97370, USA).

**WWF Switzerland (1998).** Hoffnungsträger Fischotter. *WWF Magazin* 1/98. (WWF Switzerland, POB, CH-8010 Zürich, Switzerland).

## OTTERS AND FISH FARMS

*Proceedings*  
*International Workshop, Litschau, Austria*  
*8.-9. February 1996*

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The price of the booklet is 20.- DM or 140.- ATS (appr. 10US\$). Payment should be made in advance by one of the following means: Please send the amount either in an envelope directly to the Institute or transfer the amount without charges to the account no. 4908-10551, Erste Bank (20111), Inst. for Wildlife Biology and

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For further information please contact:

Dr. Andreas Kranz

Institute for Wildlife Biology and Game

Management

Peter-Jordan Str. 76

A-1190 Vienna

AUSTRIA

## **ASIAN OTTER NEWSLETTER**

*Newsletter of the IUCN/SSC Otter Specialist Group*

*Asian Section*

*Issue 5/1 March 1998*

N. Sivasothi is the editor of the 5th issue of the Asian Otter Newsletter. In this issue the following articles are included. Otter fishing in Bangladesh, Asian otters in Captivity, Status of Asian Otters Listed in the 1996 IUCN Red List of Threatened Animals.

For further information please contact:

N. Sivasothi, School of Biological Sciences, The National University of Singapore, Kent Ridge 119260, Singapore, e-mail.: [sivasothi@hotmail.com](mailto:sivasothi@hotmail.com).

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## CALL FOR INFORMATION

### AFRICAN CLAWLESS OTTERS (Genus *Aonyx*)

LARIVIÈRE Serge

I have now completed the written part of the two accounts on *Aonyx* species destined for publication in `Mammalian Species` (sister publication of the Journal of Mammalogy). However, before I can proceed with the submission, I need to obtain:

- 1- A photograph of *Aonyx capensis* (live if possible)
- 2- A photograph of *Aonyx congicus* (live if possible)
- 3- Skull pictures of *Aonyx congicus* (if you are willing to send the skull, I will take the pictures and return the skull by courier)

I will send any respondents copies of accounts on other otter species (*Lontra canadensis*, *L. felina*, *L. provocax*, *L. longicaudis*) as well as reprints for *Aonyx* species.

Thank you in advance,

Serge Larivière, Ph.D.  
Departement de Biologie  
Pavillon Vachon  
Universite Laval  
Ste-Foy (Quebec) Canada  
G1K 7P4  
e-mail: [serge.lariviere@bio.ulaval.ca](mailto:serge.lariviere@bio.ulaval.ca)

## **C O N G R E S S   A N N O U N C E M E N T**

### **3<sup>rd</sup> EUROPEAN CONGRESS OF MAMMALOGY**

May 30<sup>th</sup>- June 4<sup>th</sup>, 1999 in Jyväskylä, FINLAND

The congress will focus on scientific research carried out on Holarctic mammals. Contributions on general mammalian biology and ecology from other regions are considered as well. Suggestions for organisation of special workshops on different taxonomic groups (for example otters) or special questions of mammalian biology are welcome.

For further information please contact:

ECM3, Jyväskylä Congress, POB 35, FIN-40351 Jyväskylä, FINLAND

e-mail: [congresses@cone.jyu.fi](mailto:congresses@cone.jyu.fi)

Web-page: <http://www.jyu.fi/ecm3-1999/>