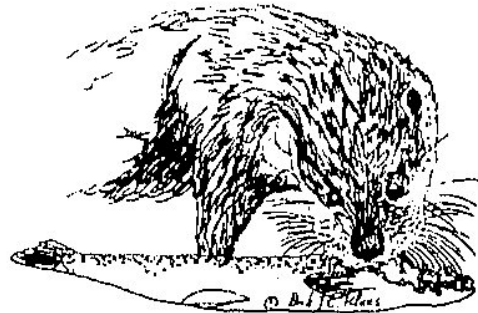
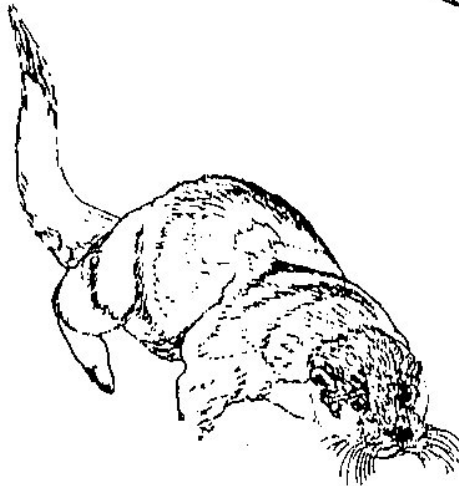


I.U.C.N. Otter Specialist Group



bulletin no. 1



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EDITORIAL

At the last meeting of the Otter Specialist Group at Santa Cruz, California, in August 1985, it was agreed to establish a bulletin to keep people informed of otter news, ongoing or recently completed research etc. The European section of the OSG already had such a bulletin, so it was decided to extend this to cover the interests of OSG members as a whole.

Because of the cost of production and postage, circulation will be restricted. This issue is being sent to OSG members, European Section members and those who earlier intimated that they would like to receive bulletins. If you know of anyone within your country who may be interested, could you photocopy the bulletin for them? Could non-OSG members inform me if they would like to receive future bulletins?

I hope to produce the bulletin at intervals of approximately a year. The next one is planned for March 1987, with February 1st as deadline for copy. News items, short articles (in the format of this issue) and information on new publications, reports etc. are all welcome at any time.

Thanks to Dick Klees (Das & Boom, Netherlands) for the cover design.

The production of this bulletin has been paid for from the Otter Fund of the SSC Otter Specialist Group.

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EUROPEAN OTTER REPORTS

Albania

During a visit to Albania in May, 1985 thirty-one sites were surveyed for signs of *Lutra lutra* and 17 of these sites were found to be positive. While the otter appears to be widespread, the rivers and marshes in the north-west and south of the country seemed to be of particular importance to the species. Several rivers in the coastal plain were grossly polluted and increases in agriculture and industrial development may endanger the survival of the animal.

The full results of the survey will be published in '*Biological Conservation*'.

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Denmark

'Project Otter' in Denmark is still growing. The survey of otters started in November 1984 using the British survey method has been completed in nearly all counties of Jutland. In brief, of 300 quadrats (10 km sq.) visited, signs of otters were found in only 65, mostly in the north-west region. We hope to finish the survey of the whole country by the summer of 1986.

The distribution of otters in relation to season is being monitored regularly on two different river systems (the rivers Karup and Hvidbjerg).

The first place where disturbance to otters is minimised and where habitat is protected and improved to suit the otters' needs (otter haven) has now been established in Denmark. I am sure that this will provide a good example to government agencies of what can be done to improve the otter situation.

A report "Otters and fish traps" has been prepared. This report is being sent to the Ministry of Environment and the Ministry of Fisheries with requests to establish negotiations on orders to use excluders on fish traps.

Investigations of 25 otter carcasses - including reproduction, age-determination and environmental pollutants - will probably be carried out in the spring of 1986 in cooperation with Swedish otter experts. Several talks on the radio and articles in newspapers and magazines have been produced and a folder and poster about the otter are now published.

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Surveys: Only small regional surveys have been carried out. Signs of otters in West Berlin (see Rahn, 1980) have been confirmed. In Lower Saxony otters have been found in some new places where they were not discovered during the last major survey 1927-1979. The "Aktion Fischotterschutz" has organized additional training meetings for German surveyors.

Research: The otter research enclosure in the Bavarian Forest National Park closed in the summer of 1985. A final report is available (see Mau, 1985).

In the Oderhaus otter research enclosure the following long-term studies are currently in progress:

- Physiological standard values (ECG, body temperature) and the influence of human disturbance (probable end; 1986)
- Visual efficiency (probable end; 1988) Acoustic efficiency (probable end; 1988)
- Vocalization (probable end; 1987)
- Prey catching behaviour (probable end; 1988)
- PCB and heavy metal load of fishes from otter habitats in Lower Saxony (probable end; 1986/87).

Reports are being prepared on the following studies which were completed in the last few months: Locomotion in the water (please contact Rolf Eggers, Zimmerstr. 19, D-3300 Braunschweig); Studies

of limnology and bank structure in East-Frisian otter habitats (Theo Poppen, Schutzenweg 30, D-2900 Oldenburg); Reactions to the deprivation of cover (Claus Reuther); Food remains (Claus Reuther).

Others in captivity: Successful breeding of *L. lutra* is reported by Mrs. U. Wilmering with two litters (1: one male; 2: two females). The second litter resulted from co-operation with the Oderhaus research station who own the female. Breeding also occurred between females from the Schwarze Berge wildlife park (Hamburg) and the Springe wildlife park and the Oderhaus male, Adam. This resulted in two litters of one cub each but both, died within the first few days.

A meeting for the exchange of experience of all German otter keepers was held from 9th-10th April, 1986 at the Oderhaus research enclosure.

Biotope Management: The otter biotope management plan for Lower Saxony, including 5,000 km of rivers, is planned to be published as a directive in 1986 by the government of this federal state. Because discussions about this directive have taken so long, "Aktion Fischotterschutz" has started a private biotope management programme. Since Christmas 1985 more than 80,000 DM have been collected. In January 1986 the first river banks were bought and the establishment of otter retreat areas (otter havens) has been started. In addition, more than 500 km of rivers could be closed for all types of boat traffic and more than 10 nature reserves covering more than 1,000 ha have been established for the otter by the government of Lower Saxony since 1984. (But we need much more!)

Theo Poppen will be engaged by the Government for at least one year to put the Lower Saxony otter biotope management plan into practice and to work as an adviser for the water management authorities. The government of Schleswig-Holstein has now engaged a biologist who will carry out a similar biotope management plan for that federal state also.

Others: We remind all scientists to send new publications about all species of otters to the "Aktion Fischotterschutz". They are needed to be included in ISOL. Detailed information about the Information-Service-Otter-Literature (ISOL) is available from Claus Reuther.

The "Aktion Fischotterschutz" has produced a video of their movie "Project otter - inquiries about the life of a threatened species". Information on this video is enclosed.

People who wish to receive the "Otter-Post" regularly should contact Claus. This journal of the "Aktion Fischotterschutz" is published four times a year. It is written in German with a short English summary for each issue. Two very interesting papers on genetic problems in the release of captive-born animals have been published in Germany and are recommended to all people planning such projects (see Hasse, 1985 and Radler, 1986 in the PUBLICATIONS).

Help Required: I am planning to publish a book containing all the most beautiful stories about otters. This will not be a 'scientific' publication but will be a collection of articles, parts of books, poems and folk tales. If you have any suggestions please write to me or send your contributions. I especially need stories about sea otters and about otters in Africa and Asia. The address is given below - thank you.

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Greece

It is now well established that there are still widespread populations of *L. lutra* in Greece. For some years, fears have been expressed that entry of Greece to the European Economic Community could, through subsidised increases in agricultural and industrial production, adversely affect otter habitats. Many Mediterranean countries, including Greece, suffer from soil erosion due to overgrazing by sheep and goats. Such erosion can frequently result in high silt levels in rivers which can limit or eliminate fish populations.

Sadly, early signs of EEC influence on habitats are already being recorded. The latest issue of "Nature - the Bulletin of the Hellenic Society for the Protection of Nature" (December, 1985) reports that - "The situation has become even more disturbing recently (the end of November, 1985) because the European Community has announced that it will grant a subsidy of 900 drachmas for every goat. So, instead of a restriction on there will be an increase in the flocks of goats".

An otter, shot by a hunter at Messolongi, western Greece, was collected by Martin Gaethlich. The tissues, analysed at the University of Essex, showed low levels of organochlorines and metals. The results are consistent with the healthy otter populations in this part of the country.

Israel

In March, 1986, we, together with Dr. Benny Shalmon, carried out a field survey for otters in Israel. Signs of the animal were found throughout much of the Jordan system including the Hula Valley to the north, the catchment of Lake Kinneret and the River Jordan itself. Gross water pollution poses serious

problems in the coastal plain. The Israeli otter population is confined to a small region and, while thriving at present, is clearly highly vulnerable.

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Ireland

It is probably correct to say that otters *Lutra lutra* are common in Ireland. Living in the west, it is my experience that in most cases a watercourse, lake or seashore that *looks* suitable will yield signs. Indeed spraints sometimes turn up in somewhat unlikely places. However, surprisingly little work has been carried out on the animals here.

Apart from Arthur Stringer's observations, knowledge of Irish otters up to 1970 consisted of occasional notes in the literature. Since then there have been three main sources of information. The first is an unpublished study by the Forest and Wildlife Service, the main government wildlife body in the Republic of Ireland. As far as I know this concentrated on two counties. It included surveys of holts and signs and analysis of around 1,000 spraints. Peter and Linda Chapman produced the *Otter Survey of Ireland 1980-81*, which was financed and published by the Vincent Wildlife Trust. This represents the most important advance of all. Of 2,373 sites checked 91.7% were recorded positive for presence of otters. The third source of data is a series of analyses of spraints from freshwater and marine habitats in the west of Ireland conducted recently in the Zoology Department at University College, Galway. Our knowledge of *L. lutra* in Ireland up to 1983 is reviewed in my book *An Irish Beast Book (2nd Ed. 1984, Blackstaff Press, Belfast)*, more recent publications being cited in the Bulletin.

Modern Irish work has therefore been almost entirely in the form of surveys and spraint analysis. Virtually nothing is known of actual populations, of breeding or movements. There is no research underway at the time of writing (January 1986) and no apparent plans by either government or private bodies to monitor status, even though repeat surveys were strongly recommended by the Chapmans. No special funding is available in areas which might include a major study on otters.

Although interest in wildlife is increasing, in reality nature conservation is of minor importance politically both in Northern Ireland and in the Republic, certainly if birds and deer are ignored. It seems likely that, in the foreseeable future, any research will be carried out from the universities or possibly by amateurs and will be of a minor kind.

Arthur Stringer, "*The Experienc'd Huntsman*"

The earliest series of accurate recorded observations on the Eurasian otter would seem to have been made by Arthur Stringer, huntsman to Viscount Conway on his estates on the eastern shores, of Lough Neagh in the north of Ireland. Stringer, whose father came over from England in the seventeenth century to work in a similar capacity, became a mammal specialist in the course of his career. He was an acute observer, kept extensive notes and was extremely sceptical of the contemporary literature on the chase. This led him eventually to produce his own hunting manual based entirely on personal experience, *The Experienc'd Huntsman*, which was published in Belfast in 1714. Until its recent republication in 1977 - it is now out of print again - it remained an obscure curiosity. It is nevertheless worthy of perusal by twentieth century mammalogists, for not only are there hunting methods, but also accounts of 'the nature' of the various beasts.

Stringer's treatise on *L. lutra* (somewhat less than 5,000 words) is clearly based on accurate observation, although his deductions are not invariably correct. He describes signs, holts and couches. He mentions fighting by dog otters over females, stating that 'The otter breedeth at any time of the year and hath commonly two, three, four or five young at a time'. There are also notes on mortality among cubs and details of food habits. While he thought that birds and mammals were not taken and that otters ate little anyway, most of his conclusions are right. The main foods he considered to be 'fish, frogs and worms' and that eels were the staple item. This is particularly likely to be true near Lough Neagh. Stringer's instructions for the actual hunting of the animals also make fascinating reading.

It would be interesting to learn whether there are, in fact, earlier reliable accounts of the natural history of *Lutra lutra*.

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Italy

In December 1985 the "Gruppo Lontra Italia" completed the otter national survey started in June 1984. This 18-month project was financed by WWF-Italy by means of special grants obtained from the Ministry for Forestry and Agriculture. The field survey has involved more than sixty people, most of which had been previously trained for such research in the River Fiora training area, while some had followed special otter training programmes in Great Britain and Greece. The standardized survey methods recommended by the IUCN Otter Specialist Group (European Section) have been followed as far as possible.

Two special sheets have been used: a "research" sheet for collecting data on habitat features and other useful elements of the visited sites, and another sheet for collecting historical or indirect data about stuffed animals, killings, sightings, etc. An effort was made also to gather all bibliographic or circumstantial evidence about the past distribution of the otter in Italy.

The project comprised 29 different sub-projects, one for each Italian region and for some especially interesting areas such as those of Rivers Sele, Fiora and Farma/Merse, the Lake Burano catchment, the Abruzzo National Park, the Delta of River Po, and the small lakes around the Como Lake. Moreover, a special enquiry was made about the otters kept in captivity in Italy during the last 15 years (only a pair of captive otters exist presently in our country, in the Faunistic Park "La Torblera" near Novara), and also a study was made of the fossil otters known so far from Europe and the Mediterranean Region. Nearly 1,200 sites were visited during the survey throughout the whole of Italy, but only 75 (6.4%) were found to be positive for otter signs. These were mainly concentrated in regions such as Basilicata (21 positive sites), Campania (22), southern Tuscany (10), northern Latium (5) and northern Calabria (4). Abruzzo and Molise provided respectively 2 and 3 positive sites only, while a single positive site only was found in Liguria (north of Savona) and in Emilia-Romagna (Comacchio area). All other regions proved to be completely negative. The best otter areas were confirmed to be those already discovered by Sheila Macdonald and Chris Mason in 1982, i.e. the Fiora and Sele catchments, while better findings than expected came from the Agri and Basento Rivers in Basilicata. The future of the otter in Italy appears therefore to be linked to the conservation of these remnant populations, all of which unfortunately are presently menaced by various projects (dams, factories) and lack of habitat protection.

The full results of the otter national survey, including a general report on this research and proposals for the conservation of the otter in Italy, is being published by WWF and will appear shortly.

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REPORT

AFRICAN OTTERS - IS THEIR EXISTENCE THREATENED?

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Three otter species occur in Sub-Saharan Africa. The Cape clawless otter *Aonyx capensis* inhabits rivers and lakes, and all streams in which there is sufficient water to support crabs, frogs, and catfish or mudfish, but is absent from the central rain forest area where the Congo clawless otter *Aonyx congica* is present. The spotted-necked otter *Lutra maculicollis* appears to be more dependent on permanent clear water than is *A. capensis*, and is the dominant otter in most of the large lakes as well as in some floodplain systems.

A. capensis has evolved primarily as a feeder on crabs, whereas *L. maculicollis* is better adapted for fish capture. Therefore, in countries which are poor in fish faunas the clawless otter is dominant and the spotted-necked otter is likely to be rare. On the other hand African floodplain rivers and most of the large lakes are particularly rich in fish, and it is in such habitats that *L. maculicollis* is dominant. Very little is known about the biology of *A. congica*.

None of these three otters is listed in the IUCN Red Book, but this does not mean that we should complacently sit back. There are serious problems.

When threats to the continued existence of an animal are mentioned one tends to think immediately of the direct killing of the animals. In a recent survey on otter status and distribution done in 23 African countries there were no reports of large-scale killing of otters for the fur trade. In all of these countries some otters are killed for their skins, or because they are believed to be pests, or because they are regarded as competitors for fish. The survey revealed, however, that the greatest threats to otters emanate from increasing human populations and damage to the habitat.

Food production in Africa fell below population growth about 15 years ago, and the need to cope with the food demand has led to excessive rates of soil erosion following increased and often unsound agricultural practices, coupled with overgrazing by livestock. These practices are responsible for rapid soil loss, increased water turbidity, and silting, which results in greatly reduced numbers or the extermination of aquatic insects, crabs, frogs and fish. Otters which are at the end of the food chain are directly affected by the loss of these aquatic organisms.

In many areas water draining off fertilised lands can cause adverse chemical changes in streams, or could pollute them with pesticide residues, once again affecting aquatic life.

The increasing demand for agricultural land has led to many swampy areas being 'reclaimed' by draining them. This not only means the loss of an aquatic habitat, but it also affects streamflow or water quality below the area.

Associated also with increasing human populations is urban expansion which tends to produce local disturbances affecting the permeability of the soil and resulting in increased run-off. In addition, urbanisation generally leads to industrial expansion, resulting in pollution of waters downstream of the development.

But all is not lost. Otters receive total protection in six of the African countries surveyed, and in all but one country there are national parks and game or nature reserves in which otters are generally safe from disturbance. One must remember, though, that the laws protecting wildlife are only as good as the degree of enforcement, and that protection of the animal starts with conservation of the habitat.

Conservation problems in Africa are complex. The protection of wildlife by having laws and national parks is important, but more important is the simultaneous conservation of natural resources outside of national parks and nature reserves. To do this conservation authorities should start with the base of the biological pyramid and educate people in sound agricultural practices, soil conservation, water conservation, and wise use of the grasslands and forests.

Increase in human population is the greatest single threat to wildlife in Africa where the population growth rate is 3% per annum. The 1980 population of 450 million is expected to have almost doubled by the year 2000. If wildlife is to survive the human population growth must be contained - not an easy task in a continent where most of the people are uneducated. Average primary school attendance in African countries is 11% of the population, with only a further 1% attending secondary school. Furthermore, amongst the many rural people a man's status is usually still rated as being proportional to his number of wives, children and livestock.

REPORT

DIETARY VARIATION IN SEA OTTERS (*ENHYDRA LUTRIS*)

J.A. Estes

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The generally secretive and often nocturnal habitats of otters makes behaviour in this group difficult to study. Thus, our knowledge of diet is poor for most otter species. The sea otter is a notable exception. This species feeds extensively during the day. Furthermore, its prey are brought to the surface and eaten, and since most foraging occurs in shallow waters near shore, many aspects of diet and foraging behaviour can be determined by direct observation.

In the mid-1970's my colleagues (R. J. Jameson and A. M. Johnson) and I began an intensive and wide-ranging study of diet and foraging behaviour in the sea otter. Our study was conducted at three locations within the present range of the species- the western Aleutian Islands, Prince William Sound, and central California. Because of overexploitation during the fur trade of the 18th and 19th centuries, and subsequent recovery following protection at the beginning of this century, sea otter populations had been re-established for varying lengths of time at each of these locations. We selected two study populations at each location: one that had been long established and one that had been more recently established. Our general purpose was to 1) describe large-scale geographical patterns in diet and foraging behaviour in sea otter, and 2) compare the effect of population status (i.e. length of time since re-establishment) on these measures.

We found considerable geographic variation in the diet, although not surprisingly considering the well known faunal variation across the rim of the eastern North Pacific Ocean. Twelve common prey types were eaten in the western Aleutian Islands, the most important of which were green sea urchins and nearshore fishes. Four prey types were eaten in Prince William and nearly all of these were clams and mussels. Nineteen prey types were eaten in central California, including crabs, sea urchins, abalones, top snails, and octopus. A less expected finding was that the longer established populations had more diverse diets (as measured by evenness) at all three locations. Extensive analyses were done to determine the principal sources of variation in diet, dive times, and surface feeding intervals. We evaluated such variables as age class, sex, reproductive condition (i.e. females with or without pups), water depth, tidal level, weather conditions and others. Although many of these variables had statistically significant effects, individuals contributed most variation in foraging behaviour in all instances. This finding was unexpected and eventually led us to look at the question of individual variation in more detail.

About 3 years ago K. Lyons and I began an intensive study of individual variation in sea otter foraging. This work was done in the general vicinity of the Monterey Peninsula, California, and was possible because the California Department of Fish and Game had marked a number of sea otters in the area with coloured flipper tags. These animals could be identified from shore with the aid of a high resolution spotting scope. Over the past several years we have accumulated extensive records on prey composition of about 15 individuals. In total, more than 25,000 foraging dives have been observed during the study, and we have virtually continuous records of some animals for the entire study period. The results are fascinating! We have discovered that although diet is diverse at the level of the population, it is not at the level of the individual. Most individuals specialize on one or several prey types. Furthermore, dietary preferences of individuals appear to be maintained through time, with one interesting exception. On several occasions during this study, known females gave birth to pups. In each case prey choice changed markedly following the birth, but then returned to the earlier condition following weaning.

The results of this recent work have altered my view on several aspects of the foraging biology of sea otters. Whereas earlier it appeared that individuals were rather catholic foragers, it now seems that there is considerable variation among highly specialized individuals. This finding has important implications to the ecology and social behaviour of sea otters, particularly in view of the fact that food can be a major limiting resource to this species. What are the costs and benefits of feeding on different prey? In view of the long period of association between mother and pup, is it possible that foraging variation has a matrilineal pattern of inheritance? Is diet related to social rank, and are there consequent

differences in reproductive success? These are some of the questions my colleagues and I are now addressing and hope to answer in the years to come.

REPORT

THE STATUS OF THE SEA OTTER IN CANADA

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Two species of otters occur in Canada. The sea otter, *Enhydra lutris*, is found along the Pacific coast while the river otter, *Lutra canadensis*, is distributed over most of the country. The history and current status of these two species differ greatly. This is the first of two reports of otters in Canada. In this report I will examine the status of the sea otter while in the subsequent report I will deal with that of the river otter.

The sea otter inhabits the coastal waters of the northern Pacific Ocean. Historically its range extended along the west coast of North America from Baja California Mexico to Alaska, across the Aleutian Islands to the Kamchatka Peninsula and south to the northern islands of Japan (Kenyon, 1982). In Canada, it probably inhabited the entire outer coast of British Columbia, especially along Vancouver Island and the Queen Charlotte Islands (Munro, 1985). During the 18th and 19th centuries the sea otter was hunted extensively for its rich fur. This heavy exploitation resulted in the sea otter being extirpated from most of its former range, including all of Canada, by the early 1900's. Viable populations of sea otters were restricted to Alaska and California only. To halt this decline Great Britain (for Canada), Japan, Russia and the United States signed an international treaty to protect the sea otter in 1911. In the late 1960's a programme was initiated to reintroduce sea otters into Canada. Between 1969 and 1972 a total of 89 otters were taken from Alaska and released along the west coast of Vancouver Island. The first reliable estimate of the status of this population was made in 1977 when 70 otters were observed (Bigg and MacAskie, 1978). By 1984 this number had risen to 350 animals (Bigg, *pers. comm.*) which indicates that the population is well established. The majority of the population appears to be confined to the region of the original transplant but sightings from other areas are becoming more frequent. This suggests that the population is dispersing to some extent.

In Canada, the sea otter is protected by both the Federal Fisheries Act and the British Columbia Wildlife Act. In 1976 it was declared endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and in a recent meeting this status was reconfirmed. International trade in sea otters is controlled by the Convention on International Trade in Endangered Species (CITES) which Canada signed in 1975. Because the original transplants were from Alaska, the Canadian population is classified as *Enhydra lutris lutris* and is listed on Appendix II of CITES rather than Appendix I as is *Enhydra lutris nereis*. Appendix II does not prohibit trade but does allow for the monitoring of trade of sea otters across Canadian borders. To date, trade in sea otters in Canada has been extremely limited (Heppes, *pers. comm.*) and considering the low population levels and the endangered status it is unlikely to increase significantly in the near future.

The current outlook for sea otters in Canada is optimistic. The extirpation of otters in Canada was caused by commercial exploitation and with continued protection it is likely that the population will continue to increase. Suitable habitat appears to be plentiful and does not appear to have been reduced significantly in quantity or quality since historical times (Munro, 1985). Given the remoteness of much of this habitat it is unlikely that human activities pose much of a threat at the present time. One possible exception, however, is the presence of oil pollution. Unlike most marine mammals, sea otters rely upon their fur for insulation. This fur is highly sensitive to environmental contamination and oiling has been shown to significantly reduce its insulative properties (Costa and Kooyman, 1982). This results in increased metabolic rates and can cause death. Considering the limited distribution of sea otters and the increased interest in offshore oil development and transportation along the British Columbian coast, this could pose a future threat. For now however, the future of sea otters in Canada appears bright.

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REPORT

THE RIVER OTTER, *LUTRA CANADENSIS*, IN CANADA

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The river otter, *Lutra canadensis*, is found only in North America where it is distributed over much of the continent from Florida north to the arctic tundra. In Canada, river otters were present in all major waterways until at least the 18th century ([Toweill and Tabor, 1982](#)). During the 1800's however, river otters were extirpated from Prince Edward Island and the prairie grasslands areas of Alberta, Saskatchewan and Manitoba due to trapping pressure and habitat destruction. Presently, river otters are found in every province and territory in Canada with the exception of Prince Edward Island. Their range is closely related to the distribution of forested regions where they are considered to have moderate to high population levels ([Parker, 1982](#)). River otters are also abundant along both the Pacific and Atlantic coasts where they have adapted to the coastal marine environment. Population levels are low or absent in some areas however, due to the unfavourable habitat or previous trapping pressures. These areas include the northern tundra - muskeg, Prince Edward Island, southern Ontario, parts of Alberta and the prairie grassland regions. Generally, the present distribution and population levels of river otters appear to be stable throughout Canada ([Parker, 1982](#)).

Because of the difficulties encountered in trying to census river otters, it is difficult, if not impossible, to determine accurately the exact number of animals present in Canada. The few population estimates which have been made are based primarily on changes in trapping statistics. Although fur returns are subject to a variety of biases, they provide the only indication of population trends available. Presently, the river otter is trapped for its fur in every province and territory in which it occurs. The total number of otters trapped in Canada has remained relatively constant over the past 30 years. Usually between 15,000 and 19,000 animals are harvested each year although a peak of 23,494 was recorded in 1980 ([Statistics Canada 1985](#)). The catch has subsequently declined to 15,615 in 1984. These changes in catch are likely related to changes in international demand and subsequent changes in the value of the fur. Average pelt prices reached a peak of \$98.79 in 1979 and have since declined to \$53.46 in 1984 ([Statistics Canada 1985](#)). River otters are often taken incidentally by beaver trappers, however, so the fluctuations which occur in the harvest of otters may also reflect the demand for beavers to some extent. The harvest of river otters has remained relatively stable in the different regions of Canada with almost half of the pelts originating in Ontario. There is no indication that river otter population levels are endangered in Canada as the result of current trapping pressure ([Parker, 1982](#)).

Because the river otter is classified as a furbearer in Canada, management is primarily the responsibility of the provincial and the territorial governments. The federal government has jurisdiction over national parks lands where all trapping is prohibited. In the provinces and territories management is based upon the use of trapping seasons, trapping licences and restrictions on trapping techniques. All regions monitor the harvest, and at least two provinces (Alberta and Manitoba) have quotas on the numbers of animals trapped. With the exception of Prince Edward Island where it is classified as extirpated, the river otter is not considered to be threatened or endangered in Canada.

Following the inclusion of the river otter on CITES Appendix II in 1977, the federal government began monitoring the international trade in river otters. In 1984 approximately half of the total harvest was exported from Canada. Of these, almost all (5,584) went to the United States as raw skins ([McLean and Robillard, 1985](#)). In addition, Canada also exports live river otters for zoological use and for recolonization programmes in the United States. In the past two years 13 river otters have been transferred from Ontario to Missouri in an attempt to re-establish a population in that state. There are plans for a similar recolonization programme in Nebraska (Penak, *pers. comm.*).

The greatest threat to the river otter in Canada is from the possibility of habitat destruction. Localized habitat destruction such as that seen in southern Ontario can affect local populations of otters ([Parker,](#)

1982). Of greater concern, however, is the possible impact of acid rain or hazardous wastes which affect large areas of the country. Like other members of the Lutrinae, *Lutra canadensis* relies upon the presence of clean, unpolluted water for their food, primarily fish. Also, because the otter is high in the food chain, they are particularly susceptible to the accumulation of toxic wastes. Therefore, the widespread presence of acid rain or toxicants which can result in a lack of food or the accumulation of contaminants such as heavy metals, can severely affect river otters over much of their range.

Unfortunately, very little is known about the impact toxicants can have on river otters.

Although otters are common throughout most of Canada, relatively little research has been done on this species. Within the past five years studies were conducted into aspects of reproduction (Stenson, 1985), habitat utilization (Reid, 1984) and heavy metal contamination (Wren, pers. comm.) but all have since ended and no new projects have been started. The effects of habitat alterations and the deterioration of water quality have yet to be examined. Although interest is still present, river otters are considered to be low in priority for most wildlife agencies.

For the most part, however, the future of the river otter in Canada looks bright. There is no indication that population levels are declining under the current level of trapping and Canada contains large regions of favourable habitat which appear to be supporting stable, healthy populations.

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REPORT

THE HUILLIN IN ARGENTINA

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In lakes, ponds and rivers in the Argentinean Andes of Patagonia, in central and southern Chile, and in the complex, fjord-rich marine coasts of southern Chile and its islands, lives the species of otter which seems to occupy the smallest geographical range (in terms of area) in the world: the southern river otter or huillin, *Lutra provocax*.

In 1982 we began research in Argentina on this previously almost unknown species, which is included in the IUCN Red Data Book as "Indeterminate", and is included in the Argentine list of endangered species. The work, financed by the National Parks Administration, covers several aspects of huillin's conservation biology.

1. Distribution survey:

As with much of the South-American fauna, the published geographical range of this species, particularly in Argentina, was vague, so in fact we did not know where the populations actually were. We adapted to our conditions the methodology of the British surveys for the Eurasian otter, and visited 275 sites in the north-Andean Patagonic National Parks (Lanin, Nahuel Huapi, Puelo and Los Alerces), in search of huillin signs. We found evidence of the otter's presence at only 32 sites (11.6%), most of them (28) in the large Nahuel Huapi Lake sub-basin. These Andean parks are mountainous, with many lakes of glacial origin, and

densely forested, with a cool climate.

The species, according to local settlers and Park-rangers, disappeared from the other 3 parks and from the south of Nahuel Huapi in the last three or four decades, apparently due to intensive hunting. The population of Nahuel Huapi is of critical importance for conservation of the species in Argentina. There is also a population on Staten Island (Tierra del Fuego) but its importance and status is, as yet, unknown.

The results of the survey also indicate that human disturbance by itself (of course, if animals are not hunted) has not had a significant impact on huillin populations and status. We measured the effect of frequency of human visitors, presence of settlements nearby and the presence of domestic dogs, for each site. The results also strongly suggest that very dense and mature vegetation cover on the shore, very close to the water's edge, including abundant fallen trees, is a key factor for permanent and healthy populations. (For details see Chehebar [1985](#), [1986](#)).

2. **Food-habits and habitat use:**

We decided to make studies on some aspects of the ecology of the species in Quetihue Peninsula, Nahuel Huapi Lake, especially in Laguna Patagua. Otters use this pond all the year round, with roughly the same intensity at all seasons, judging from scat deposition rates. Through analysis of scats on a monthly basis, over 18 months, we now know that there, the huillin feeds mainly on macrocrustaceans - the anomuran *Aegla*, endemic to South America, and the parastacid crayfish *Sammastacus*. Fish make up a very low percentage of the diet, with a peak of 10% (frequency of occurrence) during late autumn. Otters also seem to eat large quantities of clams (*Diplodon*) but we have not directly confirmed this yet. The most likely explanation of this pattern, i.e. few fish and many crustaceans, lies in the relative availability and abundance of prey species in these oligotrophic, clear and cool waters.

We have also mapped scat distribution, to gain insight into habitat use, and the data are being analysed.

3. **Behaviour:**

We have begun the last phase of the study, using radio-tracking (the equipment has been bought with OSG funds). We hope to obtain information about movements, home range, habitat use, activity patterns and, with a little bit of luck, densities. The ultimate goal is to devise a management strategy.

We recommend re-introduction of huillines in Lanin, Puelo and Los Alerces National Parks, through translocations of animals, so as to minimize the risks involved in the present dependence on Nahuel Huapi and Staten Island (as far as we know) for the conservation of the species in Argentina. Also, we recommend careful monitoring and protection of the Nahuel Huapi population and protection of the Staten Island ecosystems.

The work benefited from the participation of Maria D. Gottelli, Adriana Gallur, Guillermo Giannico, Pablo Yorio, Patricia Livingston, Javier Perez Calvo, Graciela Artigas and Alcides Iacopini.

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REPORT

A PROGRESS REPORT ON THE SPECIES SURVIVAL PLAN FOR ASIAN SMALL-CLAWED OTTERS IN UNITED STATES ZOOS

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Asian small-clawed otters (*Aonyx cinerea*) became the focus of an American Association of Zoological Parks and Aquarium's Species Survival Plan in early 1983. At this time a committee was established to encourage more research in the captive propagation of this species toward the ultimate goal of insuring the long-term survival of this otter in zoos, and in the wild. The Species Survival Plan committee at this time consists of curators from the National Zoo, the New York Zoological Society, the San Diego Zoo, the Brookfield Zoo, the Santa Barbara Zoo, the Minnesota Zoo and a handful of other zoos in North America.

When the Asian otter SSP /committee was initiated, these otters were maintained in more than ten zoos, but were successfully reproducing in none of them. Various explanations were offered to explain this breeding failure. New animals were imported from zoos outside the United States to supplement the United States' captive population of ageing, previous pets. In the past two years two facilities have had repeated successful births, and two others have recorded first births that were stillborn. Research initiated by members of the SSP committee is now in progress to understand more of the reproductive, genetic and behavioural make-up of the Asian small-clawed otter. An assortment of these projects is summarized below. Anyone reading this report with information to supplement these findings is requested to please contact the researchers directly, or Pat Foster-Turley, the Asian small-clawed otter SSP Co-ordinator, at the address listed below.

Husbandry

Ms Connie Carson (San Diego Zoo, San Diego, CA 92112) is compiling all husbandry information available on Asian small-clawed otters and is preparing a report scheduled for completion by the end of 1986. This report will summarize the types of enclosures (natural vs. concrete), the sizes of enclosures, the husbandry routines in effect in various zoos and the diets these animals are being fed. Those facilities successfully breeding Asian small-clawed otters will be carefully scrutinized for clues to their successes that might help other zoos. The data on the presence of kidney stones in captive otters, the diets these otters are maintained on, and the types of stones and treatments will be reported on by veterinarian Dr. Paul Calle. Anyone with information to contribute to this report is asked to contact Ms Carson as soon as possible.

Hormones and Behaviour

Dr. Donald Gillespie and Dr. Cynthia Bennett (Santa Barbara Zoo, 500 Ninos Drive, Santa Barbara, CA 93103) have been studying the behavioural and hormonal correlates with oestrus of their three pairs of Asian small-clawed otters for the past year and a half. Techniques were developed to measure oestrogen and progesterone in the urine collected from the animal's holding pens. In the past six months, four other United States zoos began collecting urine from their otters and sending it to a lab for analysis, following the Santa Barbara Zoo protocol. In addition, the Santa Barbara team has developed activity profiles and a catalogue of behaviours of their otters. Behavioural indications of oestrus have been correlated with urine oestrogen peaks. A full report on their work is due later this year, and may be obtained by contacting them. They are hopeful that they will receive continued funding to expand upon this work.

Pair-Bonding

Asian small-clawed otters are monogamous and both partners share in cub-rearing duties; they are also highly selective in choice of mates. Mate selection and pair-bonding is being investigated at the otter facility called Otter Haven, in South Carolina. Here one breeding pair of Asian small-clawed otters has produced three litters, mostly females. A male from the San Diego Zoo, accompanied by Connie Carson, is being shipped to South Carolina for this experiment. Dr. Cynthia Bennett, Dr. Shirley McGreal and Ms Carson will quantify the introduction procedure when this male is given the choice of pairing with one of seven female siblings. A report on this introduction will be presented at the 1986 AAZPA conference.

Genetics

Dr. Robert Lacey (Brookfield Zoo, Brookfield, Illinois 60513) and Pat Foster-Turley (Marine World-Africa USA, Vallejo, CA 94589) are collaborating on an electrophoretic analysis of blood obtained from a sample of 66 North American river otters (*Lutra canadensis*) collected in Louisiana and being released in Missouri. These results will give us an otter baseline to compare to captive populations of Asian small-clawed otters. All zoos with Asian small-clawed otters are requested to procure blood samples from their animals, if they must be anaesthetized for other medical reasons. As the wild history of most captive Asian otters is unknown and individuals may have originated from such disparate locations as Thailand, Borneo and the Philippines, some of the reproductive failures observed may have a genetic basis. Depending on the results of the initial analysis of North American otters, and any samples obtainable from captive Asian otters, more blood samples may some day be collected from Asian otters in the field. Anyone with electrophoretic information on any otter species is requested to contact Pat Foster-Turley.

Studbook

The North American regional studbook for Asian small-clawed otters has been transferred to Susan Engfer (Santa Barbara Zoo, Santa Barbara, CA 93103) who plans to expand it within the year to an International version. Susan Engfer requests that anyone with information on Asian small-clawed otters in non-US zoos please contact her. She needs information on each individual animal (name; identifying number; parents, if known, if wild-caught, then location of origin; birthdate; location where this animal is now, and has been in the past, with dates of transfer; and any unusual information on this animal). The studbook is a useful tool for all captive animal managers and it can use your assistance. You can obtain a copy of the current studbook by writing to Ms Engfer.

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