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Otters

The World Conservation Union
SPECIES SURVIVAL COMMISSION



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Foreword

Wild animals and people are both part of the natural environment, and there has always been a close relationship between them. From earliest times, that inter-relationship has ranged from the practical to the aesthetic; from nourishment of the body to nourishment of the spirit. Although most of our animal protein now comes from domesticated species, wild animals are still an important source of protein for local populations in some parts of the world. The same continuity can be seen today in the artistic representation of wildlife found in many societies, which can trace its lineage from Stone Age cave paintings.

From prehistoric times, animal skins and furs have been used for protection and, later, for adornment. The fur trade evolved in response to these needs. Today, 85-90% of the world trade now involves farm-raised species, mainly mink and fox, which are considered part of normal agriculture.

Nevertheless, several wild fur-bearers have dramatically declined in numbers. Conservation is imperative if some of the threatened species are to survive and sustained yields are to be maintained. Indeed, the World Conservation Strategy points out the importance of wild animals and plants as a source of income for rural communities. This is especially true of the wild fur trade in Canada. There are, therefore, very practical reasons for the fur trade becoming involved in conservation, which it has by close association with wildlife management.

Involvement of the fur trade in conservation on a major scale dates from the early 1970s when one particular species was the focus of concern. Following the sharp decline in the flow of leopard skins from producing areas, the International Fur Trade Federation (IFTF) took the unprecedented step of introducing a voluntary ban on handling leopard and some other species - several years, in fact, before the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) came into force.

The fur trade has contributed to funding research into the status of leopard and cheetah in sub-Saharan Africa, in cooperation with IUCN - The World Conservation Union. This interest in cats continued with support for a survey of the status of South American species, again in cooperation with IUCN.

IUCN is pleased to acknowledge the substantial financial support and cooperation of the IFTF, which has made possible the preparation and publication of conservation action plans for fur-bearing mammals, and has also provided for this series of public education booklets. Conservation of the world's biological diversity is dependent upon all of us. We welcome your support.

Otters

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Cover: Eurasian otter (Lutra lutra) feeding on fish Paul Meitz/Bruce Coleman

This One





Eurasian otter (Lutra lutra) emerging from the water, Ayrshire, United Kingdom

Otters are members of the weasel family, the Mustelidae, which also includes badgers, mink, polecats and martens. Otters are semi-aquatic carnivores which obtain most, or all, of their food in the water. In appearance, they are small to medium-sized animals, with short legs, rather long, slender bodies and a lengthy, tapering tail. The entire body - apart from the feet and muzzle - is covered in soft, dense fur. Otters have well-developed senses, making them expert hunters; their natural curiosity, sharp instincts and tremendous versatility have enabled them to adapt to a variety of habitats, ranging from the marine to freshwater environments.

Historically, the otter family tree is ancient, with otter-like forms inhabiting the earth as many as 30 million years ago. Through the millennia, they have not undergone any spectacular evolutionary changes; instead, a number of subtle modifications have taken place on the basic carnivore body form, which have enabled otters to exploit the rich aquatic environment where today, in many cases, they are the chief predator.

An otter's fur, for example, is similar in structure to that of a dog, but it is much denser, thereby giving it a more insulative and water repellant quality enabling them to stay in cold water for much longer periods of time. There are, of course, several different species and sub-species of otters, each differing in behavioural and/or morphological adaptations which have evolved in response to their respective environmental niches.

Although all otters have webbed feet, the extent of webbing varies considerably between species, and tends to be greater on the hindfeet to assist with propulsion. In size too, the hindfeet are usually larger. Eurasian and North American river otters have well-developed webbing on all feet, and their toes have sharp claws for gripping slippery prey such as eels and other fish. Small-clawed otters, in comparison, have only partially webbed front feet so that the individual digits are far more flexible, allowing the animal to probe for prey in mud or beneath stones. Sea otter limbs are very different from those of their freshwater cousins, being more similar to flipper than to feet. The paws are very tough, but are also sensitive and the toes bear retractile claws - like those of a cat - which assist with the capture and manipulation of prey.

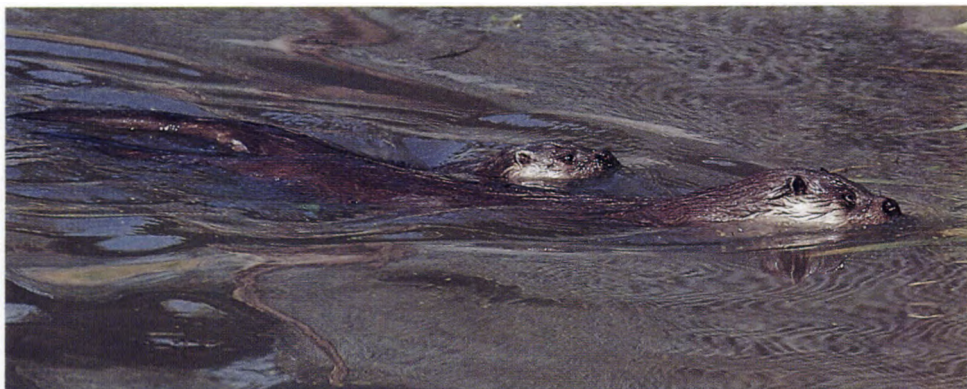
In a similar manner, the teeth of different species have evolved according to their particular needs: crushing the shells of



River otters like this giant otter (Pteronura brasiliensis) in Surinam are usually fish-eaters and have well-developed claws for gripping fish and sharp teeth for biting and chewing.

crabs and molluscs requires very different tools to those needed for gripping slippery fish and for slicing up their flesh, so that sea otters, which feed predominantly on crabs and sea urchins, tend to have broad and flattened surfaces on their teeth, whereas river otters, which are largely piscivorous (fish eating), have much sharper teeth, which are better suited to biting and chewing.

All of the senses - vision, hearing and smell - are keenly developed in otters: eyes and nostrils are placed high on the head, so that the animal can see and breathe even when the rest of the body is submerged - a useful defense strategy. The characteristically long whiskers - vibrissae - which surround the muzzle are highly sensitive and are believed to assist the otter with locating prey, especially in the dark or in murky waters, when visibility is reduced. The ears are generally small and protected by special valves which close when the animal is under water.



Eurasian otter (Lutra lutra) and cub. Once in the water, the otter's streamlined shape and webbed feet enable it to swim with graceful agility matched only by seals and dolphins.

On land, otters have a humpbacked appearance, because their hind legs are longer than their front legs. However, this awkward-looking posture is deceptive and otters can run very quickly, if required. Once in the water, the otter's streamlined shape and webbed feet enable it to swim with a graceful agility matched only by seals and dolphins. When swimming slowly on the surface, the paws are used to paddle, like a dog. Underwater, their legs are held tightly against the body, except when they are needed for steering, and the hind end of the body is flexed up and down, propelling the animal through the water at impressive speeds.

Contrary to popular belief otters can only dive for very short periods of time: about 30-40 seconds, in the case of most river otters and about 50-60 seconds for the sea otter. Although sea otters have greatly enlarged lungs and higher concentrations of haemoglobin in their blood than other otters, they are still unable to dive for very long. Buoyancy seems to be one of the main reasons for this and, while foraging on the sea bed, otters will often pick up and carry a rock, which may help keep them submerged for an extra few precious seconds.

All furred animals spend time grooming in order to remove parasites and to maintain their coats in good condition. Otters are no exception and devote a considerable amount of time each day to this task, which ensures that the animal retains its essential waterproof mantle. Vigorous grooming with claws and incisor teeth ensures that dirt and debris are removed from the fur, and oil from sebaceous glands is liberally smeared onto the fur with the paws. When wet, the oils help mesh the fur together, giving the animal a highly efficient insulative barrier against the cold. Grooming sessions are usually terminated by the animal rolling in sand or rubbing against a log or similar object. During infancy, the mother otter, or bitch, grooms her young. In the case of the sea otter this is particularly important as cubs are actually born in the water. In this case, immediately after giving birth, the mother will seize the cub and, floating on her back, transfer the newly-born infant to her stomach, where she will groom and suckle her offspring. All other species of otter give birth on land, usually at a specially chosen den site. ■

Today, there are 13 species of otter, spread throughout North America, Central and South America, Europe, Asia and Africa. The only continents without otters are Australia and Antarctica. Throughout their wide geographical range, otters occupy a great variety of habitats, ranging from cool, clear mountain streams to major river courses, canals, marshes, lakes and even coastal areas. However, wherever they live, all species are bound to water in some way or another. While most otters depend on freshwater for drinking and cleaning their fur, one species, the sea otter, has completely severed its dependence on freshwater and is a totally marine species, rarely venturing onto land. All other species rest and give birth to their young on land. ■



The sea otter (Enhydra lutris), seen here feeding on a sea urchin in a kelp bed, is a totally marine species which rarely ventures onto land.

Because of their secretive way of life and often nocturnal patterns of activity, otters are frustratingly difficult animals to detect. The sea otter is one of the easiest species to observe, since it feeds extensively during the day and spends much of its time floating on the surface, eating or sunbathing. It is therefore easy to count and observe, either from land or air.



Otter sightings are generally few and far between but to the trained eye, spraints and runways provide valuable evidence of otter habitation in a particular area.

Encounters with river otters, however, are generally infrequent and, as a result, surveys and observations are often based on finding obvious signs, such as foot prints, feeding remains or faecal deposits, called 'spraints', and making sleuth deductions from these clues. Spraints are

used by otters to mark and define the limits of their home ranges and are often deposited at conspicuous sites, such as on prominent stones or logs in a stream, under tree roots or bridges, on sand bars or where streams meet. Overland paths are also commonly marked with spraints. By looking for such signs, an experienced researcher can deduce a great deal of information about the otter's behaviour and, occasionally, its conservation status within a particular region.

Spraints have a distinctive musky odour and often contain identifiable food remains such as fish bones or scales, amphibian bones, or the remains of crustacea, such as crabs or sea urchins. For otters, spraints are an important conveyor of information about the species and even the individual's own identity, as well as its age, reproductive condition and social status. ■



Footprints too provide information about the otter's conservation status in a particular area.

Latin America

Latin America is one of the richest areas of the world in terms of biological diversity, featuring a tremendous array of habitats, from equatorial to sub-antarctic climates and from coastal to high mountain ecosystems. Otters are found in most of these habitats, except for large arid areas. Latin America boasts four endemic otter species (i.e. found nowhere else in the world): the giant otter, the neotropical otter, the southern river otter and the marine otter.

There are two additional species that have been recorded from Mexico: the North American river otter and the sea otter, although this latter species is no longer found in Latin America. Both of these species occur in North America.

The two species of otter most widespread in Latin America are the neotropical otter, which ranges throughout Central and South America, and the giant otter, which inhabits most of the countries in northern and central South America. This

species does not occur in Central America. The southern river otter and the marine otter are much more restricted in their distribution, both having a stronghold in Patagonia. The range of the marine otter extends along the South Pacific coastline, almost up to the equator.

The neotropical otter is a medium-sized otter, with a head and body length ranging from 40-70cm, and a tail length of 39-50cm. Its weight is generally less than 12kg. This species, which occurs over a wide area from Mexico to northern Argentina, lives in a variety of habitats, from small forest streams to lakes, marshes, coastal savannah swamps and marine coasts associated with freshwater lagoons. It feeds mainly on fish and crabs. Very little is known about its ecology, but it is believed to be a solitary species. Throughout its range the neotropical otter has suffered from severe hunting pressures and, thus, is locally extinct over many parts of its former range.



The neotropical otter (Lutra longicaudis) has suffered from severe hunting throughout its range .

Despite official protection, illegal hunting continues, although the greatest threat to its continued survival is probably from increasing habitat alteration and water pollution.

The southern river otter is a freshwater species that is found only in the southern parts of Chile and western Argentina. It differs from the neotropical otter in that it is generally larger, with a striking colour difference between its dark brown back and a very pale underside. This species, which requires dense vegetation cover near to the shoreline, occurs in lakes, rivers and estuaries. Its diet consists almost entirely of crustaceans and shellfish. Almost nothing is known about its ecology or conservation status.

The marine otter or 'sea cat' occurs along the Pacific coastline, from equatorial Peru to the southern tip of South America, with the most abundant populations occurring on the Chiloe Islands and further south towards Cape Horn. This species occurs mainly on exposed rocky shores, where shellfish form the greatest part of its diet.

South America is also home to the giant otter, one of the largest carnivores of the region, with males reaching a length of up

to 1.8m and a weight of up to 34kg. Truly a majestic animal, the body is covered in a dense, chocolate-brown coat which is offset by a rich yellow or whitish throat patch (depending on the sub-species). The giant otter lives in large rivers and secluded forest creeks which are backed by dense vegetation. The main factors that influence habitat choice are low, sloping banks, which offer good cover and easy access to forest creeks or swampy areas which have abundant prey. Fish make up the greatest part of the diet. Although these animals forage in the water, their resting sites are on the stream banks, where they clear the vegetation by biting off shoots and trampling the ground to create an open area for sunning themselves. Such sites are also important scent marking stations.

Although widely distributed - its range extends from Venezuela to northern Argentina and from the headwaters of some Amazonian rivers to the Pantanal and the Brazilian Atlantic forests - populations tend to be isolated and restricted to small areas, largely as a result of overhunting and habitat destruction. Giant otters are mainly diurnal - active during daylight - and live in noisy, inquisitive, extended family groups of up to 20 animals. The



The marine otter (Lutra felina) is still hunted for its fur although legally protected and considered to be threatened.



Giant otter (Pteronura brasiliensis) resting on fallen tree, Manu National Park, Amazonia.

home range of such a group may extend over 12km². Their daylight activities and noisy social behaviour - frequent loud whistles and plaintive calls - make them especially vulnerable to hunters. Due to former hunting pressures the giant otter is classified as seriously endangered in seven countries, almost extinct in two, and widespread only in Surinam and Guyana.

Today, three of the Latin American species are severely threatened with extinction: the southern river otter, the marine otter and the giant otter. The giant otter's range has been greatly reduced through severe habitat destruction, and its diurnal, social habits, along with its size (and consequent pelt value) make it exceptionally vulnerable to hunters. The two Patagonian species, the marine otter and the southern river otter are also of special conservation concern, due to their restricted ranges and because they, too, are often hunted for their pelts.

In former times, and especially during the last two centuries, man has exploited wild otter populations in Latin America, primarily for their skins. Otter pelts were very much in demand in the international market during the first half of this century. Since the

1960s, however, hunting pressure has declined significantly, due to the growing concern for wildlife conservation and because of the participation of Latin American countries in CITES*. Nevertheless, otters are still hunted in several parts of the continent. Enforcement of hunting and trading bans is made difficult by the poor living conditions of the many people who harvest wildlife illegally, and by the inability of governmental authorities to enforce their laws.

However, concern is growing about otter protection in Latin America. The system of protected areas has grown substantially in recent decades and this provides important protection opportunities for otters. Nevertheless, continued enforcement, together with more appropriate habitat management plans are also essential if these species and their habitats are to be saved for the future. There is also an urgent need for additional field research to help obtain a realistic assessment of the distribution and conservation status of all otter species in South America.

* CITES - The Convention on International Trade in Endangered Species of Wild Fauna and Flora - provides a legal mechanism for either regulating or prohibiting international trade in a given species.

North America

North America has two otter species: the sea otter and the North American river otter. Like its European counterpart, the North American river otter ranges widely in freshwater habitats, frequenting rivers, lakes and freshwater swamps. It also occurs on a few rocky sea coasts, for example in Alaska, California and British Colombia.

The North American river otter can be recognised by its large, conspicuous rhinarium - the hairless part of the nose. Originally, this species ranged widely in North America, from Arctic Alaska to the southern states of Florida and Texas, but its range has shrunk drastically in the present century. As a result, it is now absent from much of the interior region of the United States, as well as southern Canadian prairies. The main causes of this decline are habitat destruction, water pollution and hunting for its fur. Today, otters are still trapped for their fur in 38 states and provinces in the United States and Canada, although this trade is now subject to controls.

Vegetation along river banks is an essential component of this otter's habitat and such

sites may also attract beavers, which create ponds and lodges that may later be used by otters. These otters are generally solitary in nature, with individual home ranges that extend from 4-78km in length, depending on the season and habitat quality. Adult males have the largest home ranges, especially during the spring breeding season. The north American river otter is unusual in that it exhibits delayed implantation of fertilised eggs: in most areas, cubs are born in late winter or early spring, following a gestation period of almost nine months. In most species, this is much shorter: nine weeks for the Eurasian otter and 4-5 months for the sea otter.

Conservation measures implemented at the beginning of the 20th Century, namely restricted trapping and hunting seasons, preserving wetlands, and public education programmes, undoubtedly contributed to the initial recovery of the North American river otter population. The re-introduction and restocking of beavers from the 1920s to the 1950s also had a positive influence on otter populations because of the increase in the number of safe wetland sanctuaries.



River otter (Lutra canadensis) with trout.



Sea otter (Enhydra lutris) eating a clam, Monterey Bay, California.

The sea otter is the largest of all mustelids, with males occasionally achieving a weight of 45kg. Spending most of their time in the ocean, sea otters have developed some seal-like characteristics, with small stumpy forefeet that lack obvious toes, but which are nevertheless highly mobile and adapted to picking food from the sea bed and manipulating it while eating. The hindfeet are large and flipper-like. Lacking a layer of blubber, the sea otter has very dense fur to trap an insulating layer of air and, in order to maintain this insulation, much time is spent in cleaning and grooming the fur.

Sea otters feed largely on invertebrates and their teeth, unique among carnivores, have no sharp cutting edge. Instead, the rounded surfaces are adapted for crushing the tough outer skeletons of marine invertebrates, such as crabs. Sea otters also have an interesting way of dealing with particu-

larly tough shelled prey: one of their favourite food items is sea urchins, which are normally too difficult to break open using their teeth alone. However, these versatile animals have developed a way to overcome this problem: when foraging on the sea bed for sea urchins, the otter will also collect a small rock which it will retain until it resurfaces. Then, wallowing on its back, the rock is carefully positioned on the animal's stomach and the shell smashed against it, until the fleshy part of the sea urchin can be extracted. Sea otters are key predators and, in some areas where populations are high, grazing sea urchins are few and luxuriant beds of kelp develop, allowing the survival of fish and a wide range of other invertebrates. Their preference for certain types of prey, however, has brought sea otters into conflict with fish farmers who operate commercial shell fisheries.

The sea otter was once distributed across the rim of the Pacific Ocean from the northern Japanese archipelago to central Baja California, in Mexico. It was extensively hunted during the 18th and 19th Centuries and was virtually extinct by the early 20th Century. Following specially implemented protection measures, the sea otter population has now recovered in many areas and, in recent years, the species has been re-introduced to many of its original sites. Today, it is thought to be the least threatened of all the otter species.

Sea otters are social animals and established populations show distinct sexual segregation - groups ('rafts') of males and females occurring at different locations, with male congregations usually being larger than those of females.

Europe & Asia

Five species of otter are known from Eurasia. They are: the Eurasian otter, the

smooth otter, the hairy-nosed otter, the small-clawed otter and the sea otter.

The Eurasian otter is the only otter species found in Europe and is also the most widely distributed otter species in the world, ranging from Ireland to Japan and from the Arctic to North Africa and Sri Lanka. Within this vast geographical area, ten sub-species are recognised.

Today, however, numbers are seriously depleted, particularly in much of western Europe. From such situations, where the decline has been relatively well studied, additional information has been obtained on the reaction of a species towards human disturbance: as an otter population declines, it tends to disappear initially from the lowland plains where the habitat is degraded by intensive agriculture, industrialization, expanding cities and increasing human disturbance. Animals may then become restricted to the wilder uplands,



The Eurasian otter (Lutra lutra) is the most widely distributed otter species in the world.

although high mountain regions may prove to be unsuitable because of insufficient food supplies. If upland areas are also degraded, then the species faces local extinction. There are now many western European countries where the Eurasian otter is very rare or absent.

Eurasian otters occupy a wide range of freshwater habitats and, in some regions - for example where there is easy access to freshwater springs and pools - the species may adopt a predominantly coastal lifestyle (as observed in secluded areas of Ireland, Norway and Scotland). However, even these 'coastal-dwelling' otters are still reliant on freshwater for drinking, bathing, etc. The diet largely comprises fish, especially eels. Amphibians and crustaceans are also commonly eaten and birds and small mammals may be captured on an opportunistic basis. As a general rule, this species is strictly nocturnal, except in remote areas where human disturbance is minimal, when they may be diurnal.

The Eurasian otter can breed at any time of the year. One to three cubs are normally produced and they remain with their mother for about one year before dispersing. During this period of time, it is the mother alone who is responsible for the welfare of her cubs.

At the top of the food chain, this species is a valuable indicator of the health of the wetland environment. Any measures which successfully benefit the conservation of this species, will also prove beneficial to the wetland ecosystem as a whole, including those resources (such as water and fish) directly utilized by man. The Eurasian otter is on Appendix I of CITES (which prohibits international trade in the species), and is considered by IUCN to be 'Vulnerable' due to its declining numbers. It is now protected in most European countries.



The Indian smooth-coated otter (Lutra persicillata) is larger than its European cousin and has thickly webbed feet.

In Asia, otters are threatened by a combination of habitat destruction and hunting. One of the consequences of the increasing human population across Asia is the rapid conversion of forests to other land uses. Forest destruction, in general, and riparian vegetation, in particular, is a serious conservation problem in Asia. As a result, many Asian countries which previously had viable otter populations now have severely depleted numbers. In Hong Kong, Japan and Singapore, for example, otters are believed to be extinct, and all species are thought to be rare in much of the rest of Asia. Hunting pressures in Asia come from two sources: those people seeking the luxurious pelts, and those seeking certain parts of the body which, in some regions, are believed to have medicinal properties.

Despite the apparent pessimistic future of otters in Asia, there is room for some guarded optimism. In Peninsular Malaysia, for instance, otters are still widespread in many areas, even beyond the boundaries of protected areas. In other coun-

tries, healthy populations of otters are believed to exist within the existing system of national parks and reserves. Indonesia, in particular, has an excellent system of protected areas, covering all major habitat types and ecosystems. However, one of the main problems in future years will be to protect these remaining vestiges of natural habitat from human activities which are incompatible with the preservation of wetlands in general, and otters in particular.

The hairy-nosed otter - so called because its rhinarium is covered with hair - once ranged from southern Thailand and Indochina through Malaysia and Indonesia. Today, it is thought to be confined to Peninsular Malaysia, Sumatra, northern Borneo and Peninsular Thailand. It is probably verging on extinction in the northern parts of its range. In appearance, this species may vary from a reddish chestnut colour, to very dark, chocolate brown. The underside is only slightly paler than the back and the white throat patch is very small. It is the rarest species of otter in Asia and nothing is known about its ecology or habitat requirements.

The smooth otter is generally larger than the Eurasian otter, with short, smooth fur and large, thickly webbed feet. In appearance, this species is quite variable, ranging from almost black to sandy-brown in colour, with a whitish-yellow chin and throat patch. This is a robust species, weighing from 9.1 to 11.4kg and measuring almost 121cm. The smooth otter is distributed throughout southern Asia, from Indonesia through southeast Asia, and westwards through southern China and India, with an isolated population occurring in Iraq. It lives in large rivers, estuaries and coastal mangrove swamps and requires undisturbed forest or scrub adjacent to the water for security. In most of its range, it is sympatric (living in the same region) with the Asian small-clawed otter



The Asian small-clawed otter (Aonyx cynerea) is the smallest of the world's species.

and sometimes with the Eurasian otter. The diet of the smooth otter consists mainly of fish, with crustacea being important in coastal areas. Of all Asian otters, this species appears to be the most common throughout its range.

The Asian small-clawed otter is the smallest of the world's otters, measuring from just 65cm to 90cm, and rarely weighing more than 5kg. Its front feet are only partially webbed, with rudimentary fingernail-like claws, used for probing in mud and under stones. The small-clawed otter lives in small streams, rice paddies and coastal mangroves. It is a highly social species, occurring in groups of up to 15 individuals. Crabs, molluscs and small fish comprise most of its diet. These animals are found from Palawan (Philippines) through Indonesia, southeast Asia, southern China and westwards through the Himalayan foothills of Bangladesh, Bhutan and Nepal. An isolated population occurs in southern India.

Africa

Four otter species occur in Africa, of which three - the Cape clawless otter, the Congo clawless otter, and the spotted-necked otter - are endemic. Throughout the high rainfall regions of sub-Saharan Africa, at least one of these species, often more, should be present. The fourth species, the Eurasian otter, occupies the most restricted range, occurring only in a few rivers that rise in the Atlas mountains in North Africa.

In most African countries the greatest threat to the existence of these animals is the rapidly increasing human population. This leads to drastic habitat alteration, or loss of habitat, following increased agricultural activity, unsound agricultural practices, over-grazing, or uncontrolled exploitation of natural resources.

The African, or Cape, clawless otter is also found in sub-Saharan Africa and can be recognised by its forefeet which have no webbing; their fingers can therefore be used more freely. Living in swamps, rivers, streams, lakes and estuaries, this trait enables the otter to actively probe in the mud and gravel sediments for prey, which includes crabs, molluscs, frogs and mud-dwelling fish. It is

usually active during the night and at twilight hours. In size, this species has a body length which spans from 72-91cm, plus a tail length of 40-71cm. Males are usually heavier (20kg) than females (18kg).

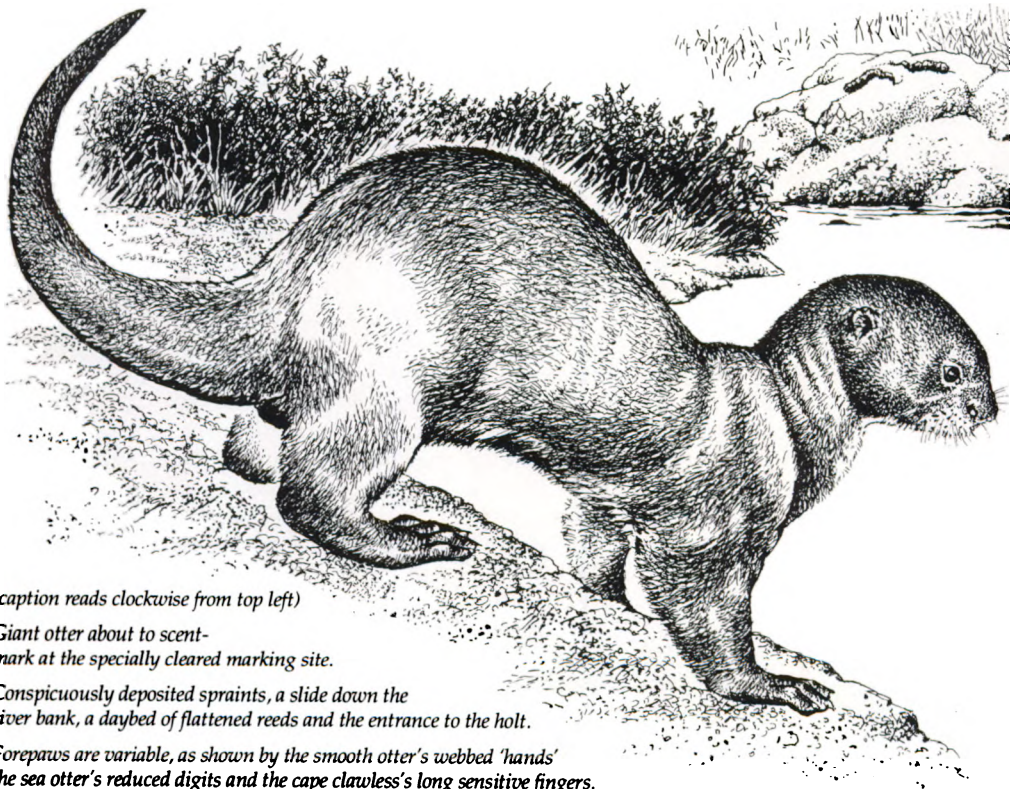
In describing a pet African clawless otter, Gavin Maxwell - author of the enchanting novel "Ring of Bright Water" - eloquently evokes the natural grace and beauty of these animals:

"The bib is divided from a silvery brocade-textured head by a sharp line of demarcation immediately below the ears; the body and the enormous tail are mauvish-brown velvet and silk below. Beyond the points of attachment at the four wrists the fur is of an entirely different character; it changes from velvet to satin, tiny, close-lying hairs that alter colour according to how the light falls on them. The tightly gloved hands and the enormous fullness above the wrists give her the appearance of wearing heavy gauntlets."

Less sociable than, for example, the spotted-necked otter, this species is seldom seen in groups larger than four or five individuals, and it is likely that both sexes establish territories where they remain for long periods.



The African clawless otter (Aonyx capensis) has no webbing on its forefeet.



(caption reads clockwise from top left)

Giant otter about to scent-mark at the specially cleared marking site.

Conspicuously deposited spraints, a slide down the river bank, a daybed of flattened reeds and the entrance to the holt.

Forepaws are variable, as shown by the smooth otter's webbed 'hands' the sea otter's reduced digits and the cape clawless's long sensitive fingers.

Underwater, otters swim with cetacean-like undulations of the spine, while on land they show the hunched gait typical of mustelids. Tracks are distinctive.

Vibrissae are highly developed sense organs of touch for murky water conditions and are located on cheeks, 'eyebrows' as well as muzzle.

Rhinaria or nosepads are distinctive.



spotted-necked



southern river



giant

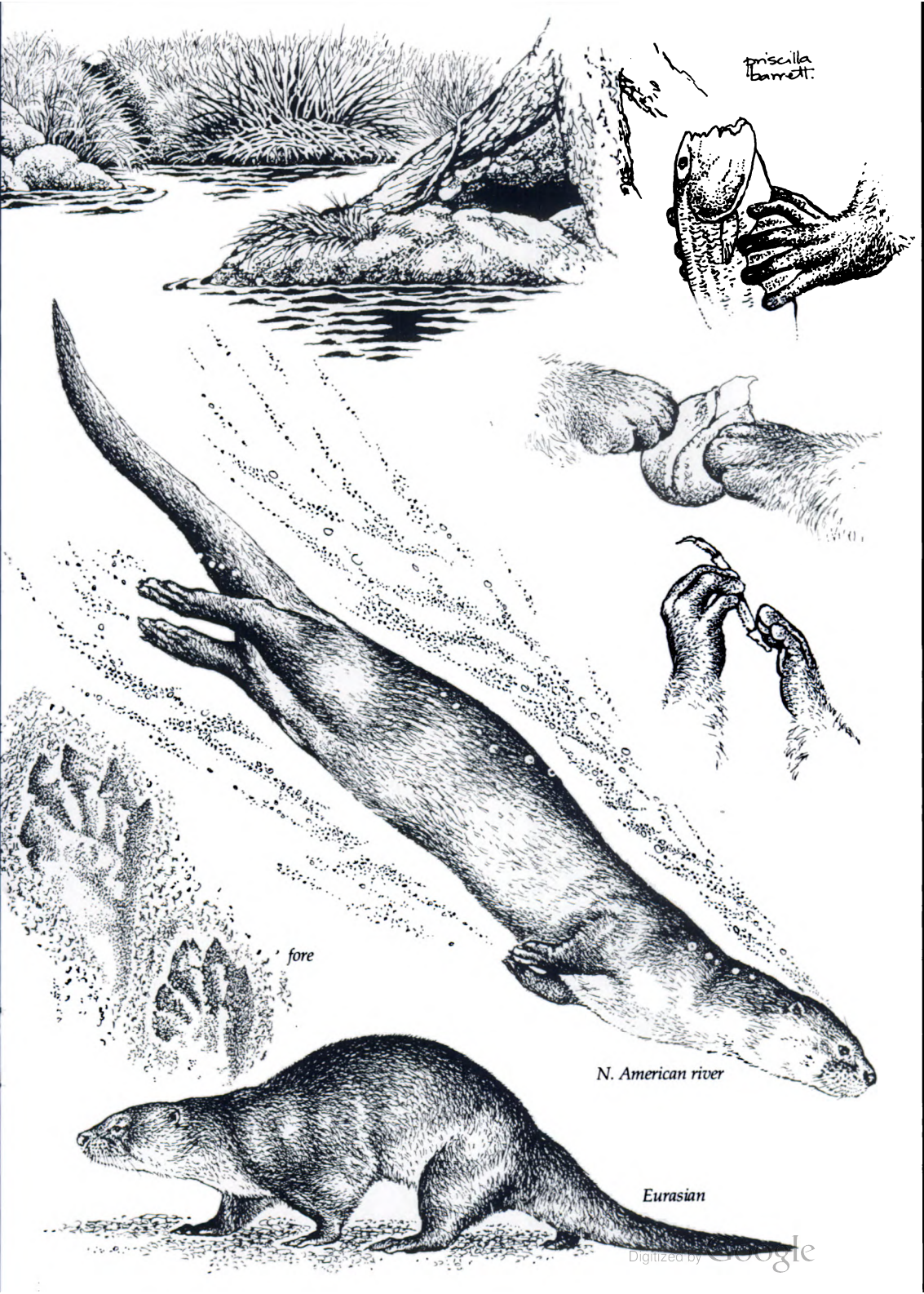


Eurasian



N. American river





priscilla
barrett.

fore

N. American river

Eurasian



The spotted-necked otter (Lutra maculicollis) is one of the more social species of otter.

The spotted-necked otter is a smaller darker animal than the African clawless form, with a pale neck and chest which is irregularly spotted with dark markings. This species is largely diurnal in habit and prefers deep water habitats such as lakes, where it dives for amphibians and fish. It is most abundant in the large lakes of central Africa. Thus, although the spotted-necked and the African clawless otter often occur in the same region, competition between the two species is reduced by virtue of their different habitat preferences for feeding.

The spotted-necked otter is one of the more social species of otters which, like sea otters, form distinct male and female groups for much of the year. Some reports even suggest that different groups of otters combine their efforts to identify and trap a shoal of fish.

A major factor in this species' decline in certain areas may have been the introduction of nylon fishing nets in which otters become entangled and drown. As these are social animals, the struggles of a single otter entwined in a net will automatically attract its kin, which may, in turn, suffer a similar fate. Although hunted in some parts of its range, the spotted-necked otter does not seem to have declined dramatically in numbers. The fur of these otters is highly prized

by many lakeshore-dwelling tribes, who wear it in the form of a wristlet and use it to wipe their eyes or nose, believing that it cures infections!

The poorly-known Congo clawless otter is closely related to the Cape clawless otter and is restricted in its range to west and central equatorial Africa. Although similar in size and colour to the African clawless otter, the Congo species is easily distinguished by the silver tips to the hairs on the neck and the head and by the conspicuous dark patches of fur between the eyes and nostrils. Also known as the "swamp otter", this species feeds almost exclusively in marshes, papyrus beds and the shallow margins of lakes, where it hunts for earthworms, frogs, freshwater crabs and mud-dwelling fish. Of all otters, this animal is the least adapted to an aquatic existence. Its dark fur, although soft, is shorter and thinner than that of most other species (therefore providing less insulation). The hindfeet are only partially webbed, while the unwebbed forefeet are both hairless and clawless - adaptations for feeling for food in soft soils, debris and mud. Almost nothing is known about the distribution, ecology or conservation status of this species. ■

Otters have probably been killed for their fur ever since man first learned to stitch the skins of animals together, and discovered that otter fur was one of the densest and most functional. The earliest historical record of 'trade' in the European otter dates back to 1408 in Ireland, when a lowly serf was charged a somewhat severe penalty of 164 otter skins for arrears of rent by King Henry IV. Today, the Eurasian otter is legally protected through most of its European distribution, although hunting remains a problem in certain countries, such as Hungary. In most European countries, otters are not killed for their fur, but in order to protect game and fishery interests and, in some cases, for sport.

Elsewhere, particularly in Russia and North America, profit was perhaps the main reason for hunting, and river otters formed a small but significant proportion of the organized fur trade from its inception in the 16th Century. During the early 19th Century, sea otters were by far the most sought after species, whose fur at this time was six times more valuable than that of a grizzly bear and, on occasion, as much as 20 times more valuable than bison, beaver or lynx skins. Because of the exceptionally high value of its fur, the sea otter

has therefore been exploited far more than any other species of otter.

The uncontrolled manner in which sea otters were harvested by American, European and Soviet fur trappers is a textbook example of bad management of wild animal populations. Time after time, as new colonies were discovered, hunters would move in and reduce the population to a fraction of its former numbers or wipe it out completely. For example, shortly after the Pribilof Islands were first discovered, two sailors moved in and, within a year,



During the early 19th Century, sea otters were by far the most sought after species.



The giant otter (Pteronura brasiliensis) was heavily exploited for its skin.

had killed 5,000 animals. In their second year of hunting, they only managed to kill a further 1,000 and, within six years, there were no sea otters left on the islands.

It has been estimated that, in the 126 years that Alaska was occupied by the Soviet Union, over 800,000 sea otters were killed by hunters from various nations. Despite this, when Alaska was purchased by America in 1867, there were still enough otters left to make hunting a profitable exercise. However, even as early as the 1820s, serious concerns were being expressed over the future of this species and several fur-trading organizations, such as the Russian-American Company, attempted to introduce conservation measures. Sadly, these were not appreciated at the time.

Thus, it is not surprising that, by the beginning of this century, the sea otter had been brought close to extinction throughout its range, surviving in a mere dozen, isolated areas. That it exists today is almost certainly due to the introduction and signing of the Fur Seal Treaty in 1911 by the Governments of the United States, Russia,

Great Britain and Japan, which offered protection to both sea otters and fur seals.

Many of the remaining otter species have also been exploited for their fur, although none so badly as the sea otter. Even so, some populations - notably the giant river otter of South America - have been significantly reduced. This species, like the sea otter, has a pelt superior to that of the smaller river otter and was therefore selectively hunted. By virtue of their social behaviour, family groups of giant otters are also easier to detect and kill than solitary-ranging riverine otters.

The plight of the South American marine otter too is typical of the fate of otters in many parts of the world. The skin of each animal is worth about three months' wages to an unskilled Chilean labourer and, hence, is widely sought-after. However, trade in this species is now totally prohibited under CITES. Today, the only species which is legally traded in any quantity is the North American river otter, which is itself subject to strict trapping seasons and management programmes. ■

Most otter species live naturally at low population densities, largely because their food sources are widely dispersed and the environment is therefore unable to support a high density of top predators, within a restricted area. This natural system of regulating the population density introduces problems for many species should they become over-exploited and hence threatened with extinction, since there will not be a surplus of animals. Furthermore, should their habitat be destroyed or become fragmented, animals cannot negotiate their way through hostile environments and recolonisation is therefore prevented.

Several factors are involved in the decline of otter populations worldwide, both in terms of population size and current distribution. Historically, this was largely due to over-hunting. Today, pollution and habitat destruction are the most critical threats to the survival of otters.

Pollution

There is little doubt that pollution has played an important role in the demise of otter populations. The most widespread form of pollution is organic waste from domestic and industrial sources. Rivers, and ultimately oceans, have always served as cheap and convenient repositories for waste, much of which receives no stabilising or detoxifying treatment. This often stimulates algal blooms - explosions of microbial life in streams following a sudden and dramatic nutrient infusion. Algal blooms usually kill the fish, aquatic invertebrates and plants that live in streams by blocking out sunlight and absorbing all oxygen from the water.

Intensive animal husbandry, such as pig, cattle or poultry farming, in particular, has resulted in major problems of waste disposal, for which there is often no immediate solution. Rural industries too, particularly mining activities for gravel and metals, also pose indirect threats to otters, and other aquatic species, through increased acidification of the water. This radical change in water quality destroys

the natural and essential floral growth of the ecosystem. Likewise, increased siltation results in less sunlight penetrating the water but, more significantly, causes severe and often lethal damage to aquatic insect larvae and many species of fish, since it blocks their gills and prevents them from absorbing oxygen from the water.



Algal blooms which kill fish and other aquatic life also pose indirect threats to otters.



Oil spills not only contaminate beaches, they affect many marine species. Otter fur contaminated with oil results in reduced buoyancy and increased heat loss, causing death from starvation and hypothermia.

In recent years, serious concern has been expressed over the possible effects of pollutants such as organochlorines and heavy metals on aquatic mammals, and particularly those compounds which accumulate in body tissues and which are transmitted in concentrated form along the food chain. Compounds such as polychlorinated biphenyls (PCBs) and chlorinated hydrocarbons are widely used by industry in paints, pesticides, paper and wool manufacturing, and timber treatment. Unfortunately, few such industries exercise stringent controls on the effluent leaving the factories, resulting in widespread pollution of a deadly nature. PCBs affect the immune system, causing disorientation and rendering otters more susceptible to disease. It is also feared that they may lead to reduced reproductive performance in otters, as has already been demonstrated in mink. Some disturbingly high levels of PCBs and heavy metals have been found in Eurasian and North American river otters. The process of evaluating the large-scale impact of such pollutants on otter populations is difficult, but preliminary research has indicated that

analysis of pollutants in spraints may provide a useful means of assessing the pollutant load in wild otter populations.

In some coastal areas, oil may be of local concern. The Exxon Valdez accident, for example, killed some thousands of Pacific sea otters. Small numbers of Eurasian coastal-dwelling otters have also been killed by oil spills in northern Scotland. Fur contaminated with oil results in reduced buoyancy, as well as increased heat loss, resulting in death from starvation and hypothermia. In addition, because of the otter's fastidious grooming behaviour, some oil is invariably ingested, which causes internal haemorrhaging and death.

Finally, atmospheric pollutants, as well as artificial chemicals applied to the land (or directly to water as in the control of mosquitoes, molluscs and black flies), are rapidly leached into watercourses as a result of rainfall. Many of these insecticides are non-selective and will eliminate a wide range of species, many of which are key links in the aquatic food chain.

Habitat destruction

Otters are particularly fastidious animals and are highly selective in their choice of habitat. As with many species, otter populations worldwide are under considerable pressure because of habitat destruction. On land, otters need safe refuges in which to sleep and breed. Some, like the smooth otter, may excavate their own den ('holt'), but most make use of already existing facilities such as a hole in the river bank, cavities amongst tree roots, in waterside scrub, reed beds or marshes. Dense, or impenetrable riparian vegetation is therefore an important requirement for otters, as it also is for many other species.

As a result of increased agricultural development in recent years, many rivers have been cleared of vegetation and also frequently straightened or artificially

built-up for flood prevention. Marshes and ponds are also being drained at an unprecedented rate. The end result is a significant diminution of suitable habitat for aquatic species in general.

Likewise, in the tropics, rapidly increasing human populations have generally resulted in unwise agricultural practices and extreme over-grazing, leading to habitat destruction, soil degradation and eventually soil run off. Deforestation too promotes massive soil loss, which results in dramatically increased siltation levels in the rivers, and an unstable water supply throughout the year.

The construction of dams - large or small - can also seriously threaten the survival of otters, since they artificially interrupt the natural cycle of floods, form barriers to the movements of many species and result in major habitat alterations downstream.



Otters often make use of existing facilities such as holes in the river bank or cavities among tree roots.

Hunting and trapping

Illegal hunting of otters for their fur has been, and continues to be, a major threat to the survival of many species. In many instances, little or no information is available on the ecology or population status of those species which are hunted. When such data are available, however, and suggest the presence of a healthy population it is feasible that given proper coordination and control, limited numbers of animals could be taken from the wild each year. In parts of North America and Canada, for example, controlled hunting of river otters is permitted with the numbers of animals taken each year being carefully monitored. For the poorly-known species, however, it is imperative that reliable data be obtained on their conservation status.

Although protected from hunting in Canada and the Soviet Union, the US Marine Mammal Protection Act allows Alaskan natives to hunt sea otters and other marine mammals for traditional purposes. The numbers of sea otters taken in

this way has increased from 4 in 1982, to 555 in 1986, with a total of 1,049 animals being taken during this period. While the impact of these activities on otter populations is unknown, if unregulated, the hunting of sea otters by Alaskan natives could become a serious problem. History provides a clear record of the sea otter's vulnerability to human exploitation, and technological advances make sea otters more vulnerable to human exploitation than ever before.

Other threats

Fish traps and nets account for a large number of otter deaths each year through incidental catches - otters being attracted to the traps by the fish therein. Eel and lobster traps are responsible for many casualties amongst the Eurasian otter, although with a little foresight and application, otters can be prevented from entering these traps by the use of a small grid fixed to the entrance of the trap. Marine species such as the sea otter and



A government system of marking skins is used to control the number of Northern American river otter pelts exported during an individual trapping season.



In Great Britain the otter was until very recently hunted with hounds for sport.

marine otter also suffer from entanglement in nets. It is estimated that, from the mid-1970s to the early 1980s, about 100 sea otters died each year in central California as a result of entanglement in nets.

Many species, such as the rare Pacific marine otter, are shot by fishermen because of the alleged damage they cause at fish and shellfish farms. As fish farming enterprises expand worldwide, this is likely to become a serious conflict with many species.

Traditionally, game wardens on large estates have always treated otters as vermin and have probably been responsible for many local extinctions. More recently, concern has been expressed about the increasing numbers of feral North American mink, which have either escaped or been released from fur farms (by animal rights activists) throughout western Europe. These tenacious animals have proven to be very successful colonists that have a similar diet and habitat preference to otters. Although much debate has taken place on the possibility of these species competing for resources, there

are no data to substantiate these claims. Indeed, studies indicate that such competition is unlikely, though otters are inadvertently killed in traps set for mink.

In Great Britain, the otter was, until very recently, one of several species of mammal traditionally hunted with hounds for sport. Records of otter hunting date back to the 13th Century, but it was not until the 1880s that the 'sport' became properly organized with the introduction of the 'otter hound' - a new breed of dog which is noted for its endurance and remarkable tracking abilities. Ironically, with the cessation of this activity the future of this particular breed of dog is also now threatened. There is no clear indication of how many animals were killed each year by these hunts, but it is thought that fewer than 10 animals were killed each year during the 1970s, compared with over 200 per year during the mid 1950s. The resulting scarcity of otters was due in part to hunting pressure, but probably more to increased human pressures on the species in the form of habitat destruction and pollution. ■

Otters are certainly among the most endearing of mammals which, with their perpetual sly grin and comical antics, rarely fail to amuse or appeal. Otters are popular exhibits in many zoos and, given an adequate artificial environment, may be maintained with relative ease in captivity and thus form valuable educational and scientific exhibits. People are generally captivated by the charm and playful behaviour of otters and, in recent years, public opinion has been quite influential in securing the protection of several species.



People are generally captivated by the charm of otters and, in recent years, public opinion has been quite influential in securing the protection of several species.

The otters' valuable fur and their charming appeal, however, have not been the only reasons for human interest in these animals. Indeed, there are many instances where people appreciate and stand to gain financially and morally from an association with otters. For example, in Bangladesh, India and Nepal, fishermen still use trained, muzzled otters to help them catch certain species of fish by driving shoals towards their nets. In Japan, otter characters form the basis of a number of folk tales, even though otters are now believed to be extinct in this country. In the United States, sea otter watching is now the basis of a thriving tourist industry in

areas along the northern coast of California. Likewise, the majestic giant otters of Latin America are attracting an ever-increasing number of tourists, who hope that they will be fortunate enough to glimpse one of these rare animals.

Few people come into direct contact with otters and they are generally perceived as being non-destructive carnivores, not noted for their wanton destruction of prey, unlike many other mustelids. Otters do occasionally raid village fish ponds and have also been reported to raid chicken houses, but it is where man has invested in fish farming enterprises that the major conflicts arise. ■

Otters can only be conserved in the long-term through coherent, broadly-based conservation strategies that will receive public sympathy and support. Conservation of certain species, for example the marine otter and the hairy-nosed otter, is an immediate conservation priority as numbers are feared to be rapidly decreasing. For many others, insufficient data hamper the decision-making and implementation processes. The thrust of such strategies, however, should not be merely to protect otters, but should be based on a far broader perception: protection of the environment, with specific attention to the aquatic milieu. In so doing, a far greater number of microhabitats and, thus, a much wider range of species, will be saved.

There are four issues which should be addressed in order to assist with otter conservation: improved and enhanced legislation; improved pollution control; habitat maintenance and protection; public awareness programmes; and, finally, captive breeding and the re-introduction of otters to regions where they previously occurred.

Thus, enforcement is dependent on the effectiveness of both the exporting and importing countries' law and legislation.

Given proper management practices, however, sustainable use of the species may be achieved, allowing a number of animals to be harvested in a given year. In the United States, for example, there is now

Trade and conservation legislation

For centuries, otters have been hunted throughout their geographical range, principally for their fur, although in eastern Asia secondary use is made of certain glands for medicinal purposes. Unlike many of the other mustelids, otters are not farmed or ranched; instead all trade is based on free-living animals. When the international trade in animal products threatens a species' survival, or even the survival of a geographical population, the species can be proposed for listing under the CITES Convention. CITES provides a mechanism for either regulating or, in the case of those species threatened with extinction, prohibiting international trade. This treaty, however, has no legal authority to actually enforce negotiations - that is the responsibility of Parties to the Convention.



For centuries otters have been hunted throughout their range, principally for their fur.

a regulated trapping season for the North American river otter, the international trade of which has been controlled under CITES since 1977. According to CITES, the harvest must be demonstrated not to be detrimental to the survival of the species or population, before export permits for the species may be issued. Each exported pelt must be identifiable by a sealed federal tag bearing a stamped code identifying the species, the state or province where it was captured, the year of capture and a unique numerical code. This strict procedure allows for tallying the number of North American river otter pelts exported during an individual trapping season. Tags are issued to qualifying states or provinces prior to each harvest season. The number of CITES tags issued for the next season is based on past harvests and estimates of various population parameters which take into account factors such as population trend, total harvest, geographical distribution of the harvest, and an evaluation of the habitat. Although the trade in pelts of the North American river otter is well regulated, there is concern that population estimates of the wild stock are not very reliable. A major effort is needed to improve population monitoring to ensure the sustainability of the harvest.

Such well-regulated systems may succeed. However, the major problem lies with adequate control measures: a recent CITES report shows that 1,000 skins of the hairy-nosed otter, supposedly of Chinese origin, were traded between the Federal Republic of Germany and Austria in 1987. This extremely rare species does not occur in China and it is feared that these may have been Eurasian otter skins. Trade in South American giant otter skins still continues to be a lucrative blackmarket business within South America, since these pelts are highly prized and are far more

valuable than most other animal skins - even caiman - in Latin America.

Apart from CITES, there are several other international conventions which offer some protection to otters and their habitats. The international Ramsar Convention affords a measure of protection to certain, key wetland sites by advocating the 'wise use' of these sites. Unfortunately not all countries respect its recommendations and it is also dependent on national legislation, which in many cases weakens its effectiveness. The Bern Convention, which came into force in 1982, aims to conserve European wild flora and fauna and their natural habitats. Under this Convention, protection should be given to breeding and resting sites of endangered or vulnerable species, such as the Eurasian otter. Once again, however, the main shortcoming with this Convention is that its implementation is highly variable among the member states.

Habitat management

Sensible management of the natural ecosystem is one of the major prerequisites for ensuring the conservation of otters in the wild. Practical habitat management activities range from basic field research programmes, such as baseline surveys or advising local people about wise land-use practices, to planning and advising corporations with large-scale development projects such as hydroelectric or housing schemes, as well as the establishment of protected areas.

An extensive network of protected areas already exists in many parts of the world. However, few of these sites are based on detailed habitat and species management plans and fewer still make any effort to involve local people in the design or maintenance of these areas.

Although detailed ecological requirements are still unknown for the majority of the otters, there are three key issues which should be addressed to form the basis of any habitat management programme for otter conservation. These are:

- the need for adequate food supply throughout the year;
- the absence of persistent, bio-accumulating toxic chemicals in the food supply; and
- the maintenance of sufficient shelter in the form of riparian vegetation, secluded resting and breeding sites.

Public education

Otters attract a considerable amount of public attention largely because they are such appealing animals. Thus, many people are willing to take the time to understand why these animals are in a predicament and learn how they may assist with their conservation. Protection, by itself, will achieve very little in the long term, if the human population continues to regard otters as pests, or as merely an exploitable resource.

In developing countries, however, otters do not always have the same emotional appeal as they do in many of the industrialised nations and there is often little public sympathy for, or awareness of, their plight. However, few people realise that the basic habitat requirements of the otter are similar to those of local human communities, in terms of the availability of aquatic resources - fish, crabs and other wildlife - and clean water for themselves, their animals and their crops.

In addressing public education campaigns, specific target audiences should be identified and addressed at the appropriate level. Government ministers and decision-makers, for example, should be made

aware of the environmental effects of development programmes, the need for practical habitat management programmes and the legal ramifications of environmental destruction. Governments, too, should be encouraged to be more rigorous in implementing their obligations under international agreements. The public, likewise, should be informed of these issues and how they may affect their livelihoods. Youth groups and children too should be included in such awareness packages, as it is they who will form the next generation of decision-makers and will be responsible for the health of the environment.

In Europe, several institutions have recently been established with the specific intention of promoting otter conservation. On the international front, groups such as the Otter Specialist Group of IUCN - the World Conservation Union, have been formed to investigate and monitor the conservation status of all otter species worldwide, to identify the existing and possible threats to their continued survival, and to recommend particular conservation action where appropriate. Whenever possible, the public and local non-governmental organizations should support and encourage wildlife management departments in developing countries to take a more aggressive role in protecting habitats and key species like otters.

Captive breeding and re-introductions

Otters have often been maintained as private pets and they are also one of the favourite exhibit animals in many zoo collections. In fact, many of the data on the behaviour of certain species have been garnered from the private journals of a few people living in remote areas, who have adopted and hand reared orphan otters.

Is there a need to keep otters in captivity? There are two main arguments for doing so; the first being to promote public awareness of the plight of species such as otters, and their habitats. A second reason is that this provides the means to ensure that the genetic diversity inherent in each species can be secured for the purpose of re-introducing the offspring to the wild at some later stage, should it become necessary.

The re-introduction of a species is best defined as "the intentional movement of an organism into a part of its native range from which it has disappeared or become extirpated in historic times as a result of human activities". The key to successful re-introduction programmes is rehabilitation/successful management of the envi-

ronment, linked hand-in-hand with public awareness programmes. Such activities are most likely to succeed if a large number of healthy, wild-bred, animals are released into suitable habitat. Such schemes are always expensive and require a long-term follow-up evaluation to monitor the success, or failure, of the exercise.

To date, there have been several attempts to re-introduce or restock three species of otter: the sea otter, the North American river otter and the Eurasian otter. Each of these programmes has met with some success - particularly those for the two former species as large numbers of animals were involved - although it is still too early to judge the overall effectiveness of such activities. ■



*Captive breeding of otters is playing an increasingly important role in the conservation of endangered otter species, such as these smooth-coated otters (*Lutrogale perspicillata*).*

In implementing conservation measures for otters, the following list should serve as guidelines for action, understanding that each item would need to be adjusted to suit local conditions and needs. Field surveys, using standard methods, should be conducted throughout the species' range to determine the current distribution and status of that species. Priority areas for such surveys should be determined.

Additional studies on the ecology and conservation requirements of all species should be continued. Such studies should seek to identify those habitat features that must be conserved if the species is to survive and recover its former numbers. Research is also needed to investigate feeding requirements and the impact of human activities on otter behaviour.

Much stricter regulations need to be enforced to prevent the discharge of toxic wastes from factories, human settlements, or agriculture into rivers and wetlands.

Protected area management plans should be prepared and implemented for at least the rare and most threatened species.

Habitat management practices outside protected areas should also be carried out in such a way as to prevent population fragmentation. This implies the management of forest, wetland and riparian habitats on a long-term sustainable use basis. In many cases, it will be essential to integrate the attitudes of indigenous people and their needs into the conservation and sustainable management of the habitats of the species concerned. When major development projects are being considered (for example, dam construction, mining operations, etc), environmental impact assessments should be mandatory, and should include a review of likely effects on otters and other species, as well as alternative plans for action, should they prove necessary.

Under certain, local, circumstances it might prove necessary to devise a means of reducing conflicts between otters and fisheries.

Hunting and trapping need to be carefully controlled to ensure that no wild population of otters is depleted.

Captive breeding programmes should be investigated for some of the most seriously threatened species. Although it is no substitute for the conservation of wild animals in their natural environment, in many cases captive breeding has ensured the survival of the species.

In countries where species are at risk because of unsustainable management practices, governments should be encouraged to enforce existing legislation. Active lobbying by the public and non-governmental conservation organizations should be encouraged in order to achieve this goal.

Finally, people need to be familiar with, and to be allowed to participate in, the design and implementation of the conservation programme. Public education and awareness campaigns should be prepared in critical areas to draw attention to the plight of a particular species and its habitat. Campaigns should be specifically tailored to the local audience and, whenever possible, local people should be encouraged to participate in the programme.

In the long term, however, the successful implementation of conservation strategies for otters worldwide will depend on human activities and transfrontier cooperation on all issues relating to the preservation of these exhilarating and fascinating animals, and their habitats. ■

Additional reading

10

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The Otter family

11

Common Name	Scientific Name	Distribution
Cape clawless otter	<i>Aonyx capensis</i>	Africa
Asian small-clawed otter	<i>Aonyx cinerea</i>	Asia
Congo clawless otter	<i>Aonyx congica</i>	Equatorial Africa
Sea otter	<i>Enhydra lutris</i>	Pacific coast of North America, Soviet Union
North American river otter	<i>Lutra canadensis</i>	Canada, United States
Marine otter	<i>Lutra felina</i>	Pacific coast of South America
Neotropical otter	<i>Lutra longicaudis</i>	South America
Eurasian otter	<i>Lutra lutra</i>	Europe, Asia, North Africa
Spotted-necked otter	<i>Lutra maculicollis</i>	Africa
Smooth otter	<i>Lutra perspicillata</i>	Asia
Southern river otter	<i>Lutra provocax</i>	Argentina, Chile
Hairy-nosed otter	<i>Lutra sumatrana</i>	Southeast Asia
Giant otter	<i>Pteromura brasiliensis</i>	South America

Glossary

12

Crepuscular: active at twilight or just before dawn.

Diurnal: active during daylight.

Ecosystem: a term used to describe the interdependence of species with one another and the environment.

Home range: the area within which an animal normally lives. A home range is not defended from other animals.

Territory: the area occupied by an animal or group of animals that is defended against other members of the same species.

Piscivorous: a fish-eating species.

Rhinarium: the area of naked skin around the nostrils of mammals. An important recognition feature in otters.

Riparian: inhabiting or situated on the bank of a river.

Spraints: the faeces of otters, which are usually placed at specific sites to define the boundaries of the animal's territory.

Sustainable utilization: ensuring the conservation of the world's biological diversity through the careful management of natural resources.

Acknowledgements

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IUCN

Founded in 1948, IUCN - The World Conservation Union - is a membership organisation comprising governments, non-governmental organisations (NGOs), research institutions, and conservation agencies in 120 countries. The Union's objective is to promote and encourage the protection and sustainable utilisation of living resources.

Several thousand scientists and experts from all continents form part of a network supporting the work of its six commissions: threatened species, protected areas, ecology, sustainable development, environmental education and training. Its thematic programme includes tropical forests, wetlands, marine ecosystems, plants, the Sahel, Antarctica, population and sustainable development, and women in conservation. These activities enable IUCN and its members to develop sound policies and programmes for the conservation of biological diversity and sustainable development of natural resources.

Species Survival Commission

Role of the SSC

The Species Survival Commission (SSC) is IUCN's primary source of the scientific and technical information required for the maintenance of biological diversity through the conservation of endangered and valuable species of fauna and flora, whilst recommending and promoting measures for their conservation, and for the management of other species of conservation concern. Its objective is to mobilise action to prevent the extinction of species, sub-species and discrete populations of fauna and flora, thereby not only maintaining biological diversity but improving the status of endangered and vulnerable species.

Objectives of the SSC:

1. To participate in the further development, promotion and implementation of the World Conservation Strategy; to advise on the development of IUCN's Conservation Programme; to support the implementation of the programme; and to assist in the development, screening, and monitoring of projects for conservation action.
2. To maintain an international network of independent volunteer members selected for their expertise in species conservation and to provide a forum for the exchange of views and scientific information on species and populations of conservation concern.
3. To cooperate with the World Conservation Monitoring Centre (WCMC) in developing and evaluating a data base on the status of, and trade in, wild flora and fauna, and to provide policy guidance to WCMC.
4. To provide advice, information, and expertise to the Secretariat of the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES) and other international agreements affecting conservation of species or biological diversity.
5. To carry out specific tasks on behalf of the Union, including:
 - coordination of a programme of activities for the conservation of biological diversity within the framework of the IUCN Conservation Programme.
 - promotion of the maintenance of biological diversity by monitoring the status of species and populations of conservation concern.
 - development and review of conservation action plans and priorities for species and their populations.
 - promotion of implementation of species-oriented conservation action plans and response to related issues.
 - provision of guidelines, advice and policy recommendations to government, other agencies and organisations with respect to conservation and management of species and their populations.
 - periodic evaluation of the status of species and biological diversity conservation initiatives.



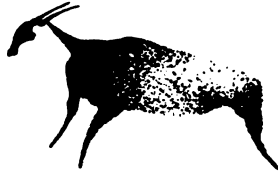
The World Conservation Union

Species Survival Commission

World Conservation Centre

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