I U C N PUBLICATION NEW SERIES ISBN 2-88032-200-6

OTTERS

Proceedings of the First Working Meeting of the Otter Specialist Group: Sponsored by the World Wildlife Fund (International) and Organized with the Permission of the Survival Service Commission, IUCN.

Paramaribo, Suriname

27-29 March, 1977

Compiled and Edited by Nicole Duplaix, Chairman

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International Union for Conservation of Nature and Natural Resources

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The International Union for Conservation of Nature and Natural Resources (IUCN) was founded in 1948, and has its headquarters in Morges, Switzerland; it is an independent international body whose membership comprises states, irrespective of their political and social systems, government departments, and private institutions as well as international organizations. It represents those who are concerned at man's modification of the natural environment through the rapidity of urban and industrial development and the excessive exploitation of the earth's natural resources, upon which rest the foundations of his survival. IUCN's main purpose is to promote or support action which will ensure the perpetuation of wild nature and natural resources on a world-wide basis, not only for their intrinsic cultural or scientific values but also for the long-term economic and social welfare of mankind.

This objective can be achieved through active conservation programmes for the wise use of natural resources in areas where the flora and fauna are of particular importance and where the landscape is especially beautiful or striking, or of historical, cultural or scientific significance. IUCN believes that its aims can be achieved most effectively by international effort in cooperation with other international agencies such as UNESCO and FAO.

The World Wildlife Fund (WWF) is an international charitable foundation for saving the world's wildlife and wild places. It was established in 1961 under Swiss law, with headquarters at present in the vicinity of and eventually to be shared jointly with those of IUCN. Its aim is to support the conservation of nature in all its forms (landscape, soil, water, flora and fauna) by raising funds and allocating them to projects, by publicity and by education of the general public and young people in particular. For all these activities it takes scientific and technical advice from IUCN.

Although WWF may occasionally conduct its own field operations, it tries as much as possible to work through competent specialists or local organizations.

Among WWF projects financial support for IUCN and for the International Council for Bird Preservation (ICBP) have highest priority, in order to enable these bodies to build up the vital scientific and technical basis for world conservation and specific projects. Other projects cover a very wide range from education, ecological studies and surveys, to the establishment and management of areas as national parks and reserves and emergency programmes for the safeguarding of animal and plant species threatened with extinction.

WWF fund-raising and publicity activities are mainly carried out by National Appeals in a number of countries, and its international governing body is made up of prominent personalities in many fields.

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WELCOME ADDRESS

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I feel it an honour to express a hearty welcome to the participants of the first meeting of the IUCN Otter Specialist Group. I do this in the name of the nature preservation section of the Suriname Forest Service and of the Foundation for Nature Preservation in Suriname (STINASU).

We feel happy that Suriname has been chosen as your first meeting place. However, this pleasure has a twinge of guilt on your behalf because the decision to hold this meeting in South America was guided by the fact that four of the five endangered otter species are South American.

While we are not yet confronted with this threat in Suriname--for reasons which will become clear to you during your stay--this does not mean this exonerates us from the acute conservation problems of our continent.

It is a fact that otters are among the most rapidly disappearing carnivores. Until this century they were still plentiful throughout most of their range. Their numbers have been decimated now almost everywhere and the survival of five species is threatened. This decline is due to two main causes (man's greed and man's numbers) which are responsible for the tragic fate of so many other species, and which undoubtedly will be discussed at some length during your meeting.

What should I say to you after these first, obligatory phrases? Perhaps give you a message--a guideline--in your work. Your work during these discussions and, particularly, the vast amount of work which will result from these discussions when you go home. This message is my attempt to explain to you what help we do expect from you in the daily routine of our frequently ungrateful duty to preserve wilderness areas and their elements in the field.

With "you" I mean a group of specialists called upon (I now quote from the IUCN/WWF project "First Meeting of Otter Specialist Group") --to identify conservation priorities and action requirements for otter species and to draw up conservation strategies for incorporation into the Survival Service Commission's action program. May I call you for sake of convenience the "information gatherers"? "We" are what I might call the "implementers": the governmental bodies and non-governmental organisations, mentioned under paragraph 23 of the Terms of Reference of the Survival Service Commission. In that article it is stated that one of IUCN's most important functions is responding to requests for expert advice, and that members of SSC and its Specialist Geoups are an important resource to be drawn when such advice is requested.

We know that our state of knowledge concerning the endangered otters needs to be drastically improved and that implementation of effective governmental action partially depends on this improvement. It is up to you to provide us with this background material, it is up to you to help in closing the gap between the information gatherers and the implementers.

What sort of material can you provide? Three main groups of questions need to be answered--why, where and how?

WHY? What good is the wild otter? The answer of a furrier and a conservationist are at odds. The public needs convincing and we are the ones to do it. I would say that otters are an important element of river system communities. They are predators who have "availability-vulnerability" food habits as so well-described by Dr. Erlinge. They weed out the sick and the supernumerary fish and therefore act as stabilizers--a vital function in their ecosystem. But Mr. Smith could not care less about this--his attitude is that a fish eaten by an otter is a fish lost to him. We must convince him that he would never have caught the fish taken by the otter because they are too small, too coarse, too sick to take his bait. To convince him we need more data and better public relations. I cannot lay enough emphasis on the fundamental role education plays in nature preservation.

The next question is WHERE? Priorities are not always set by need alone. A choice should be made taking the following factors into consideration:

1) Feasibility: While it is very important to study the Cameroon clawless otter we do not at the moment have somebody to do it, nor do we have the necessary contacts in the Cameroons. So we choose a species where the regional contacts and the logistics will be a help rather than a hindrance.

2) Concentrated regional effort: It is hoped that by a mysterious process of osmosis the interest taken in otters in one country will arouse that of its neighbours. (An example is the sea turtle protection measures taken in Suriname which generated action in French Guiana at the other side of the Marowijne River.)

And now for the HOW? How can we ultimately save a species from extinction? Will all your efforts be concluded by a paper in an obscure scientific journal or will it be instrumental in setting up reserves and more effective regulations? Only by close concerted action between you, the experts, and us, the implementers, can we hope to achieve effective protection measures. We expect more than your waiting for our requests to be answered--we expect you to anticipate our needs by laying the groundwork well beforehand. By that I mean you should know the answer to everything yesterday.

I do not mind repeating now again and also when it comes under discussion: how we can save otters, education should be kept in mind. It is ultimately the "public" -- fishermen, hunters and governmental decision makers--on whom we depend when we want to save otters. We have to win their understanding and support. For example, behaviour and ecology studies are important because they make the animal more accessible to the public. Ignorance is being blissfully unaware of the status of Giant otters. When whales and porpoises were explained to people they won many friends and supporters. Unknown is unloved, unknown is unprotected! You must not underestimate the importance of scientific presence in the field. Local villagers are often impressed by the fact that a scientist goes to a great deal of trouble to study "his" wildlife and not kill it--it must have a value other than commercial. The tourists often come in the biologist's wake and this further impresses and benefits the locals. So priorities should be set bearing this also in mind.

It has been a pleasure to open this meeting by delivering to you a welcome address and I thank you for listening to my modest endeavour to steer our thoughts in the right direction. I am convinced that by the time this meeting adjourns, you will have provided new and effective advice and additional arguments for a series of action-oriented programs which should make a decisive impact on otter conservation. May your efforts in this field meet with every success.

A CLASSIFICATION OF THE OTTERS

Summary of a Revision in Progress

Joseph A. Davis*
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Introduction

The last major attempt to consider the subfamily Lutrinae taxonomically was that of Pohle (1920); at the same time the extensive writings of Pocock (1921, 1928, 1940, 1941) added considerably to our knowledge of the group and corrected some of Pohle's misinterpretations. Harris (1968) has illuminated the chaotic state of taxonomy at the species and infraspecific levels without attempting to rectify the situation. Most recently van Zyll de Jong (1972) revised the Neotropical Lutra reasonably well, but in surveying the remaining Lutrinae perpetuated, and compounded, some of the unbiological classification still in current use.

No fewer than 12 generic names have been applied to the members of the genus Lutra, as recognized in this paper, and current usage by others also includes the species here reassigned to separate genera, Lutrogale and Hydrictis. Generic status was given by 19th Century taxonomists (and by a few in the 20th Century) to taxa of species rank or lower.

The taxonomy of otters has been hindered principally by two factors, the scarcity of specimens in collections, and the high rate of individual variability in characters susceptible to quantitative measurement. Quantitative considerations are more germane to the analysis of species and subspecies, and will be treated in another paper; they will be touched upon here briefly only as they apply the question of Paraonyx's validity. At the generic level qualitative differences can be found; indeed, except for the nearly cosmopolitan Lutra, and, for Aonyx, as considered here, the other genera are all monotypic and well marked from one another; that is to say, the remaining species are so different from one another that no two can be grouped under a common generic name under any defensible rationale.

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Because of a high degree of both convergence and adaptive radiation within the group, a study limited to cranial morphology does not yield the true relationships between species; this paper is the first of a planned series which will examine the problem and attempt to bring up to date the relationships within the Lutrinae, utilizing behavioral data as well as morphology.

Behavior

One difficulty in using behaviors as taxonomic criteria is that most behaviors are widely shared by the species. Those that are frequently seen in, and can be said to be characteristic of one species may occasionally be seen in others. Thus, I once watched a Lutra canadensis floating on its back, holding its food (ground meat) above its chest, sea otter fashion, although this is not a usual part of the former's repertoire. Similarly, male canadensis are normally driven away violently by females with newborn or young cubs. But in the Asheville, North Carolina Zoo in 1978 a female, which had just given birth, frantically sought her separated mate, ignoring the cubs until reunited with her; thereafter the male slept in the nest box with the female and cubs, a pattern more typical of at least some Aonyx and possibly Lutrogale.

This plasticity of behavior is far less evident in the vocalizations of otters. Certain calls are common to all the species studied. The warning growl is one of these; it would appear to be of greater survival value for such a warning to be understood by sympatric non-specifics than for such a sound to be selected for species-specificity. The vocal expression of low-level anxiety, similarly, would appear to have the same advantage if not species-specific, and it is uniformly found in all species except the spot-necked otter. Contact and affectional calls appear to be peculiar to each of the monotypic genera, and closely similar among the species within each of the polytypic genera Aonyx and Lutra. Moreover, the general characteristics of these calls fall into two distinct groups (with the spot-neck's calls sharing some characteristics of both).

The unvoiced (or at times slightly voiced) aspiration "H!" is fundamentally an expression of low-intensity anxiety. It is used when the otter finds a new object, otter or person in its environment. Sometimes it denotes a state of generalized anxiety and can come into play when the animal is in a state of general anticipation, as when food is in the offing.

In Aonyx the H! seems to express a more variable range of states, all with a basic component of anxiety. The H! is not only an expression of anxiety; it induces a similar state in an otter hearing it.

I have used this vocalization on a number of occasions to stop otters from going near something or through inadvertently unclosed doors. At the sound of the H! an otter will stop and freeze. The H! however did not have this effect on the Hydrictis, which responded appropriately only to a sharp F! and to the sound made by exhaling sharply through my nose. On several occasions while I had both the spot-neck and an Asian small-clawed otter at home I was able to stop either otter selectively by uttering the appropriate anxiety call.

In Pteronura the H! has a guttural quality not found in other otters. Zeller (1961) renders the sound of a female at the Cologne Zoo as "kh", made when the animal was frightened. The adult female at the New York Zoological Park uttered this sound infrequently, in situations of mild anxiety; it can best be rendered phonetically by the symbol X!, the X! being pronounced like the ch in the German "ach."

In Lutrogale and Enhydra, the "H!" is similar in sound to that of Aonyx and Lutra.

In Lutrogale, Aonyx capensis and cinerea, and Enhydra the contact call sounds to the human ear to be disyllabic, and may be rendered in written form as "wheeuk!" Sonagrams reveal these calls to be circumflex sounds of a steadily rising pitch which peaks, usually briefly, then falls rapidly. In Lutrogale the descending phase of the call is not a steady slope, but tends to level briefly before falling again. The "wheeuk!" of Enhydra is more complex, with a step in both the ascending and descending phases.

The contact call of Lutra is a one-syllable chirp; at high intensity it may become slightly inflected, but normally it is not. The call of Hydrictis resembles that of Lutra very closely, but is on occasion uttered as a disyllabic.

Lutra stands alone in the use of an affectional call, the chuckle, which is a nasal, guttural, staccato, and usually monotoned, series of sounds, which can be written as "Hunh-hunh-hunh-hunh..." This sound has no parallel in Aonyx, Lutrogale, Pteronura or Enhydra. I have heard a sound reminiscent of the chuckle in female Hydrictis, but not in males. This sound, the burble, is a repeated series of staccato, metallic, or bird-like chirps, but is neither nasal or gutteral, and is a complex misture of notes of different tone. It has been used toward me by a female, and toward her cubs.

Baculum

The two major groupings into which otter vocalizations fall are closely paralleled by the shape of the baculum. In the first group the baculum is massive relative to its length, with a sharply angled distal process reminiscent of a hockey stick. In the second group the baculum tends to be more slender, tapering distally before widening in a knob-like distal process, with the overall form of a baseball bat. In both groups the distal process may be cleft into two lateral parts, often of unequal size, by the urethral groove.

The baculum of Pteronura is, relative to the otter's size, the smallest of all species examined; both the Field Museum specimen (Fig. 1) and the one figured by Van Zyll de Jong measure approximately 5 cm., very close to the length of a baculum taken from a fully adult Aonyx cinerea, one of the smallest species. The giant otter baculum I have examined resembles in a general way those of Enhydra, A. cinerea, Lutrogale and Hydrictis in being markedly more massive proximally, and possessing an overall "baseball bat" shape, rather than the "hockey stick" profile of Lutra. The specimen at hand differs from the other aonychin species, however, in that for nearly half its length distally it has a markedly ventrad curve; the specimen figured by Van Zyll de Jong shows the same tendency, but to a lesser degree.

A baculum of a 3½ year old Lutrogale perspecillata from an animal that had been in the New York Zoological Park is 1.27 times as long (71 mm) than that figured by Van Zyll de Jong and is of different form, raising the question as to whether the latter came from an adult animal.

No baculum from Aonyx capensis has come to my attention. It will be interesting, when one comes to light, to see its size. It would not be surprising if it should turn out to be a relatively short bone.

In Hydrictis a baculum from an animal approximately 8 years, 7 months old resembles that of the 3½ year old Lutrogale in size and shape, except that its proximal end, while well developed, is not nearly as massive. Its distal third curves dorsad slightly.

External Genitalia

The testes of all otters are scrotal and usually prominant. The penis varies in the degree of submersion under the abdominal skin, an adaptation to reducing drag in aquatic locomotion.

Lutra

All of the penile structure is located under the abdominal skin when not erected. The preputial area is marked by a small unhaired area surrounding the urethral orifice, with no external protrusion.

Hydrictis

The penis lies completely beneath the skin of the abdomen as in Lutra.

Lutrogale

Adult males of Lutrogale perspicillata at the New York Zoological Park showed a slightly pendulous preputial button, which was unhaired. The subadult male L. p. maxwelli, Mijbil, in photographs (Maxwell 1960) shows the same configuration.

Aonyx

In both A. capensis and A. cinerea the prepuce is pendulous, and unhaired, protruding well beyond the belly hair while the body of the penis proper lies completely sheathed under the skin.

Enhydra

I saw no evidence of a preputial button in any of four males, juvenile to old adult, at the Woodland Park Zoo, Seattle. The animals could be seen at close range, and the nipples of a lactating female, which are about the size such a button should be, were clearly evident when the fur was wet. Karl Kenyon (Pers. Comm.) says, "I have examined many dead sea otters and I have seen no indication of a preputial button that extends beyond the abdominal profile," and J. Vandevere (Pers. Comm.) concurs.

Pteronura

An adult male in the St. Louis Zoo had a conspicuous preputial button.

Discussion

The otters form a well-marked group of species within the mammalian family Mustelidae. All otters are readily recognizable as otters, and no recent species exist which may be considered as bridges between otters and other mustelids. Nor does the fossil record thus far give any indication of the origins of the group; the earliest known otters appear to be fully characterized as otters.

Modern authors recognize this separateness from other mustelids by placing the otters in the subfamily Lutrinae. Although the sea otter (Enhydra Lutris) was for a time pigeonholed in its own subfamily, it is currently, and validly so, included in the Lutrinae. At the generic level the systematics of otters is not well-organized.

Before looking more closely at the recent species of otters two trends involving relatively superficial features should be noted. Both have been used as taxonomic criteria, and both have been accorded greater weight than they appear now to merit.

The size of the hairless rhinarium has been used extensively in characterizing the nominal species of New World Lutra, the nose pad reaching its maximum size in canadensis, and its minimum in enudris (Fig. 2). In the latter form the rhinarium closely approaches the condition of Pteronura. If one plots the rhinaria of these otters on a map, (Fig. 3) it is readily apparent that the most reduced rhinaria are found nearest the equator, and the largest at higher latitudes. Minimum development occurs within a band approximately 10° north and south of the equator, and in the Eastern Hemisphere within this same band, is found the hairy-nosed, or Sumatran, otter L. lutra sumatrana (Fig. 4) which also has the rhinarium reduced to the medial borders of the nares. Much of Pteronura's range also falls within these parallels (Fig. 3).

The second trend of a geographical nature is the tendency for light markings to occur on the underside in tropical latitudes. In Pteronura and Hydrictis striking mosaics of dark and light patches are common on the throat, (often reaching to the chest), and sometimes spotting occurs in the inguinal region as well in Hydrictis. In these two species the extent of spotting appears to be an individual characteristic, with no geographical variation evident between equatorial animals and those from the higher latitudes.

In Lutra of both Eastern and Western Hemispheres animals of lower latitudes tend to have the chin and sometimes the edge of the upper lip clothed in white hair that contrasts sharply with the darker colors of the muzzle and throat. Neotropical Lutra also have a tendency to have small to medium-sized patches of white (through which a saffron underfur shows) on the chest, abdomen and inguis. These are almost always few in number and simple in outline, without invasion of darker fur as is the case in Pteronura and Hydrictis.

The subfamily Lutrinae is here divided into three lower taxa or Tribes. The Tribe is little used in mammalian taxonomy, but no other taxon is appropriate for indicating the relationships of the otter genera. There seems no generally accepted way to anglicize the Latin Tribe designation to distinguish it from the anglicized Subfamily name, and I have chosen arbitrarily to employ the English suffix "-in", so as not to confuse the anglicized forms of the Tribe Lutrini and the subfamily Lutrinae, the latter being "lutrine".

Of these, the Lutrini and the Aonychini (new taxa) embrace, between them, all of the recent otters except the spot-necked otter of Africa, which evidences certain characteristics of both groups and at least one unique character, and may be close to the earliest otter ancestor. The species if here assigned to a third trible, the Hydrictini (new taxon).

The Lutrini

This tribe is composed of a single genus, Lutra, which ranges through most of the tropical, temperate, and subarctic watercourses of the Western Hemisphere (with one species, felina, confined to the marine littoral environment of the western coast of South America); the whole of subarctic Eurasia, southward into the tropics, and formerly, the Mediterranean coast of North Africa. Lutra stands alone behaviorally in its possession of a vocalization, the chuckle, which expresses non-hostile intent and is sometimes made in the same contexts in which cats purr. There are regional dialects of the sound, but it is essentially the same in all species so far as is known (felina and provocax have not been available for study).

All species are slim and elongate in body, with a flatter and narrower head in Old World animals. The baculum is massive, with a nearly uniform diameter throughout. It

is shaped like a hockey stick, the distal portion bent at an obtuse angle from the shaft. In L. lutra the distal portion bends ventrad, while in New World species the distal part bends dorsad (Fib. 1). The penis is entirely sheathed within the abdominal skin.

The Lutrini is comprised of 3 species of the genus Lutra, considered in its strictest sense. The valid species of Lutra are canadensis, lutra, and felina; sumatrana shows signs of being a previously isolated race of lutra now in secondary contact with the Asian mainland populations of that species and interbreeding with them, and it is here treated as a subspecies of L. lutra. The river otters of South America, hitherto considered to be five separate species, four of which were lumped together by van Zyll de Jong (1972) under the name L. longicaudis, do not appear to be specifically distinct from L. canadensis, despite their geographic isolation from the North American populations in very recent geological times. They show no behavioral isolating mechanisms that would prevent interbreeding with North American otters, and their marked differences in rhinarial shape, the principal taxonomic character used in separating them, is subject to a clear north-south clinal shift. The discontinuity of the ranges of Lutra canadensis and the Neotropical otters of the genus is not a sufficient reason to classify the two populations as specifically distinct; Lutrogale perspicillata exhibits a far more discontinuous distribution, the race maxwelli being removed from the major populations of the species by a gap of some 1200 miles, much of which is desert or near desert. It would seem advisable, then, to follow Hershkovitz (1972) in referring all of the Neotropical Lutra (except felina) and the Nearctic L. canadensis, to a single species, and to retain the subspecific designations in current use until a more thorough taxonomic study can be made. The name L. canadensis (Schreber) is older than L. longicauda (Olfers) and has priority.

Recognition of Lontra Gray at the generic level, as distinct from Lutra lutra, serves no useful purpose, and obscures the close relationship of Old and New World Lutra. With the exception of L. felina, which is occasionally found to be sympatric with mainland Lutra, all of the New World Lutra behave like a single species, despite the discontinuities of range. Accordingly L. annectens, enudris, incarus, platensis (= longicauda, van Zyll de Jong, 1972), provocax and canadensis are here considered to comprise a single species of wide latitudinal range and great geographical variation. The animals have a virtually identical vocal repertoire, whose minor differences may well be found to be individual variations. A male canadensis and a female enudris were able to court and mate successfully, subject

only to the seasonality of the male's sexual activity; the female passed through several of her 5-week estrus cycles before the male came into season in the fall. When L. provocax has been studied it may well be found that it breeds seasonally, and delayed implantation would not be surprising. The discontinuity between the ranges of provocax and the remainder of canadensis is about the same as that between canadensis sonora and c. annectens. Mating appears to be casual, although the male may remain in the neighborhood while a female gives birth--perhaps because his territory embraces the female's. While there is no evidence that the male would harm the cubs, the female actively drives him away from their vicinity until they are as much as six months old. Male socializing with older cubs has been observed. Even in captivity a male and female may not mate with each other in successive years, although they are known to take different mates quite readily.

The Aonychini

The Aonichini comprise a mixed bag of otters, if only superficial characteristics are considered. These range from the smooth otter, which bears a superficial, but not really close, resemblance to the Lutrini; the comparatively portly clawless and small-clawed otters, the giant otter, and the sea otter. If one examines the bacula of these species it can be seen readily that all are of a closely similar, baseball bat, shape (Fib. 1), which is markedly different from the shape of bacula taken from New World and Old World Lutra. Moveover, the vocalizations of aonychin otters show a similar resemblance that stands apart from the lutrin species.

Considerable morphological variation is evidenced in this tribe. Two genera, Lutrogale and Pteronura, have evolved the slim shape and well-webbed feet typical of Lutra.

Aonyx

The genus Aonyx comprises two species, A. capensis (including A. (Paraonyx) congica) of Africa, and A. cinerea of Asia. Although the latter has commonly been assigned its own generic name, Amblonyx, it is essentially a miniature of the African species, resembling it closely in form and vocalizations. The genus Paraonyx, set up to embrace clawless otters of Central Africa in which the molariform teeth are relatively small does not appear to be valid. When plotted geographically the tooth size is seen to be a clinal phenomenon, the size diminishing from the periphery of the

range of the African Aonyx toward the central portion (Fig. 5). There is no good evidence that typical A. capensis and nominal Paraonyx overlap geographically, and since even the most specialized of otters can coexist with other species and do elsewhere, it is difficult to consider the small-toothed clawless otters as anything more than geographic variants adapted to a different composition of prey species in the generally forested habitat of west central Africa. The small-toothed animals are here considered to be referable to A. capensis. The tip of the penis extends from the abdominal wall as a slightly pendulus button.

Lutrogale

The single species of this genus, L. perspicillata, is one of two species of aonychin otters which have evolved to fill a niche similar to that now occupied in most of the world by Lutra. It is an elongate otter with large, fully webbed and strongly clawed feet, and its tail is somewhat flatter than in Lutra, with a slight tendency toward the keeling found in Pteronura. The baculum is aonychin in form and the preputial area protrudes slightly beyond the abdominal skin as a small button. The face has an Aonyx-like cast. Vocalizations are similar to those of Aonyx, rather than Lutra. The species has apparently had a far wider range than it occupies today, and an isolated race, L. p. maxwelli, is found in the extensive marshes of Iraq, some 1200 miles west of the main Asian range.

Pteronura

The Giant otter has been somewhat of an enigma. It reaches a greater total length than any other otter, but weights frequently attributed to it seem questionable, and the sea otter attains greater weight. The feet are very large and fully webbed, and the tail for much of its length distally is bilaterally flanged. Both of these characteristics are probably developments required to provide adequate interface with the water consonant with greater body bulk. (Lutrogale, which is larger than most Lutra, also has relatively enlarged feet and a tendency for flanging of the tail). The baculum is aonychin and males have a preputial button. The vocalizations are more aonychin than lutrin, but have been little studied until Duplaix's current field work. Her observations indicate a long-term pair bond and parental role for the male (Duplaix, 1979 /in press/).

Enhydra

The sea otter is superficially unique enough to have led early taxonomists to separate it from all the other otters. Its tail is reduced in size. The hind feet are greatly expanded into a flipper-like form, while the forepaws are short and stumpy. Little separation of the fingers is possible, due to a narrow webbing that joins them. The appearance is one of a paw clothed in a mitten, yet the fingers are capable of rather delicate separate movement, and the otter can grasp objects in one paw with the dexterity of a clawless otter. Like both species of Aonyx, captive sea otters often grasp foot items in the paw, and then transfer it to the mouth. The fur has becom e greatly elongated as insulation against the cold waters of its habitat. The baculum is aonychin, but the preputial button is absent--perhaps a drag-reducing adaptation. Vocalization is complex and aonychin in character. The sea otter appears to have been derived from a littoral clawless ancestor.

Hydrictini

The monotypic Hydrictis is unique among the otters. It is easier to understand why taxonomist have traditionally lumped the spot-necked otter with Lutra, for it very closely resembles a lutrin otter, except that its head is almost more marten-like than otter-like with weaker vibrissae and a less fleshy muzzle. Its feet are relatively large for a small species, and it lacks any hint of a preputial button. Its baculum is very close to that of an aonychin otter, but its behavior is not. The behavior resembles the lutrins in that pair-bonding is of short duration, and the female "defends" her young cubs with relentless determination against the male. The vocalizations are generally lutrin, with the following exceptions: the contact call, a Lutra-like chirp, is often uttered as a double syllable, rather than a single one. In some other calls the voice takes on an aonychin circumflex character. Most interesting and significant, however, is the vocalization that expresses mild anxiety. Where this call in both the aonychin and lutrin otters is an unvoiced aspirant "H!" in Hydrictis the sound is a clear and unmistakable "F!". On several occasions I was able to selectively agitate a spot-neck and a small-clawed otter living together by imitating one or the other sound. Neither responded to the sound appropriate to the other species. Since the "H!" sound is common to all other living species, it seems reasonable to deduce that the "F!" sound arose before the Aonchini and Lutrini diverged, and

that Hydrictis is more primitive than any other recent species. A more detailed discussion of this phenomenon and its significance will be presented in a future paper.

Another call, which I have heard only females utter, resembles the Lutra chuckle in its multisyllabic form and in its functional context, but is neither gutteral nor monotone, as in Lutra, and is rather bird-like and complex in its pitch changes. It appears to be used in more restricted contexts than the Lutra chuckle. I have heard no burbling from any of the three males in my collection, including one raised by hand, with which I had a close rapport.

Conclusion

Adequate quantitative data on most otter species may never be available. Otter populations are almost never dense, except for Enhydra, which is confined to a limited offshore habitat, and Hydrictis in some parts of Lake Victoria. Because of a traditional high demand for otter pelts in commerce, which still exists, the indigenous proples of the tropical regions have usually dealt with fur buyers rather than museum representatives. Otters are poorly represented in museum collections, and series of specimens from one locality are almost nonexistent. The great plasticity of the otter's response to their environment has led to a high degree of convergence in gross morphology in such genera as Lutra, Lutrogale, and Hydrictis, and at the same time has produced the marked radiation that has resulted in the gross dissimilarities found in the related genera Aonyx, Lutrogale, Pteronura and Enhydra. Dentition has responded to available prey, so much so that in a single widespread species, Aonyx capensis, the molariform teeth appear to reflect in size the distribution of Africa's Mollusc and crustacean fauna. The baculum is more conservative in its form, and the vocalizations of otters are similarly less subject to modification. Other behaviors are less firmly fixed, appearing habitually, or at least frequently, in some species, and only sporadically in others. Much detailed study is needed of the behavior of most of the species of otter to refine our understanding of some of the species relationships. Preserved specimens are not likely to appear in any number in future years, especially in light of present indications of decline in many populations, and ethological data taken from captive and free-living animals, along with anatomical study of captives after their death, offer the best hope of further elucidating

the evolution of the Lutrinae whose species have been described by Kurten (1968) as "the most elegant solution to the problem of constructing an amphibious carnivore that Nature has so far effected."

Characteristics of the Tribes of Lutrinae

Lutrini

Morphological: Penis completely internal, no preputial button. Baculum slightly curved, not tapered markedly, with a sharp distal bend, like a hockey stick. Bend is dorsal in New World species, ventral in Old World species. All digits are strongly clawed. Webbing between digits extensive.

Behavioral: Sociable; pairing more or less casual and limited to breeding season; male not permitted near cubs. Anxiety call an aspired H!. An affectional call a low, staccato, usually monotoned guttural or nasal chuckle Hunh-hunh-hunh-hunh. Contact call a monosyllabic, uninflected chirp.

Aonychini

Morphological: Penis tip protrudes beyond abdominal wall as a preputial button, except in Enhydra. Baculum moderately curved, shaped like a baseball bat, heavy at proximal end, tapering distally with a grooved distal knob. Digits may be heavily clawed (Pteronura, Lutrogale, Enhydra), weakly clawed (A. cinerea), or clawless (A. capensis) except for digits 2, 3 and 4 of hindpaws which bear small grooming claws. Interdigital webbing variable in extent, least in clawless, greatest in clawed species.

Behavioral

Social; pairing is more or less permanent; male participates in rearing young from early age with the exception of Enhydra where pairing is casual with no male parental role. Anxiety call an aspired H!. Contact call a rising and falling circumflex chirp. No chuckle; affectional call is circumflex in at least some species.

Hydrictini

Morphological: Penis completely internal, no preputial button. Baculum slightly curved, shaped like a baseball bat in general outline, heavy at proximal end, tapering distally, with a grooved distal knob. Fore and hind digits strongly clawed. Webbing between digits extensive.

Behavioral: Sociable; pairing is more or less casual; male not permitted near young cubs. Anxiety call as aspired F!. Affectional call a burbling series of metallix chirps, reminiscent of the Lutra chuckle but inflected and not nasal or guttural. Contact call mono-or di-syllabic but not inflected.

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TABLE 1. A TENTATIVE PHYLOGENY OF THE OTTERS.
THE DIAGRAM IS NOT INTENDED TO REPRESENT AN ACCURATE TIME SCALE IN ITS VERTICAL DIMENSION. L. FELINA IS AN UNKNOWN QUANTITY AS TO THE CHARACTERS PRESENTED, BUT SHOUDL PROVE TO RESEMBLE L. CANADENSIS IN THESE RESPECTS.

SPECIES	HYDRICTIS MACULICOLLIS	LUTRA FELINA	LUTRA CANADENSIS	LUTRA LUTRA	LUTROGALE PERSPICILLATA	PTERONURA BRASILIENSIS	AONYX CAPENSIS	AONYX CINEREA	ENHYDRA LUTRIS
BACULUM	BASEBALL BAT	?	HOCKEY STICK	HOCKEY STICK	BASEBALL BAT	BASEBALL BAT	UNKNOWN	BASEBALL BAT	BASEBALL BAT
PREPUTIAL BUTTON	ABSENT	?	ABSENT	ABSENT	PRESENT	PRESENT	PRESENT	PRESENT	ABSENT
ANXIETY CALL	PI	?	HI	HI	HI	HI	HI	HI	HI
AFFECTIONAL CALL	BURBLE	?	CHUCKLE	CHUCKLE					
CONTACT CALL	UNINFLECTED	?	UNINFLECTED	UNINFLECTED	INFLECTED	INFLECTED	INFLECTED	INFLECTED	INFLECTED

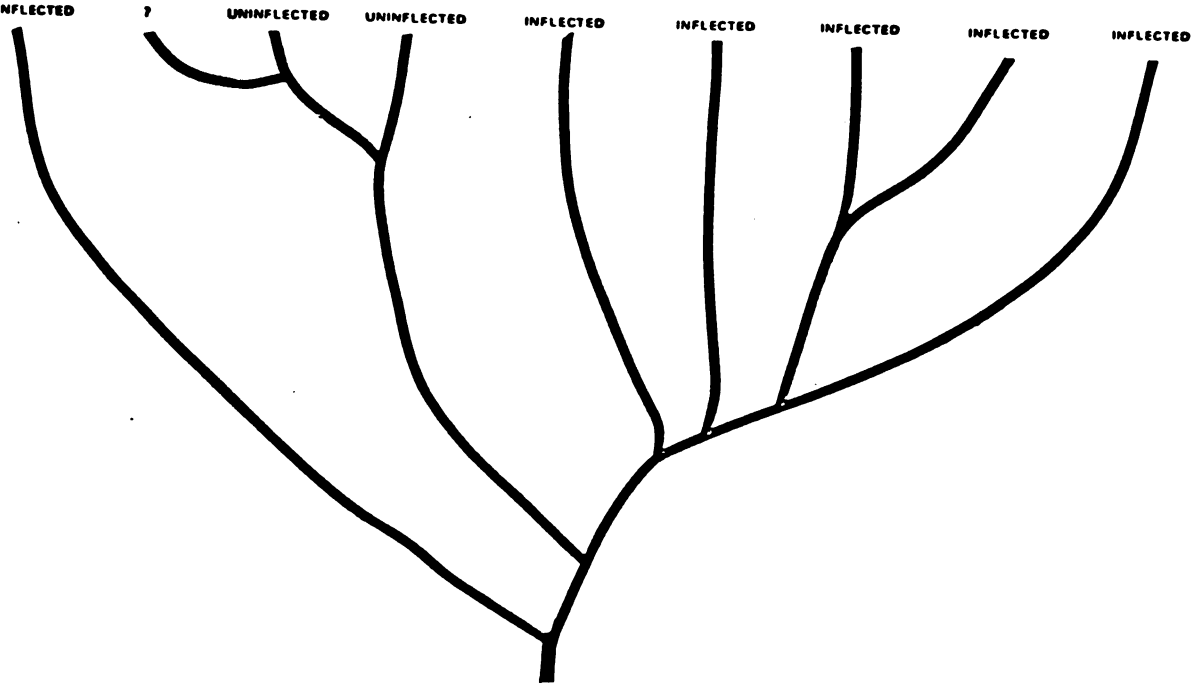
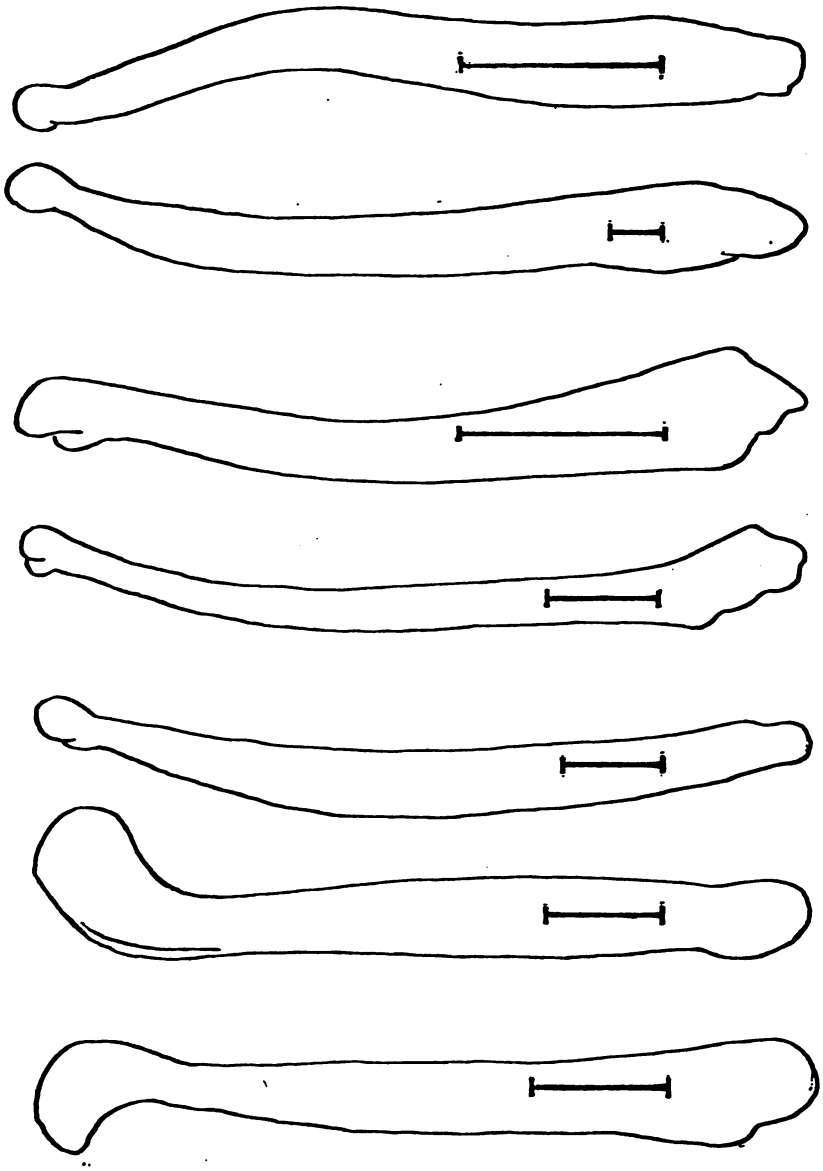


FIG. 1 BACULA OF OTTERS, LATERAL ASPECT.
FOR EASIER COMPARISON OF SHAPE BACULA ARE NOT DRAWN TO SCALE. THE LINE DRAWN ALONG THE AXIS OF EACH BACULUM REPRESENTS 1 CM.



A. PTERONURA BRASILIENSIS –

B. ENHYDRA LUTRIS –

C. AONYX CINEREA

D. LUTROGALE PERSPICILLATA –

E. HYDRICTIS MACULICOLLIS –

F. LUTRA C. ANNECTENS –

G. LUTRA LUTRA

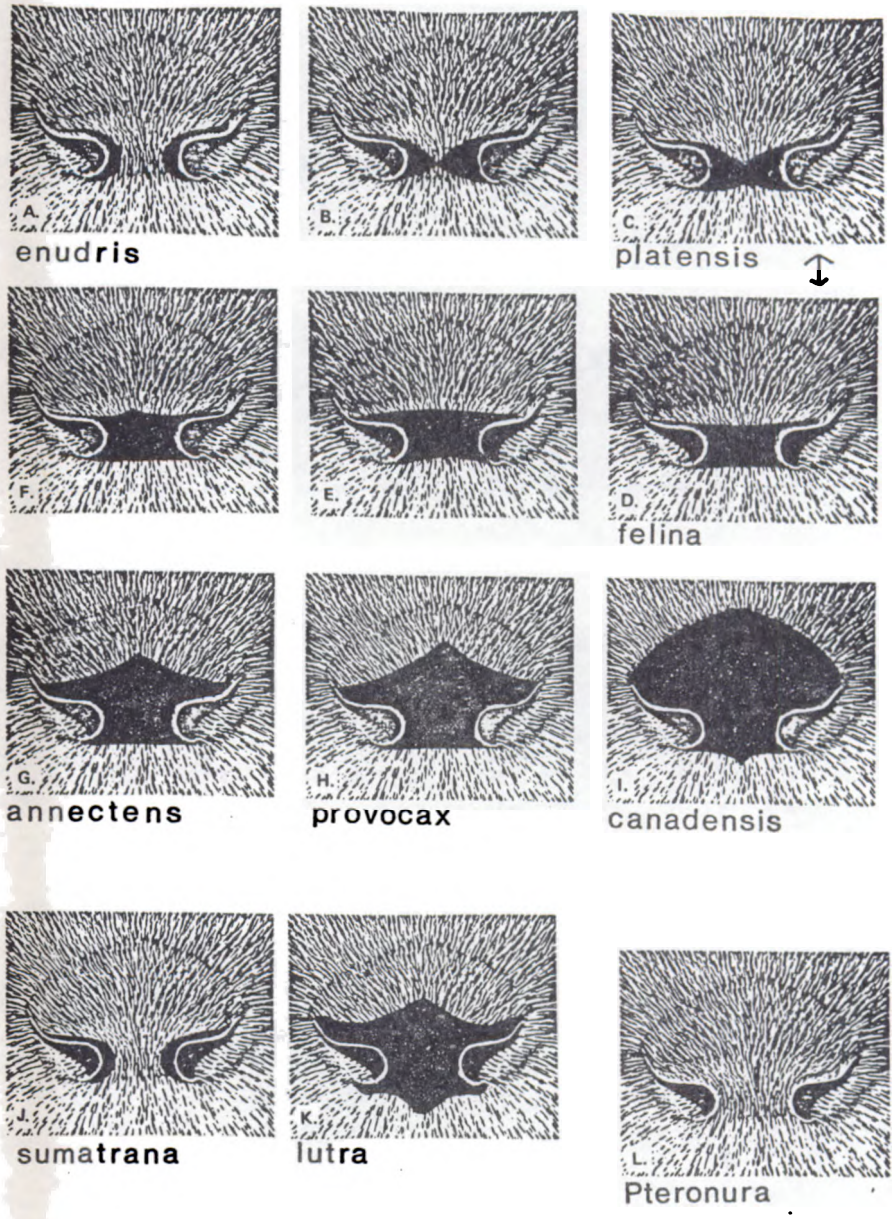


FIG. 2 RHINARIA OF LUTRA AND PTERONURA.
PROGRESSIVE ENLARGEMENT OF RHINARIA ARE SHOWN IN SEQUENCE FROM A TO I; FORMS CORRESPONDING TO NOMINAL SUBSPECIES ARE SO IDENTIFIED. L.C. PLATENSIS HAVE RHINARIAL FORMS C AND D, AS WELL AS INTERMEDIATES. FORM D IS MOST USUAL IN L. FELINA, BUT FORM E IS ALSO FOUND. PTERONURA BRASILIENSIS, FORM L, WITH FULLY HAIRED RHINARIUM, IS INCLUDED FOR COMPARISON.

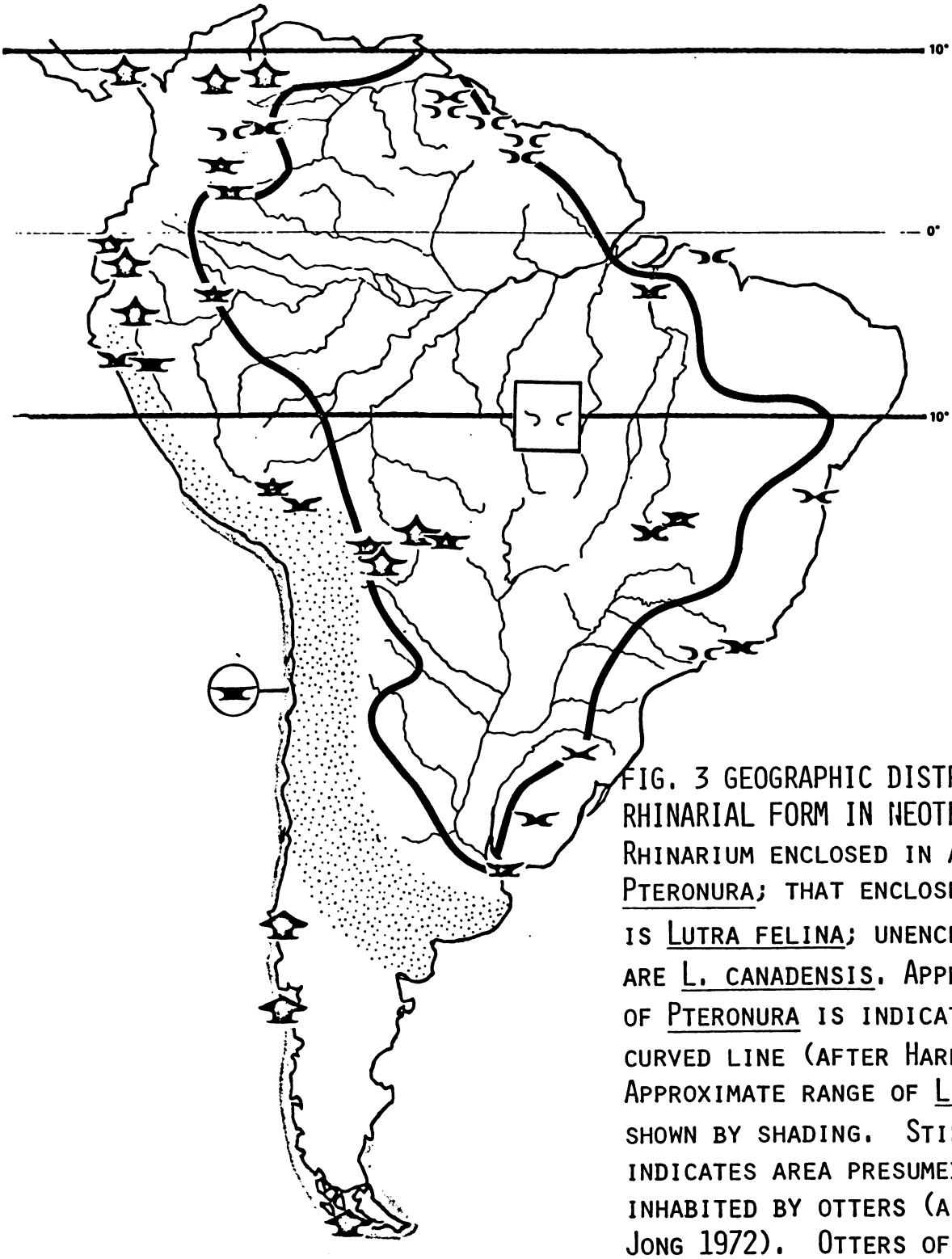


FIG. 3 GEOGRAPHIC DISTRIBUTION OF RHINARIAL FORM IN NEOTROPICAL OTTERS. RHINARIUM ENCLOSED IN A SQUARE IS PTERONURA; THAT ENCLOSED IN A CIRCLE IS LUTRA FELINA; UNENCLOSED RHINARIA ARE L. CANADENSIS. APPROXIMATE RANGE OF PTERONURA IS INDICATED BY HEAVY CURVED LINE (AFTER HARRIS 1968). APPROXIMATE RANGE OF L. FELINA IS SHOWN BY SHADING. STIPPLED AREA INDICATES AREA PRESUMED NOT TO BE INHABITED BY OTTERS (AFTER VAN ZYLL DE JONG 1972). OTTERS OF CENTRAL AMERICA AND MEXICO HAVE RHINARIAL FORM AS INDICATED FOR PANAMA.

FIG. 4 GEOGRAPHIC DISTRIBUTION OF MINIMAL RHINARIAL SIZE. AREA INDICATED FOR H. MACULICOLLIS SHOWS A TENDENCY TOWARD SLIGHT REDUCTION OF SIZE, BUT THE REDUCTION IS MINOR, AND MIGHT BE AN ARTIFACT OF SMALL SAMPLE SIZE.

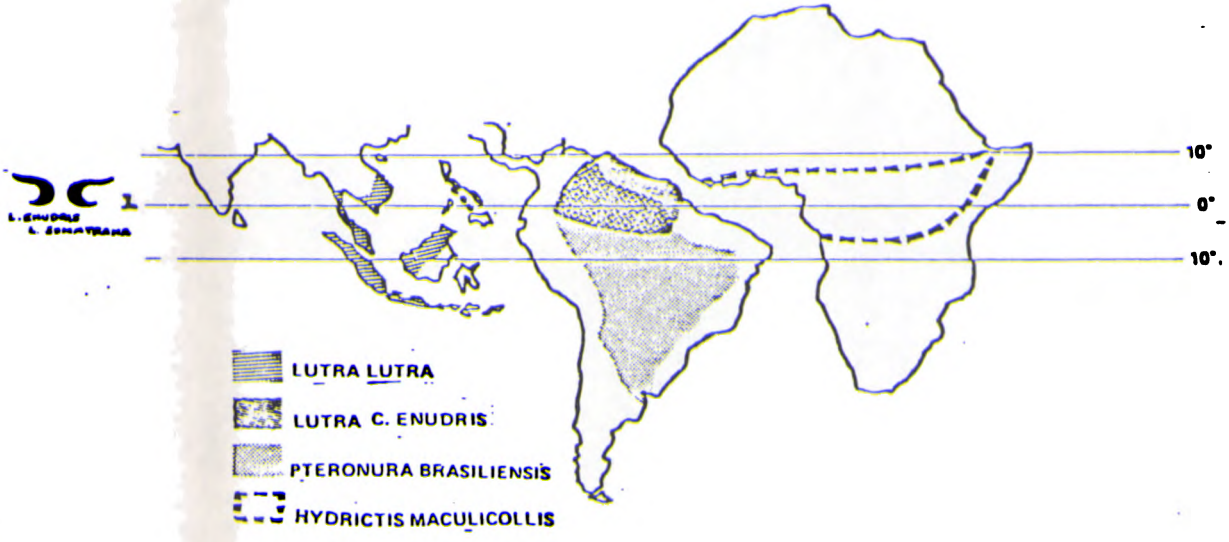
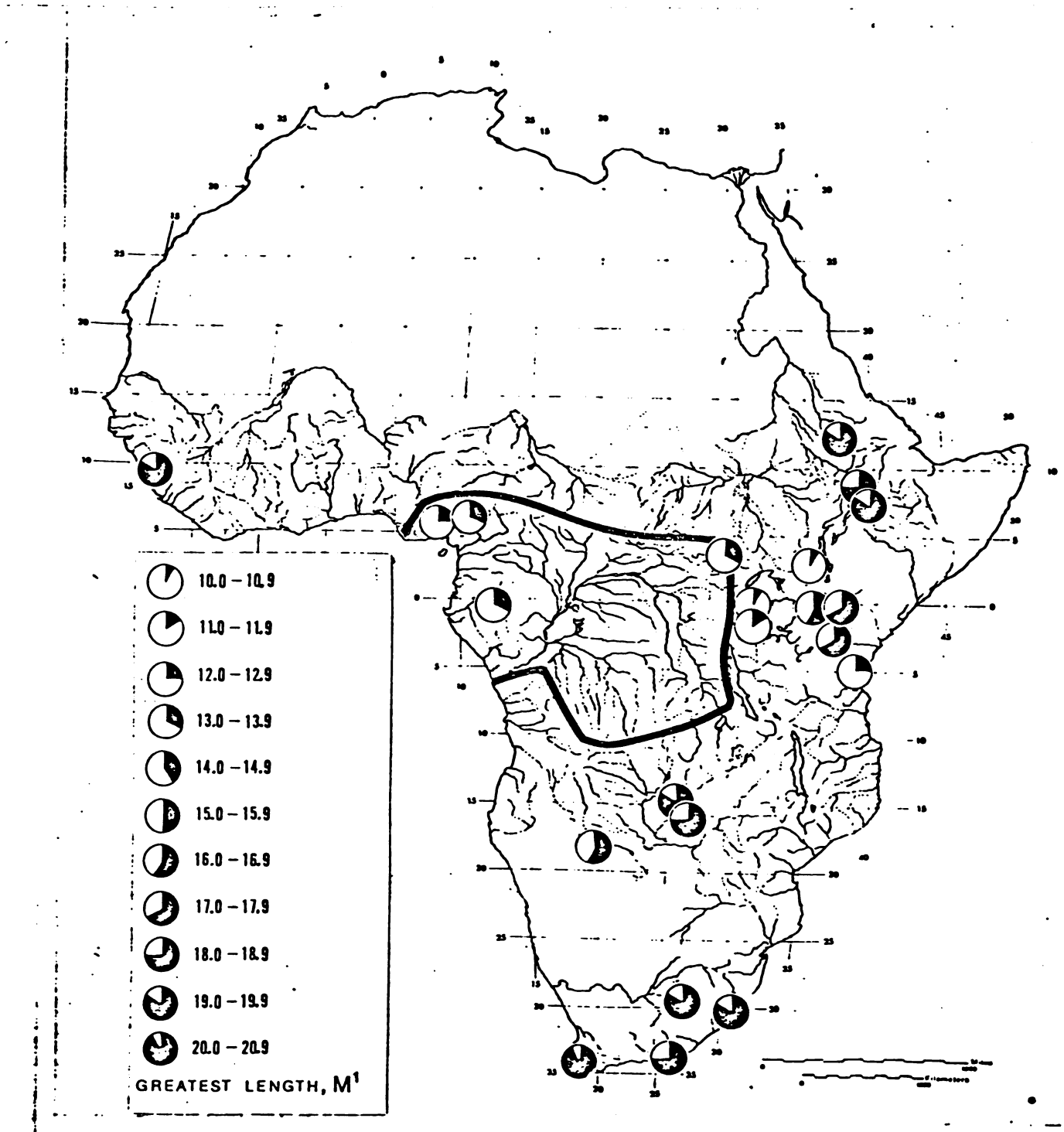


FIG. 5 GEOGRAPHIC DISTRIBUTION OF MOLAR SIZE IN AFRICAN CRAWLESS OTTERS. SYMBOLS INDICATE GREATEST LENGTH OF M^1. HEAVY LINE ENCLOSES APPROXIMATE RANGE OF THE NOMINAL SPECIES *AONYX (PARAONYX) CONGICA* (= *P. CONGICA*, *P. PHILIPPSI*, *P. MICRODON* OF VARIOUS AUTHORS) AS FIGURED BY KINGDON 1977. THE SMALL-TOOTHED SYMBOL AT 5°5, 40°E "MISSION BABAULT, KIHURIO" IS QUESTIONABLE, AND MAY BE A NATIVE SKIN TAKEN ELSEWHERE.



SOME COMMENTS ON OTTER TRADE AND LEGISLATION IN COLOMBIA

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Introduction

The author is not an otter expert and will not attempt to deal with the present conservation situation of the species. The initial observations are mostly taken from published sources. The remaining sections of the report will reflect on trade and legal aspects.

Otters in Colombia

Two species are known from Colombia: the otter (Lutra longicaudia), found throughout the country, and the Giant Otter (Pteronura brasiliensis) found only in the Orinoco and Amazon basins.

Fray Juan de Santa Gertrudis, a Spanish missionary that lived in America from 1756 to 1767, reports sighting otters, or perhaps Giant otters, in the Putumayo:

> "Una cosa bien rara hay en este rio Putumayo, y es: hay unos perritos, como los perritos que llaman de falda peludos, o lanudos. Son ellos lo propio en la lana y hechura y cantidad de cuerpo. Pero aquellos son pescado, y en sacandoles del agua mueren al instante. Lo mas gracioso que tiene es que sobreaguan, y sacan la cabecita y el cuello, y con las manitas madan como los perros, sacando la punta de las manos, haciendo ruido con el agua. Ellos siempre salen juntos. Estan asi sobreaguandos un rato como quien baila o juega, ye de ahi se zambullen, y despues de rato vuelven a salir mas alla. Es cosa de gusto verlos asi nadar. Son de color azul, y no se comen, porque son hediondos, y pegan la hediondéz, al que los toca." [1]

This friar's descriptions are not very careful. His otters are blue.

More recent sightings include the following:

Roger Foote, a U.S. biologist who surveyed the Colombian Amazon region in the Comisaria del Amazonas in 1975-75 noticed that total devotion to hide hunting had ceased but traders still encouraged it. Hunters in the area are primarily after ocelots but also kill other furbearers (Lutra, Mazama, Tayassu, Pteronura, etc.).

On the Giant otter Foote reports:

> "Everywhere this otter is reported as being absent. The two reported sightings on the Rio Putumayo within the last year were both of recently killed individuals. One year ago a skin was brought to Leticia from a nearby stream and sold in the town. On a tributary of the Rio Javari about a day's boat journey from Leticia an individual was seen in August, 1973. Two others were said to have been killed during the previous year in the same region. Open trade of hides in Leticia stopped some three to four years ago, but skins can always be sold when obtained. This is an extremely vulverable species due to its preference for large waterways, its gregarious habits, its loud vocalizations, and its very fine fur. Whereas fifteen years ago one would have had little trouble finding groups, now people simply respond to inquiries about this otter by saying that there are no more left."[2]

Concerning the common river otter, Foote opines that though less abundant now the species is much less vulnerable than Pteronura since it will take refuge in small streams and swamps where it is difficult to follow and find. In 1967-68 the British wildlife expert, I. R. Grimwood, visited national parks in Colombia. For Salamanca he reports otters as never very common and probably extinct as resident animals. For Tairona he diagnoses "said to be uncommon". In Macarena, a biological reserve since 1948 and an area of outstanding scientific value that has been partially invaded by squatters in recent times, Grimwood observed that riverine areas in particular had suffered, that Pteronura is absent from the Guejar, Ariari and Guayabero rivers, and that two were seen in Rio Cabra and two others heard in lagoons off Rio Ariari and Guayabero. He adds that populations may remain in inaccessible pools and lagoons seen from the air in the heart of the reserve.[3] Back in 1968, Prof. Federico Medem, the well-known herpetologist and conservationist, compiled a short paper on the extermination of fauna in the Llanos Orientales (Orinoco basin). In November 1967 three Pteronura were seen in the Upper Bita River, the first sighting in some five years. The species was absent from nearly all of its range and the same was true for the otter.[4]

Both Colombian otters are seriously endangered. They have been hunted to near extinction. For good reason, Lutra longicaudis and Pteronura brasiliensis, as well as Lutra felina and Lutra provocax, two other South American species, are listed on Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora. The 1973 Washington Convention, as it is also know, entered into force on July 1, 1975. Appendix I

includes species threatened with extinction, the trade of which is only to be authorized under exceptional circumstances. By definition, an Appendix I species should not be the object of traffic for commercial purposes. Very little is known of the current status of otters in Colombia. No research has been carried out to my knowledge. The zoo in Barranquilla holds one female otter, acquired two years ago, and coming from the Mompox Island in Bolivar (northern Colombia). The zoo could never obtain a Giant otter.[5]

The zoo in Medellin has a pair of otters (one male, one female). The Tropical Biology Station of the National University in Villavicencio held two Giant otters, but of late one has died.[6]

On Feb. 4, 1977 I wrote letters to the editors of 14 newspapers asking readers for information on otters. Perhaps many or most were not published, but the one to El Espectador, the largest national daily, appeared on Feb. 9, 1977. My letter elicited a total of four responses. A lady in Medellin said she had seen otters in the Magdalena river a month ago but her description actually fitted that of a capybara. The three other correspondents were reliable. A man who was brought up in the Cuiloto river in Arauca remembered seeing herds of 8-10 Giant otters and killing them. They were sold for 1000-4000 pesos (exchange rate 1 dollar = 36.50). Cuiba Indians captured them alive and exchanged them for coins, cigarettes and matches. Pteronura eat curitos, a small fish. During the dry season, Pteronura concentrate in pools where curitos are found. They are then easy prey. The animal sinks for several hours and the hunter is ready to skin it after it raises to the surface. From Cordoba a hunter and guide wrote that 90 cm. long otters are abundant in Cano de Ventanilla, Majagual, Cordoba as well as in Cano de Barro, Ayapel, Cordoba. Finally, a man in Piendamo, Cauca, recalled seeing otters in the wild some 36 years ago during fishing outings.

Trade

Following a ban on many of the species that make up the bulk of the skin trade, otter commerce has significantly decreased. The ban was enacted in August 1973. It is not known whether the ban is responsible for the decline or whether it coincided with a drastic reduction of wild populations. In fact, Inderena, the government conservation agency, reports two live otters, 6,246 skins and 311 Giant otter skins as having been exported in 1970.[8] In 1971 official statistics list six live otters, 6,797 skins and 85 Giant otter skins.[9]

My own search of export permits issued by Incomex in 1972, the foreign trade agency, reveals the export of 8,485 otters and 21 Giant otters. These figures comprise Bogota (7,726 otters and 20 Giant otters) and Medellin (759 and 1). No otters were exported from Barranquilla. Meanwhile, for the same year 1972 Inderena statistics show 32 Giant otters and 7,845 otters.[10] My figure of 8,485 otters for 1972 does not include 1,536 skins shipped from Leticia by a single exporter (Manuel Suarez Agra) from March to July to London and Switzerland. These shipments were unusual in that furs were rarely exported directly from Leticia. The common procedure was to ship the skins to Bogota and Barranquilla and export them from these two ports. This is still done for caiman skins, which are now the single largest item of wildlife trade, following the decline in spotted cat and otter skin exports.

It is clear that statistics are only minimally useful in ascertaining the degree of exploitation in the wild. Exporters frequently underinvoice on their export permits.

The unreliability of statistics is further demonstrated by looking at the Tariff Schedule of the U.S. for 1970, which lists 7,190 otter fur skins exported in 1970, and not just to the U.S.

It could safely be asserted that official exports represent only 50% of the actual shipments. One indication results from an investigation of the District Attorney's office in Brooklyn, N.Y. From December 1971 to November 1972, Peter Andrea Corp. of Montreal received 5,050 ocelots, 1,711 otters and 280 jaguars. For otters, smuggling reached 48.7%[11]

A search of Incomex permits issued in Bogota in the period February to May 1965 showed the export of 1,032 Giant otters and 1,232 otters. Extrapolation is uncertain from such meagre figures, but it is interesting to note how there was no important difference in Giant otter and otter exports, a situation that changed rapidly in subsequent years. It seems that at least up to 1965 Giant otters were relatively abundant. For the whole of Peru in 1965 the export figure given is 223.[12] According to official Brazilian statistics 493 Giant otter skins were exported in 1966 and 328 in 1969.[13] It could be (1) that Brazil's statistics are even more unreliable than Colombia's; (2) Brazilian skins found their way to Colombia via Leticia; (3) Giant otters were not scarce in Colombia in 1965; (4) underinvoicing is worse in Brazil.

Even if statistics do represent the actual number of skins in trade, it is difficult to judge the take from the wild. Hvidberg-Hansen reporting on hunting methods in Peru,[14] Medem[15] and the correspondent from Arauca cited above, all mention that Giant otters sink in the water after being shot and have to be located

by hunters hours later. In pools they may be easily located but it could happen that some pelts are lost. It seems reasonable to think that more animals are killed than enter the trade.

In 1974, only 325 otters were exported from Colombia.[16] No Incomex permits for otters or Giant otters were issued in 1975. The legal trade has virtually stopped. There is no way to know if there is smuggling of otter skins.

On the other hand, international trade goes on unabated. Britain imported 22,926 otter skins in 1975, worth 280,460 pounds. One hundred fifty-four came from Guyana, 837 from Surinam, 6,499 from Brazil, 968 from Paraguay and 2,036 from Argentina.[17]

As from January 1, 1976 there has been no record of otter skins being imported to the U.K. at all, because HM Customs and Excise no longer record otters separately on their statistics. Forty-three thousand, seven hundred sixty-three skins were imported in 1973, 14,971 in 1974 and of the 22,926 imported in 1975, 10,494 came from South America, or 45.7%. Average values given: 18.3 pounds (Paraguay), 17 (Argentina), 12.9 (Brazil). Average for all otters was 12 pounds. An ariranha (Pteronura brasiliensis coat was prized at 1.750 pounds in London in 1976. Otter skins are imported inside out and very stiff, which makes identification difficult. The Government could insist that they be imported with nose-pads and feet attached.[18]

A large number of furs used to be shipped to Switzerland with final destination Italy. This was stopped after implementation of the Washington Convention. In 1975, 116 Ariranha skins and 180 kgs. of Felis tigrina and South American otters were refused entry in Switzerland. Italy levies a tax on the value of the skins, while in Switzerland it is levied on weight. Fur skins weigh little but have a high value. From Switzerland the skins used to be smuggled across the border.[19]

One trade story is worth mentioning. In 1973, Hides and Chemicals, Inc. of New York and Mendal Hermanos of Bogota were charged with violating U.S. federal laws. The complaint charged the Partnership with having participated during 1971-72 in the sale of over 6,000 ocelot skins, 340 jaguars, 200 Giant otters and 3;000 otter skins worth in excess of $800,000 and in sales of large quantities of cayman skins worth over $2,350,000 in 1972 alone. Mendal shipped the skins from Bogota to Kurt Strozynski in Germany. Since Giant otters were placed on the U.S. Department of the Interior's Endangered Species List on December 2, 1970 and its trade became illegal in New York State on January 29, 1971 after enactment of the Harris Act, and since Jacob Mendal, an American citizen, owner of Hides and Chemicals, Inc., was also a partner in Mendal Hermanos, U.S. law was fully

applicable to transactions originating in Colombia. Besides, otters and Giant otters were at the time legally protected in Colombia, so the shipments violated the U.S. Lacey Act. This federal law, which dates back to 1900, makes it illegal to buy, import or cause to be traded any species of wildlife in violation of state law of of the laws of any foreign nation.

From July 14, 1971 to June 8, 1972, 196 Giant otters and 2,867 otters were shipped by Mendal to the German importer. The real price was 35 dollars for otters and 88 for Giant otters, as an average. Needless to say, prices declared to Incomex were lower. On May 24, 1973 a consent decree was signed that provided, inter alia:

> "Defendant Mendal, Hermanos, shall forthwith cease and desist from doing business in the United States of America or using in the course of its business any facility located in the United States of America, directly or through Hides and Chemicals, Inc. as its agent or through any other agent, where such business in the United States consists of the sale or offer for sale or solicitation of sales of the skins of any wildlife (a) which are currently or hereafter listed on the Endangered Species List of the United States Department of the Interior or (b) which were taken, transported or sold in violation of the laws of any state or of the Republic of Colombia or any other foreign country."[20]

I should add that in Colombia Mendal Hermanos was acquitted of the accusations investigated in New York.[21]

Legal Aspects

Otters and Giant otters have been totally protected under Resolution 574, July 24, 1969 (Inderena). The hunting prohibition was confirmed by Resolution 848, August 6, 1973. Trade was to stop on October 15, 1973. As mentioned previously, there has been no official trade in otters after 1974. The same has not been true for other species protected by the August 1973 regulations, especially caimans, peccaries, boas, anacondas. Traders adduce that they had stocks, that their skins are imported and tanned here and then re-exported, which is correct for several firms, that the skins were acquired in public auction. Those defenses have been challenged in a suit pending before an administrative court (Consejo de Estado, Seccion Primera, expediente 2542). The suit alleges the Natural Resources Code (Decree 2811, 1974) outlawed trade in protected species (section 265 e): no person could legally buy or sell an otter, for example, even if proven that it was hunted in 1968.

In addition, the Code requires that a hunting license duly approved by the President and the Minister of Agriculture exist prior to granting an export permit for wildlife products (sections 259 and 261). As to imported skins the violation is obvious: the Colombian Government cannot certify on hunting licenses issued abroad, if they were issued at all.

Conclusion

Government agencies in Colombia have failed to enforce the provisions of the law. If the suit is successful all or most loopholes would be plugged. Exporters could hardly turn to outright smuggling.

The task ahead, after proper enforcement of the trade legislation, internal and international, is to foster the study of wildlife. For many species trade has been the main threat. If this is removed, people must take an interest in wildlife. This requires education. There is no popular guide, or for that matter no expert's text-book, on Colombian mammals. The same holds true for reptiles and other groups of animals. The sheer lack of knowledge can be appreciated from the results of a 1972 conservation contest supported by the World Wildlife Fund and organized by Inderena. Questions were published in the public press and addressed to primary and secondary school students. Over 60,000 replies were received.[22] The questions were simple: name 5 mammals, 3 national parks, etc. Less than 10 entries correctly responded to all questions!

Another conservation index: On March 1, 1977 El Espectador printed a photo in its front page showing two hunters and a dead jaguar. The caption informed that the cat was shot in Don Diego, close to the Tairone National Park, within a property of the Colombian ambassador to France. The names of the two hunters were reported. An act of bravery indeed.

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DISTRIBUTION AND STATUS OF THE GIANT OTTER (Pteronura brasiliensis) IN VENEZUELA

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The Giant Brazilian otter (Pteronura brasiliensis brasiliensis Gmelin) occurs in the Orinoco basin of Colombia and Venezuela. North of that river, in the Llanos Region, the "perro de agua"[1] has been sighted or hunted[2] in several rivers of the Estado Apure where twenty years ago it was still fairly common, due to the fact that it was rarely hunted. The most recent reports concern three otters killed near Puerto Nutrias in May, 1976, and two observed in the Caño Macanillal in January of the same year. One of us has observed otters in the Capanaparo and the Claro rivers, in March, 1953. At present otters are very scarce on these rivers, as well as in the Cunaviche. For the Cinaruco river, there is a record of one specimen collected in December, 1965, but recent inquiries by us in February and March of the present year indicate that in this river Pteronura has been exterminated by pelt hunters. Many of the rivers in the Western Llanos that flow from the Andes towards the Apure River (The Caparo, Suripá, Canaguá, Socopo, Ticoporo, Santo Domingo, Masparro, Boconó, Guanare, Acarigua, and Cojedes) are suitable habits for the Giant otter, but the merciless commercial hunting has extirpated its populations from its previous haunts. We have information that small groups remain within the boundaries of the hatos (cattle ranches) Campo Alegre and Las Cruces (S.W. of Arismendi) in restricted caños (sluggish rivers) of the Portuguesa watershed. In the Cojedes river a group of five very shy otters was sighted in January, 1976.

In the southern part of the Estado Guarico, the Giant otter was somewhat common about 30 or 40 years ago, in the Aguaro river--in the area of the recently declared

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[1]This is the Venezuelan name for the Giant otter as well as for the smaller species (Lutra longicaudis).

[2]According to reliable information.

Aguaro-Guariquito National Park--but at the present time has been almost entirely exterminated. It has been greatly reduced in number in other areas along the coast of the middle and lower Orinoco and the rivers which flow into the Orinoco from Cabruta and Parmana to Barrancas. Probably some small relict populations now exist in some of those tributaries of the Orinoco and in certain isolated lagoons. Seven to eight otters (of a group of no less than 10) were filmed in the Orinoco, near the coastal town of La Urbana, about 15-16 years ago. It is possible that the intricate network of caños in the Orinoco Delta still harbor Pteronura populations but it is necessary to make a survey there to determine their present status. South of the Orinoco, we have records of one Giant otter collected in April 1976 at the cano Tortuga, Maniapiare river region, and three were collected near Cacuri at the Upper Ventuari river in 1959, but at the present time, they are scarce in this river as far down as the Tencua Falls. From the Ventuari watershed we know of five specimens collected in the Manapiare river near San Juan in April 1958. In December 1974 three otters were seen on the trail from San Juan de Manapiare to Caicara. Some small isolated populations still remain in the Uytaje and Cerro Yavi areas. In the Parucito river near the Yavi, upstream from the Laguna Maguari six different groups of Giant otters (of 4-5, one of 7) were sighted in January 1977. It seems that more are still found near Cerro Calentura at Yutaje and some small groups at the Caño Corocoro where they are not hunted by the Indians.

Further east, Pteronura were collected many years ago, at the Mocho river at the mouth of the Caura, but they are now scarce in the lower Caura and in the Nichare due to depredation by pelt hunters. It has been collected in the Upper Esmeralda at the foot of Cerro Duida. Two live female sub-adults were kept at the Misión de la Esmeralda in April 1976, and were taken to the Zoological Park in Madrid (Spain).

We have information that due to the very intensive hunting by pelt traders, it has become very scarce in several rivers of the Upper Orinoco as far as the Casiquiare and the Rio Negro.

Habitat

Pteronura brasiliensis seems to prefer clear-water rivers, but it may also be found in muddy rivers and caños, as well as in isolated lagoons or pools that remain filled

throughout the dry season. It is usually found in groups of 4-6 animals, but may congregate in larger groups of 8 to 15. Pairs are also encountered as well as single individuals that have remained isolated during the dry season in small lagoons.

Status and Protection

We may definitely state that the Giant otter and the manatee are the most endangered species of Venezuela's wildlife.

In spite of the fact that otters are legally protected in Venezuela[1] clandestine commercial hunting is sponsored or carried on by Colombian and Brazilian traders. These traders buy otter skins as well as those of ocelot, margay and jaguar from Venezuelan native hunters, and often do the poaching themselves.

The Venezuelan National Guard and employees of the Fauna Division make every effort to control this illegal and very harmful commerce by confiscating skins being smuggled out of the country. To stop or control the killing of otters, spotted cats and some reptiles, and the clandestine commerce of their skins with Colombia and Brazil is extremely difficult, particularly in the remote regions of Colombia, Venezuela and Northern Brazil.

Due to the fact that Pteronura is gregarious and diurnal it becomes an easy target for the hunters and fishermen who can travel easily throughout the rivers and locate the dens and feeding spots ("comederos") of the otters. The number of otters that are killed frequently exceeds the number recovered and skinned, because many can escape when wounded, or sink when killed and are lost. Each Giant otter pelt brings as much as 500 Bolivars (or about 2000 Colombian pesos) depending upon its size and quality. This makes it a very attractive enterprise for the workers and campesinos (Venezuelans and Colombians) that poach to sell the skin to fur traders. Pelts smuggled from the Venezuelan Orinoco region to Colombia, usually go through Puerto Carreno, a Colombian port directly across the river from Puerto Paez in Venezuela. The pelts obtained in the Territorio Amazonas of Venezuela are usually smuggled to Colombia through the Vichada

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[1] Pteronura brasiliensis, Lutra annectens and L. enudris are included in the Official List of entirely protected species since December 10, 1970.

River, or by the Inirida or the Guaviare. Brazilian traders that travel in and out of Venezuela through the Rio Negro, sell their Brazilian manufactured products, including shotguns and ammunition, and buy otter and spotted cat skins. The port of destination in Brazil is Manaos.

International cooperation is essential in order to afford adequate protection to the endangered species such as the otters and the spotted cats, that are being rapidly exterminated by ruthless commercial hunting. It is obvious that unless the exportation of otter skins by Colombia, Brazil and Peru is stopped, this most destructive commercial exploitation will keep flourishing.

We propose the following measures for the conservation of Giant otter populations in Venezuela:

1) To establish official agreements between Colombia and Venezuela and Brazil and Venezuela, that would give effective reinforcement to the regulations (of those countries) which control hunting and commerce of fauna products, in order that these efforts be felt, not only at the guard posts and customs offices, but also at the ports of exportation, at the fur and tanning industries and the exporting firms.

2) To conduct a survey that would help to establish more thoroughly the status of the remaining populations of Pteronura in Venezuela. Such a survey could simultaneously cover other riverine endangered species (the Orinoco crocodile and the manatee).

3) To encourage and give help to ranch owners who are willing to afford protection to the otter populations still living on their lands.

4) To establish a captive breeding program for the giant otter in Venezuela under the control of the Caricuao Zoological Park.

5) To conduct an educational program especially in towns and villages in areas where Pteronura can still be found. Posters, leaflets, movies, radio programs and lectures in schools and community centers are useful for the purpose. Television programs and newspapers are helpful to gain citizen support.

SYNOPSIS OF THE STATUS AND ECOLOGY OF THE GIANT OTTER IN SURINAME

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A survey of the Giant otter Pteronura brasiliensis was conducted in Suriname from mid-July 1976 to 28 March 1978. One hundred eighty-eight Giant otter sightings were made totalling 252 individuals of which 97 were seen more than once. Total direct observation time was 114 hours 21 minutes during 297 days in the field. Thirteen major rivers, 62 creeks and one lake were surveyed, some of them several times. A special emphasis was placed on Kaboeri creek, a tributary of the Corantijn river above Washabo. The activities of the 23 resident otters were monitored every six weeks from January to November 1977 and full-time from 13 January to 11 March 1978. During the rainy season (May to July peak), the otters desert the creeks and retreat into adjacent flooded forest, savannah swamps and hidden oxbow lakes where they are difficult to follow and observe: only 16 sightings of 34 otters for 52 minutes were made from April to the end of July versus 139 sightings of 96 otters for 100 hours 46 minutes from August to April.

It has been determined that the Giant otter is diurnal with activity peaks in the morning and afternoon. None was seen or heard from 1800 to 0747 hours. A pair or family group usually swims with the tide during the morning hours, fishing along the way, and returns to the campsite or den to groom and to rest before the afternoon patrol and fishing sessions. Fish are chased and ambushed in shallow water or under floating vegetation and eaten in the shallows or on a log. Size of prey varies from 10 to 45 cm, 25 cm being the norm. Crabs are also taken. Prey items are not shared or stored but consumed entirely on the spot of capture.

Territorial Behavior

The otters clear the vegetation along portions of the riverbank; these areas are called campsites (8.2 x 5.6 m average for 227 measured). They are used for marking, grooming and resting activities during the dry season on black water creeks. Smaller campsites (2.5 to 5 m diameter) may be partially cleared and used overnight

and then abandoned while others, usually larger ones are core areas in the territory and maintained regularly. Several may be used simultaneously, the otters spending the night at one of them with no fixed pattern. On Kaboeri creek, 53 of the 77 campsites were used to various extents during the dry season whereas only 8 were sporadically visited during the rainy months.

Two forms of territorial marking have been observed: 1) scats or spraints are left on sloping logs or large boulders near or above the water (163 scats collected for analysis); 2) on campsites, both sexes spread feces over a specific and usually circular area (1.5 m diameter average) set off to one side. It is used for a varying length of time then abandoned when another spot is selected. Scent and urine are spread by both sexes over the whole campsite during the course of clearing the vegetation and kneading the substrate. The first type of marking seems to be used on forest creeks where the Guyana otter Lutra enudris is also present and on larger rivers near waterfalls and rapids where clusters of boulders and small islands predominate. These two forms of marking do not usually overlap in one area.

Territory size appears to be correlated with the number of otters in residence. Normally a pair of otters will actively mark and defend 2 km, sometimes up to 4.2 km, even though they may wander far beyond their boundaries up to 6 km on either side. When a family group of two adults and their subadult offspring had three more cubs in 1977, they enlarged their territory by 2.3 km, displacing a pair that had lost their two cubs to an Indian poacher. The pair's female subsequently disappeared and the solitary male's territory was reduced to a 600 m core area and marking activities virtually ceased. A subadult pair set up a new territory of 2.1 km in a relatively poor fishing area at the entrance to the creek. These 11 individuals' three territories covered 7 km of creek and included numerous smaller forest creeks on either side. These territory sizes apply only to the dry season as it is impossible to establish these parameters in the rainy season.

Parental and Social Behavior

In Suriname the Giant otter's birth season spreads over several months. In 1976 two month-old cubs were seen at the end of August while in 1977 very young cubs were seen on the 2nd of October. A pair of habituated otters

on Kaboeri creek had one cub in 1976 and two in 1977 indicating that pairs can be monogamous for several years at least and breed every year. The 1976 cub remained in its parents' territory during the rearing of the new litter and then moved 6 km upstream where it was sighted in March, living alone. Subadults usually remain with the parents though as evidenced by another group on the creek mentioned above. Litter size appears to be 1 to 3 cubs based on 9 sightings. The male is as attentive to the cubs as the female and both exit and enter the den together; cubs may remain alone up to 4 hours while the parents forage or rest elsewhere. Pairs and family groups swim parallel or in close proximity with the cubs in the middle, diving and surfacing together. Dives during normal swimming are 20 seconds on average, much shorter during rapid chasing while hunting. Cubs that become separated are immediately sought by sight and calls and retrieved by both parents. Family groups hunt as a group and there appears to be no cooperation or sharing. Giant otters are particularly noisy and conspicuous during hunting and investigating. They show little fear in undisturbed areas, 'charging' the boat with loud cries when their vocalizations are imitated by the human observer.

Eight separate vocalizations were identified and recorded. Lengths of continuous observation ranged from a glimpse to 5 hours 7 minutes. Large groups of 7 otters were seen 7 times and a group of 16, once. Groups usually include three age classes and are most often seen towards the end of the dry season when the subadults join their parents again. The female is dominant over the male as evidenced by the following: 1) the male grooms the female in a mated pair for much longer bouts than vice-versa; 2) the female initiates departures and landings; 3) the female is usually the first to mark or spraint on a campsite although the male spends longer clearing and marking thereafter. When cubs are present the female and her subadult female offspring remain close to the cubs and the male(s) defend the group. Both sexes are equally agressive in intraspecific encounters. When invading a neighboring territory, the resident otters often flee into the forest when they hear a large group approaching. When humans approach they dive into the water or swim up a smaller branch of the creek. The otters were able to recognize the human observer and differentiate from Indians in canoes which they feared.

The Guyana otter Lutra enudris

This smaller species was seen only 11 times (13 individuals) with no repeats for a total of 23 minutes observation time. It is solitary and much shyer than the Giant otter. It uses logs and boulders for depositing scats like other Lutra species and does not clear campsites. Twenty-seven scats were collected; on 5 occasions within sight of Pteronura scats. Both species are known to be sympatric on at least five major river systems. Lutra favors a wide variety of habitats, particularly small creeks in the forest and savannah swamps. Size of prey and more crepuscular habits appear to minimize competition or encounters between the two species. Cubs were seen in late October and December. Anacondas are known to prey on this species.

Conservation Recommendations

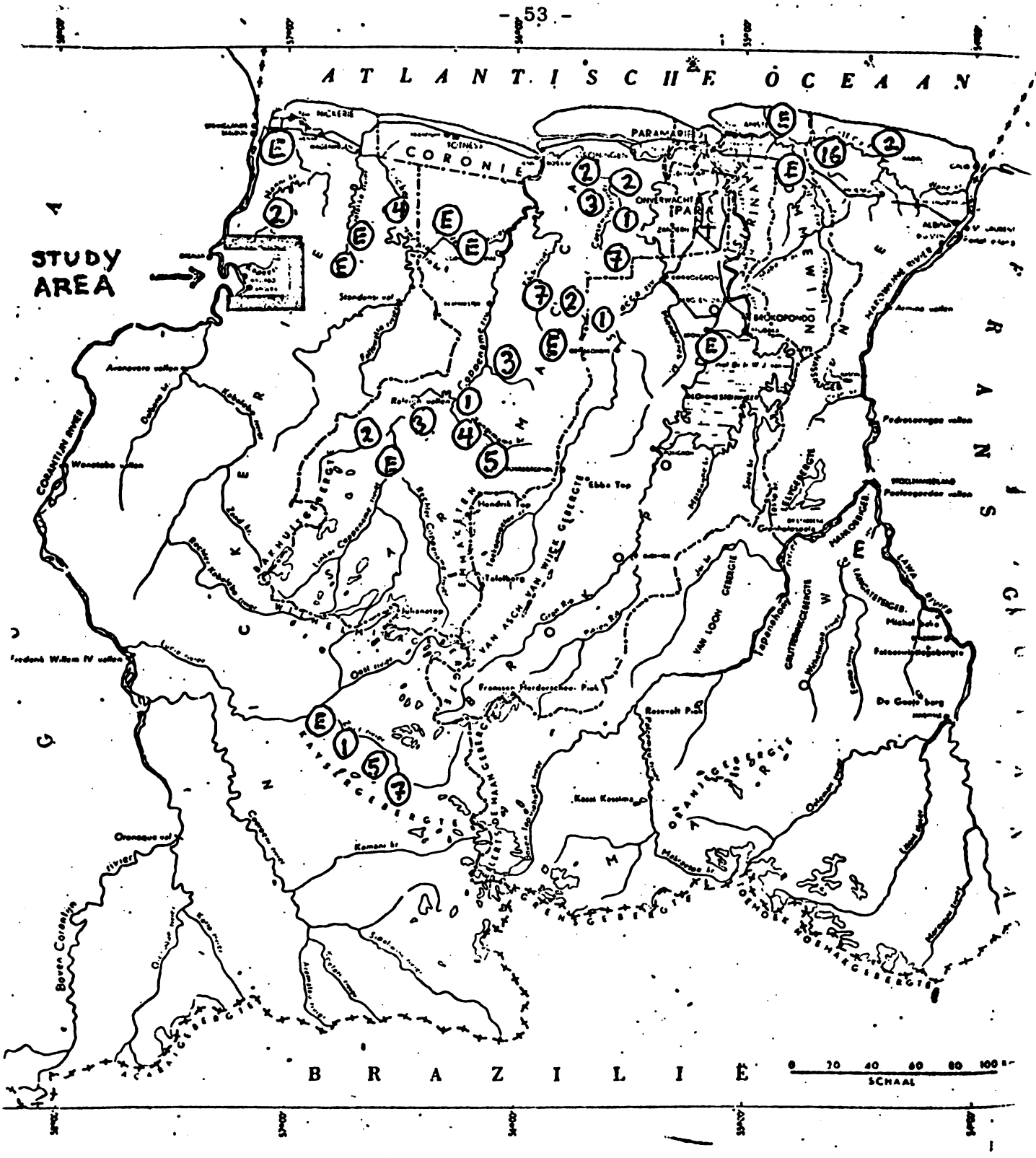
Both species of otter are well represented in Suriname. As far as can be ascertained, killing otters for their pelts has never been widespread except perhaps near the French Guiana border where Pteronura is less common. The highest density of Pteronura was observed in the Kaboeri creek, Tibiti river and upper Coesewijne river which coincides with a low floodable forest habitat with access to savannah swamps. This prime otter habitat occurs roughly on a band across Suriname between 5^{o} 30 and 5^{o}. Two reserves have been proposed for the upper Coesewijne and the Kaboeri creek areas but so far the local Indian populations have opposed the idea stating this would jeopardise their ancestral hunting and fishing grounds. Compensation in the form of hunting and logging rights to adjacent forest areas have been rejected by the village leaders and matters are at a standstill. A more direct and permanent threat to the Giant otters of Kaboeri creek is the Western Suriname Development Project. Based in Apoera, 10 km upstream, a building site is underway to create a city of 60,000 people. Already a sawmill, a high 64 km long with an adjacent railroad track are functioning or well on the way to completion. The railway will be used in the exploitation of a bauxite mine further inland. Plans for a major hydroelectric dam 50 km to the south will also have a major impact on the water level of Kaboeri creek should they be implemented. The resident human population in Apoera has tripled between January and October 1977 as workers from Guyana and eastern Suriname come to settle. The construction firms prohibit hunting during working hours and there are

strict controls of firearms. Kaboeri creek is accessible only by boat and its narrow course is littered with fallen logs impeding progress. So far only Indians and a few European fishermen visit the creek regularly but distractions in Apoera are few and it can only be a matter of months before the situation changes. The resident otters are particularly vulnerable during the months of September to April when they are rearing cubs and the flooded forest whose safety they can no longer retreat to is dry. Cubs are sometimes taken by the Indians to rear as pets; this occurred in December 1977 and although released by police order shortly afterwards they were never seen again.

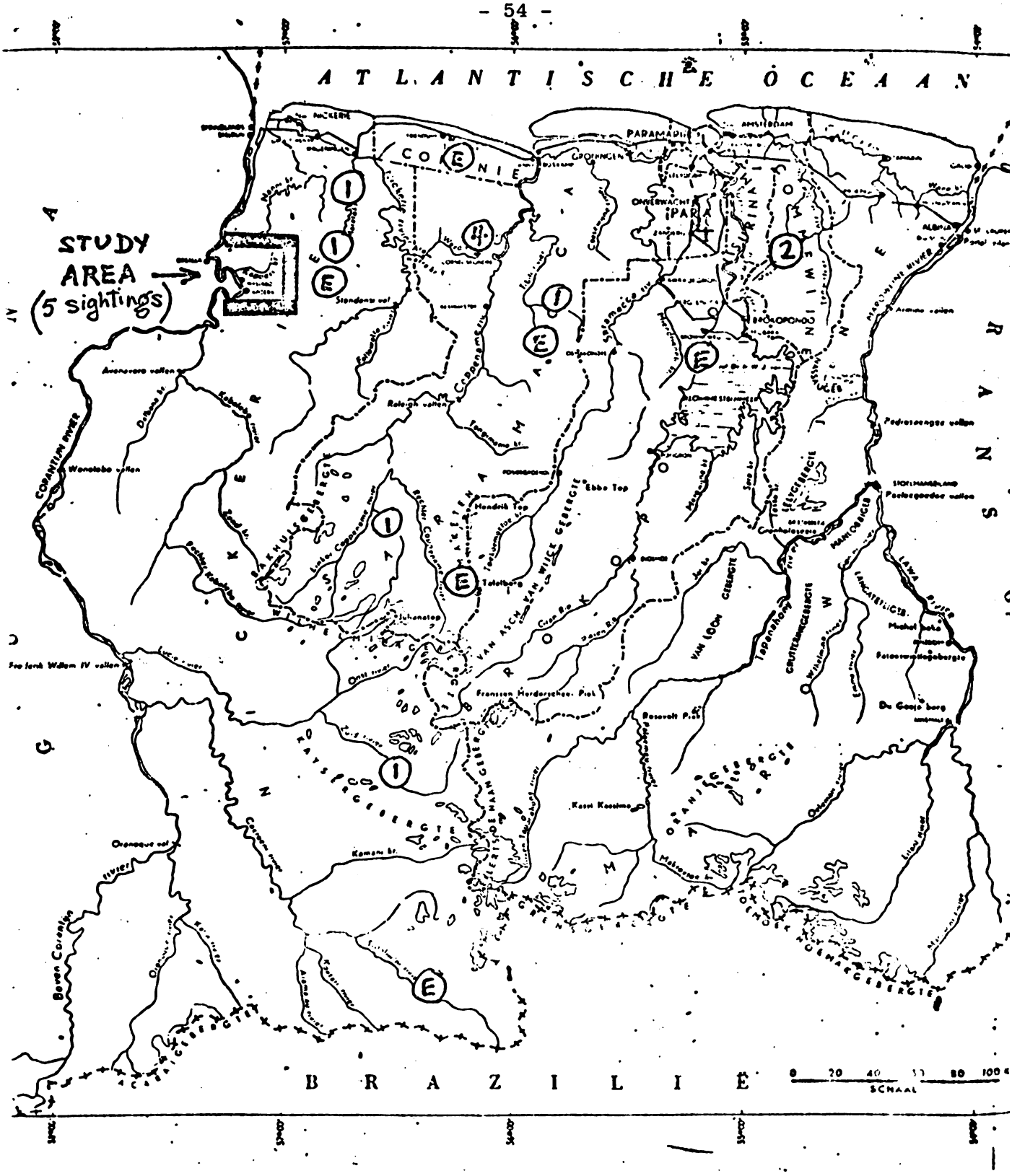
Conclusion

Suriname remains one of the few countries in the range of *Pteronura* where its numbers are stable and the outlook for its future bright, in the interior at least. The effective existing conservation laws and reserves are a guarantee that this situation will not dramatically reverse iteself with the one exception of Kaboeri creek. If the plans to create a reserve in that area are realized and adequate patrolling can be organized, the threat could be removed.

(A detailed scientific report of this project will appear in 1979 in LA TERRE ET LA VIE as well as a popular article in the National Geographic Magazine.)



Giant otter Pteronura brasiliensis sightings. Number in circle corresponds to number of otters in group. E= evidence. Number of sightings in study area not listed.



Guyana otter Lutra enudris sightings. Number in circle corresponds to number of otters in group. E= evidence. Number of sightings in study area not listed.

NOTAS SOBRE LAS NUTRIAS DE RIO DEL ECUADOR

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Introduccion

El conocimiento de los géneros Lutra y Pteronura en el Ecuador no tiene la profusión necessaria, sino que es tan limitado cual lo es la informacion bibliográfica disponisble; acaso porque ésta, si es que existe, encuentrase fuera del país. Situación que parece obvia: ya por el interés particular de incrementar el saber y las investigaciones de la fauna ecuatoriana en campos más comunes, o ya por la preocupación oficial de estos últimos años actualmente concentrada en objetivos y prioridades más generales, y en forma exclusiva, orientados a la protección del recurso faunístico en su conjunto.

Empero, los datos aquí compilados, en la dimensión de un estudio muy preliminar o quizá fundamental, tienden a trazar el problema de estos grupos zoológicos con las ides y disposición requeridos para realizar estudios posteriores.

Problema

Las proposiciones que este trabajo trata de resolver, son las siguientes:

1) Identificación de las nutrias de río del Ecuador.
2) Nociones de su distribución.
3) Estado actual.

Metodologia

Revisión bibliográfica y recopilación de datos en las colecciones de fauna silvestre de Quito: Departamento de Biología de la Escuela Politécnica National; Instituto de Ciencias Naturales de la Universidad Central del Ecuador; Museo del Instituto Nacional Mejía.

Observaciones de campo: reconocimiento de áreas naturales del Sistema "Estrategia Nacional para la Conservación de Areas Silvestres".

Compilación de datos, cuya fuente proviene de la información personal: colectores de elementos de fauna silvestre, cazadores nativos, inspectores y guardianes del control nacional de fauna silvestre.

Resultados

Identificación

Las evidencias que se expresan a continuación, prueban la existencia de las siguientes especies de nutrias, en el Ecuador.

Pteronura brasiliensis (Gmelín, 1788)

1 cráneo, sin N., sin datos, Escuela Politécnica Nacional. 1 piel con cráneo, sin N., Río Aguarico, Destacamento Militar Puerto Loja, 2-XI-75, fotografía Daniel Vreugdenhil. Yacu puma es el nombre vulgar con el que suele nominarse a esta especie, éste es aún muy común entre las comunidades nativas y colonos antiguos de la Provincia de Napo; se compone de dos voces quechuas que, traducidas al castellano, quiere decir: tigre de agua; acepción que débese con seguridad a características de temperamento de estos mamíferos.

Lutra incarum (Thomas, 1908)

"Esta especie habita la parte oriental del Perú y del Ecuador". (1)
1 cráneo, N=EPN 513, 1 Ej. Río Pastaza, Provincia de Pastaza, 6-11-1926, col. Spill.
1 piel, sin cráneo, sin N= Río Pastaza, Provincia de Pastaza, 1976, col. Inspectoría Fauna Silvestre, Puyo.
Pishña es el nombre común con el que se la conoce a esta especie en las Provincias de Napo 7 Pastaza; no ha sido posible conocer la traduccion al castellano de este término.

Lutra longicaudus annectens (Major)

"Habita la parte occidental del Ecuador y muy posiblemente la parte colidante de Colombia, localidad típica: San Juan, a unos 24 km al oeste de Huigra". (1) Fotografía, 1 Ej. vivo, Río Angamarca, Loc. Moraspungo, Provincia de Cotopaxi, 25-VIII-76, rep. Luis Reinoso.
"5 cráneos, Provincia de Esmeraldas: Atacames 1, Río Blanco 1, Maché 1, Quinindé 1; Provincia de Pichincha: Chuimolo 1". (2)

Perro de Agua es el nombre común de esta especie en el Litoral del Ecuador.

Distribucion

Esta aspecto se enfoca en el presente informe a un nival inicial, es decir, a localizar los individuos y en efecto las poblaciones de las especies en estudio en la Geografía física del país, con algunos datos adicionales del medio que habitan. Sinembargo, será una continuación inmediata de este trabajo lo que permita analizar las causas que gobiernan la distribución de estos mamíferos y, así mismo abordar con suficiente profundidad aspectos más amplios de su biogeografía.

Los datos anotados al respecto son confiables de aquí a poco tiempo más, porque algunos sitios registrados a continuación o en el mapa adjunto, están propensos a ser ocupados por el hombre y surbe, por tanto el riesgo inminente de una mayor perturbación del habitat.

Pteronura brasiliensis (Gmelín, 1788)

Las localidades donde existe esta especie, todas son de las Provincias de la Región Amazónica del Ecuador:

1) Río Pucuno, tributario del Napo, Provincia de Napo, altitudes registradas: 300 m. y 600 m. sobre el nival del mar; reporte: Manuel Olalla, I-1971.

2) Añango Cocha, orilla derecha del Napo, altitud registrada 300 m. sobre el nivel del mar; reporte: Manuel Olalla P. 1970.

3) Río Pana Yacu, afluente de la margen izquierda del Napo, altitud aproximada: menos de 300 m. sobre el nivel del mar, observación personal, 1970.

4) Garza Cocha, Río Cuyabeno afluente del Aguarico, altitud aproximada: menos de 300 m. sobre el nivel del mar reporte: Manuel Olalla P., 1975.

5) Río Indillama, afluente de la margen derecha del Napo, altitud aproximada: menos de 300 m. sobre el nivel del mar, reporte: Manuel Olalla P., 1967.

6) Puerto Loja, Río Aguarico, altitud menos de 300 m. sobre el nivel del mar, reporte: Manuel Olalla, 1975.

7) Río Oso Yacu, tributario del Copataza, altitud aproximada: menos de 300 m. sobre el nivel del mar, reporte: Manuel Olalla, 1972.

8) Río Islpingo, tributario del Capahuari, altitud aproximade: menos de 300 m. sobre el nível del mar, reporte: Manuel Olalla, 1972.

9) Río Shiona, tributario del Conambo, altitud aproximada menos de 300 m. sobre el nível del mar, reporte: Manuel Olalla P., 1972.

En el afán de describir la ubicación del habitat de la especie Pteronura brasiliensis en el terreno y para comenzar así a conocer las relaciones de ésta con el medio, cítase las faldas del Sumaco y las Estribaciones Galeras con una altitud aproximada de 600 a 900 metros, y teniendo como referencia específica de este data el curso medio y superior del Río Suno, como la localidad de mayor altitud en el desplazamiento de la espiece en referencia (dato por confirmarse); para relacionarlo aquel aunque provisionalmente con la distribución geográfica de las formaciones ecológicas del país en base al croquis respectivo (3) y argumentando para ésto una fundamental razón: que las formas biológicas están supeditadas a los factores del clima; de esta forma la especie en cuestión hallase en la zona de vida denominada bh-T, bosque húmedo tropical amazónico, con temperaturas medias anuales superiores a los 24° C y precipitaciones medias anuales entre 2.000 y 4.000 mm.

Lutra incarum (Thomas, 1908)

Las localidades donde ha sido observada esta especie, corresponden a las provincias orientales del Ecuador; en aquellas se especifican sitios especialmente de los flancos exteriores de la Cord. Real y de la Cordillera Oriental de los Andes (Región Subandina).

Los datos reportados corresponden a los siguientes Ríos: Chingual, Cofanes, Dué, Aguarico, Coca, Machacuyacu, Pucuno, Misagualli, Arajuno, Villano, Conambo, Bobonaza y Copataza. Altitud aproximada desde 300 a 1.500 metros; registro probable de altitud máxima: 1.500 metros, Rio Jondachi afluente del Ollín, en la margen izauierda del Napo.

Al transferir los datos antes senalados al Croquis Ecológico del Ecuador se deduce que el desplazamiento de esta especie se produce a través de varias zonas de vida o

quizá de todas las existentes en la Cuenca Amazónica del Ecuador: bh-T bosque humedo tropical; bmh-T. bosque muy húmedo tropical; bmh-ST bosque húmedo subtropical y bp-ST bosque pluvial subtropical (3).

Lutra longicaudus annectens (Major)

La distribución de esta especie en el Ecuador se restringe al Litoral y de manera particular, a los flancos externos de la Cordillera Occidental de los Andes; sinembargo, el desplazamiento de la espiece en función de la altitud no ha sido completamente controlado aún.

Con las reservas del caso, las localidades siguientes revelan algunos datos de interes en los Ríos de la vertiente occidental de los Andes: Cachabí, San Miguel, Bravo, Canadé, Pachijal, Toachi, Pilaló, Angamarca. Altitud aproximada: 300 a 1.500 metros. Registro de máxima altitud comprobable: Río Mindo, Provincia de Pichincha, noroccidente de Quito, 1.500 metros; al respecto existen versiones no confirmadas de que esta nutria ha sido observada en el Río Guachalá, en el Callejón Interandino, Hoya de Quito.

Asímismo a partir de la localización de los datos registrados en el Croquis Ecológico se puede apreciar que esta especie encuentrase en varias zonas de vida del Litoral, especialmente las siguientes: bh-T bosque húmedo tropical; bmh-T bosque muy húmedo tropical; bmh-ST bosque muy húmedo subtropical y bp-ST bosque pluvial subtropical. (3)

Estado Actual

Diagnóstico

Ha de menester una apreciación general del asunto, mediante un examen objetivo de los problemas que afectan a estos mamíferos, y que los ponen en peligro. De una indagación de la situación medio ambiental en que viven las nutrias, se ha logrado abstraer que el problema base de ellas es la perturbación del habitat y del nicho ecológico, con los consiguientes efectos. Situación que fundamentalmente está definida por impacto cada vez mayor de la población humana en tierras naturales; cause esta nada difícil de comprender por ser muy concreto de dominio casi general y que se aplica a una gran parte de las especies faunísticas silvestres y sus poplaciones. En razón de este criterio, la especie Pteronura brasiliensis encuentrase categóricamente amenazada, pues además su distribución actual más en tierras afectadas y potencialmente propensas a la colonización, excepto las áreas en proyecto de reservarse.

Las otras especies están en condiciones un tanto mejores no, enteramente satisfactorias, puesto que el habitat, en cierto modo, es menos volnerable por la orografía de sus principales zonas de distribución.

Control

La cacería comercial ha de ser completamente controlada en poco tiempo más, excepto la de fines domésticos que continuaría por razones de índole social y económica de las comunidades nativas que se proveen todavía de los elementos de la fauna silvestre para sus necesidades básicas, en la forma ya conocida.

Por otra parte, el comercio internacional de pieles de esta clase en particular ha dejado de tener vigencia, pues la Ley de Protección de la Fauna Silvestre y de los Recursos Ictiológicos, Decreto N° 818 de 20 de noviembre de 1970, considera a la nutria gigante Pteronura brasiliensis, como especie de caza prohibida y a la Lutra incarum, especie de caza limitada. Como ejemplo de la reprobacion oficial a esta actividad, se reporta el siguiente data en calidad de último embarque autorizado de pieles de nutria para exportación por haber colectado estas antes de la expedición de la referida Ley, según se anota en los archivos de la Dirección General de Desarrollo Forestal del Ministerio de la Producción, a fines de 1971: 40 pieles de nutria, factura por $ 7170, destinatario: Blythe & Co., Londres, Exportador: Leiber Hermanos & Cía.

Protección

La mejor alternativa que acertadamente ya está aplicándose en el país, para la protección de especies faunísticas consideradas en peligro, es el establecimiento de reservas y otras categorías de manejo de los recursos naturales. En esta forma la referida Estrategia Nacional (4) contempla para éste y otros objetivos de conservación, en su sistema mínimo y ampliado, varias áreas de interés en las categorías de Parques Nacionales y Reservas, las mismas que incluyen con toda seguridad hábitats apropriados de nutrias, como en las que se citan: Sangay, Cotacachi-Cayapas, Yasuní, Cuyabeno, Cayambe-Coca y Lagarto Cocha, y Cordillera de Cutucú, cuya ubicación en el territoria nacional se ilustra en un croquis anexo a este informe.

Por otra parte, la legislación vigente Decreto N° 818 de 20 de noviembre de 1970, Ley de Protección de la Fauna Silvestre y de los Recursos Ictiológicos, sino es para

el momento actual la más completa, aún sirve para restringir la caza de animales requeridos para el comercio de pieles. Es en esta consideración un factor complementario del anterior para la protección de las especies de fauna silvestre. La autoridad competente, de acuerdo con las disposiciones fundamentales de esta Ley, ha propendido obstruir completamente el tráfico interno e internacional de animales vivos y elementos constitutivos de especies protegidas incluidas en esta categoría las nutrias y particularmente la gigante, declarando punible a esta actividad. Como ejemplo de esta preocupación, La Inspectoría de Fauna Silvestra de Quito ha comisado en una peltería de esta cuidad, el 17 de octubre del ano en curso, 191 pieles preparadas y clasificadas así: 122 (tigrillos), 27 (nutrias), 10 (llamas), 30 (boas), 1 (oso de anteojos), 1 (jaguar). Complementa a la referida o se correlacionan con la Ley de Parques Nacionales y Reservas, Decreto 1306 de 27 de agosto de 1971.

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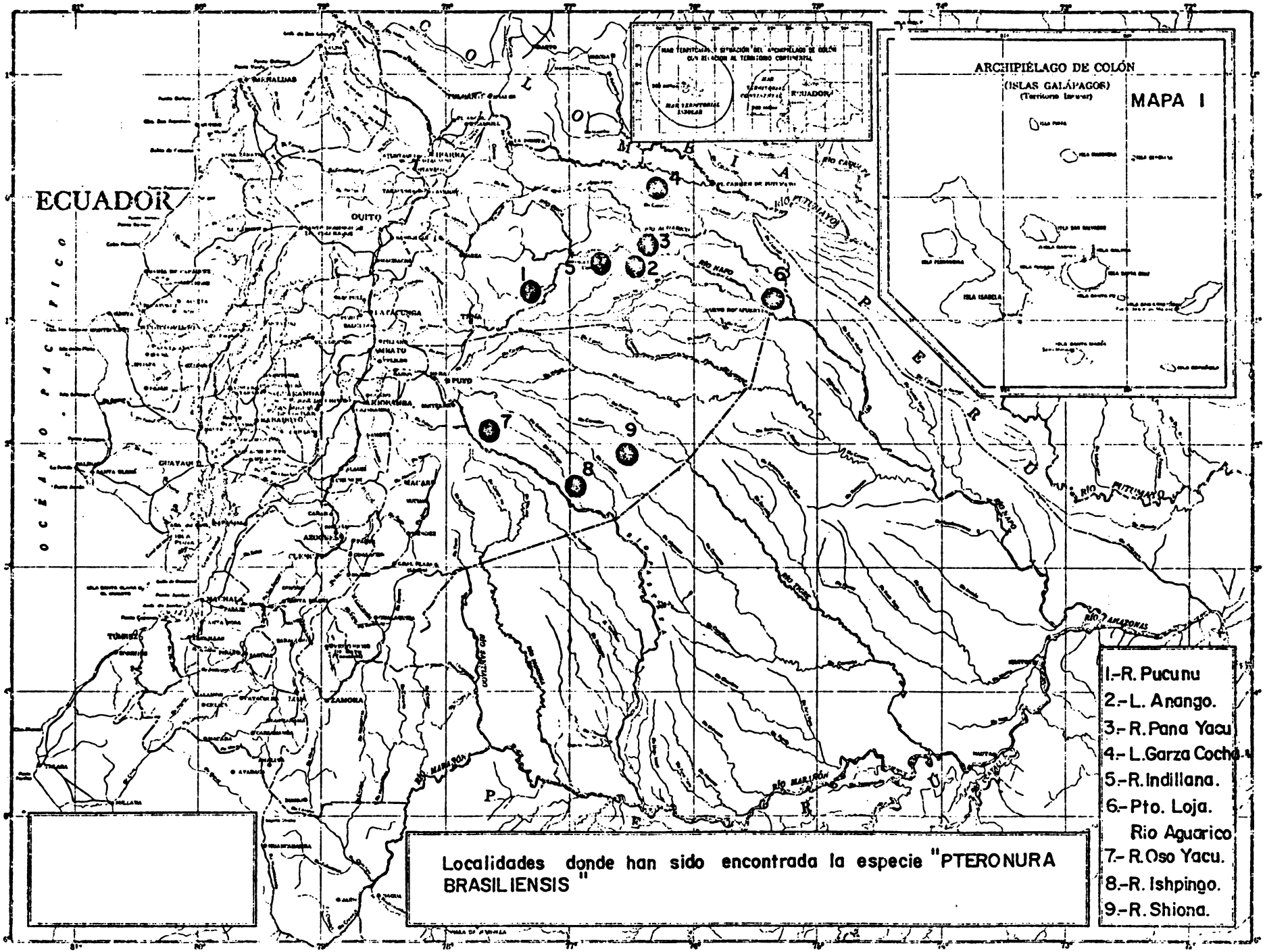

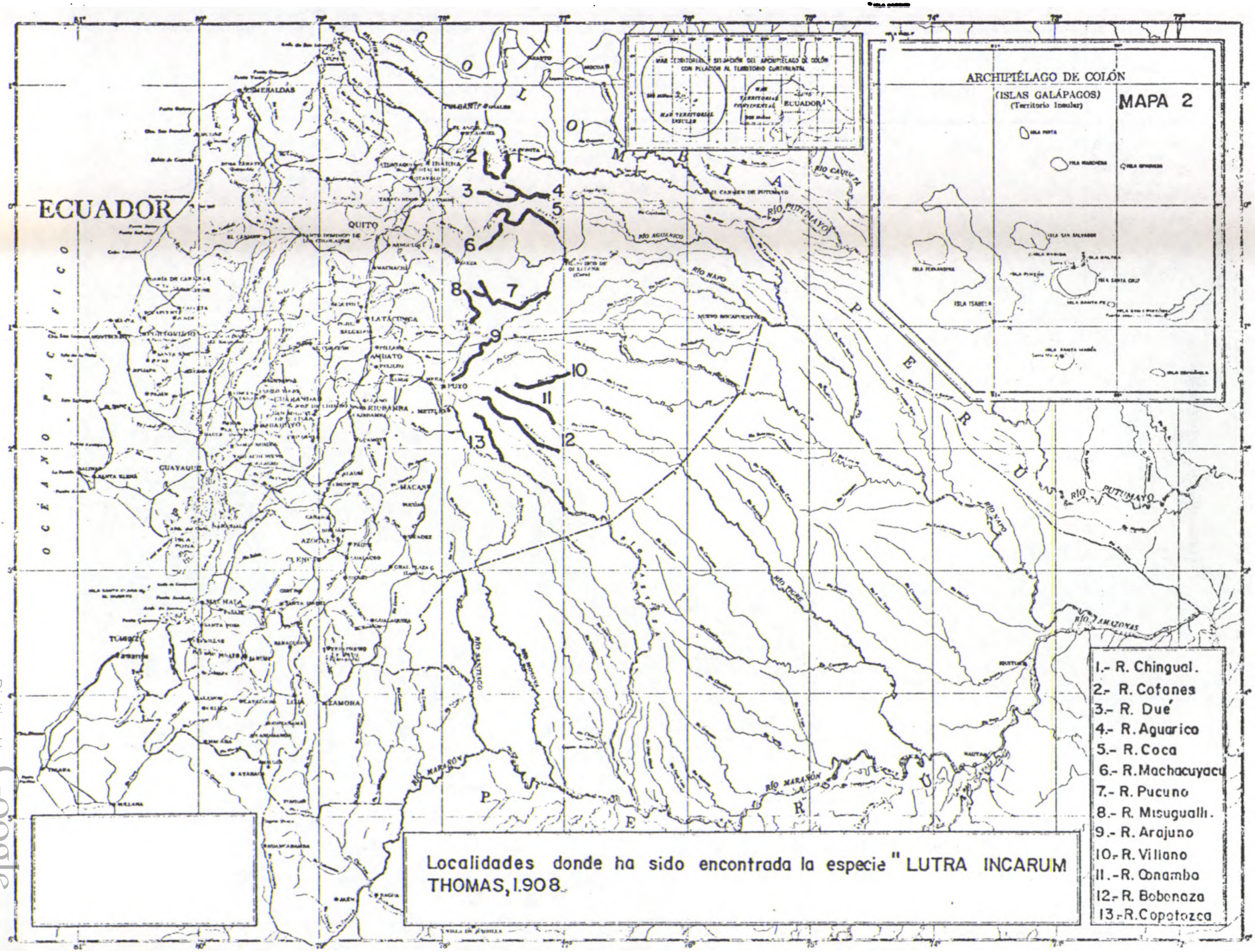

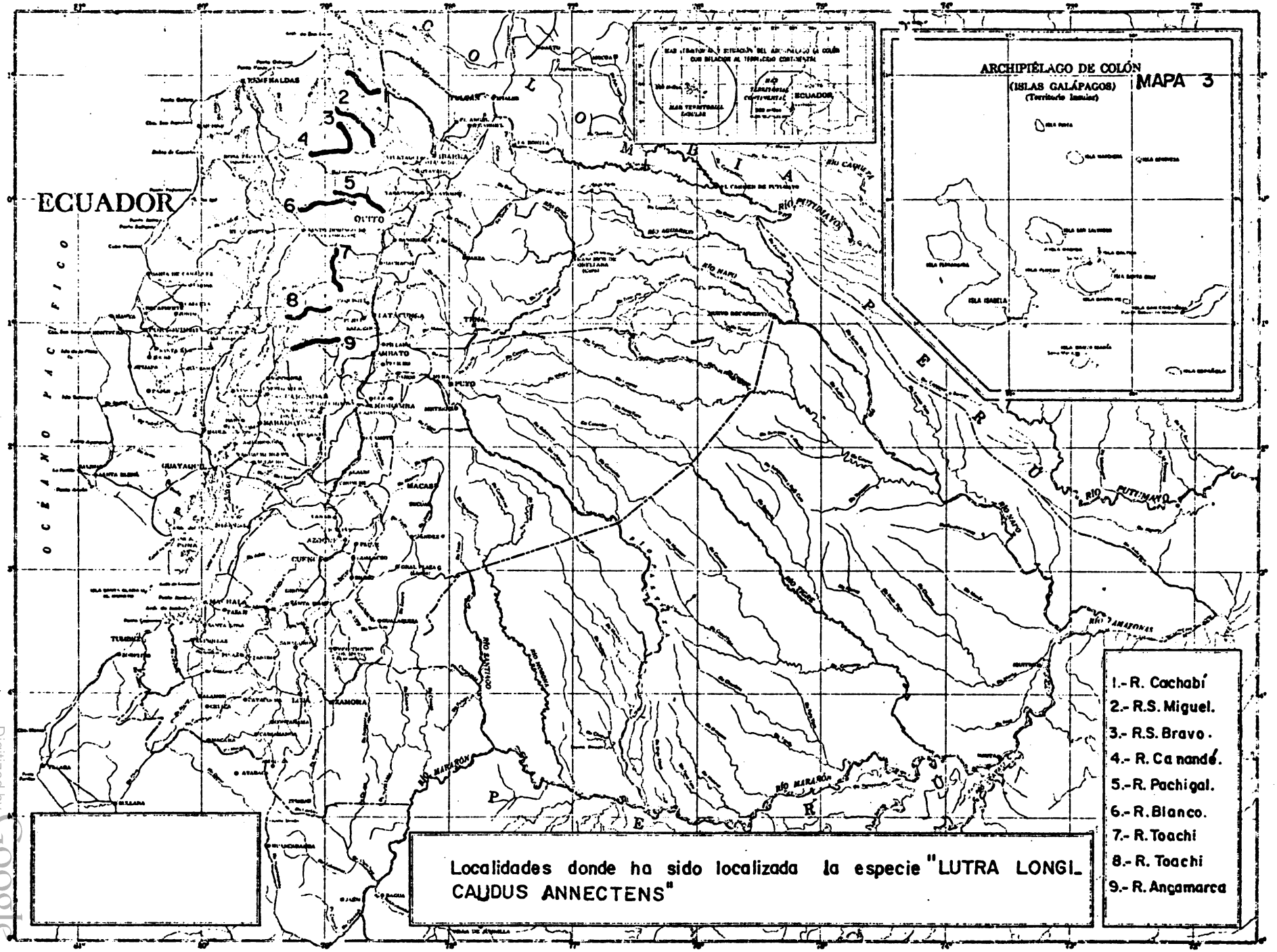

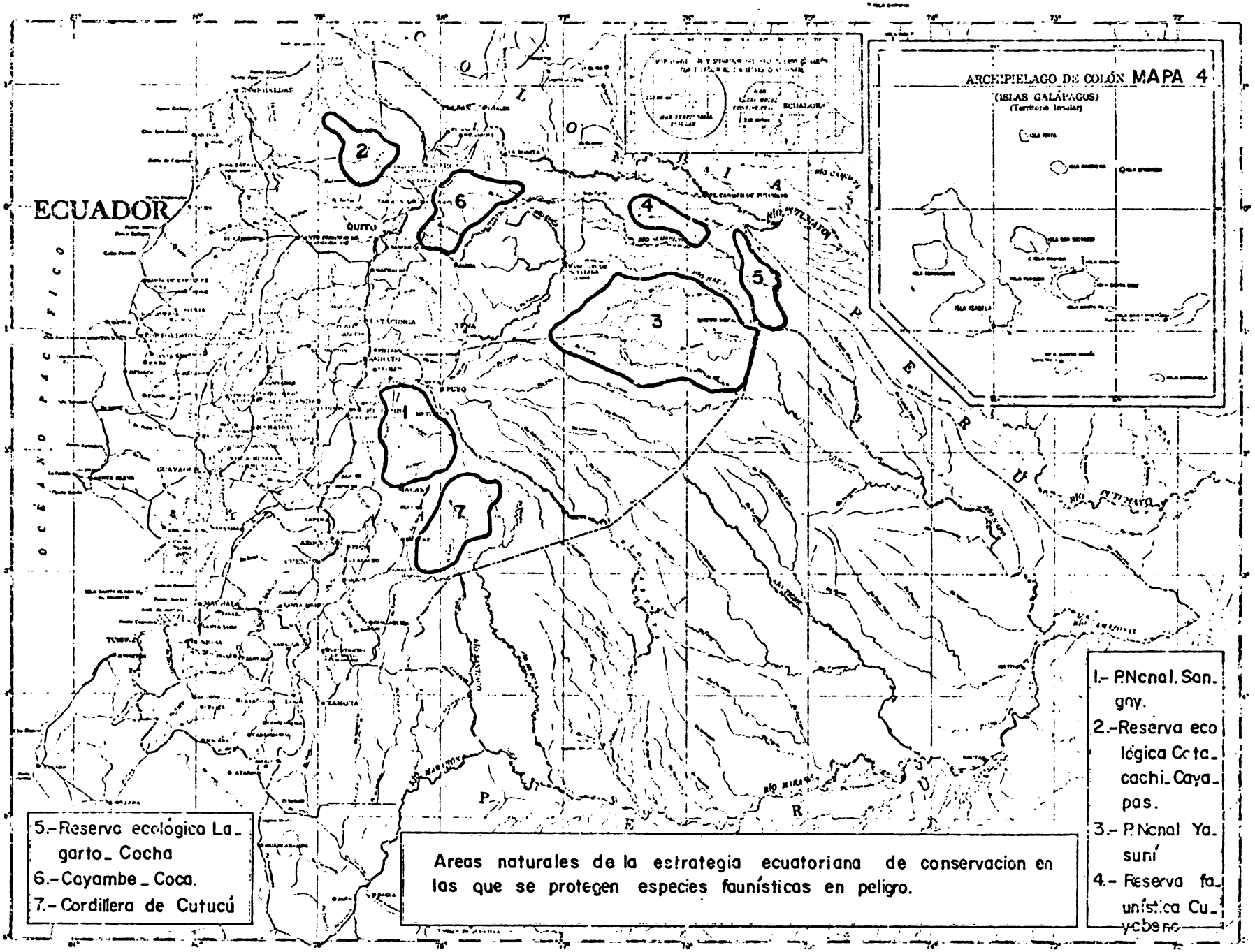

NOTA SOBRE EL STATUS DE Lutra provocax EN LA ARGENTINA

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El área de mayor densidad en la población de Lutra provocax Thomas en la República Argentina, comprende una angosta franja de unos 100 kilómetros de ancho, muy abundante en arroyos, ríos y lagos, que se extiende a lo largo de la cordillera de los Andes, limitando con Chile en todo su recorrido, desde el grado 38º de latitud hasta el límite sur de la república. Esta franja de territorio boscoco tiene unos 1.400 kilómetros de largo; la superficie abarcada es de unos 140.000 km^2.

En el transcurso de los últimos dos siglos, se han conocido referencias sobre la existencia de ejemplares de esta especie en otros puntos de la Patagonia distantes de esta franja que correspondería a su habitat natural. Estas referencias ubican esporádicamente a ejemplares de Lutra provocax en algunos rios a distancias mayores de 100 kilómetros del límite cordillerano, existiendo menciones que datan de los primeros lustros del presente siglo sobre ejemplares vistos o cazados sobre el Rio Negro, a poca distancia de su desembocadura en el Océano Atlántico. Estos ejemplares podrían considerarse como desprendimientos desde el ambiente natural de esta especie, siguiendo la corriente de los rios, particularmente en los momentos de grandes crecientes.

El límite norte de la franja cordillerana mencionada, coincide aproximadamente con el que se ha señalado para esta especie en el vecino país de Chile, según las referencias de Reed en su trabajo de 1899 (1) en los rios Cauquenes y Cachapoal hacia el grado 36º de latitud. No se ha hecho en la Argentina un relevamiento serio de los rios y lagos, en este sentido, que existen entre el lago Alumine y el rio Barrancas hacia el norte de la provincia de Neuquen, para negar en forma absolute la posibilidad de una extensión de la presencia de ejemplares hasta la altura de la misma latitud indicada para Chile al otro lado de la cordillera.

Dentro de la región argentina del huillin, la zona donde se lo ha observado con mayor frecuencia en los últimos años is la que corresponde a algunos sectores del Parque Nacional Nahuel Huapi, particularmente las islas y los

brazos del lago Nahuel Huapi y los lagos pequeños y arroyos vecinos a este lago que se encuentran hacia el noroeste, acercándose al límite con Chile. En este sector, entre el lago Correntoso y el lago Espejo se encuentra ubicada la pequeña laguna "Bullines", así denominada por ser este nombre una forma común deformada de la traducción al espanol del nombre indígena "huillin" que corresponde a los animales de esta especie.

La gran afluencia del turismo ocurrida en los ultimos años hacia esta región de los grandes lagos argentinos, puede haber influenciado, antre otros factores, para el alejamiento o migración hacia otros sectores del Parque Nacional menos accesibles. En 1975 en las costas del lago Moreno, muy cerca de la ciudad de Bariloche, fué cazado un ejemplar por un poblador circumstancial que desconocía al animal y la prohibición legal que existe en cuanto a su caza y el comercio de su piel. Este espécimen se encuentra conservado en el Museu de Bariloche.

Otro sector donde se ha mencionadola presencia dentro del mismo parque nacional es en distintos puntos de la amplia cuenca del rio Manso, en las zonas más alejadas de los circuitos turísticos usuales.

También existen referencias, si bien no plenamente fidedignas, sobre la presencia en distintos lugares fluviales y lacustres del Parque Nacional Lanin, a poca distancia del límite con Chile. Estas referencias que provienen de guías de pesca y de la caza del ciervo colorado (Cervus elaphus) - especie exótica - indicarían la presencia de ejemplares de Lutra provocax in todo ese sector del Parque Nacional Lanin, llegando hasta el lago Alumine, fuera ya del límite norte de ese Parque Nacional.

Hacia el sur, no existen referencias concretas recientes sobre la presencia de Lutra provocax en las zonas intermedias entre los parques nacionales Nahuel Huapi y Lago Puelo. En opinión de las autoridades locales, el Parque Nacional Los Alerces constituye un seguro refugio para la fauna silvestre de la región, dado que en una gran proporción comprende áreas impenetrables debido a la vegetación boscosa notablemente densa. No solamente para el huillin constituye este parque un verdadero santuirio, sino también para las dos especies de artiodáctilos autóctonos que figuran en la lista de las especies en peligro de extinción, como el Huemul (Hippocamelus bisulcus) y el Pudú (Pudu pudu) cuyo habitat coincide exactamente con el de Lutra Provocax.

No existen tampoco investigaciones especiales recientes, ni referencias concretas serias sobre la presencia de Lutra provocax en las áreas situadas más al sur del Parque Nacional Los Alerces. Ubicados dentro de la franja cordillerana se encuentran los parques nacionales Perito Moreno y Los Glaciares.

El conjunto de la superficie de los parques nacionales que figuran incluídos dentro del área que comprende el habitat natural del huillin es de 2.086.000 hectáreas.

En la República Argentina la caza del huillin y las otras especies de lobitos de río está prohibida, así como el comercio interior y la exportación de pieles, de acuerdo con las disposiciones de la Ley de Conservación de la Fauna, que rige desde julio de 1950. En los parques nacionales la caza está prohibida desde su creación en 1937.

Reference:

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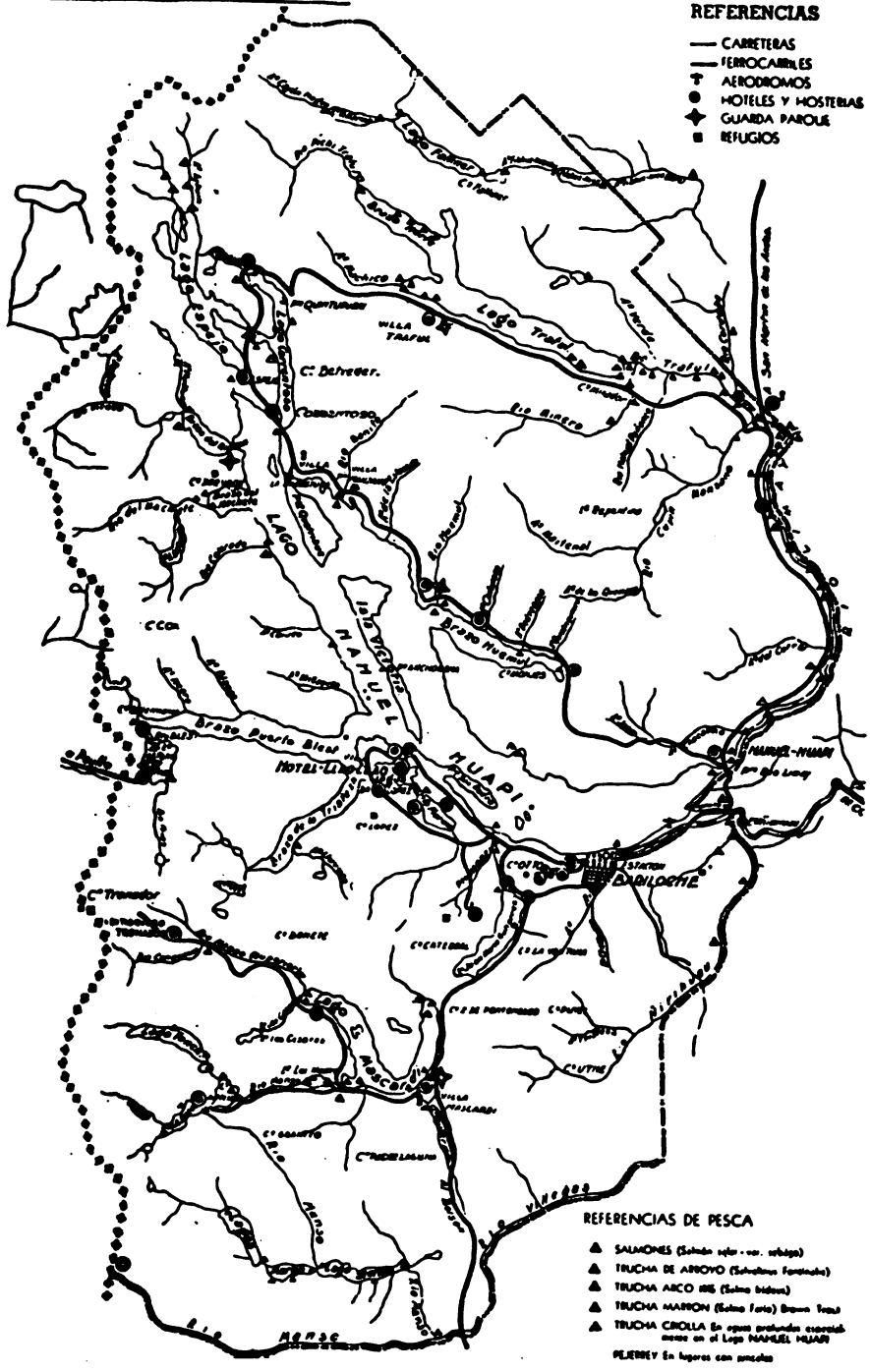
HABITAT

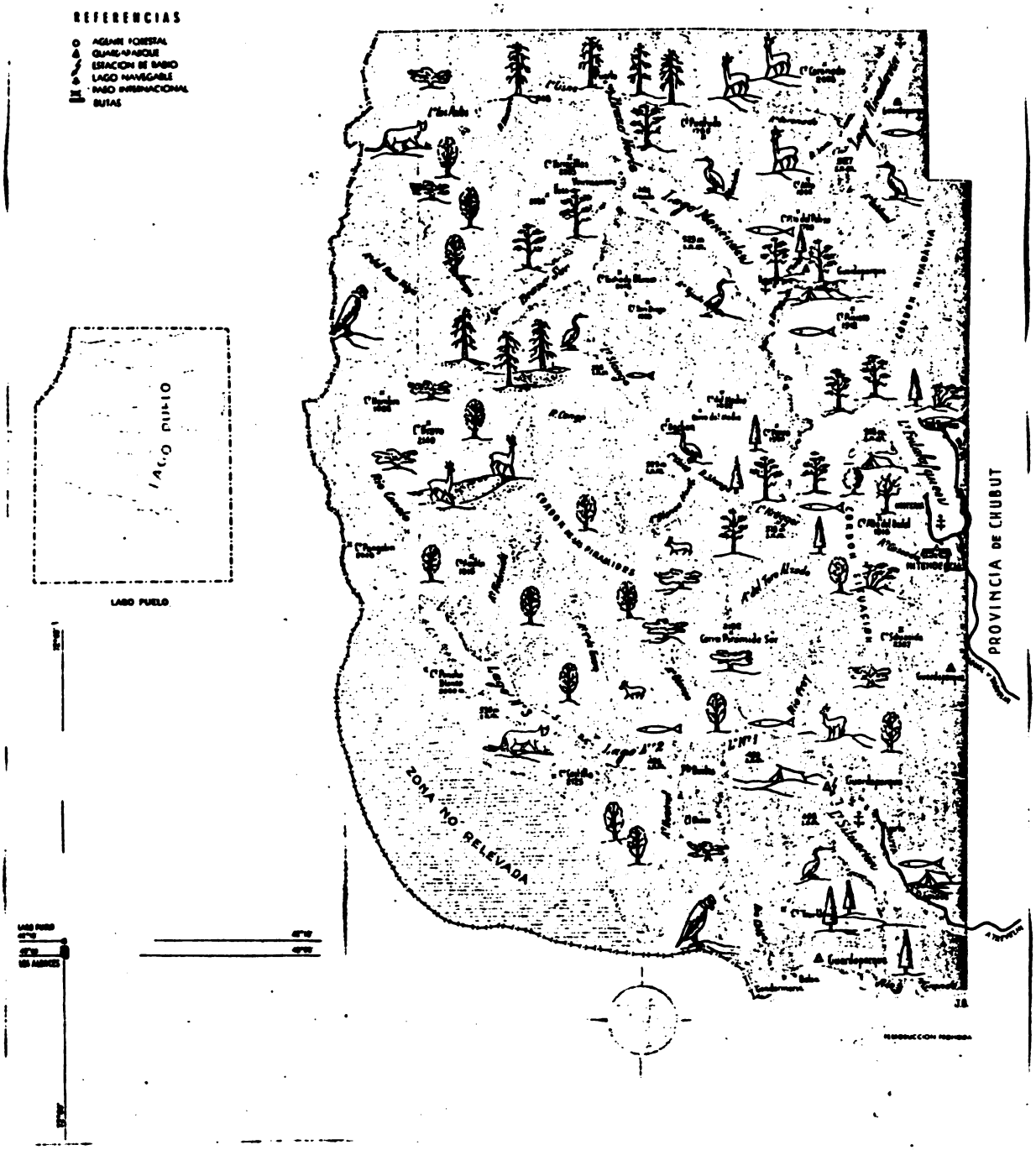
DE

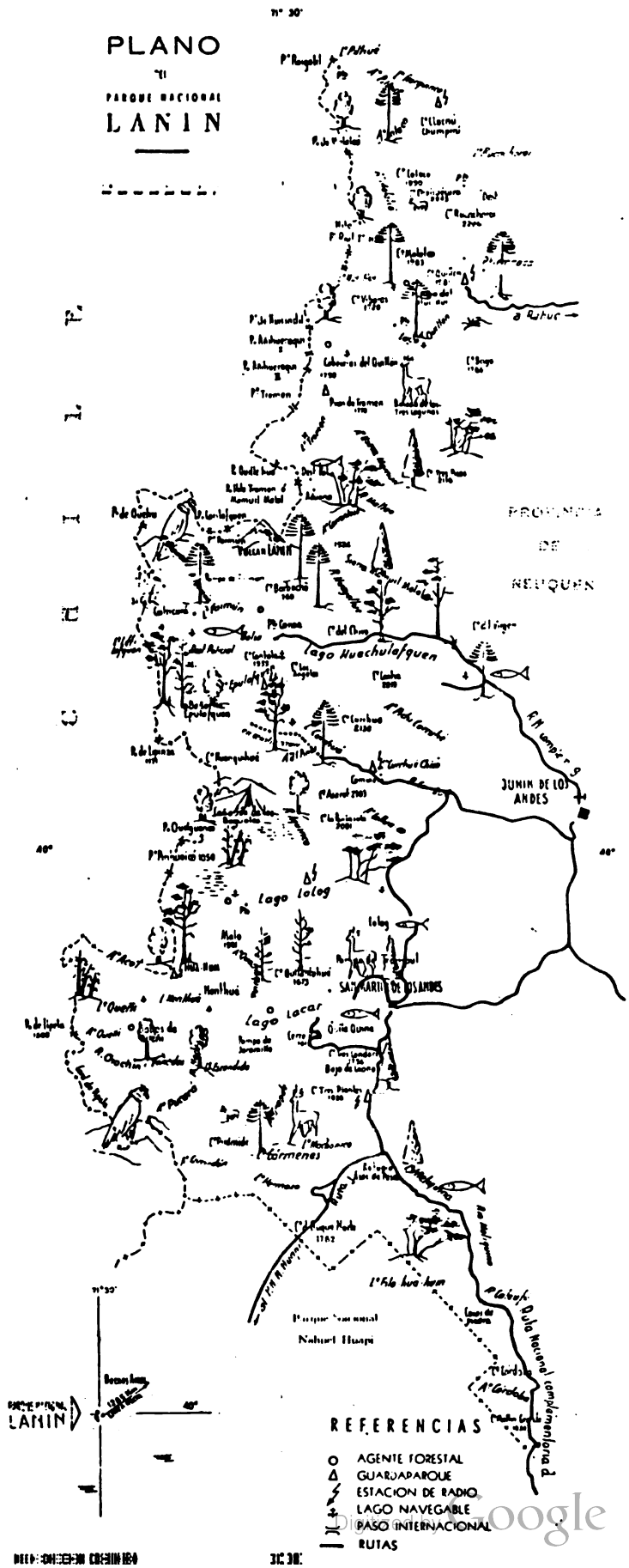
Lutra provocax

PARQUE NACIONAL DE NAHUEL HUAPI



PARQUE NACIONAL LOS ALERCES Y ANEXO LAGO PUELO





SITUACION ACTUAL DE LAS NUTRIAS (LUTRINAE, MUSTELIDAE) EN EL PERU

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En el presente trabajo se expone la problemática referente a la situación actual de Pteronura brasiliensis, Lutra felina y Lutra longicaudis en el Perú, incidiendo sobre su distribución, población, comercio de pieles, protección legal y su presencia en Unidades de Conservación. Asimismo se hacen recomendaciones para la evaluación de las especies, su manejo y protección futuras.

1.0 Lutra felina (Molina, 1782) Nutria de mar

1.1 Nombres vernaculares: Chingungo, Chungungo, Gato marino, Huallaque y Nutria de mar.

1.2 Distribución geográfica: Se presenta en la costa del Pacífico desde los 9° Lat. S. hasta el Sur de Chile. En el Perú está comprobada su existencia desde la costa central (9° Lat. S), pero parece existir más al Norte probablemente hasta los 6° Lat. S.

1.3 Población: No se ha hecho ningún censo de la especie en el Perú. En una evaluación de carácter general se llegó a la conclusión que la especie es muy escase a lo largo de toda la costa peruana. Las zonas más importantes de concentración son la Península de Paracas y el Morro de Sama.

1.4 Caza: En el Perú era cazada en muy poca escala para comercializar la piel. En los ríos Majes y Ocoña es perseguida por los pescadores por considerársela danina, pues se alimenta aquí especialmente del camarón de río (Cryphiops caementarius).

1.5 Protección: Hasta el presente no está protegida por ley en el Perú. Durante el año 1977 será incluída entre las especies protegidas. Está presente en la Reserva

L. l. annectens no parece haber sufrido presión de caza; por lo menos no existen registros ni noticias de que se la haya cazado por su piel.

2.5 Conservacion: L. l. enudris está protegida legalmente por el Decreto Supreme Nº 934-73-AG, que prohibe su caza y la comercialización total de sus pieles. Está presente en el Parque Nacional Manu (Dpto. Madre de Dios), P. N. Cutervo (Dpto. de Cajamarca), P. N. Tingo Maria (Dpto. de Huánuco) y R. N. Pacaya-Samiria.

Sólo en el Parque Nacional Manu y en la Reserva Nacional Pacaya-Samiria goza de protección total y efectiva.

L. l. annectens no está protegida legalmente. Parece estar presente en el P. N. Cerros de Amotape (Dpto. de Tumbes). El factor determinante de su desaparición es la destrucción de su habitat a causa de las irrigaciones en la costa desértica del noroeste.

2.6 Recomendaciones:

2.6.1 Las investigaciones no permiten tener una verdadera idea de la situación y distribución actual de L. l. enudris en el Perú. Es necesario hacer una evaluación a fin de determinar importantes áreas de concentración y garantizar así una protección más efectiva.

2.6.2 Para L. l. annectens se hace necesario protegerla legalmente y hacer una evaluación detallada de los ríos Zarumilla, Tumbes, Chira, Piura, La Leche, Reque, Chancay, Saña y Jequetepeque. La evaluación permitirá ubicar áreas prioritarias de conservación, a fin de evitar la extinción total de la subespecie.

3.0. Pteronura brasiliensis (Gmelin, 1788)

3.1 Nombres vernaculares: Lobo de río, lobo grande de río.

3.2 Distribución: especie propia de la Selva Baja en los ríos y lagunas de aguas tranquilas. No se presenta en la Selva Alta por encima de los 600 m.s.n.m. Su distribución exacta en el Perú se desconoce por la falta de estudios.

Nacional de Paracas (14° Lat. S.) y en el Morro de Sama, actualmente en estudio para establecer una Unidad de Conservación.

1.6 Situación en el Perú: Pertenece a las 25 especies más amenazadas de extincion en el Perú.

1.7 Recomendaciones:

1.7.1 Realizar una evaluación de las poblaciones en el Perú, a fin de establecer las areas de mayor concentración y que deben ser protegidas prioritariamente.

1.7.2 Debe ser incluída entre las especies de protección total e indifinida en el Perú.

2.0 Lutra longicaudis (=Lutra incarum)

2.1 Nombres vernaculares: Nutria, Lobito de río.

2.2 Distribución geográfica: En el Perú se presentan dos sub-especies:

2.2.1 L. l. enudris (G. F. Cuvier, 1823): En toda la cuenca del Río Amazonas, -- hasta alturas considerables en las vertientes orientales de los Andes. Está comprobada su existencia a casi 3,000 m.s.n.m.

2.2.2 L. l. annectens (Major, 1897): En los ríos de la costa noroeste del Peru, especialmente Pacasmayo, Chira, Zarumilla y Tumbes.

2.3 Población: L. l. enudris no es abundante en los ríos de las vertientes orientales de los Andes. En la amazonía baja (hasta 800 m.x.n.m.) es aún relativamente abundante en zonas apartadas de los centros poblados. En la mayor parte de su área de distribución ha sido casi exterminada por la caza comercial en el pasado.

L. l. annectens es sumamente rara en el Norte del Perú, estando prácticamente al borde de la extinción. Sólo en el río Chira ha sido vista en los últimos años (1947 y 1975).

2.4 Caza: L. l. enudris ha sido muy perseguida por su piel, habiéndose exportado considerables cantidades (ver cuadro N°1) de la selva peruana.

3.3 Población: No existen estudios al respecto. Está exterminada de amplias áreas de su distribución pasada. Aún en las zonas protegidas y donde no fue perseguida su densidad poblacional es muy baja, al menos así parecen demostrar los estudios iniciados en el P. N. Manu.

3.4 Caza: Hasta 1970, en que se inició su protección se cazó esta especie para exportar su piel. Las estadísticas de exportación (ver cuadro N°2) dejan entrever una disminución de la población.

3.5 Conservación: En el año 1970 se inició su protección legal por la Resolución Ministerial N°5056-70-AG. Por el Decreto Supreme N°934-73-AG se agudizó el control legal, prohibiéndose su caza y la comercialización de las pieles. La especie está presente en el P. N. Manu (Dpto. de Madre de Dios) y en la R. N. Pacaya-Samiria (Dpto. de Loreto).

3.6 Recomendaciones

3.6.1 La especie debe quedar vedada por tiempo indefinido.

3.6.2 Es necesario realizar una evaluación exhaustiva de las poblaciones existentes, especialmente fuera del P. N. Manu, a fin de ubicar nuevas áreas de protección, y ampliar las zonas bajo control.

3.6.3 Es de interés iniciar proyectos de reproducción en cautiverio con el objectivo de repoblar áreas donde se ha extinguido la especie y la instalación de centros de reproducción para el aprovechamiento económico en el futuro.

4.0 Conclusiones y Recomendaciones

4.1 Conclusiones

4.1.1 Lutra felina: Es una especie amenazada de extinción y no goza de protección legal. Protegida en la Reserva Nacional de Paracas. No se conoce su distribución exacta.

4.1.2 Lutra longicaudis

i) L. l. enudris (= L. incarum): Especie de situación vulnerable; protegida legalmente, estando vedada por tiempo indefinido; presente en cuatro Unidades de Conservación. Se desconoce su distribución exacta en la actualidad.

ii) L. l. annectens: En peligro inminente de extinción; no está protegida legalmente; parece estar presente en el Parque Nacional Cerros de Amotape. Se desconoce su distribución exacta en la actualidad.

4.1.3 Pteronura brasiliencis: Especie amenazada de extinción; protegida legalmente por tiempo indefinido; presente en el Parque Nacional Manu y en la Reserva Nacional Pacaya-Samirira. Se desconoce su distribución exacta en la actualidad.

4.2 Recomendaciones

4.2.1 Recomendaciones específicas

i) Todas las especies deben protegerse totalmente y por tiempo indefinido.

ii) Lutra longicaudis annectens debe incluírse entre las especies protegidas legalmente, por carecer en la actualidad de protección.

iii) Lutra felina también debe ser incluída entre las especies de protección legal total.

4.2.2 Recomendación general

Es imprescindible iniciar una evaluación general de todas las especies y subespecies de Lutrinae en el Perú, a fin de determinar su distribución actual, su situación precisa y ubicar áreas prioritarias de conservación.

El Ministerio de Agricultura ha iniciado un estudio de tal tipo en el P. N. Manu con Pteronura brasiliensis, existiendo personal peruano capacitado. Lo que falta son los fondos. Con la ayuda de W W F - IUCN y otros organismos se podría en un período de tres años realizar dicha evaluación, necesitándose una suma de US $20,000.

References

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MOLLER-HERGT, S., 1976. Análisis de la Situación actual de los Mamíferos, Aves y Reptiles Silvestres del Perú. Ministerio de Agricultura, Dirección General Forestal y de Fauna, Lima, 177 pp.

Table 1

Exportación de pieles de nutria (Lutra longicaudis enudris) del Perú (según estadísticas oficiales del Ministerio de Agricultura[1])

AÑO	Nº DE PIELES [2]	AÑO	Nº DE PIELES [2]
1946	596	1960	6,142
1947	440	1961	11,349
1948	202	1962	6,129
1949	532	1963	7,580
1950	1,018	1964	10,802
1951	2,283	1965	8,652
1952	1,306	1966	8,332
1953	1,632	1967	6,409
1954	3,239	1968	8,128
1955	3,735	1969	8,859
1956	4,479	1970	14,544
1957	3,666	1971	6,712
1958	4,476	1972	6,696
1959	6,042	1973[3]	?

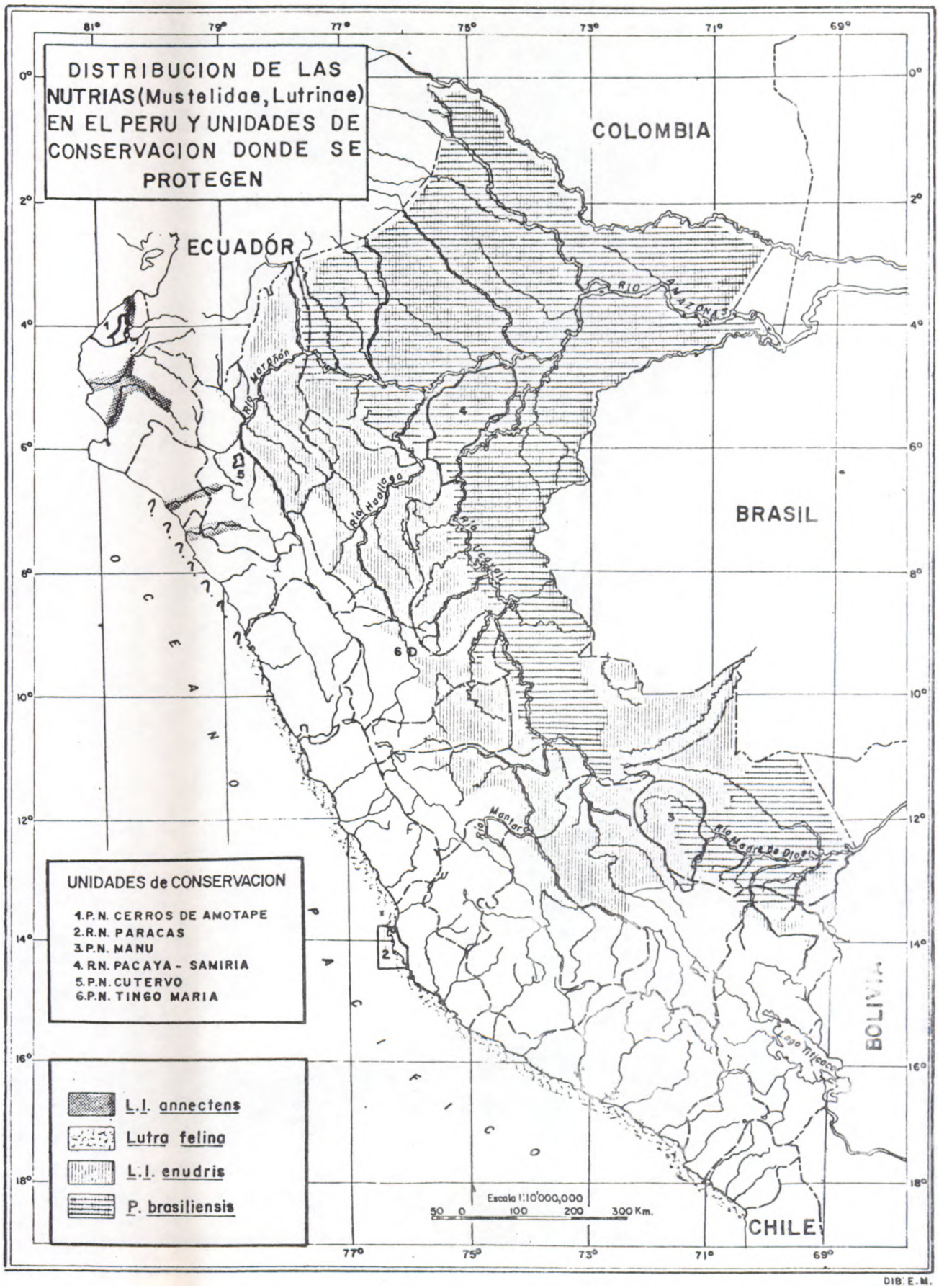
(1) En todas las estadísticas oficiales la especie está registrada como Lutra incarum.
(2) No están incluidas las pieles exportadas a través de Leticia (Colombia).
(3) A partir de Octubre de 1973 se inicia la veda total.

Table 2

Exportación de Pieles de Lobo de Río (Pteronura brasiliensis) del Perú según las estadísticas oficiales del Ministerio de Agricultura

AÑO	Nº DE PIELES(1)	AÑO	Nº DE PIELES(1)
1946	2,017	1959	1,114
1947	1,248	1960	1,002
1948	751	1961	293
1949	1,403	1962	850
1950	1,437	1963	435
1951	1,635	1964	672
1952	854	1965	223
1953	918	1966	213
1954	1,213	1967	138
1955	2,169	1968	102
1956	1,766	1969	47
1957	1,066	1970	306 (2)
1958	1,278	1971	12 (2)

(1) No se incluyen las pieles exportadas por Leticia (Colombia), que no han sido registradas por las estadísticas oficiales.
(2) Pieles remanentes exportadas después de la veda total declarada en 1970.



EL PROGRAMA DE CRÍA Y PRESERVACIÓN DE LUTRA PLATENSIS EN ARGENTINA (1)

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Introduccion

Esta comunicación se preparo con el propósito exclusivo de ser presentada en Paramaribo, Surinam, en la Primera Reunión de Trabajo del Grupo de Especialistas en Lutra de la Unión Internacional para la Conservación de la Naturaleza, Comisión de Servicios para la Supervivencia.

En el transcurso del ano pasado, la mayoría de los asistentes a esta Primera Reunión de Trabaja, recibieron la correspondiente invitación para asistir a ella con el objecto de aportar los conocimientos que cada quien ha obtenido hasta el presente con las diferentes especies de la familia lutra. En un primer momento, quien escribe, pensó en elaborar una comunicación que tratara específicamente el tema de la relación hombre-lutra, en épocas históricas y prehistóricas, haciendo uso para ella del conocimiento adquirido en mas de diez anos de trabajo con indigenas de cultura cazadora-pescadora-recolectora y de agricultura incipiente de Argentina. En los largos interrogatorios que se llevaron

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(1) Quiero agradecer al Dr. Ruben Iglesias, my sucesor en el trabajo con lutras, por la colaboración prestada para la gestación de esta comunicación como asi tambien a Silvia Schneider por el envio del material fotografico.

(2) Ex-Investigador del Consejo de Investigaciones de la Universidad Nacional de Rosario y Ex-Director del Departamento de Ecología Animal y Bioproducción de la Dirección General de Recursos Naturales del Ministerio de Agricultura y Ganadería de la Provincia de Santa Fe, Argentina, desde 1972 hasta 1976. Actualmente Jefe del Proyecto "Cría y Explotación de la Nutria Coypus" y de "Programas de Desarrollo Faunístico" en el Estado de Baja California y en la Dirección General de Fauna Silvestre en México.

a cabo en diferentes oportunidades y con distintos informantes claves, se relevó en mas de una ocasión específicamente a la Lutra platensis. El tema también se estudió a través de las fuentes históricas que describen a estos grupos indígenas y que en numerosas ocasiones aportandatos valiosísimos para una historia etno-zoológica de numerosas especies de la fauna argentina.

Sin embargo, al examinar la lista de comunicaciones que se presentarían a la Primera Reunión de Trabajo, oportunamente enviada por la Dra. Nicole Duplaix-Hall, se comprobó lo variado de la temática que comprendía y es por ello que se decidió elaborar la presente comunicación que tiene por objeto describir la experiencia directa obtenida por quien escribe y el equipo que dirigía, en el estudio de la Lutra platensis. Pero, esta descripción se la incluye en un marco de características más amplias como es el que comprende la relación hombre-naturaleza dentro de la dinámica que le imponen las circumstancias políticas de Argentina y las implicancias que estas tienen en los procedimientos técnicos que a su vez repercuten indudablemente en la especie que se estudia y planifica preservar.

Los datos específicos de Lutra platensis, están integrados en ese contexto y ello se considera de fundamental importancia puesto que se hable actualmente de peligro de extinción de este magnífico mustélido para Argentina y ello se debe exclusivamente a los resultados de la acción antrópica sobre los ecosistemas y esto es, a su vez, el resultado del contexto político que caracteriza al país y en parte es el gestor de la relación concreta que se establece entre el hombre y la naturaleza.

Antes de entrar en tema se considera de importancia recalcar lo positivo de estas reuniones, puesto que permitirán evaluar, los resultados obtenidos hasta el presente por parte de los diferentes investigadores y estudiosos que han estado trabajando desde hace varios años en torno a distintas especies de la familia lutra.

Los Programas y Proyectos en Torno a Lutra Platensis

En 1972, el Consejo de Investigaciones de la Universidad Nacional de Rosario, Argentina, aprobó un proyecto de investigaciones al autor de esta comunicación, titulado, "Bioproducción de Animales Silvestres y Políticas de Explotación de Lagunas". El estudio se propuso la evaluación de algunos animales de la fauna silvestre como

especies potenciales para la cria intensiva con el objeto de contar con elementos de jucio necesarios para la planificación de la explotación de los ambientes acuáticos continentales. Estos se encuentran en alta proporción en la Región de la Pampa Húmeda de Argentina y otras regiones del país y se ha observado una tendencia, hasta cierto punto constante, por parte de los campesinos, como así también de ciertos planes gubernamentales, para la desecación de estos nichos acuosos con el objeto de tornarlos explotables dentro de los marcos de la agricultura o ganadería tradicional.

Las alteraciones de las lagunas, esteros, etc. o sea los ambientes acuáticos continentales, lleva implícito una ideología producto de una concepción equivocada de la relación hombre-naturaleza ye se incrustan en el axioma que pretenden "producir más" sin tomar en cuenta que a esto es necesario incorporarle de una manera sólida y fundamentada el otro axioma que se ocupa de proclamar que es necesario "producir major". En síntesis hace a la esencia del hombre y de su desarrollo. Desarrollar para tener o para ser? Es la calidad or la cantidad la que debe prevalecer?

El Proyecto de Investigación, en 1973, se reestructuró en forma conjunta a través de un convenio con la Dirección General de Recursos Naturales del Ministerio de Agricultura y Ganadería de la Provincia de Santa Fe, que contaba con instalaciones adecuadas para la creación de un centro de investigación imprescindible para la realización de un proyecto mínimo de trabajo, acorde con las necesidades de las tareas que se iniciaban. El Departamento de Ecología Animal y Bioproducción fué el encargado de la ejecución de los Programas.

Como consecuencia de este convenio el proyecto originario se transformó y amplió y de ello resultó la gestación de tres Programas.

Programa 1. Bioproducción de Animales Silvestres

Programa 2. Multiexplotación de Ambientes Acuáticos Continentales.

Programa 3. Evaluación del Recurso Faunístico.

Cada uno de estos Programas estaba integrado por diferentes Proyectos y en algunos casos Subproyectos que más adelante analizaremos en aquellos casos en que los estudios comprenden específicamente la Lutra platensis.

El Programa 1. "Bioproducción de Animales Silvestres", lo integraban cuatro proyectos.

Proyecto 1.1 Cría y Explotación de la Nutria (Myocastor coypus).

Proyecto 1.2 Cría y Explotación del Carpincho o Capibara (Hydrochoerus hydrochoeris).

Proyecto 1.3 Reproducción de Lobitos de Río (Lutra platensis).

Proyecto 1.4 Reproducción del Yacaré Obero (Caimán latrirostris).

La Nutria coypus, animal pelífero de probada calidad para la cría intensiva o en semilibertad, servía de especie introductoria en la promoción que se llevaba a cabo en la Provincia de Santa Fe, con los campesinos que tenían dentro de sus propiedades lagunas en condiciones de explotarse con los animales del Programa 1.

Lo que se buscaba era, además de preservar los ambientes acuáticos continentales, multiplicar las áreas de experimentacion de los Programas 1 y 2 y que cada laguna, de las consideradas óptimas, se transformara en un área de investigación bajo el patrocinio del propio campesino con el asesoramiento del equipo técnico de ambos Programas.

A su vez, el Programa 1 "Bioproducción de Animales Silvestres" compatibilizaba sus resultados con los del Programa 2 "Multiexplotación de Ambientes Acuáticos Continentales" especialmente con los estudios de piscicultura intensiva y en lo referente a la búsqueda de variables combinatorias que tiendan a relacionar en un mismo ambiente, diferentes especies de animales silvestres, en torno a una producción intensiva. Por último el Program 1 también relacionaba sus resultados con los del Programa 3 "Evaluación de Recursos Faunísticos, que estudiaba el recurso fauna en el nivel silvestre y más adelante se lo explicará en cuanto a sus conclusiones referidas a la Lutra platensis.

Un Poco de Historia

El Programa 1, como ya se dijo, buscaba líneas de acción que permitieran una adecuada incorporación de los ambientes acuáticos continentales al marco de la producción rural a los efectos de asegurar la preservación de los mismos.

Por otra parte la experiencia obtenida hasta el presente en cuanto a la desecación de estos ambientes había desembocado en un profundo fracaso. Esto indicaba un proceso de pensamiento equivocado que imponía su inmediata rectificación y este Programa pretendía justamente aportar elementos para ese cambio con el propósito de preservar y optimizar el uso de los ecosistemas.

La concreción de las etapas fijadas para este proyecto si bien pueden ser interesantes para el exámen de cualquier técnico, dado que se llevaron a cabo en un país donde las contingencias políticas eran en gran medida determinantes del quehacer de los técnicos y de la técnica sufrió las lógicas consecuencias de esa realidad por la que atravesó Argentina y que afectó al Programa mismo desde sus inicios. En un comienzo se lo observó como un programa extraño a la esencia misma de los patrones culturales que aún perdurarán con cierto carácter de tradicionalismo, dentro de la producción agropecuaria de Argentina, especialmente en toda el área de la Región de la Pampa Húmeda, clasicamente ganadera o partícipe de los cánones de la agricultura tradicional.

El advenimiento del Movimiento Peronista, especialmente con el prédica del propio Perón, puso notable énfasis en los programas que propulsaban la preservación o un racional aprovechamiento de los recursos naturales. Esta prédica, de parte del propio jefe del movimiento, significó la anuencia, otras la aprobación, a veces la condescendencia de los functionarios del Gibierno Peronista para este tipo de actividades. Esto no implica un convencimiento por parte de los mismos si no solamente el acatamiento a las instrucciones del jefe del movimiento. Es la etapa en donde se concretan los convencios entre Universidad y Ministerio y donde este último cede el predio que se constituiría posteriormente en el Centro de Bioproducción de la Fauna Silvestre en las afueras de la ciudad de Santa Fe, muy próximo al Río Paraná. El Centro depende del Departamento de Ecológia Animal y Bioproducción.

Es muy probable que sin el auge impuesto en los comienzos del Gobierno Peronista a la preservación de los recursos naturales, todo este inicio hubiera sido mucho más difícil de concretar y estaría actualmente en la mente de unos pocos técnicos tildados de líricos, que hablan y quieran concretar una adecuada instrumentación de la política en su más alto sentido, hacia la optimización del uso de los ecosistemas.

De la misma manera que el Gibierno Peronista produce un gran impulso a los programas en torno a los recursos naturales, en años posteriores, a través de sus mismas contradicciones como Gibierno, le asentó duros golpes, determinando el fracaso o el retraso en la ejecución de muchos de ellos.

Fueron momentos muy difíciles para cualquier técnico que pretendía tener continuidad en las tareas de este tipo. Los proyectos que tratan de aspectos biológicos, tienen un tiempo, el que le fija la propia biológia de la especie estudiada y esta no puede apresurarse por acontecimientos políticos, sino que exige la prodente espera, a los efectos de obtener resultados y los mismos no siempre son exitosos puesto que no se investiga para el éxito sino para conocer un problema.

Las contingencias políticas tienen incidencia directa en la relación hombre-naturaleza en la medida que el gobierno actúa como un intermediario, regulador o articulador de esa relación. Tiene la facultad de apoyar en un sentido o en el otro un programa y el mismo puede implicar alteraciones o graduaciones óptimas en la relación hombre-naturaleza.

Estimacion de la Población de la Lutra platensis en la Provincia de Santa fe

Los datos que se brindan en este punto, tienen dos orígines diferentes. El primero de ellos es la información que brinda el Programa i: "Evaluación de Recursos Faunistico," a través de su Proyecto 3.1: "Censo de Animales Silvestres". La segunda fuente de información es un recorrido que llevó a cabo quien escribe, durante 1973 a lo largo del Río Paraná, desde el Paralelo 28, hasta donde este río concluye su recorrido por la Provincia de Santa Fe en su sector sur. La prospección tenía como propósito relevar las poblaciones de Lutra platensis al mismo tiempo que adquirir ejemplares que estuvieran para la venta al habérselos capturado vivos por los pobladores ribereños.

El Proyecto 3.1 "Censo de Animales Silvestres" consistió en el estudio de las poblaciones animales a través del método indirecto por técnica de encuesta, de fácil concreción pero que exige suma cautela para su interpretación. El estudio pretendía tener una primera evaluación de 50 especies de animales, principalmente mamíferos, considerado de interés para la Provincia de Santa Fe.

La encuesta se aplicaba a tres entidades diferentes como eran los clubes de caza y pesca, las escuelas rurales y los destacamentos policiales. En conjunto cubrían la

totalidad del territorio de la Provincia y en un 80% superponían información, lo que permitía correlacionar las mismas a los efectos de otorgarle un grado de confiabilidad. Se asignó un radio de conocimiento a cada entidad de acuerdo a las functiones que cumplía y este radio de conocimiento se lo graficó en un mapa de la Provincia y a través del mismo se determinaba el área de cubrimiento de información que se tenía para todo el territorio que se pretendía investigar.

Cada especie Luego merecía un tratamiento en particular y en lo que concierne a la Lutra platensis es importante señalar que el grado de conocimiento que las poblaciones ribereñas encuestadas tenían era sumamente alto, lo contrario de lo que sucedía en la parte continental de la Provincia donde prácticamente este animal era desconocido, aún por los integrantes de los clubes de caza. La encuesta no pretendía captar datos numéricos de población sino que únicamente recurrían a que cada encuestado calificara las especies con los conceptos de población "abundante", "termino medio", "escasa", "extinta" o "nunca hubo".

La síntesis en este censo en cuanto a Lutra Platensis, señala lo siguiente:

Primero: El territorio de la Provincia de Santa Fe, únicamente tiene población de Lutra platensis en el Río Paraná, a pesar que en el mismo territorio tiene ríos como el Salado, Coronda o Carcaraña, de magnitud considerable y que según las fuentes históricas estudiadas eran habitados por Lutra platensis en el siglo pasado. El sector del Río Paraná estudiado en esta investigación es el comprendido entre el Paralelo 28 por el norte hasta unos grados más abajo del Paralelo 33 por el sur. Representa 700 Km. aproximadamente de su recorrido. (Ver mapa No. 1.)

Segundo: Los resultados del censo indican que únicamente existen poblaciones de Lutra platensis al norte del Paralelo 32 y hasta el Paralelo 28. Al sur del Paralelo 32 no se registra información de presencia de Lutra platensis en un período de tiempo que oscila entre 20 años y más anteriores a la fecha de aplicación de la encuesta, que fué en 1973.

Tercero: Desde el Paralelo 32 hasta el 28, los encuestados señalan que la población detectada ésta catalogada dentro de los estratos de "escasas" del precodificado. El dato

"escasez" tiene continuidad en la información desde el Paralelo 32 hasta el Paralelo 28 lo cual indica uniformidad de criterios en las descripciones de las poblaciones de Lutra platensis entre ambos paralelos. (Ver mapa No. 2.)

La otra fuente de información que se tomo en consideración para la evaluación de las poblaciones de Lutra platensis fue el viaje realizado en 1973 antes mencionado que se lo llevó a cabo por una carretera paralela al Río Parana. Cotejando los datos del Censo de Animales Silvestres con lo de esta prospección, se obtienen los siguientes resultados:

Primero: En la zona detectada por el Censo de Animales Silvestres como de "extinta" in Lutra platensis, no se registra información de captura por parte de los cazadores o pescadores allí radicados en los últimos 20 anos aproximadamente.

Segundo: Del área habitada por la Lutra platensis según el registro del Censo de Animales Silvestres, en el relevamiento por tierra efectuado, senala que durante 1973 se detectaron, según los informantes interrogados, 36 hallazgos de Lutra platensis por observaciones de huellas, observación directa o captura. Las capturas fueron 20 y las observaciones 8. El registro de las observaciones señala que 5 eran de lutras en parejas.

Tercero: Conconitantemente con esta información se pudo obtener, de los cazadores que habían capturado lutra, la compra de 6 animales que ellos habían criado con mamila, después de la captura de sus padres. Además también se consiguió una pareja semiadulta.

La Lutra y la Realidad del Cazador Argentino

Los estudios de la Nutria coypus y de la Lutra platensis, además de otros animales, como especies objeto de investigación de un mismo Programa, permiten efectuar comparaciones y extraer conclusiones que pueden resultar de interés y aportan elementos, para la explicación de la relación hombre-naturaleza tal cual se presenta en los marcos ecológicos del Rio Parana.

Es indudable que el Río Paraná, sigue siendo el resguardo de mayor relevancia que asegurará la continuidad de las poblaciones de nutria coypus en Argentina, aún cuando las mismas se hayan extinguido o esté al borde de su desaparición en la mayor parte de las lagunas que pueblan en altísimo grado la mayor parte de la Pampa Húmeda. La

extinción en estas lagunas indudablemente se debe quizás como primer factor a la presencia de los cazadores que han actuado de manera expoleadora de estas poblaciones.

El Río Paraná a pesar de la presencia de numerosos cazadores, furtivos o legales, que actúan casi en toda su extensión, no han logrado alterar las poblaciones de Nutria coypus, y todo parece indicar según datos de los estudios y observaciones realizados hasta el presente, que las poblaciones de Nutria coypus estan directamente ligadas a los procesos de crecidas y bajadas de este río mucho más que a la presencia de los numerosos cazadores. Esto en parte fué explicado en un trabajo anterior que tuvo oportunidad de presentar quien escribe, al Primer Congreso Argentino de Producción Nutriera, titulado Biografía de un Cazador de Nutria.

De la misma manera que se afirma con un alto nivel de confianza la no interrelación cazador-presa con referencia a la Nutria coypus, tenemos que decir que con referencia a la Lutra platensis la relación es directa. A pesar de que el Río Paraná ofrece múltiples lugares de aislamiento donde las mismas podrían habitar con un aparente grado de tranquilidad y allí procrear y expandirse a otras áreas, la presencia de cazadores, determina un asedio constante a las poblaciones de lutra, según lo hemos detectado por estudios o historias de vida efectuadas a otros cazadores. Estos una vez que detectan la presencia de una lutra, le dedican días, meses, hasta que la misma es capturada.

La situación se plantea de la siguiente manera. Una vez detectada la presencia de lutra, ya sea por huellas, por eschchar sus voces durante la noche o por una observación directa que se ha tenido, los cazadores transladan sus trampas de Nutria coypus al área donde han determinado la presencia de lutra. Es así como comienzan a trampear Nutria coypus en esa área y una vez colocadas sus trampas, al final de la tarde, dedican gran parte de la noche a lo que ellos llaman "linter near" la posible lutra hasta que logran la captura de la misma. La paciencia que muestran hasta lograr su objetivo merecería palabras de elogio si la misma no se aplicara lamentablemente para la captura de un animal en vías de extincion.

Pero la presencia de estos cazadores no es un hecho ocasional dentro de la economía ribereña de Argentina y la misma lbedece a condiciones económicas globales por las que atraviesa el país, que determina la presencia de estos señores que en la Biografía de un Cazador de Nutria antes

mencionada se los denominó como "depredadores explotados". Son los últimos eslabones de una cadena que cobija una mafia mundial a la que muy poco le importa la extinción de la lutra u otros animales o la degradación misma de la biota. Sólo se interesa por los dividendos que puedan obtener del comercio ilegal de pieles. La Dirección de Recursos Naturales de la Provincia de Santa Fe, durante 1973 y 1974, tenía multas exageradamente altas para aquellos--acopiadores de cueros a quienes se les detectaba la presencia dentro de sus mercaderías de una Lutra platensis. Sin embargo la escasez de estos animales hacía que los pocos cueros que conseguían los colocaran en lugares apartados en los camiones donde transladaban los de nutria coypus, zorrinos, zorros, etc. y pasaban desapercibidos para la mayor parte de las inspecciones. Además existía una cantidad enorme de impedimentos legales para efectuar los allanamientos en los momentos oportunos a los acopiadores que radicaban en diferentes ciudades de la Provincia y que se sabía positivamente la presencia de cueros ilegales. La corrupción sigue siendo uno de los grandes aliados de la degradación de la biota y por lo tanto de la extinción de varias especies de animales silvestres. Sin la presencia de funcionarios corruptos no podrían actuar con la libertad que lo hacen estos expoleadores de la fauna silvestre.

Un intento de solución a estos problemas fue la creación de la cooperativa de dazadores sobre la base de la cooperativa de pesacdores ya esistente, pero lamentablemente las circumstancias políticas del país no lo permitieron.

Como corolario de este acápite podemos decir que en estos momentos, año 1977, el sueldo básico de un peon rural de Argentina es de 54 dólores aproximadamente, mientras que la piel de invierno, de medida, de Lutra platensis, se paga alrededor de 40 dólares, por lo tanto, con la obtención de una sola piel por mes, tiene el equivalente al 75% de ese magro sueldo mensual. Indudablemente no está de más repetirlo, la pobreza sigue siendo la mejor aliada para utilizar en la degradación de la biota.

Los Intentos de Cria en Cautiverio

Desde 1973 se comenzaron a construir en el Centro de Bioproducción de la Fauna Silvestre, (a traves de convenio entre el Consejo de Investigaciones de la Universidad Nacional de Rosario y la Dirección General de Recursos Naturales del Ministerio de Agricultura y Ganadería de la

Provincia de Santa Fe) cercos que tenían como propósito lograr la reproducción de la Lutra platensis en cautiverio.

Los objetivos de este proyecto eran dos: El primero de ellos pretendía determinar la potencialidad de este animal como especie de cría intensiva. a los efectos de instrumentar en un futuro bastante lejano, la cría de este animal al estilo que se logró en su momento la de otras especies de peliferos. Sin embargo ni los propios investigadores ni aún las autoridades tenían el propósito específico de instrumentar la cría intensiva de este animal para fines comerciales.

La idea general era lograr su reproducción para posteriores etapas de repoblamiento, que constituía el segundo objetivo, a los efectos de tener áreas de concentración de población y a partir de las mismas lograr un cierto restablecimiento de las mismas en las áreas donde hoy es extinta. Sin embargo, para llevar a cabo este programa, se requiere montar un amplísimo aparato de contralor, que tenga incidencia directa sobre el grupo de cazadores instalados a lo largo del Río Paraná del que ya se habló puesto que de lo contrario se criaría y repoblaría para que los cazadores capturen.

Es un sistema muy complicado de implementar en el Río Paraná por el alto costo que implicaría el mantenimiento del mismo y porque evidentemente existe una correlación de hechos y mencionada que es importante tener en cuenta y que hasta el presente ha dado por tierra con la mayor parte de los proyectos en este sentido. Hace falta el aparato de contralor, o sea los guarda fauna y que el mismo sea eficiente y no corrupto, concomitantemente con una preparación ecológica de los cazadores, coligado esto, con la represión sin miramiento de los acopiadores ilegales de cuero. Esto tendría que coordinarse con un control estricto de las curtiembres y del comercio internacional que sale por el puerto de Buenos Aires. Todas estas tareas, por lo ligadas que se encuentran, se tornan muy difíciles de cumplir en toda su extensión y la alteración de algunos de sus estamentos, inciden directamente sobre las poblaciones de Lutra platensis. Por lo tanto, los trabajos de reproducción de lutra con destino al repoblamiento, es una tarea que innegablemente debe ser programada para la Argentina del futuro sin desmedro esto de que las tareas de reproducción en cautiverio se inicien desde ahora con el propósito de contar con el mayor stock de animales posible.

Los cercos construídos en el Centro de Bioprocucción de la Fauna Silvestre se hicieron sobre la base de dos hipótesis: cría en pareja aislada y cría en forma gregaria. El cerco para una pareja es de 5 x 15 mts., de pared de ladrillo de canto con un canal interior de 1.40 mts. de profundidad que lo recorre en todo el largo perimetral.

El cerco para cría en forma gregaria es de 15 x 20 mts., con un canal también perimetral que lo cruza además por el medio, conformando dos pequeñas islas.

Las observaciones del mantenimiento en cautiverio de la Lutra platensis permite formular las siguientes recomendaciones en lo que a instalaciones se refiere:

1) Las paredes del cerco deben estar en su parte interior lo suficientemente alisadas para evitar que escapen los animales puesto que presentan una conducta de búsqueda constante y cualquier defecto en la construcción es rapidamente descubierto. Una altura de 1.20 m. es suficiente como contención.

2) Es importante un buen canal interior y todos los animales han mostrado una notable inclinación por las aguas en circulación. Esto se observa claramente en los momentos de introducción diaria de agua al canal del cerco, donde los animales se juntan en torno a la salida de la misma mostrando una clara conducta de alegría. En un futuro diseño sería conveniente reducir la profundidad del canal y aumentar la circulación del agua.

3) Dado el notable desarrollo de la conducta de inspección territorial, es necesario colocar una pequeña elevación por donde puedan observar todo lo que acontece fuera del cerco. Estas pequeñas montañitas que cada cerco tenía, eran continuamente utilizadas, especialmente cuando algún ruido o sensaciones olfativas generaban intranquilidad, curiosidad, etc. Esta conducta de oteo se la considera de importancia para las madres preñadas o con hijos, puesto que actuá como ansiolítico.

4) La presencia de canales profundos con el propósito de mantener peces vivos en el mismo no dió ningún resultado. La conducta lúdica que mantienen estos animales durante toda la vida hace que la presencia de peces dentro de su territorio sea un motivo para la incitación al juego colectivo e individual. Terminaban en pocas horas con los peces de toda la semana. Esta experiencia se la repitió alrededor de diez veces y siempre se obtuvo el mismo resultado.

5) Una necesidad de primer orden is que cuenten con espacios oscuros (curvas) donde resguardarse y la utilización de los mismos es muy alta. Es importante que estos espacios tengan su entrada por debajo del nivel del agua.

6) La necesidad de un área sombreada es también importante, especialmente muy utilizada en los cálidos días de verano.

Estas seis recomendaciones mencionadas para instalaciones, deben complementarse con las que a continuación se detallan referentes al manejo de la Lutra platensis.

1) La Cría de animales lactantes por el hombre no altera la convivencia posterior de estos cuando se los incluye, ya semiadultos, con la manada. Despues de un minucioso cateo olfativo por parte de los adultos que provoca un notorio temor al nuevo integrante, generalmente son aceptados a traves de una clasica conducta de invitacion al juego. Es probable que el temor de los animales jovenes se deba pura y exclusivamente a su cria por humanos que le ha impedido el contacto con los de su especie desde lactantes y con ello el logico aprendizaje de las normas de convivencia intraespecifico. La misma experiencia de cria de lactantes realizada con Myocastor coypus e Hydrochoerus hydrochoeris, al llegar al estadio semiadulto, no se los pudo incluir con la manada existente. Fueron rechazados por sus congeneres y en algunos casos extremos, se tuvo que lamentar la muerte del nuevo miembro.

2) En el cerco de cria gregaria si bien se observaba una convivencia con escasas situaciones de agresividad, se formaban microgrupos de acuerdo a sus convivencias infantiles, independientemente del sexo. Esta formacion de microgrupos perduro en todos los anos que duro la experiencia.

3) Los casos de agresividad claramente observados se presentaban en los individuos que tenian un caracter notablemente alterado y la misma se desencadenaba cuando el nuevo miembro de la manada no soportaba y por lo tanto respondia agresivamente, el cateo olfativo o la invitacion ludica.

4) Cada lutra de las estudiadas presentaba un notable grado de diferenciacion conductual. Esta marcada individualidad caracterologica, factible de explicarse por un detallado etograma, representa una seria dificultad para la cria en cautiverio puesto que significa encontrar respuestas notablemente diferenciadas en cada individuo frente al cortejo, apareamiento y quizas maternidad.

5) Los animales criados desde lactantes y con asiduo contacto humano, so tornaron sumamente mansos y esta mansedumbre no de perdió a pesar de tener más de un año de convivencia en el cerco de cría gregaria. Cada vez que observaban la presencia humana, pedían a saltor ser levantados en brazos.

6) La hora de la comida suele ser una situación de conflicto para numerosas especies de mamíferos, especialmente carnívoros. Sin embargo, nunca se observó peleas en estos momentos, ni aún en los casos que estuvieron privados de alimentos por más de 24 horas. No con extrema hambre, se los observó comer con apresuramiento. Masticaban detenidamente la carne de pez que constituía su principal alimento y la carne vacuna que a veces sustituía a aquella.

7) En el primer mes de vida es sumamente complicada su cría artificial. Algunos de los animales que llegaban al Centro de Bioproducción de la Faunt Silvestre a esta edad morían a pesar de los extremos cuidados que se tenía con ellos. Los problemas disminuían notablemente cuando se cambiaba la leche por pescado.

8) Se mencionó anteriormente que la mansedumbre se conservaba para el resto de la vida una vez lograda y que presentaban una marcada diferenciación individual. Con una lutra hembra se logró llevaria en el bote a pescar al Río Paraná y jamás intento escapar. Disfrutaba del río, de la presencia del hombre y lo buscaba donde este fuera. Pero la conducta de seguimiento es mucho más marcada en los estadios infantiles y semiadultos. Los individuos ya maduros tienen una cierta independencia que a veces hace difícil que respondan a las órdenes aprendidas en los estadios anteriores del desarrollo.

9) Puede convivir sin problema, los individuos mansos, con otros animales y esta lutra hembra a la que se hizo mención jugaba con perros, gatos y algunos de los animales silvestres que vivían en el Centro de Bioproducción de la Fauna Silvestre.

10) Quien escribe tuvo oportunidad de observar dos casos de lutras criadas desde lactantes que se habían acostumbrado a vivir ueltas en la casa de sus dueños. Uno de los casos era una pareja cuyo dueño vivía en una isla del Río Paraná. Los animales se alejaban hasta el Río y siempre volvían a su morada. Cuando se llevó a cabo esta observación, la experiencia llevaba dos años.

El otro caso era muy semejante al descripto y se trataba de un macho de más de tres años que residía en un galpón de una vieja casa de campo y constituía la alegría de los hijos del dueño de la casa puesto que jugaba constantemente con ellos.

Conclusiones

La experiencia iniciada por quien escribe en el año 1972, continúa felizmente a pesar de los cambios políticos de Argentina. Esto constituye un hecho sumamente positivo y debería contar con mucho más apoyo del que tiene haste el presente. Este podría consistir en lo siguiente: a) Suministro de bibliografía, b) Constituír un sistema de intercambio de información que permita conocer rápidamente los éxitos o fracasos obtenidos en otros lugares del mundo con diferentes especies de lutras, c) Apoyo técnico y financiero al Centro de Bioproducción de la Fauna Silvestra a los efectos de que amplía su campo de acción con Lutra platensis, d) Sensibilizar a las autoridades que tenien a su cargo el Centro de Bioproducción de la Fauna Silvestre para que brinde el máximo de interés a la experimentación que allí se está llevando a cabo.

Sumario

En la primera parte del trabajo se sitúa el alcance de los Programas que lleva a cabo el Consejo de Investigaciones de la Universidad Nacional de Rosario en convenio con la Dirección General de Recursos Naturales del Ministerio de Agricultura y Ganadería de la Provincia de Santa Fe, Argentina. Luego se analiza la problemática de la relación hombre-naturaleza, dentro del marco político argentino y la incidencia que tiene este relación en la Lutra platensis. Posteriormente se describen los resultados del Censo de Animales Silvestres, referente a Lutra platensis para la Provincia de Santa Fe y finalmente se describe la experiencia de cría en cautiverio llevada a cabo, enumerándose seis recomendaciones para las instalaciones del criadero y diez sugerencias para el manejo de estos animales.

Summary

In the first part of this presentation the programs carried out by the Consejo de Investigaciones de la Universidad Nacional de Rosario (Investigation Council of the National University of Rosario) in agreement with the Dirección

General de Recursos Naturales del Ministerio de Agricultura y Ganaderia of the Privince of Santa Fe, Argentina, are discussed. The problems of human impact on the environment within the Argentinian political framework and its effect on Lutra platensis. Subsequently, the results of the Wildlife Census, with reference to Lutra platensis in the Santa Fe Province are given. Captive breeding programs are detailed, enumerating six recommendations for the installation of breeding units and ten suggestions for handling the otters.

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MAPA Nº 1

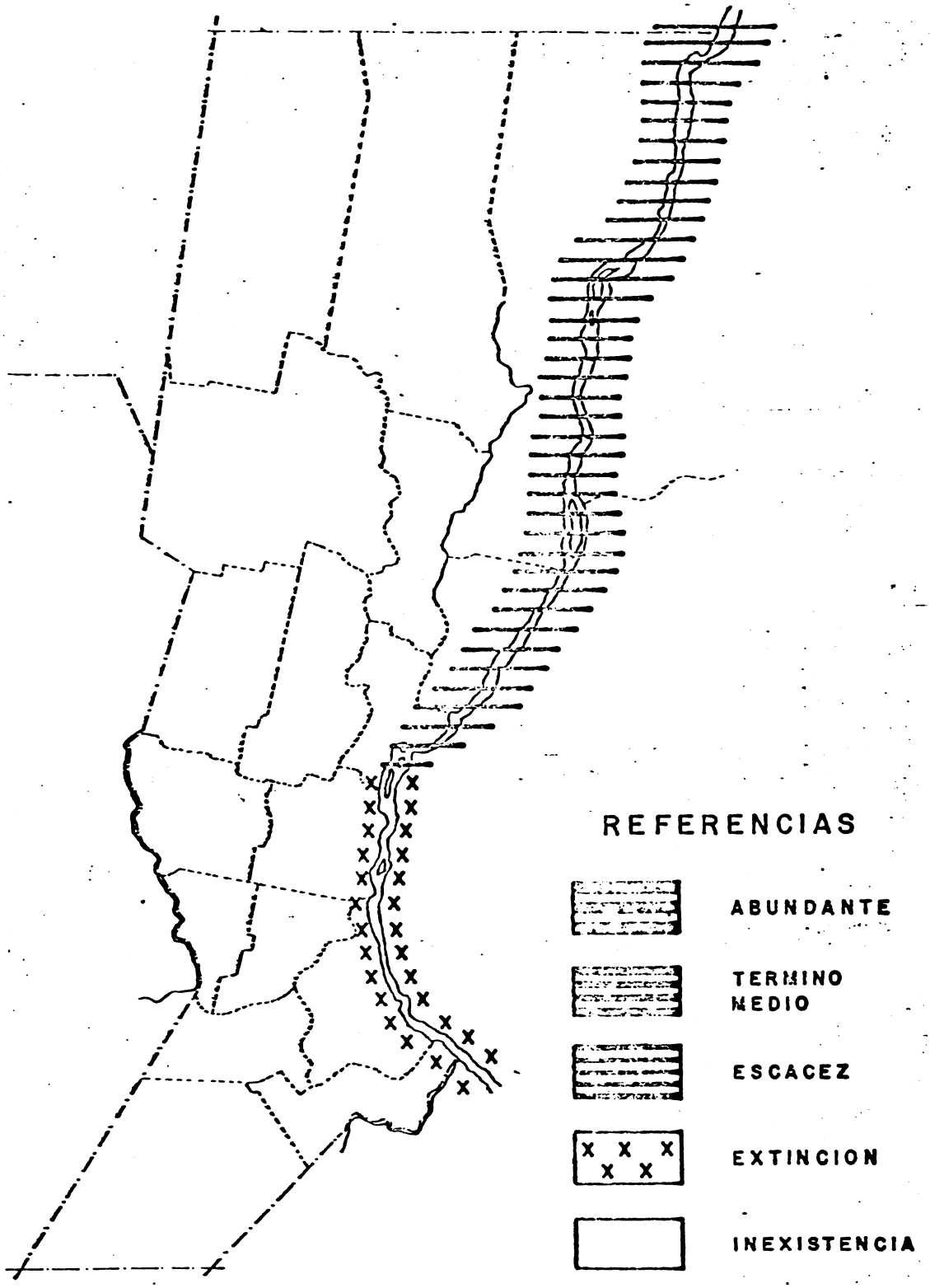
UBICACION DE LA PROVINCIA DE SANTA FE Y DE LOS RIOS CON MENCION DE LUTRA PLATENSIS

MAPA Nº 2

PROVINCIA DE SANTA FE

CENSO DE ANIMALES SILVESTRES

LUTRA . PLATENSIS



ECOLOGY AND CONSERVATION OF THE MARINE OTTER, *Lutra felina*

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The marine otter, *Lutra felina*, is the most distinct species of the genus. In Peru and Chile, the local common names are: chungungo, gato marion, huallaque, nutria de mar, and chinchmen. This otter is found mainly in the coastal waters of Peru and Chile. Hunting of *L. felina* has caused it to become depleted throughout most of its range. It is now considered endangered in both Peru and Chile. This paper will review the ecology and conservation of *L. felina*.

Taxonomy

Mann (1945) recognized two subspecies of the marine otter; *L. f. felina* from southern Chile is slightly darker brown on the ventral surface when compared to *L. f. peruviensis* from northern Chile and Peru. Sufficient specimens are not currently available to permit detailed studies on the validity of these subspecies.

Distribution and Migration

This species inhabits the coastal waters a-ong the west coasts of South America from central Peru (north at least to Chimbota) south to Cape Horn, Chile, the Straits of Lemaire and adjacent islands (Bini, 1951; Cabrera, 1957). Nothing is known about its seasonal movements. It mainly occurs in the littoral region, but it is also known to sometimes ascend rivers to at least 650 meters above sea level (Hernandez, 1960).

Abundance and Trends

Darwin (1958) found this otter abundant in the Chonos Archipelago and among the islands off the southwestern shores of Tierra del Fuego. It has been greatly diminished in numbers since Darwin's time, but in 1923 the Chicago Field Museum's expedition found this otter common along the southern end of Isla Chiloe, Chile (Osgood, 1943). Its recent status around Isla Chiloe is under

investigation by Carlos Cabello. Nothing is known about numbers of this otter along the northern coast of Chile, but in Peruvian waters the population in 1967 was estimated at no more than 200 or 300 individuals (IUCN, 1970). In the Cape Horn and Southern Tierra del Fuego region this species has been practically exterminated. One specimen was collected at Wollaston Islands, Tierra del Fuego over 25 years ago (Olrog, 1950). Several years ago an unidentified otter was observed on the south side of Isla de los Estados, Argentina.

General Biology

Harris (1968) presented the following external measurements: head and body 570 to 787 mm, tail 300 to 362 mm and total length 910 to 1149 mm. An adult male taken at the southern end of Isla Chiloe weighed four kilos (Osgood, 1943). The fresh water prawn, Criphiops caementarius, is included in the diet of L. felina (Hernandez, 1960). Darwin (1858) also reported that these otters feed on fish, "small red crab," "cuttle fish," and the inhabitants of "volute shells." I collected remains of toadfish, Aphos porosus, from an adult female taken by fishermen near Peninsula Paracas, Peru. Little is known about reproduction in this species. The specimen I collected at Peninsula Paracas in February, 1976, contained one small fetus (ca. 3.5 cm crown-rump length) in each horn of the uterus. The total length of the adult was 86 cm. Van Zyll de Jong (1972) reported no sexual dimorphism in this species, but the sample size was small. All species of Lutra except L. provocax and L. felina are allopatric (van Zyll de Jong, 1972). Lutra felina is the smallest and the most distinct species in the genus and "probably evolved from a stream-dwelling species that adapted to a marine environment after isolation in coastal habitats as a consequence of progressive aridity in middle latitudes of South America's west coast" (van Zyll de Jong, 1972). Nothing is known about parasites or diseases in this species.

Exploitation

In Peruvian waters these otters are often shot by fishermen because of the alleged damage they do to the stocks of freshwater prawns (Grimwood, 1969). In addition they are probably taken incidental to fishing operations in Peru and Chile (Brownell, unpublished data; Oliver, 1946). In Chile the species is hunted by fishermen especially south of Isla Chiloe for their skins (Schlatter, 1974, pers. comm.).

Protection and Regulations

This species is listed as endangered in the Red Data Book of the International Union for the Conservation of Nature and in the U. S. Endangered Species Act of 1973 which prohibits the importation into the U. S. except for scientific, educational or propagation purposes. It is also listed on Appendix 1 of the International Convention on Trade in Endangered Species of Wild Fauna and Flora. Grimwood (1969) stated that in Peru "the species has been recorded in all three areas under consideration as a site for a coastal park, but it is not known if this otter is sufficiently local in habits to be contained in any of these areas throughout the year."

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LA NUTRIA DE MAR (Lutra felina) EN LA ISLA DE CHILOE, CHILE

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Introducción

En Chile no sa han efectuado estudios sistemáticos de las dos especies de nutrias existentes, Lutra felina y Lutra provocax, sin embargo hay datos que ilustran acerca de su distribución geográfica actual y pasada.

Originalmenta ambas especies tenian un rango geográfico mayor que el actual. Lutra felina (Chungungo o nutria de mar), se extendía de arica hasta el Cabo de Hornos, es decir, por todo el litoral del Pacífico (Osgood, 1943), actualmente su presencia es permanente sólo desde el canal de Chacao al Sur, existiendo eso sí, enforma más aislada al Norte (figs. 1 y 2).

Lutra provocax (Huillín o nutria de río) ocupaba la mayoría de los cauces fluviales y sus desembocaduras, desde el río Cachapoal hasta el estrecho de Magallanes (Osgood, 1943), permaneciendo en la actualidad sólo desde el canal de Chacao al Sur, y como en el caso anterior, en algunos puntos aislados más al Norte, pero con poblaciones de escase significación (figs. 3 y 4).

Situación Legal

Ambas especies se encuentran protegidas por la ley No. 4.601 de 1929 de Caza y su respectivo reglamento--que en su artículo 20 prohibe indefinidamente la caza, transporte, comercialización e industrialización de estas especies y otras.

Sin embargo esto no ha sido impedimento para que una fuerte caza clandestina hiciera desaparacer las poblaciones existentes en la zona Norte y Central del país, debido principalmente a la falta de fiscalización de esta ley.

En la actualidad la caza clandestina persiste--desde el canal de Chacao al Sur haciéndose más intensa en los lugares apartados; siendo Lutra felina la especie afectada con mayor intensidad.

La caza la realizan cazadores artesanales que ademas se dedican a diversas faenas extractivas del mar y generalmente son de escasos recursos. Para sus fines utilizan una embarcación (Chalupa) de madera de 9 a 10 mts. de largo por 2,10 mts. de ancho, movida a remo o vela y tripulada por cuatro personas, con 2 escopetas calibre--16 y cuatro perros, además de los víveres para unos cinco meses de cacería, lapso en el cual pueden obtener 30 a 40 pieles.

La embarcación va paralela a la costa de donde se dispara a las nutrias; ó bien los perros las sacan de sus madrigeras para que un cazador que ha bajado a tierra pueda disparar. Generalmente el impacto es sobre la cabeza por lo que no hay dano en las pieles.

Dichas pieles son entregadas a comerciantes intermediarios a precios muy bajos y son estas personas las que obtienen mayores ganacias, dado el alto precio que alcanzan en el mercado internacional.

El valor por piel pagado al cazador es de # 300., (trescientos pesos chilenos) (US $15.), mientras que el intermediario recibe aproximadamente $ 1.500 (US $75.-).

Los principales centros de transacción clandestina son Pto. Montt, Castro, Melinka, Aysén, Pta. Arenas (fig. 5) y el destino pareciera ser la República Argentina.

Observaciones Preliminares en la Isla de Chiloé

En el área señalada en la fig. 5, que corresponde a la parte Norte de un futuro Parque Nacional, se vienen realizando observaciones de Lutra felina, las que hasta el momento son preliminares, faltando más antecedentes para su comprobación.

Esta especie es la más pequeña del género y la única de ambiente marino. Largo total 833 mm., cola 340 mm, pié posterior 92 mm., y pabellón auricular 15 mm.

La coloración del pelaje dorsal es de un color café oscuro, uniforme en los adultos, siendo el ventral más claro. En los juveniles el dorso es más amarillento.

Habitat y Biocenosis

El habitat de Lutra felina esta caracterizado en la Isla de Chiloe por un litoral rocoso, de accidentada topografia, de fuerte oleaje con vientos constantes del Noroeste, Weste y Surweste y de gran intensidad. El sustrato rocoso corresponde a material del Paleozoico y/o Precambrico y del Mioceno medio (filitas, cuarcitas, pizarras, rocas sedimentarias marinas y continentales con intercalaciones de manto de carbon y pizarras bituminosas). Las fluctuaciones de las mareas son aproximadamente 2 - 2.50 mts. existiendo en el limite superior de ellas una densa vegetacion terrestre de arbustos y pequenos arboles impedidos en su desarrolla principalmente por el viento y sustrato (Gunnera chilensis, Gregigia sphacelata, Fascicularia bicolor, Ugni molinae, Raphitanus spinosus, Aextoxicum punctatum, Chusquea sp., etc.). Estas areas de roquerios coinciden con acantilados provenientes de tierra firme.

En la zona litoral, visitada constantemente por la nutria, se presenta una densa vegetacion de feoficeas representadas por Durvillaea antartica, Lessonia nigrescens, Macrocystis perifera, ademas hacia el limite superior de las mares clorofíceas, como Ulva sp..

La gran productividad de estas areas conduce a la presencia de una alta cantidad y diversidad de moluscos y mariscos en general (bivalvos, gastropodos, crustaceos, equinodermos, celenterados, etc., etc.).

Dentro de los mamiferos marinos, comparten el habitat de la nutria. Otaria flavescens, (Lobo marino), Lagenorhynchus sp. (Tonina), Delphinus sp., (Tonina), y en forma esporadica Orcinus Orca (Orca) y mas hacia mar adentro, acercandose algunas veces a la costa, ballenas no identificadas.

Dentro de las aves destacan Larus dominicanus (Gaviotas); Chloephaga hibrida (Caranca); Tachyeres Pteneres (Quetro no volador); Haematophus ater (Pilpilen, negro); Haematophus ostralegus (Pilpelen); Phalocrocorax olivaceus (Cuervo marino); Spheniscus magellanicus (Pinguino); Puffinus sp. (Fardelas); Cynclodes sp. (Churrette); Megaceryle torquata (Martin pescador), etc.

Densidad

Observaciones preliminares han arrojado una densidad aproximada de una nutria por 100 mts. de litoral. Teniendo en cuenta que estos datos deben variar con la hora del día, estado de los mares y época del año, su inclusión aquí es solamente provisoria.

Alimentación

El análisis de las fecas revela una gran presencia de moluscos y crustáceos y en grado menor peces. Sedestacan por las observaciones de conchas de comederos y por restos encontrados en las fecas, los siguientes grupos: Concholepas sp, Fisurrella sp, Collisella sp, entre los moluscos; y decápodos no identificados habiendo por lo menos 2 especies.

No es posible determinar aún el porcentaje de incidencia de éstos grupos en la composición de la dieta.

Como muchos de los animales capturados son comidos en el mar, separando las partes blandas (comestibles) de las duras, no es posible determinar la composición exacta de la dieta, aún contando con los contenidos estomacales. Sólo la observación directa durante la ingestión puede solucionar este problema.

Llama la atención la presencia en varias muestras fecales analizadas de restos de frutos y semillas de Greigia sphacelata y Fascicularia bicolor (poe), ambas Bromeliáceas que se encuentran cerca del mar. Por la cantidad de restos encontrados se podría pensar en una ingestión voluntaria.

También se han encontrado restos de algas en las fecas, pero ello puede deberse a ingestión involuntaria de algas adheridas a las presas.

Comportamiento

Lutra felina realiza su mayor actividad cerca de la costa, a no más de 500 mts. de ella. En el agua es más ágil que en la tierra, aunque aquí se oculta con rapidez en los roqueríos y arbustos, cuando es observada y se dá cuento de ello.

En el agua nada con flexibilidad y velocidad aligual que los otros representantes de la familia.

Raras veces la hemos visto en grupos de más de tres individuos, por lo general se divisan individuos solitarios separados por unos 200 mts.

Para movilizarse en el agua puede hacerlo nadando con la cabeza al aire y todo el cuerpo sumergido ó debajo del agua en inmersiones que duran 15-30 segundos avanzando 50 mts. cada vez, ó también dejándose flotar de espaldas menteniendo el equilibrio con la cola a mercedel movimiento de las olas mientras ingiere su alimento.

La ingestión de alimentos puede hacerse en el agua, mientras flota ó nada a sacar su presa a tierra para ubicarse en oquedades formadas por las rocas, donde es posible encontrar restos de alimentos, fecas y un fuerte olor a orina. Estos "comederos" quedan a 1 metro sobre el nivel del mar, son bastante húmedas por lo que seguramente no son usados por los animales para dormir y/o tener sus crías. Esto último debe suceder más arriba entre las rocas ó la vegetación costera.

Pareciera que la mayor actividad diaria es en la tarde, después de las 14 hrs. hasta sue oscurece; no se ha constatado si hay o no actividad nocturna.

Reproducción

Observaciones preliminares indican un celo en la época de verano, con cruzamientos en los meses de Diciembre-Enero. No se ha determinado su duración.

El acoplamiento tiene una duración mínima de 40 minutos.

La gestación dura entre 60 a 120 días, faltando observaciones para un data más exacto.

Las pariciones son en Otoño-Invierno con 2 crías generalmente.

No hay comprobación de que hubiese más de una parrición al ano.

Predación, Competencia y Parasitismo

El principal predador de la nutria podría ser la ballena asesina, Urcinus orca, la cual se ha visto bastante cerca de la costa, sin embargo aún no hay comprobación.

Se ha observado competencia por la alimentación entre nutrias y algunas aves marinas (Larus sp.) las que se mantienen al acecho para robar las presas cuando la nutria esta comiendo.

También con Otaria flavescens puede haber cierta competencia al ingerir el mismo tipo de peces, Eleginops maclovinus y Micropogon furnieri, (Robalo y corvina respectivamente). Con frecuencia se ha visto que ocupan el mismo habitat.

Se han encontrado parásitos intestinales como nemátodos y acantocefalos, éstos últimos con ubicación gástrica y en gran cantidad. Los huéspedes intermediarios tendrían que ser crustáceos, como ocurre con otros representantes acuáticos del Phylum, Acantocephala.

Se están determinando las especies de estos helmintos.

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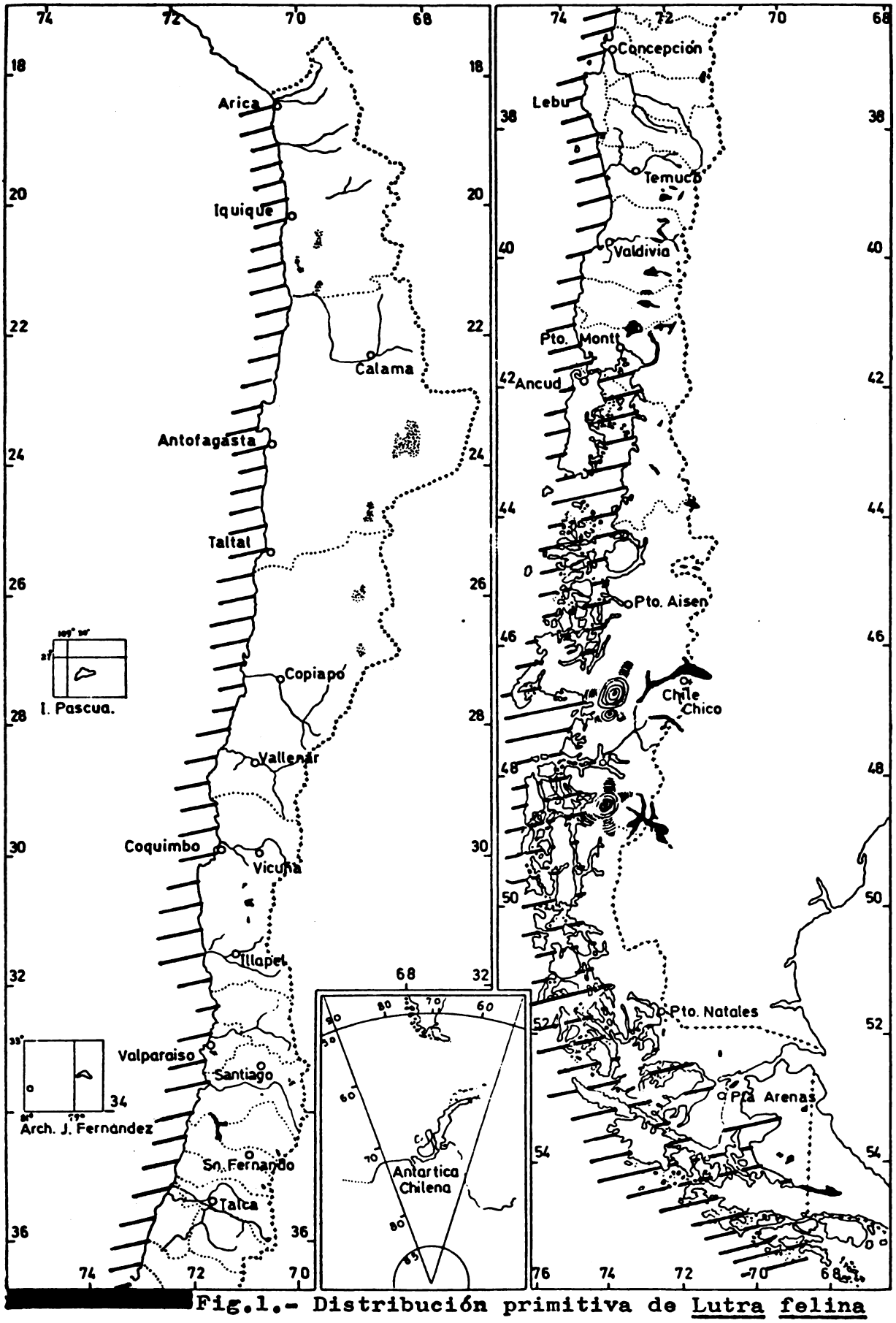

Fig.1.- Distribución primitiva de Lutra felina em el litoral Chileno.

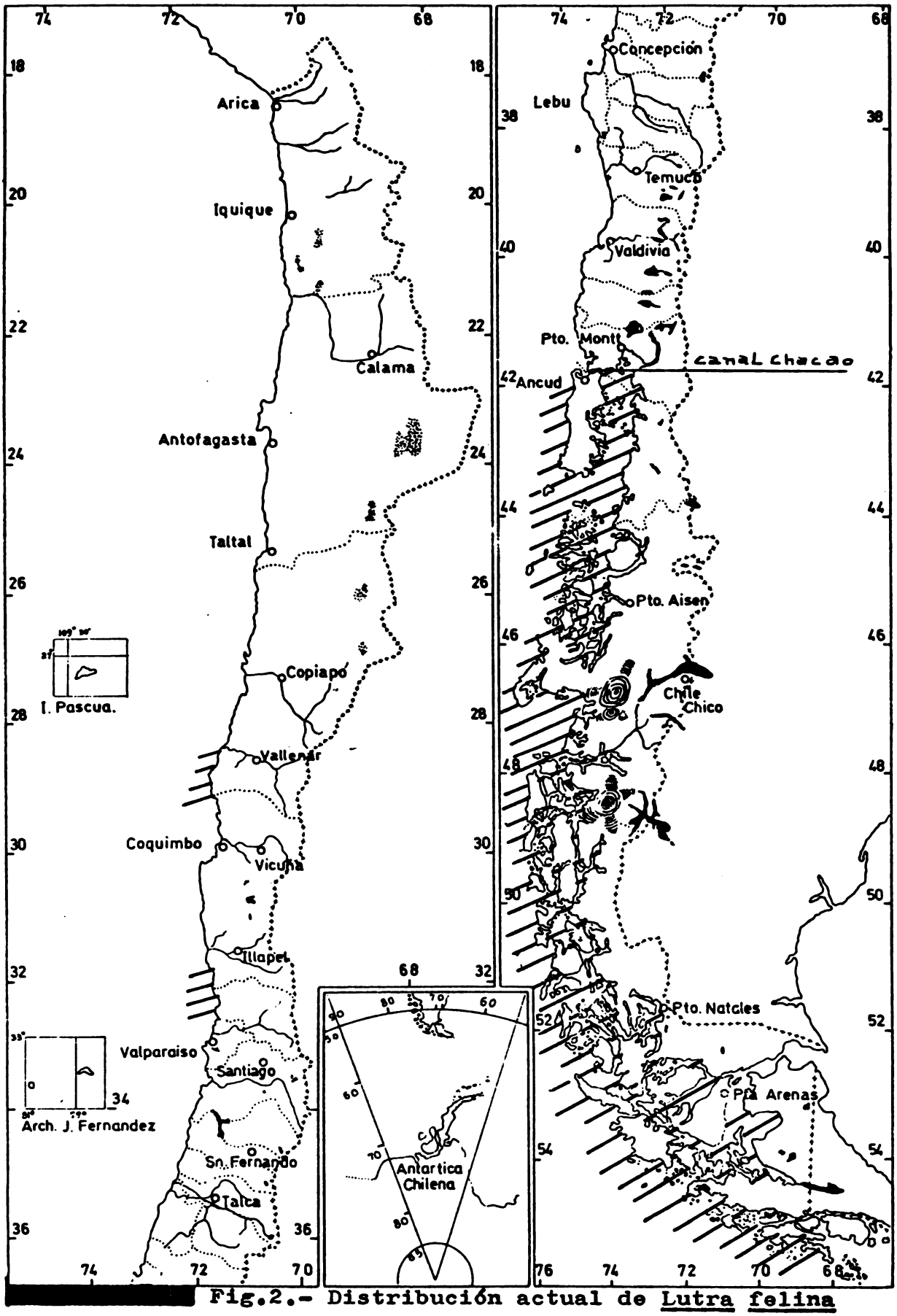

Fig.2.- Distribución actual de Lutra felina en el litoral Chileno.

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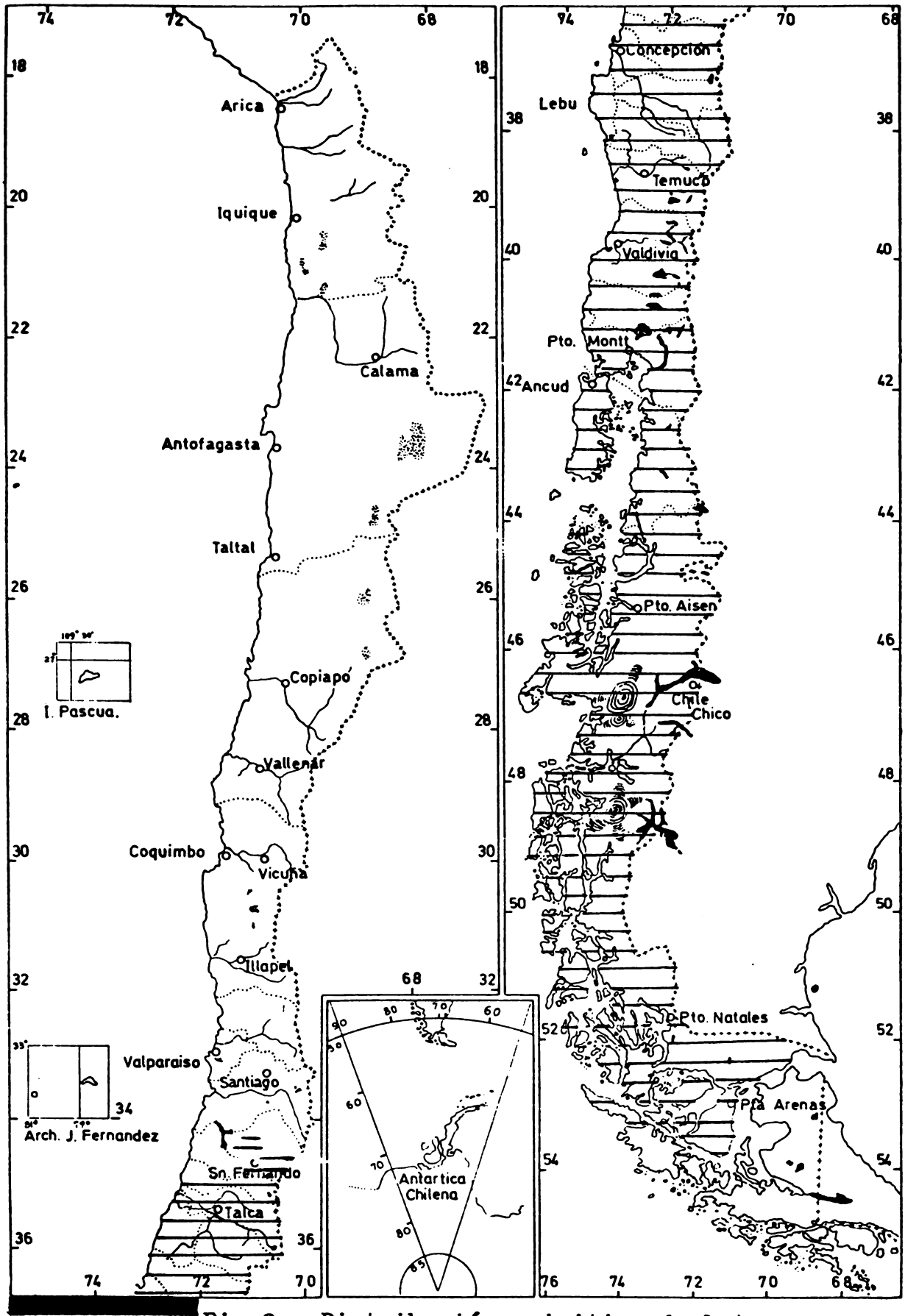

Fig.3.- Distribución primitiva de Lutra provocax en Chile.

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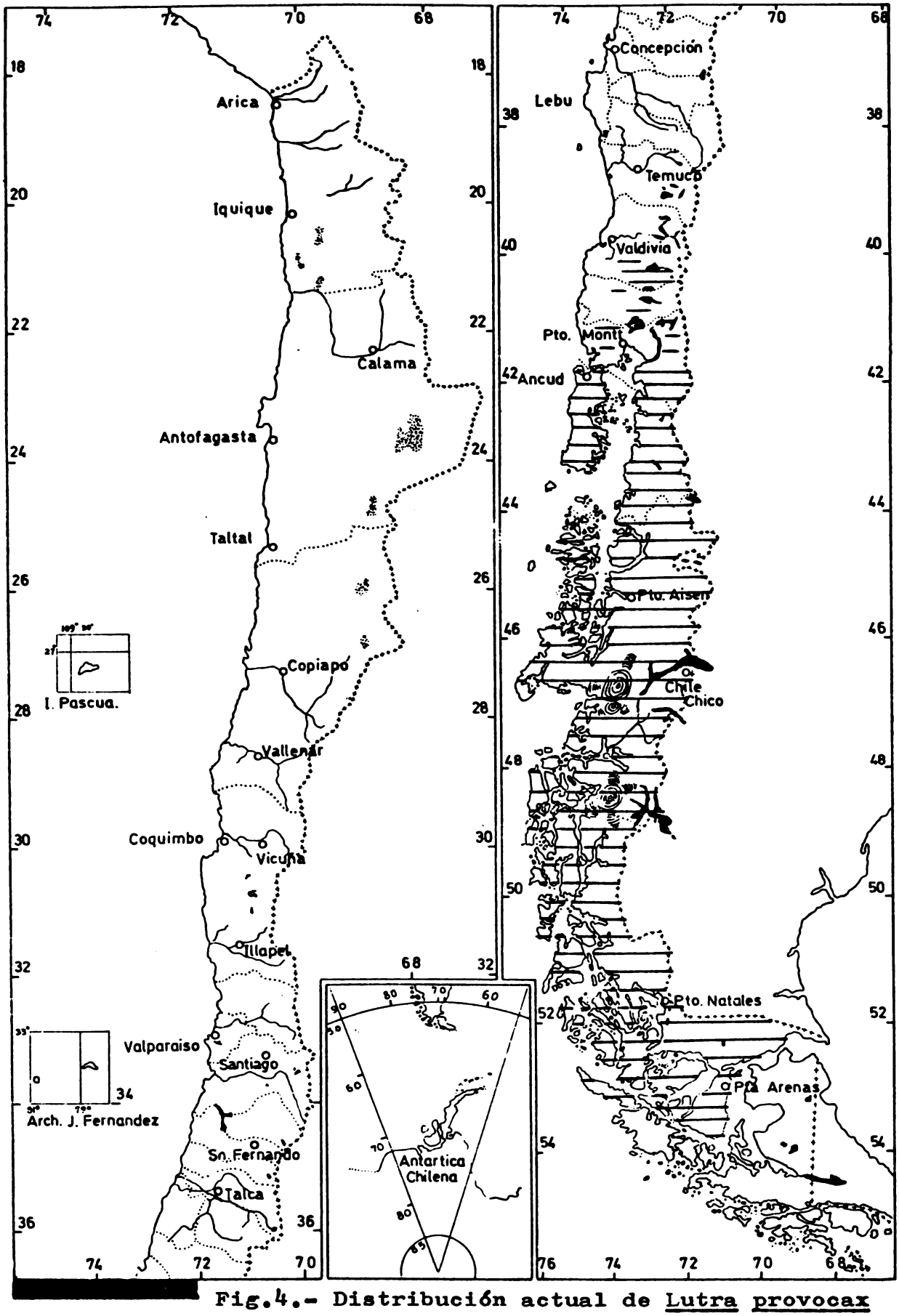

Fig.4.- Distribución actual de Lutra provocax en Chile.

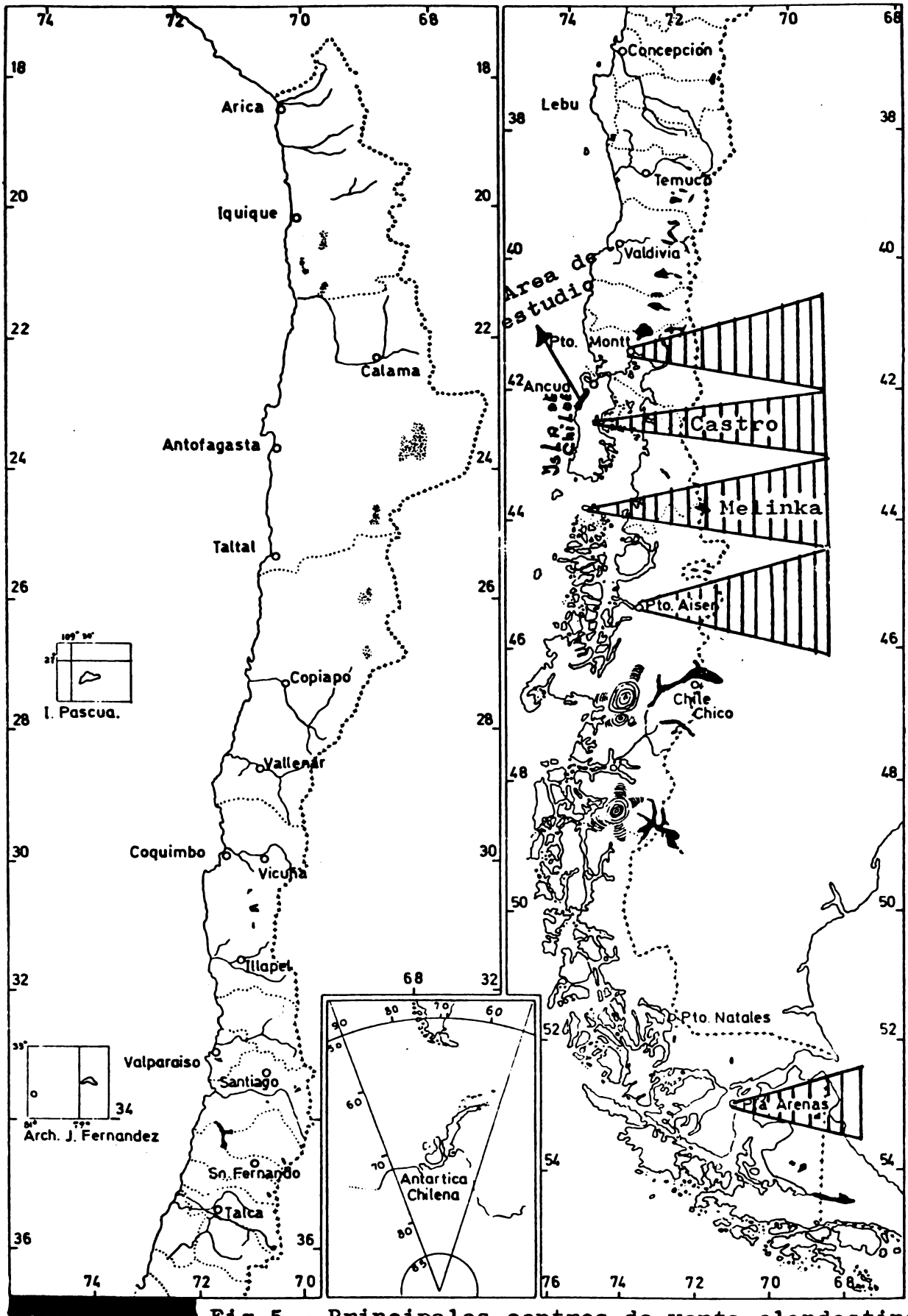

Fig.5.- Principales centros de venta clandestina de Lutra sp. en Chile y área de estudio en Chiloé.

Esc. 1: 10 000 000

RESEARCH ON THE SEA OTTER IN ALASKA

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Introduction

In 1969 Karl Kenyon of the U.S. Fish and Wildlife Service published a monograph entitled "The Sea Otter in the Eastern Pacific Ocean." In the ensuing eight years, Kenyon's work has remained the most authoritative account of the sea otter. It covers a broad range of topics including systematics, natural history, and ecology; most of which reflect our present knowledge of this species. However, since the time Kenyon's work was published a number of intensive, more specific studies have been carried out in Alaska under the auspices of such agencies and institutions as Alaska Department of Fish and Game, U.S. Fish and Wildlife Service, U.S. Energy Research and Development Association. and the University of Alaska. These studies have furthered our knowledge of those aspects of the sea otters' biology concerning distribution and numbers, reproduction, mortality, and community interactions. The purpose of this paper is to present a brief update of current knowledge of these topics.

Distribution and Numbers

Presently, sea otters in Alaska are estimated to number from about 100,000 to 125,000 animals, virtually all of which are distributed from the Copper River delta at the east end of Prince William Sound, west along the Alaska Peninsula and the Aleutian Islands. Following near extinction from fur hunting by the early 1900's, the sea otter has reoccupied much of its aboriginal range in that area. The population continues to grow and expand.

Population estimates of sea otters in a given location have proven to be highly variable. Apparently most of this variation is contributed by changes in weather conditions, the type of survey vehicle used, changes in activity among sea otters, and the nature of the

habitat being surveyed. For example, at Amchitka Island, counts made from helicopters are consistently higher than counts from fixed-winged aircraft, and shore-based counts using binoculars and spotting scopes in limited areas have proven to be 1.5 to 2 times greater than counts made from a helicopter of the same area at the same time. Apparently these discrepancies are related to the fact that sea otters at Amchitka Island spend a relatively high proportion of their time diving in search of food (since that island's population is at or near carrying capacity) and the sea otter habitat there (which is, very roughly, that area between the littoral zone and the 30 fathom depth contour) extends far offshore. These situations vary greatly throughout the sea otters' range in Alaska and consequently, aerial survey data are difficult to interpret.

Mortality

Kenyon identified depredation by man and natural attrition when limited by food availability as the two primary sources of mortality which limit population size of sea otters. Under authority of the Marine Mammal Protection Act of 1972, sea otters in Alaska are completely protected from human depredation. Natural mortality caused either directly or indirectly by limited food availability to populations near carrying capacity is the major limiting factor to sea otters in Alaska.

Recently, unusually heavy winter sea ice in the Bering Sea has been shown to be a limiting factor to the northeastern dispersal of sea otters in Bristol Bay on the north coast of the Alaska Peninsula. Sea otters appear to be able to tolerate rather heavy ice conditions with little difficulty unless they are cut off entirely from open water and access to food. When shore-fast and pack ice form rapidly without open leads, sea otters living in the area either die from malnutrition or migrate to ice free areas, depending upon the encroachment pattern of the advancing ice.

Depredation of recently born sea otters by bald eagles has been documented at Amchitka Island in the western Aleutians. In 1972 it was estimated that at least 100 young animals were taken by bald eagles from a sea otter population of approximately 6500 individuals. Although the number of pups taken annually probably exceeds this number, eagle predation is not thought to

be an important limiting factor to the abundance and distribution of sea otters. It probably occurs most frequently where sea otters and bald eagles both are at relatively high population densities.

Community Interactions

The impact of sea otter predation upon food resources and associated inshore communities is a topic of increasing scientific interest and potential management conflict. That sea otters dramatically reduce the size and abundance of certain prey organisms is abundantly clear. By comparing several islands in the Aleutian archipelago, it has been strongly inferred that sea otters exert a key influence on nearshore communities by limiting the abundance and distribution of certain important herbivorous invertebrates, such as sea urchins, limpets, and chitons. This interaction, in turn, is critical to maintenance of dense inshore kelp beds which appear to be the major source of primary production, and thus sustenance, to a number of higher trophic forms in the inshore community. These more indirect consequences of sea otters to the communities within which they live are, at present, largely circumstantial. However, experimental evidence is accumulating that supports the hypothesis that the density and species composition of nearshore fish guilds in the Aleutian Islands are strongly influenced by the presence or absence of kelp beds.

The emerging pattern of community structures characterized by the presence or absence of sea otters has cast a new light on the meaning of faunal remains from pre-Aleut and Aleut kitchen middens in the western Aleutian Islands. Available evidence suggests that, at least in some areas, the Aleut caused a local reduction or extinction in the sea otter populations they hunted. These conclusions are inferred from a characteristic pattern, observed in several Aleut middens, in which the abundance of sea otter remains declined through time with a concurrent increase in the remains of grazing invertebrates.

Reproduction

There have been several recent updates in our knowledge of the reproductive biology of female sea otters. This work was done by Karl Schneider who examined a large series of specimens taken between 1967 and 1971 during

an experimental harvest conducted by Alaska Department of Fish and Game. Most of the specimens were collected from the central and western Aleutian Islands.

Schneider found that peak pupping occurred from mid-April to mid-June with a maximum rate about mid-May. Previously it was thought that most births occurred during fall and early winter in the Aleutians. It also has been shown that the peak in breeding activity occurs about the beginning of October, resulting in a gestation of about 7.5 months with equal periods of unimplanted and implanted pregnancy. This is significantly less than previous estimates of about 12 to 13 months total gestation and implies that the maximum reproductive rate may be greater than 1 pup per adult female every two years, which was the previously accepted value.

Current Research

The following is an annotated list of current research projects related to sea otters in Alaska:

1) Population studies of sea otters in Prince William Sound. This project is under the direction of A. M. Johnson of the National Fish and Wildlife Laboratory, U.S. Fish and Wildlife Service. The objectives are to obtain a more thorough understanding of population abundance, structure, and movements. Sea otters are being marked with flipper tags and radio transmitters for the purpose of monitoring the movements and activity of individuals over time. Data on food habits are being collected and changes in the abundance and distribution of sea otters in selected areas of Prince William Sound are being monitored by aerial and ship-board surveys.

2) Changes in distribution and abundance of sea otters in Alaska. This project has been carried out intermittently over the past 10 years or so by K. B. Schneider of Alaska Department of Fish and Game. Aerial surveys are being carried out in areas where sea otters are increasing their range or in areas which might be affected by outer continental shelf oil development.

3) Sea otter/community interactions in the western Aleutian Islands. This project is under the direction of J. A. Estes, National Fish and Wildlife Laboratory, U.S. Fish and Wildlife Service. The abundance, distribution, activity patterns, and food habits are being monitored from the recently established sea otter population on Attu Island. Changes in certain plant

and animal populations on Attu, concurrent with population growth are also being examined at several locations around the island. Manipulative experiments in the intertidal and subtidal communities are being carried out to determine critical species interactions in this community. The sea otter population at Attu currently numbers about 350 animals and is increasing at an unusually high rate, both in range and abundance. Results to date indicate that populations of echinoids, mollusks, and crustaceans change rapidly in both abundance and population structure after sea otters occupy an area. The sea otters on Attu are feeding almost exclusively on sea urchins, and investing relatively little time feeding compared with sea otters on other islands that are near carrying capacity.

We predict that as the Attu population grows, its diet will become more catholic and more time will be invested in feeding as food becomes less abundant. We also have found that the density of fishes inhabiting the nearshore community is less at Attu than at Islands where sea otters are abundant. Fish studies are being carried out by C. A. Simenstad, University of Washington, on contract with the Fish and Wildlife Service.

4) Sea otter/community interactions in southeastern Alaska. This project is being carried out jointly by A. M. Johnson, R. Jameson, and J. A. Estes, National Fish and Wildlife Laboratory, U.S. Fish and Wildlife Service. A recently introduced sea otter population in the vicinity of Sitka, Alaska was surveyed last year. It contains more than 500 animals and apparently is growing rapidly both in range and abundance. At present we have no data on the community in this area; a cruise is planned for late March and April of this year to initiate this part of the project.

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RECOMMENDATIONS CONCERNING THE SEA OTTER MORATORIUM WAIVERS PROPOSED BY THE STATES OF ALASKA AND CALIFORNIA

ALASKA

Background

The Marine Mammal Protection Act of 1972 placed a moratorium on the harvesting of sea otters. The State of Alaska has carried out a programme of live capture and translocation to repopulate former habitats. Mortality during these procedures was high and their success variable. The sea otter population is now estimated to be in excess of 100,000 individuals and to be near carrying capacity in several areas.

Proposed Moratorium

The State of Alaska wishes to regain management authority of sea otters (vs. Federal control under the Act) and other species of marine mammals. It has requested authority to cull up to 3,000 sea otters annually, about 3% of the estimated population. However, the State does not plan to begin culling in the immediate future and has not developed specific plans for culling. Culling would be carried out in areas where transplanting activities are impossible and only in areas where the sea otter population, as determined by the State, is above carrying capacity. It should be noted that sea otters have been protected since 1911, but have not repopulated all of their historic range in Alaska. Range expansion is slow and is probably stimulated by intraspecific competition for food and space when populations reach high density. Range expansion will be slower if culling is allowed in populations near the present limits of the range.

Otter Group's Opinion

The IUCN-SSC Otter Specialist Group supports the State of Alaska's proposal to waive the existing moratorium on the understanding that: a) culling will take place only in areas where populations are near carrying capacity, relocation is impractical and the population is unlikely to be contributing to range expansion; b) research is designed to carefully monitor population effects of culling; c) prior to culling, specific plans as to procedures for taking and numbers to be taken in specific localities be available for public review.

CALIFORNIA

Background

Although the sea otter has made a remarkable comeback in California (the population was estimated near 1,800 in 1976 and its range now extends nearly 180 miles along the coast from Avila to Santa Cruz), it is far below the estimated pre-fur trading level of 16,000. The density is substantially lower than that found in Alaska, possibly because of human competition for primary food items such as abalone and crab; some abalone stocks are apparently being over-utilized by humans. The number of skin divers increased 436% from 1960 to 1972. The yearly sea otter population increase has been about 5% in California, which is lower than the rate estimated for Alaska. Successive losses or a catastrophic loss to the California population would require a long time to overcome; for example, if the population is reduced by 50% it would require 15 years of normal growth to replace the loss.

Proposals

The State of California wishes to retain management authority to conduct further research on sea otter population dynamics, behavior, ecology, pathology and biology. It wishes to protect shell fisheries by restricting the sea otter population within a given segment of the coastline until secondary effects of foraging activities are documented. It proposes to translocate, capture and cull excess otters south of Avila and north of Miramontes Point. Once the secondary effects of sea otter foraging have been determined, future management procedures will be set.

Otter Group's Opinion

The IUCN-SSC Otter Specialist Group feels that the proposal of the State of California to restrict the sea otter population is not a satisfactory solution to the existing problem. We support the present threatened status of sea otters in California and consider there is a need to reestablish sea otters in additional areas of their historical range, some distance from the present range, to reduce the impact of a potential catastrophic loss from a major oil spill. Reestablishing a viable population by translocation is a slow process. The specific methods of capture and transport, locations of capture and release, and numbers and composition of sea otters taken, are complex issues and need be considered in more detail before a translocation is implemented. Although

translocation have been successful in one area it is likely that more than 50% of the sea otters translocated will disperse soon after release and some may die. To establish one reproducing colony containing about 100 otters will likely require translocation of 100 animals (more than the net annual increase of the present population) for each of three or more successive years. In summary the Group feels that restriction of the sea otter population is unwarranted until: a) one or more additional populations have become established some distance from the present range; b) the role of the sea otter in its coastal community is better understood.

BIOLOGY OF THE TWO OTTER SPECIES IN SOUTH AFRICA

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No detailed studies of South African otters had been made, and very little information existed on their status, ecology, and behaviour. As questions were often raised concerning the effects of otter predation on sport fish and waterfowl, it was decided to study the two species, with particular emphasis on their food habits, so as to provide information likely to be useful for the management of prey populations, and relative to the conservation and management of the predators themselves.

Field data were collected in the province of Natal over a three-year period, and observations were also made on a captive clawless otter (Aonyx capensis) at Queen Elizabeth Park and a spotted-necked otter (Lutra maculicollis) in a zoo.

The clawless otter is the larger of the two (head and body c 950 mm., mass 12-18 kg). Its feet are not webbed, and the digits are clawless. The spotted-necked otter is smaller (head and body 600 mm, mass 4-5 kg). The toes are webbed and each digit possesses a claw.

Distribution

The clawless otter occurs over almost the whole of South Africa where there are permanent streams and rivers, while the spotted-necked otter is confined to the eastern half of the country. Detailed study in Natal revealed that clawless otters occur mainly in the higher rainfall regions in the western and southern portions, being rare elsewhere, and absent from the north-eastern portion of the province. The spotted-necked otter is confined almost entirely to the western highland regions, and rare or absent elsewhere.

General Habits

Clawless otters are active mainly during the late afternoon and early evening, and occasionally early morning. Spotted-necked otters appear to be entirely diurnal, with peaks in activity during the early morning and late afternoon.

Neither of the otters is adept at terrestrial locomotion. On land they either walk slowly or employ an awkward-looking seal-like trot. When swimming the clawless otter uses its hind-legs for propulsion and the tail as a rudder, progressing by long underwater dives, or with the head above water. The spotted-necked otter progresses by a series of dives, about 5 m at a time, surfacing only momentarily to loop and dive again. The web-footed spotted-necked otter appears to be the faster swimmer. Although both species travel mainly in water, they do also move on land, usually to get from one aquatic habitat to another. The animals appear to keep land travel to a minimum however, and regular runs are formed, representing the shortest distance between one aquatic habitat and another.

Shelter is taken in holes in the ground and under rocks, under roots of trees, or in dense vegetation on islands. In sandy alluvial soil the clawless otter appears to dig its own burrows which are up to 2,8 m deep, and have one or two entrances above water level.

Both otters dry and groom themselves by rolling and rubbing against inanimate objects. Most of the rolling places which I noted were in grass, but sandbanks, earth ledges, and flat rocks are also used. At most rolling places regularly used latrines were also established.

The only vocalisations by clawless otters which I recorded were two whistles (one low-pitched and one high-pitched) and a grunt; and the only sounds which I heard spotted-necked otters make were a high-pitched whistle and a rapidly repeated chatter. It was not possible to establish the context in which any of these sounds were made.

Young otters indulge in play-fighting and romping, but in both species manipulative games are most common. These take the form of picking up an object, juggling with it (by clawless otter), or tossing the object into the water and attempting to retrieve it before it reaches the bottom (by spotted-necked otter).

No detailed information on otter reproduction was collected. Litter size in both species appears to be between one and three. In clawless otters family groups of two adults and two or three young were quite often recorded, and adults were also seen singly or in twos. Insufficient data on the social organisation of spotted-necked otters were collected to reveal any particular pattern.

Food and Food Finding

Food Habits in the Wild

The food habits of otters in the wild were studied by collecting and examining faeces (Rowe-Rowe, 1977a). Altogether 1,361 clawless otter and 294 spotted-necked otter droppings were examined, the results of which are summarised in Table 1.

Table 1. Relative percentages of food items found in otter faeces from trout and non-trout areas.

Food Item	Clawless Otter		Spotted-necked Otter	
	Trout area	Non-trout area	Trout area	Non-Trout area
Crab	69	62	39	30
Frog	22	21	20	27
Fish	3	8	38	25
Insect	2	4	2	5
Bird	1	1	1	10
Other	3	4	0	3

Seasonal variations were observed in the otters' diets. Both species took more crabs during summer than winter, and the incidence of fish was highest during winter. These variations are explained in terms of crabs retreating into inaccessible places during winter, and fishes' efficiency of locomotion being reduced in cold water. The incidence of frog was highest during late autumn and winter, and is explained in terms of reduced water levels in marshes, lakes, and backwaters, which were drying up, therefore making frog capture easier.

Fishes eaten by otters were identified from scales found in faeces. Their sizes were estimated from the lengths of cleithra, opercula and pre-opercula, and in some species age could be determined from scales. All of the fish remains in scats from the trout area were of trout. (No other fishes occur there.) In both otter species mainly small trout were eaten--88% and 95% of the fish remains found in clawless and spotted-necked otter faeces respectively were from trout under the legal minimum (200 mm).

In the non-trout area fishes identified from remains in clawless otter faeces (in order of abundance) were Micropterus

salmoides, Lepomis macrochirus, M. punctatus, Barbus anoplus, Anguilla sp., and Barbus natalensis. Fishes taken by spotted-necked otters were Micropterus salmoides, Barbus anoplus, and B. natalensis. With the exception of a few bass (Micropterus), all fish were under 200 mm.

Prey Capture and Feeding Behaviour

Numerous experiments were done with captive otters and various types of prey to observe the predators' pre-capture and feeding behaviour, and to test various hypotheses (Rowe-Rowe, 1977b and c). It was concluded that the clawless otter hunts by sight and feel, whereas the spotted-necked otter relies on sight only. The clawless otter grasps prey with the forefeet then bites, but the spotted-necked otter captures all prey with the mouth only. When transporting prey, the clawless otter holds it in one of its forefeet, and occasionally the mouth, whereas the spotted-necked otter carries prey in the mouth only. It was found that the effort required to capture a fish was proportional to the fishes' swimming ability, and that smaller fish were easier to capture than larger ones. Of the fish species used in tests, Clarias were most easily caught, followed by Lepomis macrochirus, Micropterus salmoides, Tilapia rendalli, Salmo spp., and Barbus natalensis.

Ecological Relationships with the Water Mongoose

The water mongoose (Atilax paludinosus) was present in both study areas. As this species also defecated at sites along river banks and impoundment shores, it was decided to collect its faeces to obtain information on ecological relationships with the two otter species.

Two hundred and ten droppings were examined. No differences in diet between the trout and non-trout areas were observed. Items recorded were crab 43%, mammal 14%, bird 14%, frog 14%, carrion 4%, insect 2%, fish 2%, plant 2%, and reptile 1%.

Although there was from 58-66% food overlap between the water mongoose and the otters, there appeared to be little competition for major food types. The two otter species utilise streams, ponds, and lakes almost exclusively, seldom venturing far from water. Co-existence of the two otters is due to one being particularly well-adapted for the capture of crabs and the other being more successful at fish capture. The water mongoose is more terrestrial in its habits. The exploitation of streams and ponds is limited to the shores, the animal seldom venturing into water more than a few centimetres deep. A wider range of habitat types is

exploited by the water mongoose, however, including marshes, very small water bodies, and temporary stagnant water. The two otters emerge as specialised species, occupying restricted niches, whereas the water mongoose is less specialised and occupies a much wider niche.

Conclusions

Neither of the two otter species is endangered in South Africa, but they are rare mainly because of the restricted niches which they occupy. A limiting factor is fairly clear, unpolluted water. Heavily silted or polluted streams would have obvious disastrous effects on crabs and fishes.

Otter predation on waterfowl is negligible. In both study areas fish formed only a minor component in the diet of the clawless otter. Although fish was a major item in the rarer spotted-necked otter's diet, mainly small specimens were taken. Furthermore, trout waters of South Africa tend to be overstocked with this introduced fish, so if anything the spotted-necked otter serves as a complement to fisheries management.

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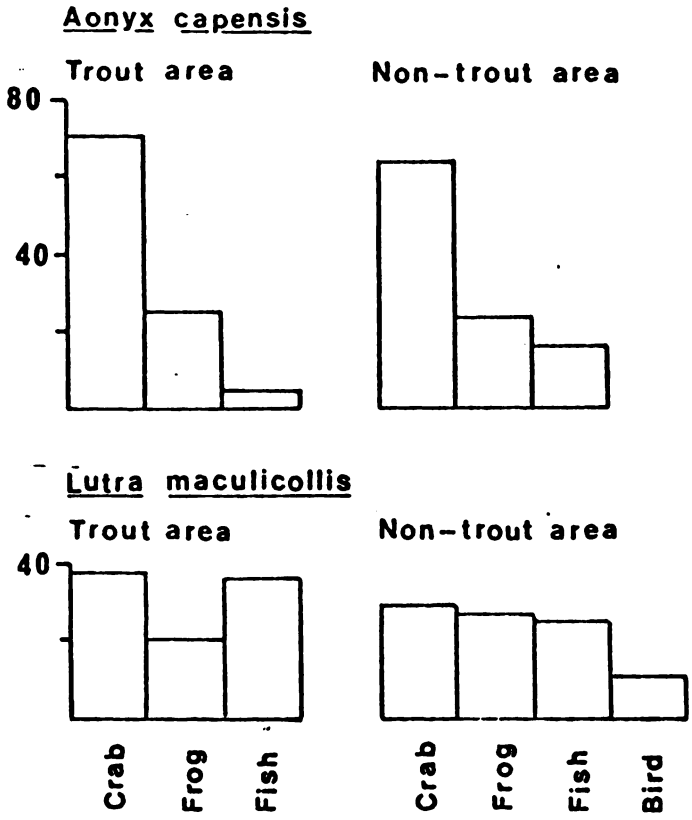


Figure 1. Comparison of the relative percentages of major food items in the diets of two otter species in trout and non-trout areas.

TABLE 1. Summary of items recorded in 88 Aonyx capensis scats collected from a trout dam in Natal during two consecutive winters (1972 and 1973).

Item	Occurrence		
	Actual	Per cent	Relative per cent
Crab	88	100	51
Frog	74	84	43
Fish	4	5	2
Insect	3	3	2
Mollusc	1	1	1
Unidentified	3	3	2
Plant	1	1	
Soil	1	1	

TABLE 2. Summary of items recorded in 863 Aonyx capensis scats collected from a trout stream in Natal over a two-year period.

Item	Occurrence		
	Actual	Per cent	Relative per cent
Crab	842	98	69
Frog	272	32	22
Fish	34	4	3
Insect	22	3	2
Bird	19	2	2
Reptile	6	trace	trace
Mammal	4	trace	trace
Mollusc	2	trace	trace
Dung	11	1	1
Unidentified	7	trace	1
Plant	4	trace	
Soil	13	2	
Other non-food	10	1	

TABLE 3. Summary of items recorded in 410 Aonyx capensis scats collected from a non-trout area of Natal over a three-year period.

Item	Occurrence		
	Actual	Per cent	Relative per cent
Crab	395	96	62
Frog	131	32	21
Fish	51	12	8
Insect	25	6	4
Bird	8	2	1
Reptile	7	1	1
Mollusc	1	trace	trace
Dung	20	5	3
Unidentified	3	1	trace
Non-food	5	1	

TABLE 4. Summary of items recorded in 66 Lutra maculicollis scats collected from a non-trout area of Natal over a two-year period.

Item	Occurrence		
	Actual	Per cent	Relative per cent
Crab	33	50	30
Frog	30	45	27
Fish	28	42	25
Bird	11	17	10
Insect	6	9	5
Unidentified	3	5	3
Non-food	3	5	

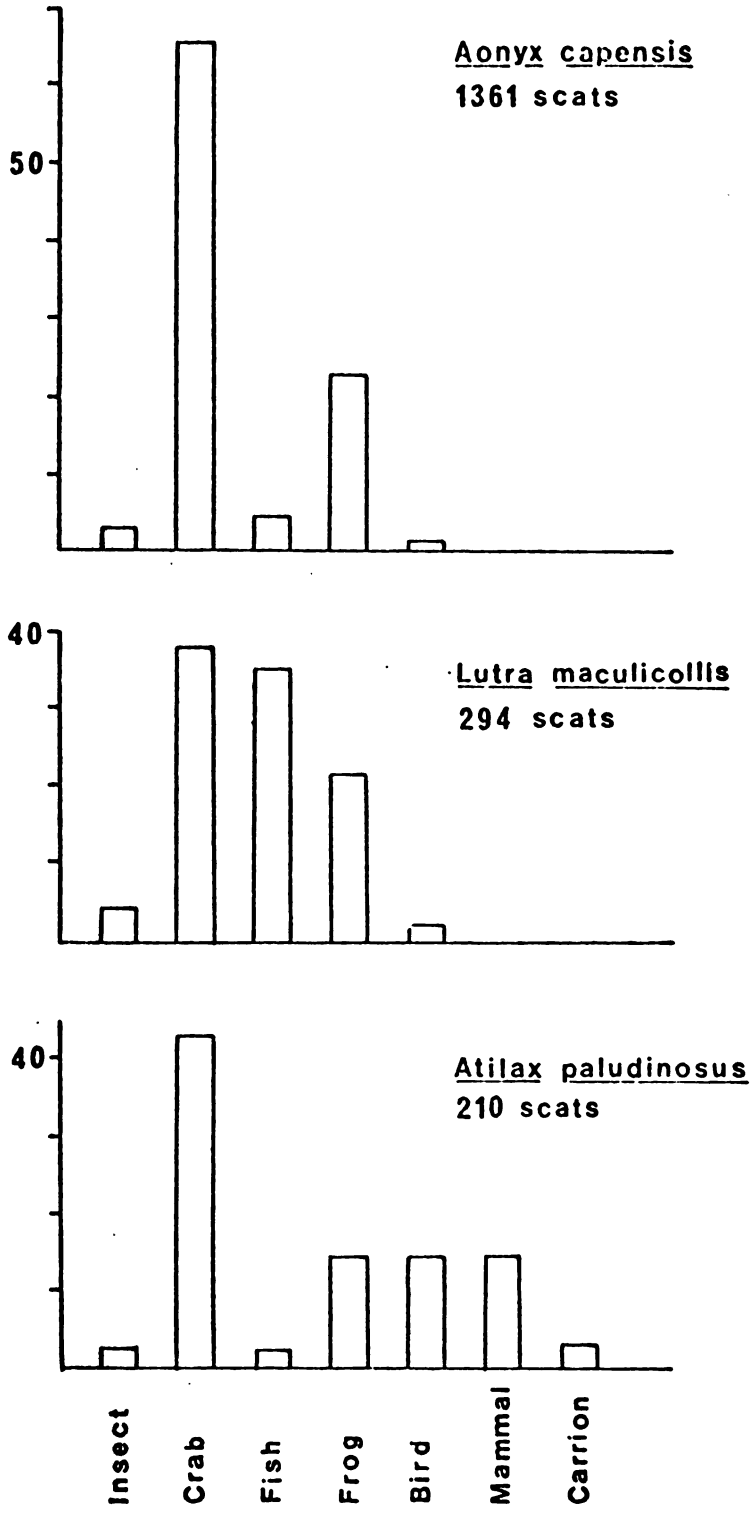
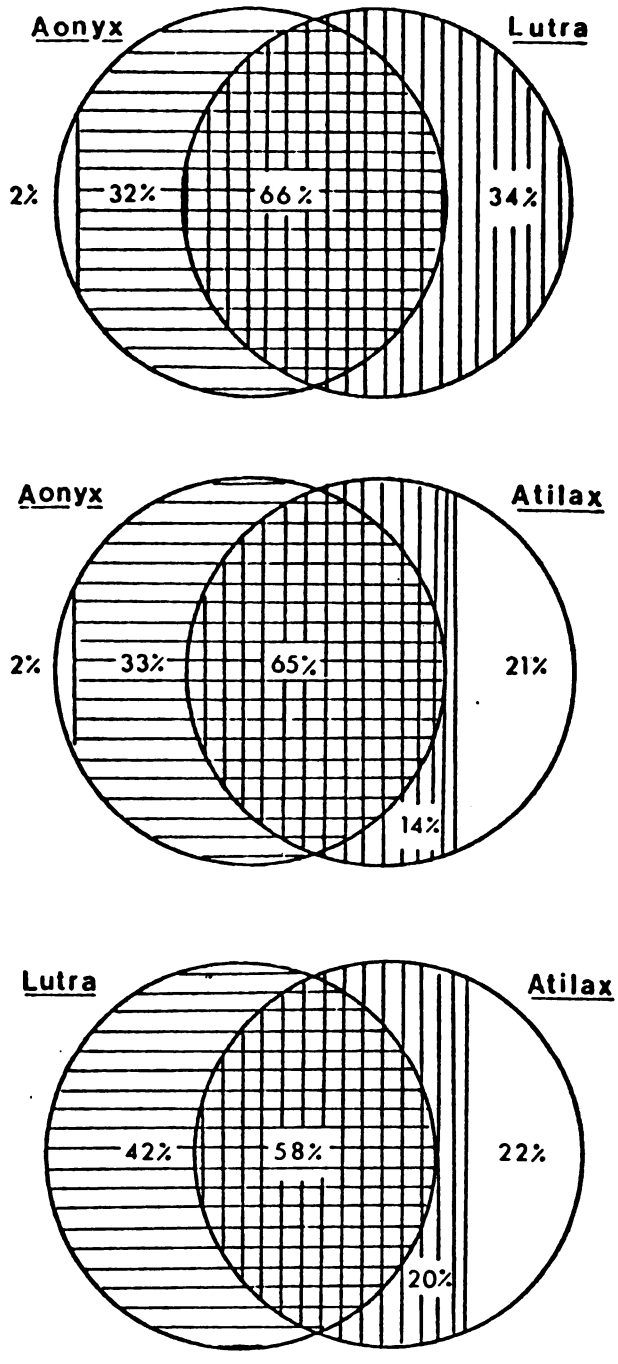


Figure 2. Relative percentages of the food of two otter species and the water mongoose in Natal.



shared food taken predominantly by one of the predators

shared food taken predominantly by the other predator

food overlap

exclusive food

Figure 3. Food relations of two otter species and the water mongoose in Natal.

INFORME SOBRE LA SITUACION DE LA NUTRIA (LUTRA LUTRA) EN ESPAÑA

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Cuando en el año 1966, presenté mi tesis doctoral sobre la familia mustelidae, pude elaborar casi exhaustivamente un mapa sobre la distribución de la nutria en España.

Para elaborarlo, hice una encuestra a todos los ayuntamientos españoles sobre la distribución del mustelido en España. Se recibieron un 80% de contestaciones. En dicho cuestionario se solicitaban los nombres de aquellas personas que habitual o esporádicamente se dedicaban a la captura de nutrias. Los llamados "alimañeros". Salieron unos 200 en toda España, a los que visité personalmente y obtuve de ellos datos valiosísimos de campo. De aquellas zonas en las que había una notable discrepancia entre los encuestados, las visitaba personalmente e intentaba aclarar la situatión de la nutria.

De este trabajo, que fué parte de mi tesis doctoral, podemos sacar el mapa de distribución geográfica de la nutria en España en 1966 (Ver mapa A).

En 1976, únicamente diez años después y habiendo consultado de nuevo a esas 200 personas de campo distribuídas por toda España y con los datos obtenidos por mi personalmente, la distribucion de la nutria es como sigue: (Ver mapa B).

Cuales han sido las causas de esta drástica disminución?

1) La contaminación de los ríos. Concretamente la nutria se puede decir que ha desaparecido de las provincias vascas debido a la contaminación de los ríos por las industrias papeleras, azucareras...

2) La persecución excesiva de que fué objeto desde 1960 a 1970 por parte de los guardas de cotos de pesca y de las piscifactorias.

3) El gran valor de su piel (se pagaba entonces a más de 1.000 ptas) hizo que fuera muy buscada por los alimañeros y campesinos que llenaros los ríos y arroyos de cepos para nutrias.

Situacion Actual y Futuro

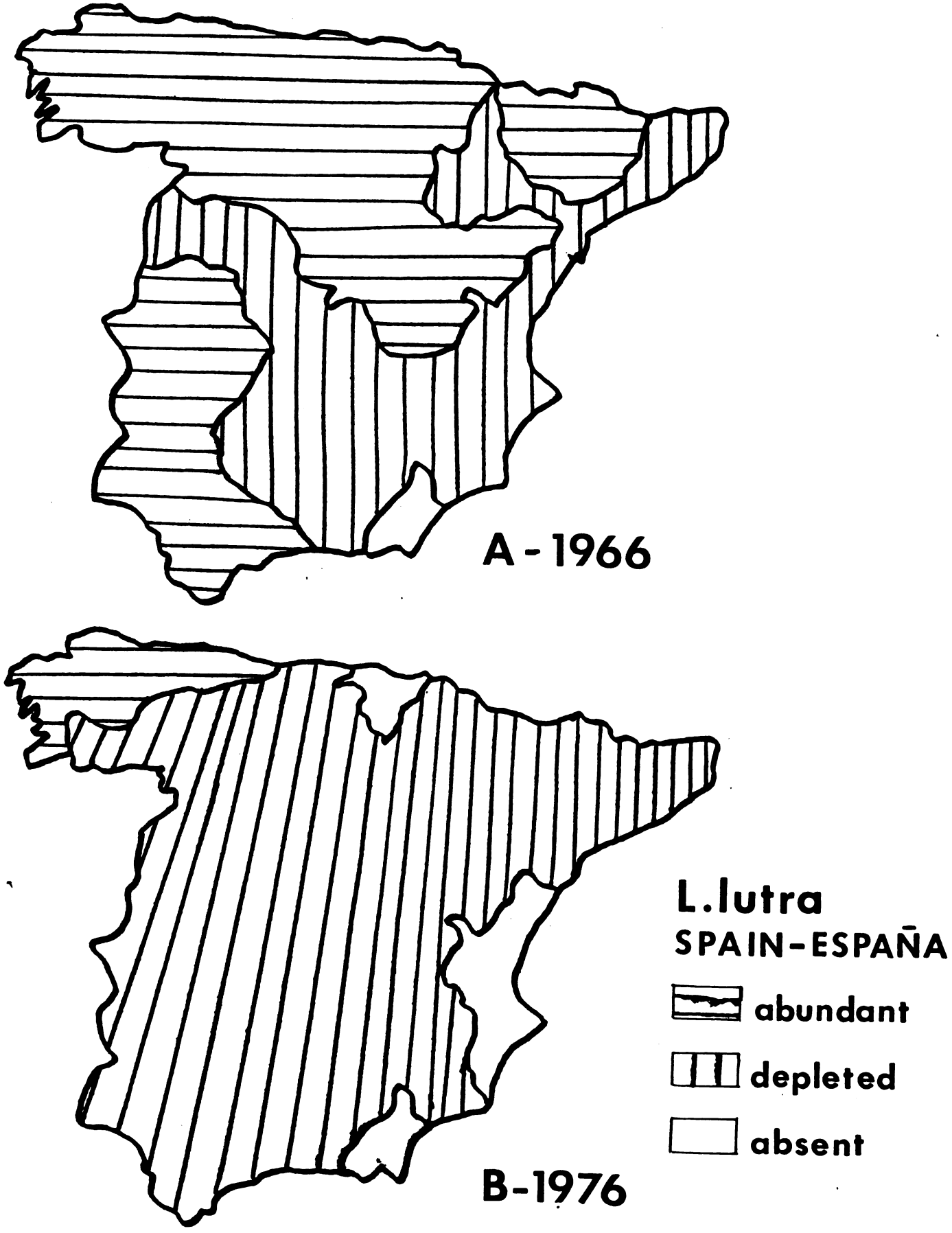
Lo más positivo es que por decreto ley de 5 de Obtubre de 1973 la nutria, junto con otras 55 especies, ha sido declarada como especie protegida en todo el territorio nacional, prohibiéndose su captura, comercialización y tráfico de ejemplares vivos o de sus pieles. De esta manera, la nutria desde hace cuatro años, está legalmente protegida.

Por otro lado, al disminuir el valor de su piel (ahora no se paga a más de 500 ptas) no es tan perseguida como antiguamente y de hecho el número de alimañeros, se ha reducido notablemente en España.

El problema más acuciante es de nuevo la contaminación de los cursos fluviales ya que en la actualidad y a pesar de las fuertes sanciones a las industrias contaminantes, el índice de contaminación de las aguas continentales españolas, está alcanzando cotas muy peligrosas para la supervivencia de las especies animales en ellas.

De todo esto, concluimos que el mapa B presentado dá una idea muy clara de la situación actual de la nutria y que en los próximos cinco años, se prevee una estabilización de las poblaciones ya que la compensación de su legal protección quedará equilibrada por la contaminación de nuevos cursos fluviales.

La región noroccidental española con ríos rápidos y muy trucheros sigue siendo el núcleo más importante de nutrias que hay en nuestro país y creemos que en los próximos cinco años estas poblaciones seguirán contando con un gran número de individuos.



THE STATUS OF THE OTTER POPULATION IN SWEDEN

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There are two features of the otter's ecology which are important for the understanding of the situation of several otter species today.

First: The otters are top consumers. This means that the number of otters in an area is always low. It also means that waters with high productivity will carry more otters than those with low productivity or oligothropic waters.

Second: Otters have the characteristics of K-selected species, i.e., they have a well-developed competitive ability. In undisturbed environments they may maintain a stable population size, probably due to regulation by social behavior. On the other hand, otters might be seriously affected by changes in their environment. Their reproduction rate is low, they cannot stand hard exploitation and their capacity to re-colonize is comparatively small.

Population Trend in Sweden

The number of killed otters according to game records indicates a marked decrease of the population since 1950 (Fig. 1). A survey, which was carried out in 1966-67, confirmed that a considerable number of habitats, previously occupied by otters, were no longer in use. The otter had become sparse in most parts of Sweden. High densities were reported only from some restricted areas.

The Causes of the Decrease

a) Destruction of Habitat

The position of the otter population in some polluted water systems was examined (Fig. 2). Along one river system (Eman) otters occurred at all the tributaries above the paper mills. The density was moderate to low. Below the paper mills no tracks of otter were observed. So the absence of otters was closely correlated

to water pollution. Several waters in Sweden are highly polluted and industrial pollution has probably been an important cause to the decrease of the otter population.

b) Shooting and Killing Otters in Fish Traps

The majority of water habitats in Sweden, however, are fairly unpolluted and are probably suitable for the otter. The absence of otters in such habitats is evidently due to some other factors than habitat destruction.

The effect of hunting was examined in one district in Sweden, where the otter population decreased drastically over a short period (Fig. 3 and 4). It was found that the losses, due to hunting, exceeded a calculated number added to the population through reproduction. In a few years the numbers were reduced to such a low density that reproduction ceased.

Habitat destruction and over-exploitation probably have worked together. Destruction of habitats, which have occurred in many ways for a long time, has caused a discontinuous distribution of the otter population. The more or less isolated populations were highly vulnerable to human predation and reproduction might also have been difficult.

c) Influence of the Mink

The decrease of the otter population has occurred simultaneously with a rapid increase of the mink population in Sweden. The two mustelids occur in the same habitats, and some people claim that the decrease of the otter is caused by the mink due to interference (minks are said to kill otter cubs) and food competition. Otter and mink relationships were examined in an area where both were well-established. The data obtained showed that otter and milk will co-exist, and that the otter maintain high density in favourable habitats. Food competition occurs in winter, when most waters freeze up in Sweden. In low-grade otter habitats the mink probably has some negative influence on the number of otters. However, the mink has probably not been a major cause of the decrease of the otter population in Sweden. According to the game records, the otter population started to decrease some years before the rapid increase of the mink population. The thinning out of the otter population due to human over-exploitation probably made it easier for the mink to colonize the country.

The Future Development of the Otter Population in Sweden

In 1968 the otter was protected throughout Sweden apart from fish-rearing ponds. Nowadays the protection is extended to also include these places. In water systems, suitable to the otter, an increase of the population would be expected, if the population had not been depleted too heavily. Available information from some reference areas also indicates that the otter population is recovering.

FIG.1 NUMBER OF OTTERS KILLED DURING THE HUNTING SEASONS 1938/39-1968/69, ACCORDING TO THE GAME RECORDS OF THE SWEDISH SPORTSMEN'S ASSOCIATION. THE ROMAN NUMERALS DENOTE PROTECTION IN VARIOUS DISTRICTS OF SWEDEN. SINCE 1968 THE OTTER IS PROTECTED THROUGHOUT THE COUNTRY.

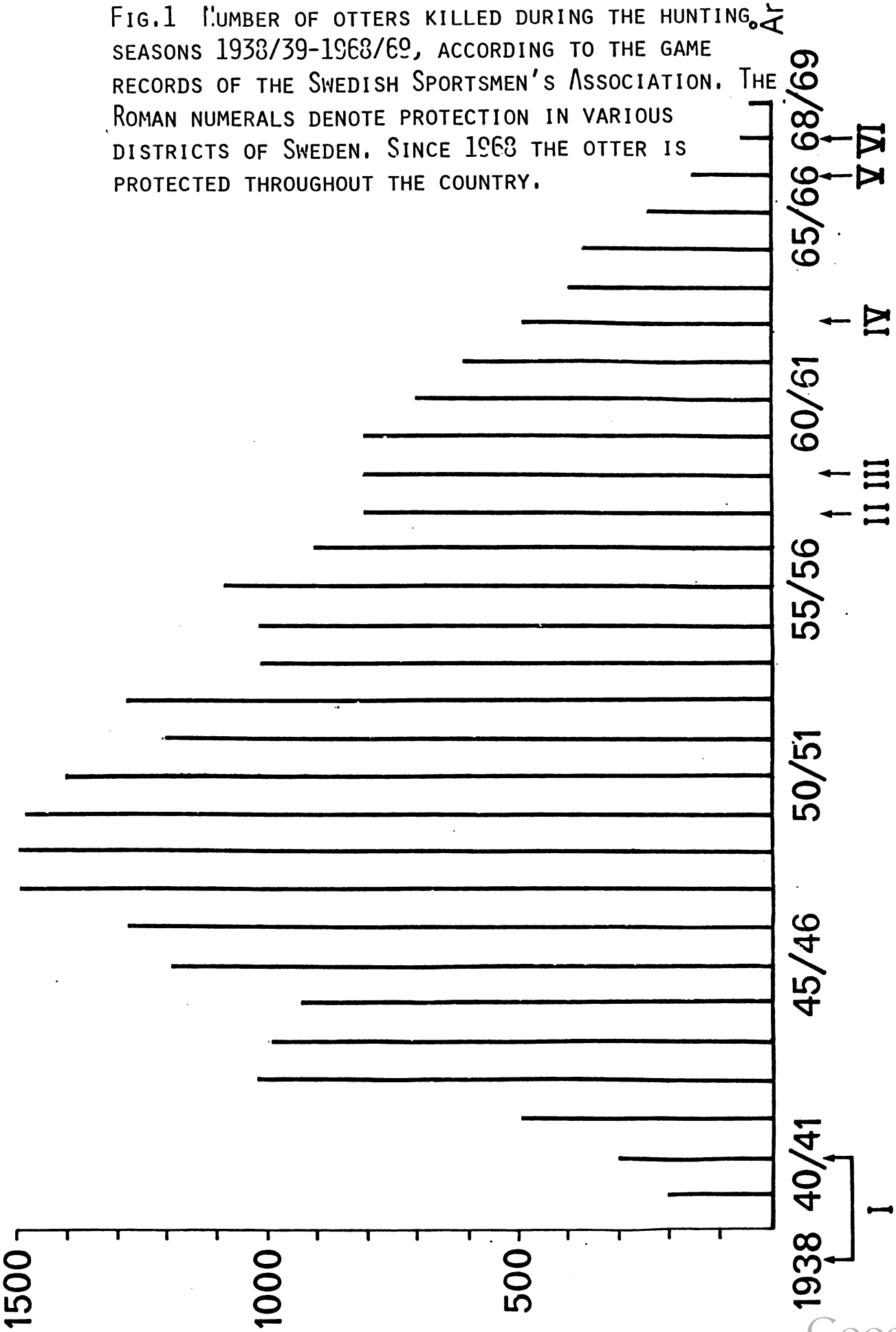


FIG. 2 DISTRIBUTION OF OTTERS ALONG THE RIVER EMÅN IN WINTER AND EARLY SPRING 1970. THE SYMBOLS DENOTE OCCURRENCE OF OTTER (FILLED CIRCLE), ABSENCE OF OTTER (OPEN CIRCLE) AND EMISSION OF WASTE WATER (CROSS SIGN).

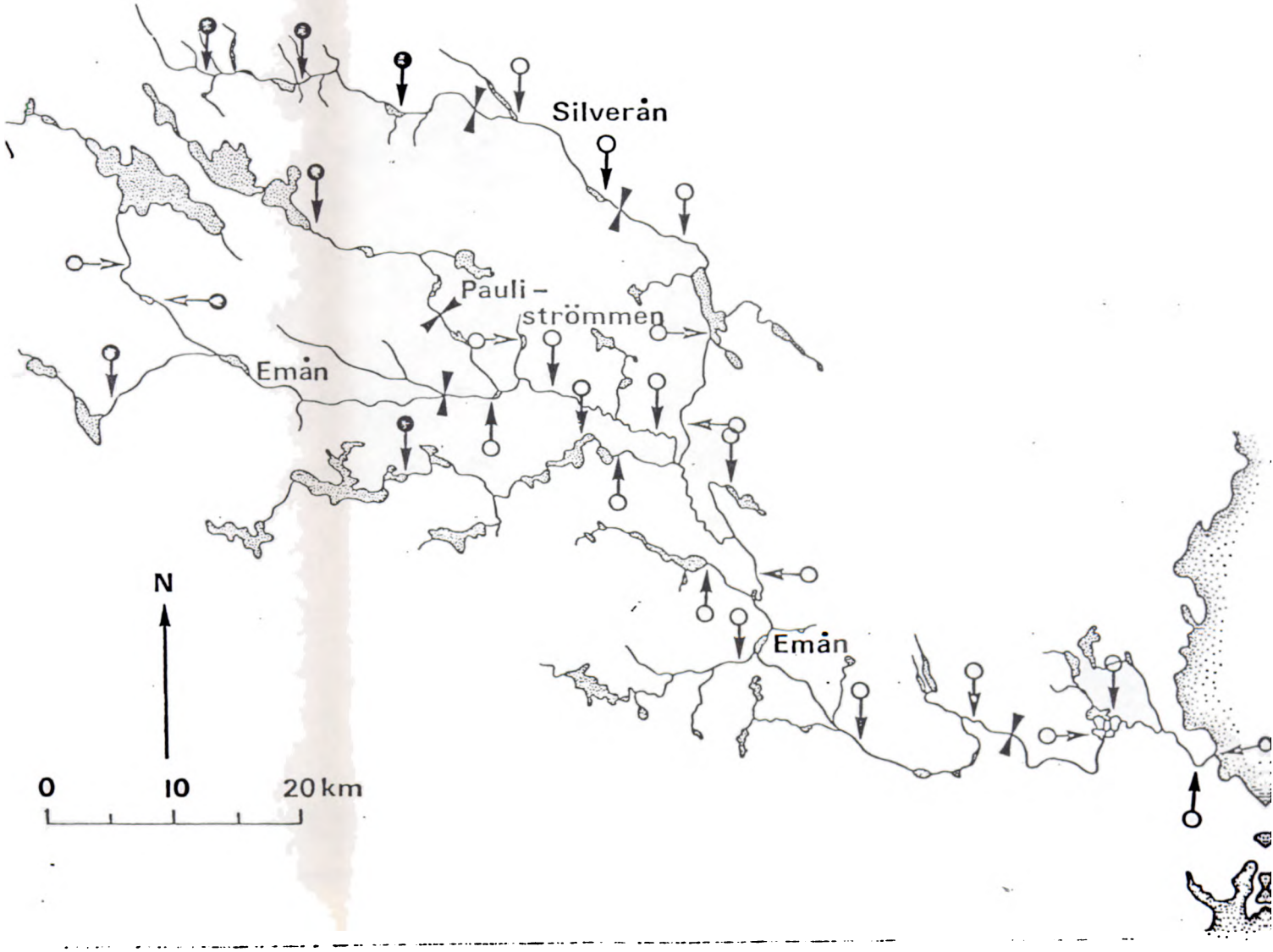


FIG. 3 OCCURRENCE OF OTTERS IN SKÅNE SOUTHERN SWEEN IN 1960. EACH FILLED CIRCLE WITH AN ARROW DENOTES THE OCCURRENCE OF REPRODUCING OTTERS (A FEMALE WITH CUBS).

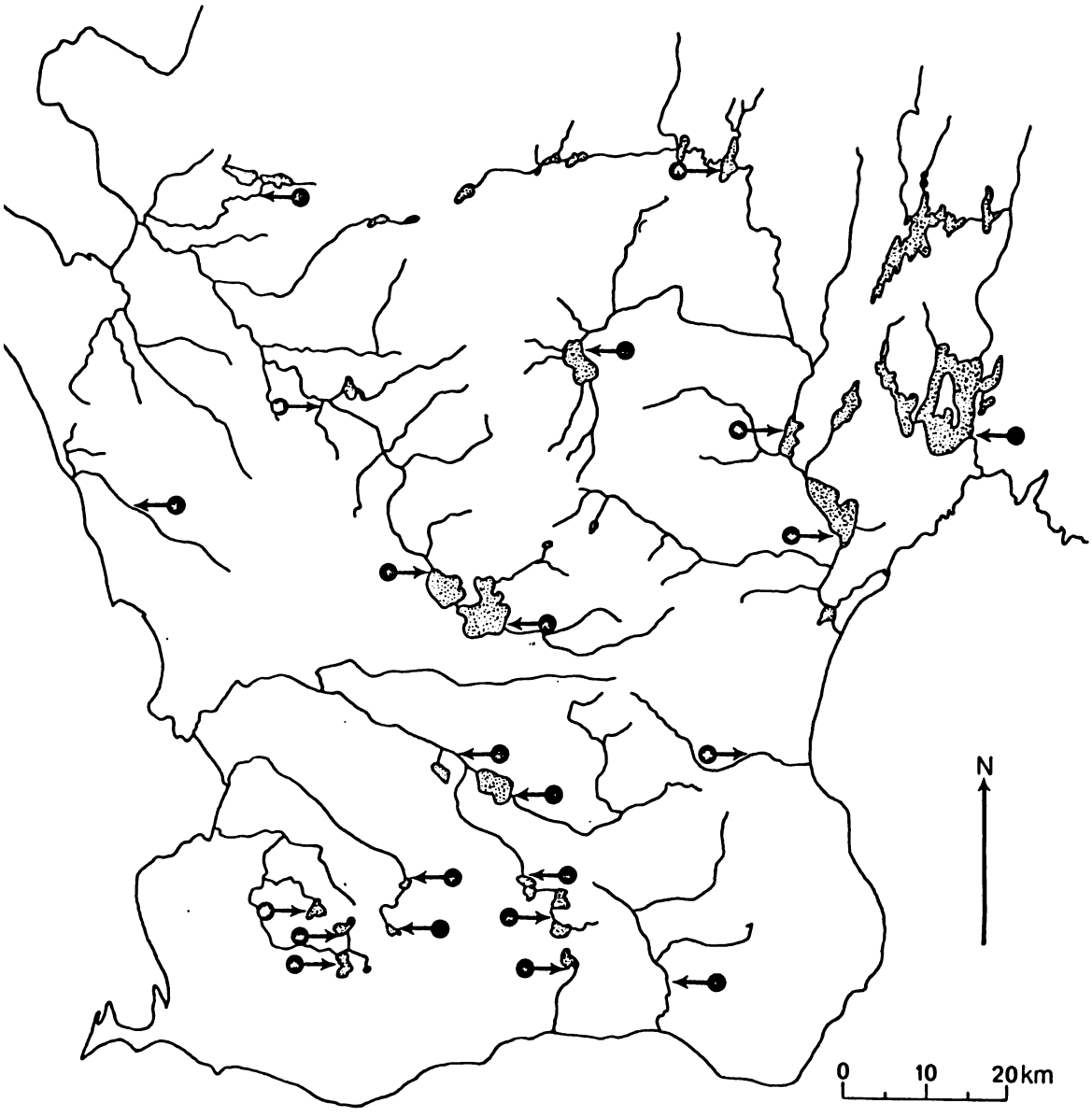
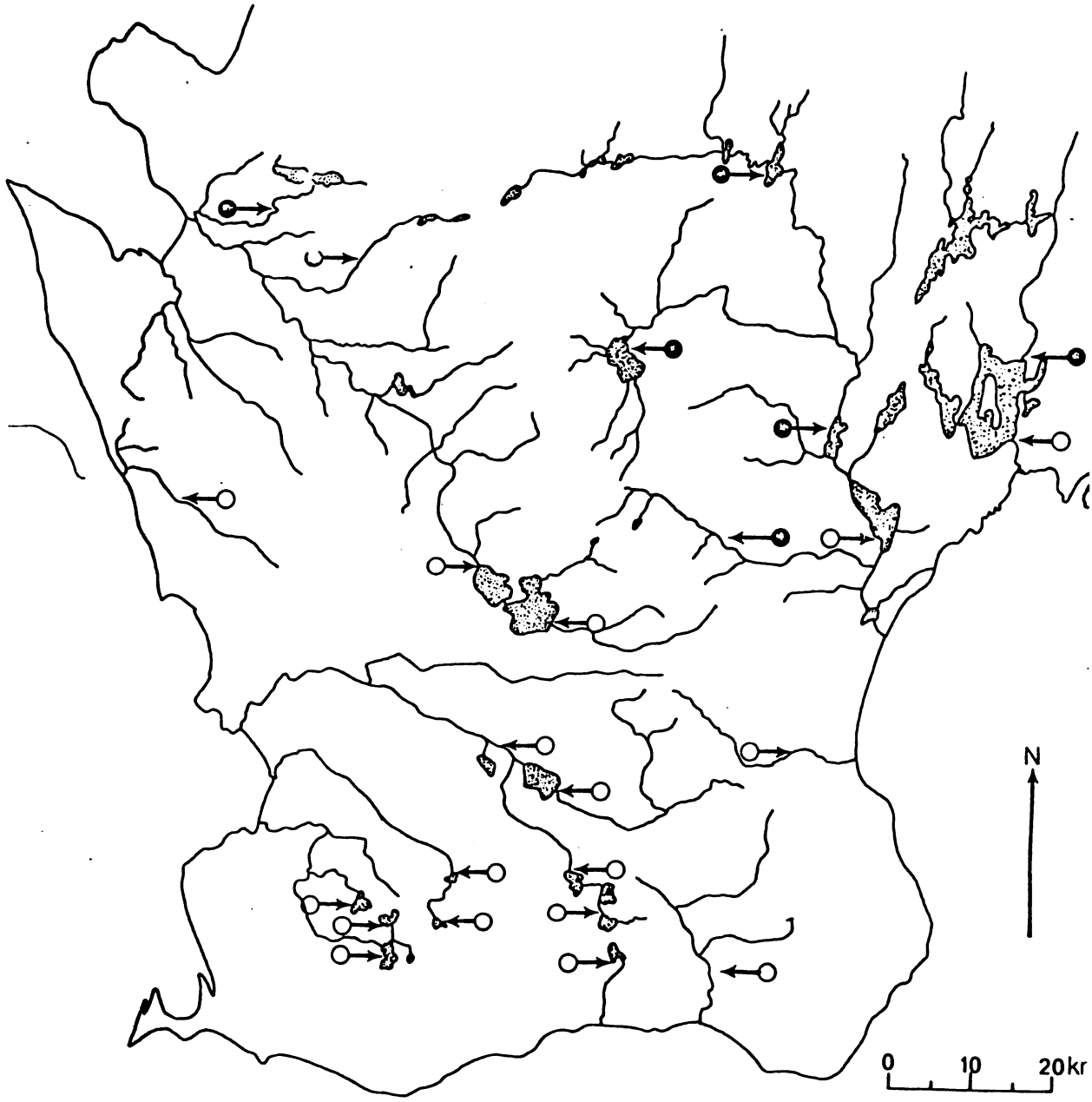


FIG. 4 OCCURRENCE OF OTTERS IN SKÅNE SOUTHERN SWEDEN IN 1971-72. FILLED CIRCLE DENOTES OCCURRENCE OF OTTER. OPEN CIRCLE DENOTES AN EXAMINED AREA WITHOUT SIGNS OF OTTER.



THE STATUS OF OTTERS IN MALAYSIA, SRI LANKA AND ITALY

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Otters in West Malaysia

The author and his wife spent a period of six weeks from 7 February to 20 March 1974 studying the otters of the Malay Peninsula and visits were made both to localities on the east and west coast as well as to the interior. The following observations were made on three species of otter occurring in the Peninsula.

Lutrogale

The Indian Smooth-coated Otter (Lutrogale perspicillata) proved common wherever there was suitable habitat, both on the coast and inland. It requires undisturbed forest, scrub or mangrove swamp in the immediate vicinity of the water and is confined either to the coast or to large river systems. It does not occur in the small streams, paddy fields and irrigation canals of the lowlands, which are favoured by the smaller Asian Short-clawed Otter. Many of these streams dry up during the hot season or at best remain with a trickle of water. The short-clawed Otter (Amblonyx cinerea)is able to survive as long as some water remains and it can hide in the surrounding vegetation. On the other hand, the Smooth-coated Otter requires deeper water and fish of larger size for its quarry as well as a far more extensive territory. Both species are social and hunt in family groups. Sometimes one or more families may join forces and hunt for a time as a single, large gathering. The family group probably remains together until the adults are ready to breed again, when they leave and establish their breeding territory. In both species the males appear to play an important part in helping to rear the young. Not only do males collect bedding material for the breeding holt, but they also take food to the young. In this behavior both species are quite different from those of the genus Lutra.

A pair of Smooth-coated Otters probably requires in the region of 7 to 12 km of river for its territory and an even longer stretch of coastline if living along the shore. The latter also appear to need fresh water in the form of streams or lagoons adjoining their salt-water territory.

The Smooth-coated Otter is a powerful burrower and able to dig out its own breeding den, while the Short-clawed Otter has very limited burrowing ability and probably uses natural burrows or holes amongst rocks for its breeding holt. As its small size would suggest, it appears to occupy a more restricted area of territory than the Smooth-coated.

The Smooth-coated with its large webbed feet is a much more powerful swimmer than the Short-clawed and lives mainly on fish from 5-30 cm in length while crabs form an important diet of those living along the seashore. The Short-clawed Otter appears to live chiefly on small fish, including gouramis, cat fish and barbs as well as small thin-shelled freshwater mussels, periwinkles and other molluscs, with small crabs about the size of a 10p piece and frogs as additional items of its diet. Its extremely sensitive finger-like front digits are well-adapted for finding and digging out small molluscs in muddy water.

Amblonyx

Like the Smooth-coated Otter, the Short-clawed appears to be relatively abundant wherever there is suitable habitat of small streams, swamps, and paddy fields with plenty of cover available.

Although a few otter cubs of both species are taken as pets which usually perish fairly soon, neither species appears to be in any way threatened in the Malay Peninsula at the present time. So far destruction of habitat and pollution have not had a markedly damaging effect as they have in other parts of the world and apart from poisonous snakes, the otters appear to have few other natural predators.

Lutra sumatrana

The Hairy-nosed Otter (Lutra sumatrana) was not seen and appears to inhabit mountain streams above 300 metres altitude.

Lutra l. nair in Sri Lanka

This race of the Eurasian Otter Lutra lutra occurs in Southern Indian and Cetlon up to 7000 feet. There is little information about it in the literature on otters and hitherto no ecological studies appear to have been carried out.

We visited Sri Lanka from 12 February to 7 March 1975 during which time we carried out a thorough survey of the present status of this otter. In addition to spending some days in the National Parks of Wilpattu and Yala, we traveled extensively about the country and into the hills. From our observations it became clear that the Ceylon Otter occurs from sea level up to at least 6000 feet and is quite widely distributed wherever there are suitable streams and paddy fields. Its breeding habits appear to be similar to those of the nominate race and, like it, the Ceylon Otter seems to prefer to dig out its holt in the bank of a stream or lake under cover of vegetation. Like all otters it appears to shun streams and lakes which have banks devoid of cover.

Small freshwater crabs appear to form a very important item in this otter's diet and crab remains were present in all the spraint samples collected both from paddy fields at or near sea level and in mountain streams and pools at 6000 feet altitude.

The Ceylon Otter appears to suffer little from human predation or disturbance and so long as suitable habitat remains, it does not appear to be threatened. However, if it became the practice to use poisonous herbicides or pesticides in the paddy fields with resultant pollution of the streams and irrigation channels, then both the otter and other forms of aquatic life living in those waters would become seriously endangered. At present the numbers and distribution of this otter in Sri Lanka appear to give no cause for immediate concern so long as sufficient undisturbed habitat remains available.

Lutra l. lutra in Italy

We were invited to visit Italy during the summer of 1975 by Dr. Fabio Cassola on behalf of the Italian National Appeal of the World Wildlife Fund. The purpose of the visit was to examine key areas including the Abruzzo National Park with a view to establishing the present status of the otter and to consider ways and means for improving the conservation of this animal.

Three areas were visited and examined for signs of the presence of otters. They were the Sangro River in the Abruzzo National Park, the Reserve at Ninfa and the Lake Burano Reserve. Otters were present in all three areas and it seemed probable that each Reserve already held

the largest population of otters that it could support. Furthermore, none of the Reserves had suitable habitat adjacent to it which could absorb a surplus population. Unless there are other areas like the Lake Burano Reserve, the total number of otters alive in Italy today must be at a critically low level, probably less than 20 or 30 animals in all. It seems clear that unless more and larger reserves can be created at once, the otter in Italy is doomed to early extinction. The small populations hanging on in the Reserves mentioned above must finally die out from continual in-breeding and the lack of a reservoir of young animals ready to move into the Reserve from outside to take over territory which becomes available when the resident animals die.

RECOMMENDATIONS OF THE OTTER SPECIALIST GROUP TO THE I.U.C.N. SURVIVAL SERVICE COMMISSION ARISING FROM ITS FIRST WORKING MEETING, PARAMARIBO, SURINAME, 27-29 MARCH 1977

Statement

The otters of the world have experienced a drastic decline in numbers over the past two decades at a time when little was known of their biology. Recent ecological studies of the European otter L. I. Lutra and the sea otter Enhydra lutris have shown that the needs for otter protection transcend protecting otters for their own sakes. Otters are predators at the top of the food chain whose removal from aquatic ecosystems is detrimental.

Otters have also been found to be reliable indicators of pollution in aquatic ecosystems and their presence or absence can be used to assess man's impact on these environments. No species of otter is known to experience population explosions if their numbers are left unchecked.

The critical status of otters in South America and Western Europe is documented. The status of otters in Asia and Africa is not well known, and urgently needs to be studied before they reach a critically low state, if they have not already done so. The Group has established an initial list of priorities for otter species already known to be endangered. They are, in order of priority: the Giant otter Pteronura brasiliensis, the marine otter Lutra felina, the southern river otter Lutra provocax, the La Plata otter Lutra platensis and the European otter Lutra lutra lutra.

Recommendations

1) Whereas we recognize a continuing commercial demand for otter pelts which directly threatens remaining populations, including the more isolated ones in areas in which law enforcement is difficult, we recommend that the S.S.C. put pressure on major consumer countries which are currently Germany, France, Italy, Great Britain and Japan to curtail the importation of otter pelts and finished products. The Group proposes to maintain a close contact with the S.S.C. TRAFFIC Group over matters dealing with commercial exploitation of otters.

Whereas the Group recognizes that the skins of many otter species can not be identified with certainty unless they

are examined in their entirety, we recommend that the current commercial practise of removing the skin of the head prior to export be prohibited. The Group agrees to undertake providing an illustrated identification key to the otters.

2) Whereas we understand that a number of South American and African countries have signed the Convention but have not yet ratified it, we recommend that the Commission urge Venezuela, Colombia and Argentina to do so. The Group congratulates Brazil, Chile, Costa Rica, Ecuador, Paraguay, Uruguay, and Peru, and Mauritania, Nigeria, Niger, South Africa, Zaire, Tunisia, and Ghana for ratifying the Convention.

3) Whereas the Group recognizes that four of the seven Latin American otter species are in the gravest danger of extinction, we urge the Commission to write to the heads of state of all Latin American countries apprising them of the status of their otters and reminding them of their ultimate responsibility for the protection of their otter species.

4) Whereas the Group recognizes the economic necessity of impounding water for hydroelectric use, it deplores the attendant drastic alteration of riverine habitat, and it wishes to draw the Commission's attention to four existing dam projects on the Parana and Uruguay Rivers: (1) the Itaipu project near the Paraguay-Brazil border; (2) the Corpus dam on the Argentina-Paraguay border; (3) the Jacireta dam project on the Argentina-Paraguay border 300 km down stream from Corpus; and (4) the Salto Grande project on the Uruguay-Argentina border.

5) Whereas we recognize an existing market in live otters emanating mainly from Southeast Asia and, in the past, from South America, we recommend that all commercial trade in live otters be curtailed immediately. It is agreed that, on the other hand, reputable zoological gardens and scientific institutions or private individuals associated with them be permitted to obtain captive specimens for study and breeding. The Group undertakes to advise the above in matters of husbandry, breeding, and housing, when requested to do so.

6) Whereas oil development and transport in Alaska are under way and expanding in intensity and range, recognizing the inevitability of a major oil spill, the Group recommends that sea otters and their associated communities be carefully monitored, particularly in the vicinities of Prince William Sound (northern Gulf of Alaska) and Unimak Pass (Aleutian Islands).

TO BE INSERTED IN SSC OUTLINE ACTION PROGRAMME 1976/1979

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3.10.2 Otters: recommendations of Otter Group in order of priority:

3.10.2.1. Giant otter Pteronura brasiliensis:
- a) Urge the Governments of Paraguay, Argentina, Venezuela, Colombia, Brazil, Peru and Ecuador to enforce existing protection and trade laws.
- b) Put pressure on the consumer countries to adhere to C.I.T.E.S.
- c) Support the Peruvian project in Manu Natl. Park.

3.10.2.2. Southern river otter Lutra provocax
- a) Urge the Argentinean Government to enforce its legal protection within the parks where it occurs and create special reserves within them for this species.
- b) Urge the Chilean Government to establish several reserves where it can be better protected.
- c) Urge both Governments to enforce their ban on the export of its skin.
- d) Put pressure on consumer countries to adhere to C.I.T.E.S.
- e) Support the Chiloe Islands survey.

3.10.2.3. Marine otter Lutra felina
- a) Urge the Peruvian and Chilean Governments to enforce their protection laws.
- b) Support the Chiloe Islands project.
- c) Dependent on the survey establish coastal parks.

3.10.2.4 European otter Lutra lutra lutra
- a) Urge the European countries to give or enforce protection and ban all hunting and trapping.
- b) Urge these Governments to establish reserves.
- c) Support surveys into its status.

3.10.2.5. La Plata otter Lutra platensis
- a) Urge the Governments of Paraguay, Argentina, Brasil, and Uruguay to enforce existing protection and trade laws.
- b) Ban the export and re-export of its skin.
- c) Establish reserves where it can be better protected.
- d) Support surveys into its status.
- e) Control river pollution where it affects this species.

3.10.2.6 African clawless otter Aonyx species
- a) Establish the taxonomic validity of Aonyx (Paraonyx) microdon.
- b) Support surveys in countries where it occurs.