1st National Report on the Traffic of Wild Animals

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To press professionals who make the records and make the Country aware of our environmental mismanagements;

To all policemen and environmental agents who have not been affected by the pessimism and disregard for our fauna;

And to all those who believe in a better Country and respect and preserve biodiversity.

Presentation

Brazil, since its discovery, has been the primary focus for the actions of wild animal traffickers. However, never in its entire history had the Country counted on reliable data on such activity. The scanty information available was isolated and lacked deeper analyses.

In order to both bridge this gap and establish parameters for planning actions and strategies against wild animal traffic, Renctas the Brazilian Network to Fight the Trafficking of Wild Animals implemented a research project aiming at the publication of this first NATIONAL REPORT ON THE ILLEGAL TRADE IN WILD FAUNA.

One of the major difficulties faced by the team responsible for the project was the lack of criteria and uniformity in the records elaborated by the agencies liable for environmental control and supervision. The outcome of seizures was not even recorded by some agencies, while others were not even concerned in analysing the information obtained. The reality was a considerable amount of data to be sorted out, evaluated, and systemized. There were exceptions, of course, and they were usually found in the records of State Forest Police Battalions.

The project's first phase consisted in the elaboration of a questionnaire to be forwarded to all environmental agencies throughout the Country. From State Forest Polices to the Brazilian Institute for the Environment and Renewable Natural Resources - IBAMA and from the Federal Police to the State Secretariats for the Environment, the Renctas' team, coordinated by the biologist and researcher, Flavia Murad, strived to obtain the very first data in order to elaborate the report herein. Another team, comprised of trainees, delved into press' records in search for information on the subject and compiled the bibliographic information. Upon one year researching we gathered 16,000 pages of documents. The hardest part of the work was just starting, that is, analyzing information, sorting out reliable information, and feeding the database to backup the present report. A long and sometimes endless-like journey was starting. Statisticians, Cartographers, Typists and Trainees. Everyone sorting out, analyzing, and researching all information which would be then discussed in a number of meetings.

There were tremendous difficulties. The most usual, for instance, was to determine which species had been recorded according to their common name. *Ararinha-azul*, *arara-pequena*, *araraúna, and araracã* among other

names are regional denomination to the same species. On the other hand, jararacão, jararaca, jararaca-tapete, jararaca-do-brejo and jararaquinha are similar names used to designate completely different species.

When we decided to carry out this survey, our expectations regarding the figures we had and the outcomes were extremely bad. However, as soon as the first data were available and as the first analyses came out, we realized those were not merely bad expectations. The reality we had just come across showed us they were worse than just bad expectations. As the works advanced, we figured out we knew too little about this illegal activity in our Country. The amount of animals trafficked; the sales outlets we surveyed and the actions carried out to combat the activity were contradictory and made clear the traffickers were far ahead of us.

There was alarming information such as the involvement of animal traffickers with drug traffickers. Interviews showed us a great threat: the lack of knowledge of the matter raising prejudices against those in charge of repressive actions. In many cases, the policemen themselves showed prejudice against those policemen who are assigned to perform actions aiming at the environmental protection. They regard it an easy and 'romantic' job. Prejudice is also present in a number of police stations. In order to elaborate this report, Renctas' team followed up several incursions to fairs where animals were being traded. Renctas became aware of the disregard of officers working at police stations when the forest police came with traffickers arrested along with the evidences of their crimes. There was even an occasion when these forest policemen had to go to four police stations before they could file the record.

When talking about lack of information we often think of illiterate people. Nevertheless, when dealing with crimes against the environment, we soon realize that ignorance is not just a characteristic of illiterate people. In an article published in a daily newspaper, an economist and former representative criticized the Brazilian environmental enforcement because it arrested a German trafficker. According to him, the intention of such 'poor fellow' was to help Brazil get rid of such plagues as spiders and other venomous animals.

The present report shall not be deemed a definitive stance on the matter at issue. Wild animal traffic is an illegal activity and, therefore, has no consistent records. Another aspect deserving consideration is the unprecedented character of such work. There were no previous records to establish comparisons and analyze statistical evolutions.

Many prospects herein may lead to discussions and criticisms and this is one of our objectives, that is, to encourage debate, to stir up those who act passively before such issue, and also to enlighten such activity that emerged from the shadows to transform our Country in an inexhaustible source of precious fauna.

The intention is to perform a yearly update of the present report. To achieve this goal, Renctas count on the participation and support of all sectors involved in the fight against animal trafficking. Over the course of time, we shall be provided with more consistent information and more reliable data, and more vigorous actions shall be taken as well. As we publish this report we are expecting feedbacks and suggestions. We do not expect, however, passivity and disregard.

The combat against wild animal trafficking is directly linked to the awareness of our society, to the availability of information and the organization of agencies liable for organizing the environmental control. Much more effective than a gun is a computer. Traffickers have specialized themselves, have consistent structures, and are supported by other illegal activities.

Renctas is aware that this report represents only the first step. Yet, a decisive step of a journey towards a society that respects its environmental resources, understands the dynamics of life, and interacts in a harmonious way with our Country's greatest heritage our biodiversity.

Dener Giovanini
Renctas Coordinator-General

Introduction

1

With an area covering 8,547,403.5 km^2, Brazil has one of the richest fauna worldwide. It ranks first in terms of number of species, with approximately 3 thousand terrestrial vertebrates and 3 thousand fresh water fishes (Mittermeier *et al*., 1992; IBGE, 2001). Brazil is the richest country in mammal diversity with 483 continental species and 41 marine species, totalizing 524 species in the whole (Fonseca *et al*., 1996). With regard to birds, the Country ranks third with nearly 1,677 species, being 1,524 of indigenous ones and 153 migratory species (Sick, 1997a). It also ranks at the 4th position in terms of reptiles, with nearly 468 species and is the first in amphibians list with approximately 517 species (Mittermeier *et al*., 1992).

These figures keep increasing since there are new Brazilian species being described. Ten new primate species have been described since 1990. The most recent ones, *Callithrix manicorensis* and *Callithrix acariensis*, were found in 1996, living in Amazon communities where they were raised as pets, despite being still unknown to science (CI, 2000). New species of birds such as the Marsh Antbird (*Stymphalornis acutirostris*) and the Wetland Tapaculo (*Scytalopus iraiensis*) had been found in the coastal zone of Paraná State, in 1995 and 1998, respectively (Bornschein *et al*., 1995; Silva, 1998).

Notwithstanding the idea of abundance, the great riches of the Brazilian fauna are limited to relatively small populational density and are associated with expressive endemism, which, consequently, makes such richness fragile before the threats of deforestation and hunting activities (Mittermeier *et al*., 1992; Aveline and Costa, 1993).

After the loss of habitats and subsistence hunting, illegal trade is the second greatest threat to the Brazilian wild fauna (Redford, 1992; Rocha, 1995). Nowadays, this activity accounts for US$ 10-20 billion/year (Webster *apud* Webb, 2001). It is the third greatest illicit activity worldwide, being only surmounted by weapon and drug trafficking. Brazil's share in this market is estimated at 5-15 percent of this total (Rocha, 1995; Lopes, 2000).

The current scenario of environmental degradation faced by the Country is the result of years of uncontrolled exploitation of its natural resources. Since the colonial period, governments have been trying to protect forests and other resources. However, all measures taken,

which have always been renewed through constitutions, laws, decrees, and regulations seemed to be uneffective. In 1921, the Forest Service was created to deal more objectively with this issue, and, in 1934, the first Forest Code was established (Aveline and Costa, 1993).

Until the 1950's, Brazil had no concern towards environmental aspects. With the aggravation of environmental problems, along with a greater awareness of the problem worldwide, the Brazilian government created, in 1967, the Brazilian Institute for the Forest Development IBDF (*Instituto Brasileiro de Desenvolvimento Florestal*), within the Ministry of Agriculture. This Institute, however, has been extinct and replaced by the Brazilian Institute for the Environment and Renewable Natural Resources IBAMA (*Instituto Brasileiro do Meio Ambiente e Recursos Naturais Renováveis*) (Aveline and Costa, 1993; IBAMA, 2000a).

Created as an environmental agency through Law number 7,735, on February 22, 1989, IBAMA is the result of the merging of four Brazilian entities dedicated to environmental issues: The Environment Secretariat SEMA (*Secretaria do Meio Ambiente*); the Rubber Superintendence SUDHEVA (*Superintendência da Borracha*); the Fishery Superintendence SUDEPE (*Superintendência da Pesca*); and the (Brazilian Institute for the Forest Development) IBDF. Among other attributions, IBAMA is in charge of managing, controlling, protecting and preserving the species of the Brazilian fauna and flora (Aveline and Costa, 1993; IBAMA, 2000a).

Renctas - brazilian network to fight the trafficking of wild animals

Renctas is a non-profit organization whose mission is to combat wild animal trafficking and to fight for the preservation of the Brazilian biodiversity.
Nowadays, it counts on the participation of some 580 allied institutions and over 30,000 members who collaborate by sending information on the actions of animal traffickers. Created in 1999, it became a national and international benchmark in issues concerning environmental conservation.

In order to achieve its goals, Renctas promotes a variety of actions associated with the Public Authority, the Private sector and NGOs.

Some of these actions are:

- ✓ Capacity-building and training of environmental agents;
- ✓ Creation and implementation of databases and elaboration of reports;
- ✓ Participation in operations carried out by environmental agencies;
- ✓ Support to research projects and those concerning the conservation of endangered species; and
- ✓ Carrying out of national and international awareness campaigns, with free distributions of informative and educational material.

Through its home page, www.rentas.org.br, Renctas receives denunciations on the actions of traffickers and makes environmental information available to the several segments of the society.

More studies and systemized data are of paramount importance to control and combat this activity. The work developed by Renctas is a small portion of the research activities to be carried out. In this way, Renctas is honored to present, through the present document, the first National Report on the Traffic in Wild Animals in Brazil.

Objectives

2

The objectives of the present report are:

- ✓ To detect the main characteristics of the illegal wild fauna trade and its products in Brazil;
- ✓ To list the difficulties, deficiencies, and problems related to the combat of wild animal trafficking in Brazil; and
- ✓ To systemize the information available and generate data that may guide actions directed to controlling and combating the traffic in wild animals in Brazil.

Data Survey

3

In order to gather information on the illegal trade in wild fauna in Brazil, a survey was carried out through questionnaires sent to the Forest Police Battalions BPF's and to the Superintendencies of IBAMA SUPES, in the States and in the Federal District.

Twenty-five out of the twenty-seven questionnaires sent have been responded. Only the Amazonas State, which does not have a BPF unit, and Roraima State, due to lack of data, have not responded it. Seven SUPES completed it, 12 responded partially and 8 have not responded it.

In addition, the Department of Supervision DEFIS of the Directory of Control and Supervision DICORF of the IBAMA/HQ collected de worksheets of supervision activity of wild fauna in Brazil in the period 1992-2000 (with the exception of 1994, which was not available).

Likewise, the activities developed by Renctas since its creation, such as realization of and participation in workshops and conferences, follow-up of supervision operations, denunciations received, bibliographic surveys, investigation and follow-up of traffickers' activities and field researching throughout Brazil, have also been used, besides the information provided and collected by a number of partner institutions: the Attorney-General Office, the Federal Police, IBAMA, national and international NGOs, Universities, and Research Centers.

There is a great variety of common names to designate species across the regions. In this way, the identification of species corresponding to common names has been carried out through specialized bibliographic consultations. Also, letters and faxes have been sent to IBAMA's superintendencies in Brazilian States so as to clarify questions concerning the species and their common names. Those common names which could not be identified as well as the exotic animals and other classes have been classified as 'other'.

Traffic Background

4

The wild fauna has always been an important cultural element for the several Brazilian Indian tribes. A great variety of species, which included all mammals, birds, reptiles, amphibians and insects, and their eggs, were usually used for food. Tools deployed for all purposes were made from their teeth, bones, claws, skins, etc. Animals - mainly birds - were used by the Indians who used their colored feathers to ornament their arrows, head-dresses, arm-garments, necklaces, earrings, and other items. Many birds such as the macaw and the harpy eagle were captured and kept in tribes as feather suppliers. These ornaments were used by the Indians in their rituals, parties, and celebrations. Those who wore the most beautiful ornaments were considered the most prestigious ones in the tribe. (Carvalho, 1951; Júnior, 1980; RAI, 1978a, b; Machado, 1992a; Sick, 1997b).

The indigenous populations also used elements from the fauna in their myths, legends, superstitions (many are still present in the current Brazilian folklore), songs, dances, and works of art (Júnior, 1980; Andrade, 1993). They also used to tame wild animals just for fun and to satisfy their curiosity. These animals were kept in the tribes as "*xerimbabos*", which means 'something beloved' (Carvalho, 1951; Cascudo, 1973; Spix and Martius, 1981).

Several species of *xerimbabos* such as macaws, parrots, parakeets, curassows, flycatcher, many species of primates, coatis, deers, boas, etc. could be found in the tribes. Although very close to these animals, the Indians showed no interest in breeding them. They tamed individual specimens, but not species. The animals were kept affectionately and lived freely throughout the tribes. As the Indians were perfectly aware of these animals' habits, they were much concerned about each animal's correct feeding. (Nogueira-Neto, 1973; Sick, 1997b).

It is important to highlight that the Indians were extremely judicious in their relation with the wild fauna and caused no threats to their survival whatsoever. For instance, neither pregnant females nor animals in reproductive age were hunted. However, these Indians have changed their habits upon having established contact with the European settlers and explorers. They began to exploit natural resources more selectively besides having been, in many occasions, the agents who degraded such resources.

This is the beginning of the commercial exploitation of the Brazilian fauna, which due to its diversity was perceived as abundant and inexhaustible.

The trade in wild animals such alligators and anacondas from the Amazon region was already carried out by the Incas, in Peru, but it only reached greater proportions upon the arrival of the European exploitation (Redford, 1992). This trade has increased as people became interested in these animals.

In the sixteenth century, when Europe started to exploit the world, coming back with unknown animals made voyagers feel proud of their deeds for it was an evidence of having discovered new continents (Sick, 1997a). On April 27, 1500, at least two macaws and some parrots, which had been obtained from exchanging goods with the Indians, along with many other samples of animals, plants, and minerals, were sent to the king of Portugal. The impression caused by these birds was so astonishing that during three years Brazil was referred to as 'Land of Parrots'. In 1511, the ship Bertoa carried 22 parrotlet (*Forpus passerinus vividus*), and 15 parrots (Santos, 1990). In 1530, the Portuguese navigator Cristóvão Pires took 70 colored-feather birds to Europe (Polido and Oliveira, 1997). These are the first records of specimens of the Brazilian wild fauna sent to Europe.

These animals, which were taken to Europe by a few voyagers and explorers, drew the attention and curiosity of the European people and began to be exhibited and traded in the streets (Hagenbeck, 1910). The animals soon became yearned for by people who desired them as pets. In the sixteenth century, primates could be found at English homes as well as Brazilian Indians and animals could be usually found at French homes (Kavanagh, 1983; Bueno, 1998b). The possession of wild animals has always been a symbol of power, richness, and nobility besides conveying a certain status before the society to those who own wild animals (Kleiman *et al*., 1996).

Since the commerce of animals has been considered a very profitable activity, it turned into a new line of business with voyagers specialized in capturing the animals to supply this new commerce (Hagenbeck, 1910). The trade in wild animals from the Occident had been systemized in late nineteenth century when the trade in Brazilian species, aimed at supplying the international market, launched the extermination process for several species.

Hummingbirds for supplying the fashion industry were exported by the thousands. These birds were also embalmed so as to be used as ornaments for the European living rooms (Paiva, 1945; Fitzgerald, 1989; Redford, 1992; Sick, 1997a). Herons and ibises (guarás) had their feathers used as ornaments for women's hats both in Europe and North America. The amount of slaughtered birds was so huge that, between 1895 and 1896, Emílio Goeldi (the then Director of the *Museu Paraense de História e Etnografia* 'Museum of History and Ethnography of Pará State') forwarded two complaints to the Pará State Government protesting against the slaughtering of these birds in Marajó Island (Rocha, 1995; Polido and Oliveira, 1997). In 1932, nearly 25,000 hummingbirds were slaughtered in the State of Pará, and had their feathers sent to Italy to be used as ornaments for bonbon boxes. In 1964, the situation was so absurd that a French cannon was imported to fire at flocks of teals of the Amazon region. In one farm alone, in Amapá State, 60,000 teals were killed (Sick, 1997a).

Not only exportation, but also domestic trade evolved in Brazil, thanks to the progress in communication and means of transportation (which make the access to then inaccessible areas possible), in techniques for capturing animals, and to populational growth and urbanization as well (Fitzgerald, 1989; Musiti, 1999). In the 1960's, this type of trade was already established. The products were sold in fairs throughout the Country, notably in the Praça Mauá market, which has always been a commercial pole of wild fauna (Santos, 1990; Sick, 1997a; Campello, 2000). The commerce was so intense that some places became known by virtue of their great 'bird fairs'. This was a well-established and huge commerce in Brazil, mainly with regard to birds. It was hard to find a Brazilian city without such commerce (Carvalho, 1951; Sick and Teixeira, 1979; Vinícius and Soares, 1998).

There was no control over hunting, capture, and use of wild animals on the part of the government. Hunting activities and the predatory and indiscriminate commerce of the wild fauna are old practices in Brazil. Only in 1967 these practices became prohibited by law. In that year, along with the creation of the Brazilian Institute for the Forest Development IBDF, the Government issued the Federal Law number 5,197, on the Fauna Protection, declaring that all animals in the Brazilian national wild fauna and their products were the property of the State and could no longer be hunted, captured, traded, or kept under private possession. However, no economic alternatives have been given to the people who, until that moment, pursued this activity to make a living. As a consequence, a clandestine trade has sprung up (Marques and

Menegheti, 1982). Here begins the history of the Brazilian wild fauna trafficking.

Although illegal, it is still easy to find animals, their parts, and products being traded. Currently, there are nearly 100 fairs where animals are also illegally traded in the State of Rio de Janeiro alone (Rocha, 1995; Polido and Oliveira, 1997; Braga *et al*., 1998). The Duque de Caxias fair (Rio de Janeiro) is considered one of the Country's largest illegal fairs. In addition to encouraging illegal trade, since impunity is evident, the existence of these fairs makes easier the possession of wild animals by the society. Not only the fairs but also some specialized stores and breeding grounds, whether legalized or clandestine, take part in this illegal activity.

The history of wild animal trafficking is not only limited to disrespecting the law. It relates to degradation and cruelty (Toufexis, 1993). Whether legal or illegal, the trade in wild-caught animals has always been a harmful activity to the fauna. Trading, capture techniques, transport, and handling are practically the same as long before; but it is more serious now since it is considered an illegal activity. Animals have always been disregardfully treated and regarded as simple merchandizes that serve the sole purpose of generating profit.

When trade in wild animals was established in Europe, the number of traders and voyagers specialized in capturing and reselling these animals sprung up. Traders placed their orders to voyagers who, in the animals' home country, usually had a contact with middlemen who, in turn, obtained the animals. In Europe, the animals were sold to zoos, private collectors, circuses and exhibitions (Hagenbeck, 1910). Specialized trafficking schemes remain the same. Major traffickers, usually European

or North-American, have a network of dealers and suppliers in the target country and in the source (exporting) country, respectively. (Le Duc, 1996).

Animals were carried in ships (and piled up) in such a way they could not even be fed. Showing signs of psychological distress, they were given alcoholic beverages (such as rum with sugar) in order to calm down. (Hagenbeck, 1910). Despite the existence of transportation techniques, the animals are still being transported in extremely limited and overcrowded spaces, with neither water nor food, fighting, mutilating, and killing one another. In addition to the ingestion of alcoholic beverages, they are submitted to cruelties to refrain their natural aggressivity before the buyer and also not to draw the attention of surveillance authorities. Methods such doping down the animals, have their eyes perforated, their wings tied up, their teeth and claws pulled out, in addition to having the birds' breastbones broken, among a number of other cruel techniques are usual. (Jupiara and Anderson, 1991; Lopes, 1991).

Moreover, both traders and buyers had neither experience with nor knowledge of animal biology, which increases even more the rate of deaths among these animals (Hagenbeck, 1910; Kleiman *et al*., 1996). Even nowadays, despite the knowledge acquired in animal handling, many buyers disregard a minimum sense of care when handling these animals.

Notwithstanding all sorts of problems and the legislation in force, the illegal trade in wild animals, and their parts and products, keeps increasing with a variety of new smuggling techniques, for the activity is highly profitable. According to Renctas and Le Duc (1996), the main reasons for such increase verified in Brazil and worldwide are:

- ✓ Due to the resources deployed in its combat, drug trafficking is becoming a more and more risky activity. On the other hand, the lack of resources deployed in the combat of wild animal trafficking makes it a less risky activity with practically the same profits. Animal traffickers are frequently known by the police for their involvement with illegal activities related to weapons, drugs, gems and alcohol;

- ✓ A considerable portion of the police, Custom and law officers still regard the illegal trade in animal trafficking as a minor crime. Resources allotted to combat this crime are small and when violators are caught they are not strictly punished;

- ✓ Over the past 50 years, the international trade has increased (including fauna trade) 14-fold. This increased the volume handled by Custom offices, which means less effectiveness in the supervision of the goods handled (Ortiz-von Halle, 2001).

- ✓ This illegal activity is currently increasing and is becoming one of the primary economic and environmental issues to be solved in Brazil and worldwide.

Types of Traffic

5

Different approaches which depend on the species and their destination in the international market are deployed by traffickers in Brazil. Basically, there are four types of illegal trade (Giovanini, dt. ind.):

1- Animals for collectors and private zoos: This is perhaps the cruelest type of wildlife trafficking because its primary focus is the most endangered species. The rarer a species the higher its value in the market. The main collectors of the Brazilian wild fauna are located in: Europe (Germany, Portugal, the Netherlands, Belgium, Italy, Switzerland, France, United Kingdom, and Spain), Asia (Singapore, Hong Kong, Japan, and Philippines), and North-America (USA and Canada).

The most sought-after species in this category and their respective prices in the international market are in the table below:

Common Name Port. / Eng.	Latin Name	Price US$ / Unit
arara-azul-de-lear / *lear´s macaw*	*Anodorhynchus leari*	60,000
arara-azul / *hyacinthine macaw*	*Anodorhynchus hyacinthinus*	25,000
arara-canindé / *blue and yellow macaw*	*Ara ararauna*	4,000
papagaio-de-cara-roxa / *blue cheeked parrot*	*Amazona brasiliensis*	6,000
flamingo / *american flamingo*	*Phoenicopterus ruber*	5,000
harpia / *harpy eagle*	*Harpia harpyja*	20,000
mico-leão-dourado / *golden lion tamarin*	*Leontopithecus rosalia*	20,000
uacari-branco / *uakari*	*Cacajao calvus*	15,000
jaguatirica / *ocelot*	*Leopardus pardalis*	10,000

2 - Animals for scientific purposes (Biopiracy): The species in this group are those that provide the chemicals used in the research and production of medicines. This group grows each and every day due to the intense incursion of illegal researchers within the Brazilian territory in the search for new species. It is important to stress that not all traffic in animal and its related products is biopiracy, but every act of biopiracy is an act of trafficking. Huge amounts are involved in this category. Researches on Nigriventer spiders (*Phoneutria sp.*), aiming at new and more effective analgesic substances, with a value reaching up to US$ 4,000/gram, when it becomes a medicine, are underway. The most sought-after species in this category and their respective price estimates in the international market are shown in the following two tables:

a) Live animal in the international market:

Common Name / English	Latin Name	Price US$ / Unit
jararaca / *jararaca*	*Bothrops jararaca*	1,000
jararaca-ilhoa / *jararaca*	*Bothrops insularis*	20,000
cascavel / *rattlesnakes*	*Crotalus* sp.	1,400
surucucu-pico-de-jaca / *bush master*	*Lachesis muta muta*	5,000
sapos amazônicos / *amazonian frogs*	*Various Species*	300 to 1,500
aranha-marrom / *brown spider*	*Loxosceles* sp.	800
aranhas / *spiders*	*Various Species*	150 to 5,000
besouros / *beetles*	*Various Species*	450 to 8,000
vespas / *wasps*	*Various Species*	50 to 350

b) Venom value per gram of some Brazilian venomous animals:

Common Name / English	Latin Name	Price US$ / Gram
jararaca/ *jararaca*	*Bothrops jararaca*	433
urutu/ *urutu*	*Bothrops alternatus*	1,835
surucucu-pico-de-jaca / *bush master*	*Lachesis muta muta*	3,200
coral-verdadeira / *coral snake*	*Micrurus frontalis*	31,300
aranha-marrom / *brown spider*	*Loxosceles* sp.	24,570
escorpião / *yellow scorpion*	*Tityus serrulatus*	14,890

3 - Pet Animals: This is the category providing the greatest incentives to wild animal trafficking in Brazil. Due to the high demand, all Brazilian fauna species are included in this group. Prices depend on both the species and on the amount ordered. Some of these species and respective price estimates in the international market are shown in the table below:

Common Name / English	Latin Name	Price US$ / Unit
jibóia/ *boa*	*Boa constrictor*	800 to 1,500
periquitambóia / *amazon tree boa*	*Corallus caninus*	2,000
teiús / *tizard*	*Tupinambis* sp.	500 to 3,000
tartaruga / *turtle*	*Pseudemys dorbygnyi*	350
arara-vermelha / *scarlet macaw*	*Ara macao*	3,000
tucano-toco / *toco-toucan*	*Ramphastos toco*	2,000
araçari / *curl crested araçari*	*Pteroglossus beauharnaesii*	1,000
melro / *chopi blackbird*	*Gnorimopsar chopi*	2,500
saíra-sete-cores / *green headed tanager*	*Tangara seledon*	1,000
sagüi-da-cara-branca / *white fronted marmoset*	*Callithrix geoffroyi*	5,000

4 - Fauna Products: These products are largely used as ornaments and in craftsmanship. The species used depend on the fashion market and customs. Products traded include leathers, skins, feathers, claws, and fangs among many other. All are sold in the fashion and touristic markets. In Brazil, the psittacidae, as feather providers and reptiles and mammals as major skin providers stand out:

Common Name / English	Latin Name
jibóia / *boa*	*Boa constrictor*
lagarto teiú / *lizard*	*Tupinambis* sp.
jacarés / *caiman*	*Caiman* sp.
lontra / *otter*	*Lontra longicaudis*
ariranha / *giant otter*	*Pteronura brasiliensis*
onça-pintada / *jaguar*	*Panthera onca*
jaguatirica / *ocelot*	*Leopardus pardalis*
gatos-do-mato / *wild cats*	*Leopardus* sp.
insetos / *insects*	*Class INSECTA*

Routes and Mechanisms of Trafficking

6

Developing countries are the major wildlife suppliers and part of their populations makes a living out of this activity (Hemley and Fuller, 1994). Brazil, Peru, Argentina, Guiana, Venezuela, Paraguay, Bolivia, Colombia, South Africa, Zaire, Tanzania, Kenya, Senegal, Cameroon, Madagascar, India, Vietnam, Malaysia, Indonesia, China, and Russia are among the major exporting countries. (Rocha, 1995).

Portugal, Mexico, Saudi Arabia, Thailand, Spain, Greece, Italy, France, and Belgium, countries where the products of wildlife smuggling are usually legalized, are among the major wildlife traders. (Rocha, op.cit; Renctas, 1999).

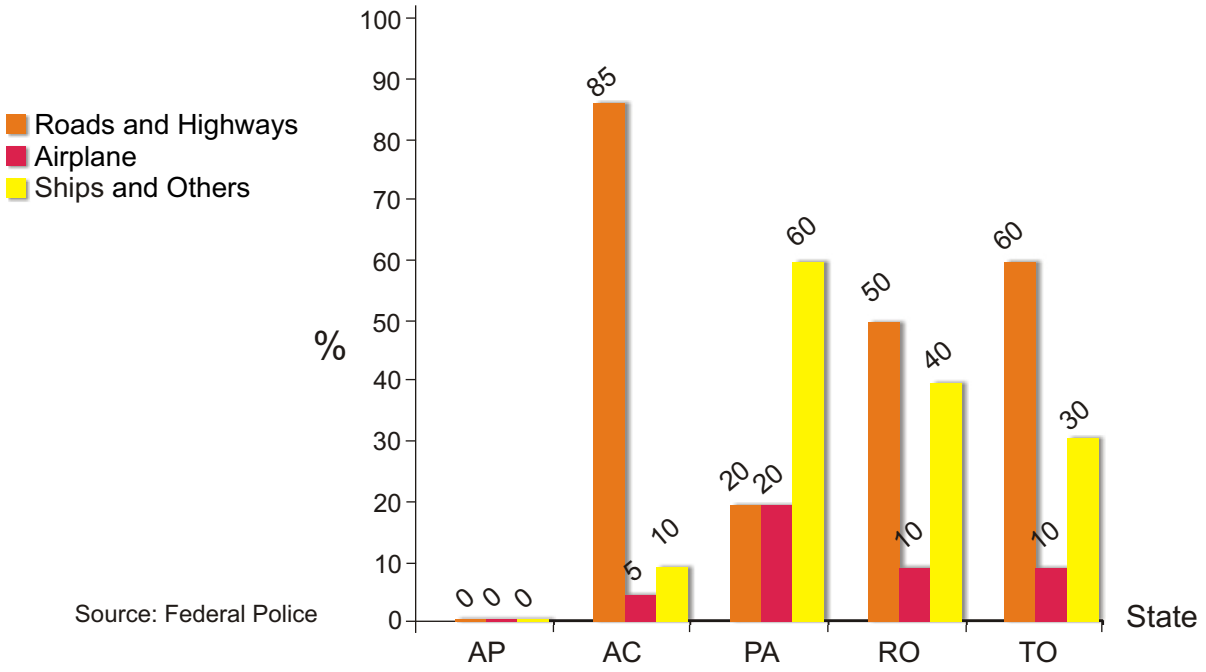
Major consumer-countries are: U.S.A. (world's greatest wildlife consumer), Germany, the Netherlands, Belgium, England, Switzerland, Greece, Bulgaria, Saudi Arabia, and Japan (Hardie , 1987; Rocha, 1995; Le Duc, 1996).

In Brazil, most wild animals illegally traded come, through federal highways, from North, North-East, and Mid-West regions to South and Southeast regions (Jupiara and Anderson, 1991; Renctas, 1999). People usually trade wild animals in Northeastern states' highways. Major destinations are Rio de Janeiro and São Paulo States where they are either sold in fairs or, in most cases, exported to Europe, Asia, and North America through these region's major ports and airports. (Renctas, 1999).

There are a number of trafficking networks operating across the Country's highways, through which animals may travel up to 5,000 km. The maps below show the major highways and cities involved in the trafficking of wild animals in Brazil. Some of these cities became famous as wild fauna suppliers. Among several cities, Milagres, Feira de Santana, Vitória da Conquista, Curaçá, and Cipó (all in Bahia State), Belém and Santarém (Para State), Cuiabá (Mato Grosso State), Recife (Pernambuco State), and Almenara (Minas Gerais State) stand out.

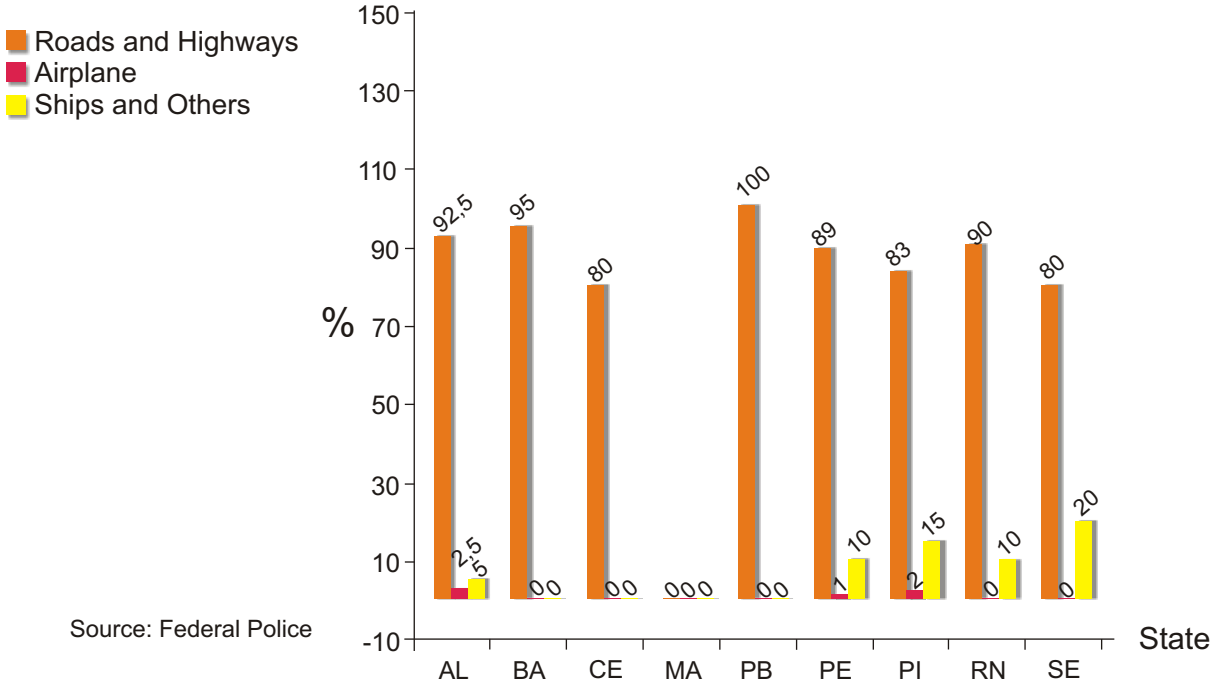
Most animals are transported by land, mainly through highways in trucks, buses, and cars as shown in the charts below. Only in the North region of Brazil, due to its peculiarities, the animals are transported through rivers.

Chart 1. North region's main outflow routes



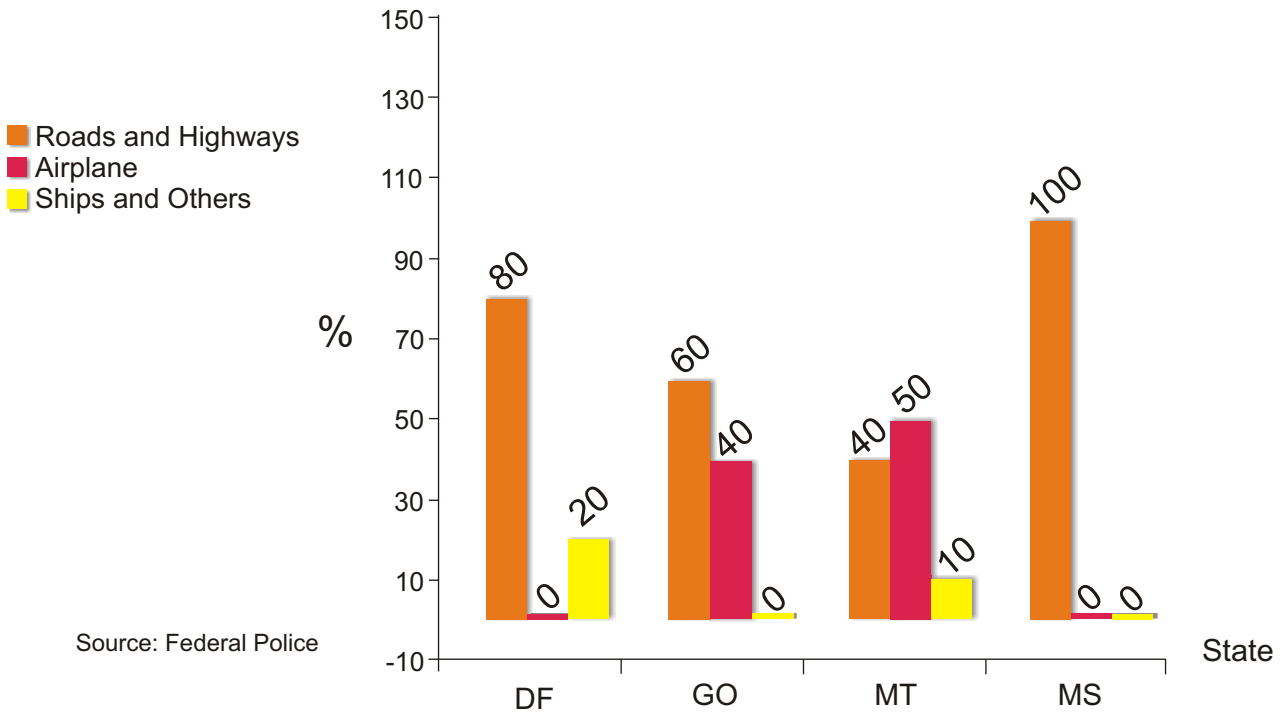
Source: Federal Police

Chart 2. Northeast region's main outflow routes



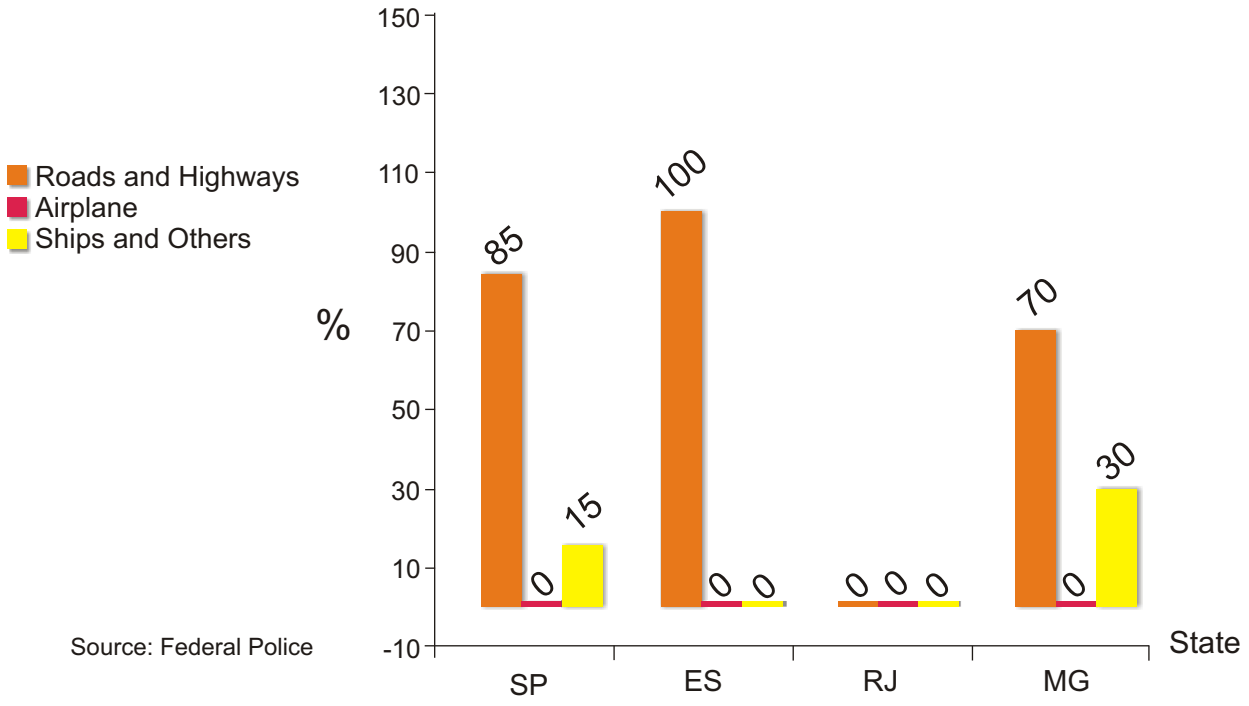
Source: Federal Police

Chart 3. Mid-West region's main outflow routes



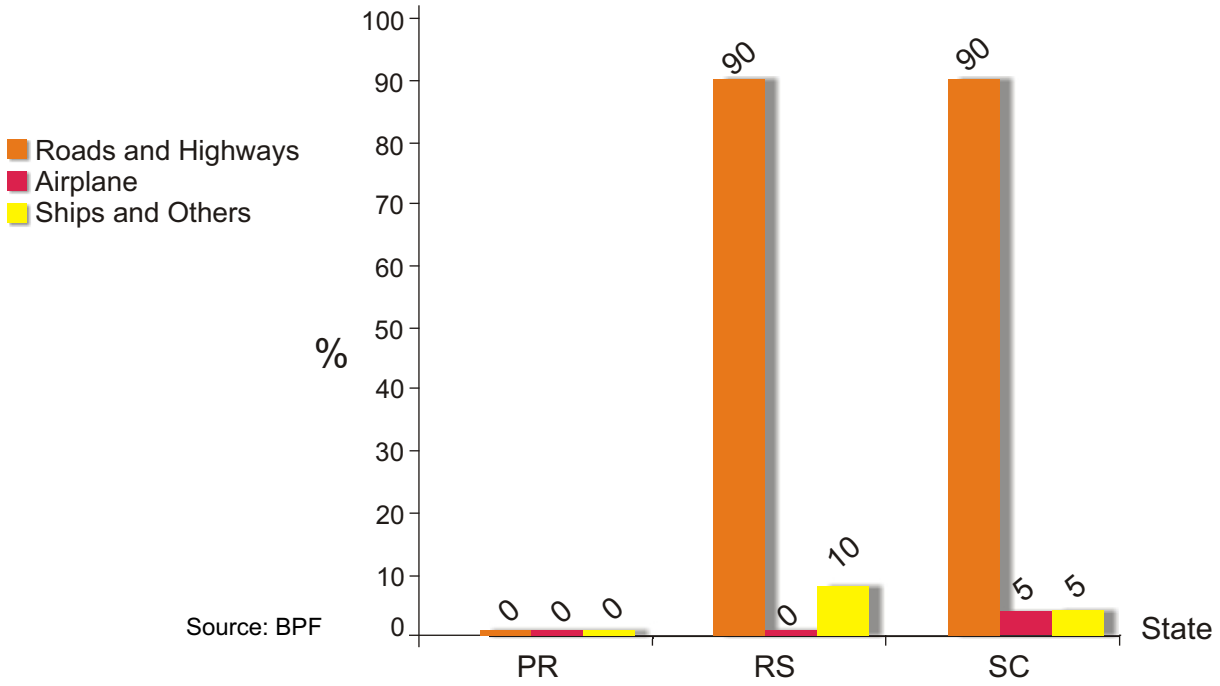
Source: Federal Police

Chart 4. Southeast region's main outflow routes



Source: Federal Police

Chart 5. South region's main outflow routes



Source: BPF

A large amount of animals is smuggled from Brazil to both nonsignatory and signatory countries to the Convention on International Trade in Endangered Species of Wild Fauna and Flora CITES. In the latter case, the animals smuggled receive counterfeited documentation and are promptly exported. This occurs frequently in Brazil's neighboring countries as Argentina, Bolivia, Guyanas, Paraguay, Suriname, and Uruguay (Cecatto 1977; Sick and Teixeira, 1979; Fitzgerald, 1989; Toufexis, 1993; Renctas,1999).

The border regions of Amazon Region's States are also important areas regarding the outflow of Brazilian wild animals - mainly in the borderlines with the Guyanas, Venezuela, and Colombia. Illegal trade is intense in this region due to the lack of surveillance on the Brazilian side. Hundreds of smuggling spots such as the cities of Tabatinga (Brazil) and Leticia (Colombia) have been identified in the Brazilian northern borders. Other major Brazilian cities where wild animals are exported illegally are: Manaus (Amazonas State), Rio Branco (Acre State), Porto Velho (Rondonia State), Bonfim (Roraima State), Uruguaiana (Rio Grande do Sul State) and Foz do Iguaçu (Paraná State).

According to the Brazilian Federal Police (dt. Ind.), Smuggling is likely to be supported and facilitated by government officers assigned to strategic

positions such as in ports, airports, and Custom offices located in borders between countries. There is also the detrimental participation of researchers acting for the international traffic who use credentials and official authorizations the government provides to the institutions they work for. In August 2001, the Federal Police caught biologist Shoji Hashimoto, vice-president of the Museum of Natural Sciences of the Amazon, red-handed when collecting insects (mainly beetles and butterflies) and spiders illegally. In his illegal activities, Hashimoto used to make use of sophisticated instruments and paid local people R$ 2 to R$ 3 per insect. According to the Federal Police, there are strong evidences that the insects and spiders captured were to be sold in the international market (Freire, 2001).

In some cases, 'animal-laundering' is carried out in Brazil through some zoos and some scientific, conservationist or commercial breeding grounds - whether legalized or not - which provide false certificates attesting the animals were born in captivity.

Illegal trade entails a variety of fraudulent activities that change every year. Therefore, as soon as a new type of fraud is detected another one is already emerging. Yet, 4 major categories have been identified: (1) smuggling; (2) use of legal documents to conceal illegal activities; (3) use of false documents; and (4) other types of fraud (Le Duc, 1996; Webb, 2001).

1 - Smuggling: the smuggling of animals and non-declared products through borderlines is most often deemed a Custom issue than a police issue. As expected, smugglers act in areas where patrol is difficult such as, for example, when the border between two countries is located in dense forests or in mountainous or unpopulated areas. Smugglers also use small planes, particularly in South America and Africa.

Non-declared animals and products can be transported though several means:

a) travelers may carry small animals and products in their baggage or hand luggage. This is the most practical way to carry small, though valuable, items. For example, a suitcase with parrots with their wings and beaks tied up was once discovered. This method is also largely used for carrying reptiles.;

b) travelers carry animals and their products illegally in clothes and cars. Heavy vehicles are also used;

c) containers, which are seldom checked because of the huge amount handled in the Country's major ports, are also used. Wild mammals and reptiles skins, declared as sheep and cow leathers, have been frequently found in containers.

d) eggs, live reptiles, plants, medicines, insects, and shells are usually sent by mail services. A huge amount of elephant ivory, declared as baby wares, was seized in the Swiss mail service.

2 - Use of legal documents to cover up illegal products: frequently used by traffickers, this method can only be identified when products arrive in the importing country. Some examples are:

a) species does not correspond to those declared in the document. Since there are no specialized personnel it is difficult to determine the correct species. Three cardboard boxes shipped in a domestic flight from Manaus (Amazonas State) and officially declared as containing fishes were seized in the Rio de Janeiro international airport. Actually, the boxes contained 6 green iguanas (*Iguana iguana*), 2 boas (*Boa constrictor*) and some fishes, roots and herbs (Jornal do Brasil, 1999).

Animals are sometimes transformed to resemble other animals. High-priced species are "made up"; a cheap animal, the jandaia (*Aratinga sp.*) is frequently painted yellow to resemble the high-priced Golden Conure (*Guaruba guarouba*) (Sick, 1997a). Several products are also adulterated. Ballou (1988) reported the seizure of a cougar fur patched so as to resemble a jaguar (*Panthera onca*), which has a higher value in the market.;

b) the number of species is difficult to be verified and/or the number stated may be false. This method is used in huge amounts, particularly when there are small specimens or dangerous animals. Shipments with passerines usually have their number 3-4 times than the number declared in the documents;

c) specimens are declared as captivity-bred when they are actually born in the wild. This is how the CITES permissions for captivity-bred animals are used;

d) the origin declared may not be true. Some countries, such as Brazil, prohibit the exportation of certain species, or even of any species, when captured in nature. Traffickers will then declare the animals as coming from another country, as occurred with some Tegu lyzards *(Tupinambis sp.)* captured in Brazil and declared as captured in another South American country, where the exportation of these animals is authorized;

3 - Use of counterfeited documents: maybe due to the increase in the controlling measures, this technique has developed considerably in the recent years. There is a number of cases recorded at CITES' secretariats. Examples include:

a) authentic documents may be counterfeited: either permissions or certificates may be obtained through corruption or false documents and declarations;

b) authentic documents may have the names of species, the country of origin, or the number of species altered;

c) thoroughly false documents, which are identical imitations of legal documents, may also be used; signatures and stamps may also be copied.

4 - Other fraudulent activities: it is impossible to list all categories known in this activity as well as there certainly are many other still unknown by the authorities.

In addition to the lack of equipment and capacitated officers, the Brazilian environmental authorities face a number of difficulties in controlling the international air traffic due to the high frequency of arrivals and departures in large airports. Moreover, surveillance is difficult, if any, in border regions, particularly those, such as the Pantanal (Brazilian Central Swamps) and the Amazon region, where access is difficult. (Le Duc, 1996; Renctas, 1999).

Social Structure of Traffic

7

The illegal trade in wild animals is associated with cultural, educational and poverty issues, lack of economic options, the desire for easy and quick profits, and the desire for status and personal satisfaction in having a wild animal as a pet. The social chain of such activity comprises different groups and can be basically classified as follows: suppliers, middlemen, and consumers (Pires, 1977; Carvalho, 1985; Mello, 1991; Divulgação do Museu de Ciências e Tecnologia, 1994; Hemley and Fuller, 1994; Rocha, 1995; Le Duc, 1996; Braga *et al*. 1998; CICEANA, 1999; Lopes, 2000; Brazilian federal Police, dt. ind.).

1 - Suppliers - this group is basically comprised of extremely poor people without access to education and healthcare and living in the backlands of Brazil. In addition to hunting for their subsistence, these people found a complementary source of income in the fauna trade.

The riparian people living in the Amazon region exchange animals for groceries and other subsistence products. Brazilian Indians who hunt endangered species and sell their skins and other products have become suppliers of wildlife. Indian populations are incited by traffickers to exploit natural resources protected by law (Seerger, 1982). Indians usually sell wild animals and their products as craftsmanship alongside the Brazilian roads such as is the case in the Monte Pascoal region (Bahia State), Mangueirinha Indian Reserve (Laranjeiras do Sul, Paraná State), and in Superagüi Reserve (Paraná State).

Rural populations such as gold prospectors, peasants, homesteaders, small farmers, and cowboys capture wild animals in order to complement their income. Wild animal trafficking represent one the major income sources for people living in cities like Milagres, in Bahia State, where animals are sold on streets, in fairs and small stores, by the roads and are sent to other states.

Most people who supply wild animals have always been incited to exploit natural resources in an extractivist way, thinking these resources could never be depleted. These people are not aware that they are helping endanger species and catalyze the loss of fauna resources.

2 - Middlemen - the first middlemen are people who act both in rural and urban zones such as the *regatões* (boatmen who travel across Northern and Mid-Western regions), farmers, truck and bus drivers, and street peddlers. Next, there are the small and medium traffickers who have connections with major traffickers operating within the country and abroad. Large-scale trafficking may involve major Brazilian or foreign traders. They are familiar with all sorts of corruption and can move quickly from one country to another should any problem occur. Their activity seems to be legal but it has links with the illegal trade in wild animals and its products.

Some zoos and breeding grounds are likely to participate in this step by arranging the contacts. It is easier and safer for traffickers to trade through an emerging method as the Internet, which is done anonymously. A survey carried out by Renctas in 1999 found 4,892 ads on Brazilian and international sites for illegal sale, purchase, and exchange of wild animals of the Brazilian fauna. The majority advertised for reptiles and birds but there were also mammals (mainly primates, felines, and small marsupials), amphibians (mainly Amazon toads), and ornamental fishes.

3 - Consumers - Most consumers keep wild animals as pets in their homes. Some breeding grounds, such as zoos and aquaria, circuses, major private collectors, tanneries, fur industry, fashion stylists and producers, pharmaceutical industry, and bird-lover's clubs have active participation in this trade. Although small, the wildlife souvenir market for tourists with its stuffed animals, pictures made from butterflies wings, and artifacts made from teeth, claws, feathers, and fur is another activity that contributes to this illegal trade. These articles can still be found in stores of cities such as Rio de Janeiro, São Paulo, Manaus etc. (Sick and Teixeira, 1979).

Figures of Traffic

The wildlife traffic, including flora and fauna, and its products and by-products, is considered the third largest illegal activity worldwide, being only surmounted by weapon and drug trafficking. No one knows precisely the dimension of such trade. However, it is estimated that it accounts for some US$ 10-20 billion per year. Brazil's share is estimated at 5-15 percent of this total (Rocha, 1995; Lopes, 2000).

According to estimates based on the US trade, the yearly figures for this activity throughout the world are as follows (Block, 1987; Hardie, 1987; Fitzgerald, 1989; Hemley and Fuller, 1994; Le Duc, 1996):

- ✓ Primates: 25,000 - 40,000 live animals, mainly for biomedical research;
- ✓ Birds: 2 - 5 million live animals;
- ✓ Reptiles: 3 million turtles bred in captivity;

  2 - 3 million other live reptiles;
  10 - 15 million shells;
  10 million skins;
  30 - 50 million manufactured products.

According to Amado (1991), the illegal trade poaches 12 million specimens from nature in Brazil every year. This figure is the only one found at the bibliographies surveyed and in CONAMA's Motion number 16/91. However, the figure above is solely an unofficial estimate made by the *Associação dos Amigos de Petrópolis - Patrimônio, Proteção aos Animais, Defesa Ecológica - APANDE* (Petrópolis' Friends Association - Heritage, Animal Protection, and Ecological Defense). No methodologies were used and estimates obtained were based on personal information obtained by Amado (op.cit.) at the Superintendence of IBAMA/RJ and at the Rio de Janeiro State Forest Battalion (Colagrossi, F., com.pes.).

Based on official data on seizures made by IBAMA and figures obtained through a study conducted by Braga *et al.* (1998) in fairs of Rio de Janeiro State, Renctas employed statistical methods to make an estimation that pointed to the following figures:

a) every year animal trafficking poaches some 38 million specimens from nature in Brazil.

Since death rates during capturing and trading processes are considerably high, the number of animals poached is much higher than that of animals being traded (Soini, 1972; Coimbra-Filho, 1977; Sick and Teixeira, 1979; Redford, 1992). Estimates show that at least 3 specimens are killed per each animal product traded; with regard to live animals, this figure is even higher (Redford, 1992) - only one out of ten animals captured survives.

Losses occur because of: (Redford, 1992):

- ✓ wounded animals which die after escaping;
- ✓ animals with damaged skins and therefore classified as out of 'standard' are discharged;
- ✓ females are killed during the capture of their offspring, which, in turn, often dies. Passerine females, such as the Tanagers (*Tangara sp*.) are usually killed during capture since they have no commercial value. (Nogueira-Neto, 1973).

Mortality rate is also high due to the emotional distress and the precarious conditions animals are submitted to during the entire capturing and trading processes. With the exception of rare and more valuable specimens all animals trafficked are maltreated. Nearly 80 percent of birds die (Toufexis, 1993); in the 1960's, 90 percent of the Tanagers (*Tangara sp*.) traded in bird stores, in São Paulo City, were usually bound to die; 36 percent of Red-spectacled parrot (*Amazona petrei*) nestlings caught in their nests died before being sold (Science and Technology Museum, 1994); and 70 percent of goldfinches (*Carduelis sp*.) do not survive in cage (Santos, 1992).

b) Based on the information above, we can assert that nearly 4 million wild animals are illegally traded in Brazil every year;

Prices of traded animals vary according to:

- ✓ the demand and necessity of the consumer market;
- ✓ status of the species (the rarer and the more endangered, the most expensive);
- ✓ legal restrictions imposed to the trade in certain species;
- ✓ socioeconomic implications of the society.

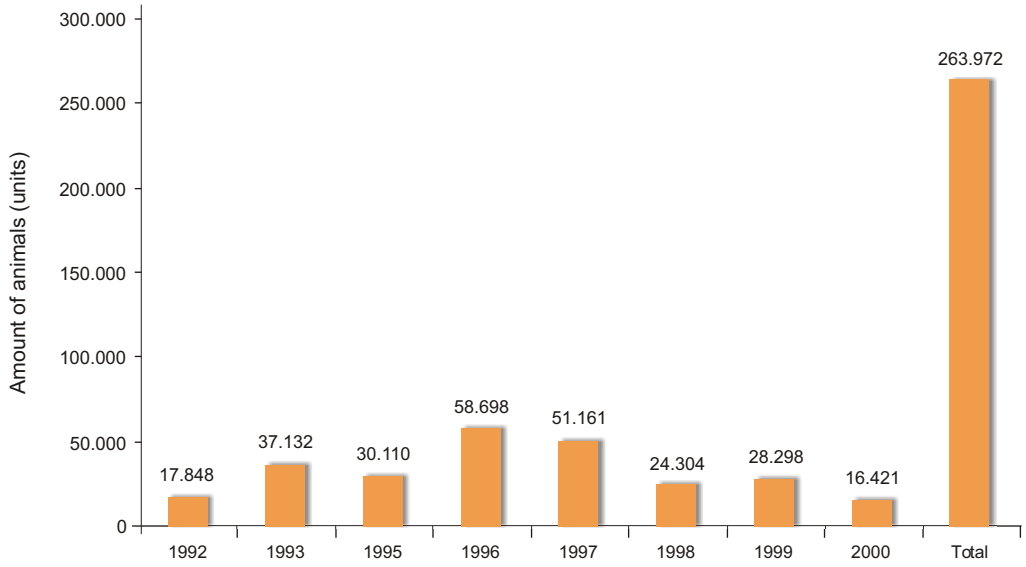
c) according to data on the number of animals seized and their respective price in the market, estimates point to an yearly turnover of nearly RS$ 2,500,000,000.00 (two billion and five hundred million reais)

- equivalent to nearly US$ 900,000,000.00 (nine hundred million dollars) / R$ 2,70 = US$ 1.00.

d) according to the above-mentioned data, we can assert that seizures represent only 0.45 percent of all animals involved in trafficking activities.

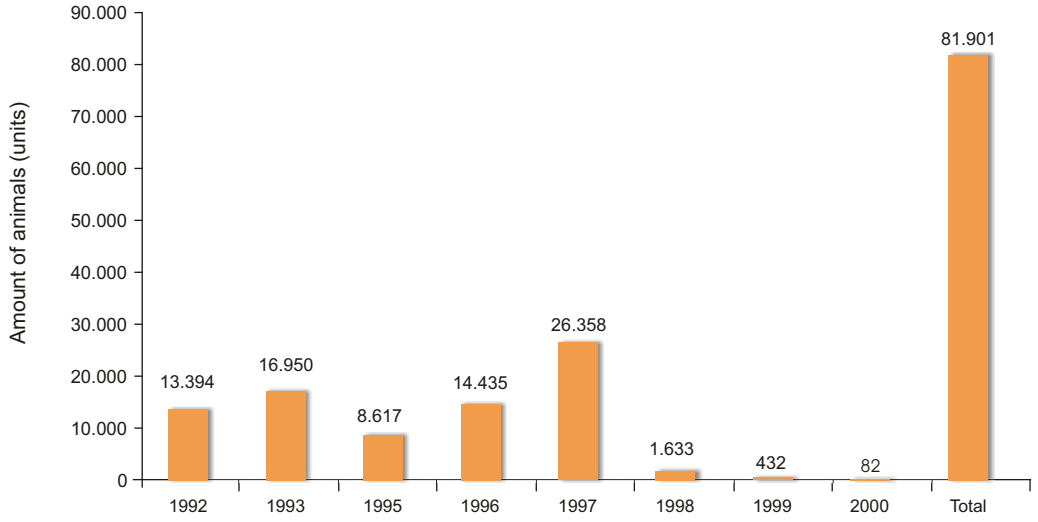
The charts below show the number of wild animals seized in Brazil from 1992 through 2000.

Chart 6. Total of animals seized in Brazil, 1992 to 2000



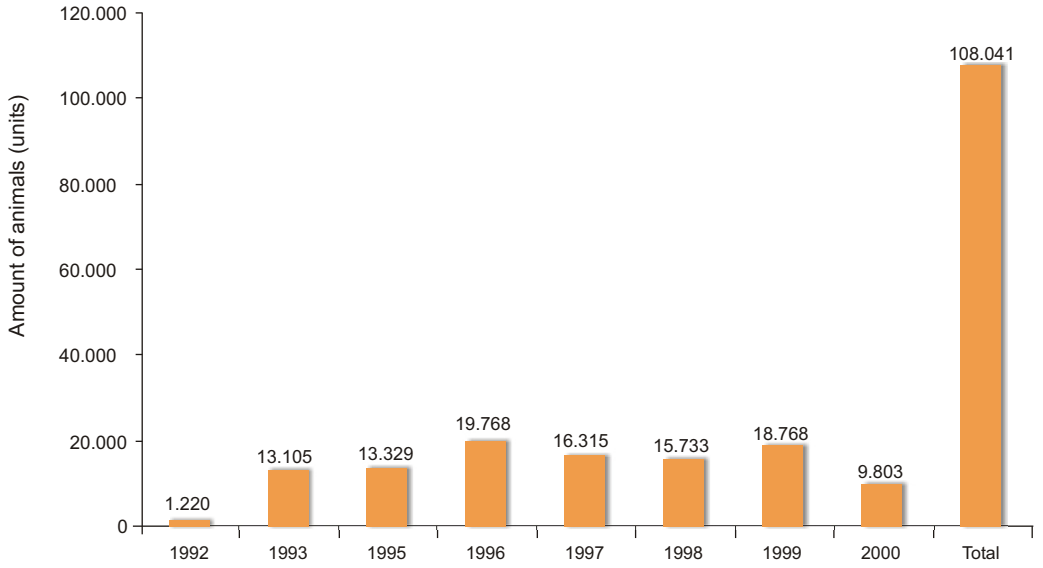
Source: IBAMA

Chart 7. Total of animals seized in the North region, 1992 to 2000



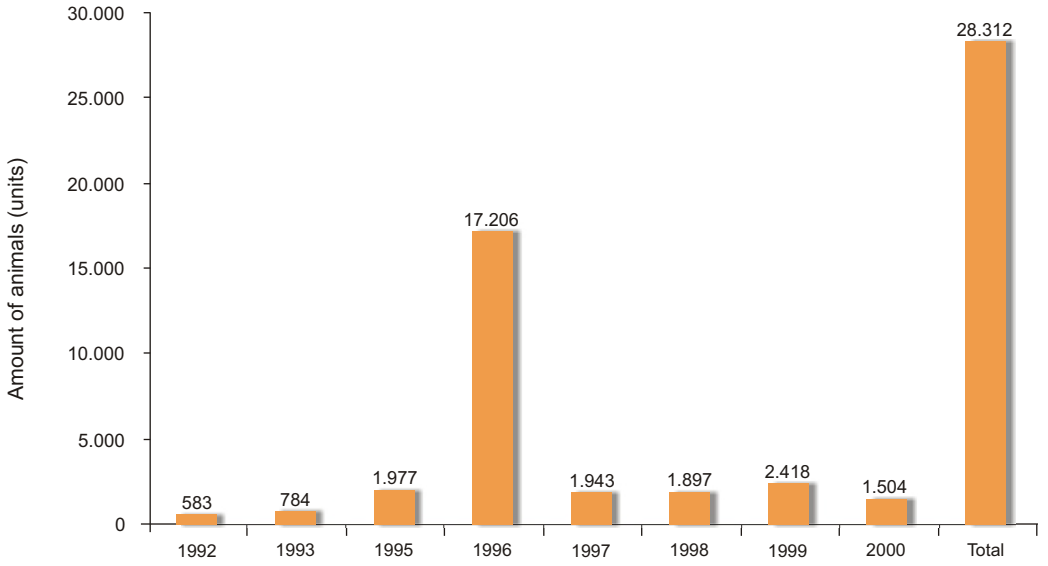
Source: IBAMA

Chart 8. Total of animals seized in the Northeast region, 1992 to 2000



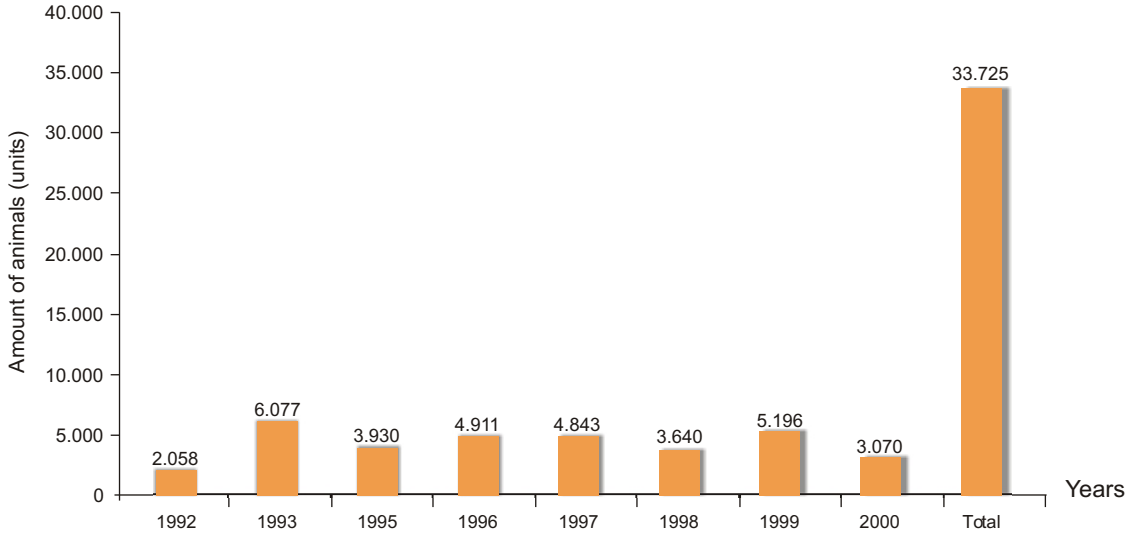
Source: IBAMA

Chart 9. Total of animals seized in the Mid-West region, 1992 to 2000



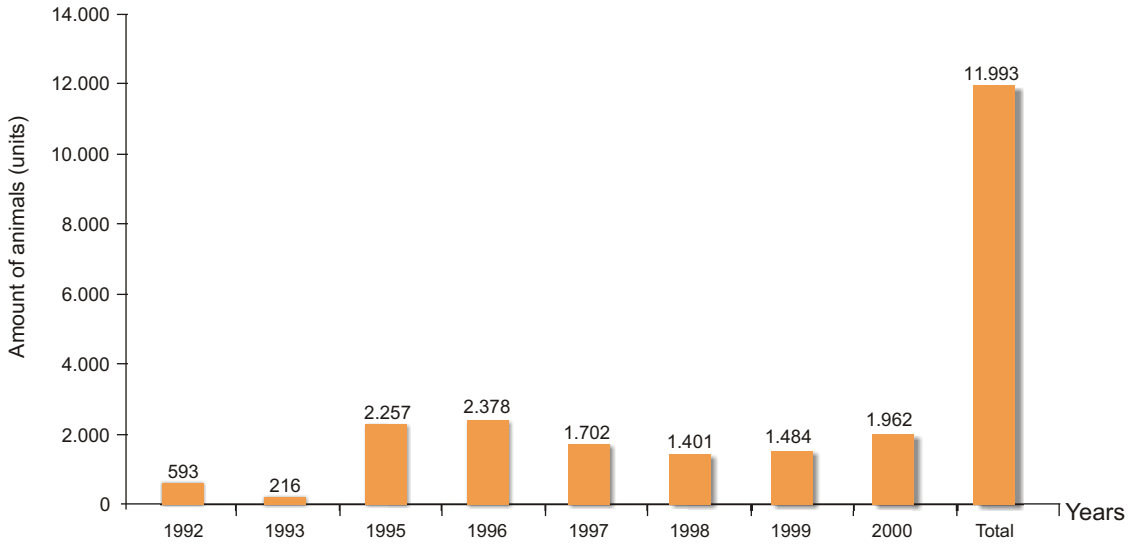
Source: IBAMA

Chart 10. Total of animals seized in the Southeast region, 1992 to 2000



Source: IBAMA

Chart 11. Total of animals seized in the South region, 1992 to 2000



Source: IBAMA

The amount of species seized by year depends on both the frequency of surveillance operations and seizures carried out by pertinent institutions in each Brazilian state. Unfortunately, there is neither systematization available, nor adequate planning nor enough resources to surveillance operations (Rocha, 1995; IBAMA, 1997). Another difficulty factor is the lack of screening centers where animals could be sent to.

The figures found in this work, both with regard to the number of species and the economic figures, had only taken into account the specimens of animals registered in the seizures and found in the fairs. It is important to stress that, due to the lack of data, invertebrates and fishes, which account for a great amount of trafficking in Brazil, were not taken into consideration herein. We shall also stress that the products and by-products of the wild fauna are also trafficked and contribute to the poaching of animals from their ecosystems. Notwithstanding estimates cannot be established so far, we can assert that these figures are even higher.

Whatever initiative aimed at quantifying this illegal activity may be mistaken. Because it is not submitted to any sort of statistics or controlling procedures, measuring the wild fauna trafficking precisely is extremely difficult. Another difficulty is the lack of previous data to compare the evolution of this activity. Renctas presents through the report herein estimates through which it is possible to view what is happening to our fauna.

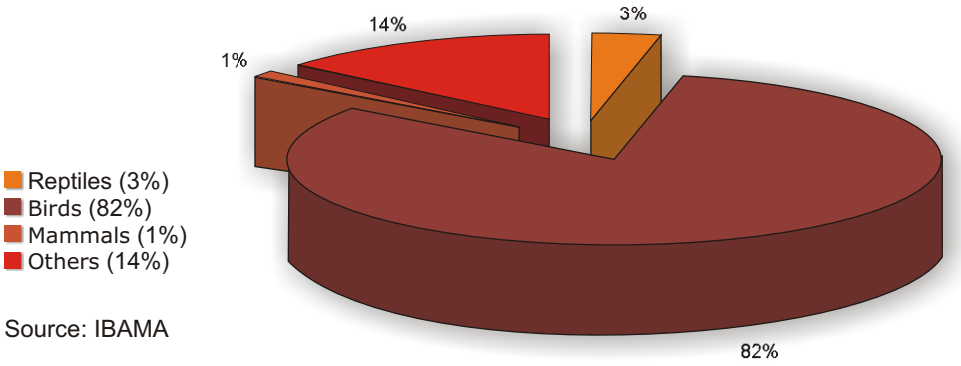
Despite precise numbers, what is really important is that every year a considerably high number of specimens are poached from nature without taking into consideration the capacity of these species to reproduce naturally. Wild animal trafficking is a highly destructive activity that contributes immensely to the impoverishment of the Brazilian fauna besides endangering a number of species.

Species Involved in the Traffic

9

Notwithstanding the lack of official data on the traffic, we can rely on previous studies as well as on data collection to list the major species involved. The chart below shows the species seized in Brazil in 1999 and 2000.

Chart 12. Participation of classes in seizures carried out by IBAMA, 1999 to 2000



Source: IBAMA

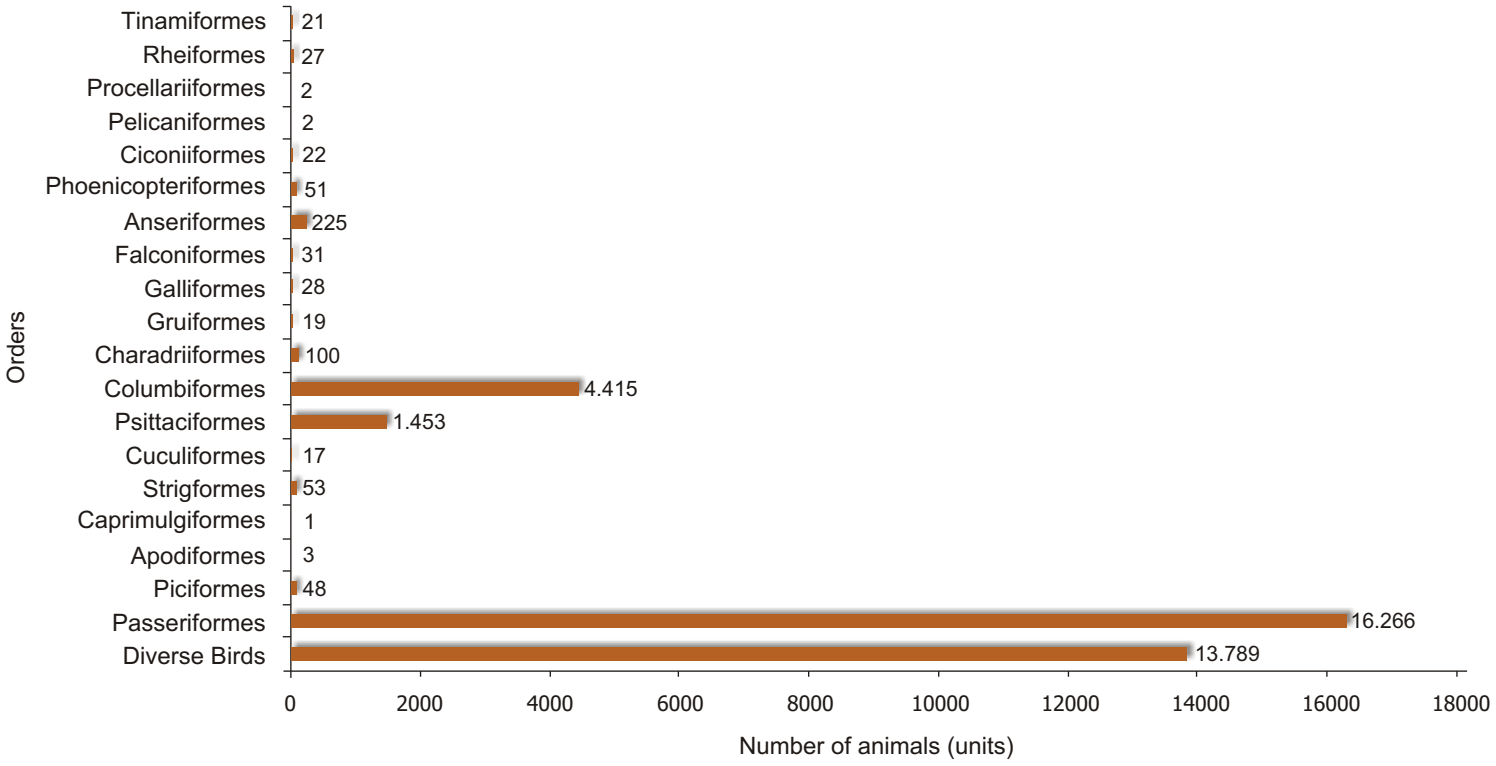
Birds

Birds are the most frequently found animals in the illegal trade for they are the traffickers' favorite animals and because the riches of the Brazilian bird fauna. Bird trade is a strongly diversified activity worldwide, which accounts for nearly US$ 44 million per year (Fitzgerald, 1989). Estimates of the US Pet Industry Committee point to a 40-50 million population of pet birds in the USA, which represents 15 percent of American homes (Clubb, 1987).

Besides live animals, an undetermined number of birds are killed to supply the market with feathers, skins and other parts of their bodies. Eggs are also traded. Most wild birds found in the market come from the tropics, the regions harboring the richest avifauna.

The next chart and tables attached (Appendix I) show the orders and species of birds seized in Brazil in 1999 and 2000.

Chart 13. Participation of bird orders seized in Brazil in 1999 and 2000



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Passerines are the most usual caged birds worldwide. At least 2 million passerines are illegally traded every year. However, the majority come from Senegal (the world's largest wild bird exporter) and other African countries (Fitzgerald, 1989).

The immense capture of passerines in Brazil is traded in the domestic market. Brazilians have always been fond of cage birds and songbirds are the most frequently found species in captivity in Brazil (Santos, 1985; Souza, 1987). The maintenance of these birds in cage is an old and deep-rooted tradition in Brazil. This custom has grown and multiplied and there are nowadays bird-breeders clubs that organize contests to judge the quality of songbirds. Some associates of these clubs may participate actively in the illegal market of birds by stimulating the increasing capture of songbirds in nature (Coimbra-Filho, 1986).

Bird capture is a threat to many species. The high number of specimens captured throughout Brazil - even common species like the Rufous-collared Sparrow (*Zonotrichia capensis*) - the Brazilian sparrow - are

becoming less numerous in places where they were first easily found. If a species shows potentiality for fighting it becomes immediately a target for hunters (Coimbra-Filho, 1986).

The unrestricted capture of songbirds was permitted by the Brazilian Hunting Administrative Act of 1953, which made way for capturing specimens in nature for trading purposes. As a consequence, breeding grounds located in the surroundings of urban centers still meet the commercial demand, endangering some species and even leading others to extinction. (Marques and Menegheti, 1982; Sick, 1997a).

The psittacidae, due to their capacity to imitate the human voice, associated with their intelligence, beauty and docility are the world's most popular and wanted pet birds - being surmounted only by dogs and cats. This also makes them the most illegally traded birds (Hardie, 1987; Fitzgerald, 1989; Santos, 1990; Hemley and Fuller, 1994; Abramson et al., 1995; Sick, 1997a). In the sixteenth century (when Brazil was discovered) parrots, along with brazilwood (*Caesalpinia echinata*), were one of the major products exported to Portugal. (Bueno, 1998b).

Most psittacidae come from the tropics, and more than half from South America and the Caribbean, and the remaining from Africa, Asia, and Australia (Fitzgerald, 1989). Brazil is the world's richest country in psittacidae and the country where the largest species live in (Sick, 1997a).

The Psittacidae are the group with the greatest number of endangered species according to the list of the Endangered Brazilian Fauna (Sick, 1997a). Only 5 percent of the Psittacidae traded come from breeding grounds; the remaining 95 percent come from nature for the reproduction of these animals in captivity is difficult and expensive (Nogueira-Neto, 1973; Abramson et al., 1995; Fitzgerald, 1989; Sick, 1997a). Trade can be devastating, particularly for big species that reproduce slowly such as the hyacinth macaw (*Anodorrhyncus hyacinthinus*). Estimates point to a number of 10,000 hyacinth macaws captured for trafficking purposes during the 1980's (Guedes, 2001).

All species have their own world trade, especially the most endangered and most expensive ones, which represents a stimulus for smuggling. Capture for trading purposes is considered the primary cause for the extinction of the spix's macaw in nature, which makes it the most endangered species of psittacidae. The illegal trade in Psittacidae is still a very profitable trade but a devastating one for the species (Fitzgerald, 1989).

Besides the Passeriformes and Psittacidae, there are many other species captured for illegal trading and a number of other purposes such as herons and rheas (*Rhea americana*).

Herons were hunted for their feathers that reached extremely high values in the fashion market (MEC, 1963; Von Ihering, 1963 and 1968; Sick, 1997a). Values were so high they were called 'white gold'. The unrestricted hunting led to the extinction of several heron species (Paiva, 1945; Santos, 1990). According to TRAFFIC, 15 tons of feathers from Brazil, Argentina and Venezuela were commercialized from 1899 to 1920 (approximately 20 million specimens) (Ortiz-von Halle, 2001).

Rheas used to be largely hunted for sporting and for their feathers which were used to make feather dusters (MEC, 1963; Von Ihering, 1963 and 1968; Nogueira-Neto, 1973; Sick, 1997a). In the nineteenth century, these feather dusters, which were exported to Europe, reached extremely high prices in the markets of Bahia and Rio de Janeiro states (Spix and Martius, 1981). Nearly 60 tons of rhea plumes were exported from South America between 1899 and 1920 (Ortiz-von Halle, 2001).

Reptiles

Reptile skins feature in the trade in wild animal products, both in terms of amount and value. Crocodile, snakes, and lizard skins are used in a variety of articles such as shoes, handbags, clothes, suitcases, watch straps, belts, etc. (Le Duc, 1996). Reptile skin is considered a refined material with a high value in the market, which makes this a very profitable activity. Exotic leather centers import millions of snake and lizard skins every year, but none of these species are bred in captivity in order to meet such demand (Ballou, 1988).

Live reptiles are also wanted as pets. In the past ten years, the world demand for reptiles by pet shops, educational and scientific research, zoos, aquaria, as well as for food, has dramatically increased. Reptiles are nowadays the pet-stars because of the large number and variety of species available, the improvement of techniques used in breeding grounds, the increasing restriction in the trade in other species, and especially because they require less care than dogs, birds and other pets (Hoover, 1999).

Between 1983 and 1992, the American reptile market increased from 28 percent to 82 percent of the total registered in the world market. In 1995, the US imported over 2.5 million live reptiles such as the iguana (*Iguana iguana*), which represented over 45 percent of the entire American market. In 1996, the Country re-exported 9.5 million reptiles to Europe and Asia (Hoover, 1999).

Most of Tegu lizards (*Tupinambis sp*.) are sold in the international market of exotic skins. Argentina is the major legal supplier and small volumes are illegally exported from Colombia, Peru, Uruguay, Brazil, and Panama (Fitzgerald, 1989).

Between 1957 and 1958, 46,000 Tegu skins were legally exported from Brazil (Santos, 1961). Argentina alone provides the world market with over 1 million skins (approximately US$ 15-20 million). In 1985, the US imported over US$ 24 million in Tegu skins and products, being Argentina the major exporter (Fitzgerald, 1989).

Snake skins have always been traded and exported to supply the garment and accessory industries, which were in vogue during the 1970's (Santos, 1961; Lima-Verde, 1994). The world demand for snakes is tremendous. Every year hundreds of thousands of live snakes are traded; millions of skins and dozens of millions of shoes, belts, and other articles for the fashion industry are made from snake leathers (Fitzgerald, 1989).

Another sector jeopardizing a diversity of species is the biomedical research industry. There are already 400 proteins isolated from snake venoms and regarded as useful for medical purposes (Lima-Verde, 1994).

The boa (*Boa constrictor*) is one of the top five species traded and is by far the most popular pet-snake in the US, and maybe worldwide. Its skin is extremely valuable. Venomous snakes such as the jararaca (*Bothrops jararaca*) are extremely valuable in the biomedical market (see table below). Illegal trade is one of the major threats for the Island jararaca (*Bothrops insularis*), which is critically endangered for being endemic only in the Queimada Grande Island, in São Paulo State's coastal zone. However, there is a demand for its breeding in captivity, aimed at studies on its venom (Faria, 1999).

Species	Amount of venom	Value in US$
Bothrops jararaca	1g	433.70
Bothrops alternata	100 mg	183.50
Bothrops neuwiedi	100 mg	97.90
Bothrops atrox	1g	223.80

Source: SIGMA, 1998.

The use of chelonian meat in Brazil, particularly in the North region, is an old custom. These are very important animals, in socioeconomic terms, for the populations living in the Amazon region - one kilogram of turtle meat costs approximately US$ 60 (Cantarelli, 1994). Notwithstanding legal restrictions, the local populations, and tourists as well, regard the meat of the Amazon turtles as a great delicacy (Fitzgerald, 1989). In August 1999, in the largest seizure of chelonian ever, 38,000 illegally-hunted turtles were seized in the rivers of the Amazon region. The profit made by these would-be traded animals was estimated at over RS$ 1 million until reaching their final destinations - residences and restaurants of the region (Cavalcanti, 1999).

The tortoise (*Geochelone sp.*) is the most often traded reptile, both in Brazilian fairs and in the international market. Its destinations are pet shops and private collections, or zoos (Fitzgerald, 1989; Lopes, 1991).

Crocodile leather has been used by the fashion industry since late nineteenth century, when the exotic leather fashion deluged Europe (Thorbjarnarson, 1999). The peak of consumption occurred in the 1950's and 60's when nearly 5-10 million skins were introduced into the international market (Fitzgerald, 1989; Redford, 1992).

In South America, the leather industry targeted firstly the broad-nosed caiman (*Caiman latirostris*) and the large black Amazon caiman (*Melanosuchus niger*). When these two species became scarce to meet the demand of the leather market, the Common Caiman (*Caiman crocodilus*) became the new target (Fitzgerald, 1989).

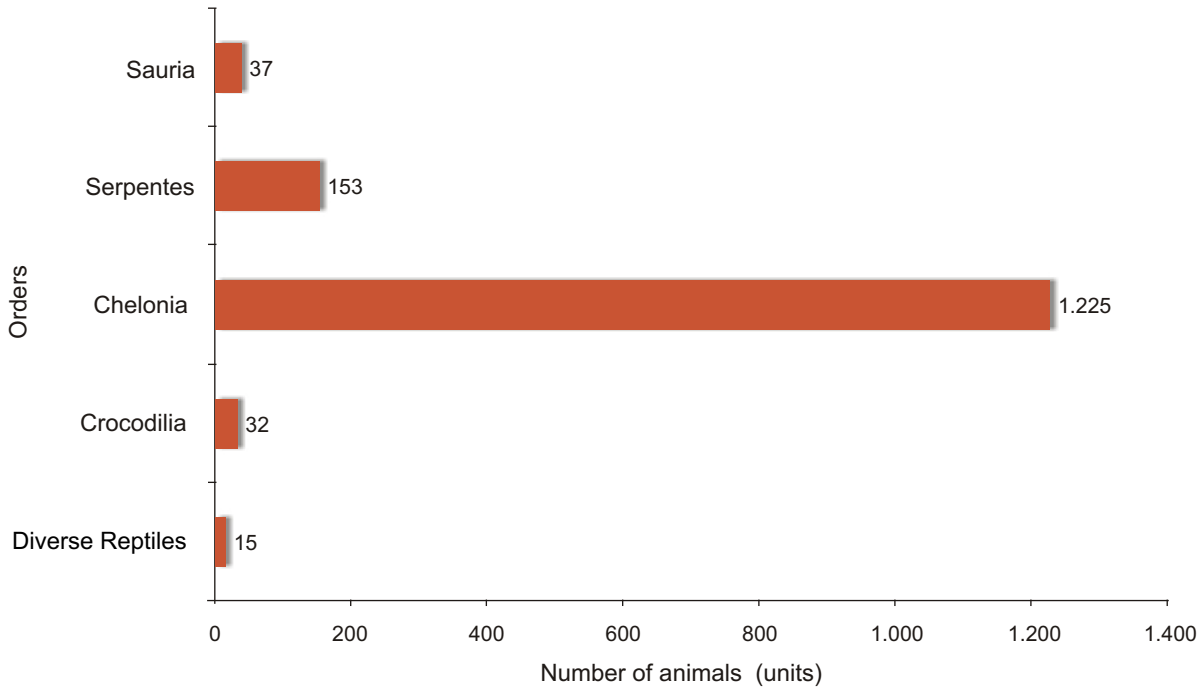
From 1950 through 1965, 7.5 million caiman skins (mostly the large black Amazon caiman) were exported from the Amazonas State, in Brazil, which brought about a devastating effect to natural populations. The number of caimans captured in South America every year (in the 80's) is estimated at over 1 million specimens. Estimates show the world market is currently supplied with an amount between 1.5 and 2 million caiman skins every year, being ¾ of this total comprised of *Caiman crocodiles*, and virtually all of them are captured in nature (Fitzgerald, 1989; Thorbjarnarson, 1999).

Today, because of the restrictions imposed to the hunting and skin trade, as well as because of breeding ground programs, many populations which were formerly overexploited are now recovering. Nevertheless, the illegal trade in these animals still remains (Fitzgerald, 1989; Thorbjarnarson, 1999). Brazil's efforts face a huge problem such as patrolling the Pantanal (Brazilian Central Swamps) the world's largest flooded area, where it is estimated that 1 million caimans are illegally captured every year. In the Amazon region, illegal hunters kill thousands of caimans every month. Some officers patrolling the area are usually killed by these hunters. The skins are taken to neighbor countries where they are processed in tanneries, have their features changed, are provided with false documentation, and are then exported to the international market (Block, 1987; Hardie, 1987; Fitzgerald, 1989; Hemley and Fuller, 1994).

Caiman meat is also largely traded. The Amazonas State is currently the world's largest illegal producer of caiman meat. With a price varying from US$ 0.7 to US$ 0.9/kg, the salted-down meat is forwarded to the State of Pará and to Colombia (Silveira and Thorbjarnarson, 1999).

The following chart and tables attached (Aneex I) show the orders and species of reptiles seized in Brazil in 1999 and 2000.

Chart 14. Participation of reptile orders seized in Brazil in 1999 and 2000



Mammals

Many species of mammals have their furs and skins traded in the European fashion market. In the 1940's, 50's, and 60's, the demand for such products was so huge that their populations had been reduced to alarming levels (Coimbra-Filho, 1974; Redford, 1992).

Among mammals, primates stand out for having always been an important protein source for the population living in the Amazon region (Coimbra-Filho, 1977; Hardie, 1987 and Hemley and Fuller, 1994). The desire to possess exotic animals leverages both trading and smuggling activities and makes the market of wild primates, particularly those from Latin America, the world's second largest market of wild animals (Kavanagh, 1983; Kavanagh *et al*. 1987; Fitzgerald, 1989; Fonseca *et al*., 1994).

A new phase of the primate trade emerged when the scientific community began to use these animals as scientific models for biomedical research (Hardie, 1987; Hemley and Fuller, 1994). The

exports of Neotropical primates started in the 1940's. The boom was reached in 1963 with the first flight from Iquito (Peru) to Miami (USA) when 30 thousand monkeys were exported, from the Amazon region alone, to meet the demands of biomedical researches. Considering the losses, estimates point to a number of 500 thousand primates poached from this region in only one decade (Ávila-Pires, 1972; Coimbra-Filho, 1972; Soini, 1972).

Approximately 80 percent of all primates traded belong to Old World species. The remaining 20 percent belong to the following New World species: 10 percent of the CEBIDAE Family and 10 percent of the CALLITRICHIDADE Family (Fitzgerald, 1989).

Ninety-five percent of all New World species traded occur in Brazil. The most sought-after species used in biomedical researches in late 70's and early 80's included Squirrel Monkeys (*Saimiri sp*.), Night Monkeys (*Aotus sp*.), Capuchin Monkeys (*Cebus sp*.), Marmosets and Tamarins (*Callithrix sp*. and *Saguinus sp*.) and the White-tufted-ear Marmoset (*Callithrix jacchus*). With the exception of the White-tufted-ear Marmoset, all species above are obtained almost exclusively in nature (SEPLAN/ CNPq, 1982; Mack and Mittermeier, 1984).

Along with the Guyanas and Peru, Brazil is one of the major suppliers of Neotropical primates (Hardie, 1987; Hemley and Fuller, 1994). Primate trade has significantly decreased due to more rigid control, to the restriction on the part of exporter countries, and sanitation control of importer countries (Mack and Mittermeier, 1984; Kavanagh *et al*., 1987; Fitzgerald, 1989).

Zoos, circuses and other traveling shows are ancient activities that contribute to the world demand for primates. However being a somewhat small sector of the trade itself, these activities bear great importance concerning the capture of endangered species since the majority of animals they maintain come from the wild (Kavanagh, 1983; Mack and Mittermeier, 1984; Kavanagh *et al*., 1987).

Despite the decrease in the legal trade in primates, the illegal market still endures and animals keep being widely poached from nature when compared to the size of natural populations. Even small-scale trade affects rare, vulnerable, or endangered species which also suffer from the devastation and loss of their habitat (Kavanagh, 1983; Mack and Mittermeier, 1984; Kavanagh *et al*., 1987).

As suppliers of the most admired and wanted furs, carnivores shall also be highlighted among mammals. In the 50's and 60's, the demand for tropical carnivore furs was so huge that populations decreased to alarming levels (Coimbra-Filho, 1972 and 1974; Fitzgerald, 1989).

Otters (*Lontra longicaudis*) with their thick and luxurious furs have also been largely hunted over the centuries (MEC, 1959; Emmons, 1990; Santos, 1984). Between 1980 and 1984, 63 thousand otters were traded in the international market. In spite of the significant decrease observed in recent years, the hunting aimed at the illegal trade is still a threatening factor for this species. The Giant Brazilian otter (*Pteronura brasiliensis*) is also largely hunted for its fur, which is traditionally the most valuable among all otters. The largest demand for such furs aims at supplying the European fashion market (Fitzgerald, 1989).

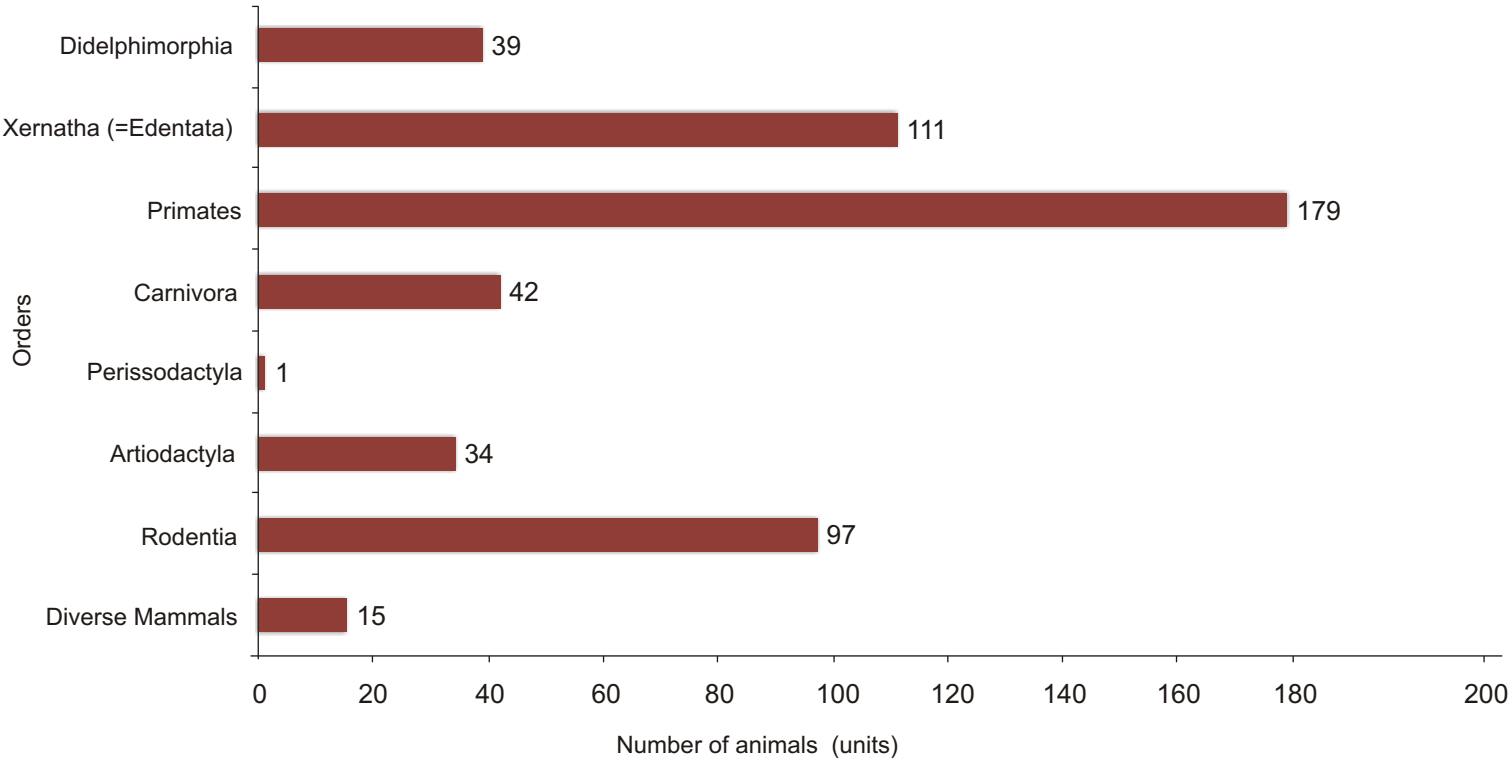
Felines are hunted for their furs, fangs, claws, and other parts of their bodies. In Latin America the largest trade comprises 4 species of small felines: Ocelot (*Leopardus pardalis*), Wild Cats (*L. tigrinus and Oncifelis geoffroyi*) and Margay (*L. wiedii*); and one species of big feline: the jaguar (*Panthera onca*) (Fitzgerald, 1989).

From 1968 to 1970, estimates pointed to 1.4 million small feline furs traded in the international market, an average of nearly 500 thousand furs per year. The trade in small felines has been characterized by excessive illegal trade and smuggling, particularly of Latin-American species. In mid 1960's, the demand for jaguar fur was so astonishing that hunters and traffickers poached over 15 thousand animals from the Brazilian Amazon every year. In the late 60's it was possible to buy a jaguar-fur coat in New York for US$ 20,000 (Fitzgerald, 1989).

Notwithstanding nowadays the official trade in felines and their parts have significantly decreased, the illegal trade is still a serious threat to the survival of species, which also suffer with the loss of their habitat. Illegal hunting endures in many Latin-American countries because of the high prices achieved (Nowak and Paradiso, 1983; Fitzgerald, 1989; Fonseca *et al*., 1994).

The chart below and tables attached (Appendix I) show the orders and species of mammals seized in Brazil in 1999 and 2000.

Chart 15. Participation of mammal orders seized in Brazil in 1999 and 2000



Other Animals

Butterflies

Millions of dead butterflies supply the world market in a turnover of nearly US$ 100 million per year (Fitzgerald, 1989).

Generally, the capture of butterflies in nature cause no harm to the species since, like other insects, butterflies reproduce very quickly and are easily adaptable to environmental changes. However, for many species with small populations and naturally slow reproductive rate the capture of specimens can be a serious threat (Fitzgerald, 1989).

Butterfly trade is difficult to monitor, partly because it is done through mail services. Taiwan is the leader in butterfly exports but Brazil, the Central African Republic, Malaysia, Mexico, Papua New Guinea, Philippines, and Peru are also major suppliers. The European Economic Community is a major consumer and England and Germany the most significant importers. Trade is also considerable in Japan and United States (Fitzgerald, 1989).

Specimens are used as ornaments in pictures, toilet seats, box lids, ear rings, etc. In the 70's, Brazil traded nearly 50 million animals per year. All butterflies had supposedly been bred in captivity but there are evidences that a large amount had been captured in nature (Fitzgerald, 1989). Brazil had once three butterfly breeding grounds (five in Santa Catarina state and one in Amazonas state). However, only one remains in operation to supply the demand of a local craftsmanship industry in Santa Catarina state.

In the municipality of Itaiópolis (Santa Catarina State), kids capture butterflies and sell them to middlemen who, in turn, resell them to people from outside the State. Kids receive RS$ 0.10 per each blue butterfly captured (*Morpho anaxabia*) and RS$ 0.02 per each ordinary butterfly. These butterflies are used in the manufacture of craftsmanship and ornaments besides being appreciated by European and North-American collectors (Assunção, 2000).

Although dead butterflies account for the greatest deal of trade, live butterflies are becoming highly popular among private collectors and for exhibitions in tropical sections of parks and zoos. Most live specimens are delivered in their pupa stage. Live butterflies are sometimes carried in small paper envelopes which hinder their movements. Such cruel and distressing procedure often results in high rates of losses - 40 percent of mortality is the usual rate (Fitzgerald, 1989).

Ornamental Fishes

Aquarium fishes are among the most popular - at least the most sought-after - pets in the US. From 340-500 million fishes are kept in American homes (three times the total number of dogs and cats). Trade in fish grows every year. At least US$ 215 million in tropical fishes are handled every year in the US. The Country imports 125 million of ornamental fishes per year - US$ 25-30 million/year (Fitzgerald, 1989).

Germany, Japan, the Netherlands, and England are the largest importers of the 350 million ornamental fishes annually traded in the world. It is estimated that the world market of aquarium fishes accounts for US$ 600 million every year; a figure that increases 10-15 percent yearly. Asian countries are the major suppliers - Singapore stands out with over 150 million specimens exported every year. Other exporters are Latin-American countries, particularly Brazil, Colombia, Peru, and Jamaica. African countries share a small portion (Fitzgerald, 1989).

Approximately 95 percent of ornamental fishes are freshwater fishes. In spite of the existing breeding grounds, a considerable amount is still being captured in nature, which brings about the overexploitation of populations, particularly in South America. (Fitzgerald, 1989).

For example, a study carried out by TRAFFIC-Japan, in 1984, showed that populations of Black arawana (*Osteoglossum ferreira*i), a Brazilian fish endemic in the Negro river basin, could be depleted because of captures aimed at meeting the collectors' demand. The Japanese importation of

this fish was estimated at 3,000 specimens per year, which means that over 30,000 fishes used to be poached every year from their habitats (nine out of ten fishes captured died in the tanks before being exported). This led to the depletion of this species in nature. Nearly 50 percent of freshwater fishes captured in South America die between capture and export processes and 10-40 percent of the remaining may not survive during transportation (Fitzgerald, 1989).

Among the rarest Brazilian species of ornamental fishes and therefore highly priced in the market are: Cruz's Dwarf Pearlfish (*Leptolebias cruzi*), and *Typhlobelus macromycterus, Cyanolebias notatus, Pituna poranga* and *Hyphessobrycon loweae* (Rocha, 1995).

Despite the huge volume traded, very little is known about the impact on both the species themselves and their ecosystems and how such commerce is organized and which trafficking network is involved.

Amphibians

Frog meat is very popular in European and North-American restaurants. Frogs are usually captured in rice plantations in flooded areas of Asia. The world trade handles approximately 200 million frogs/year - all captured in nature (Fitzgerald, 1989).

The Neotropical venomous toads of the DENDROBATIDAE Family, considered the jewels of the live amphibian trade, are another type of the amphibian commerce. Having emerged in the 1970's, most exports of these animals from South America are bound to the Netherlands and Germany (Fitzgerald, 1989). Some species have the chemicals secreted though their skins investigated in studies aimed at the fabrication of antibiotics and other medicines (Santos, 1961 and 1994; Feio *et al*., 1988).

The demand for amphibians in dissection classes and other scientific purposes still endures. Every year, the United States uses nearly 9 million amphibians in such activities (Fitzgerald, 1989).

A new international market is the fabrication of wallets, handbags, shoes, and other products made from amphibian leathers (Santos, 1961 and 1994; Fitzgerald, 1989).

In spite of the existing captivity breeding sites, most animals are still poached from nature in Brazil and parts of Asia. Even small-scale trade can be devastating for rare and endemic species, which are also endangered by the loss or alteration of their habitats (Fitzgerald, 1989).

Spiders

Among the arachnidan, the spiders belonging to the tarantulas family (Family THERAPHOSIDAE) are in great demand in the US and Europe. Very little is known about the total number handled in the international trade but all spiders traded are poached from nature (Fitzgerald, 1989). Brazilian spiders are highly priced in European and North-American markets of exotic pets where a single baby spider may reach US$ 100 approximately (Barsetti, 1997; Ribeiro and Bittencourt, 1997).

Besides the animals above, a number of other species are illegally traded. We should consider that, from time to time, the trade changes according to the demands and needs of the wildlife consumer market and to the changes in legislations and restrictions imposed on the trade in each species.

Connection with other Illegal Activities

10

The illegal trade in wild animals is linked to other types of illegal activities such as drugs, weapons, alcohol, and gems. In South America, drug cartels, which usually make use of the fauna to transport their products, are deeply involved with the illegal wildlife trade. Drugs are frequently found within live animals or are hidden out in their skins. (Toufexis, 1993; Le Duc, 1996; Polícia Federal Brasileira, dt. ind.).

Many events occurred throughout the world confirm such link. In 1998, cocaine bags were found within the stomachs of some boas (*Boa constrictor*) seized in Rio de Janeiro (Câmara, 1998). 1.37 ton of marijuana was seized along with 300 turtles. In 1993, nearly 36 kg of cocaine were discovered within hundreds of boas sent from Bogotá, Colombia, to the United States. (Toufexis,1993). In 1985, in Miami, United States, US$ 33 million were found by agents within containers of tropical fishes from Colombia. There are records of parrots, sent from Bolivia to the Netherlands, stuffed with pure cocaine and shipments of caiman skins sent from Latin America to Europe with cocaine disguised as preservative for their skin (Fitzgerald, 1989).

It causes no surprise that some of these activities are linked to each other if we consider that both are illegal activities, that the products involved are frequently shipped from the same region and methods, such as the following, are similar: document counterfeiting, bribery of authorities, tax evasion, false Custom statements, etc. Lots of animals are killed

before being stuffed with drugs. The drug, when stuffed into live animals, frequently cause their death during transportation (Fitzgerald, 1989), as occurred in a shipment of *caturritas*, from Argentina to Germany, when all specimens died because of the cocaine hidden out in their stomachs (Valentino, dt. Ind.). The interface between drug trafficking and wild animals trafficking is much more usual than it appears to be (Fitzgerald, op.cit.).

Research on and follow-up of traffickers' actions, carried out by Renctas, suggest the existence of nearly 350 to 400 gangs operating in the illegal trade in wild fauna in Brazil, and that 40 percent out of this estimate have connections with other illegal activities.

Consequences of Traffic

11

1 - Sanitary - animals do not undergo any type of sanitary control when illegally traded. This may be an open door to the transmission of serious diseases, including unknown diseases to farm and pet breeding, which may bring about serious sanitary consequences to the importer country.

The zoonoses more frequently transmitted by wild animals are (Nogueira-Neto, 1973; Fitzgerald, 1989; Ministério da Saúde do Brasil):

- primate - yellow fever, capillariosis, echinostomiasis, oesophagostomiasis, sparganosis, Mayaro virus fever, hepatitis A, herpes simplex, primate malaria, bertielliasis, tuberculosis, shigellosis, salmonellosis, toxoplasmosis, and rabies among other;
- chelonian - reptile associated salmonellosis (salmonella arizona);
- psittacidae - toxoplasmosis, psittacosis.

Many of the diseases above are fatal if not properly treated (Nogueira-Neto, 1973).

An outbreak of salmonellosis, occurred in the US in the 1970's, is reportedly linked to the maintenance of turtles as pets. These chelonian are natural hosts for these bacteria. On the occasion, turtles could be found in 42 percent of the 60 million American homes and according to an epidemiologic research, 280,000 cases of salmonellosis, chiefly among children, were connected to the maintenance of these animals as pets (Honegger, 1974; Hoover, 1999).

Based on the evidence that primate bites may transmit rabies and other diseases, the US Government officially banned all imports of primates to be kept as pets. Some European countries have taken the same measures for health reasons. (Fitzgerald, 1989).

The trade in wild pet birds is frequently related to diseases, particularly psittacosis, and the Newcastle disease. Psittacosis was described in 1882 and is associated with parrots imported from Argentina when it became known as the parrot fever. In 1929, psittacosis broke out in the US along with a world outbreak of the disease caused by parrots imported by North America and Europe from Brazil and Argentina. In 1942, the incidence of psittacosis was so high the government banned the import of psittacidae. The PPD (Pacheco's Parrot Disease), a herpes of

psittacidae, formerly believed to be an aberrational psittacosis, was firstly described in birds imported by the US from Brazil, in 1930. Acknowledged as another disease in 1975, an outbreak of PPD ravaged the US and devastated the businesses of importers, pet shops, and poultry raisers, who had their breeding infected. Nowadays, a number of other diseases related to wild birds such as the poxvirus, reovirus of psittacidae, paramyxovirus, and the proventricular dilatation disease (Macaw wasting syndrome) have been described (Clubb, 1987).

Over 180 types of zoonoses are already known; and purchasing an illegally traded animal may bring about a number of risks. The entire trading process places severe stress on these animals and may lead to immunodeficiency with consequent development of communicable diseases, which may be then taken into the homes of those who purchase these animals (Bouer, 1998).

2 - Economic/Social - The illegal trade in wild animals may also be economically devastating since it handles extremely high amounts illegally and therefore may bring about considerable evasion in tax collection.

Furthermore, the wild fauna plays an important role in the economy by controlling plagues that frequently damage the Brazilian agriculture. If we consider the costs and time required for the combat of plagues with artificial methods such as pesticides and others chemicals, we will figure out that wild animals are by far more effective than artificial methods such as pesticides and other methods deployed in the combat of plagues (Gliesch,1933; Nogueira-Neto,1973). The economic benefits arising from wild species are estimated at 4 percent of the US' GDP - representing US$ 87 billion/year during the 1970's. The fauna is also a resource for the Ecotourism and accounts for nearly US$ 12 billion every year (Raven, 1992; Norton 1997). According to the Ministry of Environment, the touristic potential of the Amazon region alone is estimated at US$ 13 billion/year (Coutinho, 2001).

In general, major traffickers and companies that use wild fauna products, are those who profit from the illegal trade. The population sells these animals and their products, which will reach extremely high prices in the international market, at a minimum cost (Pires, 1977). A single Scarlet Macaw (*Ara macao*) is sold from US$ 5,000-6,000 in Europe and North America (Le Duc, 1996). According to TRAFFIC-South America, a hunter in the Argentine Chaco sells a single skin for US$ 2 to a middleman, who will then sell the same single piece to tanneries for

US$4, which will, in turn, sell this very same piece for US$ 6. After tanning process, this same piece is sold in the international market for US$ 10, and a pair of shoes made from this leather may reach US$ 300 (Bertonatti, 1995).

Everyone loses. The country itself with the destruction of its natural resources; and the population, unaware of the threats against their heritage, derives no benefits from this situation (Lopes, 2000). Moreover, the illegal trade recruits a significant portion of the Brazilian rural population who participate in illegal activities as an alternative income source (GAMBA,1998; Bertonatti, 1995).

3 - Ecological - anthropic action has speeded up the extinction process of species. After the loss of their habitats, hunting is the major threat to the wild fauna, whether for subsistence or trade (Ávila-Pires, 1972; Coimbra-Filho, 1972; Sick and Teixeira, 1979; Redford, 1992; Aveline and Costa, 1993; IBGE, 1997; Cullen Jr. *et al*.,2000).

The pressure exerted by the exploitation of the illegal trade is unbearable for the species since no criteria is applied whatsoever. Songbirds are almost always captured during their reproductive period when they defend their territories and show, according to the hunter's point of view, all the potentiality to be exploited in songbird contests. Poaching the most privileged specimens from nature is extremely detrimental to the species since it prevents the transmission of superior genes with a consequent reduction in the genetic quality of the species involved (Coimbra-Filho, 1986). The capture of offspring is also harmful because the populations cannot be replaced by new specimens.

Furthermore, a single specimen in captivity means that many other had died during capture and trading processes. In addition, captive specimens are excluded from the natural reproductive process, which leaves no possibility for new offspring. (Divulgação do Museu de Ciências e Tecnologia, 1994; Sick, 1997a). If the exploitation level exceeds the natural capacity for replacing wild populations, these will be bound to disappear (Hemley and Fuller, 1994).

The extinction of a species means that all its genetic history also disappears and it can never be recreated. Species have not evolved solely on their own; they have both intra and interspecifically connections among them and with the physical-chemical environment as well. These connections, which most of the times we do not understand or are even unknown to us, contribute to the complexity, and dynamic balance of

ecosystems. When species are exterminated, many of these interactions are suppressed, which makes the ecosystem's response and consequences hard to be predicted (Wilson, 1994; Norton, 1997).

Not only the extinction of species but also the reduction in the number of species brings about ecological consequences (Redford, 1992). The undue hunting of the caiman *(Caiman* sp.) in many regions of the Amazon has reduced the populations of this reptile, which, in turn, reduced the populations of invertebrate species that fed on these reptile's excrements. Consequently, populations of fishes that fed on these invertebrates have decreased, with consequent shortage of food supply for local populations that feed on these fishes (Fitzgerald, 1989).

A considerable number of hunted animals are seed-feeding species, which are, consequently, seed scatterers that influence the structure of the tropical forest (Redford, 1992; Robinson *et al*., 1999). Despite the knowledge achieved on the importance of these animals, very little has been studied on the consequences of their capture to the ecosystem. It is believed that the absence of big vertebrates will result in structural changes to the forest. A studied carried out in Panama showed that the absence of seed-feeding mammals favors the dominance of certain species of big-seed trees (Putz *et al*. *apud* Redford, 1992). The scattering of seeds by animals is critical to the demographic maintenance and propagation of most plant species occurring in tropical forests and major groups of scatterers are dramatically affected by hunting.

Among primates, 93.5 percent of species feed on seeds, which makes them important seed scatterers. These animals undergo extreme hunting pressures in the Amazon region and their absence may change the scattering standards of a number of plant species. The absence of agouties (*Dasyprocta* sp.) - important scatterer-agents - may lead to the extinction of some local species of trees. Seed-feeding animals may increase the diversity of species in the community and their absence may result in an unbalanced density of plant species. (Redford, 1992).

The ecological extinction of a species occurs when, despite an existing population, the number of individuals is so low that no significant interactions with other species can be observed. Usually, demographic extinctions are the sole focus of studies and conservation programs and, consequently, only the minimum feasible size of the population is taken into account; little attention is paid to the ecological extinction of species. Among the most sough-after animals in tropical forests - those which are threatened with ecological extinction - are major seed-feeding

species; i.e., seed scatterers that keep the ecosystem balanced. Many animal species are already considered as ecologically extinct in areas of tropical forests with well-preserved vegetation (Redford, 1992; Robinson *et al.*, 1999).

Moreover, wild animals purchased as pets when reaching the adult age become more aggressive, or no longer correspond to their owner's expectations. These animals and are, then, abandoned, released, or donated to overcrowded zoos (Fitzgerald, 1989). This occurs with both Brazilian and exotic species.

In addition to the huge volume of the illegal trade, the introduction of exotic species may cause adverse impacts on the native fauna since they may become invasive and consequently, by invading much wider areas than previously foreseen, they suppress the native fauna and may transmit new diseases.

The fauna invasion, which often brings about unpredictable effects, is considered one of the primary causes for the threatening and extinction of species (Sick, 1997a; Hoover, 1999; IUCN, 2001).

The variety of well-differentiated species and habitats influence the productivity and 'services' provided by the ecosystems. As species keep changing, the capacity of ecosystems to absorb pollution, maintain soil's and microclimates' fertility, and purify water and provide other invaluable services, change as well. In the future, the greatest benefit provided by diversity to mankind will be the opportunity to adapt to local and global changes. Genes, species, and ecosystems are resources that may be used, as needs and demands of mankind change. The conservation of biodiversity aims at safeguarding both the system that supports human life and the resources that are essential to development (Raven, 1992).

Legislation

12

Law no. 5,197/67 was the first specific legislation to protect the wild fauna in Brazil. Pursuant to this law, hunting and captivity of such animals are deemed illegal practices and violators are subject to the relevant penalties. Nowadays, there are a number of legal instruments to protect wild fauna (Appendix II). Legislations that brought about major changes in the use and protection of the wild fauna in Brazil include:

- Law no. 5,197, of January 3rd, 1967 - Law for the Protection of the Fauna - Under this act, the wild fauna, along with nests, shelters, and natural breeding grounds became property of the State and their use, pursuit, destruction, hunt, or catch are prohibited. Any aggression against the fauna is now deemed an offense. Professional hunting and trading of wild fauna specimens and its products are prohibited, except those from authorized breeding areas. Hunting activities aimed at controlling the populations of wild animals deemed "harmful" is allowed as long as in accordance with the specifications of pertinent authorities regarding species, hunting season, number of hunting days, and site. Amateur hunting is permitted within amateur hunting clubs and societies and so is the establishment of breeding grounds for economic and industrial purposes (Machado, 1992).

Administrative Act no. 1,925 of IBDF, of January 11th, 1971, established that April 30th, 1971 would be the final date for the trade of stocked wildlife products (Cecatto, 1977).

- Law no. 7,653, of February 12th, 1988 - Fragelli Act - This act amended some articles of Law no. 5,197; actions against the fauna that were previously deemed a misdemeanor is now deemed an unbailable offense. Like the previous act, it has not been discriminated in favor of subsistence hunting, which represents a hindrance to criminal actions against major traffickers who shall be the primary focus of law enforcement.

- Brazilian Federal Constitution, October 5th, 1988 - This constitution provided enhanced protection to fauna through article no. 225: "All persons have the right to an ecologically balanced environment, which is an asset of common use and essential to a healthy quality of life, and both the Government and the community shall have the duty to defend and preserve it for present and future generations".

- Law no. 9,605, of February 12th, 1998 - Law of Environmental Crime Act - notwithstanding still being deemed an offense, actions such as killing, chasing, hunting, catching, and using wild fauna specimens are no longer deemed an unbailable offense. However, it discriminates in favor of subsistence hunting. Under this act, custodial sentences can be switched to deprivation of rights such as the rendering of services for the community, temporary deprivation of rights, partial or full suspension of operations, payment of fines, and home imprisonment. While it is an effective legal instrument, it is often poorly enforced, as is the case of major traffickers and/or trade in endangered or valuable species. The New Law of Environmental Crime still contains loopholes regarding anti-traffic efforts as it does not provide against the illegal trade in the Internet.

Since natural resources are not associated to political borders, joint efforts involving the State, the various segments of society and nations worldwide are paramount (Mirra, 1994). Brazil endorses a number of international conventions, agreements and treaties on wild fauna protection, including the Convention on International Trade in Endangered Species of Wild Fauna and Flora - CITES.

- Convention on International Trade in Endangered Species of Wild Fauna and Flora - CITES - This convention was approved in March 1973 in Washington, D.C., and came into force in July 1975. Its purpose was to provide mechanisms to curb and deter international trade in wild species and their products.

Brazil's membership in the Convention on International Trade in Endangered Species of Wild Fauna and Flora - CITES was signed on August 6, 1975, and came into force on November 4, 1975. Virtually all wildlife importing and exporting nations endorse this convention. Members are required to monitor global trade in wildlife and its products (Hemley and Fuller, 1994; and Fitzgerald, 1989). The convention has three categories of protection:

Appendix I - encompasses all acknowledgedly endangered species that are or could be affected by international trade. This trade is solely authorized under extraordinary circumstances by means of a grant and prior submission of an export permit issued under strict restrictive requirements described in the convention.

Appendix II - encompasses those species that are not endangered but could have such status if their trade is not subject to strict regulations.

Appendix III - Refers to those species declared by any of the Contracting Parties, within their competence, as subject to regulation and that require support from all other parties in order to deter its trade. The purpose of this appendix is to help CITES members receive support from other nations so that they can strengthen their own legislation on wildlife protection and surveillance.

Exportation of those species described in Appendices II and III are also dependent on the grant and prior submission of a permit, provided that the relevant requirements described in the convention are fulfilled.

CITES has been the furthest-reaching and most effective international agreement for the preservation of wildlife, but only indirectly can it influence the trade in fauna and flora within the territory of each member-country. As a result, some regions have high loss rates for endangered species due to domestic trade (Hemley e Fuller 1994).

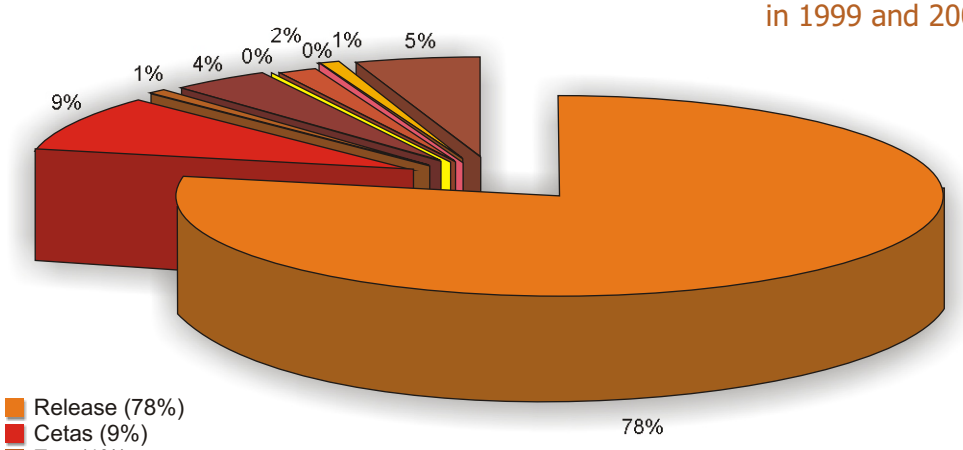
Up to now, no international regulation against traffic in wild animals is available. This makes international cooperation important, which should occur among various institutions, such as CITES authorities in the individual countries, the police forces through Interpol, and the Custom offices. A successful fight against wild animal trafficking is directly linked to such international cooperation (Le Duc, 1996).

Routing of Wild Fauna Seized in Brazil

13

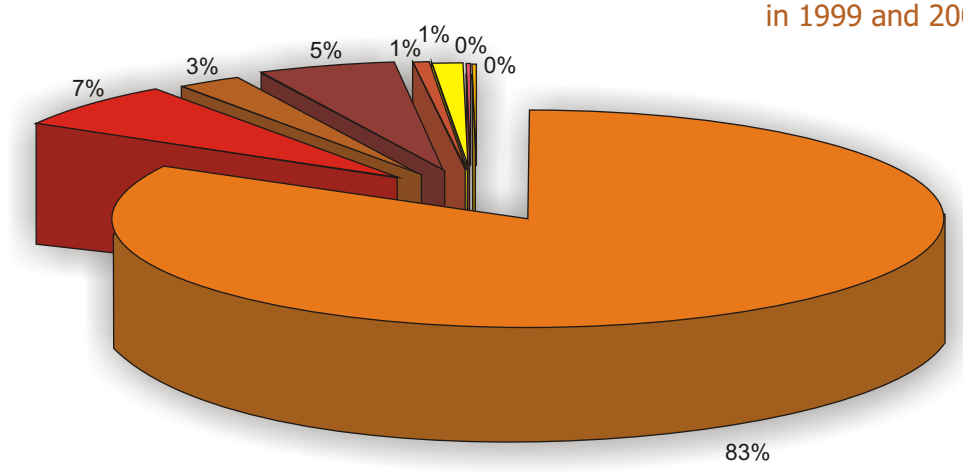
The following charts show the main destinations of wild animals seized in Brazil. Most animals have been released. Release is guaranteed by Law no. 9,605/98 and reinforced by Decree no. 3,179/99. It shall, however, be associated to specific species management programs, which in turn shall be approved by IBAMA's Wildlife Department (IBAMA, 1995).

Chart 16 - Destination of animals seized in Brazil in 1999 and 2000



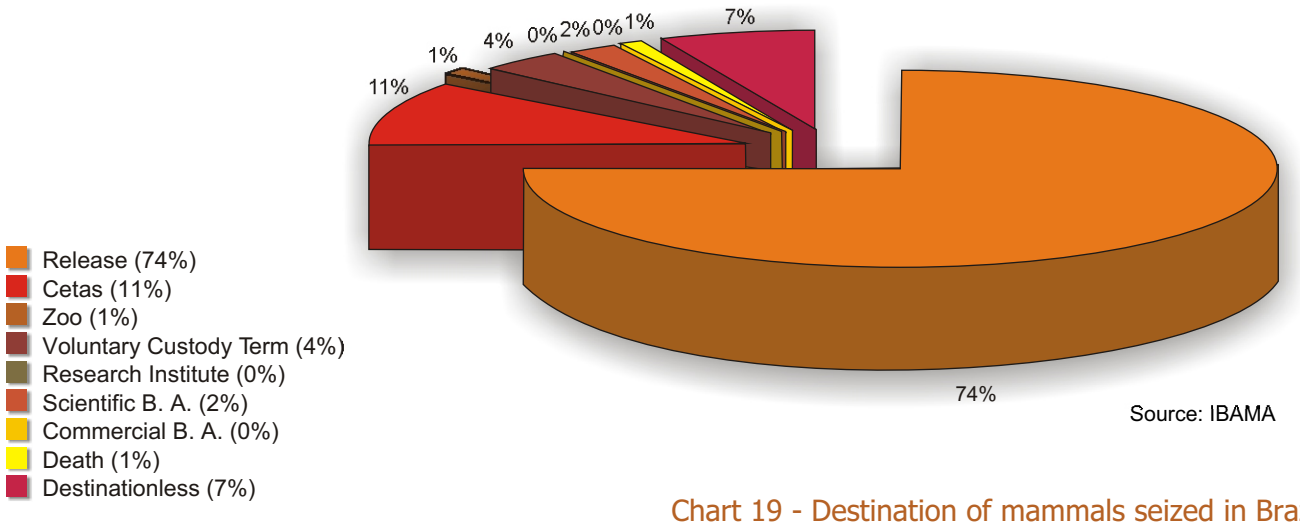
Source: IBAMA

Chart 17 - Destination of reptiles répteis seized in Brazil in 1999 and 2000



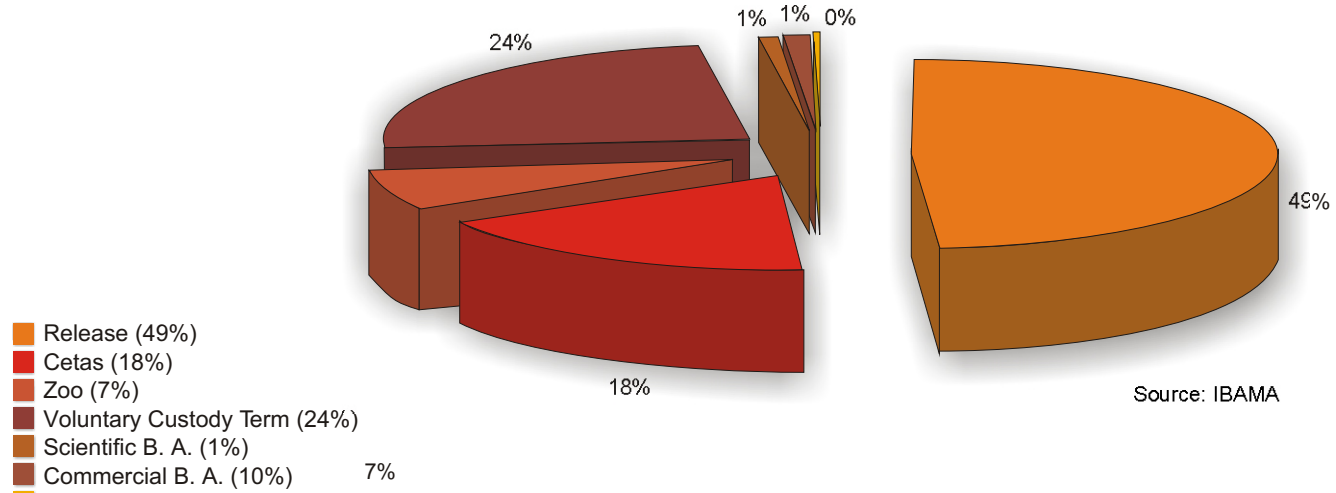
Source: IBAMA

Chart 18 - Destination of birds seized in Brazil in 1999 and 2000



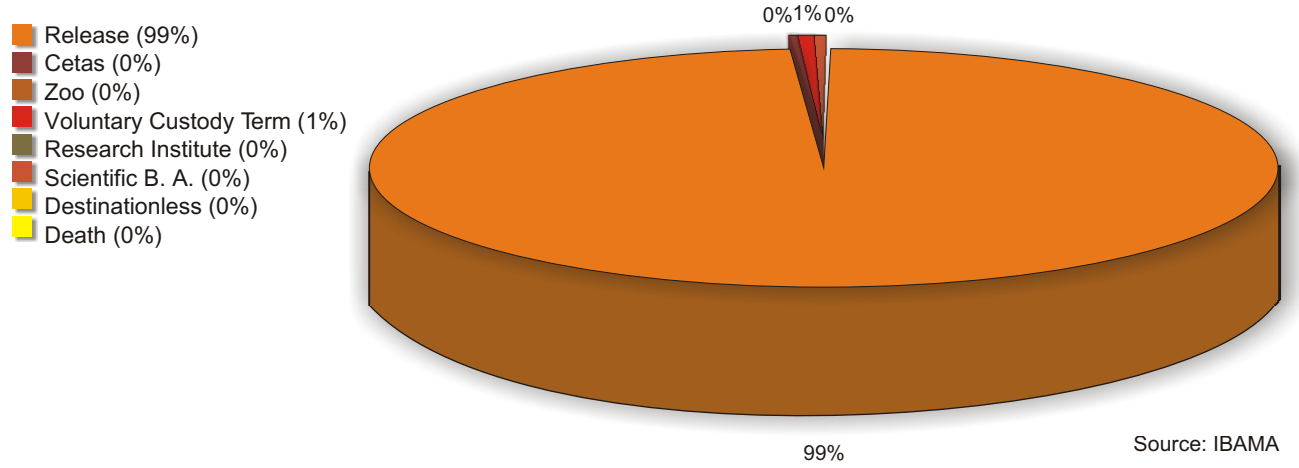
Source: IBAMA

Chart 19 - Destination of mammals seized in Brazil in 1999 and 2000



Source: IBAMA

Chart 20 - Destination of other animals seized in Brazil in 1999 and 2000



Source: IBAMA

Animals are usually released at the location where they are seized, and no scientific criteria are used. This occurs due to lack of awareness by enforcement agencies and due to the absence of Screening Centers - CETAS which are capable of housing seized animals.

The purpose of CETAS is to receive seized animals, whether rescued or donated animals, and provide them with the necessary care and send them afterwards to an adequate location (Branco, 2000).

According to IBAMA, there are currently some 32 authorized Screening Centers in Brazil, but only 16 are in a position to receive animals and to operate under normal conditions. Yet, these CETAS are faced with financial and technical problems - they are overcrowded and unable to received new seized animals (Branco, 2000).

For the animals to be released, the following steps must be completed:

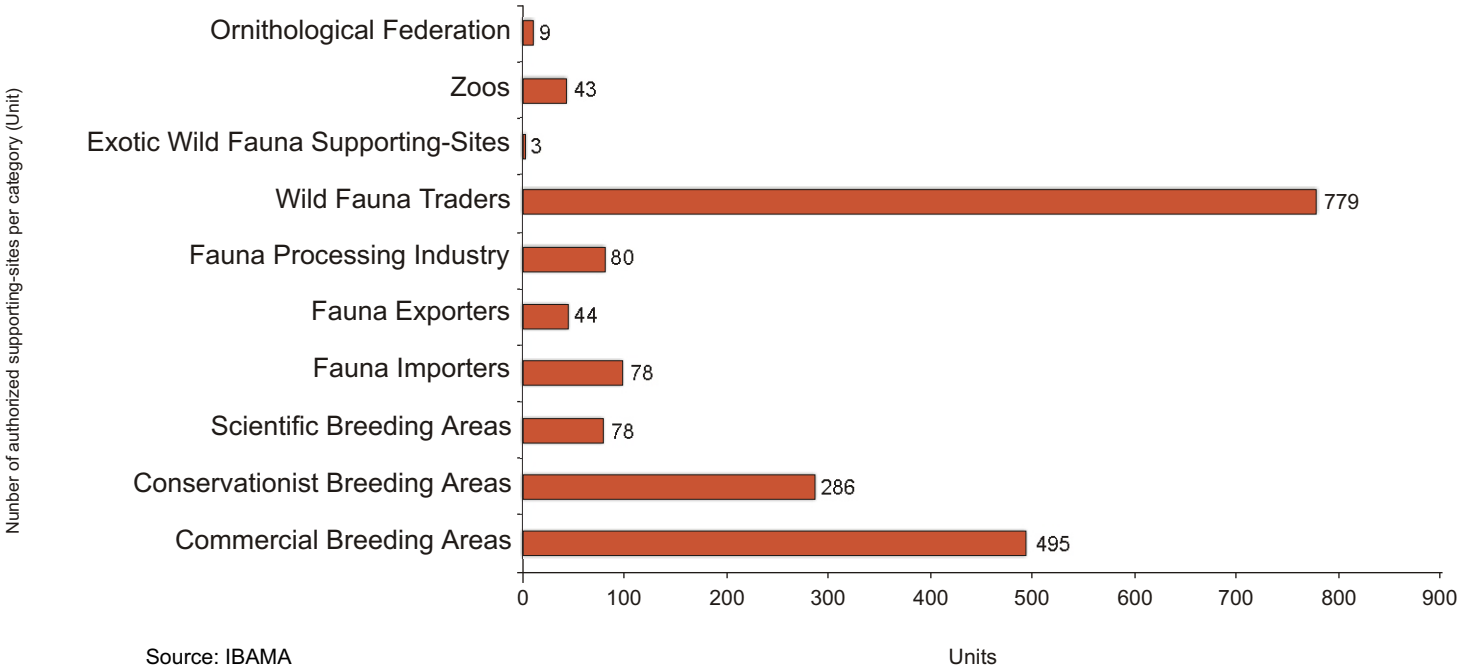
- determine original location or occurrence area;
- determine the species to which an animal belongs;
- properly track the individual species;
- check the appropriateness of the location where an animal is released;
- release the animal in its habitat in accordance with ecological conditions;
- monitor the animal's progress and acclimation after it is released;
- complete all steps pursuant to the legislation in force.

The current approach to releasing animals does not follow the steps above and therefore is not in accordance with the law. This poses serious threats to the environment. In the state of Rio Grande do Sul, 4 invasive species of birds were found at large: *Orchesticus abeillei* (Brown Tanager), *Ramphocelus bresilius* (Brazilian Tanager), *Sericossypha loricata* (Scarlet-throated Tanager), and *Embernagra longicauda* (Pale-Throated Serra-Finch). These animals were seized and released in the said state (Martins-Ferreira and Glock, 2001).

Trafficked animals are also routed to other institutions, such as: zoos, research institutions, scientific breeding grounds, conservationist breeding grounds, commercial breeding grounds, or free voluntary custody term (formerly fiduciary trustee). All these destinations are provisional and arguable and they can be considered as an encouragement to traffic since offenders start to legally possess an animal.

The following chart shows the total number of IBAMA-authorized wild fauna supporting-sites, by category, in Brazil up to 2000.

Chart 21 - Total number of authorized supporting-sites in Brazil up to December 2000



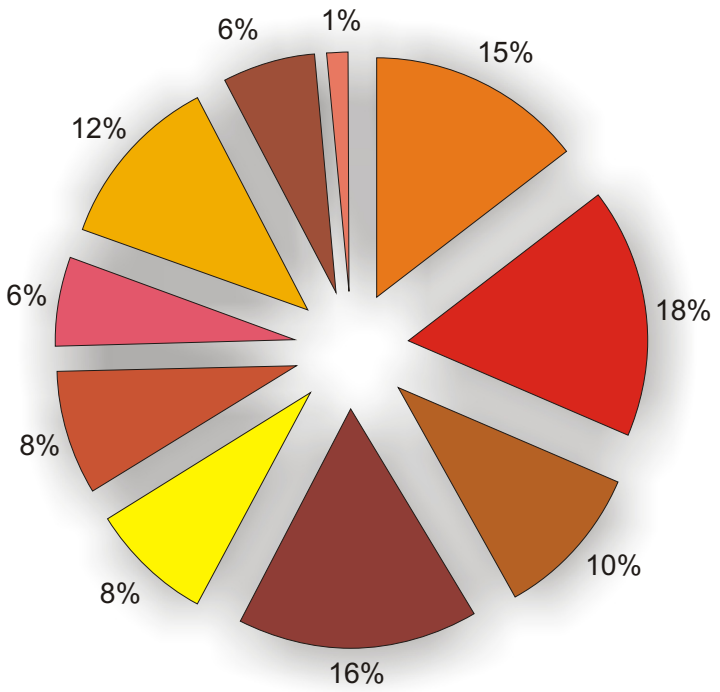
Source: IBAMA

Main Difficulties and Problems involved in Fighting Traffic in Brazil

14

The following charts show the main difficulties and problems involved in fighting wild animal trafficking in Brazil. All factors are directly correlated to several other factors. Below are some of the problems and solutions proposed by Renctas.

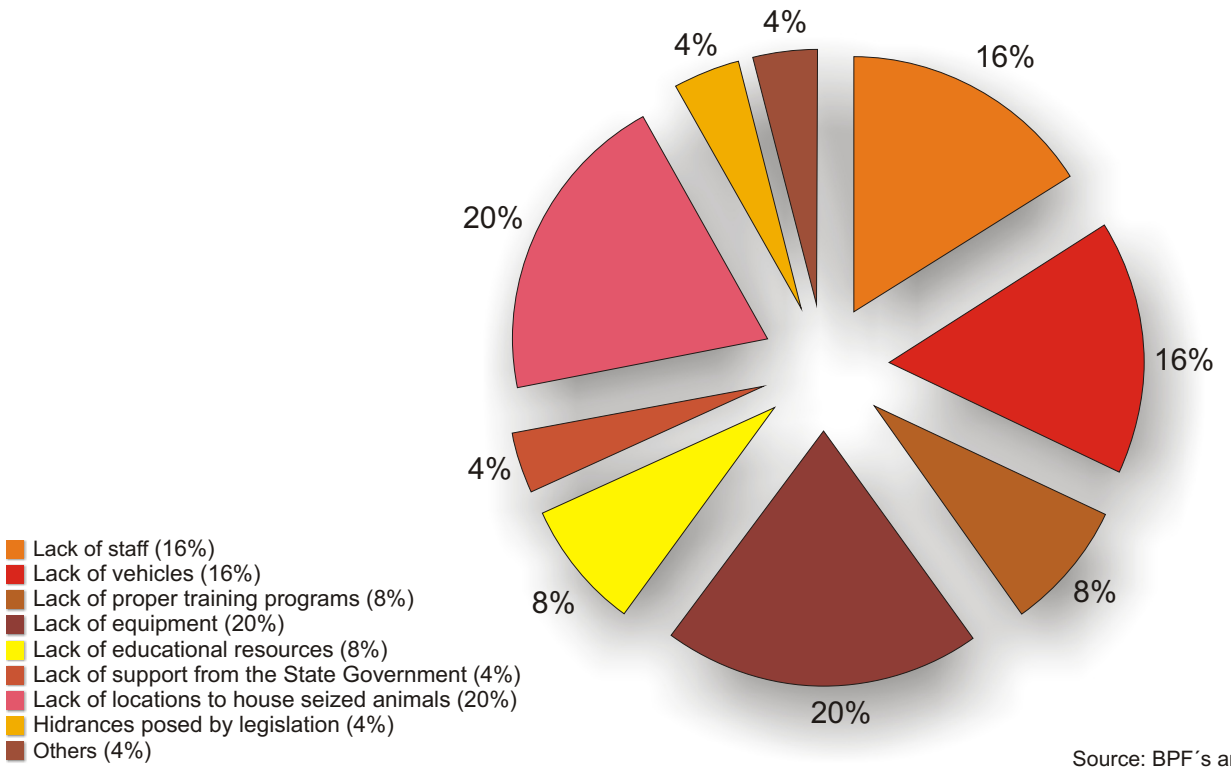
Chart 22 - Main difficulties involved in fighting traffic in wild animals in Brazil



Source: BPF´s and IBAMA

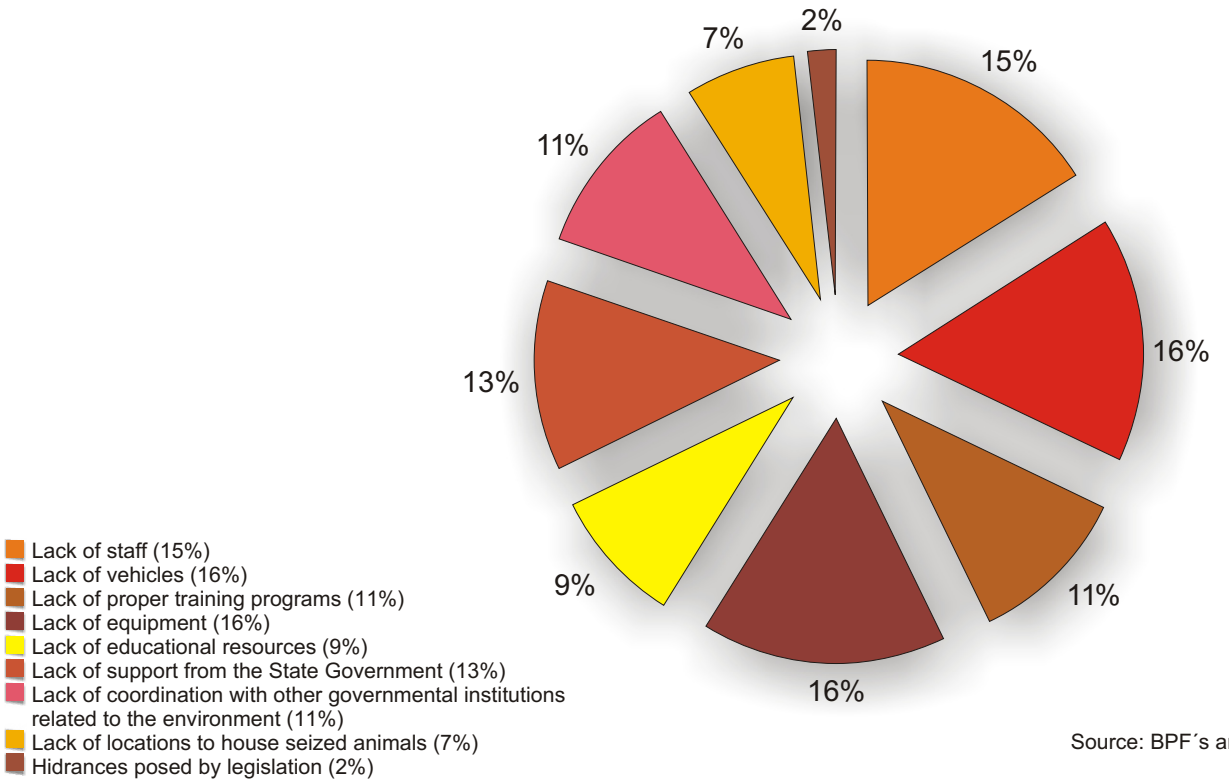
- Lack of staff (15%)
- Lack of vehicles (18%)
- Lack of proper training programs (10%)
- Lack of equipment (16%)
- Lack of educational resources (8%)
- Lack of support from the State Government (8%)
- Lack of coordination with other governmental institutions related to the environment (6%)
- Lack of locations to house seized animals (12%)
- Hidrances posed by legislation (6%)
- Others (1%)

Chart 23 - Main difficulties involved in fighting traffic in wild animals in the North Region



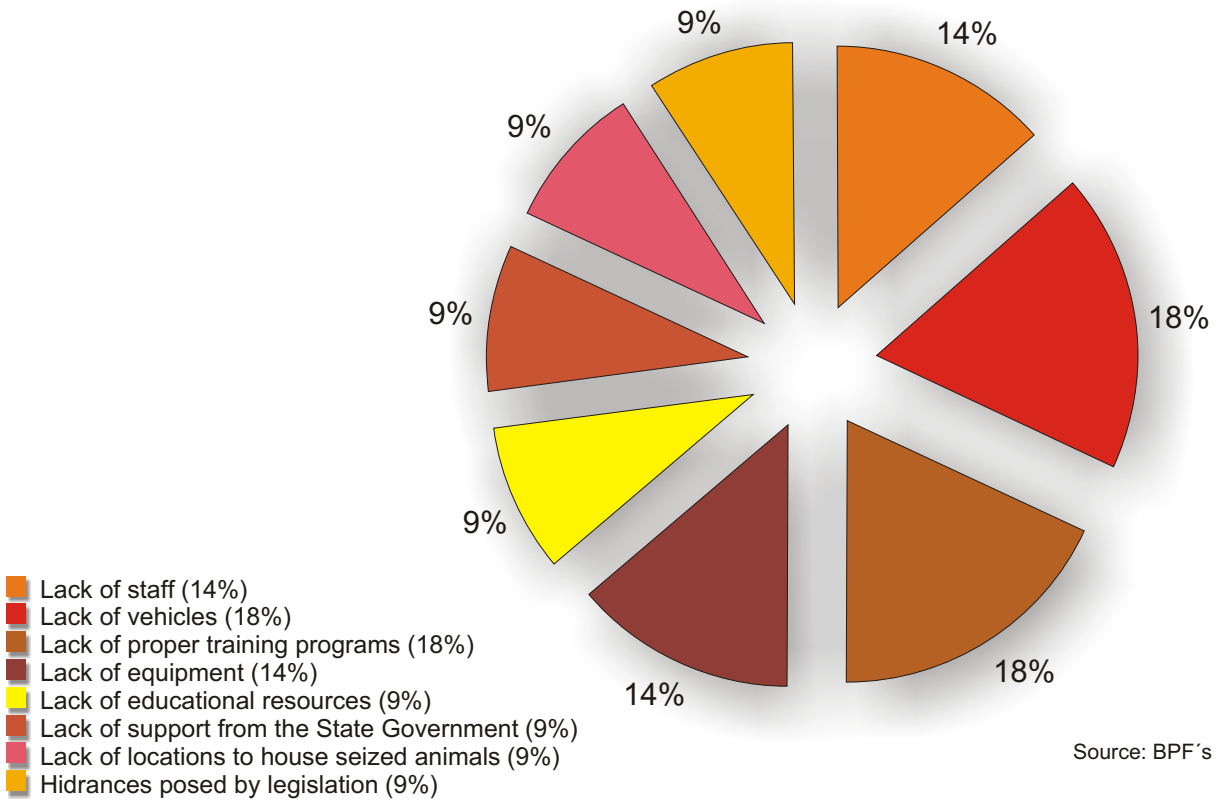
Source: BPF´s and IBAMA

Chart 24 - Main difficulties involved in fighting traffic in wild animals in the Northeast Region



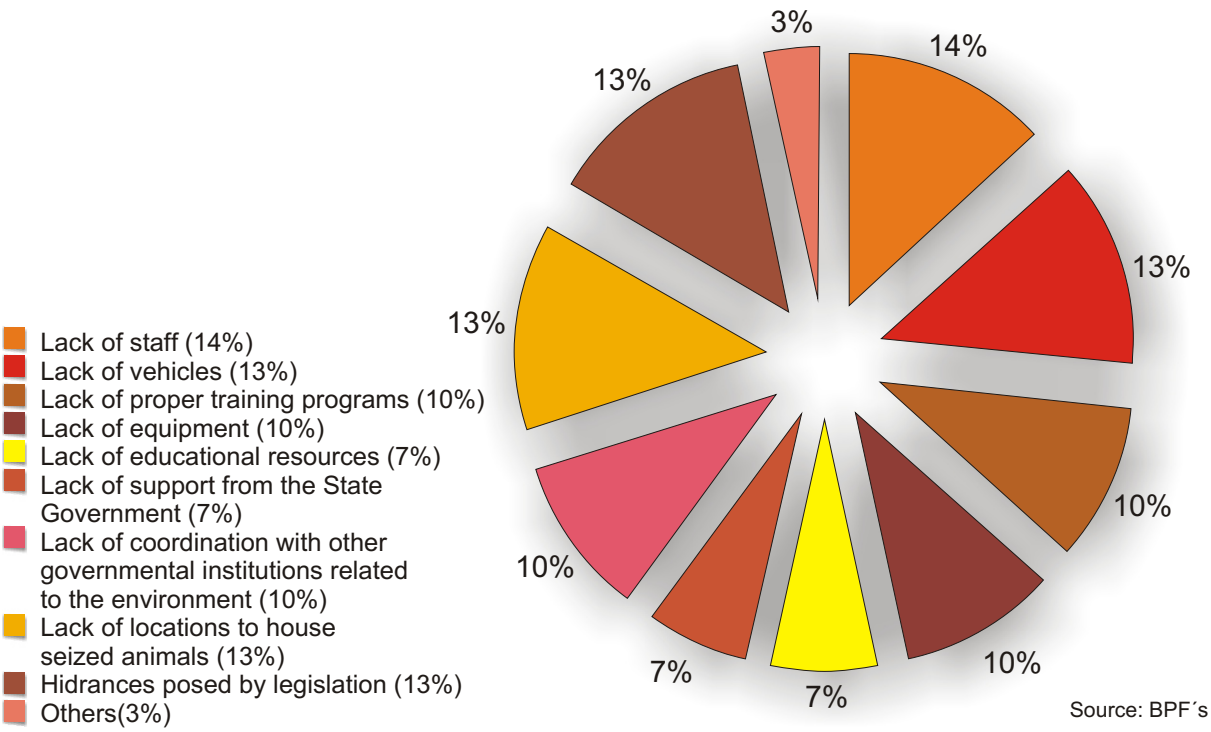
Source: BPF´s and IBAMA

Chart 25 - Main difficulties involved in fighting traffic in wild animals in the Mid-West Region



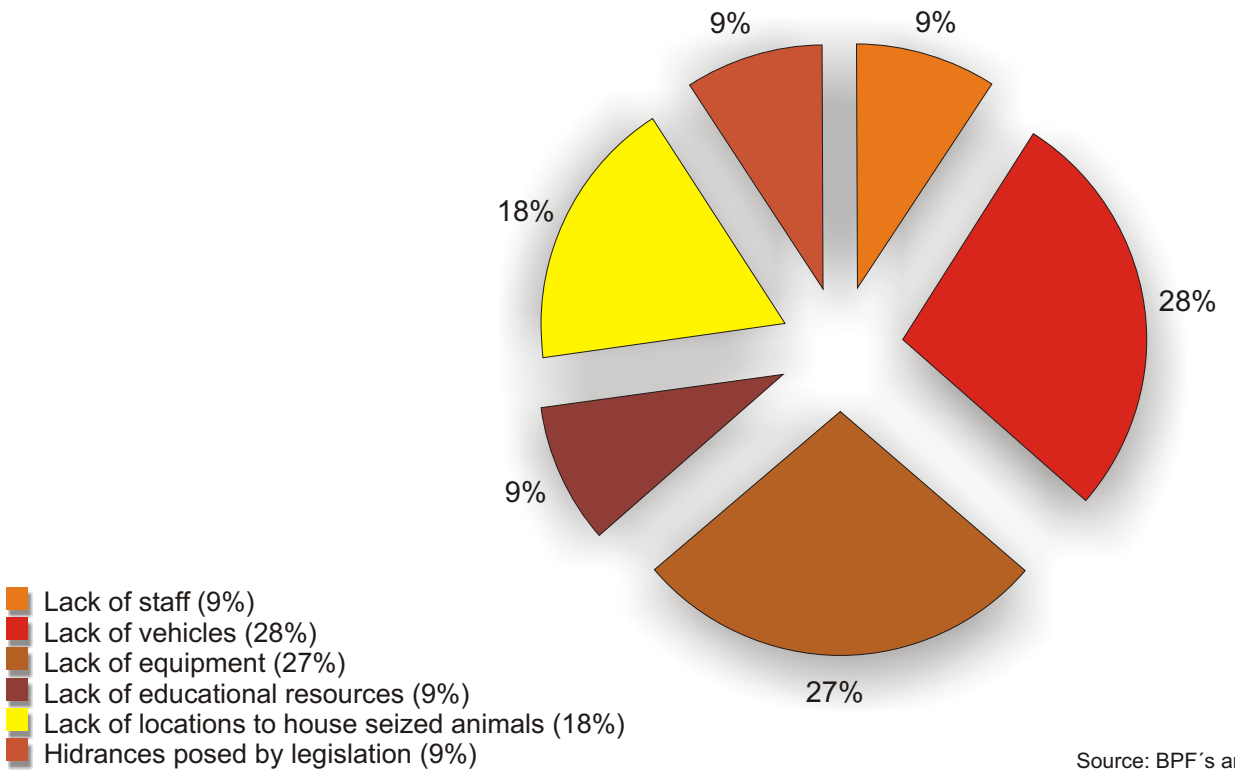
Source: BPF´s and IBAMA

Chart 26 - Main difficulties involved in fighting traffic in wild animals in the Southeast Region



Source: BPF´s and IBAMA

Chart 27 - Main difficulties involved in fighting traffic in wild animals in the South Region



Source: BPF´s and IBAMA

Traffic on bordering zones

Problems:

- lack of Customs offices;
- understaffing and lack of capacity-building programs;
- lack of equipment and resources;
- large territorial dimension;
- poor communication with bordering countries;
- poor cooperation at the international level.

Proposed solutions:

- establishment of Customs offices;
- increased personnel and capacity-building programs;
- acquisition of equipment and resources;
- enhanced communication with other countries;
- enhanced cooperation at the international level.

On-line Traffic

Problems:

- inconspicuousness and ease of trade;
- difficult identification of traders;
- absence of a specific bureau to combat this type of traffic;
- absence of specific regulation.

Proposed solutions:

- surveillance and deterrence of websites devoted to this trade;
- permanent search for such websites;
- coverage by environmental crime regulations.

Traffic fauna supporting-sites

Problems:

- ease to falsify documents;
- ease to legalize and exchange animals;
- poor adequate tracking of animals;
- poor enforcement and monitoring.

Proposed solutions:

- enhanced monitoring and enforcement of supporting-sites by pertinent agencies;
- individual tracking of animals through microchips;
- more strictness on permits for animal sale;
- distinctive treatment towards supporting-sites of endangered species and species contained in Appendix I of CITES.

Scientific trafficking

Problems:

- researchers make personal use of official credentials granted to their institutions;
- unrestrained collection and waste of fauna-related resources;
- operation of foreign enterprises;
- poor surveillance by and involvement of the Brazilian Government in projects developed in cooperation and/or by foreign institutions and researchers.

Proposed solutions:

- increased surveillance and participation in projects and agreements in cooperation with foreign researchers and

- institutions;
- enhanced criteria for the collection and use of fauna-related resources;
- centralization of issuance of collection permits;
- increased caution for the transfer of acquired information;
- enhanced surveillance by institutions over materials collected by their researchers.

Routing of seized animals

Problems:

- lack of adequate locations to house seized animals;
- high maintenance costs at Screening Centers;
- overcrowded institutions, and scarce Screening Centers and zoos in a position to receive seized animals;
- lack of scientific expertise to release seized animals.

Proposed solutions:

- provision of funds for the construction and maintenance of Screening Centers;
- development of scientific research that could provide information on the species' habitats, demographic rates, level of habitats sustainability, etc.

Brazilian Legislation

Problems:

- unawareness of legislation on the part of the population;
- lack of law enforcement;
- lenience of law enforcement;
- poor attention by legal authorities to crimes against wild fauna.

Proposed solutions:

- enhanced awareness of legislation;
- strengthened enforcement of the law;
- modernization of the legislation so as to cover on-line traffic.

Final Remarks

In view of the information presented above, the following remarks are provided:

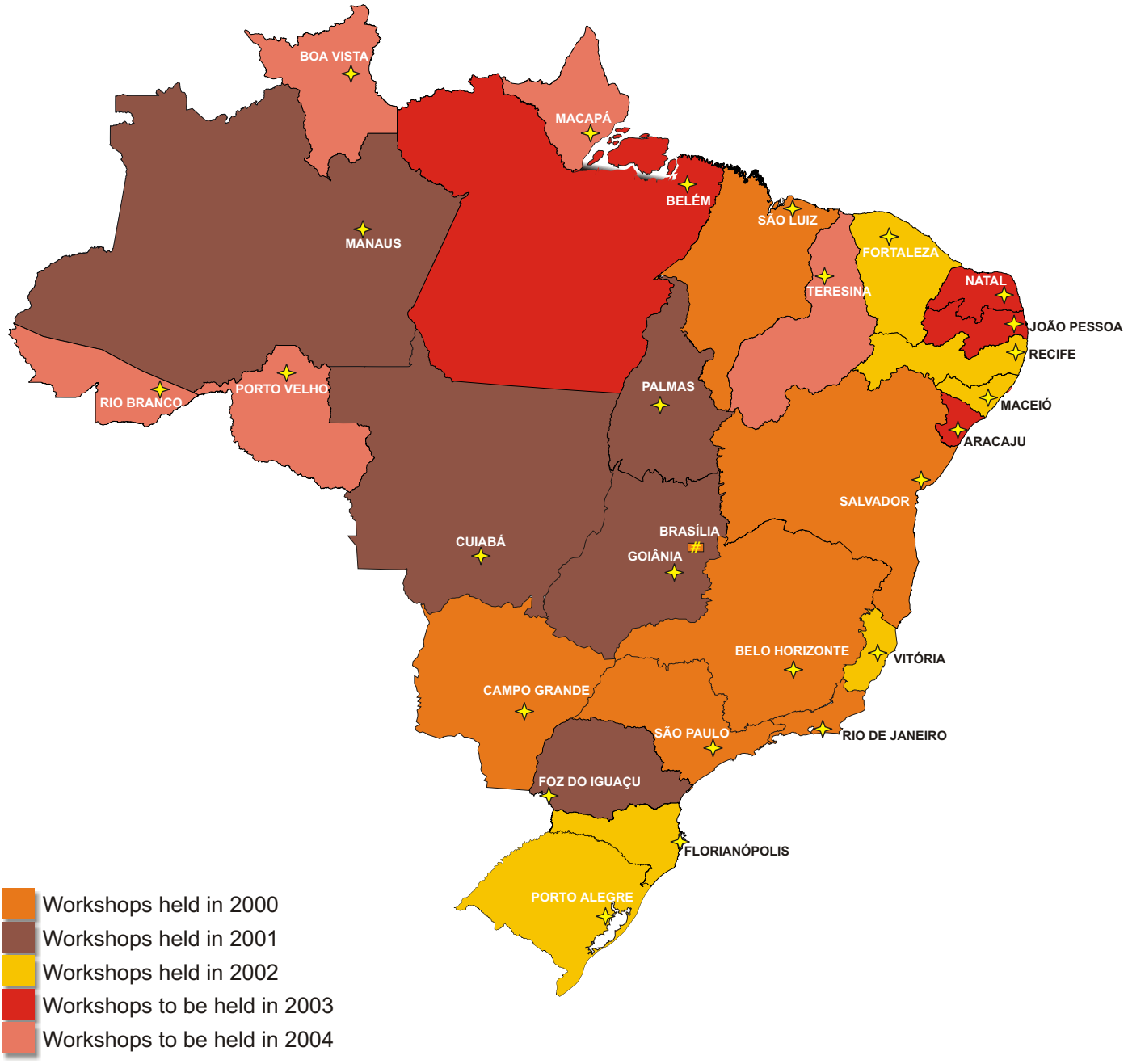
1 - Results indicate the gaps in our knowledge of the actual scope of traffic in Brazil and a need to establish a standard registration method for seized animals in the Brazilian national territory. A glaring example of this situation dates back to 1999, when 38,000 (thirty-eight thousand) turtles that had been illegally captured in rivers of the Amazon region were seized. This is considered the largest seizure of Amazonian chelonians ever in Brazil (Murad, 2000). Yet, this figure does not appear in the seizure data from Forest Police Battalions and IBAMA. This is indicative of the state of disorganization of data among the authorities in charge of managing natural resources in Brazil, as well as one of the primary obstacles to combating such activity.

In addition to the poor interaction between Government agencies responsible for preserving wildlife, surveillance and planning actions are inadequate due to the lack of technical and financial resources faced by such agencies (CONAMA, 1991). IBAMA counts on approximately 2,000 officers to handle all sorts of environmental crime throughout Brazil. The Forest Police in Rio de Janeiro has nearly 320 representatives to monitor the entire state, whose population is 14,367,083 (Rocha, 1995; Ellison, 1999; IBGE, 2001).

In view of these examples and ratios, and the rapid increase in illegal trade due to globalization, surveillance and deterrence of traffic have become inefficient, which represents an additional stimulus to such illegal activity.

The lack of Screening Centers - CETAS to receive seized animals makes enforcement operations - which are often aborted since there are no suitable sites to receive such animals - even more ineffective. These animals are usually released at the very seizure site or are forwarded to institutions such as zoos and scientific, conservationist, and commercial breeding grounds registered in IBAMA. Most zoos are state-run and are in need of funds. They face problems caused by the overcrowding of seized animals and some breeding grounds are notoriously involved in this illegal trade.

In an attempt to bridge the coordination gap between several agencies and institutions responsible for the management and surveillance of wild fauna, and to train the staff of such institutions, Renctas and IBAMA has established a partnership aimed at running workshops in all Brazilian states. On such occasions, the activities currently developed are presented, as well as each institution's weak spots. Strategies for combating traffic in wild fauna in Brazil are considered and discussed during these workshops.



2 - We have seen earlier that Brazil has currently a considerable number of legal mechanisms to protect the fauna (Appendix II). Some gaps are yet to be bridged. The most significant problem lies on how this legislation is construed and enforced. Traffic in wildlife is not yet considered as a serious offense. Also, since policy-makers lack technical knowledge, offenders often go unpunished.

3 - It is necessary to surveil and curb this type of trade and, most importantly, to run awareness campaigns. The dependency of rural populations on wildlife in Brazil, along with a widespread unawareness of problems associated to illegal trade and loss of fauna-related assets, is the reason why there is little or no involvement by the population in conservationist efforts. 'One is not able to value what one doesn't know beans about'. People must be aware of the consequences of this trade and the reasons why the legislation alone cannot solve this issue (Ávila-Pires, 1977; Hemley and Fuller, 1994).

Pursuant to the provisions of article 35, paragraphs 1 and 2, of Law no. 5,197/67, primary and secondary level education curricula were supposed to have at least 2 (two) classes on fauna protection per year; radio and TV programs were supposed to broadcast texts and mechanisms related to fauna protection, at least 5 (five) minutes per week. Unfortunately, this valuable tool has not been utilized to change the way the Brazilian populations makes use of the fauna.

Awareness campaigns are important, but ongoing and sustained efforts are necessary. Although awareness campaigns are burdensome and time-consuming, the importance of environmental awareness is viewed the world round as an essential component of the combat to environmental problems, including the traffic in wild animals (Poten, 1991).

4 - One way of using wild fauna without endangering its populations would be to foster species-specific captivity breeding programs to fulfill the demand. This is a controversial issue because it can relieve the pressure and in some cases help renew wild populations. On the other hand, as far as endangered species are concerned, sales of such specimens in captivity can make it difficult to surveil wild-caught animals (Fitzgerald, 1989).

Legalization of trade derived from sustainable management is an alternative use of wildlife that leaves natural populations unaffected. Managing hunting and/or collection activities and ensuring that only a

controlled number of specimens is used so that populations can naturally replenish on their own, make way for sustainable exploitation and trade. In this case, it is important to identify those cases where sustainable management will generate economic incentives to conservation of species, as well as create jobs and improve standards of living in rural areas, where such animals are used.

Sustainable management requires careful monitoring of animal populations and of the corresponding hunting and collection levels (Fitzgerald, 1989). To this end, scientific research focusing on the following are necessary:

- demographic levels of species;
- rates and trends of populations (reproductive rate, gender ratio, mortality rate, reproduction potential, etc.);
- taxonomic classification;
- location and current habitat of species;
- trade pressure on species.

In order to make sustainable fauna management possible, biological knowledge of those species under hunting pressure is a critical element. Nowadays, this is an unfeasible alternative vis-à-vis the Brazilian reality. In spite of our abundant fauna, biological and ecological research on and expertise in most animal species is still scarce. Also, the Government lacks the required infrastructure to effectively monitor hunting activities (Coimbra-Filho, 1972; Aveline and Costa, 1993). A major action would be to invest in scientific research with a view to achieve a better knowledge of species and their potentials. It is also paramount to build a better rapport between research institutions (universities, research centers, and so on) and those agencies in charge of managing wild fauna (IBAMA, Forest Polices, Screening Centers, NGOs) so that academic research can better focus on the tangible and imperative needs for conservation of natural resources in Brazil.

Illegal trade in wild animals and their products is one of the major problems at global level today. If the Brazilian Government established cooperation with the scientific community to obtain more precise data on this activity and the indigenous fauna species, it would be able to curb and impose penalties on this type of trade and would also be able to develop fauna protection programs. Nowadays, the people who make a living out of this illegal trade cause the wild fauna to be ruthlessly exploited, and many animals are exterminated.

In addition to intensive research programs, this issue must be better addressed by the authorities and the population.

This report is the first attempt to bring together the data on the traffic in wild fauna in Brazil, and it does not mean to be exhaustive in any way. Expanding and sustaining research are a necessity. Since we are dealing with an illegal activity on which data is difficult to collect, and because this is the first paper on the topic, the First National Report on Traffic in Wild Fauna in Brazil is bound to be criticized. Such criticisms will not make it less important; rather, they will help improve the upcoming reports.

Bibliographical References

ABRAMSON, J; SPEER, B.L. and THOMPEN, J.B. (1995) "The large macaws: their care, breeding and conservation". In: **The large macaws**, Fort Bragg, California, Raintree Publications, p. 79-93.

AMADO, C. (1991) **O tráfico ilegal de animais silvestres nacionais no estado do Rio de Janeiro**. APANDE, Petrópolis, 8p.

ANDRADE, M.A. (1993) **A vida das Aves**. Editora Littera Maciel, Belo Horizonte, p. 160.

ASSUNÇÃO, L.F. (2000) "Itaiópolis na rota do tráfico de animais". **Jornal A Notícia**, August 6th, 2000, Joinville.

AVELINE, L.C. and COSTA, C.C.C. (1993) "Fauna Silvestre" In: **Recursos Naturais e Meio Ambiente: uma visão do Brasil**. Instituto Brasileiro de Geografia e Estatística. Departamento de Recursos Naturais e Estudos Ambientais, Rio de Janeiro, p. 154.

ÁVILA-PIRES, F.D. (1972) "Conservação e Extinção" In: **Espécies de Fauna Brasileira Ameaçadas de Extinção**, Editado pela Academia Brasileira de Ciências, Rio de Janeiro GB, p. 3-11.

ÁVILA-PIRES, F.D. (1977) Exame da situação atual dos componentes dos ecossistemas e atividades humanas In: **National Meeting on the Conservation of Animals and Animal Resources**, Rio de Janeiro, 16-27p.

BALLOU, D. (1988) "Wildlife trade: a costly crisis". **Zoonooz**, 61(5): p. 10-13.

BARSETTI, S. (1997) "Preso alemão que tentava contrabandear aranhas". **Jornal O Estado de São Paulo**, March 11th, São Paulo.

BERTONATTI, C. (1995) "Mercado Negro de fauna y flora: negocio salvaje". **Revista SOS Vida Magazine Ecológico III** (18): 28-32, Buenos Aires.

BLOCK, R. (1987) "Illegal wildlife trade: keep informed". **Animal Keep**. Forum, 14(12): p. 377-379.

BORNSCHEIN, M.R; REINERT, B.L. and TEIXEIRA, D.M. (1995) "Um novo Formicariidae do sul do Brasil (Aves, Passeriformes)". **Instituto Iguaçu de Pesquisa e Preservação Ambiental**, Rio de Janeiro, p. 18.

BOUER, J. (1998) "Bichos colocam saúde em risco". **Jornal do Comércio**, December 6th, Recife.

BRAGA, B.S.; BARROSO, L.V.; PLÁCIDO, G.G.; CASTANHEIRA, M. and LIMA, R.Z. (1998) "Controle ambiental para a fauna silvestre no âmbito do estado do Rio de Janeiro". **Anais do VIII Seminário Regional de Ecologia**, (VIII): p. 951-962.

BRANCO, A. (2000) "Resgate e reabilitação da fauna silvestre oriunda do comércio ilegal na América do Sul". **Presented in the 1st South American Conference on the Illegal Trade of Wild Animals**, August 17th to 21st, Brasília, Brazil.

BUENO, E. (1998a) **A viagem do descobrimento: a verdadeira história da expedição de Cabral**. Objetiva, Rio de Janeiro, p. 140: il.

BUENO, E. (1998 b) **Náufragos, traficantes e degredados: as primeiras expedições ao Brasil**. Objetiva, Rio de Janeiro, p. 200: il.

CÂMARA, E.B. (1998) "Tráfico de animais rende Us$ 1 bilhão". **O Globo**, November 22nd, Rio de Janeiro.

CAMPELLO, R. (2000) "O bote do inverno". **Revista Veja**, Editora Abril, São Paulo, p. 92-93.

CANTARELLI, V.H. (1994) "Conservação e manejo de quelônios da Amazônia". In: **Herpetologia no Brasil 1**, PUC/MG/Fundação biodiversitas/ Fundação Ezequiel Dias, Belo Horizonte, p. 25-34.

CARVALHO, C.E.S. (1985) "Lista preliminar da fauna comercializada na feira de Caxias - RJ". **FBCN**, p. 20:90-102.

CARVALHO, J.C.M. (1951) **Relações entre os índios do alto Xingu e a fauna regional**. Occasional Paper of the Museu Nacional, Rio de Janeiro, p.40.

CASCUDO, L.C. (1973) **Civilização e cultura: pesquisas e notas de etnografia geral**. José Olimpio, Rio de Janeiro, p. 766.

CAVALCANTI, K. (1999) "Matança Amazônica". **Revista Veja**, 25 de agosto, São Paulo.

CECCATTO, J.N. (1977) "Lei de proteção à fauna". **National Meeting on the Conservation of Animals and Animal Resources**, IBDF/FBCN, Rio de Janeiro, p. 153-174.

CI - Conservation International (2000) "New Primates Discovered in Brazil´s Forest". http://www.conservation.org/web/news/PRESSREL/00-0422 htm.

CICEANA (1999) "No al tráfico de especies!" Centro de Información y comunicación Ambiental de Norte América, México, http://www.ciceana.org.mx

CLUBB, S.L. (1987) "The pet bird industry past present and future". In: **International Conference On Zoological and Avian Medicine**, Hawaii, p. 233-242.

COIMBRA-FILHO, A.F. (1972) "Mamíferos ameaçados de extinção no Brasil". In: **Espécies da fauna Brasileira Ameaçadas de Extinção**, Editado pela Academia Brasileira de Ciências, Rio de Janeiro GB, p. 13-98.

COIMBRA-FILHO, A.F. (1974) "Situação mundial dos recursos faunísticos na faixa intertropical". **Brasil Florestal (V)**: p. 17,12-37.

COIMBRA-FILHO, A.F. (1977) "Exploração da fauna brasileira". **National Meeting on the Conservation of Animals and Animal Resources**, IBDF/FBCN, Rio de Janeiro, p. 28-54.

COIMBRA-FILHO, A.F. (1986) "O aspecto negativo da participação de pássaros de procedência selvagem em competições de canto". **FBCN (V)**, Rio de Janeiro: p. 21,191-200.

CONAMA - Conselho Nacional do Meio Ambiente (1991) **Moção CONAMA/Nº 016, of December 5th, 1991**. Brasília.

COUTINHO, L. (2001) "A floresta dá dinheiro". **Revista Veja**, August, Editora Abril, São Paulo, p. 76-81.

CULLEN Jr., L; BODMER, R.E. and PÁDUA, C.V. (2000) "Effects of hunting in habitat fragments of the Atlantic forests, Brazil". **Biological Conservation**, 0: p.1-8.

Information Release of the Museum of Sciences and Technology UBEA/PUCRS (1994) **Conservação do Papagaio-charão (*Amazona pretrei*) no sul do Brasil: um plano de ação preliminar**. EDIPUCRS, Porto Alegre, nº 1, p.1-70.

ELLISON, K. (1999) "Brazil´s animal trade under fire". **Miami Herald**, http://www.renctas.org.br

EMMONS, L.H. (1990) **Neotropical Rainforest Mammals: a field guide**. The University of Chicago Press, Chicago, p. 281.

FARIA, G. (1999) "A Ilha das Serpentes". **Revista Época**, March, Rio de Janeiro, p. 66-67.

FEIO, R.N.; BRAGA, U.M.L.; WIEDERHECKER, H. and SANTOS, P.S. (1988) **Anfíbios do Parque Estadual do Rio Doce (Minas Gerais)**. Federal University of Viçosa/Instituto Estadual de Florestas, Viçosa, p. 32.

FITZGERALD, S. (1989) **International Wildlife Trade: Whose business is it?**. World Wildlife Fund, Baltimore, p. 459.

FONSECA, A.B.; RYLANDS, A.B.; COSTA, C.M.R.; MACHADO, R.B. and LEITE, Y.L.R. (1994) **Livro vermelho dos mamíferos brasileiros ameaçados de extinção**. Fundação Biodiversitas, Belo Horizonte, p. 479.

FONSECA, G.A.B.; HERRMANN,G.; LEITE, T.R.L.; MITTERMEIER, R.A.; RYLANDS, A.B. and PATTON, J.L. (1996) **Lista Anotada dos Mamíferos do Brasil**. Occasional Paper n° 4, April, Conservation International.

FREIRE, W. (2001) "Suspeita de biopirataria". **Jornal A Crítica**, Manaus, August 17th.

GAMBA (1998). **Caça e Tráfico de Animais Silvestres na Bahia; a ilegalidade explícita e desmoralizante**. Resultado da pesquisa realizada pelo Grupo Ambientalista da Bahia, Salvador.

GIOVANINI, D. (dt.ind.) "Diagnóstico del comercio ilegal de la fauna brasileña". In: **Actitudes hacia la fauna en Latinoamérica**, Human Society Press, Washington, p. 289.

GLIESCH, R. (1933) "Animais úteis ao homem'. **Revista da Universidade Técnica do Rio Grande do Sul**, v. XVIII nº 3: p. 101-126.

GUEDES, N. M. R. (2001) "Projeto Arara Azul dez anos de pesquisa e conservação". **Presented in the 1st South American Conference on the Illegal Trade of Wild Animals**, August 17th to 21st, Brasília, Brazil.

HANGENBECK, C. (1910) **Animales y Hombres**. Hijos de Carlos Hagenbeck . Editores, Hamburgo-Stellingen, p. 483.

HARDIE, L.C.(1987) **Wildlife trade education kit**. WWF/TRAFFIC (USA), Washington, p. 132.

HEMLEY, G. and FULLER K.S. (1994) **International Wildlife Trade: a CITES Sourcebook**. WWF/Island Press, Washington, p. 166.

HONEGGER, R.E. (1974) "The reptile trade". **International Zoo Yearbook**, p.14: 47-52 .

HOOVER, C. (1999) "Amazon tree boas to Zululand dwarf Chameleons: The US role in the international live reptile trade". **Traffic Bulletin: vol. 17**, n°. 3.

IBAMA (1995) **Programa de combate ao tráfico de animais silvestres no Brasil**. IBAMA, Brasília.

IBAMA (1997) **Campanha Nacional de Combate ao Tráfico de Animais Silvestres: relatório final**, Brasília, p. 18.

IBAMA (2000a) "História do IBAMA".
http://www.ibama.gov.br/organiza/aorganiz.htm

IBGE - Instituto Brasileiro de Geografia e Estatística (1997) **Fauna ameaçada de extermínio**. Brazilian Institute of Geography and Statistics, Rio de Janeiro, p.61.

IBGE - Brazilian Institute of Geography and Statistics (2001).
http://www.ibge.gov.br

IUCN (2001) "Aliens invade the planet!" **The World Conservation Union**.
www.iucn.org

Jornal do Brasil (1999) "Voando com o perigo".
http://www.jornaldobrasil.com.br

JÚNIOR, M.D. (1980) **Etnias e culturas no Brasil**. Biblioteca do Exército, Rio de Janeiro, p. 208.

JUPIARA, A. and ANDERSON, C. (1991) "Rio é o centro internacional de traficantes de animais". **O Globo**, July 21st, Rio de Janeiro.

KAVANAGH, M. (1983) "Simians for science: the Kingdom and worldwide trade in primates". In: **Symposium on the conservation of primates and their habitats, Leicester**, v.2: p. 149-181.

KAVANAGH, M.; EUDEY, A.A. and MARK, D. (1987) "The effects of live trapping and trade on primates populations". In: **Primate conservation in the tropical forest**, Alan R. Liss, Inc., p. 147-177.

KLEIMAN, D.G.; ALLEN, M.E.; THOMPSON, K.V. and LUMPKIN, S (1996) **Wild mammals in captivity: principles and techniques**. The University of Chicago Press, Chicago and London, p. 639.

LE DUC, J.P. (1996) "Trafficking in animals and plants: a lucrative form of crime". **International Criminal Police ICPO** n° 458/459: p. 19-31.

LIMA-VERDE, J.S. (1994) "Por que não matar as nossas cobras". In: **Herpetologia no Brasil 1**, PUC-MG/ Fundação Biodiversitas/ Fundação Ezequiel Dias, Belo Horizonte, p. 92-100.

LOPES, J.C. (2000) "O Tráfico Ilegal de Animais Silvestres no Brasil".
http://www.ibama.gov.br/on line/artigos/artigo18.html

LOPES, P.R.D. (1991) "Comércio de animais silvestres". **Bioikos** 5(1): p. 49-56.

MACHADO, P.A.L. (1992) **Direito ambiental brasileiro**. Malheiros Editores, São Paulo, 4ª ed.

MACHADO, S.M. (1992a) **Caça alimentação Kaiapó**. Museu Paraense Emilio Goeldi, Belém, p. 28

MACK, D. and MITTERMEIER, R.A. (1984) "The International Primate Trade: summary, update and conclusions". In: **The International Primate Trade**, v.1, TRAFFIC (USA), Washington, p. 181-185.

MARQUES, M.I.B. and MENEGHETI, J.O. (1982) "Portaria de caça: um instrumento para conservação da fauna". **Natureza em Revista**, Fundação Zoobotânica do Rio Grande do Sul, nº 9: p.14-20.

MARTINS-FERREIRA, C. and GLOCK, L. (2001) **Diagnóstico da avifauna capturada ilegalmente no Estado do Rio Grande do Sul, Brasil**. Presented in the IX Brazilian Congress of Ornithology, Porto Alegre, Rio Grande do Sul.

MEC (1959) **Mamíferos.** Ministry of Education and Culture, Rio de Janeiro, p.272.

MEC (1963) **Aves.** Ministry of Education and Culture, Rio de Janeiro, p. 283.

MELLO, P.T. (1991) "Animais ameaçados". **Ecologia e desenvolvimento**, número 8: p. 36-45.

MINISTRY OF HEALTH OF BRAZIL. http://www.saude.gov.br/

MIRRA, A.L.V. (1994) **Fundamentos do direito ambiental no Brasil**. Doutrina (cível), Revista do Tribunal - RT 706, agosto.

MITTERMEIER, R.A.; WERNER, T.; AYRES, J.M. and FONSECA, G.A.B (1992) "O País da megadiversidade". **Ciência Hoje** (14): p. 20-27, 81.

MURAD, F. (2000) **Análise do comércio ilegal de animais silvestres através das apreensões de fauna no Brasil**. Master's Degree Dissertation, Department of Ecology, Federal University of Rio de Janeiro, Rio de Janeiro, p. 152: il.

MUSITI, B.M. (1999) "The Silence Forest". World Conservation, July-December, http://www.iucn.org

NOGUEIRA-NETO, P. (1973) **A criação de animais indígenas vertebrados**. Edições Tecnapis, São Paulo, p. 327.

NORTON, B. (1997) "Mercadoria, comodidade e moralidade: os limites da quantificação na avaliação da biodiversidade". In: **Biodiversidade**, Nova Fronteira, Rio de Janeiro, p. 660.

NOWAK, R.M. and PARADISO, J.L. (1983) "Walker´s mammals of the world". **The Johns Hopkins University Press**, 4ª ed.; Baltimore and London, p. 1362.

ORTIZ-VON HALLE, B. (2001) **Perspectivas sobre el comercio ilegal de fauna en América del Sur - TRAFFIC**. Presented in the 1st South American Conference on the Illegal Trade of Wild Animals, August 17th to 21st, Brasília, Brazil.

PAIVA, M. (1945) "A vida dos animais da Amazônia: suas lendas e superstições". **Oficinas Gráficas da Revista de Veterinária**, Belém, p. 50.

PIRES, F.D.A. (1977) **Exame da situação atual dos componentes do ecossistema e atividades humanas**. National Meeting on the Conservation of Animals and Animal Resources, IBDF/FBCN, Rio de Janeiro, p. 16-27.

Polícia Federal Brasileira (dt. ind.) **Exposição de motivos para a criação do Núcleo de Prevenção e Repressão a Crimes Ambientais da Polícia Federal** (NPRCA/PF). Brasília, DF.

POLIDO, A.P. and OLIVEIRA, A.M.M. (1997) **O comércio ilegal de animais silvestres no Brasil**. Concluding Paper of the Biological Sciences course of Faculdades Integradas São Camilo, São Paulo, p. 70.

POTEN, C.J. (1991) "America´s illegal wildlife trade: a shameful harvest". **National Geographic**, 180(3): p. 106-132.

PRAXEDES, C. (1995). "Animal silvestre é o 3º negócio ilegal do mundo". **Estado de São Paulo**, June 5th, São Paulo.

RAI (1978a) "A curiosa dieta Yanomami". **Revista da Atualidade Indígena**, nº9: p. 3-8.

RAI (1978b) "A arte Yanoama de fabricar utensílios". **Revista da Atualidade Indígena**, nº 12: p. 43-51.

RAVEN, P. (1992) "Natureza e valor da biodiversidade". In: **A estratégia global da biodiversidade**, WRI/UICN/PNUMA, Fundação o Boticário de Proteção à Natureza, p. 1-6.

REDFORD, K.H. (1992) "The empty forest". **BioScience**, 42(6): p. 412-422.

RENCTAS (1999) "Animais Silvestres: normatização e controle". **Rede Nacional Contra o Tráfico de Animais Silvestres**, Rio de Janeiro.

RIBEIRO, D. and BITTENCOURT, M. (1997) "Preso contrabandista de aranhas". **Jornal do Brasil**, March 11th, Rio de Janeiro.

ROBINSON, J.G.; REDFORD K.H. and BENNET E.L. (1999) "Wildlife Harvest in Logged Tropical Forests". **Science**, April 23rd ;284: p. 595-596.

ROCHA, F.M. (1995) **Tráfico de Animais Silvestres**. WWF. Discussion Paper.

SANTOS, E. (1961) **Animais silvestres que nos são úteis**. Edições SAI, Rio de Janeiro, p. 80.

SANTOS, E. (1984) **Entre o gambá e o macaco**. Editora Itatiaia, Belo Horizonte, p. 287.

SANTOS, E. (1985) **Amador de pássaros**. Editora Itatiaia, Belo Horizonte, p.191.

SANTOS, E. (1990) **Da ema ao beija-flor**. 5ª. ed., Villa Rica, Belo Horizonte, p. 396.

SANTOS, E. (1992) **Pássaros do Brasil**. 6ª ed, Villa Rica, Belo Horizonte, p.312.

SANTOS, E. (1994) **Anfíbios e répteis**. 4ª ed., Villa Rica, Belo Horizonte, p.263.

SEERGER, A. (1982) "Native Americans and the conservation of flora and fauna in Brazil". In: **Socio-economic Effects and Constraints in Tropical Forest Management**, John Wiley e Sons Ltda.; p. 177-190.

SEPLAN/CNPQ (1982) **Recursos Naturais Faunísticos**. SEPLAN/CNPQ, Brasília, p. 30.

SICK, H. (1972) "A Ameaça da Avifauna Brasileira". In: **Espécies da Fauna Brasileira Ameaçadas de Extinção**, Editado pela Academia Brasileira de Ciências, Rio de Janeiro GB, p. 99-153.

SICK, H (1997a) **Ornitologia brasileira**. Nova Fronteira, Rio de Janeiro, p.912.

SICK, H (1997b) **Tukani: entre os animais e índios do Brasil central**. Marigo Comunicação Visual, Rio de Janeiro, p. 213.

SICK, H. and TEIXEIRA, D.M. (1979) **Notas sobre as aves brasileiras raras ou ameaçadas de extinção**. Occasional Papers of Museu Nacional, nº 62, Rio de Janeiro.

SIGMA (1998) **Biochemicals and reagents for life science research**. Sigma-Aldrich Co., USA, p. 2800.

SILVA, E. (1998) "Boas Novas nos Céus do Brasil". **Os Caminhos da Terra**, 12: p. 37-39.

SILVEIRA, R. and THORBJARNARSON, J. (1999) "Conservation implications of commercial hunting of black and spectacled caiman in the Mamirauá Sustainable Development Reserve, Brazil". **Conservation Biology**, 88: p. 103-109.

SOINI, P. (1972) "The capture and commerce of live monkeys in the Amazonian region of Peru". **International Zoo Yearbook**, 12: p. 26-36.

SOUZA, D. (1987) **Aves do Brasil**. Itatiaia, Rio de Janeiro, p. 159.

SPIX, J.B. and MARTIUS, K.F.P (1981) **Viagem pelo Brasil**. Itatiaia, 3 v.; Belo Horizonte.

THORBJARNARSON, J. (1999) "Crocodile tears and skins: international trade, economic constraints, and limits to the sustainable use off crocodilians". **Conservation Biology**, 13(3): p. 465-470.

TOUFEXIS, A. (1993) "All God´s creatures priced to sell". **Time 142** (3): p. 36-41.

VINICIUS, I. and SOARES, F. (1998) "Silvestres: agora para estimação". **Revista Cães e Cia**, abril nº 227: p. 26-29.

VON IHERING, R. (1963) **Da vida dos nossos animais: fauna do Brasil**. 4ªed., Editora Rotermund, São Leopoldo, p. 320.

VON IHERING, R. (1968) **Dicionário dos animais do Brasil**. Editora Universidade de Brasília, São Paulo, p. 790.

WEBB, J. (2001) **Prosecuting Wildlife Traffickers: Important Cases, Many Tools, Good Results**. Presented on the 1st South American Conference on the Illegal Trade of Wild Animals, August 17th to 21st, Brasilia, Brazil.

WILSON, E. O. (1994) **Diversidade da Vida**. Companhia das Letras, São Paulo, p. 447.

17

Appendix I
Reptiles

Table 1. Classification and destination of reptiles seized in Brazil in 1999 and 2000 (source: IBAMA)

Scientific Name	Common Name	Total	Release	Cetas	Zoo	TGVG*	Research Institution	Scientific B. A.	Commercial B. A.	Death
CLASSE REPTILIA										
Ordem Sauria										
	lagarto	9	2	7						
Família Iguanidae										
Iguana iguana	iguana	3	1	1		1				
Polychrus sp.	camaleão	12	12							
Familia Teiidae										
Tupinambis sp.	teiú/ tejo	13	3			10				
Ordem Serpentes										
	cobra	90	40	1	2	45	2			
Família Boidae										
Boa constrictor	jibóia	61	32	8	20	1				
Eunectes sp.	sucuri	2	1			1				
Ordem Chelonia										
	quelônio	9		9						
	tartaruga	24	4	5		11		4		
	cágado	1019	1016	2		1				
Família Testudinidae										
Geochelone sp.	jabuti	146	89	45	11				1	
Família Emydidae										
Trachemys dorbigni	tigre-d'água	14						14		
Família Pelomedusidae										
Podocnemis sp.	tracajá	13	3	1			7			2
Ordem Crocodilia										
Família Crocodylidae										
Caiman sp.	jacaré	27	12	11	1	3				
Caiman latirostris	jacaré-do-papo-amarelo	5		1	4					
Répteis diversos		15	1	12		2				
TOTAL		**1462**	**1216**	**103**	**38**	**75**	**9**	**18**	**1**	**2**

* Free Voluntary Custody Term (formerly fiduciary trustee)

Table 2. Classification and destination of birds seized in Brazil in 1999 and 2000 (source: IBAMA)

Scientific Name	Common Name	Total	Release	Cetas	Zoo	TGVG*	Research Institution	Scientific B. A.	Conservationist B. A.	Commercial B. A.	Death	Destinationless
CLASSE AVES												
Ordem Tinamiformes												
Família Tinamidae												
Crypturellus sp.	Inhambu/ jaó	8	5			3						
Rhynchotus rufescens	perdiz	8	6			2						
Nothura sp.	codorna	5	4								1	
Ordem Rheiformes												
Família Rheidae												
Rhea americana	ema	27	12	7		4					4	
Ordem Procellariiformes												
Família Diomedeidae												
Diomedea sp.	albatroz	2	1					1				
Ordem Pelicaniformes												
Família Sulidae												
Sula sp.	atobá	1		1								
Família Phalacrocoracidae												
Phalacrocorax brasilianus	biguá	1		1								
Ordem Ciconiiformes												
Família Ciconiidae												
Mycteria americana	cabeça-seca	1	1									
Família Threskiornithidae												
Eudocimus ruber	guará	10		2							8	
Família Ardeidae												
	garça	4	1	2							1	
	socó	6	2	3				1				
Butorides striatus	socozinho	1				1						
Ordem Phoenicopteriformes												
Família Phoenicopteridae												
	flamingo	51	1		50							
Ordem Anseriformes												
Família Anatidae												
Cairina moschata	pato-do-mato	3	3									
Dendrocygna viduata	irerê/ paturi	34		1				33				
	pato/ marreco/ marreca	188	33	45	12	74		24				
Ordem Falconiformes												
	gavião	31	17	8		1		4			1	
Ordem Galliformes												
Família Cracidae												
Penelope superciliaris	jacupemba	9	3	6								
Penelope sp.	Jacú	14	3			10		1				
Crax sp.	Mutum	5			3	2						
Ordem Gruiformes												
Família Psophidae												
Psophia sp.	Jacamim	3		3								
Família Rallidae												
	frango-dágua	7	3	1	1			2				
Aramides sp. / *Rallus* sp.	saracura	5	1	1		2		1				
Família Cariamidae												
Cariama cristata	seriema	4	4									
Ordem Charadriiformes												
Família Charadriidae												
Vanellus chilensis	quero-quero/ tetéu	4						4				
Família Jacanidae												
Jacana jacana	jaçana	96	16									80

Appendix I
Birds

Scientific Name	Common Name	Total	Release	Cetas	Zoo	TGVG*	Research Institution	Scientific Nursery	Nursery Conservationist	Commercial Nursery	Death	No Destination
Ordem Columbiformes												
Família Columbidae												
Columba sp.	pomba	33	1			32						
Columba picazuro	asa-branca	3	3									
Zenaida auriculata	arribaçã/ avoante/ pomba-de-bando	3584	1070	1	12		1				200	2300
Columba plumbea	pomba-verdadeira	7				5		2				
Columbina sp.	rolinha	534	518	4		1		11				
Columbina talpacoti	rolinha-caldo-de-feijão	158	156	2								
Scardafella squammata	fogo-apagou	90	90									
Leptotila verreauxi	juriti	6	6									
Ordem Psittaciformes												
Família Psittacidae												
	arara	30	11	3		16						
Anodorhynchus sp.	arara-azul	12			5	7						
Ara ararauna	arara-canindé	7	1		3	1		1		1		
Ara sp.	arara-vermelha	3	1			2						
Ara sp.	ararinha	9	9									
Aratinga guarouba	guaruba	13		11				2				
Aratinga sp.	jandaia	295	192	92	3	7		1				
Pyrrhura sp.	tiriva/ tiriba	2				2						
Myiopsitta monachus	caturrita	41	13			17		11				
	periquito	376	325	23	15	8		3				2
Forpus sp.	tuim	351	348	1		1					1	
Pionus sp.	maritaca/ maitaca	19	7	9		3						
Pionopsitta sp.	curica	3	3									
Amazona sp.	papagaio	292	77	63	37	100	1	14				
Ordem Cuculiformes												
Família Cuculidae												
Crotophaga sp.	anú - anum	15	15									
Tapera naevia	fim-fim/ sem-fim	2						2				
Ordem Strigformes												
Família Strigidae												
	coruja	53	44	8							1	
Ordem Caprimulgiformes												
Família Caprimulgidae												
Caprimulgus sp.	bacurau	1		1								
Ordem Apodiformes												
Família Trochilidae												
	beija-flor	3		1	1						1	
Ordem Piciformes												
Família Ramphastidae												
Pteroglossus sp.	araçari	4	2	2								
	tucano	29	8	3		12	1	4	1			
Família Picidae												
	pica-pau	15	15									
Ordem Passeriformes												
Família Furnariidae												
Anumbius annumbi	cochicho/ anumbi	25	25									
Pseudoseisura sp.	casaca-de-couro	3	3									
Família Dendrocolaptidae												
	Arapaçu	1	1									
Família Tyrannidae												
Todirostrum sp.	papa-sebo/ caga-sebo	2	2									
Xolmis sp.	primavera/ maria-é-dia	84	84									
	bem-te-vi	17	13	2		1					1	
Família Pipridae												
Chiroxiphia caudata	tangará-dançarino	2					2					

Appendix I
Birds

Scientific Name	Common Name	Total	Release	Cetas	Zoo	TGVG*	Research Institution	Scientific Nursery	Nursery Conservationist	Commercial Nursery	Death	No Destination
Família Cotingidae												
Procnias sp.	araponga	36	11	12		12					1	
Rupicola rupicola	galo-da-serra	27	19	8								
Família Corvidae												
Cyanocorax sp.	cancã/gralha	137	136	1								
Cyanocorax caeruleus	gralha-azul	7				5		2				
Família Turdinae												
Turdus sp.	sabiá	664	554	59	40		6				2	3
Turdus rufiventris	sabiá-laranjeira	106	98			7		1				
Turdus fumigatus	sabiá-da-mata	34	33					1				
Família Emberizidae												
Coereba flaveola	sebite/cambacica	37	37									
Schistochlamys ruficapillus	bico-de-veludo	1			1							
Tachyphonus sp.	pipira/ tem-tem	62	62									
Sericossypha laricata	casaca	86	81		3							2
Ramphocelus sp.	bico-de-prata	3	3									
Ramphocelus bresilius	tié-sangue/sangue-de-boi	26	7	5		8		6				
Thraupis sp.	sanhaço/sanhacira	323	266	41	5	8		3				
Euphonia sp.	gaturamo/guriatã	213	192	12		5		1			1	2
Euphonia violacea	guriatã-verdadeiro	24	24									
Tangara sp.	saíra	24	12	6		6						
Tangara fastuosa	pintor-verdadeiro	65	65									
Zonotrichia capensis	tico-tico	122	68	24		15		11				4
Sicalis sp.	mané-magro	1		1								
Sicalis flaveola	canário-da-terra	2.533	1.200	814	1	387		85			44	2
Volatinia jacarina	tiziu/ veludinho	87	79	4		3						1
Sporophila sp.	caboclinho/ papa-capim/ papa-arroz	6.046	5.265	563	17	156	1	20			2	22
Oryzoborus maximiliani	bicudo	284	283	1								
Oryzoborus angolensis	curió	745	611	98	23	13						
Coryphospingus pileatus	cravina	98	56	1		6		32			3	
Coryphospingus cuculatus	abre-fecha/ tico-tico-rei	455	451	1	3							
Arremon sp.	salta-caminho/ coroado	24	20	4								
Paroaria coronata	cardeal	572	87	4		28		453				
Paroaria dominicana	galo-de-campina	1.052	1013	16		11		2		5	1	4
Saltator sp.	trinca-ferro/ pixarro	213	93	56		59		3				2
Passerina sp.	azulão	477	380	28		43		23				3
Psarocolius sp.	rei-congo/ japu-preto	6	6									
Cacicus sp.	japim/ xexéu	70	64	3	1	2						
Icterus sp.	rouxinol	322	262	15	3	40					2	
Agelaius ruficapillus	garibaldi/ sargento/ corda-negra	97	80		2	15						
Gnorimopsar chopi	melro/ pássaro-preto	249	161	36	2	45	2					3
Molothrus badius	asa-de-telha/ mulata	4	1					3				
Molothrus bonariensis	chopim/ godero	21	9	3	2			7				
Scaphidura oryzivora	graúna/ chico-preto	168	153	11				4				
Família Fringillidae												
Carduelis magellanicus	pintassilgo	172	102	43		16		11				
Família Passeridae												
Passer domesticus	pardal	13	2			10	1					
Família Estrildidae												
Estrilda astrild	bico-de-lacre	426	401	18		7						
Aves diversas		13.789	11.748	1729	63	234		2			13	
TOTAL		**36.573**	**27.354**	**3.924**	**308**	**1.455**	**15**	**792**	**1**	**6**	**288**	**2.430**

* Free Voluntary Custody Term (formerly fiduciary trustee)

Table 3. Classification and destination of mammals seized in Brazil in 1999 and 2000 (source: IBAMA)

Scientific Name	Common Name	Total	Release	Cetas	Zoo	TGVG*	Scientific B. A.	Commercial B. A.	Death
CLASSE MAMMALIA									
Ordem Didelphimorphia									
Família Didelphidae									
Didelphis sp.	gambá/ saruê/ timbú	39	32	7					
Ordem Xenarthra (= Edentata)									
Família Myrmecophagidae									
	tamanduá	13	12		1				
Tamandua tetradactyla	tamanduá-mirim	4	3	1					
Família Bradypodidae									
Bradypus sp.	preguiça	31	21	9	1				
Família Dasypodidae									
	tatu	55	47	5	2				1
Cabassous unicinctus	tatupeba/ peba	8	3			5			
Ordem Primates									
	macaco	77	30	27	15	4	1		
Família Calllithrichidae									
Callithrix sp.	sagüi/ mico/ soim	68	29	12	7	17	3		
Leontopithecus rosalia	mico-leão-dourado	3			1	2			
Família Cebidae									
Alouatta sp.	bugio/ guariba	1				1			
Ateles sp.	macaco-aranha	1			1				
Cebus sp.	macaco-prego	29	12	7	1	8	1		
Ordem Carnivora									
Família Canidae									
Cerdocyon thous	cachorro-do- mato/ raposa	20	19	1					
Chrysocyon brachyurus	lobo-guará/ lobo	1	1						
Família Procyonidae									
Nasua nasua	quati	12	7	2	1	2			
Procyon cancrivorus	mão-pelada/ guaxinim	3	3						
Família Mustelidae									
Eira barbara	irara/ papa-mel	4	3			1			
Família Felidae									
Leopardus pardalis	jaguatirica	1	1						
Leopardus sp.	gato-do-mato	1	1						
Ordem Perissodactyla									
Família Tapiridae									
Tapirus terrestris		1				1			
Ordem Artiodactyla									
Família Tayassuidae									
Pecari tajacu	cateto/ porco-do-mato	10			2	8			
Família Cervidae									
Mazama sp.	veado	9	2	1		5			1
Mazama gouazoupira	veado-catingueiro	12	7					5	
Ozotoceros bezoarticus	veado-campeiro	3	3						

Appendix I
Mammals

Scientific Name	Common Name	Total	Release	Cetas	Zoo	TGVG*	Scientific B. A.	Commercial B. A.	Death
Ordem Rodentia									
Família Erethizontidae									
Coendou sp.	porco-espinho	2	2						
Família Hydrochaeridae									
Hydrochaeris hydrochaeris	capivara	15	1			14			
Família Caviidae									
Cavia sp.	preá	2	2						
Família Agoutidae									
Agouti paca	paca	42	4	8	4	26			
Família Dasyproctidae									
Dasyprocta sp.	cutia	36	6			30			
Mamíferos diversos		15	2	13					
TOTAL		**518**	**253**	**93**	**36**	**124**	**5**	**5**	**2**

* Free Voluntary Custody Term (formerly fiduciary trustee)

Table 4. Classification and destination of other animals seized in Brazil in 1999 and 2000 (source: IBAMA)

Common Name	Total	Release	Cetas	Zoo	TGVG*	Research Institution	Scientific B. A.	Destinationless	Death
aranha	5				2	3			
avestruz	1			1					
bandeirante	1						1		
bico de osso	4	4							
burguesa	1	1							
cacatua	1		1						
campina	764	763							1
canário belga	31	5	8		16		2		
canário pirrita	63	63							
caranguejo	3900	3900							
chinchila	4	4							
chupa chupa	1	1							
cupido	39	39							
curiatão	9	8						1	
estrela	18	18							
extravagante	5	5							
galo de briga	10				10				
hamburguesa	10	10							
iscas de mussum	1000	1000							
javali	6				6				
laço de fita	38	38							
leão	5			1	4				
papa alça	83	83							
pavão	6			6					
periquito australiano	12	12							
pintagol	2	2							
píton	1				1				
sanquinho	2				2				
sapo	2				2				
serrinha	1						1		
suiasul	63	60							3
tigre da malásia	2				2				
verdelino	76	76							
TOTAL	**6166**	**6092**	**9**	**8**	**45**	**3**	**4**	**1**	**4**

* Free Voluntary Custody Term (formerly fiduciary trustee)

Appendix II

Brazilian Legislation on Fauna

Articles from the Brazilian Constitution, of October 5th, 1988:

Article 24 - The Union, the States and the Federal District have the power to legislate concurrently on:

> VI - forests, hunting, fishing, fauna, preservation of nature, defense of the soil and natural resources, protection of the environment and control of pollution;

Article 225 - All persons have the right to an ecologically balanced environment, which is an asset of common use and essential to a healthy quality of life, and both the Government and the community shall have the duty to defend and preserve it for present and future generations.

Laws:

Law no. 6,938, of August 31st 1961 (updated text until Law no. 8,028 of 04/12/90) - Provides for the National Envirtonment Policy, its purposes and mechanisms of formulation and enforcement, ands makes other provisions.

Law no. 4,771, of September 15th 1965 - Establishes the New Forestry Code.

Law no. 5,197 - Fauna Protection Act, of January 3rd 1967 - Provides general regulations for the use of fauna and its protection.

Law no. 6,638, of May 8th 1979 - Establishes standards for educational and scientific vivisection and makes other provisions.

Law no. 7,173/83, of December 14th 1983, Zoo Act - Provides for the establishment and operation of zoos, and makes other provisions.

Law no. 7,643, of December 18th 1987 - Prohibits cetaceous fishing in Brazilian sovereign waters and and makes other provisions.

Law no. 7,653 - Fragelli Act, of February 12th 1988 - Amends articles 18, 27, 33, and 34 of Law no. 5,197, of January 3rd 1967, which regulates fauna protection and makes other provisions.

Law no. 7,735, of February 22nd 1989 - Provides for the termination of agencies and autonomous entities, establishes the Brazilian Institute for the Environment and Renewable Natural Resources, and makes other provisions.

Law no. 7,889, of 23rd November 1989 - Provides for sanitary and industrial inspection of animal-related products.

Law no. 9,111, of October 10th 1995 - Provides an additional mechanism to Law no. 5,197, of January 3rd 1967, on fauna protection.

Law no. 9,605 Environmental Crimes Act, of February 12th 1998 - Provides for criminal and administrative sanctions associated to behaviors and actions deemed harmful to the environment.

Law no. 9,985, of July 18th 2000 - Regulates article 225, paragraph 1, sections I, II, III and IV of the Federal Constitution, and establishes the National System of Conservation Units and makes other provisions.

Decrees:

Decree no. 24,545, of July 3rd 1934 - Approves the Regulation of the Animal Health Surveillance Service - SDASA.

Decree no. 24,645, of July 10th 1934 - Maltreatment includes: abusive or cruel treatment to any animals; keeping animals in dirty places or places that restrain their breathing, movements or ease; depriving animals from air or light; voluntarily beating, injuring or mutilating any organs or tissues, except in the case of castrating pets or of surgeries for the sole benefit of the animal; forsaking an ill, injured, exhausted, or mutilated animal, as well as failing to make reasonable efforts towards fulfilling its needs, including veterinary assistance; keeping animals boarded on any means of transportation for more than 12 hours without water or food; transporting any animals upside down.

Decree no. 3, of December 13th 1948 - Approves the convention on the protection of flora, fauna, and natural landscapes of the Americas, signed by Brazil on 02/27/40.

Decree-Law no. 221, of February 28th 1967 - Provides for the protection and support to fishery and makes other provisions.

Decree no. 63,234, of September 12th 1968 - Creates the "Bird Day", and makes other provisions.

Legislative Decree no. 77, of December 7th 1973 - Passes the text of the International Convention for the Regulation of Whaling, completed in Washington, D.C., on December 2nd 1946.

Decree no. 76,623, of November 17th 1975 - Promulgates the Convention on International Trade in Endangered Species of Wild Fauna and Flora - CITES.

Decree no. 78/017, of July 12th 1976 - Promulgates the Agreement for the Conservation of Flora and Fauna in Amazon Territories of Brazil and Colombia.

Decree no. 78,802, of 23rd November 1976 - Promulgates the Agreement for the Conservation of Flora and Fauna in Amazon Territories of Brazil and Peru.

Decree no. 97,628, of April 10th 1989 - Regulates article 21 of Law no. 4,771, of September 15th 1965 - Forest Code, and makes other provisions.

Decree no. 97,633, of April 10th 1989 - Provides for National Fauna Protection Council - CNPF, and makes other provisions.

Legislative Decree no. 02, of February 3rd 1994 - Passes the text of the convention on biodiversity, signed during the United Nations Conference on Environment and Development, held in Rio de Janeiro, 5-14 June 1992.

Decree no. 1,282, of October 19th 1994 - Regulates articles 15, 19, 20, and 21 of Law no. 4,771, of September 15th 1965, and makes other provisions.

Decree no. 3,179, of September 21st 1999 - Provides for the specification of sanctions applicable to behaviors and actions deemed harmful to the environment, and makes other provisions.

Decree no. 3,607, of September 21st 2000 - Provides for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora - CITES, and makes other provisions.

Administrative Acts:

IBDF Administrative Act no. 79-P, of March 3rd 1975 - Regulates annual amateur hunting.

IBDF Administrative Act no. 51, of December 19th 1977 - Approves the models for Sanitary Inspection Certificate.

IBDF Administrative Act no. 108, of April 2nd 1982 - Approves the permit forms for wild animal hunting.

IBDF Administrative Act no. 409-P, October 27th 1982 - Establishes the fees for the issuance of wild animal or ornamental plants exhibition/contest.

IBDF Administrative Act no. 49, March 11th 1987 - Regulates the importation of living animals for any purposes and of animal reproduction materials.

IBDF Administrative Act no. 324-P, July 22nd 1987 - Prohibits the establishment of breeding areas for Yacare caiman (*Caiman crocodilus yacare*) in areas outside the Paraguay River Basin.

IBDF Administrative Act no. 132-P, of May 5th 1988 - Provides for the creation of commercial breeding grounds for those species which are not provided with specific management plan.

IBDF Normative Administrative Act no. 286/88, October 4th 1988 - Determines that individuals and legal entities working with fauna and flora shall renew their registrations.

IBAMA Administrative Act no. 283-P, of May 18th 1989 - Regulates the registration of public and private zoos in IBAMA.

IBAMA Administrative Act no. 310-P, of May 26th 1989 - Registration of amateur hunting, shooting, and flying clubs or societies.

IBAMA Administrative Act no. 1,522 and additions, of December 19th 1989 - Acknowledges the Official List of Endangered Species of Brazilian Fauna.

IBAMA Administrative Act no. 019, of January 17th 1990 - Prohibits the exchange of wild animals between zoos and illegal scientific and commercial breeding grounds.

IBAMA Administrative Act no. 126, of February 13th 1990 - Regulates Commercial Breeding of Yacare caiman (*Caiman crocodilus yacare*).

IBAMA Administrative Act no. 186, of February 22nd 1990 - Establishes the National Center for the Conservation and Management of Sea Turtles.

IBAMA Administrative Act no. 55 MCT/CNPq, of March 14th 1990 - Approves regulations on the collection of scientific data and materials by foreigners in Brazil.

IBAMA Administrative Act no. 332, of March 13th 1990 - Regulates permits for the collection of zoo material for scientific and educational purposes.

IBAMA Administrative Act no. 1,531, of August 14th 1990 - Establishes prices for import/export/re-export permits - CITES.

IBAMA Administrative Act no. 2,161, of October 25th 1990 - Regulates the protection of spix's macaw (*Cyanopsitta spixii*).

IBAMA Administrative Act no. 2,314, of November 26th 1990 - Regulates the commercial breeding of Lepidoptera insects.

I**BAMA Administrative Act no. 172, of January 22nd 1991 -** Regulates the inter-zoo trade in indigenous, captivity-born wild animals.

IBAMA Administrative Act no. 631-P, of March 18th 1991 - Regulates the registration of Ornithological Federations, Associations and Clubs. ** Revoked by Administrative Act no 57, of July 11th 1996.**

IBAMA Administrative Act no. 005-N, of April 25th 1991 - Sets criteria for the copulation of endangered species of the Brazilian fauna.

IBAMA Administrative Act no. 12-N, of January 30th 1992 - Revokes Administrative Acts no. 170-P, of May 16th 1977, and 008-P, of January 11th 1978.

IBAMA Administrative Act no. 119-N, of November 17th 1992 - Regulates the trade of Brazilian crocodilian skins (*Caiman crocodilus crocodilus*).

IBAMA Administrative Act no. 142, of December 30th 1992 - Regulates the Commercial Breeding of turtles and yellow-spotted Amazon River turtles, (*Podocnemis expansa* and *Podocnemis unifilis*).

IBAMA Administrative Act no. 44/93-N, of April 6th 1993 - Regulates the authorization for the transportation of forest products ATPF.

IBAMA Administrative Act no. 90/93-N, of July 26th 1993 - Revokes "Previous Permits" for embarked fishing registered in IBAMA.

IBAMA Administrative Act no. 139-N, of December 29th 1993 - Regulates the establishment of Conservationist Breeding Grounds.

IBAMA Administrative Act no. 16, of March 4th 1994 - Regulates the establishment of Scientific Breeding Areas.

IBAMA Administrative Act 29, of March 24th 1994 - Regulates the importation and exportation of indigenous and invasive species of the Brazilian fauna.

IBAMA Administrative Act no. 108, of October 6th 1994 - Provides for amateur hunting.

IBAMA Administrative Act no. 126/94, of November 17th 1994 - Regulates the operation of Brazilian Zoos.

IBAMA Administrative Act no. 1912/94 - Reorganizes the Zoo Joint-Committee.

IBAMA Administrative Act no. 10, of January 30th 1995 - Prohibits vehicles from riding on the beach strip comprising the longest ebb tide until 50m above the longest rising tide in the year (spring tide), in the States of Rio de Janeiro, Espírito Santo, Bahia, Sergipe, Alagoas, and Pernambuco.

IBAMA Administrative Act no. 11, of January 30th 1995 - Prohibits any light sources in coastal strips for the protection of sea turtles.

IBAMA Administrative Act no. 57, of July 11th 1996 - Regulates the operation of Ornithological Federations, Associations, and Clubs.

IBAMA Administrative Act no. 70/96, of August 23rd 1996 - Regulates the trade in products and by-products of chelonian species.

IBAMA Administrative Act no. 99, of August 28th 1997- Amends Administrative Act 57/96.

IBAMA Administrative Act no. 113/97 - Regulates registration procedures with IBAMA.

IBAMA Administrative Act no. 117, of October 15th 1997 - Regulates trade in living, and slaughtered animals, parts and products derived from the Brazilian wild fauna, from Commercial Breeding Grounds and Zoos duly registered with IBAMA.

IBAMA Administrative Act no. 118, of October 15th 1997 - Regulates the implementation of Commercial Breeding Grounds for wild animals.

IBAMA Administrative Act no. 93, of July 7th 1998 - Regulates any operations involving importation and exportation of living specimens, products, and by-products of indigenous and invasive species of the Brazilian fauna.

IBAMA Administrative Act no. 102, of July 15th 1998 - Regulates the operation of invasive wild fauna breeding grounds for economic and industrial purposes.

Provisional Acts:

Provisional Measure no. 2,052, of June 29th 2000 - Regulates section II of paragraph 1 and paragraph 4 of article 225 of the Brazilian Constitution, articles 1, 8, item "J", 10, item "C", 15 and 16, items 3 and 4 of the Convention on Biodiversity; provides for the access to both genetic assets and technology concerning its preservation and use, the protectioln and access to traditional associated knowledge, the distribution of benefits, and makes other provisions.

Directives:

Normative Directive no. 001/89 - Regulates the inhabitation of enclosures in zoos.

Normative Directive IBAMA no. 03, of April 15th 1999 - Sets the criteria for the Environmental Licensing of enterprises and operations that involve the management of invasive wild fauna and indigenous wild fauna in captivity.

Resolutions:

CONCEX Resolution no. 165, of November 23rd 1988 - Approves rules for the exportation and importation of living animals for any purposes.

CONAMA Resolution no. 017, of December 7th 1989 - Regulates the routing of animal skins/furs seized by the Enforcement Authorities.

CONAMA Resolution no. 237, of December 19th 1997 - Regulates Environmental Licensing procedures pursuant to Law no. 6,938.

Conventions:

Convention for the Flora, Fauna, and Natural Scenic Beauties of America's Countries, 1940.

International Convention of December 02, 1946 - Whale-Fishing Regulation Protocol.

Convention for the Conservation of Antarctic Seals, 1972.

CITES' Convention on the International Trade of Endangered Wild Flora and Fauna Species, 1973.

Ramsar Convention on Wetlands.

Convention on Biological Diversity, 1992.

Agreements and Covenants:

Agreement for the conservation of the Amazon territories' flora and fauna, December 03, 1973 - Approves the text on the agreement for the conservation of flora and fauna of the Federative Republic of Brazil and Colombia's Amazon territories, entered into in June 20, 1973.

Zoosanitary Covenant, 1985 - Zoosanitary Covenant aimed at the exchanging of animals and animal products between the Government of the Federal Republic of Brazil and the Government of the Oriental Republic of Uruguay.

Motion:

Motion/CONAMA/016, December 05, 1991 - Requests His Excellency the President of the Republic resources and vigorous measures towards the combat of hunting and smuggling of wild animals throughout the Country.

Acknowledgements

Renctas hereby thanks all companies and institutions which, through all these years, have been supporting us and contributing to the combat against the illegal trade of wild fauna.

ALUMAR
AMEZOO- Sociedade de Amigos do Zoológico de Brasília
APCF - Associação Nacional do Peritos Criminais Federais ASHOKA - Empreendedores Sociais
BANESPA
BR DISTRIBUIDORA
CATARATAS DO IGUAÇU
CEBDS - Conselho Empresarial Brasileiro para o Desenvolvimento Sustentável
CENSIPAM - Centro Gestor e Operacional do Sistema de Proteção da Amazônia
CEMIG
CETREL
COMISSÃO DA AMAZÔNIA DA CÂMARA FEDERAL
CONSTRUTORA ODEBRECH
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FARO - Faculdade de Ciências e Tecnologia de Rondônia
FCAP - Faculdade das Ciências Agrárias do Pará
FNDPF - Federação Nacional dos Delegados de Polícia Federal
FUNDAÇÃO MARQUÊS DE SALAMANCA
FUNDAÇÃO O BOTICÁRIO DE PROTEÇÃO À NATUREZA
FUNDAÇÃO PÓLO ECOLÓGICO DE BRASÍLIA
FUNDAÇÃO RIO ZOO
FUNDAÇÃO S.O.S. MATA ATLÂNTICA
FURNAS - Centrais Elétricas
GAMA - Gerência Adjunta de Meio Ambiente e Recursos Hídricos do Estado do Maranhão
IBAMA - Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis
IMAC - Instituto de Meio Ambiente do Acre
INTERPOL - Divisão de Crimes Internacionais da Polícia Federal
INVESTCO

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MACUCO SAFARI
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Chart and Table Index

Cross Index

TECHNICAL INFORMATION

Renctas - national network to fight the trafficking of wild animals
1st National Report on Wild Fauna Traffic.
Year. 2001, Brasília - Brazil.
108 p.: IL.

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Evaluation Form

This is the first report on the trafficking in wild animals in Brazil ever produced by Renctas. Our purpose is to update and extend such work in the future. Your suggestion and opinion are extremely important for the progression of the present work. In this way, please fill out the form below.

Thank you,
Renctas

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5 = excellent; 4 = very good; 3 = good; 2 = average; 1 = poor

1. ____ what was your knowledge on animal trafficking before reading this report?

2. ____ how do you measure your knowledge after having read this report?

3. Chapters content and information:

____ Introduction

____ Objectives

____ Data survey

____ Traffic background

____ Types of traffic

____ Routes and mechanisms of trafficking

____ Social structure

____ Figures of traffic

____ Species involved

____ Carts and tables

____ Photos

____ The report as a whole

7. What would you like to add to this report?

( ) more information. Which?

( ) more photos. Which?

8. Tell us about new ideas or questions provided by this report

9. How do you intend to use this report?

10. Other remarks.

The complete report can be mailed or faxed:

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