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COMMUNITY WILDLIFE MANAGEMENT IN SOUTH AMERICA

A REGIONAL REVIEW

Edited by
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Foreword

About this Review and what to expect from it

This Regional Review was done at the framework of the **"Evaluating Eden : Assessing the Impacts of Community Wildlife Management"** Project, conducted at international level by the International Institute for Environment and Development IIED. The main objective of this project is to investigate the conditions or factors which affect the way that different types of community wildlife management (CWM) ventures function under a range of social, economic, institutional and environmental circumstances. This review is included in the first phase of a three-year process which aims to contribute to new and existing CWM initiatives, by providing information on which policies and projects could draw.

This Regional Review for South America, was undertaken as a joint activity between IIED-América Latina (IIED-AL; Buenos Aires, Argentina) and the World Conservation Union -IUCN- Regional Office for South America (IUCN Sur; Quito, Ecuador). To make this task more manageable, the two institutions divided the South American continent, each taking a portion of the involved countries in which each was to look for the available information on recent Community Wildlife Management (CWM) initiatives. IIED-AL, covered Argentina, Bolivia, Chile, Paraguay, Uruguay, and the southeastern States of Brazil (including Matto Grosso). IUCN South America covered Colombia, Ecuador, Peru, Venezuela, all the other Brazilian States, Guyana, Surinam and French Guyana.

The CWM initiative inventory was done through different means by each institution. Previously, an agreed questionnaire was produced to analyze each of the detected initiatives. This questionnaire corresponded to guidelines for this task that IIED International had shared with the different regions involved in the Evaluating Eden Review. In those countries where they exist, IUCN Sur contacted its IUCN National Member Committees, asking them to identify an institution that had expertise in CWM issues and was willing to develop this review. The following institutions developed the Review in their countries, followed by the name or names of the Review leader(s):

Colombia:	Asociación para la Defensa de la Macarena; Fernando Molano
Ecuador:	ECOCIENCIA; Luis Suárez and Itala Yepez
Peru:	APECO, Centro de Datos para la conservación -CDC; Mariella Leo,
Venezuela	PROFAUNA; Alvaro Velasco[1]

In Brazil, where there is no IUCN Members' Committee, contacts were made through the IUCN/Species Survival Commission´s Deputy Chair, Dr. Marcio Ayres, and Miriam Marmontel of the Sociedade Civil Mamirauá was identified and coordinated the Review in the Brazilian States covered by IUCN. The scanty information on Guyana, Surinam and French Guyana was uncovered by IUCN Sur through phone interviews, and a few documents were kindly made available by the Iwokrama Project in Guyana.

[1] PROFAUNA is not an IUCN member but is very close to the IUCN Venezuelan Members' Committee and several of its staff have been active IUCN/SSC members, and so it was asked to make the country's review.

IIED AL, distributed the questionnaire to the leaders and key persons of ongoing initiatives in each of the countries covered, complementing the national perspectives with interviews and information from available written sources. The following persons helped in this review:

Argentina: Alfredo Reca, Jorge Cajal (Secretaría de Recursos Naturales y Desarrollo Sustentable de la Nación - SRNyDS), Gustavo Porini (Dirección de Flora y Fauna - SRNyDS), Javier García Fernández, Ricardo Banchs, Flavio Moschione, (FUCEMA), Christian Ostrosky (IIED-AL), Chris van Dam (GTZ), Jorge Adámoli (Facultad de Cs. Exactas y Naturales, UBA), Enrique Bucher (Centro de Zoología Aplicada, Universidad Nacional de Córdoba), Jorge Ravinobich (Universidad de Belgrano), Juan Carlos Chébez (Administración Parques Nacionales), Carlos Reborati (Facultad de Filosofía y Letras, UBA), Miguel Alcalde (Dirección de Medio Ambiente, Municipalidad de Viedma), Edith García Preciozo (Dirección de Fauna, Provincia de Río Negro).

Bolivia: Alexandra Sánchez de Lozada (Dirección Nacional de Conservación de la Biodiversidad), Damián Rumiz (Proyecto BOLFOR, Ministerio de Desarrollo Sustentable), Wendy Townsend (CIDOB), Zulema Lehm (CIDDEBENI), Andrew Noss.

Brasil: Bruno Pagnoccheschi (Instituto Sociedade, Populacao e Natureza, ISPN), María Elena Allegretti (Centro de Desenvolvimiento Sustentavel, Universidade Nacional de Brasilia), Frans Leeuwenberg (MSPW).

Chile: Víctor Valverde Soto (Corporación Nacional Forestal, CONAF), José Luis Galaz (CONAF), Oriana Salazar (Casa de la Paz), Rodrigo López Rubke (CODEFF).

Paraguay: Kim Hill (Facultad de Antropología, Universidad de Nuevo México), Alfredo Molinas (Subsecretaría de Recursos Naturales y Medio Ambiente, Ministerio de Agricultura y Ganadería), Alberto Yanosky (Fundación Moisés Bertoni).

Uruguay: Roberto Mendez Blanco (Grupo Palmar), Carlos Perez Arrarte (CIEDUR).

After recovering the information from all over the region, a final document was produced in order to give the best possible picture of what is going on in South America in regards to CWM, including its backgrounds and prospects.

This review is based upon the analysis of the questionnaires as well as available written information (books, papers, reports, brochures, references, CD Rom) of different CWM initiatives detected in the different countries by individuals involved in this survey. Where possible, phone or personal interviews gave additional insight to some of the experiences being analyzed. The reach of this initial review was very basic, and only pretends to offer an actual panorama of what CWM is in South America and the chances it has in the midst of our rapidly changing economic, social, cultural and environmental contexts. The outline for future phases of the "**Evaluating Eden**" project is also given by highlighting the issues that were considered to be the most important for further analysis in South America. It also highlights those projects considered as having the most important potential lessons on different issues around CWM, worth close observation for future analysis.

We should caution that there is a set of projects to which we frequently refer throughout this report. There are a few explanations for this. First, these projects have been in place for a relatively longer time, and so documented information exists that made their inclusion easier throughout our analysis. Second, they are closely related to academic and research institutions where publishing data is an important element in the development of the projects, as well as to the professionals behind them. Third, there are some projects that have had the chance of being presented in meetings, congresses or symposia, so record has been kept of them in the proceedings.

Many of the initiatives, not having much information available to provide, have been difficult to include in this analysis of CWM issues. For example, some projects were included based on a small paragraph in a government report describing its objectives. However, these initiatives were included because one must acknowledge that even though the best-documented experiences belong to high profile projects with strong technical and financial support, this does not mean that the poorly known initiatives are not important. Future "**Evaluating Eden**" activities in the region should try to approach some of these with more depth as we are sure that invaluable lessons are being developed in remote places, far from journals, conference halls and donor money.

We would like to thank Barry Dalal-Clayton, Christo Fabricius and Dilys Roe of IIED International for their constant support and useful comments throughout the development of this review. We are also very grateful to the persons that collaborated in the production of this document : Marita Gonzalez Tossi (IIED-AL) who made much of the contacts and research for the south cone countries, Gabriela Lichtenstein (IIED-AL) and the IUCN Members' Committe Coordinators in Colombia, Eduardo Guerrero; in Peru: Silvia Sánchez; and in Venezuela: Armando Hernandez.

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Abbreviations and Acronyms

APECO:	Asociación Peruana para la Conservación de la Naturaleza
CABI:	Capitania del Alto y Bajo Izozog
CI:	Conservation International
CIIDEBENI:	Centro de Inf. y Documentacion del Beni
CITES:	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CNG:	Corporación Norte Grande (Chile)
CNS:	Consezho Nacional do Serengheiros
COAM:	Cooperación Amazónica de Barcelona, España
CODEFF:	Comite Nacional Pro Defensa de Flora y Fauna Silvestre
CONAF:	Corporación Nacional Forestal (Chile)
DFF:	Direccion Nacional de Flora y Fauna Silvestre (Argentina)
DFS:	Direcc. de Fauna Silvestre de Rio Negro (Argentina)
ESPOCH:	Escuela Politécnica de Chimborazo (Ecuador)
FBM:	Fund. Moises Bertoni
FHGO:	Fundación Herpetológica Gustavo Orcés
FONCODES:	Fondo Nacional de Compensación y Desarrollo Social
FVS:	Fundacion Vida Silvestre
GTZ:	Deustche Gesellschaft für Technische Zusammenarbeit
IBAMA:	Instituto Brasileiro de Medio Ambiente
IIAP:	Instituto de Investigaciones de la Amazonia Peruana
IIED-AL:	Instituto Internacional de Medio Ambiente y Desarrollo - América Latina (Argentina)
INDAP:	Instituto Nacional de Desarrollo Agropecuario (Chile)
INDERENA:	Inst. Nac. de Rec. Naturales
INEFAN:	Instituto Nacional Forestal y de Areas Naturales y Vida Silvestre (Ecuador)
INRENA:	Instituto Nacional de Recursos Naturales
IVITA:	Instituto Veterinario de Investigaciones Tropicales y de Altura
NORAD:	Agencia Noruega para la Cooperación Técnica
OPIP:	Organización de pueblos Indígenas de Pastaza (Ecuador)
OPS:	Organizacion Panamericana de la Salud
PRONAMACHS:	Programa Nacional de Manejo y Conservación de Cuencas Hidrográficas y Suelos
PUCE:	Pontificia Universidad Católica de Ecuador
TAMAR:	Tartaruga Marina
TC & DP:	Tropical Conservation and Development Program, University of Florida
TNC:	The Nature Conservancy
UNAP:	Universidad de la Amazonia Peruana
USAID:	US Agency for International Development
WCS:	Wildlife Conservation Society
ZRTC:	Zona Reservada Tambopatá Candamo

CONTENTS

1. INTRODUCTION

1.1 Socioeconomic and Political Background

1.1.1 The pre-Hispanic period and the environment

Human beings have exploited the tremendous diversity of South American wildlife since they first appeared on this continent. Indeed, the pressure brought by the first dwellers presented one of the causes leading to the extinction of several large mammal species (i.e giant sloths, mastodonts, horses) during the Pleistocene period (Martin 1967 in Wall 1994). Hunting and fishing were the main sources of native peoples' proteins, complemented by the domestication of mammal species such as the llama (*Lama glama*), alpaca (*Lama pacos*), and the "cuy" or guinea pig (*Cavia porcellus*) some 7.000 years ago (Wheeler 1991). The value of wildlife in the evolution of native cultures on the continent is indisputable, as a source of protein, hides, fibers, feathers, ornaments, medicines, ritual and magical objects, bait, objects of commercial exchange, gifts, offerings and pets.

The importance of wildlife for these cultures goes beyond direct uses and becomes part of the dynamic and complex Man-Nature relationship and its cosmogonic, totemic, symbolic and cultural-identity elements (Ulloa et al. 1996). It is in these cultural relations with the resources offered by the land that social structures limit hunting, bring social pressure to bear on violators, and create the groundwork for sustainability that is fundamental if humans and animals are to live together without depleting populations and/or species extinction.

Pre-Hispanic indigenous societies achieved high levels of population density. In South America, people concentrated mostly in the Andean region, in coastal and flood plain areas, by large rivers and in periodically flooded savannas. The Amazon basin could have harbored a Pre-Colombian population that ranges between two and five million inhabitants (Ribeiro 1992), and the Andes range, an estimated nine to 12 million inhabitants (Pease 1995). The Incas (along with the Aztecs in Mesoamerica) had the most advanced political system in South America. They brought a sophisticated body of knowledge about the natural resources of the immense territories they had brought under their control with which they managed to increase and diversify their production. In view of the expansion of the Inca Empire, a significant portion of the indigenous population lived in urban centers when the European invasion (known as the Conquest) began during the 16th Century.

1.1.2 The impact of colonization

The Conquest introduced major changes in the spatial distribution of the people, with the effect of dramatically reducing the indigenous population, decimated by violence and by the many diseases brought by Europeans against which native population had no natural immunity.

This Conquest deprived the natives of their land and the right to use resources, granting a central government ownership thereof and the power to determine by whom and how resources were to be used. It also attempted to expunge and penalized ancestral cultural practices, in order to impose the Catholic religion as an element of domination. Their aim was to subject the highly-developed cultures flourishing through the Americas by offering the newly rich landowners and capitalists an abundant supply of slave labor which decimated native populations and devastating their cultures. This process never reached the most remote zones of the rain forests until the early 20th century, with the commercial production of rubber and other forest resources, again sacrificing tens of thousands of indigenous people, extinguishing their cultures and their ways of relating to their environment.

European colonization brought with it the intensive production of foodstuffs based on introduced plant and animal species (large livestock, fowl, seeds) thus transforming the economy, modes of production, power relationships, and the way that the inhabitants of this continent related to their environment.

The Spanish and Portuguese envisioned Latin America as an immense deposit of very valuable raw materials, some of them quite exotic and attractive for the European bourgeois. These could be accessed through an enslaved working force, including the thousands of Africans that were introduced in the beginning of the 17th Century. No efforts were placed in the generation of a development model adapted to the local conditions for the satisfaction of local needs. This unleashed an ongoing process transforming ecosystems, exhausting resources through over-exploitation, localized human over-population and cultural homogenization.

The natural setting changed very rapidly. Most fertile and accessible land areas were cultivated (wheat, corn and flax in Argentina, coffee in Southeastern Brazil and Central Colombia, cotton along Peru's coast, sugar cane in northeastern Brazil, Colombia and Venezuela), or occupied by cattle or sheep ranching, according to latitude. Disorderly logging began, in order to profit from the most valuable timber or simply for firewood. Almost all this production was exported. Mining was another important activity, mainly for the economies of Bolivia, Peru and Chile. Although cold-storage plants, flour mills, coffee drying plants and sugar mills provided meager added value, fortunes were generated for a small national elite who began to control politics and the economy from the national and provincial capital cities in each country.

The export of wild products included heron feathers, manatee oil and meat, turtle meat and oil, dried fish, crocodile and other reptile skins, mammal furs, live parrots and other cage birds, live primates, hardwoods, cocoa, indigo, vanilla, rubber, quinine and other medicinal plants,.

1.1.3 The 20th century commercial boom and its impacts on wildlife

By the end of the 19th Century, the extractive assault began on the most remote parts of the continent in search of wildlife resources, especially rubber, a product that was fast

becoming fundamental for US and European industrial development. The governments of the Amazon basin became interested in their unknown frontiers, and they reacted with policies for occupation and border settling that generated conflicts between neighboring countries such as the currently unresolved border dispute between Peru and Ecuador.

The booming rubber economy and subsequent frontier policies drove humans toward these distant zones, founding towns or considerably expanding what had been small indigenous settlements like Manaos and Belem (Ribeiro 1992). Many of these new inhabitants made their living in the jungle by trading live animals and skins.

From the 1930s until the late 1970s, tens of millions of skins (crocodile, snake, "tejú" lizard, feline, otter, fox, chinchilla, vizcacha, peccary, capybara, seal, sea lion), live parrots, macaws and songbirds for pets, and primates for the pet and biomedical markets, left South America for Europe, North America and Japan. During the 1930s, the single State of Acre in Brazil produced between 30 and 40 tons per year of wildlife pelts (Martins 1992). Between 1951 and 1980, Colombia legally exported almost twelve million "babilla" (*Caiman crocodilus*) skins. In a 20-year period beginning in 1946, 23,000 giant otter (*Pteronura brasiliensis*) skins, 91,000 otter (*Lontra longicaudis*) skins, 12,700 jaguar (*Panthera onca*) skins, and 140,000 ocelot (*Leopardus* spp) skins were exported from Iquitos, Peru (Redford 1996). Many of the most seriously affected species became seriously depleted due to commercial purposes and the international community recognized this fact. Thus, from the 1970's, wildlife exports decreased significantly due to international legislation, CITES (Convention on International Trade on Endangered Species of Plants and Animals) being the most important.

Currently, some of the most heavily hunted species such as the black caiman (*Melanosuchus niger*), American caiman (*Crocodylus acutus*), broad-nosed caiman (*Caiman latirostris*), giant otter, chungungo (*Lontra felina*), huillín (*Lontra provocax*), jaguar, ocelots, and foxes (*Dusicyon spp*), are slowly recovering. Species such as chinchilla (*Chinchilla* spp) and the Orinoco caiman (*Crocodilus intermedius*) are still Critically Endangered (IUCN 1996) as a consequence of heightened commercial pressure during this century.

1.1.4 Recent changes and development models

In the 1940s, the Region began to see an extraordinary rural-urban migration. From 1950 to 1980, the population of Latin America and the Caribbean almost tripled (from 181 million to 486 million inhabitants), becoming increasingly concentrated in cities, worsening discrepancies between the spatial distribution of natural resources and populations, government investments and productive activities. The socioeconomic development process has been limited to specific areas that are less than half of the region's territory as a whole. By the early 1990s, over two thirds of the region's population was located along a narrow ocean coastline strip.

From the environmental perspective, the two main population processes during the three decades after 1950 comprised the displacement of rural dwellers toward the region's urban zones, and the colonization processes expanding the agricultural frontier. In the

last 50 years, the ratio of rural to urban population has dramatically shifted from 70:30 to 30:70.

1.1.5 Different trends and scenarios

Compared to the severe extraction pressure put on the highly priced wildlife species mentioned above during the 1920s to the 1970s, current commercial exploitation is no longer the major threat to the continent's fauna. Currently, the most serious threat to most species comes from the destruction of their habitat, complemented by unsustainable harvest levels in most areas where human numbers have greatly increased in the last decades.

Most destruction and alteration of wild habitats in South America is due to the expansion of the agricultural frontier through spontaneous colonization, or by commercial firms practicing extensive monoculture agriculture and livestock raising for export. Petroleum and mining extraction, logging, urban development, large-scale infrastructure projects, planting of illegal crops, and the pollution and desiccation of water bodies and wetlands, are also important causes of the habitat loss. The Amazon basin has already lost 30% of its forests, most of them in the last 20 years (WRI 1997).

Over-exploitation results mainly from a considerable increase in human populations in zones that had previously been very sparsely populated. The loss of cultural values (social pressure, taboos, banned zones and times for hunting, species only accessible to specific individuals, etc.) that governed hunting and fishing among indigenous peoples is an important disincentive for sustainably harvesting wildlife products. The use of firearms compared to the earlier use of spears, arrows and darts, and the forced sedentarization of roving indigenous peoples are also important causes of over-exploitation of wildlife (Stearman 1997).

At present, one of the greatest threats to the region's ecosystems is the construction of hydropower plants, roadways, inland waterways, ports and gas and oil pipelines from production sites to export facilities or to neighboring countries. These engineering projects will generate significant, irreversible changes in delicate ecosystems, especially by opening them up to settlement, or making it economically viable to farm and to remove valuable resources from many zones that are currently inaccessible. Among the most important such engineering projects, there is the Paraná-Paraguay Hidrovía, the Bolivia-Brazil gas pipeline, the Manaos-Caracas highway and the roadway that will connect the Brazilian Amazon region with the Pacific coast of Peru (Amazon Watch 1997).

After decades of investments, loans, development plans, agrarian reforms, structural changes, adjustments and policies, poverty alleviation in the region has failed. In countries like Bolivia, Colombia, Ecuador, Peru and Venezuela, poverty affects more than half of the population -an amount which is increasing every year in Ecuador- with a significant portion living in extreme poverty conditions. Rural inhabitants, especially indigenous peoples, are generally the most affected. This severe problem is the most serious challenge faced by the region, one that surely has serious implications for the

environment. Biodiversity conservation will be extremely difficult to achieve in the midst of the social inequities that characterize South America.

1.1.6 Citizens' participation and conservation

For the first time in this region, there have been recent constitutional changes in countries like Colombia, Brazil and Peru to emphasize both the right to a healthy, productive environment and the objective of conserving Nature. Other parallel processes (Bolivia, Colombia) have fostered participation, recognition of some countries' cultural diversity, and decentralization of government action to municipal levels, generating major changes in countries' political structures and empowering indigenous and other ethnic minority organizations. Conservation is a field where participation of local stakeholders is rapidly increasing, especially in the co-management of protected areas by local communities (Bolivia, Peru, and a couple of cases in Ecuador), or through the promotion of private reserves as a competitive form of land use (Colombia, Paraguay, Peru, Brazil).

The current Neoliberal wave that is transforming the region’s economies and government structures is seen as a threat towards communal management arrangements or any sort of activity or land use that is not intended to be articulated to the market for export and globalization purposes. Wildlife community management is allowed, but is not promoted.

1.2 Actors And Sectors In Wildlife Management

For the sake of this Regional Review, South America's rural inhabitants will be separated into two groups or sectors involved in community wildlife management: indigenous peoples and other local dwellers.

1.2.1 Indigenous peoples

Colchester (1995) presents several definitions of indigenous peoples, which generally refer to ethnic groups that are culturally distinct, who lived in a specific area prior to the Conquest, who have an identity different than that of national society and live mainly on local resources. Diegues (1994, p. 79) presents a list of 11 elements that characterize indigenous peoples: Reduced capital accumulation, importance of subsistence activities, notion of "territory" that has been occupied by several generations where the social group reproduces economically and socially, and the deep knowledge of nature and its cycles reflected in the elaboration of strategies for the management of natural resources, are highlighted.

1.2.2 Other Rural Dwellers

This category of “other rural dwellers” basically refers to local people aside from the indigenous as defined above. It is quite a heterogeneous category, including a broad

range of rural communities with different names in different countries, distinguishing them from the ancestral indigenous population groups: *colonos, ribereños, caboclos, mestizos, criollos, siringueiros.* In many cases, their ancestors are totally indigenous, but they have lost most if not all of their cultural identity. In many other cases they are the result of intermarriage among Europeans, natives and blacks, and their land- and resource-use patterns differ substantially from those of the indigenous, as demonstrated by Redford and Robinson (1987) in the selection of hunting prey. In this category we include the black communities, descendants of African slaves, who have combined ancestral lore of their own with the knowledge that their indigenous neighbors have of the environment.

Another difference between this group and indigenous people is their marked relationship with the market economy. The main objective of their work is to produce cash crops and raw materials to be sold in local markets. The rural dwellers that have been occupying their lands for a few generations have developed elaborate knowledge of their surroundings, the species they use, and the natural cycles affecting them (Almeida 1992; Bodmer 1995). Much of this knowledge has been learned from indigenous dwellers of the area. Those that have arrived in the last 30 years to the colonization frontier have very little if none of the skills to adequately exploit the new environment and cause great impacts.

In general, these rural inhabitants practice a low scale market economy that guarantees the subsistence of their families, sell their surplus production, using a broad range of wildlife including fish, timber, and small-scale agriculture and livestock raising. Many wildlife species and products are used by these rural dwellers in an opportunistic way to complement their diet or incomes. Some practice the "professional colonizer" role that clears forest to sell to big landholders for extensive cattle raising and then moves deeper into the forest (Rojas-Ruiz 1992).

Relationships between indigenous peoples and colonizers have been very difficult, violence being the means that traditionally has been used for taking land and resources from the former. Indigenous ways of living, their language, practices and traditions are disregarded by the newcomers as "savage" and something they should be ashamed of. The indigenous subsistence activities such as hunting and gathering are considered laziness, as cattle husbandry and agriculture of traditional crops are the real work of "civilized" man in the rural environment. These pressures create severe conflicts to the indigenous groups forcing them to imitate alien lifestyles, a fact that has brought loss of identity, cultural values and knowledge of nature. The loss of cultural practices that controlled species over-harvest is a major cause of unsustainable use in many places.

1.2.3 Other Groups of Interested Parties

Since most of the analyzed projects in this survey aim, as their main objective, to ensure that local communities will use wildlife sustainably for their subsistence-level benefit, or to conserve endangered species, the groups of interested parties, aside from the communities themselves, are not very numerous.

However, there are a number of groups, such as businesspersons, intermediaries and exporters of products, who have a primary interest linked with the development of these projects and initiatives. These include:

a. *Depositories/Intermediaries*: These are the middlemen between local communities exploiting the resources and the final or intermediate destinations to which they are sold. These intermediaries may pay local communities in cash, or barter wildlife products for merchandise and foodstuffs.

b. *Exporters:* These are the private-sector players who sell wildlife products in foreign markets. They may be grouped together in second- and third-tier associations, and may take part in community management programs by contributing resources and financing.

c. *Tourism companies*: These are private-sector firms in the business of adventure and eco-tourism. They often form joint venture partnerships with local communities in order to set up eco-tourism projects.

d. *Tourists*: Individuals or groups who pay for visiting natural areas (protected or not) for activities such as camping, photography, hiking, bird-watching, trekking, canoeing, etc. They are the targets of hand crafts and curio sales that help move local economies.

e. *Resource Users Affected by Community Wildlife Management*: When a community is organized to sustainably manage its resources, this generally includes a component of defending them to prevent their removal by others (individuals, companies, neighboring communities). Several projects have affected usual extractors of resources, by denying them access (for instance, to lakes where they fish), which has affected their commercial interests. Many conflicts and tensions have arisen from this communal protection of the resource base.

f. *Institutions:* Public, academic and non-governmental institutions are discussed elsewhere (item 6.2.)

g. *Donors*: mostly international sources of funds that support CWM initiatives as part of their agendas..

1.3 The Environmental And Social Context

1.3.1 Biophysical characteristics of the Region

The great latitudinal span of South America stretches from 10º North to 55º South, provides one of the most diverse environmental ranges on the planet, offering tropical, subtropical and temperate climates. The wide climatic variability is further enhanced by the great Andes range along the western edge of the continent, which reaches altitudes of

more than 6.000 meters above sea level. These factors all results in high environmental heterogeneity.

South America features the planet's driest desert (Atacama in northern Chile and southern Peru) and its wettest jungle (Chocó in Colombia) and the Amazon Basin is the most extensive track of tropical rain forest on Earth. The rugged terrain in the Andean countries (Colombia, Ecuador, Peru, Bolivia, Chile, Argentina), in combination to their specific latitudinal position, means that almost every natural habitat in the world is found within their borders: perpetual snows, temperate forests, very humid and dry forests, natural savannas, desert brushlands, high-altitude plateaus, mangroves, mountain steppes and swamplands.

The Continent's biogeographical paleo-history, added to the complex geography and ecological variety in landscapes, are the main reasons for the extraordinary biodiversity that characterizes South America as the continent where more than 50% of the worlds terrestrial biodiversity might be found.

1.3.2 Socioeconomic dynamics

Several lowland areas were cleared and densely populated as part of government colonization policies and programs that had the objective of reducing social tensions in zones where most of the land was in the hands of a minority. The great poor majority, usually living in the overcrowded Andean highlands, or the coastline in Brazil, were lured by the promise of a piece of land in a territory that was wrongly seen as fertile because of its exuberant vegetation and amount of rainfall. In Brazil, the so called "land without men for men without land" policy, sent hundreds of thousands of poor peasants to the "demographic deserts" of the Amazon region in National Integration Programs (1970) that built extensive road systems deep into the region (Ribeiro 1992; p.179). Many indigenous groups were severely affected by this invasion, presenting an additional chapter of the region's history of genocide and ethnocide. The ecological consequences were very severe and the actual deforestation dynamics have their origins in these government programs that were very popular during the military dictatorships that ruled in the 60s and 70s.

The Continent's lowland tropical zones have also been spontaneously colonized by people displaced from other zones in their countries, whether because of impoverishment of their soils' productivity, the accumulation of land by large landholders, shortage of job opportunities, displacement from cities, or fleeing from violence. These people settle in zones made accessible by the building of roadways, hydroelectric plants and other infrastructure projects. They are attracted by the prospects of becoming landowners, the chances of finding a well paid job in oil or mining areas, in the planting of illegal crops (coca, marihuana, poppy) or the production of their derivatives.

These problems are also present in the Southern Cone (Argentina, Chile and Uruguay) but to a lesser degree than on the rest of the continent. Here, problems are more associated with industrial pressures, disregard of indigenous peoples' rights and, in general, deficiencies in mechanisms for participation in resource management. In some cases, the

relative strength of government institutions leads them to consider that it is "unnecessary" for other sectors to participate in decision-making in resource management.

1.4 The Base Of Living Resources

In South America there is a wide range of species to satisfy an equally broad range of needs and interests. The problem has been the unsustainable manner in which these resources have been used: many are endangered and, in fact, many local extinctions have occurred with numerous species of reptiles, birds and mammals, due to the over-exploitation of their populations. As explained by Ojasti (1996), the importance of fauna in rural settlements decreases with the age and stage of development of the settlement, as the wildlife is depleted and has to be replaced by domesticated livestock as a source of protein. J. Robinson (per. comm.) argues that a human density beyond one person per square kilometer in the lowland rainforests leads to over harvest of wildlife.

One of the trends that has been observed in this Review is that, as subsistence hunting continues around human settlements, the size of the animals most commonly taken tends to decrease. As the most desirable species get hunted out (ungulates, large rodents and primates, large ground birds), they are replaced in the bag by smaller rodents, toucans, primates, edentates, carnivores, and smaller primates. When the supply begins to shrink, the community typically starts to discuss the need to manage the demand for wildlife (or replace it with some other type of resource/income). The recognition of this shortage has been the catalyst of several of the projects evaluated in this analysis.

In the tropical forests, most species are vulnerable to over-exploitation of their populations due to their low densities. In fact, one of the characteristics of tropical biota is that they have a large number of species, but a small population of each. Examples of exceptions include the capybara (*Hydrochaeris hydrochaeris*) in such zones as the Orinoco basin (lowland savannas) where densities of 10 to 200 individuals/Km2 can be found (Ojasti 1991). In the temperate parts of the continent, there is much less diversity with denser populations, which has made it possible to exploit populations of predators very intensively for many years. This is the case with species of fox (*Dusicyon* spp) on the Argentine Patagonia steppe (Novaro 1994), and the teyú lizard (*Tupinambis teguixin*) in the Paraguayan and Argentine Chaco, from where more than 1.5 million skins are exported every year (Fitzgerald, Chani & Donadío 1991).

In the tropical and subtropical forests, the densities of different groups of mammals differ substantially, which makes the low-density species more vulnerable to over-exploitation, especially when their reproductive characteristics make their recovery slow. The epitome of this group is the tapir (*Tapirus terrestris*) with a density of 0.5 individual per square kilometer, which bears 0.12 offspring/adult/year. Within forest herbivorous species, the collared peccary (*Tayassu tajacu*) has a high density, with 3.3 ind./km2, producing 0.61 offspring/adult/year (Bodmer 1993). Bodmer calculates an annual catch of herbivores in the northern Peruvian Amazon region of 321,000 animals, of which primates account for 40%. Several of these species are being depleted; the most viable alternative would be to decrease the hunting pressure on the most vulnerable (large primates, tapir, carnivores), by transferring it to those that are theoretically in a better position to be more heavily

hunted (deer, peccaries). This information is the technical basis for one of the most interesting experiences highlighted in this analysis: the Tamshiyacu-Tahuayo Communal Reserve (PE 2) where work is done with hunters to shift hunting pressure to increase the sustainability of this subsistence activity, critical to the community's economy.

1.5 Legal And Institutional Context

1.5.1 The legal framework

International conventions

The following are the most relevant international Conventions and treaties that affect wildlife use in the region and the countries that have ratified them (marked with X):

Signatory Countries	CITES	RAMSAR	Amazon Cooperation	Vicuña Conservation	Biodiversity Convention	Migratory Species-Born
Argentina	X	X	n/a	X	X	-
Bolivia	X	X	X	X	X	-
Brazil	X	X	X	n/a	X	-
Chile	X	X	n/a	X	X	X
Colombia	X	-	X	n/a	X	-
Ecuador	X	X	X	X	X	-
Guyana	X	-	n/a	n/a	X	-
Paraguay	X	X	n/a	n/a	X	-
Peru	X	X	X	X	X	X
Uruguay	X	X	n/a	n/a	X	X
Venezuela	X	X	X	n/a	X	-

n/a: not applicable

CITES has been a key instrument for decreasing the pressure on heavily demanded species by the international trade (live parrots, macaws, and primates, and skins of cats, peccaries, otters, foxes, crocodiles, some big snakes, large lizards, and vicuña and guanaco wool). This trade usually starts with harvesting in remote places by local communities under the demand of intermediaries. The Amazon Treaty (Tratado de Cooperación Amazónica) is currently formulating wildlife management plans for selected species that have a considerable potential of generating alternative incomes from their sustainable use (TCA 1996). These plans involve communities in the implementation stage, as exclusively national experts and government officials have done formulation and diagnosis. The Vicuña Agreement (Tratado para la Conservación de la Vicuña) supports community management in their policies where tenure conditions favor this type of management.

National Legislation

Wildlife is *res nullius* (without any owner) in Argentina, Paraguay and Uruguay (Iriarte 1994). Owners of land may use fauna as long as they do not violate applicable environmental and wildlife laws. In Bolivia, Brazil, Chile, Colombia, Peru and

Venezuela, the fauna belongs to the State, which authorizes its utilization. For example, the Chilean Civil Code states:

... " hunting and fishing are kinds of occupation. Through occupation, one acquires ownership of things that belong to no one and the acquisition of which is not prohibited by Chilean or international law"...

The ample legislation of the Region outlines the rights and obligations that States have regarding conservation of wildlife and habitats, creation of areas to protect them, and regulations for utilization, sale and production.

Subsistence hunting by resident communities is the main use legally permitted in these countries (except Brazil).

Commercial hunting is allowed under State oversight and with the quota system in Surinam, Venezuela and Argentina. It is temporarily suspended in Bolivia through a national ban on sports and commercial hunting (they are awaiting legislation for several species); the sale of wildlife meat or skins, or live animals, is also suspended. Guyana also has a temporary suspension. In Peru, trade in peccary hides is legally allowed when the skins are taken by subsistence hunters and then gathered by intermediaries for subsequent export to Europe (32.900 skins in 1995, Bodmer 1997). Also in Peru, in order to decrease the growing bush meat demand in big city markets like Iquitos, a law was passed (1979) that only allows the sale of hunting products in villages of under 3.000 inhabitants.

Argentina

National Law No. 22,421/81 on "Protection of Fauna" declares wildlife to be *res nullius* and establishes the powers of the National Enforcement Authority (Directorate of Wild Flora and Fauna of the Republic of Argentina), with regard to research, management and use of wildlife. This law also regulates hunting activities, and the possession, trade, transport, transformation and production of wildlife, and of wildlife products, byproducts and derivatives, whether manufactured or not. It also provides for subsidies to those provinces that abide by the law, to fund wildlife research and management activities in their territories.

Provincial wildlife laws regulate activities involving wildlife in each province, their conservation status and, in some cases, promote sustainable use of wildlife by local communities.

Bolivia

The General Law on the Environment (No. 1333/91) and the Law on Wildlife, National Parks and Hunting and Fishing (Decree-Law No. 12,301/75); Supreme Decree 22,641/90 (Total Ban); Supreme Decree No. 23,792/94 (Jurisdiction of the Ministry of Sustainable Development and Environment over wildlife) are the foundations of State regulations regarding wildlife management and conservation. The current ban on the use of wildlife beyond subsistence hunting is a serious constraint for sustainable management plans that are being developed by the wildlife agency

Bolivia has pioneering legislation for social participation, the National Grassroots Participation Law, enacted in 1994. It involves local populations in the planning and management of a broad range of social, production and infrastructure projects through administrative decentralization, providing the necessary legal framework to recognize participation by local institutions within municipal city limits.

Brazil

According to the Constitution of the Federal Republic of Brazil (1988), the government "*must protect flora and fauna by law, prohibiting practices that endanger or threaten their ecological function, will lead to extinction of the species, or subject animals to cruel treatment" (Article 225).*

The Fauna Protection Law (Law No. 5197/67) authorizes hunting only when scientific studies indicate that such an activity will not threaten the populations hunted, or when native animals are considered harmful for agriculture or public health. Trade in wildlife species that are hunted is prohibited, as is commercial hunting, except when the animals come from authorized breeding farms. Gathering of eggs or young animals is allowed only when they will be taken to an authorized breeding farm. The wildlife law in Brazil is the most conservative in the region, one that critically limits the chances of developing sustainable harvest programs and that has had little practical effect on the depletion of wildlife populations.

Chile

The Chilean Civil Code includes a series of articles referring to wild fauna, specifying that:

..."hunting and fishing for wild animals is allowed on one's own land or someone else's with the owner's permission and subject to special ordinances that may be issued in this area. No hunting or fishing may be done except in places and with permissible weapons and procedures"...

National Law No. 4601 on Hunting and its regulations govern such aspects as transport, sale, possession and industrialization of species that may be hunted legally. Decree-Law No. 247/74 states that international conventions and treaties have the force of law, once promulgated by the Ministry of Foreign Affairs.

Colombia

Decree-Law 1608 of 1978 is the main legal instrument regarding wildlife management. Others of importance are Law 84/89 which enacts the National Statute to protect domestic and wild animals; Law 99/93 creating the Ministry of the Environment and organizing the National Environmental System; and Decree 1753/94 regulating Law 99/93 in regard to environmental licenses. These comprise the legislative foundation for wildlife conservation and management in Colombia. The law that regulates the indigenous peoples territories (Decree 2164 1995) gives native communities the right to manage the resources inside those territories according to their development plans.

Ecuador

Ecuadorian legislation stipulates several types of extractive uses, but at present no licenses are being granted except for the collection of wildlife for farming and research purposes. The Forestry and Natural Area and Wildlife Conservation Law (1981) is the main legal instrument in effect in Ecuador regarding wildlife.

Peru

The Law on Forestry and Wildlife (Decree-Law N° 21,147/75), its Regulations on Conservation of Wild Flora and Fauna (Supreme Decree N°158-77-AG/77) and the Law on Protected Natural Areas (Law N° 26,834/97) are the legal bases for the Communal Reserves (IUCN Category VI Protected Area), in which local community members are allowed to sustainably use wildlife, provided that they are covered by a management plan approved by the national authority.

Peru's Constitution (1993) states that the Government is obliged to promote conservation of biological diversity and protected natural areas. Other laws include the Code of the Environment and Natural Resources (1990); Law 26505 "On Private Investment and Development of Economic Activities in National Territory and Land of the Native and Rural Communities"; Supreme Decree 934-74-AG which sets "..a permanent ban in the wildlife of the Jungle [Amazon] Region", except 15 species that are important for subsistence hunting by resident communities.

Venezuela

The National Constitution (1961) states: *"The State shall ensure the defense and conservation of the natural resources in its territory and exploitation thereof shall be mainly geared toward the collective benefit of the Venezuelan people"*. There also exist the Organizational Law of the Environment (1975); The Organizational Law to Organize the National Territory (1983); the Law for Wildlife Protection (1970); the Criminal-Law Law on the Environment (1992); and the Regulations for the Law for Wildlife Protection (Decree No. 628/95).

Guyana

The laws that deal with wildlife are the Wild Bird Protection Act Chapter 71:07; the Fisheries Act Chapter 71:087; the Forestry Act; the Amerindian Act; and the Wildlife Bill, which is in the process of public discussion.

Surinam

The most important laws are the Law on Hunting (1954), amended several times, most recently in 1994; the Hunting Resolution (of 1970, amended in 1973); and ministry decrees.

In general, national legislation in the region's countries:

- Are based on prohibitions with little or no implementation possibilities in the remote places.
- With the exception of a couple of decrees in Peru, Community Wildlife Management is not promoted as a development or conservation alternative. It is not banned, but neither is it encouraged.
- Some laws that regulate indigenous territories offer more implicit support to community wildlife management, than the traditional conservation laws.
- Most Protected Areas (PAs)laws are an obstacle for community use of resources, including PAs that overlap with legally constituted indigenous territories, a factor that generates tension and opposition to conservation projects.

1.5.2 Institutions

Government Agencies (GOs)

At the *national level* several countries of the Region have environmental bodies at the ministry position, such as the Ministries of the Environment in Brazil, Ecuador, Colombia, Venezuela, and the Ministry of Sustainable Development in Bolivia. Others have created Secretariats of State under the national President, such as the Secretariat of Natural Resources and Sustainable Development of Argentina. In other countries, and at a lower political level, there are the Secretariats and Under-Secretariats dependent from Agriculture Ministries such as the Secretariat of Natural Resources and the Environment which belongs to the Ministry of Agriculture and Livestock in Paraguay; the situation is similar in Peru with INRENA (Instituto Nacional de Recursos Naturales), in Chile with CONAF (Corporación Nacional Forestal), and in Surinam, Guyana and Uruguay.

Some of these agencies have, in turn, dependent technical bodies specialized in conservation and biodiversity research. Examples of these are the Brazilian Institute of the Environment (IBAMA) and National Research Center (CNPq) in Brazil; the National Parks Administration (APN) of Argentina, Profauna in Venezuela, the National Institute of Wildlife and Protected Areas (INEFAN) in Ecuador, Alexander von Humboldt Institute in Colombia. The National Council of South American Camelids (CONACS) of Peru has been fundamental in developing the Vicuña Project (PE 1).

Some countries have also set up national funds to support social and environmental development, some of which have funded community wildlife management activities, such as the National Fund for Social Development and Compensation (FONCODES) of Peru, the National Environmental Fund (FONAMA) in Bolivia, and the ECOFONDO in Colombia.

At the *subnational level*, there are technological research and development institutes that cover the jurisdiction of one or more provinces or states, such as the Amazon Environmental Research Institute (IPAM) and the National Amazon Research Institute (INPA) from Brazil. There are also provincial or state wildlife agencies, such as the Provincial Directorates of Wildlife for the Provinces of Río Negro, Formosa and Salta in

Argentina, and the several Autonomous Regional Environmental Corporations that manage all wildlife resources in their jurisdiction in Colombia.

At the *local level* municipal authorities are increasing throughout the region their role in resource use-planning as decentralization laws are being enacted. Most of what is or is not done in the future regarding development, conservation and management of resources will depend on municipal governments whose leaders are publicly elected in most countries. Indigenous territory management autonomy is also an increasingly common fact in the region. Lack of knowledge and capacities at the local level to sustainably manage wildlife resources will be a serious obstacle in this process.

In general:

- Most wildlife management laws and policies are still formulated by central governments with little regard of local realities and knowledge.
- All wildlife management institutions are weak and their capacities for promoting sustainable management, enforcement or research are very limited. Wildlife laws or regulations (bans, seasons, bag limits, etc.) are inapplicable in most of the places where wildlife populations still exist.
- Even though these management institutions are weak, they have legal power, which has traditionally been used to prevent the development of innovative approaches to wildlife management, as most of these approaches need the government's recognition and support to evolve.
- Wildlife management is sectorialized as a conservation issue and is dealt with by conservation institutions, generally one of the weakest sectors in the governments of the region. There is virtually no connection to rural development sectors that are both promoting land use changes and that could work closely with wildlife departments to develop economic alternatives based on wildlife management.
- Conservation agencies have very poor social expertise, making CWM a difficult issue to deal with. In most countries social factors and the experts needed to deal with these issues do not exist at the policy level.
- Decentralization in the planning and management of resources is a growing trend all over South America, but technical capacities for setting and implementing policies on natural resources at the municipal level are very weak.
- Lack of adequate resources (human and financial) is a chronic problem.
- NGOs -including grassroots organizations- tend to replace government roles in wildlife management in many places.

Academic Institutions

There are numerous academic institutions involved in community wildlife management. The following chart shows some of the most significant institutions at the national, subnational and local levels.

National	Subnational	Local
Sustainable Development Center, National University of Brasilia CDS, Brazil	Federal Universities Brazil	University of Alagoas Brazil
Pontifical Catholic University, Chile	Peruvian Amazon Institute (IIAP) Iquitos, Peru	University of Pernambuco Brazil
National University of the Peruvian Amazon Region (UNAP) Iquitos	Veterinary Institute of Tropical and High-Altitude Research (IVITA) Iquitos, Peru	University of Paraiba Brazil
San Cristóbal de Huamanga National University Ayacucho, Peru	University of Campinhas UNICAMP, Brazil	
Agrarian University La Molina, Peru	Federal University of Acre UFAC, Brazil	
National University of Asunción (UNA) Paraguay		
National University of Buenos Aires (UBA), Argentina		
Pontifical Catholic University of Ecuador		

There are also foreign academic institutions that cooperate with wildlife conservation and management projects and programs, such as the University of Barcelona (Spain) with projects in Bolivia, and the Universities of Oxford and Cambridge in Brazil. Among foreign universities, the work promoted by the University of Florida at Gainesville, with its Tropical Conservation & Development Program, merits special mention, both in the implementation of key projects such as the Tamshiyacu-Tahuayo (PE 2), and in the training of professionals from the region in the area of wildlife management, as seen in several projects in Colombia (CO 8), and Ecuador (EC1), Peru (PE2,3 and 7), Bolivia (BO1,2 and 3) and Brazil (BR1).

In general, Academic Institutions:

- Are very focused on the biological components of wildlife and its habitat, and very little research is done on social and economic issues.
- Very few studies integrate the analysis of the rural economy in all its components and complex dynamics, beyond the wildlife use, making it very difficult to offer viable solutions that can replace incomes (or protein) from unsustainable harvest of wildlife, with incomes from more sustainable activities.
- Many academicians with a bio-ecological background approach the wildlife management issue in the region with quite conservationist approaches, with little regard or understanding of the development needs of local populations. Simplistic analysis of cultural and social issues has lead to weak proposals of how to sustainably manage wildlife in the phase of changing social and economic conditions.

NGOs

This broad category includes a wide range of civil-society institutions, with global, continental, national, sub-national or local coverage, and playing different roles.

There are **international NGOs** that operate and participate directly, with technical advisors, in project design and implementation such as Conservation International (CI), the World Wildlife Fund (WWF), The Nature Conservancy (TNC) and the Wildlife Conservation Society (WCS). These same agencies also fund projects implemented by National NGOs, with follow-up on fund implementation. We would like to highlight the WCS which is financially and technically promoting several of the projects analyzed in Colombia (CO8), Bolivia and Brazil; the national chapters of the World Wildlife Fund (WWF) in Peru and Brazil, and Conservation International (CI) with projects in Peru (PE7,9 and 13), Guyana, Surinam and Brazil. The Nature Conservancy (TNC), through the "*Parks in Peril*" project, supports a number of community wildlife management initiatives by native communities associated with protected areas in Colombia (CO10), Peru (PE3 and 9), Bolivia and Paraguay. There are also other foreign NGOs that finance wildlife management and research projects, such as the Chicago Zoological Society, the Zoological Society of Frankfurt, the McArthur Foundation (PE7), the Arnhold Foundation (PE7), Research and Cooperation of Italy (CO7) and Conservation Food & Health (CO8).

There are **national NGOs** that design, seek funding and implement CWM projects, such as APECO (Asociación Peruana para la Conservación de la Naturaleza) and ProNaturaleza in Peru, the Fundación Natura in Colombia, The Fundación Moisés Bertoni of Paraguay and ECOCIENCIA (Fundación Ecuatoriana de Estudios Ecológicos). These NGOs are created and administered in cities (generally the national capital) which handle several projects in more than one part of the country. They tend to be conservation-oriented, with a growing concern for the social aspects of their projects. In many cases, these NGOs are of great importance in complementing the feeble capacities of governmental agencies in managing some of the protected areas under their responsibility. Most projects are managed within or around protected areas with activities funded by global and continental NGOs such as CI, TNC and WCS. There are constant disagreements with governmental agencies about responsibilities and jurisdictions.

There are also **local NGOs** created to administer projects for sustainable management of resources in specific places (endangered protected areas with scanty State presence), as an outgrowth of the concern of urban professionals about the future of these places. This is the case of the Mamirauá Civil Foundation (BR1), Fundación Vitoria Amazonia (BR3) and the Asociación para la Defensa de la Reserva de la Macarena (CO9). There are also **NGOs** created to manage **donor funds**, and others that were generated from government conservation programs: only Pro-Tamar (BR2) belongs to this category.

As for **local NGOs**, there is also a broad range of types of **local grassroots groupings**, including organizations of indigenous peoples, organizations of fishermen and extractive gatherers, and other users and parties interested in sustainable management of resources. Generally, they work with national NGOs or governmental agencies in project

development, and there are cases in which the projects themselves have led to the creation of grassroots organizations, as a mechanism for organized participation.

Social recognition and concern by local groups of the depletion of resources upon which they depend for their livelihood has led to the creation of many of these grassroots organizations. They are created with the objective of reorganizing the use of resources towards sustainability, improving profits, increase efficiency, and/or to more effectively confront economically and politically stronger sectors, which are often responsible for depleting their strategic resources.

In general, NGO is a very broad category that includes different levels in which civil society organizes itself. Regarding CWM, NGOs:

- Are an important source of funding, expertise and organizational support in many of the analyzed projects, although social and economic expertise are absent in most cases.
- NGOs have been very important in helping communities visualize the nature of the problem that the wildlife resources are facing under unsustainable harvest levels. The severe pressures many communities are facing has forced them to change their attitudes and extraction levels of their resources. External agents have been very useful in helping them to rationalize the problems they are going through, and to look for alternatives in the way they are using their resource base.
- Rural development NGOs are absent from the CWM scenario, which is dominated by conservationist ones.
- National NGOs' priorities and working agenda tend to correspond to the ones of the donor/partner international NGO.
- Even though participation by local stakeholders is considered important, and increases during the life cycle of the project, in most of the analyzed projects, top down approaches are still predominant in the conceptualization, structuring and management of the projects.
- Local knowledge of the wildlife and habitats is seldom taken into account seriously as an important planning tool in the projects.
- Local capacity building is seldom an objective of NGOs.
- Grassroot NGOs are omnipresent in the region and very much involved in the CWM projects. Some are key elements for the development of a project, and others are a product of the concern for the depletion of their natural base.

Cooperation Agencies and Donors

International Multilateral Agencies

Among the foremost agencies in the Region working in this field there is the United Nations Development Program (UNDP), with activities in Brazil; the Organization of Ibero-American States (OIS) with activities in Colombia; the European Union (EU/ACT-Surapa Sub Red de Areas Protegidas Amazónicas) that has supported the development of pilot projects in Amazon protected areas and their buffer zones -including CWM; the Food and Agriculture Organization (FAO), and NORAD (Norwegian Cooperation Agency) are also involved.

International banks are also involved, through the World Bank and the Inter-American Development Bank (IDB).

Bilateral Cooperation Agencies

Under cooperation among countries, there is US-AID (United States Development Agency), which is involved in projects in Peru and Ecuador (PE3, PE7, PE11 and EC1); GTZ (Deutsche Gesellschaft fur Technische Zusammenarbeit GMBH), with various projects supporting protected areas, such as the "Strengthening of the National System of Natural Areas Protected by the State" (FANPE) and the GTZ/INRENA agreement in Peru; PROFORS/INEFAN in Ecuador; COAM, Amazonian Cooperation of Barcelona (PE12) and the Department for International Development (DfID) of the United Kingdom (BR1)

Global Agencies

Those relevant to the Region include the ITTO (International Tropical Timber Organization), participating in extractive reserves in Brazil (BR11). CITES funds research projects on Appendix II species (peccaries, vicuña, parrots, tupinambis lizards, foxes, anaconda, and crocodiles), many of them harvested by local communities.

National Agencies

There are not many agencies or national funds participating in community wildlife management projects. The most important ones include the Peruvian National Fund (FONCOPES), and Citibank in Peru (PE7).

In general:

- Donors are increasingly supporting conservation projects with the condition that they have a strong social component. This demand is confronting NGOs with a new challenge that requires the inclusion of social objectives in their work, and a new expertise dimension in their structure. CWM should be integrated as an important funding line in this new healthy approach that integrates conservation and rural development.
- The wildlife management component has not been a priority in the region for donors. The academic and scientific approach to wildlife has prevented the investment in this resource and its persistence as a critical cultural survival element for many indigenous groups in the region.
- On very few occasions have economic and technical support of rural development projects included wildlife as an important component. Most emphasis is placed on forestry, non-timber products, agriculture or fishing. Wildlife is still to be appreciated as an asset that is important in many rural economies, whose loss imposes an additional burden on the impoverished communities, creating a stronger dependency on foodstuffs that have to be bought in nearby villages.

2. KEY ISSUES AFFECTING COMMUNITY WILDLIFE MANAGEMENT

2.1 Nature Of The Initiatives And Projects

We are aware that CWM occurs at different levels in many places on this Continent by most of the people that directly use wildlife in a regular basis, without the external influence of NGOs, research institutions or donors. However, this regional review is based on written material of ongoing initiatives or ones that were active until recently, and, thus, is "biased" towards those that have been analyzed and written by someone. Most of the analyzed initiatives are thought, designed and planned far from the place in which CWM actually happens. They can be labeled as "projects" as they are pre-designed with a set of objectives and activities, with a specific time frame, and a limited funding source, to be developed or supported by one or more technical staff of an urban NGO.

The projects analyzed in this review can be classified according to their objectives in the following categories:

Projects for the development of *management plans for hunting and gathering of wild resources*, on the basis of participatory community planning mechanisms. They are motivated by evidence that traditionally used resources are dwindling, and aim to ensure sustainable use thereof. In general, they involve not only the wild fauna but all resources used by the community.

Projects geared to *monitor the impact of commercial hunting* (legal or not) through management and follow-up on the chain of marketing, in order to ensure fair payment to local dwellers, eliminate intermediaries and establish bans and quotas as necessary to sustainably exploit the resource. In general, these projects are promoted and supervised by the cognizant governmental agencies.

Projects promoting *new non-consumptive uses for fauna resources* as an alternative to communities' livelihood. These include eco-tourism and non-traditional uses (vicuña fiber, cochineal pigment, etc.);

Projects generating *direct payment or some source of economic benefit that can replace incomes from the consumptive use of a resource, which translates into its conservation* (e.g. marine turtles).

2.2 The Resource Base

2.2.1 Ecosystems and habitats involved

The huge area still covered by lowland rain forests, including seasonally flooded forests known as *Varzeas*, and the abundant supply of fish and aquatic fauna available for the livelihood of its inhabitants, have resulted in a preponderance of projects in these environments over others in the Region. Despite the pillaging of wildlife resources, deforestation of significant areas, and depletion of wildlife populations, the still extensive coverage of rain forest, mainly in the Amazon basin, make this habitat one of the most favorable for projects aiming to improve subsistence hunting and fishing. Habitat size makes possible both the recovery of locally depleted species and facilitates management schemes that require extensive tracks, such as those based on the rotation of hunting grounds.

Other reasons for this "rain forest" preponderance include:

- High profile to attract funds because of the high existence value, i.e. there is a willingness amongst donor countries to pay for projects in this type of habitat.
- Some CWM projects are initiated from an ecological research project that take place in remote places because of the "pristine" environmental condition required by the study; these are best found in the lowland wet forests of the Region.
- A fair amount of indigenous groups that live in huge tracks of territory with low human densities and abundant resources, which provides very ample opportunities of implementing management projects with a good chance of success.

Out of a total of 57 experiences surveyed, 35 (61%) took place in tropical rain forests. Of these, 14 were in *varzea* flooded forests.

Types of Ecosystems where projects occur		Cases
Dry Tropical Forest		7
Patagonian Steppe	Seasonally Flooded	1
Tropical Rain Forest (*Varzea*)		15
Swamp Wetlands		1
Tropical Rain Forest		19
Ocean Coast		3
Semi-deciduous Transitional Forest (Amazon/Chaco)		1
High-altitude Andean Dry Grasslands		3
Subtropical Rain Forest		2
Pampa and flooded pasturelands		2
Desert brushlands		2

2.2.2 Species being managed

The aquatic setting means that projects located in *varzea* ecosystems clearly favor fishing activities (BR1,3,4,5,6,8,10 and 13) where hunting is to supplement the family diet or livelihood. For the same reasons, wildlife management emphasizes species associated with water, such as turtles (***Podocnemis** spp*) which were very important to native peoples' diets and are currently endangered due to uncontrolled removal of eggs and nesting females which reached industrial levels for export in the 17th Century (BR1,3,4,6,8, 10; EC2; PE3,9: CO10).

Most CWM projects where turtles are involved aim to repopulate the zones in which use is banned, with the ultimate goal being able to sustainably use this endangered resource in the future. The exception is the Charapa Plan (CO10) which has negotiated, by indigenous groups' demands, the continued utilization of the resource in an agreed management plan with NGOs and Protected Area authorities. Management of crocodiles, aquatic birds and manatees is also important, and the hunting of terrestrial species is generally a secondary activity in this type of environment. (see Redford (1997) for an account of historic levels of exploitation of aquatic fauna in Amazonia)

The use of fauna by communities will depend, in each case, on the supply and the effort required for catching the animals. As the availability dwindles of the most highly prized species (such as ungulates because of their size or other certain species because of the quality of their flesh) these species become increasingly difficult to catch, and the cost/benefit ratio begins to rise. Pressure is then brought to bear on species of "secondary" preference, until, finally less desirable small primates, armadillos, squirrels, carnivores and marsupials are hunted. For instance, in the Kaa´Iya project (BO1), the Izozeño Indians are hunting fewer deer and other hoofed mammals and more of their smaller prey such as armadillos.

The main species and wildlife products involved in the different experiences have been:

Wildlife harvested or managed	Cases
Parrots	2
Turtles	9
Vicuñas	3
Mammals and birds in general	25
Caimans	4
Iguanas/ teyú lizards	4
Primates	1
Insects	1
Snakes	1
Fish and other aquatic organisms (*)	7

(*) Main use is fishing, but no specification of other associated resources

2.3 Management And Conservation Mechanisms

2.3.1 Uses of Wildlife

The different uses of the resources in the surveyed experiences are:

Subsistence hunting and fishing	31
Small-scale commercial hunting and fishing	4
Hunting to export by-products	7
Ranching to sell live animals	2
Ranching for repopulating	7
Shearing live vicunas (free or semi-captive) for fiber	3
Breeding in semi-captivity for sale	1
Observation and photography	9
Intensive management of cactus fields to raise, propagate and gather insects for sale	1
Management by intervening in the habitat to increase its capacity to support wildlife	1

Wildlife hunting and ranching

Hunting or ranching (legal or illegal) of wildlife in South America involves various different objectives:

a. *Subsistence hunting*, and *hunting to supplement income* --mainly meat-- at nearby markets. In this region, this type of use is universal. The *ribereños* (riverside folk) of the Tamshiyacu-Tahuayo Communal Reserve sell 86% of the meat they catch (the largest and best-paid animals at the Iquitos market include tapir, deer and peccary), and consume 14%, usually the smaller prey, such as primates. On the Caribbean coast of Colombia, poor families complement their scanty income by selling iguana eggs (*Iguana iguana*), and turtle eggs (*Trachemys scripta*) during the Easter season. This type of sale may involve intermediaries, who take the products to larger markets, such as major cities or for illegal export. Tons of black caiman meat are extracted from the Mamirauá (BR1) area to be sold inside Brazil or illegally exported to Colombia. The income from the selling of this meat are significant to the economy of the area.

b. *Hunting for skins or pelts*. Peru exported an average of 55,500 skins per year of two species of peccaries between 1992 and 1995 (INRENA 1996). Venezuela exports caiman skins (*Caiman crocodilus*) from ranching programs in the Orinoco Savannas. In some countries, wildlife such as alligator, snake, crocodile, feline, otter, capybara, peccary and fox, among others, is poached for sale on the national or international market. Here, again, the chains of intermediaries are important.

c. *Gathering of pets or dried arthropods for sale on the local or international market*. These Dried Arthropods include: butterflies, spiders, beetles, scorpions for curio display and collectors items. Guyana exported, in 1992, US$ 1’621,000 in specimens of land vertebrates and arthropods birds making up 81% of this total

(Sizer 1996). Peru also exports live birds, lizards and arthropods (INRENA 1996). The only other country that exports live fauna collected in the wild is Surinam. The national market for wild species for pets is illegal in every country. Having pets such as parrots, primates or turtles in people's houses is a deeply-rooted custom in the different countries of the region, and difficult to counteract. Here, again, the chains of intermediaries that lead from the hunter to the major cities are important.

Relationships with other uses and resources

Although most experiences involve management of one or more resources, almost all include evident implications for land-use zoning. Mamirauá (BR1) began as a reserve to protect endemic primate species, and resulted as a project to manage in a very participatory way the entire range of resources available in the environment. Tamshiyacu-Tahuayo (PE2) began as a study to make the hunting of ungulates sustainable and, because of the ecological, economic and social interconnections of the uses of all other resources and extractive and productive activities, it ended up including in its analyses and proposals the management of palm trees, agriculture, timber and fishing.

Including the exploitation of alternative resources as part of the solution for extraction at unsustainable levels also represents a relation to other resources. This is seen in the case of wildlife management by the Embera Communities (CO8) which promotes angling skills with those communities living near the coast, in order to facilitate their access to plentiful protein sources and avoid depleting wildlife. There are components of the TAMAR Project (BR2) which also intend to improve fishing yield to replace the customary income from marine turtle eggs, meat and shells.

As already mentioned, projects associated with flooded forests (*varzeas*) manage fauna to supplement the main activity of fishing. Preference for certain wildlife resources, and their economic importance during certain times of the year, mean that communities will include management of certain wildlife elements in their protection plans, management of catch and restocking. The Extractive Reserves in Brazil are a similar case, where the main economic activities are extraction of non-timber plant products from the forest. Wildlife is a major source of income and protein for extractive communities, and is being depleted at unsustainable levels of exploitation (Martins 1990).

Project BOLFOR (BO2) specifically investigated the wildlife component in order to both understand the relationship between logging and its impact on wildlife, and how the native population is affected. In addition to habitat destruction, a relationship between logging and wildlife depletion has always existed, since logging company employees are provided with weapons and ammunition for hunting to provide their own food. This generates serious impacts on fauna and depletes resources that are strategic for the native communities' subsistence.

There are projects that combine and complement their income from wildlife extraction by harvesting byproducts associated with the wildlife management objective. This is the case of cactus prickly-pear fruit, combined with cochinilla dye (PE8), and the fruits

(camu-camu) harvested from the island where a colony of primates is maintained in semi-captivity (PE6) and harvested annually for export as laboratory animals.

Ecotourism

Another dimension of resource use is eco-tourism, which offers the full range of all possible natural resources for visitors' aesthetic enjoyment. Wildlife is always indispensable and promoted, although it is never a central element in these projects due to difficulties in observing rain forest species. Factors such as low densities of most species, lowered numbers due to past extractions, shyness and lack of visibility in the forest make wildlife viewing very difficult in most forested places.

Exceptions include eco-tourism projects in the Manu National Park area (PE10) that are famous for parrot and macaw populations and giant otters, as well as other species that are difficult to observe in lowland rain forests in general, such as tapir. At the same time, tourism causes impacts on certain species, such as turtles, crocodiles and aquatic birds nesting on beaches which are affected by the waves from boats carrying tourists[2].

An example of fauna management that is closely related to an eco-tourism project is by the Cofan people in Ecuador (EC3). They have completely banned the hunting of certain species of interest to tourists (herons, raptors, macaws, foxes, felids and others), and set quotas per family for other species (White lipped peccary) that are basic for their diet but also appealing to tourists. They have left aside some areas where no hunting is permitted so populations can recover. This project is also an interesting example of a joint venture between an indigenous community and a private company for the development of the project.

Another interesting element regarding eco-tourism is the possibility of including it in resource management projects that have matured and are pursuing complementary income alternatives. Eco-tourism always appears as a future option, as the Mamiruá communities have discussed (BR1).

2.3.2 Motivations and interests for community management

There are three main motivations for communities to develop, support and / or involve themselves in managing CWM projects which an external agent has initiated.

Dwindling subsistence resources: All projects involving management of subsistence hunting and fishing, and repopulation of river turtle populations, have been motivated by waning subsistence resources, which has lead some major sectors of these communities to participate (BR1, 9,10,15, BO2, PE2, CO8).

Enhanced profitability: Here the motivation is to enhance profits to the local community from sale of products that have traditionally been exploited, but in which most of the profits reverted to the middlemen. This enables hunters to market their products more

[2] G. Suarez de Freitas, personal communication, Project P.N.Manu (PE10), and A. Pfrommer on Cuyabeno (Ecuador).

fairly, with less exposed to confiscation and low payment by intermediaries, such as in AR2 and PE7.

Complementary/alternative activities for rural communities: The project generates supplementary or alternative revenue, which attracts the interest of participating communities. There are cases where the project generates jobs (patrolling beaches against egg poachers: BR2, vicuna fiber cleaning: PE1) or creates cottage industries associated to it which brings income to women's groups in the communities (BR2). The vicuna projects in Peru, Bolivia and Chile have the potential to bring considerable income to the Andean communities, helping them solve their most urgent problems, which the government is not in a position to address.

In general, projects offer a more democratic forum for discussion and decision-making about the use of resources that are of interest to the entire community. They also tend to encourage societal control over activities that otherwise tend to favor individuals' needs and interests over those of the common good. They offer a means of negotiating, from a stronger position, with third parties that want access to resources that the community is managing. There are also cases in which indigenous communities find an opportunity to recover endangered cultural management practices. All of these are additional elements encourage community wildlife management.

2.3.3 Conflicts of interest

Several experiences have had to face conflicts of interests. Often the initiatives themselves have originated from the need to defend people's own resources from depletion by outside players entering their area for different purposes. For example:

- The fishing Colony of Tefé (BR1) has been a constant threat to the riverside peoples of the *varzea*, as they commercially exploit the resource using big vessels that can cover remote lakes where communities have decided to ban fishing for stock recovery and conservation. Generally it deploys their resources and creates tension between the powerful industrial fishermen and the local communities. The description of this situation is the situation lived by all of the communal projects where the protection of the key resource for their livelihoods is the central element (BR10).

- Communal areas are threatened by neighboring private owners (cattle ranchers, farmers, loggers; BO1y BO2) as they are generally more powerful and influential ("mestizos" (mixed blood) elites that have traditionally disregarded indigenous peoples, their rights, their lands and resources). In general, laws are more detailed and strong for the protection of private property than communal. Illegal encroachment is used as a tactic to exploit resources until a court decides in favor of the rights of the communities and the invaders are expelled. This process can take months or years and meanwhile the mineral or timber resources are extracted with a great impact on wildlife by habitat destruction and hunting.

- Communities that start a wildlife management initiative, face the poaching from neighbors who start benefiting from the recovering resource in the nearby lands. Once wildlife recovers in a region, it is an asset which is difficult to protect from the

harvesting by communities or other neighbors that are not part of the wildlife management project. This creates tension between the involved communities and the "free riders" (CO8, CO10, PE2, PE3, EC2). It even occurs between communities of the same ethnic groups (BO2).

2.4 Resource Access

Access to fauna resources is a problem when projects need the recognition form the government. Some of the management programs are happening according to peoples own decisions on the use of the resource, and they might be hunting species that are banned by law, or lack a written management plan, or its simply out of order like happens with all subsistence hunting in Brazil. Many local initiatives exist and operate on the edge of "illegality", which is not a source of great concern, because either the authority is never around to enforce the law, or the laws are simply unenforceable due to the dimension of the customary practices of certain wildlife uses. Confiscations occur when bushmeat is taken into towns for sale in local markets.

Numerous projects take place wholly or partly in protected areas, generating a legal obstacle as protected area legislation prohibits use in the most restrictive management categories in most countries. This can be overcome through "special concessions" from the authority, recognizing the impossibility of preventing customary and historical uses when indigenous territories overlap with protected area (CO8). Peruvian Protected Area legislation accepts subsistence hunting by native communities using traditional weapons, involving 15 species accepted by the Law for this purpose.

Regardless of what the law says, the region is accustomed to managing wildlife as *res nullius*, and ownership pertains to whoever claims it, generally by those who own the land. In cases of community ownership, neighboring communities of the same ethnic group are also granted access (CO8).

Almost all countries allow subsistence consumption by indigenous and rural peoples. In other cases, the State grants territory to indigenous communities and also grants decision-making power over management guidelines to be followed for "subsistence use" of their wildlife. This is the situation of Izozeño communities in the Kaa´Iya Protected Area (BO1) and the Embera in the Utria National Park (CO8). Despite this delegation of authority and self-regulation in resource use, the territories and communities involved always remain subject to national hunting and fishing laws and regulations. The granting of use and usufruct of vicuñas by the State to high-altitude Andean rural communities of Peru (PE 1) is the most extreme case of granting property rights over a wildlife resource in the region. This legal step has been indispensable for the success of this experience.

Brazil is a very special case in which legislation has been highly restrictive since 1967. Fauna is State property, and any management or interference except total preservation, sport hunting of a few waterfowl species or raising in captivity, is punishable under criminal law. In general, the legislation does not cover what actually goes on. Some sectors of the IBAMA (Instituto Brasileiro do Meio Ambiente, the federal agency responsible for wildlife) have incorporated new concepts and begun to involve local communities in their wildlife management.

Special arrangements

One objective of most CWM projects is to reach communal decisions on the use of wildlife resources, independent of what national or state legislation allows or prohibits. The restrictions are either: 1) agreed internal constrains to harvest (amounts, seasons, places, species) aiming towards the maintenance or recovery of animal populations that can be used indefinitely without depleting them, and/or 2) measures which aim at the protection of resources from outsiders. A measure of success of CWM projects should be the effective implementation and enforcement of these restrictions which is a measure of their social acceptance and appropriation. This should be especially true after the end of intervention by external researchers and NGOs involved in the project.

The following are some examples of special arrangements in the analyzed projects. At the Yanesha Reserve (PE11), the indigenous people have free access to fauna and fishing resources, but when natives of other communities wish to do so, they must apply for permission to the head of the community where they want to enter. Colonists or non-Indians are not granted access, and no one may fish commercially or with poison (barbasco). The management plan of the Mamirauá Reserve (BR1) has zoned the territory in a participatory manner. Full protection areas (special lakes, river beaches and other special places for spawning or nesting) are communally agreed and enforced, especially from outsiders. The Embera project (CO8) communally agreed on non-hunting areas, seasons, and bans. The communities from the Tamshiyacu-Tahuyo (PE2) Reserve have banned the hunting of tapirs until they consider that the species numbers have recovered. Initially the ban was set for seven years; ten years have passed, the tapir is still a very rare species and the ban is still in place.

2.5 Land Tenure

Diverse land tenure situations in CWM areas. They range from private territories, such as fields or farms where talking parrots are captured (AR1), to government-owned land on coasts and river areas, such as the varzeas of the Brazilian and Peruvian Amazon regions (BR1, 3, 4, 5, 6, 8 and 13, and PE 3 and 9) and ocean coasts, such as with project Tamar (BR2), Peixe Boi (BR7) and Piedra Lobería (CH1).

Another landholding case occurs with occupants of government land (fiscaleros) as in the fox project (AR2) in the vast arid steppes of the Argentine Patagonia, where rural dwellers have permits to occupy the land and pasture their goats and sheep, granted by the provincial land authorities. They have no titles of ownership but they are legally recognized owners, with the right to usufruct the land.

In several countries, communal land resources are used, such as in Bolivia (BO2, BO3, and BO4), in Peru (PE1 and PE8), and in Ecuador (EC1, EC2 and EC3). In Peru, the Ministry of Agriculture titles territories for native communities. In Bolivia, the "Capitanias" are indigenous municipalities that own and administer the land under their jurisdiction.

There are examples of zoning in land ownership that are closely related to resource use. Private property exists in the inhabited zones where the community has settled and in surrounding areas where agriculture and livestock raising occur. Beyond these zones where most hunting and gathering occurs, ownership of land and resources is communal, and anyone from the community can benefit from them. Some communities have set aside zones where all use or only specific uses have been banned or restricted, such as in the cases of Mamiraúa (BR1) and Tamshiyacu-Tahuayu (PE2).

The overlap among community territories and protected areas is a source of many conflicts, especially in Colombia where large portions of territory that had been taken in the past from the indigenous groups have been returned. Some of these overlap with protected areas which have management objectives of total resource preservation As mentioned above, "special concessions" have been made so that communities can practice their traditional activities. This nevertheless limits many activities, and the aversion to protected areas is quite widespread among indigenous communities. The development of the wildlife management project by the Emberas (CO8) illustrates this conflict and the possible solutions to it.

The relationship between community wildlife management projects and protected areas is quite close. Over half of the experiences surveyed have to do with protected areas, either because they take place within them (wholly or partly) or around them (buffer zones). This is often a source of conflict, but also serves to demonstrate the feasibility and benefits of conservation initiatives with the support of the people who live and use resources within an area, as illustrated by Mamirauá (BR1). At present, the protected area management agency of Colombia is working to promote wildlife management projects, mainly husbandry, with neighboring communities near the Parks in order to reduce the pressure that is brought to bear on the conservation areas' resources (CO10).

2.6 Community Characteristics

2.6.1 Users / Stakeholders

Indigenous and ethnic groups

A total of 23 indigenous groups were identified in different experiences surveyed:

Wichis (AR1), Pilagá (AR1) , Xavantes (BR15) , Izozeños (BO1) - Chiquitanos (BO) - Ayoreos (BO), Chiquitano (BO), Sirionó (BO), Yuracaré (BO), Guaraní (BO), - Aymara (CH1, PE1 and BO) - Machiguenga (PE) - Ese´Eja (PE) - Yamesha (PE) - Embera-Waunnan (CO) - Huitoto (CO), Miraña (CO), Matapí (CO); Wayuu (CO) - Aruacos (CO) - Aché (PA) - Waimiri-Atroari (BR) - Aguaruna (PE),

There are, in turn, organizations that group together ethnic communities to make it easier to represent them and to defend their territory and interests from overall society and other indigenous groups. Among other groups, we would like to mention the following:

- Orewa, an NGO gathering different ethnic groups from the Pacific coast of Colombia (CO8):
- Associaçao Xavantes do Pimentel, an indigenous grouping that represents the Xavantes Indians (BR15);
- CICOL is an organization of the Chiquitano Indians of Lomerío, Bolivia (BO2);
- OPIP is the organization of indigenous peoples of the Amazon province of Pastaza, Ecuador (EC4);
- NAPO is a similar organization of Quichua-speaking peoples from another Amazon province of Ecuador (EC4);
- Capitanias are indigenous municipalities of Bolivia. The Capitania of El Alto and Lower Izozog was set up in the first indigenous municipality of South America (BO1);
- TURUBO, an organization of the Chiquitano communities (BO1);
- UNI/AC is the Union of Indigenous Nations of Acre (BR9);
- OINCE is the indigenous organization of the Cofan Nation in Ecuador (EC2 and EC3).

Rural dwellers

In the Peruvian Amazon region, in general, land has been reserved for hunting and fishing activities by indigenous communities, ignoring the needs of the ribereños or mestizo (mixed blood) colonists. The traditional use of forest resources by indigenous peoples has been the main emphasis for research, and colonists have largely been ignored. However, the rural inhabitants of the Amazon region are comprised of mostly riverside colonists most of whom are responsible for the dramatic, rapid transformation of woodlands ecosystems in order to establish crops or livestock ranching, rendering normally renewable resources into non-renewable ones. (PE 2,3 and 7)

These rural groups generally hunt, fish, farm and log on a small scale and utilize minor forest products such as fruits, palm hearts, palm fronds and medicinal plants.

The Tamshiyacu-Tahuayo (PE2) " ribereños" are currently organized into small villages, often with a primary school and an official health post. The rules for the use of land and extraction of natural resources are set by consensus among the inhabitants of each community. Such rules not only govern those land portions that have individual property titles and the officially recognized communal lands, but also the use of forest, wildlife and fisheries resources in neighboring areas. Nevertheless, some resources like palms are treated as a free access resource which is bringing depletion of the key species (aguaje palm) for many of the most important hunted species (ungulates), a factor that jeopardizes wildlife population maintenance and recovery.

Most families settled in the region practice agriculture (from very small scale to rich gardens supplying the local market), nearly half fish for the market, 20% hunt, 20% extract non-timber products, and 5% extract wood, meat and *Podocnemis* eggs for sale (PE3).

These dwellers often belong to groupings that existed prior to the wildlife management initiatives, ultimately become involved in the development of the experiences. In some cases, taking part in the projects strengthens these groupings. Some examples are:

- Wool cooperatives of small producers (AR2);
- Conservation Movement for the Lakes (BR1);
- Labor Union of Rural Workers (Extractive Reserves in Brazil);
- Local grassroots federations (FENAMAD/FADEMAD) (PE7).

Church

Throughout historical times, the Church has played a role as a mediator/facilitator/ interlocutor in relations among native communities and the rest of society. There are cases in Brazil (BR1, BR8) in which the Catholic Church acted as a catalyst to local organizations, encouraging them to defend their resources.

Private enterprise

Private companies can form partnerships with local communities (i.e. with their organizations) for different types of projects, particularly eco-tourism (see p.25), as in the case of two joint ventures created for two of the experiences surveyed (EC3 and PE13).

2.7 Forms Of Participation

Using Pimbert & Pretty's (1994) typology to describe the level of local community participation in the analyzed projects, in a scale from 1 to 7 (increasing participation as the numbers grow) there is a concentration in category 5 (12 experiences, 40% of the total), **Functional Participation**. (see table below). 63% of the experiences may be classified in the most participatory categories (5, 6, and 7) and the remaining 37% in the less participatory categories (1 through 4).

Participation Category (Pimbert & Prety 1994)	# projects
Passive participation:	2
Information:	2
Consultation:	3
Material incentives:	4
Functional:	12
Interactive:	4
Endogenous participation:	3

Six of the analyzed projects were found to be in a "gray zone" between different participatory categories used in this analysis. They are not tallied in the above figures.

As a general trend, most projects begin as an external initiative, due to concerned NGOs or technical outsiders, and as the project advances and matures, the degree of participation by the local stakeholders increases, up to levels of full management and decision-making by communities. The NGO continues to provide advisory support and facilitate the management process, or the contribution of basic research to resource management. There is no experience in which the outside agent has withdrawn

completely as part of a process, leaving the project in the community's hands. Perhaps none of them have yet reached the degree of maturity that would allow this.

To generate community interest and ownership, a lengthy process is pursued, with the goal of getting communities to recognize the need to rethink their resource use patterns. This is a fundamental step for the project to move from a response to the interests of outside agents, to being incorporated by communities as their own effort and pursued in their own interest. Out of this type of participatory process, local institutions have been created as a way for local communities to widen their participatory channels. Some examples of the institutions are: the Community Fishing Units (UPCs) (PE3), the Ibi-Yambae Foundation, an indigenous NGO to support the Kaa´Iya Project (BO1), and the Rural Environmental Association of the Guayabero and Losada Rivers (CO9).

2.8 Economic Aspects

2.8.1 Overall economic aspects

The least documented feature of the surveyed projects is the economic element. The main reason is that there are very few projects geared toward profitable production. As mentioned above, most projects are working to protect resources endangered by unsustainable exploitation. Basically, they manage hunting, fishing and gathering. Others are conservation projects, where the community is involved in repopulation or environmental education programs, which reduce pressure on the wildlife (VE2).

Moreover, there is very little available or systematized information on the economic components of earnings (cash or in kind), their distribution, or income from other activities designed to alleviate pressure on endangered resources.

No economic incentives for community wildlife management are known, although Peru's PROFONANPE grants loans to develop a project dealing in this theme.

One very interesting feature is the lack of economic planning in the project generation stages. This absence implies flaws in the product marketing chain, which leads to possible failures and the generation of false expectations in communities. This may be the case of the Talking Parrot Project (AR1), where it is not clear how the animals will be marketed, or the role of intermediaries in this process, or the distribution of the economic benefits. Absence of economic planning is also evident in the titi monkey project (PE6), in which the lack of demand for these species on the international market has not been analyzed as a serious limitation for success.

Some projects have the potential to generate income for communities. These include the ecotourism projects (PE10 or 13) or the crystallized snake venom project (PE12).

So far, no wildlife management project has totally replaced the economic revenues from farming, cattle ranching or logging.

In South America, there are no projects in which the communities are involved in trophy hunting as a wildlife management activity that can generate important revenues and conservation benefits as has been demonstrated in regions like Southern Africa. Revenues from hunting and eco-tourism could subsidize the abandonment of current unsustainable practices in cases in which there are no other alternative income sources that would allow communities to abandon these practices.

2.8.2 Incentives

Legal incentives

No national legislation explicitly promotes CWM, with the exception of Peru, which has put the community in charge of custody and usufruct of vicunas (PE1). What is generally recognized, with more or less flexibility, is subsistence hunting by local communities.

Peru allows subsistence hunting by local communities in protected areas, provided traditional weapons are used. Current legislation encourages the production of non-timber forest products (PE8). The Law of Protected Natural Areas (Law N°26834, of July 4, 1997) has recently been enacted. Previous laws had simply defined the category of Community Reserves, restricting their use to management of wildlife. This new law also considers wild flora resources (since the people evidently do not use only animals). It also adds that resource use and sale must be undertaken according to management plans that have been approved and supervised by the national authority and conducted by the community members themselves.

In the last five years, an increase in the legal recognition of the need of having protected area management categories that allow permanent human presence and activities has benefited communal management of resources. The legal status of these lands also has the objective of protecting extractivist communities from cattle barons and other powerful interests, as the story of the famous Chico Mendes in Brazil recounts. Most of these reserves favor the generation of income from non-timber products in which wildlife is not included. Most Brazilian Extractive Reserves belong to this type of legally recognized protected areas, although a few have included a wildlife management component.

Economic and financial incentives

Some projects have benefited from economic incentives for their operation. Fees and taxes have been reduced and eliminated in the fox pelt project (AR2). Communities have been exempted from paying for mobilization and hunting licenses, and supplied freely with the needed tools and elements to prepare the caiman hides (1VE), and the marketing of the product has been assured and is an important guarantee for communities (1VE, 1PE, 2AR)

2.8.3 Distribution of income from the projects

Only two projects earn revenues for the State: the fox project (AR2) through fees and taxes, and the Matziguenga Shelter (PE10) for the license for operating in a protected area.

There are different types of direct cash income from projects, and indirect income through salaries, day-labor wages, sale of crafts, and so on:

- Payment of salaries is generated by permanent and temporary jobs in supervision and surveillance work. Egg gatherers are hired to protect nests (BR2) or to make handicrafts and clean fiber and weavings (these latter tasks are mainly done by women) as in the case of the vicuña project in Peru (PE1). Other similar cases include the cochineal (PE8), snake venom (PE12) and Ese'Eja Ecotourism (PE13) experiences.

- Benefits to the whole community provide economic incentives for continuing with the project activities. These benefits can come through infrastructure projects and materials that support project operation, such as in the vicuña (PE1) and Matziguenca shelter (PE10) projects; through infrastructure and service generation such as electric power plants (PE1); through socially beneficial activities linked to community health and education (PE10). Payment of money to a community account (PE10) is another example in which the community benefits. The only project that has calculated to reinvest in habitat conservation, including up to 30% of the income, is the talking parrot project (AR1).

- Direct individual income may be received from sale of products, such as the sale of fox pelts (AR2), of Cochinilla dye (PE8), or of bushmeat in PRODESCOT (PE7).

2.8.4 External Investments

There are different investment models in the experiences surveyed, varying in the relative weight of cooperation in each. We can group them as:

a. *Projects where the financing comes mainly from international cooperation:* Such as projects EC1, BO1, PE3 and EC2, BR9 almost wholly funded by USAID (the first three) and GTZ (the rest), or C08 funded entirely by WCS, CF&H and OEI.

b. *Projects where the financing comes mainly from governmental sources:* Such as CO1, PE1, BO4 and VE1.

c. *Projects financed mainly by the private sector:* Such as AR2 from the national leader tanners association.

d. *Projects with combined financing:* there are several variations:
d.1. *Main contribution from the State and complementary funds from other sources:* Such as PE10 (81% FANPE, 11% GEF (Global Environmental Facility), 8% communal funds) or BR1 (40% CNPq and the rest from DfID, WCS, WWF, and EU (European Union), among others).

d.2. *Contributions from partnerships between private companies and cooperation agencies:* Such as PE13 (joint-venture between Rainforest Expeditions SRL. and CI).

2.9 Legal Mechanisms

Changes in the CITES Appendix have made projects viable with species that have been moved from Appendix I to Appendix II. The clearest example is the vicuña, which makes it possible to sell vicuña wool from all countries where the species exists, so vicuña projects can be implemented in Peru (PE1), Chile (CH1), and soon in Bolivia (BO4).

Otherwise, no country has legislated in favor of community wildlife management with the exceptions of Peru's law that grants use and usufruct of vicuñas to communities, and the new Protected Area Law that makes the objectives of Communal Reserves more explicit. In the other countries, wildlife legislation emphasizes prohibitions and penalties, instead of encouraging sustainable management mechanisms that will lead to conservation and improved quality of life for rural population groups. Communal management of resources is favored in new legal bodies, based on constitutional changes in Colombia and Bolivia, that promote autonomy by indigenous groups and other minorities in the management of their territories and the natural resources found in them

Despite the absence of enabling legislation, the emergence of protected area co-management arrangements between the responsible governmental agency and organized rural communities living in or near the protected areas is increasingly evident. The growing demand for ways to involve local people leads the communities to insist upon participating in managing certain portions or tasks in protected areas. Case EC3 is pursued under an agreement between the governmental agency and the Cofán de Sábalo indigenous communities on the Cuyabeno Wildlife Production Reserve "...for the conservation, uses and services of the Reserve's resources....".

2.10 External Factors

The Neoliberal trend that has swept all of South America (Peru being the most evident case) discredits community or labor-union arrangement, considering them obstacles to the search for competitiveness in production of commodities for export. Today, anything not considered appropriate by the standards of the globalizing economy is clearly in a disadvantage.

Governments' need to generate foreign exchange through exports is leading to a breakneck rush for natural resources in countries' most remote corners. Increased oil prospecting and extraction in Venezuela, Colombia, Ecuador, Peru and Bolivia is generating far-reaching environmental and social changes in many regions. The same applies with mining projects (where informal gold mining has generated tremendous impacts on both native cultures and the environment in Brazil, Venezuela, Ecuador, Colombia and Peru). Another alarming trend is entry of large logging companies from Indonesia and Malaysia into the region, which, having depleted the woodlands of Southeast Asia, are now starting on the Amazon forests. In Surinam last year, an international campaign was able to block gigantic logging concessions granted to one of these companies, which, with the help of national politicians, had intended to log half of that country's territory.

Now that the big money sources for development in the region (World Bank, IDB) are "greening" their agendas after decades of funding disasters, other sources that totally disregard environmental and social concerns in their loan conditions are "filling the gap", and making dubious development projects feasible at very high environmental and social costs. Private companies and agencies are funding road building and other infrastructure projects without any kind of assessment of the impacts, neither environmental or social. The Ecuadorian army is building a road through the middle of Sangay National Park (World Heritage Site) with the cheapest possible budget, after international banks denied funding because of the envisioned environmental impacts. In Brazil, powerful companies are building their own roads for extracting timer in remote places.

Another important element is an increase in bioprospecting projects throughout the region, although the protection of traditional knowledge about plant uses and the distribution of royalties for resulting patents are not very clear. This may be the beginning of another wave of four Centuries of resource pillaging, in which the profits end up abroad.

Indigenous peoples and NGOs have been denouncing these situations, but in countries where legal mechanisms to stop environmental damage and human rights abuses are weak, little has been resolved (Venezuela, Ecuador, Brazil, Chile, and Argentina). Ecuadorian rain forest groups have taken their case to the Courts of New York against the disaster left behind by Texaco during operations in the country. No trust exists in the Ecuadorian justice system and the case is being dealt in US courts.

3. IMPACTS AND ACHIEVEMENTS OF CWM

As has been stressed throughout this assessment, communities have been using and managing wildlife for centuries, but CWM, understood as a conservation and development tool advocated by researchers and managers, is a young field in the region. CWM began to develop in South America as objectives and conservation initiatives the world over began to change from the preservationist approach of the 1970s and 1980s. Today, it has become much more common to recognize the need to involve local communities in order to achieve otherwise elusive conservation goals. Most of the analyzed projects are less than five years old and thus it is difficult to draw conclusions on achievements and lessons of CWM in the region. In the case of older projects, or activities that were going on before the project as such started, their focus has evolved with time from the scientifically centered objectives (BR6, BR7, CO10, VE2), and/or protectionist approaches based on prohibitions and punishment (1AR, BR2, BR6, BR7, CO10, VE2) to the involvement of communities and their interests in the projects.

3.1 Projects that are leading the way in CWM in their countries and in the region

There exist projects that have generated an important amount of information and have been widely diffused at different meetings, congresses and fora, making them important points of reference for other initiatives being designed. The work done on different issues and resources of the Tamshiyacy-Tahuayo Reserve in Peru (PE2) has had a special influence not only on nearby communities and projects (PE3), but also on initiatives developed elsewhere in lowland forests of South America.(BO1). Wildlife management has gained an important space in Peruvian NGOs, academic and government institutions thanks to the diffusion of the Tamshiyacu-Tahuayo experience, and it could be one of the reasons why this country has the highest number of new CWM initiatives in the lowland forests. The Mamiruá project (BR1) is also generating a management and participatory model that has influenced other *varzea* initiatives in Brazil (BR3, BR4). TAMAR (BR2) has been a point of reference for marine turtle management projects in other countries of the region. The Sábalo community (EC3) eco-tourism project, is already creating a lot of curiosity in nearby communities, who are expressing interest in getting involved in similar initiatives in order to achieve the incomes received by Sábalo people.

3.2 Projects to look for in the future for special lessons

All of the surveyed projects in this assessment provide valuable lessons. Some do, however, have an enormous potential for developing new approaches to conservation and rural development based on wildlife resources if they continue their maturing process in the direction in which it has been planned. We consider the following projects among those that are especially worth watching:

1) Vicuña (PE1). The fact that total ownership of the vicunas and the benefits derived from them were given by law to the communities is a landmark in CWM evolution in the region. The outcomes for conservation and the issue of benefit sharing should be a matter of analysis in the next few years. The Bolivian vicuna project (BO4), should also be observed given its strong emphasis on conservation of wandering vicuna stocks (as opposed to the Peruvian semi-captive approach) and for the changes it may cause in actual land uses.

2) Talking Parrot (AR1). This project is the only initiative having commercial use of wildlife for the international pet market as its objective, where local communities earn an important share of the sustainable parrot harvest, with another part invested in habitat conservation. The coordination between provincial and national governments, the elimination of intermediaries from the business and the distribution of benefits, are all challenges that, if overcome, could give this project a good chance of achieving species and habitat conservation, while improving the economies of the poorest areas of Argentina.

3) Kaa'Iya (BO1). The management of the huge territory of the Kaa'Iya protected area which is in the hands of the Guaraní communities for its management, should be watched as it represents a case of a protected area created in response to local community demands. They are empowered for the management of their resources, and their capacities to meet the challenge are being upgraded by training on different management aspects by WCS.

4) Plan Charapa (CO10) This project has evolved from the scientific interests of NGOs to a participatory management of river turtles and could provide an interesting collaborative model on how to approach resource management and conservation when indigenous territories overlap protected areas.

5) Southeastern Peruvian eco-tourism projects Matziguenga (PE10) and Ese'Eja (PE13) in the Manu-Madre de Diós area, are developing interesting approaches, including joint ventures with private companies that should bring better shares of benefits from eco-tourism. Being that eco-tourism is a flourishing activity in some of the countries of the region, these projects should be observed their design and the outputs for the communities, the protected areas, and the private investors.

3.3 Other lessons

CWM has taught researchers and NGOs that it is much more productive to develop the aspects of learning and respect in a horizontal, two-way relationship with communities. Capacity building of key individuals in the community, and communication and sharing of research results in an accessible language to the whole group has increased the value and meaning of participation. It is also a key to appropriation and involvement in the project. This has been especially true in the three projects in Colombia (EC8, EC9, EC10) and others in Bolivia (BO1, BO2, BO3).

A lesson, which has not come as much of a surprise, is that communally agreed plans on how to manage wildlife, including setting bans, quotas, limits or any other constraints to use for the collective benefit, are definitely more powerful than government regulations, which usually set unrealistic prohibitions and sanctions. BR1, BR15, PE2, PE3, PE9, CO8, CO9, CO10, PA1 and EC3 are valuable examples of this issue. Nevertheless, decisions to limit harvest are not easy to enforce if there are no alternative sources that can replace the needed protein or cash that is being "let go " by consciously respecting the communally agreed limitations. It is even less probable that CWM measures will succeed in their own objectives if neighboring communities that are not participating in the program benefit from the restrictions that the "sustainable" communities have self imposed for the sake of recovering wildlife populations. This situation can be seen in the BOLFOR (BO2) wildlife management program.

4. WEAKNESSES AND STRENGTHS OF CURRENT KNOWLEDGE IN CWM ISSUES

4.1 What is and is not understood

Although a significant amount of community wildlife management experiences are under way in the region, we cannot speak, in general terms, of deep understanding of key topics. Issues such as population dynamics of wildlife species, the dynamics and evolution of biological communities being exploited and managed, or the impact of human activities on species and their habitat, need much more research.

Nevertheless, the last five years have seen a considerable increase in studies throughout the region on dynamics of wildlife use by rural communities, both indigenous and non-indigenous. These types studies include those by Bodmer et al. (1990, 1993), Martins (1992), Mittermeier (1991), Alvard (1995), Townsend (1996), Rubio (1992), Vickers (1991), and Schell (1997), among the most outstanding. The work of these researchers and their methodologies have inspired many others who are adding more information on hunting dynamics with their theses projects. The work done in the Amazon has brought forward sound scientific evidence on the response of different mammal species to subsistence hunting. At the moment, it is possible to predict lowland rainforest population sizes of the most heavily hunted species with some accuracy,. This is accomplished through analysis of factors such as: hunting pressure to which the populations are subject to, historical background of use, and the size of the available habitat. There is also a fair amount of information on the social groups that inhabit the forests and their for and motivations for using wildlife. One issue is the general recognition of the alarming rates at which cultural constraints on over harvesting are being lost throughout the region. On the other hand it is promising to know that a wave of empowerment in some countries is revitalizing organization and consensus around issues like wildlife and its management that are key to the existence of the first nations. This presents much information than was available a decade ago.

It can be said that there currently exists a fair understanding of the hunting dynamics of rural communities in South America, including its impacts on the different species, the methodologies to work with communities on hunting surveys and self hunting monitoring, and so on.

4.2 Management proposals: looking for the right perspective

After a good scientific analysis is done on the hunting dynamics of a community, the problem begins when the next step is to be taken: the management proposals and their objective. The absence of economic expertise in CWM projects hinders the outcome of more viable, realistic proposals on how to move from unsustainable harvesting of certain wildlife species to the sustainable development of the rural landscape. Wildlife should be envisioned as a valuable commodity worth the investment in its management, one that

can provide important resources and -- if the whole array of possible benefits from itssustainable consumptive and non-consumptive use is exploited and benefits reach the greatest possible number of community members --- replace unsustainable practices. If wildlife is communally managed and its existence is assured for the benefit of the community, the health of the ecosystems, and the overall conservation of biodiversity, it will have a better chance of surviving the extensive changes our societies and environments are going through.

The narrow scope of wildlife researchers and managers that view fauna simply as a source of bushmeat and an object of conservation programs, will not provide enough arguments to assure its existence as change reaches the deepest places in the forest.

4.3 Going into deeper issues

The lack of economic expertise, analysis and rationale were highlighted above as serious constraints for the outcomes of CWM. The lack of sociological intervention in CWM also must be cited as a major threat to success and effectiveness. Social scientists have been involved in some of the analyzed projects, mainly as interlocutors between the biologists and the communities, opening the ground for local participation and appropriation of the project. However, little work has been done in South America on the relationship between sustainable management of wildlife resources and proprietorship issues like tenure and access rights.

Other issues where much research and analysis remains to be accomplished include:

1) Institutional arrangements for the management of wildlife (communities as sustainable management institutions; Murphree 1994),
2) More generally, the role that institutions such as government, NGOs, unions, donors, private sector, etc. play in the actual dynamics of unsustainable use of resources and its implications for CWM.
3) The role and impact of decentralization, privatization, corruption and general governance issues on the chances of success for sustainable management in our changing world.

5. SPECIFIC PROSPECTS FOR THE REGION

5.1 Empowerment

The paternalistic approach on the part of donors and technical advisors towards rural inhabitants is giving way to communities maturing in terms of organization and self determination around wildlife, and outsider institutions rethinking their roles. However, governments' and aid agencies' past approaches to assisting communities have left their impact behind; some communities have not progressed beyond demanding that outside agents come in and solve all their problems for them (BR1). The attitude of the Venezuelan wildlife agency, although generous in furnishing the elements for treating caiman hides to indigenous groups, could be creating a dependent relationship that, once this assistance is not available, could lead to rapid project collapse (VE1).

In any event, there is a general trend to increase community management and organization at the grassroots level. This tendency is emerging and consolidating in different countries of the region, though they have been hard-hit in the past by recurrent military regimes. Bolivia presents one of the most significant cases of participation having planned basic agreements and rules of integrating participation into community development as exemplified by the Kaa'Iya project (BO1), with the Capitania of El Alto and Lower Izozog (the Region's first indigenous municipality).

CWM has lead many communities to better organize themselves, to better understand and confront the threats that are coming form the outside world. For example the horizontal interaction with researchers has given them the chance to rationalize concepts like extinction, management and conservation. Some community members have been able to develop their leadership aptitudes by involving themselves in the project and actually they are able to write their own communal projects for presenting to donors (CO8, CO10).

The Charapa project (CO10) is a good example in which more serious integration of the community into the project was demanded by the community itself. The NGO and protected area staff had initially only required community collaboration as information suppliers and nesting beach patrollers. Now, this project responds to the needs of the community, extending its reach to other communities that initially were not interested in participating and has increased the amount of community members directly receiving instruction on the management of their resources.

Things have not been easy for some projects in regards to local community relations. Centuries of abuse have understandably generated mistrust of outsiders and their "good deeds". In countries like Colombia, indigenous groups are suddenly aware that many decision-making rights have been returned to them. This has rendered negotiation processes long and painful, especially for NGOs and government agencies that have not prepared themselves to deal with ways in which particular indigenous groups make decisions. Involved indigenous communities stalled the Embera project (CO8) after a press article on the project presented a view that did not reflect the reality of what the community viewed was happening.

5.2 CWM issues which need to be developed in South America

5.2.1 Trophy hunting and other sustainable use alternatives.

Trophy hunting initiatives involving local communities, as is found in Africa, does not exist in South America. In general, this kind of hunting, when it occurs as an organized and managed activity, takes place on private land holdings or farms, handled mainly by the landowners (Venezuela, Brazil, Argentina, Chile). Trophy hunting could bring additional income and conservation incentives to many projects that are limited to the management of subsistence hunting and address the need for economic alternatives that encourage the abandonment of unsustainable practices.

The main issue is that a wider range of alternatives of sustainably using wildlife should be taken into account when the management plans are designed. Right now, the proposed alternatives on how to manage wildlife resources do not go beyond subsistence hunting, eco-tourism, captive breeding or replenishing stocks of threatened species (river turtles). Wildlife should increase its profile in the rural development equations if additional incomes can be delivered from this asset. Examples are arthropods for displays and collectors-mainly butterflies, harvesting for pets of specific highly demanded species, commercial hunting for hides, selling of bushmeat to exclusive urban markets, complemented by sport fishing, ornamental fish, non-timber forest products, timber, eco-tourism and so on. These are all possible alternative wildlife uses that bring the needed added value to species and habitats that could halt habitat conversion to agriculture or cattle raising. These alternatives are worth analyzing, and discussions need to be initiated their implications, the needed legal framework, social acceptance, the least amount of background information required to proceed, the institutional capacities to manage them, etc. Current attitudes do not take into account any of these alternatives. Some would even consider them as heretic proposals, especially the influential urban NGOs that favor non-use approaches to wildlife conservation.

5.2.2 Strengthening the legal frameworks

Community Wildlife Management legislation in general is extremely vague, outside the concrete case of community management of vicuñas in Peru, where a law has been developed to promote this activity. The future of many projects could be jeopardized when confronting the lack of a law that makes their management proposal legally viable (see 2.4).

As mentioned above (5.2.1), wildlife is perceived by most urban sectors as an asset that is best conserved by non-use approaches, an issue that is stirred by animal rights groups that are influential in the region's big cities, which are the same places in which laws and management plans are discussed and decided and where government institutions and most NGOs are based, making these actors and processes vulnerable to lobbying by these groups. Thus, it is going to be very difficult to introduce alternatives for wildlife management beyond the issues that South America has been accustomed to dealing with

for wildlife, i.e. subsistence hunting, ecotourism, captive breeding. This will be especially evident in attempts to change the very-restrictive Brazilian wildlife law.

In any case, CWM should be explicitly supported through enabling laws that favor the communal management approach. Protected area legislation in some countries has slowly opened its approach to include management categories in which conservation is intentionally planned in places where people are present, and wildlife management by these communities is part of the planned activities to be managed in these areas; examples include: (Brazilian Sustainable Use Reserves as Mamirauá (BR1), or the Extractive Reserves (BR11, BR12, BR13), and the Peruvian Communal Reserves (PE2, PE11). Nevertheless, wildlife laws should also move in this direction in order to promote communal management where there is the potential to do so.

5.2.3 Proper economic analysis

Numerous projects have been designed without suitable economic analysis. They out as initiatives by biologists and researchers, setting objectives that often ignore market realities. For example, many animal husbandry projects developed in Colombia have failed simply because no one thought to conduct a serious study of the actual market demand. The few projects that have profit in their objectives do not include an adequate economic analysis or it is relegated to being a subset of the main conservation objectives. The talking parrot (AR1) project is an example in which market analysis is weak and could bring serious problems. Ecotourism projects have also been too light on their economic evaluation of the success chances beyond valuing the beautiful setting and the viewing of wildlife.

As has been stressed before in this review, sustainable management proposals produced as a result of studies on the use patterns of wildlife would be much stronger and feasible if economic analysis were a more substantial element. Some academic approaches interpret sustainable use of wildlife as a simple management of the animal harvest. Reality shows that the scenario is more complicated.

5.2.4 Private sector involvement

Wildlife needs investment beyond donor money if it is going to continue to exist. Subsidized conservation, projects and campaigns will not accomplish the results needed to reverse the current trend of rapidly vanishing species. These extra investments will from the private sector, but only when the right arguments and incentives to invest in the resource are produced. Unfortunately, at the moment, there are not many in sight. A few exceptions exist, including communal eco-tourism enterprises that have successfully liaised with private companies (EC3, PE10).

The issue cannot be dealt with easily. Communities and the private sector do not have a history of good relationships in the remote places where wildlife is managed, the former usually being the victims of the latter (as history has borne out during “rubber baron”’ epoch and other extractive booms). Presently, laws have matured in favor of minorities,

communities have gained national respect and many of their members have been trained to be able to deal with the outside world. Certain NGOs have specialized in developing extensive expertise in order to assess communities in all the legal and institutional issues around partnerships. All of these factor are encouraging a process that may guarantee better chances for communities and the private sector to do business in which both parties share benefits in a more equitable way. The end result could be a better chance for conservation.

One alternative could be the granting of concessions to private companies enabling them to manage their businesses on communal lands, to profit from available resources and requiring that these businesses be accountable to the whole community. The fact is that communities are expected to provide lodging, catering and other services they do not have much experience in providing and so the quality is generally not attractive for the most demanding and wealthy customers of eco-tourism. However, partnerships with private business which specialize in providing the international service standards demanded by select eco-tourists could be a solution as it has been in certain parts of Africa.

6. PRELIMINARY LESSONS ON POLICY

The irrational exploitation of wildlife in past history led many countries of the Region to implement conservation policies that discourage and prevent wildlife use and management. The attitude of Brazil's government is clear: it is preferable to prevent use rather than take a chance on authorizations, permits and licenses to use wildlife resources (Alho, 1995). Throughout, there has been policy and financial support for developing captive breeding facilities, an activity that is viewed by governments as easier to control and manage than harvesting from the wild. At least, it certainly looks more like real management when compared with what hunters do with traps, shotguns harpoons. However, this captive breeding approach has serious difficulties in offering a viable sustainable alternative for local communities, as is demonstrated in Colombia.

There other cases where government policies have benefited from use management strategies, such as vicuña breeding in Peru, fox hunting in Argentina, where the State promotes and encourages resource use to benefit needy rural communities. The Ecuadorian government has opened the door for co-managing parts of protected areas with indigenous communities through the signing of agreements in which rights and duties are explicitly established for the use and protection of the resources of the area (EC2, EC3).

National policies also favor the non-consumptive use of wildlife by fostering eco-tourism. In some cases, the government indirectly promotes nature-oriented tourism by supporting tourism in Protected Areas or other attractive places as policies in the tourism sector. Increasing number of communities are benefiting, but the inequity of the distribution of these benefits continues and most of the money stays with tour operators.

To better analyze the future of community wildlife management in the Region, with respect to public policy, a set of key issues can be identified:

a) Most countries of the Region are markedly deficient in zoning and setting land-use norms that will take into account the ecological characteristics and environmental potential of different areas.

b) Although several countries have generated processes of participation and decentralization of governmental action, through major changes in political structures and reinforcement of indigenous and other ethnic minorities movements, obstacles to locals' involvement in wildlife resource management and decision-making nevertheless still exist.

c) Governments greatly undervalue wildlife. In general, agencies responsible for administering wildlife resources report to other resource management agencies. Because of the lack of any economic rationale behind the wildlife management issues, it is not surprising that other activities such as livestock or forestry are granted a much greater importance.

d) To a greater or lesser degree, there is clearly a lack of capacity to enforce current legislation. This is especially true in those territories located in remote areas, too far from the urban and commercial centers.

7. THE FUTURE OF CWM IN THE REGION UNDER DIFFERENT POLICIES AND OTHER SCENARIOS

Most of South America joined in the nature conservation era by the 1960s and 70s, after the traumatic experience of witnessing the plunder of valuable wildlife species during the most irrational wave of extraction that this continent has seen. In most countries, this generated legislation centering on forbidding use, especially in commercial activities exploiting wildlife. The rest of conservation policy was set on the creation of National Parks, where flora and fauna can live safely, where humans have called a truce in their unbridled eagerness to use up natural resources.

Years later, reality shows that both approaches, prohibition of use through laws, and isolation of nature from human influence in certain zones, are ineffective in the face of the social forces of poverty, lack of government authority, presence and legitimacy, and many other complex social, economic, cultural and political factors.

Wildlife is a major resource, both for indigenous population groups and for different local communities, even when, in general terms, fauna is just another factor amid a complex array of activities predominated by agriculture, forestry and fishing. Evidently, community wildlife management must coexist with activities that are emerging from other development models. The deficiencies generated by poorly planned development activities have significant impacts on wildlife and their natural habitats. Examples abound that attest to this: large-scale infrastructure projects and oil development in Peru and Ecuador, mining development in Argentina, Peru, Chile and Bolivia, hydropower and electric transmission lines in Brazil and, especially, large regional highway projects (the Amazon highway) and riverways (the Hidrovia Paraná-Paraguay project).

In this context, the South American region urgently needs alternative mechanisms to reconcile human presence with nature conservation on this, the most biodiverse continent in the world. Not only is a large part of that biological wealth at stake, but also the very livelihood of many rural communities, whose existence is endangered. Community wildlife management is being analyzed as one of the alternatives that can generate innovative elements of rural development to ensure sustainable utilization of nature, especially of wildlife, the most seriously threatened of all resources.

In general terms, three possible scenarios may be envisaged for community wildlife management in the Region:

a) A *scenario based on current trends*, in which development models continue plunging onward as they have been. This would entail maintaining trends in deforestation, in impoverishment of rural communities, in shrinking wildlife populations and spreading of erosion and desertification. Bolstered by an institutional framework with a low environmental profile, this scenario features marked environmental deterioration and social marginalization, where community wildlife management projects are not viewed as a viable, sustainable alternative.

b) A *conservationistic scenario*, in which the protection of natural resources and ecosystems are prioritized above the needs of indigenous peoples and local communities. This would drive strategies geared to isolate natural resources from human activities, by confining them in extensive protected areas and reserves, with increasingly restricted usage. This would not, in and of itself, guarantee protection, and could trigger social conflicts of various kinds, including increased clandestine activity. Further, it would entail even less contribution to improving the quality of human life.

c) A *sustainable scenario,* in which the process begins rethinking the models of growth, production and consumption taking into account both the Region's huge biodiversity potential and the knowledge, aspirations and cultural identity of local communities.

Generally speaking, for this last scenario to come to pass, sounder environmental institutions must be built and increasingly formal channels must be established to guarantee local communities' rights to participate in the different stages of wildlife resource management, legal and procedural instruments must be improved, and scientific, technical and economic knowledge must be systematically applied to these issues

We must open up the range of possibilities for wildlife management and its relationship with other resources. Elements such as trophy hunting and fishing can generate much greater earnings than just subsistence levels, thus replacing unsustainable practices and the resources they generate. For this to occur, we have to change the perception among governments and NGOs that hunting is a negative element, to recognize the potential of hunting for conservation of species and habitats, as has been demonstrated in North America, Europe and Africa.

We must also explore the legal, political and ecological viability of commercially exploiting many of the resources found in the environment. Only the added value of native ecosystems and their species --valuing and paying for their consumption and non-consumptive services, -- can offer an economically viable alternative for other forms of land use, i.e. livestock, intensive agriculture, soybeans and African palm.

This will require exploring markets abroad for products coming from the wilderness environment. One obstacle will be the growing rejection in urban society of products extracted from the environment, which are seen as more hazardous to conservation than products from greenhouses and capture breeding farms. This may prove to be a serious obstacle for marketing products originating in community management projects.

Against the will of most governments (though they may publicly claim the contrary), rural communities are increasingly pressuring to take part in decisions on protected area management. This is an ongoing conflict in which the State refuses to acknowledge that people do, in fact, live and manage resources independently from the management category imposed by the government for protected areas.

Insofar as protected areas in most countries end up being relicts of species that have disappeared elsewhere, the pressure to gain access to these resources will build up. The government will have to negotiate with communities about the conditions of

sustainability in which such use will be made. Therein lies the future of protected areas as viable portions of territory that can play the role for which they were initially created.

Beyond medium and long term ecological and evolutionary consequences, with the disappearance of wildlife, we are also losing opportunities. Rural poverty is one of the great ethical and social problems of South American countries, and chances of offering decent living to millions are low, even in the midst of natural wealth unrivaled in the rest of the world. This megadiversity "paradox", can only be solved when we start looking at nature as the one of the most valuable and tradable commodity our countries have, one that will not dry up like oil, but that can be easily destroyed by negligence, ignorance and shortsightedness. If we were only dealing with the provision of a subsistence protein source, pigs, chickens or other livestock could easily replace wildlife (like fish-breeding has done in BR9 for example). Indeed, this has already come to pass in most places for the great majority of the population. However, the fauna that exists that is not so easily replaced. This same fauna has much more value than is currently acknowledged, and these valuable uses can do a much better job of ensuring its continued existence.