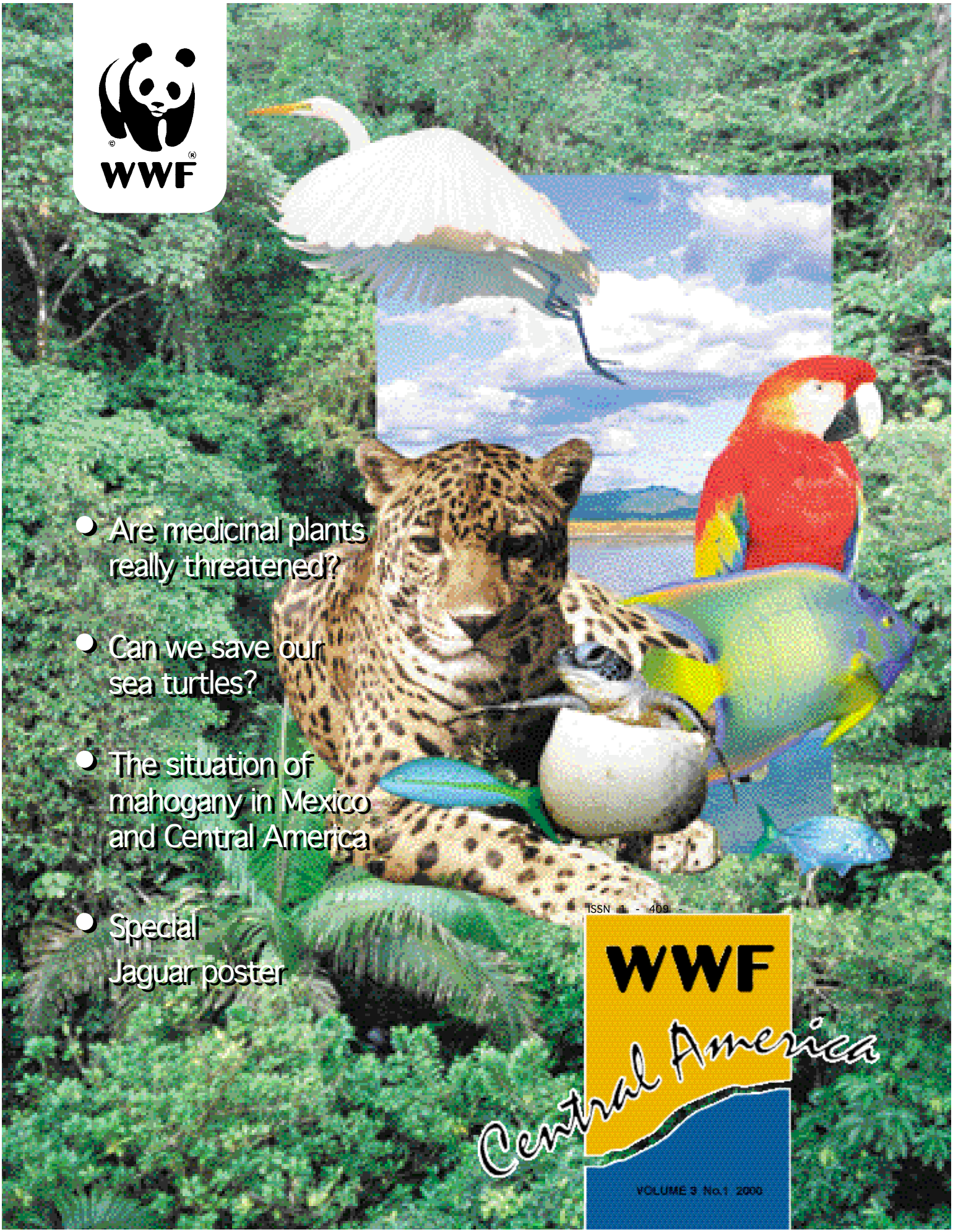

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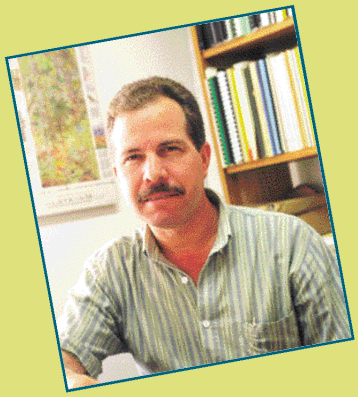

Dear Readers:

Central America's biodiversity is extremely valuable. The region's terrestrial and marine habitats have provided the ideal conditions for the development of a rich biodiversity, which we hope to continue preserving for the benefit of future generations.

This small portion of land is of unique importance to the world because it is a bridge that joins the two large continental masses of America, and for this reason dozens of species flow in and out of Central America each year in search of refuge and rest. Numerous bird and marine species have their breeding, feeding and rest areas in this small strip of land and its surrounding seas, turning it into a great natural biological corridor between the Neo-Arctic and the Neo-Tropics. This continuous movement assures the health and the preservation of biodiversity in the continent.

Despite its importance, our rich biodiversity is now threatened due to increased demand for natural resources and the poor management of these natural assets in some parts of the region. Deforestation, the unplanned and chaotic growth of our cities, the loss of habitats for various species, and the uncontrolled explosion of tourism and pollution are all factors that contribute to the degradation of our natural resources.

Nevertheless, by analyzing the causes of these problems, sharing the lessons learned from projects being implemented in the region to address them, and involving civil society in these issues we may help to stop this deterioration.

In this edition, dedicated to wildlife, we focus on some of the current issues and studies of relevance to Central America. While we have included articles on mahogany, turtles, medicinal plants and forest species, there are many more subjects for discussion which are beyond the scope of these few pages.

We hope that reading this will strengthen your commitment to work together so that those who are not yet born will still have the opportunity to decide their future and enjoy the treasures of Central America's rich biodiversity.

Oscar Brenes
Program Officer
WWF Central America

Man's use of plant and animal species for subsistence and production

By Eduardo

The use of plant and animal species has traditionally been an essential part of life in most rural areas of Latin America. In recent years, however, efforts to ensure the conservation and management of many of these species have been threatened by two main factors: the loss of pristine habitats and the inadequate regulation of the use of natural resources.

The region's human inhabitants mainly use plant and animal species for subsistence activities, local trade and large-scale commerce. Subsistence use has been restricted to situations where people use the species for their own consumption, something that generally has little impact on the populations of the different species of interest.

Use of species for local markets is defined as the exploitation of wildlife for sale on a small scale, which implies a minimum of investment in that activity. This type of activity is widespread in the rural areas of many Latin American countries, where many people make a living by hunting wild animals or harvesting certain plants, such as orchids, for local sale. Obviously, this type of activity has a far greater impact when the resources are harvested for commercial ends.

Photo: Beni Lang

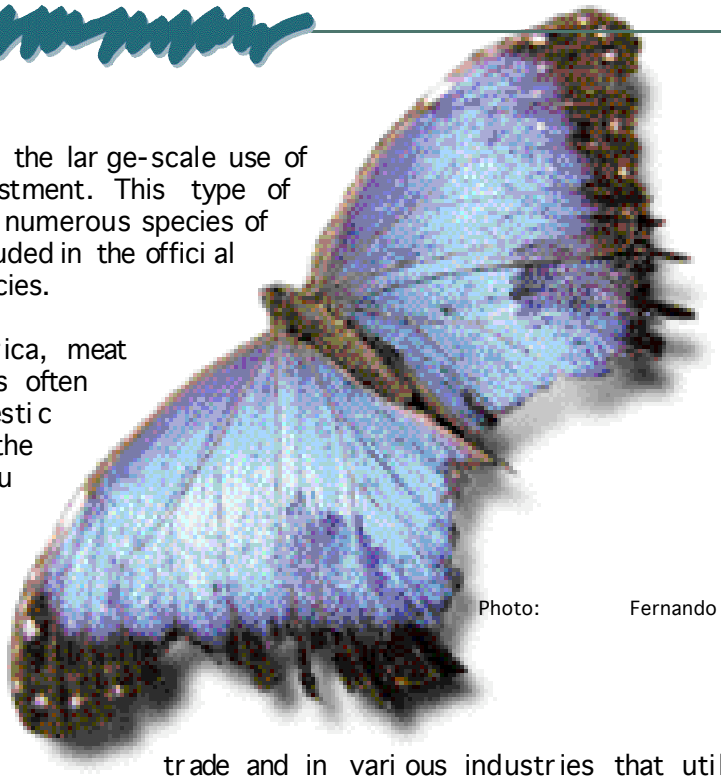

Photo: Fernando

Commercial use is characterized by the large-scale use of species and requires capital investment. This type of activity has led to a situation where numerous species of tropical fauna and flora are now included in the official lists of threatened or endangered species.

In many rural areas of Latin America, meat from wild animals – game meat – is often cheaper than meat from domestic animals. Certain species such as the white-lipped peccary (Tayassu pecari), deer (Odocoileus virginianus) and paca (Agouti paca), have traditionally been hunted and are still an important source of animal protein for the local inhabitants of some areas. Many threatened species are sold as pets. Others are used in the meat trade and in various industries that utilize leather, skin and feathers or make other secondary products such as guano (used as fertilizers). Some plant species and trees are harvested for their oil, sap or latex or are removed to be sold as ornamental plants. All these activities bring direct or indirect benefits to the people who inhabit the areas where the species of interest are found or used.

Photo: Fernando Bermúdez

But perhaps the greatest threat facing us in relation to the use of species is our own ignorance and lack of basic knowledge about their ecology and their role in the dynamics of tropical ecosystems. In many cases, lack of information about important aspects such as the population dynamics of a particular species that we are interested in managing, its reproduction periods, patterns of activity and movements, habitat requirements, depredation, relations among species, etc. means that the effects produced by harvesting animals and plants are poorly understood and are therefore unpredictable.

Inappropriate management of plant and animal species may not only have severe adverse effects on the species themselves but also on the ecosystem from which they are harvested. The non-sustainable harvesting of these species not only affects their future availability, but may also affect the availability of other products or resources of the forest and the functions of ecosystems as an integrated whole.

Photo: Fernando

This impact may occur either directly through the removal of plant and animal species or indirectly, through the harvesting of resources upon which other plants or animals depend for their survival (for example: removing plants that are an important food source for animals or harvesting animals that act as seed dispersers, thereby changing the structure and dynamics of the forest).

One aspect that has been little studied is the effect of species use on their own genetic variability. There are studies that show that some species may be susceptible to the loss of genetic diversity if they are subjected to pre- defined harvesting without technical or scientific planning. One example of this is the case of the white-lipped peccaries, whose social structure makes them highly

Another important factor to bear in mind is that many of the management techniques applied to species of flora and fauna in our region have been developed in other parts of the world where the ecosystems are generally less complex and therefore the management techniques are also simpler. In many cases, the application of such knowledge to the tropical areas is not always effective. This poses a challenge that requires us to develop management techniques that are better suited to the complexity of our own ecosystems and that lessen the impact produced by harvesting one or several species of flora and fauna.

In considering the question of wildlife management, it is also essential to address a number of factors and constraints such as the continuous growth of the human population, the lack of professionals in the field of wildlife management and conservation and the lack of funds to carry out research, conservation, management and monitoring of the species of interest. At the same time, there is an urgent need for effective legislation, based on scientific and technical criteria, to regulate the harvesting of animals and plants. Even in cases where such laws have been passed, there has been inadequate political will and insufficient resources to ensure that they are enforced.

Photo: Fernando Bermúdez

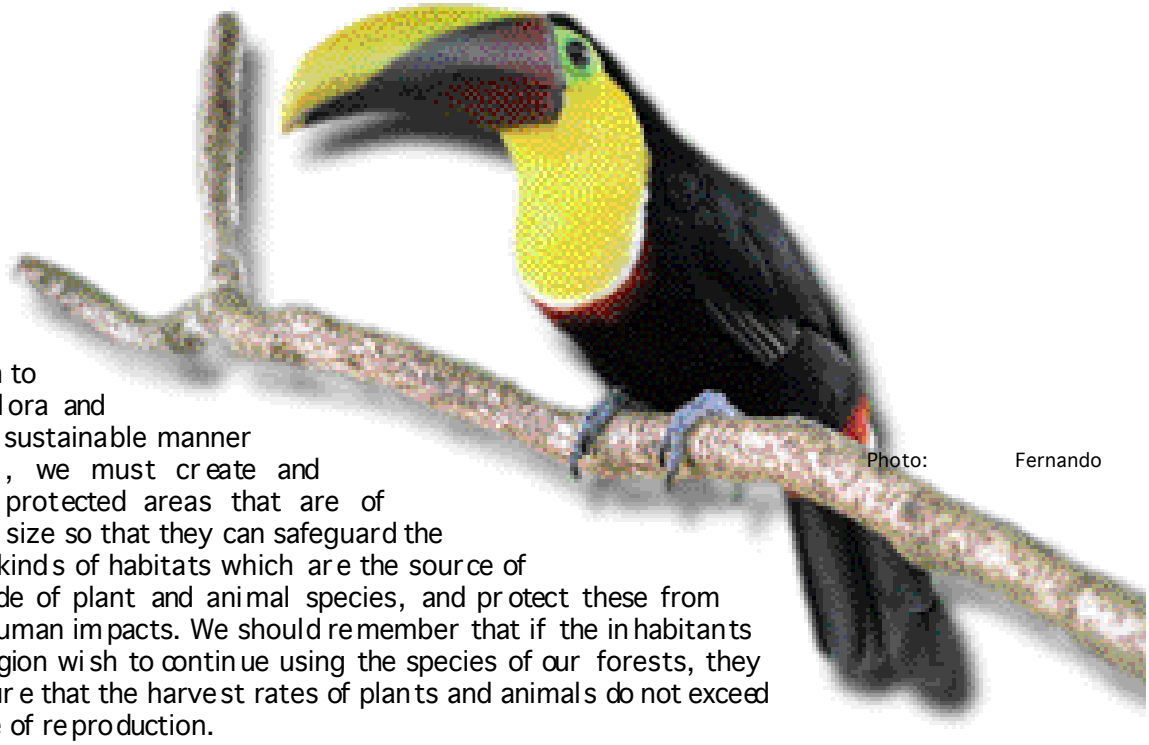

Photo: Fernando

If we wish to use our flora and fauna in a sustainable manner in future, we must create and conserve protected areas that are of sufficient size so that they can safeguard the different kinds of habitats which are the source of a multitude of plant and animal species, and protect these from adverse human impacts. We should remember that if the inhabitants of this region wish to continue using the species of our forests, they must ensure that the harvest rates of plants and animals do not exceed their rate of reproduction.

Furthermore, to effectively manage plant and animal species, it is essential to carry out applied research that will enable us to design and implement wildlife management plans based on sound scientific and technical principles. These should include continuous monitoring so that we can evaluate whether the management plans we apply fulfill our expectations, both in terms of production and conservation requirements, and guarantee

Photo: Fernando Bermúdez

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Costa Rica's timber trees on the road

By Quírico Jiménez M.

INTRODUCTION

Trees are among the most impressive expressions of nature and one of the most important resources available to humankind. The history of humanity has always been influenced by this old friend, which offers us innumerable products and commodities such as fruits, fibers, resins, medicines, cellulose, spices, fire wood, and, especially, timber. Trees also provide a number of additional benefits such as shelter, oxygen and landscape. They protect our soils and provide a valuable source of water and wildlife.

Societies throughout the ages have valued trees highly for their wood, but have tended to ignore the other benefits that these living organisms offer humanity. Thus, humans have made timber their most prized forest resource, forgetting about the other related resources.

THE USE OF WOOD

Demand for precious tropical woods has increased with the passage of time all over the world and, to a certain extent, timber has become an irreplaceable commodity. While mahogany (Swietenia macrophylla) is the most sought-after and appreciated precious wood in tropical America, one of the most popular species in Asia is Khaya anthoteca, in Africa Diospyros ebenum, in Australia various species of Eucalyptus and, in the temperate climates of Europe and North America, the conifers have played an important role as timber producers.

Photo: Quírico Jiménez M. Nazareno (Peltogyne pur-

Central America has seen the widespread exploitation of its timber resources. For example, as a small developing nation, Costa Rica has not used its forests effectively and has therefore not taken advantage of the great range of alternatives that are contained therein. Although Costa Rica has a vast diversity of flora, trees have been most widely used.

C U R R E N T E V E N T S

Unfortunately, as a result of the prevailing model of economic development, the value of the country's forest resources is seen strictly in terms of the use of its timber resources. This means that the real value of other forest products and the benefits afforded by the forest as a whole have not been appreciated, resulting in the degradation, inefficient use and waste of the vast and unique potential of our forests and native trees (Jiménez and Poveda 1996).

TREE DIVERSITY IN COSTA RICA

Due to a number of climatic, topographical and edaphic (soil) factors, and to its proximity to three major different types of flora – those of North America, South America and the Caribbean islands - Costa Rica possesses a great diversity of flora. It is estimated that there are some 10,000 species of plants distributed among all the groups, from ferns to trees.

The tree component consists of nearly 2.000 species, which account for 20% of the total flora. Of these, a little more than 300 species have been traditionally used, either because they produce fine wood with a high market value or because they are species with a very high resistance to environmental conditions or to the processes of decomposition caused by the climate. It is important to mention that because of the shortage of wood from traditional species in Costa Rica, many other species with less commercial value have now become popular. Despite this, we must be careful to avoid excess use, because many species in the Central American region are endemic, in other words they are only found in a particular area or zone. In the case of Costa Rica

SPECIES IN DANGER

The gradual loss of habitat due to deforestation, overexploitation and, more recently, deficient forest management plans, has affected a group of important tree species in Costa Rica. Logging has turned into a form of "mining" of the species that produce fine woods such as mahogany (S. macrophylla), Spanish Cedar or Cedro Amargo (Cedrela odorata), Macawood or Cristobal (Platymiscium sp), Cocobolo Rosewood (Dalbergia retusa), Purple Heart or Nazareno (Peltogyne purpurea) and Tiger Wood or Ron Ron (Astronium graveolens), among others. Other endangered species are those that are resistant to climate such as Ajo (Caryocar costaricense) and Manú (Minquartia guianensis) (Jiménez 1999 a.).

Tamarindón, guanacastillo (Parkia pendu-
Photo: Quírico Jiménez M.

In response to this situation, and concerned that these tree species are at high risk and may disappear from the country, the Costa Rican Ministry of the Environment and Energy (MINAE) issued Executive Decree N° 25700 banning

Scientific Name	Family	Common Name
Anthodiscus chocoensis	Caryocaraceae	Ajo negro
Caryodaphnopsis burgeri*	Lauraceae	Quira
Cedrela fissilis	Meliaceae	Cedro real
Cedrela salvadorensis	Meliaceae	Cedro
Copaifera camibar	Caesalpiniaceae	Camíbar
Cordia gerascanthus	Boraginaceae	Laurel negro
Couratari scottmorii	Lecythidaceae	Copo, matasano
Guaiacum sanctum	Zygophyllaceae	Guayacán real
Hymenolobium mesoamericanum	Papilionaceae	Cola de Pavo
Myroxylon balsamum	Papilionaceae	Bálsamo, chirraca
Paramachaerium gruberi	Papilionaceae	Sangrillo
Parkia pendula	Mimosaceae	Tamarindón
Platymiscium parviflorum	Papilionaceae	Cristóbal, ñam-bar
Platymiscium pinnatum	Papilionacee	Cristóbal
Podocarpus costaricensis*	Podocarpaceae	Cipresillo
Podocarpus guatemalensis	Podocarpaceae	Pinillo
Sclerolobium costaricense*	Caesalpiniaceae	Tostado

* = endemic

There are currently new initiatives in Costa Rica that seek to forbid the use of other species, though this option is still under discussion. There is no doubt that total bans may provide an effective mechanism to save some tree species from extinction, but such measures should be carefully considered and to the extent possible should be supported by the different institutions and organizations that make up the country's forestry sector. At the same time we should consider the option of paying private forest owners for the environmental services provided by the conservation of forests and trees.

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Photo: Fernando Bermúdez

Are medicinal plants really

By Rafael A. Ocampo Sánchez

In 1970, developed countries began to show concern over the threats facing natural resources in their own environment, focusing more on fauna resources than on flora. These concerns led to the establishment, in 1973, of the first international treaty to regulate the illegal trade in species, known as the Convention on the International Trade in Endangered Species of Fauna and Flora (CITES). However, the only category of plants covered by this agreement are the so-called ornamentals - orchids, palms, cacti - which have been much sought after by natural resources merchants since the discovery of America.

Although medicinal plants have long been of economic importance, surprisingly, it was not until the 1990's that the authorities turned their attention to the trade in medicinal plants and began to pass laws regulating this activity. It is interesting to note that the international trade in items such as sarsaparilla roots date back to 1536. These roots, from a type of vine, have long been extracted from the forest and are generally used as a blood purifier.

Cat's claw (Uncaria tomentosa) is another common vine that grows in the humid tropical regions of America and is harvested from the forest. Some people believe it can cure cancer and even more recently it has been promoted as a cure for AIDS, though this has not been confirmed by the National Cancer Institute of the United States.

Photo: Fernando Bermúdez

This species may be used as an example to understand the excessive exploitation of forest resources. Cat's claw, as documented in various studies, is widely used as an anti-inflammatory. However, one of the problems in Central America is that people extract from the forest other vines similar in appearance to cat's claw, but which are in fact other species.

These other species are sold as cat's claw in different markets of Central America, and for this reason consumers may end up ingesting toxic substances without knowing it. Given the economic importance of cat's claw, commercial plantations of this medicinal plant have been established in agro-ecological sites in Peru.

Photo: Fernando Bermúdez

Photo: Fernando Bermúdez

It was not until 1985 that several international organizations (WHO, WWF, IUCN) began to design and implement a range of strategies and joint actions to promote the conservation of medicinal plants. Some of these guidelines are set out in the document "Guidelines for the conservation of medicinal plants"(1993).

TRADITIONAL USE VERSUS COMMERCIAL USE

It is important to remember that there is a high demand for medicinal plants in the world, particularly in tropical and subtropical countries, where traditional medicine has long been an important alternative in primary health care. In the Central American region alone, the Economic Commission for Latin America and the Caribbean (ECLAC) estimated that family use of medicinal plants in 1993 was equivalent to 26,000 tons, based on the region's population but without specifying the actual volume of the

In 1994, the Tropical Agriculture Research and Training Center (CATIE) carried out a national survey in Costa Rica on the trade in medicinal plants and their conservation status. The objective of the survey was to conduct a preliminary assessment of the situation that would provide the technical data to evaluate the level of threat to various medicinal plants, determine their economic importance and initiate work to domesticate the more important plants. The results of the study showed that 129 species of medicinal plants are used in Costa Rica of which 37% are harvested in the wild.

According to a study published in 1996 by the Federal Agency for the Conservation of Nature, Germany is the world's largest buyer of medicinal plants, annually purchasing an average of 40,000 tones worth DM 160 million (equivalent to around 95 million dollars).

It is surprising to note that, even now in the 21st century, between 70-90% of the volume of commercial medicinal plants is harvested in the wild with only a few species (50-100) produced through large-scale cultivation. These exceptions are mainly traditional species such as chamomile (Matricaria recutita), which is widely used for colic and as a calmative, and borage

Even plants that are commonly found in Central American markets, such as boldo (Peumus boldus) from Chile, which is used for the treatment of liver and nervous disorders and as a sedative, are harvested in the wild.

The traditional use of natural resources with therapeutic properties by Central American families does not constitute a threat to medicinal plants for many different reasons. First, ever since colonial times the majority of Central Americans have used plants grown in their own gardens, such as rosemary (Rosmarinus officinalis), chamomile and mint (Satureja viminia). The native or indigenous populations also generally use native medicinal plants that are harvested in a traditional way from forested areas, in most cases without endangering the species.

However, the continuous harvesting of a particular species - for example those used by communities in ceremonial activities - could in the future lead to a reduction of that species in its natural habitat and therefore efforts should be made to domesticate it

Photo: Fernando Bermúdez

IS TRADE THE ONLY FACTOR THAT THREATENS MEDICINAL PLANTS?

Conservationists believe that trade is the main factor that threatens the survival of medicinal plants. When native wild plants are subjected to excessive extraction for the purposes of trade - which is regarded as a factor of development in a consumer society - it is likely that they may eventually be threatened in their natural habitat or environment.

The real underlying problem, however, is that much forest cover is being lost to make way for urban development, agriculture and live stock even though some countries are attempting to protect their forest areas by establishing reserves or parks. Another factor influencing the conservation of medicinal plants in the Central American region is the lack of technical information regarding their conservation status.

Photo: Fernando Bermúdez

THE FOREST ECOSYSTEM AND MEDICINAL PLANTS

A basic question we must ask is what should we conserve and why? When we talk about the state of conservation of medicinal plants, the first thing to find out is whether these are native or introduced species. When we refer to our biodiversity we are talking about native plants, those used by indigenous or native communities, which in some cases the rest of the population has learned to use. One example in Central America is the traditional use of the jiñocuabe tree, also known as the "naked Indian" or jiote tree (Bursera simaruba), used for gastric ulcers.

Another point to bear in mind is the location where these medicinal plants originally grow. We must not forget that the original ecosystem of these plants is the FOREST. With this in mind, a study was carried out with the financial support of WWF Central America to evaluate the wealth of medicinal plants in Central America and to find out about their biological status.

C U R R E N T E V E N T S

The biodiversity index of medicinal plants shows us that approximately 1000 medicinal species are used in Central America, of which 75% are natural resources native to tropical America and 59% are established in ecosystems with different types of forest cover (natural or secondary forest). This situation leads us to conclude that the protection of forest ecosystems in public and private reserves constitutes an important contribution to the in situ conservation (in their own environment) of medicinal resources.

Finally, the loss of forest ecosystems has resulted in extinction for some species, such as contrayerba (Dorstenia sp.), while other species such as biojo-miona (Hyptis capitata) have become undesirable plants or weeds in agricultural plantations and fields. It is therefore essential that we acquire extensive knowledge of all aspects related to the biology of each one of these medicinal species in order to determine their conservation status in the wild.

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Can we save our sea turtles?

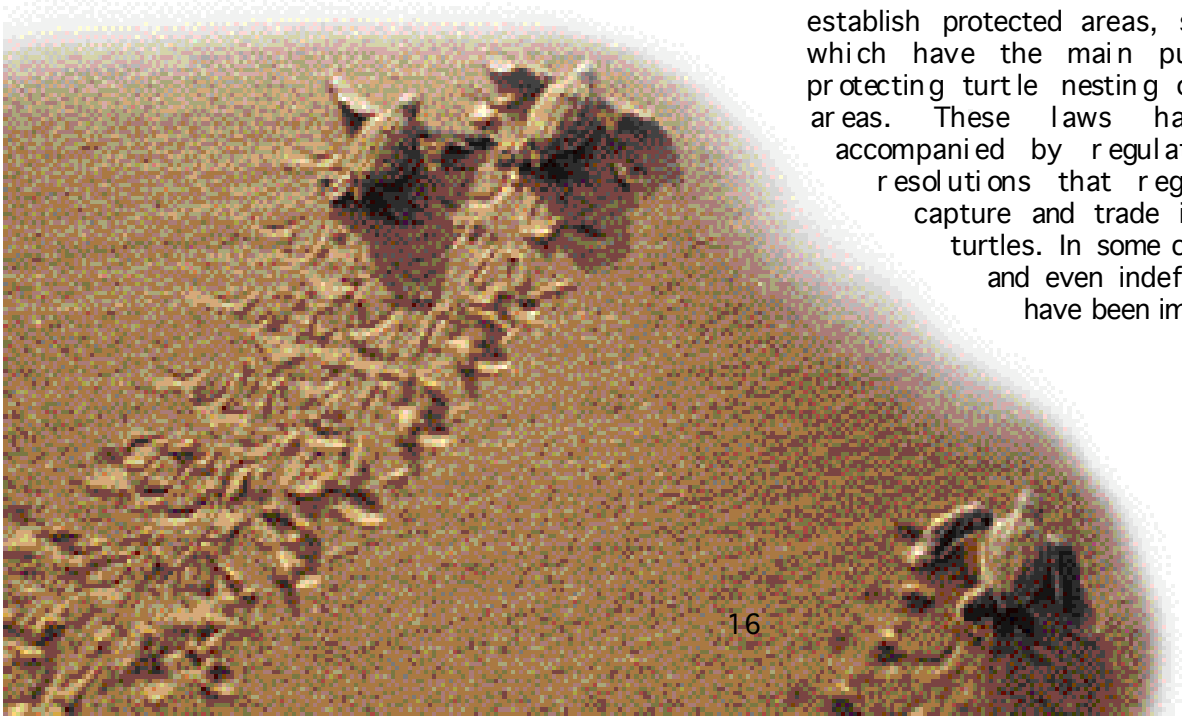
By Randall

For decades, the Central American region has been regarded as an area of vital importance to the future survival of marine turtles, both on the Pacific and the Atlantic coasts. It is here that we find the main nesting beaches and feeding grounds of the different marine turtles that swim in our oceans. Of the eight species of sea turtles in the world, five are common in Central America. In the Pacific are the Ridley turtle (Lepidochelys olivacea), the Leatherback (Dermochelys coriacea) and the Eastern Pacific Green turtle (Chelonia agasizzi). In the Atlantic are the Green turtle (Chelonia mydas), the Leatherback (D. coriacea) and the Loggerhead turtle (Caretta caretta). The Hawksbill turtle (Eretmochelys

It is well known fact all over the world that sea turtles are threatened with extinction and that their populations have been drastically reduced during the past 20 years. The decline in sea turtle populations has many causes, but in Central America the main factors have been the indiscriminate harvesting of turtle eggs from the nesting beaches, the disruption of their natural habitat by coastal development and the excessively high mortality rate among adult turtles, either to satisfy demand for their meat or shells, or due to their accidental capture during commercial fishing operations.

Starting in the eighties, the Central American countries began to show a greater interest in protecting the different species of sea turtles. Their efforts in this regard intensified during the nineties. Laws were introduced to establish protected areas, several of which have the main purpose of protecting turtle nesting or feeding areas. These laws have been accompanied by regulations and resolutions that regulate the capture and trade in marine turtles. In some cases, total and even indefinite bans have been imposed.

Photo: WWF-Canon/Roger Leguen



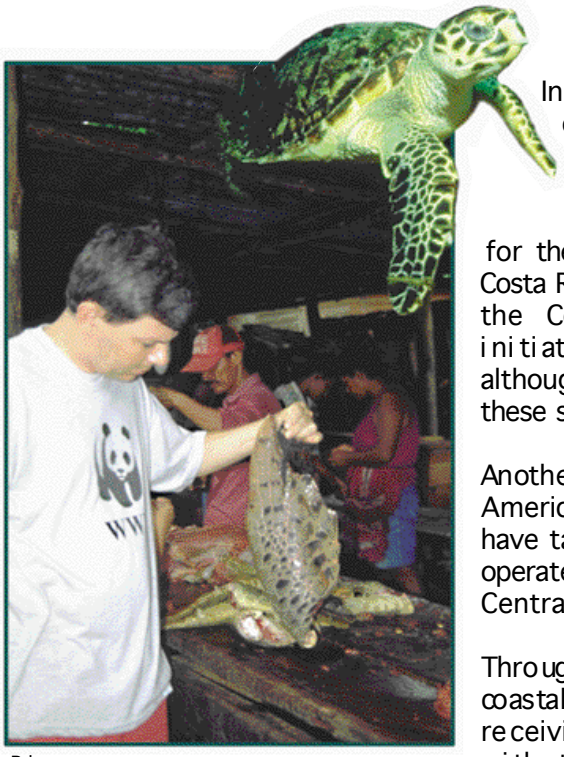


Photo:

In addition to the laws decreed by various countries, some of the most significant efforts undertaken to conserve sea turtles in Central America are the different regional agreements to promote joint actions between various countries, such as the Tripartite Agreement for the Conservation of the Green Turtle between Nicaragua, Costa Rica and Panama and the Inter-American Agreement for the Conservation of Sea Turtles. Implementing these initiatives represents a major challenge to the region although they will contribute in great measure to safeguard these species.

Another important initiative involves several Central American non-governmental organizations (NGOs), which have taken an active role in this effort, and since 1996 have operated a Network for the Conservation of Marine Turtles in Central America.

Through environmental education and the participation of coastal communities, turtle conservation initiatives are receiving increased support. In this way it is possible to work with the very people who exploit this natural resource, acknowledging their economic and cultural needs and at the same time inculcating in them the notion of the sea-turtles' right to survive and how to use this resource in a rational manner.

But unfortunately not everything is going well. To save the sea turtles, it is simply not enough to protect their nesting grounds. It is also essential to protect them in the oceans where they spend most of their time. It is precisely the lack of effective protection of adult turtles that neutralizes efforts to protect the nesting sites.

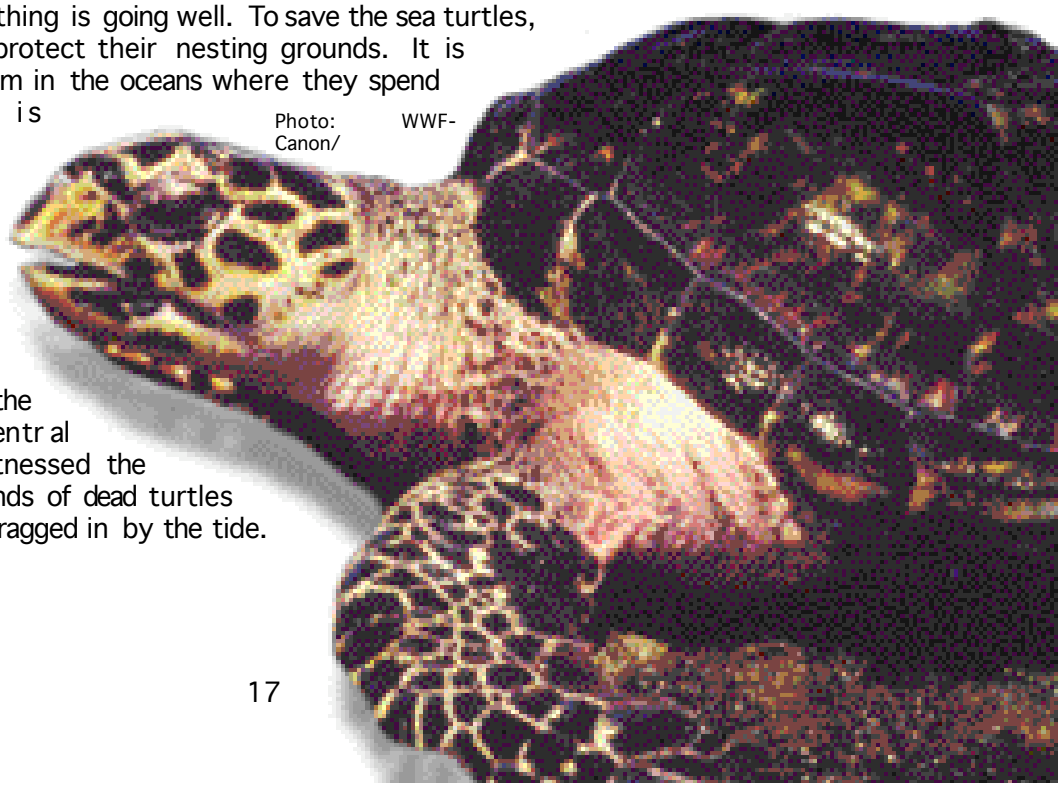


Photo: WWF-Canon/

Even as efforts were under way to educate the public and instill an awareness of the problem, in 1999 Central America's Pacific coast witnessed the sad scene of tens of thousands of dead turtles washed up on the beaches, dragged in by the tide.

Photo: WWF

Although it is not clear what caused this situation, all the evidence points to the fact that some commercial shrimp operations are failing to use Turtle Exclusion Devices (TEDs) in their operations. The TED is a cheap and simple technology, consisting of a grill that is installed inside the shrimp nets. It functions like a sieve, allowing small organisms, such as prawns to pass freely, but preventing the entry of larger creatures, such as turtles, which are safely kept out of the nets.

Despite the fact that in May of 1996 the United States imposed a unilateral worldwide embargo against countries that did not agree to use this technology, the verification mechanism to "certify" or "decertify" a country has proven to be weak and ineffective since it relies on a single annual inspection which is announced in advance. Moreover, the legal regulations and enforcement capacity of the Central American countries result in the measure to use TEDs not being applied rigorously. Offenders are seldom "caught in the act" and are even less frequently punished.

In the Atlantic Ocean, the incidental capture of sea turtles in shrimp nets is minimal. However, the insatiable market for turtle meat, and to a lesser extent for turtle shell, means that these species are being openly hunted in near industrial-level numbers. According to studies carried out in the region, during the past five years, Nicaragua, Costa Rica and Panama have sacrificed an estimated 15,000 to 20,000 adult Green turtles annually to supply the market with turtle meat. At the same time, as populations of Hawksbill turtles have been drastically reduced, there is still a large industry of turtle shell products in the region.

But beyond the promulgation of laws, the establishment of regional agreements and the use of control mechanisms by industrialized countries, the conservation of marine turtles requires investment in environmental education and continued efforts to generate public awareness. This is a task best accomplished by working with communities. In the long run, the survival of turtle nests will depend upon the people who live in nearby coastal communities.

Photo: WWF-Canon/ Meg Gawler

If we really want to save our marine turtles and ensure the long-term effectiveness of conservation measures, we must adopt regional measures to reduce large-scale hunting of the Green and Hawksbill turtles throughout the Caribbean. We must also reduce the unnecessary deaths of tens of thousands of turtles caught in the shrimp nets along the entire length of the Pacific coast, particularly

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The Situation of Mahogany in Mexico and Central America

By Julio C.

Photo: Archivo

At the initiative of the Central American Commission for the Environment and Development (CCAD) and PROARCA/CAPAS, the Tropical Scientific Center (CCT) and a group of consultants from the region conducted an evaluation of the current situation of mahogany (Swietenia macrophylla King) in an area from southern Mexico to Panama. The study considered a range of issues, including the availability of mahogany, the current legal and institutional framework, production and marketing, present state of conservation and the best options for sustainable management.

According to the study, the original area of distribution of mahogany in Mexico and Central America was 41 million hectares. It is estimated that until the middle of the last decade, 15 million hectares of forest cover still existed, equivalent to around 36% of the original distribution area of this species. In percentage terms, the countries where there has been an accelerated rate of loss of broadleaf forest containing mahogany are: El Salvador (81%), Costa Rica (84%), Mexico (76%) and Panama (74%). It is estimated that 4.3% of the original forest area and 11.5% of the present forests are now inside National Parks and other protected areas or reserves.

The data obtained in this study shows that, on average, 124,000 m^3/year of mahogany are harvested in Mesoamerica. Costa Rica and El Salvador have no commercial production because excessive exploitation has exhausted this resource. Panama still produces some mahogany but

CURRENT EVENTS

According to the average figures from Nicaragua, Guatemala and Belize, exports account for 67% of the total mahogany harvest. Some experts believe that the illegal harvesting of mahogany in the region is equal to the legal harvest or could even be double, depending on the changes in forestry policy.

With the exception of Costa Rica, most countries that exploit their broadleaf forests have focused on very few species, mainly on precious woods such as mahogany and cedar. On average, the commercial volume of the mahogany from these forests represents barely 5% of the total commercial volume of standing forest. However, the volume of the mahogany harvested is above 70% of the total harvest, which shows that the use is extremely selective and is based primarily on the commercialization of this species.

With a few exceptions, the primary industry - industry that processes the logs - does not have the types of saws suited to the felling of dense tropical woods, which partially explains why so few species are utilized. In addition, the primary industry wastes between 50 and 60 per cent of the yield and it has not so far encouraged the introduction of an appropriate number of other species in the market.

Most of the mahogany is exported as semi-processed timber, which is later used to manufacture products that reach the end consumers. For this reason, the semi-processed wood has very little aggregated value. For example, in Guatemala between 1988 and 1993, for every 5 m^3 of timber exported 4m^3 was semi-processed.

Photo: Archivo RFCA

The exploitation of mahogany in a sustainable manner is a difficult issue to tackle without discussing the question of sustainable management of natural broadleaf forest as a whole. This issue is a never-ending source of discussion, given the constant changes in management objectives and in the expectations of the different actors of the forestry sector. One very significant recent development is that people now appreciate the need to maintain the integrity of this ecosystem as a producer of goods and services.

Photo: Archivo RFCA

Nowadays, management plans take into account the important aspect of environmental services including protection of biodiversity, carbon-fixing, regulation of water resources and scenic beauty. Similarly, they now consider all the products of the forest including timber and non-timber products. Aside from technical and economic considerations, other dimensions that must be considered in defining forest and resource management objectives are the cultural and social aspects.

With so many considerations and objectives to respond to, it is an almost impossible task to ensure that the production of goods and services is sustainable in time and space, and also profitable for the forest owner.

For this reason, initiatives to regulate the use of the region's broadleaf forests should be based on a national and regional strategy to satisfy these objectives through a process of ordered land use, a planning instrument that takes into account, in an integrated way, all the aspects that affect the use of land. This strategy should be formulated within the vision of the Mesoamerican Biological Corridor, since this is the bridge of union that preserves the region's biodiversity.

However, we should also bear in mind that there are not sufficient documented experiences in the region to enable us to evaluate the sustainability of the management of broadleaf forests. The most academically-oriented initiatives have been promoted by some non-governmental organizations (NGOs) in Mexico, Guatemala, Honduras, Belize and Costa Rica, but the best approach to ensuring sustainability in forest management remains an inconclusive question. Given this uncertainty, one of the best options to guide the regulation of productive broadleaf forests is to apply the criteria and principles of forest certification, as promoted by the Forest Stewardship Council (FSC). These offer a way to maintain the

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What, where and when?

UNIVERSITY FOR INTERNATIONAL COOPERATION - UCI
LATIN AMERICAN SCHOOL OF PROTECTED AREAS - ELAP

MODULES FROM THE TRAINING PROGRAM FOR DIRECTORS / ADMINISTRATORS OF PROTECTED AREAS

MODULE 4: PROMOTING SUSTAINABLE DEVELOPMENT IN BUFFER ZONES AROUND PROTECTED AREAS: FROM CONFRONTATION TOWARDS ALLIANCES
Date: 6 November-7 December 2000.
Place: Costa Rica
Course Coordinator: Andrea Ballestero
Cost: $ 1700

Information on courses at UCI:

Andrea Ballestero
Director
Latin American School of Protected Areas - ELAP
University for International Cooperation
Tel: (506) 283-6464 Fax: (506) 225-1942
Email: elap-cad@uci.ac.cr
http://www.uci.ac.cr

CATIE

DIVERSIFIED MANAGEMENT OF NATURAL TROPICAL FORESTS
Date: 21 August - 22 September 2000
Cost: $3000

RURAL DEVELOPMENT BASED ON THE MANAGEMENT OF NATURAL TROPICAL ECOSYSTEMS
Date: 30 October - 24 November 2000
Course Coordinator: Gabriel Robles
Cost: $2000

Information on courses at CATIE:

Tropical Agriculture Research and Training Center (CATIE)
Training Department
Tel: (506) 556-6021 Fax: (506) 556-0176
Email: capacita@catie.ac.cr
http://www.catie.ac.cr

UNIVERSITY FOR PEACE

MANAGEMENT OF BUFFER ZONES IN PROTECTED AREAS
Date: Last trimester of 2000
Place: Costa Rica
Course Director: Jim Barborak
Cost: US$ 2,500.00

MANAGEMENT OF SOCIO-ENVIRONMENTAL CONFLICTS
Date: 2-18 October 2000
Place: Costa Rica
Course Director: Rolain Borel
Cost: US$ 2,300.00

Information on courses at the University for Peace:

Felipe Matos
Natural Resources
University for Peace
Tel: (506) 249-1072 / 249-1511/12/13
Fax: (506) 249-1929
Email: upazrena@sol.racsa.co.cr

World Conservation Prize is awarded to the Tri-national Alliance of Honduras, Guatemala and

Photo: Efraín Salgado

Since it was first established in 1974, the "J. Paul Getty" Prize has recognized outstanding achievements and innovative efforts to conserve nature worldwide. This prize is regarded as one of the most prestigious international environmental tributes and is awarded annually to institutions, individuals or organizations that have distinguished themselves in their contributions to conservation and the sustainable management of natural resources. The prize was created by businessman and philanthropist J. Paul Getty, and is currently awarded by his son and the Getty family. The winners of this prize, which is administered by WWF, receive the sum of US$100,000 along with public recognition for their efforts.

This year's prize was shared by two winners: the Tri-national Alliance of Non-governmental Organizations of the Gulf of Honduras (TRIGOH) and Professor Pan Wenshi, a Chinese conservationist. TRIGOH is a federation of 11 non-governmental organizations from Honduras, Guatemala and Belize that implements conservation initiatives in the Gulf of Honduras, an area shared by the three countries.

WWF-US President Kathryn Fuller explained the reasoning behind this selection. "What makes TRIGOH so deserving of the prize is the fact that its members have shown a unique ability to coordinate conservation actions that transcend the political borders of countries."

Miguel Cifuentes, Regional Representative of WWF in Central America, said that the Tri-national Alliance contributes to the region's overall development because it undertakes joint actions to promote the sustainable management of fisheries, the protection of threatened species, the development of ecotourism projects and the design of contingency plans for the prevention of disasters which could damage the natural resources in the Gulf of Honduras and in the Central American region in general.

WWF wishes to extend our congratulations to TRIGOH, whose efforts to coordinate actions across borders are helping to implement a shared vision for conservation and sustainable natural resources management in the Gulf of Honduras.

N E W S

Governments committed to coral reef

Photo: WWF - Fulvio Eccardi

On February 8th of this year, government representatives from Mexico, Belize, Guatemala, Honduras and from the Central American Commission for Environment and Developmment (CCAD) came together in Tulum, Mexico to receive a public recognition from WWF for their political committment towards the conservation of the Mesoamerican Caribbean Reef System (MACR).

The MACR is the largest coral reef system in the Americas, stretching over 700 km from the Northern tip of the Yucatan Peninsula in Mexico, including the barrier reef in Belize and extending out to the Bay Islands in Honduras. Given the high biodiversity and the unique habitats and species found here, this reef system and the associated coastal and marine habitats are considered a priority ecoregion by WWF. Ecoregions are large areas that frequently span several countries and which include similar habitats and biological processes that interact to support the life of many species.

The Tulum Declaration, signed in 1997, established the governments' commitment to conserve and sustainably manage the Mesoamerican Caribbean Reef System. In 1998, an ecoregional Action Plan was developed with the support of CCAD and several international organizations. This Action Plan is a valuable contribution for the conservation and adequate management of the reef's significant biodiversity. With their public declaration to conserve the MACR and agreement to implement the action plan, the four countries that share this natural treasure have assured a promising future for the entire reef system and its coastal zones. These actions have been recognized by WWF as a "Gift to the Earth."

Publications

WWF Central America has produced a number of publications. If you would like further information, please contact our office:

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Email: lcerdas@catie.ac.cr
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Available publications:

Lists of Fauna of Importance to Conservation in Central America and Mexico: Contains the lists of threatened species as declared by: Mexico, Guatemala, Belize, El Salvador, Honduras, Nicaragua, Costa Rica and Panama, together with the lists found in the CITES appendices.

The Carrying Capacity for Tourism of the Public Use Areas of the Guayabo National Monument in Costa Rica: This document presents a case study showing how a protected area may be effectively managed by considering the area's carrying capacity for tourism.

How to interpret natural and historical resources: A methodology to guide the efforts of park rangers and others who work in the field of environmental education, so that they can correctly interpret the natural and historical resources of a particular area.

Training for the conservation of natural resources in Latin America and the Caribbean: This publication is the result of a workshop organized by WWF Central America. It highlights the achievements of the training programs offered by different organizations in the region and analyzes the region's main needs in terms of strengthening its conservation infrastructure.

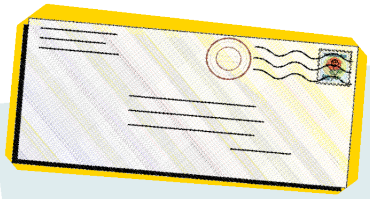
Measuring the Effectiveness of Protected Areas Management: This document describes a variety of methods that may be used to assess how efficiently the protected areas of different categories are being managed.

Previous editions of this magazine focus on the following themes and issues: the Mesoamerican Biological Corridor, Wetlands and Water Resources.

Letters from our readers

During these past months we have received many letters from our readers and we would like to thank everyone who has written to us for their comments and contributions. Your input helps us to improve our efforts each day!

We would like to share with you an excerpt from a letter we received from one of our readers in El Salvador. Like many other Central Americans, our friend Carlos Eduardo Peñate Moreira is worried about the irrational use of the Earth's natural resources and also wants to make sure that this precious legacy from our planet, which is becoming increasingly degraded, is properly conserved.



By Carlos Eduardo Peñate

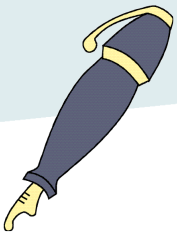
"I would like to thank you for sending me a copy of your half-yearly magazine. I found the last edition very interesting because it focuses on the problem of freshwater resources in Central America and your concerns about the need to conserve this resource. It would also be a good thing if El Salvador would show similar concern over this problem. The fact that we have an environmental commission does not mean that the government worries about it."

"The problem of water, as you say, is worldwide and our own country is suffering from the indiscriminate felling of forests. That is why there is a shortage of water everywhere."

"In the future, if we keep on wasting water indiscriminately, our wells will not be able to sustain the great demand for water in El Salvador."

"I am concerned about the place where my grandparents live, because even though it is a village, 50% or 60% of the inhabitants do not have potable water. Many of the water springs there have been polluted by the coffee processing plants and sugar mills. These companies should become more aware of the environment."

"El Salvador is afflicted by many environmental problems, and nobody does anything about it. I wish people would take stock of these issues but nobody wants to tackle the problems that exist. They just turn a blind eye to the situation or only worry about such things when it is time to elect presidents or deputies. And now that the elections here



Errata

In Volume 2, No. 2 of this magazine, the title of the poster in the centerfold should read, "Agalychnis callidryas" instead of "Agalychnis callydrias."

Useful Tips

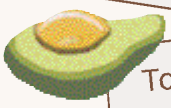
For thousands of years, different cultures around the world have used products made from various plants and animals – rhinoceros horn, whale fat and turtle cream - to enhance beauty and to maintain a youthful appearance. In some cases, the large demand for such products has led to the over-exploitation of species that are now in danger of extinction. In addition, many beauty products are tested on animals before they are put on the market. Here we give you some useful tips on how to make your own beauty products. Although they do not promise "eternal youth," at least they are not made from endangered species and do not need to be tested on animals.

A natural moisturizer to give your hair vitality and shine

Mashed avocado (purée) is an excellent conditioner for your hair and gives it a great shine. It is also a good moisturizer for the scalp. How to use it -- Once you have washed and rinsed your hair, apply a generous amount of avocado purée and leave it to soak in. (Maximum application time is 30 minutes.) Rinse your hair thoroughly and

Do you want to show off your curls?

If you want to "perk up" the natural curls in your hair, try using un-refrigerated carbonated water. First wash your hair and lightly dry it with a towel. Then sprinkle some carbonated water onto your hair. Your curls will look radiant



To enhance beauty and give your skin a youthful appearance

To smooth away wrinkles and remove or lighten skin blemishes caused by the sun, wash and dry your face thoroughly. Apply some mashed avocado to your skin. Leave it on for 15 minutes and then rinse your face with plenty of cold water. Avocado is an excellent natural skin moisturizer. It is also cheap and does not

Magic Aloe Vera provides effective relief for

Aloe Vera is a medicinal plant with many different uses. Among its many wonders, this natural healer is an effective cure for burns and scars. How to use it -- Cut off a leaf, place it in a jar of water and leave it in your refrigerator. When it is well chilled, remove the leaf from the jar of water and you will notice that the plant releases a kind of gel. This gel can be applied to burns on the skin or may simply be used as a moisturizer. You can also use Aloe Vera on

The paper used for this magazine can be recycled

WWF

Let's build a LIVING Planet

Sources: Gina Baker / Laura Cristina Cerdas P.

The Worldwide Fund for Nature, WWF, is one of the largest and most experienced independent conservation organizations in the world. It has 4.7 million members and a global

WWF's mission is to conserve Nature and ecological processes by pursuing the following objectives:

- Preserving the genetic diversity of species and ecosystems.
- Guaranteeing the sustainable use of renewable natural resources both now and in the long term.
- Promoting actions aimed at reducing pollution and the wasteful exploitation

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