

Dramatic Loss of Mexican Forests and Jungles

Jackie Buswell

The thoughtless destruction of forests now threatens the very stability of the planet, its water supply and the eventual survival of humankind. *Voices* reporter Jackie Buswell presents an article on the alarming rates of deforestation in Mexico, along with information on the poor quality and insufficiency of parks in Mexico City. In addition, we present a text written by the well known Colombian writer Gabriel García Márquez on the nuclear arms race, a theme of deep concern for humanity. Even though the super-powers have recently announced their intentions to make 50 percent reductions in their nuclear arsenals, the question still remains: What is the reason for the existence of the other 50 percent? And it is no secret that other nations, such as China, Brazil, India and Irak, have significant weapons industries, and work to develop nuclear capacities. This text by García Márquez, although written four years ago, is still a valid and poetic condemnation of man's impulse to destroy himself and his environment.

Trees are an ancient symbol of life, of the universe, of the eternal cycle of regeneration, they give us flowers, fruits, shade, clothing, shelter, color dyes, medicines, poisons, elixirs; their roots absorb the rain and pass the moisture down to valuable underground water reserves.

In ancient Greece, the olive tree was considered sacred, and anyone who damaged this tree was censured, while anyone who cut one down could be punished with the death penalty.

Robert Graves, in his book *The White Goddess* - where he renders tribute to the female deity and explains early connections between poetry, trees and the alphabet - complains in his introduction about man's lack of harmony with the family of living creatures among which he was born: "He has turned the house upside down by capricious experiments in philosophy, science and industry, and brought ruin on himself and his family. Nowadays' is a civilization in which prime emblems of poetry are dishonoured. In

which serpent, lion and eagle belong to the circus tent ... racehorse and greyhound to the betting ring, and the sacred grove to the sawmill."

More than forty years after that text was written, it is evident that all those trees in the sawmills signify overwhelming devastation for the planet's forests. It is well known, although perhaps not yet assimilated by the human conscience, that the green-house effect (warming of the planet due to excessive burning of fuels, to the loss of cool wet forests and to the destruction of the ozone layer) threatens an unpleasant future for humans on a hotter and dryer planet, along with the melting of the Arctic and Antarctic ice caps and the flooding of many major cities located on today's sea-level.

Mexico is one of the world's richest nations in native flora and fauna - along with Brazil, Indonesia and Colombia- with a great number and variety of species. There are more than 30 mountains in Mexico with an altitude above 2,000

meters, and this means that there is a large number of varied micro-environments, favorable for the development of diverse vegetation. For example, María de Jesús Ordóñez, of the National University's Ecology Center, says Mexico has forty species of pine tree and forty species of oak, and many kinds of corn. Yet she says that research on all of Mexico's existing species has not yet been exhausted - although many of these unknown species are now threatened with extinction.

Ms. Ordóñez -biologist, teacher and researcher of the UNAM- says it is difficult to calculate deforestation rates, as information on Mexico's forest resources is not complete nor up to date. In addition, the felling of timber is carried out illegally in many areas. She told *Voices* that there are various estimates of deforestation: at the rate of 400,000 or 500,000 hectares annually, while others calculate that from one million to 1.5 million hectares are converted annually to agriculture and grazing use.

Other researchers from the UNAM's Ecology Center, Julia Carabias and Victor Toledo, in a paper prepared for the now extinct United Socialist Party (PSUM) in 1982, reported that Mexico had lost 12 million hectares of pine and oak forest, and 26 million hectares of tropical rain forest "over the last few years".

Mexican territory is made up of 200 million hectares, of which 30 million are

suitable for agriculture, although only 22 million are currently dedicated to this activity.

Ms. Ordóñez says that if present deforestation rates continue, by the year 2000, Mexico will remain with only 25% of its original forests.

Other estimates are more pessimistic: for example a program called "The Jungle is Disappearing", prepared by TV UNAM in 1987, stated that only 5 to 15% of Mexico's vegetation remains unaltered by humans.

Tropical Rain Forests

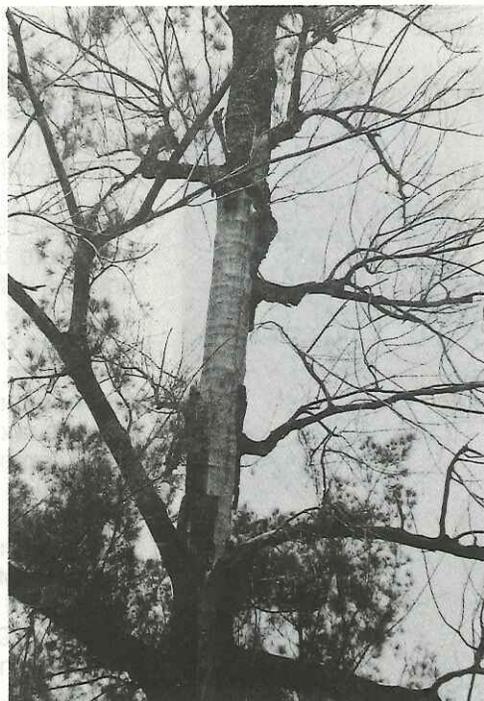
The south-eastern states of Veracruz, Chiapas and Tabasco are the most affected by ferocious deforestation over recent years, due to the excessive extraction of precious woods, and to the conversion of tropical rain forest lands to cattle grazing lands. Ms. Ordóñez says that "Chiapas has lost 53% of its jungle to cattle grazing and agriculture over the last ten years, and Tabasco has also lost 50% of its jungle for the same reason".

The biologist accused lumberers of "ecological vandalism": "They damage two-thirds of the rain-forest in order to extract one-third of the best trees: mahogany, ceiba, cedar; and they leave standing only the second-rate trees. This means that the forest will have great difficulty in re-establishing its ecological balance and natural beauty".

Sadly enough, an area with greater richness in resources is subject to greater exploitation and devastation: "Chiapas has 8,000 species of plants", says Ms. Ordóñez, adding that in one study, biologists found 300 species of trees in just one hectare of tropical rain-forest.

Tabasco and Veracruz today are suffering ecological havoc in those areas where the oil industry is flourishing: contamination of air, land and water, with subsequent loss of fishing waters and agricultural production.

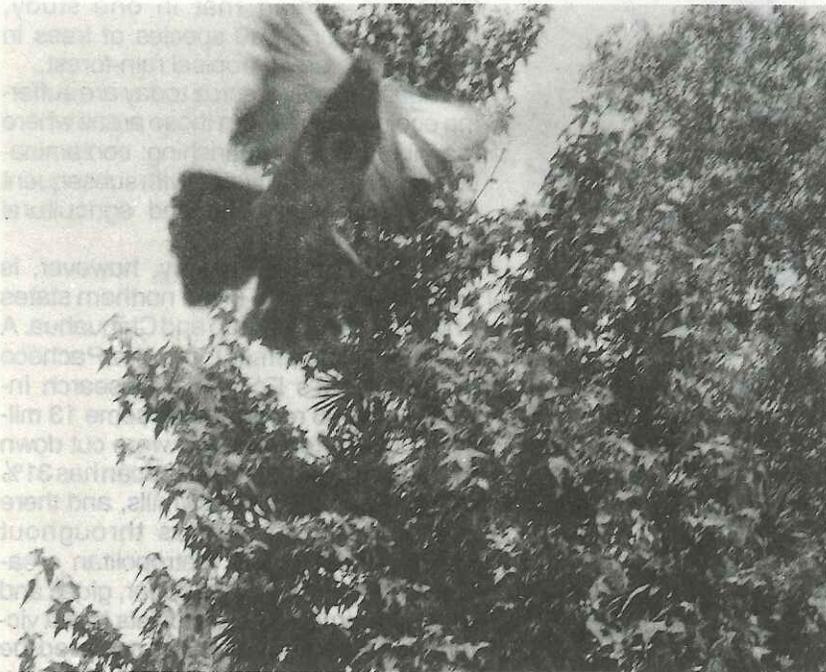
Mexico's timber industry, however, is traditionally located in the northern states of Michoacán, Durango and Chihuahua. A study by Cuauhtémoc González Pacheco of the UNAM's Economic Research Institute in 1985 reported that some 13 million cubic meters of wood were cut down that year. The state of Michoacán has 31% of the nation's 1,233 sawmills, and there are numerous factories throughout Mexico -even in the metropolitan area- where the processing of paper, glues and resins is carried out. Ecologists had a victory two years ago when they achieved the closure of a paper and cellulose factory near the archeological zone Cuicuilco in



23% of trees in Mexico City's parks are diseased.
Photo by Alejandra Novoa.



An attempt to give new life to a dead tree. Photo by Alejandra Novoa.



Smog is a common enemy for birds, trees and humans alike. Photo by Alejandra Novoa.

southern Mexico City, near the National University -this area has now been converted into an "Ecological Park", used by ecologists for discussion and diffusion of issues they consider important.

Finally, says the biologist Ordóñez, the pity of all this deforestation is that it has not even brought Mexico self sufficiency in food, or in paper, as Mexico imports some paper and increasing quantities of food, including its staple diet item, corn. Traditional agricultural techniques in Mexico typically consisted of production of corn, beans, pumpkin, squash and chile in the one plot, and this system proved efficient for enriching the soil, and provided a balanced diet at the same time. Today, Mexican fields are more often dedicated to single crop production, such as cultivation of flowers, strawberries and vegetables for export to U.S. markets. For example, in the area around northern Cuernavaca in the state of Morelos, those plots of corn, beans and pumpkin still seen ten or even five years ago, are not so common now: many areas have been converted into urban and semi-urban zones, and the cultivated areas are generally dedicated to the cultivation of a single crop: tomatoes. And single crop farming, according to agronomists, generally impoverishes the soil, and makes the producer dependent on the commercial success of that product in any given year.

Deforestation

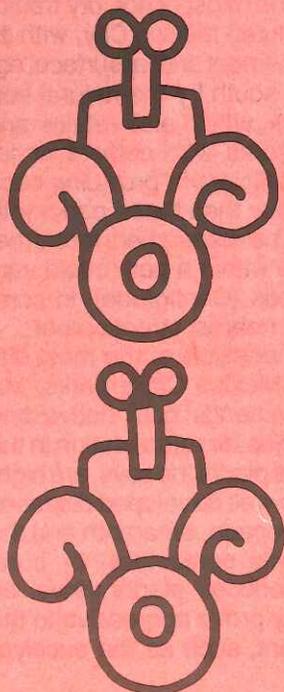
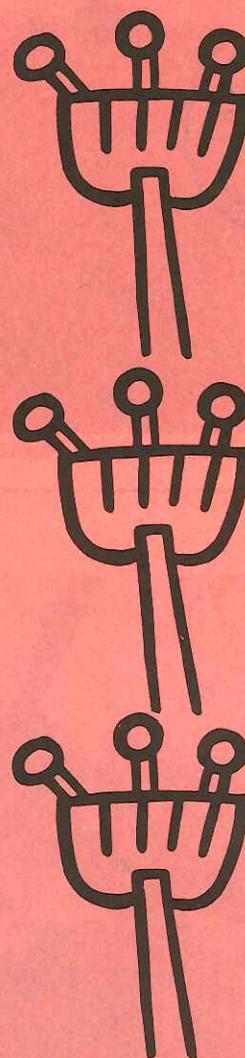
Mexico's deforestation, according to resarchers Carabias and Toledo, has meant that nearly 80% of the national territory presents problems of erosion (157 million hectares), while 16% of these present critical advances of desertification.

In their 1982 paper for the PSUM, they also state that of the 60 most important aquifers in Mexico, 30 are over-exploited and some are beginning to present problems of contamination. If Mexico is to have an assured water supply in the future, reforestation is an urgent priority, as trees and forests play an essential part in the captation of water.

An even more pessimistic view on Mexico's ecological balance was presented in a paper prepared by the Association of Ecologists of Coyoacan for Earth Day 1990: "By 1989 Mexico had lost more than 95% of its tropical rain-forests, more than half of its deciduous forests and woodlands, and more than two-thirds of its mixed pine-oak forests. Every year between 500,000 and 750,000 hectares of tropical eco-systems are destroyed...

RECOMMENDED FOR PLANTING IN MEXICO CITY PARKS

palm tree	Washingtonia robusta	evergreen
Jacaranda	Jacaranda acutifolia	deciduous
bamboo	Bambusa arundinaria	evergreen
ahuehuete	Taxodium mucronata	evergreen
palm tree	Phoenix canariensis	evergreen
celtis	Celtis occidentalis	deciduous
peach tree	Prunus persica	deciduous
cedar	Cupressus lindleyi	evergreen
privet	Ligustrum lucidum	evergreen
yucca	Yucca elephantides	evergreen
eucalyptus	Eucalyptus sp.	evergreen
pine tree	Pinus teocote	evergreen
pepper tree	Schinus molle	evergreen
liquidambar	Liquidambar styraciflua	deciduous



OTHER PLANTS

cotoneaster	Cotoneaster pannosa	deciduous
bougainvillea	Bougainvillea spectabilis	evergreen
truena venus	Cuphea hyssopifolia	evergreen
veronica	Veronica traversii	evergreen
box arrallan	Buxus sempervirens	evergreen
fern	Nephrolepis exaltata	evergreen
and others.		

SOURCE: Victor Barradas, Ecology Center, UNAM.



"We want green areas". Photo by Alejandra Novoa.



A tree ... or a post... it's all the same to this merchant. Photo by Alejandra Novoa.

"It is estimated that in our country some 160 bird species, 130 mammals and numberless other vertebrates will disappear during the 1990's."

Mexico City

Meanwhile, in the nation's capital: inhabitants have an average of only 3.1 square meters of green area per person, in contrast with the 10 square meters per person recommended by the World Health Organization, according to biologist Victor Barradas.

Besides, these green areas are poorly distributed among the 16 delegations, or political sub-divisions of the city: two forests, Chapultepec and Tlalpan, provide 10.76 and 12.11 square meters of green area per resident in those areas, while the zone of Azcapotzalco, which hosts an oil refinery and many other industries, has only 0.97 square meters per resident. On the other hand, Azcapotzalco has many trees, 75% of which are planted in the streets, and only 6.5% are in public parks.

These figures were provided by researcher Victor Barradas, of the UNAM's Ecology Center, co-author, with Rocío J. Seres, of a study on Mexico City's green spaces. They concluded that the city's parks are insufficient and of poor quality, with many of their plants diseased.

In a survey of trees in several parks in the southern part of the city, they observed that 30% had been "damaged by humans" or vandalized, 23% were diseased, 44% were healthy, and 3% were dead.

Ecologists here describe parks as "cool, wet islands" in the midst of hot, dry traffic-intense and polluted Mexico City, with its heat-reflecting cement and tar surface, aggravated in the south by the natural surface of lava rock, which also retains and reflects heat. Parks with cement or tar paths are less efficient in providing coolness and humidity than those parks with earthen paths. The researchers found that the temperature within a park could vary by 3 to 5 degrees (Centigrade), in comparison with the nearest street corner.

Following his analysis of the most diseased trees in Mexico City's parks, Mr. Barradas recommends both native and introduced species for reforestation in the city. Some native plants, he says, are highly susceptible to well developed diseases - such as the avocado, amaranth and the *colorín* (*Erythrina coralloides*) or coral tree. Some introduced plants thrive, although they may prove aggressive to the local environment, such as the eucalyptus.

Gradual Replacement of Trees

The green leaves of a plant consume carbon dioxide and produce oxygen, filter air and water, and absorb dust, while the trunks, branches and leaves of trees can absorb heavy metals such as lead. The capacity of plants to do this varies according to the species, its age and the health of the tree; deciduous trees can only filter and absorb dust during the summer, but their advantage lies precisely in that each spring they have fresh new leaves ready to absorb the summer's dust and carbon dioxide.

But it is in winter when Mexico City experiences its most dramatic pollution problems; evergreen trees are therefore

necessary to filter pollutants in this season, but they will obviously suffer deterioration. Mr. Barradas has found that the maximum photosynthesis of a silver fir is reached at its 30 years, after this, its production of oxygen diminishes, as well as its utility in aiding Mexico City residents to breathe better air. Barradas recommends - a little sadly and ironically, because this recommendation implies a utilitarian viewpoint of the former "sacred groves" of ancient trees - "it appears that the most sensible thing to do is to replace old trees little by little and systematically, and thus the city could become a source of timber and at the same time provide us with the maximum amount of oxygen possible".

Mexico City authorities carried out a reforestation program in June, providing one million trees which were planted and are to be cared for by citizens. The program was entitled "A tree for every family". ■