

The Sierra Gorda Biosphere Reserve



Elio Montiel

Mexico is one of the world's 12 megadiverse countries, which concentrate 60 percent of the planet's species of flora and fauna. The country's varied topography holds important natural treasures of incalculable beauty and biological wealth. From the high perennial humid jungles of the Southeast to the hot deserts of the North and from the mangroves of the gulf coast to the mountain cloud forests of the highlands, most of the world's most attractive ecosystems can be found in the almost two million square kilometers of Mexico's territory.

To protect its natural patrimony, Mexico has decreed the existence of 127 natural protected areas divided into six different categories. The most important is the biosphere reserve. These spaces for life are the Earth's last natural sanctuaries, places where human activities have not significantly changed the natural surroundings. The United Nations Educational, Scientific and Cultural Organization (UNESCO) program "Man and the Biosphere" (MaB) recognizes these reserves whose importance to nature makes them a hope for channeling human activities in harmony with the

A Natural Sanctuary in the Heart of Mexico



Elic Montiel

conservation of natural resources. Biosphere reserves are designated by national governments and must comply with three basic functions to be classified as MaB reserves:

- 1) *Conservation*. Contributing to the conservation of the landscape, ecosystems and genetic diversity.
- 2) *Development*. Fostering socially, culturally and economically sustainable economic and human development.
- 3) *Research*. Providing support for research, monitoring, education and information about

local, national and international matters related to conservation and development.

The Sierra Gorda Reserve has uniquely combined well preserved, important and varied biological wealth in large tracts of land and a rank-and-file, community level civic movement dedicated to the protection and sustainable use of the region's natural resources. Fourteen years of efforts by local inhabitants and authorities and the Sierra Gorda Ecological Group bore fruit in 1997 when the Sierra Gorda was declared a biosphere reserve, making it the first natural

protected area in the country that issued from public pressure to conserve natural resources.

Located in the heart of Mexico, in northern Querétaro, the Sierra Gorda Biosphere Reserve covers 383,567 hectares, with 100,000 inhabitants in 698 communities. Two areas were established in the reserve: the buffer zone, covering 358,764 hectares, where the communities and economic activities are located, and 11 areas called “nuclei,” that cover 24,803 hectares, or

The Sierra Gorda Biosphere Reserve has been considered the forerunner of the implementation and execution of a participatory model of operating Mexico’s natural protected areas, bringing together community participation, organized civil society through the Sierra Gorda Ecological Group, local authorities, support from the federal government through the Reserve Office and the active collaboration of national and international organizations.



Daniel Munguía



Daniel Munguía

The Sierra Gorda’s ecosystems and life forms are practically unexplored.

6 percent of the total surface. These are the most important areas for conservation due to their biological wealth, because they are home to endemic, endangered species of flora and fauna and even ecosystems that are rapidly disappearing in the rest of the country, like the mountain cloud forests. In these areas, the only human activities permitted are the preservation of ecosystems and their elements, scientific research and environmental education, and any use of the ecosystems that might alter them is limited or forbidden.

AN ECOLOGICALLY DIVERSE REFUGE

In March 2001, these efforts to promote conservation and sustainable social development were recognized by the UNESCO, which included the reserve in the World Network of MaB-UNESCO Reserves, making it Mexico’s most recent MaB reserve. The region is situated in the transition area of two bio-regions: the nearctic and the neo-tropical. Its scenically beautiful, irregular topography makes for craggy mountains 3,300 meters high and deep valleys only

300 meters above sea level. The humid winds blowing from the Gulf of Mexico hit the high mountains, causing wide variations in precipitation, which ranges from 1,500 millimeters to 313 millimeters a year. For all these reasons, the Sierra Gorda is an important biological corridor. Such diverse animal species as the black bear (*Ursus americanus*), a nearctic breed, and the military macaw (*Ara militaris*), a clearly neo-tropical species, may live in the same forest.

This is truly an outstanding feature because few people imagine that in Central Mexico it is still possible to find such pristine tranquility on land where Man has not significantly altered the environment, land that is now protected.

Among the protected nuclei are some unique areas such as the Sótano del Barro nucleus, which protects a geological formation in which the carstic formations and the process of collapse has created one of the great natural won-



Daniel Munguia



Daniel Munguia



Daniel Munguia



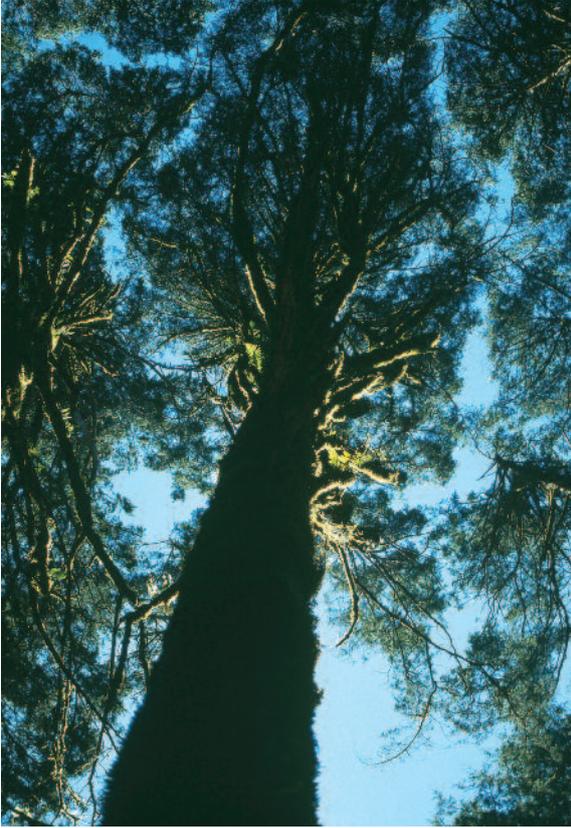
Daniel Munguia

When Nature feels confident, its exuberance knows no bounds. "The Jewel of Ice," part of a nucleus area.

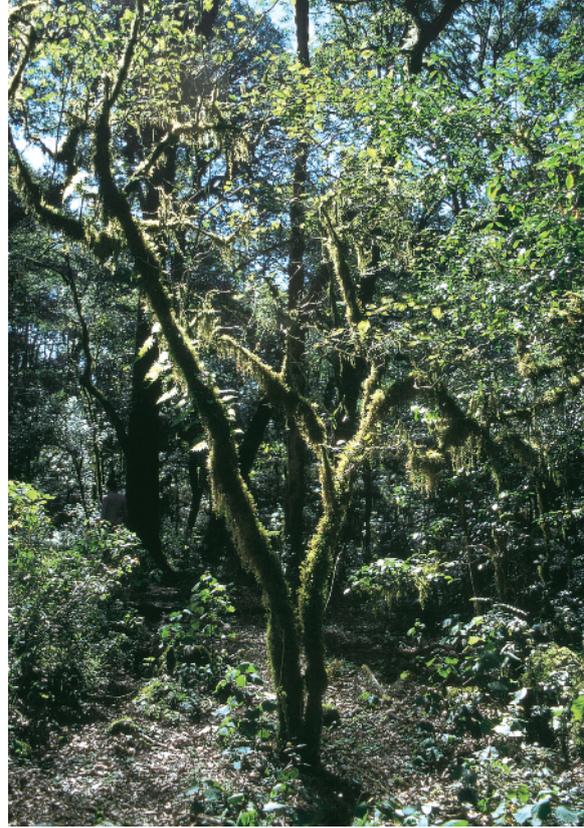
The broad ecological diversity of the Sierra Gorda puts it at the head of the list of all the country's natural protected areas, with 14 different kinds of vegetation: xerophytic thickets in semideserts, temperate coniferous and holm oak forests, the last mountain cloud forests in its most humid areas, gallery forests on river banks and tropical forests with plants that go from caduceus and sub-caduceus to evergreen. The only ecosystems missing are those of the coastal regions and the high mountains.

ders of the Americas. This sink hole has one of the deepest vertical shafts in the world measuring 410 meters straight down. It is also the nesting and resting place for the last flock of 60 to 80 military macaws who make their home in a very broad region in the center of the country.

It also has the largest caduceus low forests of all the country's natural protected areas, covering almost 145,000 hectares. This ecosystem exists only in Mexico and Central America, where it has been senselessly reduced due



Daniel Munguia



Daniel Munguia

Querétaro's Sierra Gorda contains one of Mexico's last mountain cloud forests.

to the spread of agriculture. It contains several endangered species like the jaguar, the wild boar (*Pecari tajacu*), the pheasant (*Crax rubra*), the white-tailed deer and the *tigrillo* (*Leopardus pardalis*). Large parts of this ecosystem are protected in the nuclei of the Santa María and Ayutla Rivers.

The Sierra Gorda Biosphere Reserve is one of the few places in the country where Mexico's six species of felines can all be found: the powerful jaguar, the mountain lion and four smaller species, the coveted ocelot, the bobcat, the *jaguarundi* (*Felis yagouaroundi*) and the *tigrillo*. Only two of the six species are not officially classified as endangered, despite the fact that they, too, are intensely hunted: the mountain lion and the bobcat.

Among the 1,800 species of flora registered at the reserve, 27 are endangered, some of which are real treasures: two species of magnolia, seven species of *cicadas* (*Ceratozamia mexicana*), red

and white cedars, the *granadillo* (*Taxus globosa*), the *guayamé* (*Abies guatemalensis*) and the *aguacatillo* (*Litsea glaucescens*), in addition to cacti like peyote and the giant barrel cactus. All these species and more are endangered because of the pressure of human activities that cause the loss or change in their habitat, the irrational extraction of some species and overgrazing by goats and cattle.

Nature has been generous in the mountains of Querétaro's Sierra Gorda and, today, its inhabitants and government officials, aware of the value of keeping their streams and rivers clean, their forests and deserts healthy and their flora and fauna abundant, join together in a project to conserve the country's greatest biodiversity and at the same time establish the basis for the sustainable development of the Sierra Gorda Bio-region, that small green corner of the planet that the local people work to protect. ■■■