

Saving Endangered Species In Mexico City's Chapultepec Park

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In the chronicles of the discovery and conquest of New Spain, stories abound about the biological riches in the extraordinary central region of what is today Mexico. In his letters to Emperor Carlos V, Hernán Cortés described in detail how when he arrived at Tlaxmacas (or Cortés Pass, as the lowest point between the Popocatepetl and Iztaccíhuatl Volcanoes is today known), he witnessed a sight he could hardly forget: in the distance, at the bottom of that hydrological basin was one of the country's most beautiful regions, rich in flora and fauna. There, five shallow lakes, the Zumpango, Xaltocan, Texcoco, Chalco and Xochimilco Lakes, covered more than 150,000 hectares, mixing crystalline waters with others covered with aquatic plants like tules or cattails, *ninfas* and *papas de agua*, a kind of wild potato. Ducks, herons, tortoises, *ajolotes* and fish were also plentiful.

In the center of the lakes was Tenochtitlan, the capital of the Aztec Empire. Down through the centuries, it was to become one of the largest, most highly populated metropolises on the planet. Today, Mexico City covers 100,000 hectares and has 20 million inhabitants.

The environmental impact of the city's growth has been devastating. The lakes, their fauna and their flora gradually disappeared, devoured by cultivated land and the advance of the city itself. In the twentieth century, enormous works of infrastructure, like the deep drainage and the grand canal, built to avert flooding, put an end to the last vestiges of the lakes.

That silent crisis went almost unnoticed, even for scientists. Among the most profoundly affected species were the fish and the reptile known as the *ajolote*. Two types of *ajolotes* (*Ambystoma mexicanum* and *A. velasci*), frogs (*Rana tlaloci*), and several kinds of fish including the white fish or shortfin silverside (*Chirostoma humboldtiana*), the mesa silverside (*Chirostoma jordani*), chubs (*Algansea tincella*, *Evarra eigenmanni*, *E. thahuacensis* and *E. bustamantei*) and *mex-*



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Photos courtesy of the authors.



clapiques or the Chapultepec goodeid (*Girardinichthys viviparus*) all lived in the lakes. All these species were widely used for human consumption; some, like the *ajolotes* and white fish were especially valued for their exquisite flavor. Today, that kind of frog and three chubs of the *Evarra* genus, native to Chalco and Xochimilco (one of which was scientifically discovered only in 1957), are already extinct. The white fish and the spottail chub (*A. tincella*) disappeared from the region, although they survive in other regions of the State of Mexico and Michoacán. The other species can be found in isolated groups throughout the whole valley, besieged by advancing urbanization, the introduction of other species and exotic diseases and pollution. When will they be an item for the history books? Like that of other species, will their disappearance go unnoticed?

Despite this difficult situation, the end of the story still has not been written. Part of that story, an example of nature's plasticity, adaptability and vitality, is unfolding in the heart of Mexico City, in the Chapultepec forest park. This is the city's most famous park because it was the scene of a very important part of the country's history: here, the Child Heroes fell to their deaths as they defended the last bastion of resistance against the U.S. invasion in

the battle of September 13, 1847. Also, for more than 400 years, a considerable part of the city's water came from springs located here, springs that formed a great lake.

Chapultepec welcomes more than 7 million visitors a year, which is why we were very surprised recently to learn that it was still home to an interesting number of the species that originally lived there. Who would have imagined that in its forests, practically isolated from other green areas, you could still find more than 100 species of birds and some mammals like the ringtail cat, the opossum and squirrels, despite the racket of the thousands of cars that speed along surrounding streets? What other secrets does this ancient forest hide?

It was even more surprising to find endangered aquatic organisms, vestiges from better times, in Chapultepec's lakes, whose water is of very low quality because it is contaminated with sewage and garbage. This is good news for conservationists because it implies that even in landscapes dominated by human activities it is possible to preserve a fraction of the original biological diversity, sometimes including endangered species.

The aquatic species were rediscovered at the beginning of a project under the aegis of the park's management, which included, among other things, the conservation and restoration of Cha-

pultepec's flora and fauna. The project, headed up by Juan Cruzado, began in late 2004 and is expected to end in mid-2005. Its basic aim is to reverse the dangerous conditions of the lakes, which have deteriorated because of decades of intensive use and scant maintenance, to ensure the survival of their native species.

Emptying tons of garbage and mire from the bottom of the lakes, a technically complex task, necessitated the temporary removal of the aquatic fauna. This revealed that there continue to be populations of mesa silverside, *mexclapique*, Mexican *ajolote* and *acocil de Moctezuma* (*Cambarellus montezumae*), a kind of crayfish. These species are endemic exclusively to Central Mexico and today they live in very few localities, making them critically endangered. The mesa silverside also reproduces in other Valley of Mexico lakes like the Xochimilco and the Nabor Carrillo. The *mexclapique* has fared better and can still be found in shores, dams and some lakes. The *ajolote* can only be found in Xochimilco and, as we now know, in Chapultepec. The probability of these species' extinction is directly linked to the number of localities in which they are found, so rediscovering them in Chapultepec and the efforts to improve their habitat provide hope that they may live for a long time. How long will they con-

tinue to live in these lakes, safe from urban growth?

Fortunately, what happened in Chapultepec is not the only example. As mentioned above, other urban and suburban parks are the refuge of a considerable part of the flora and fauna of the region, which includes endangered endemic species. For example, the Nabor Carrillo, Xochimilco, Zumpango and Tláhuac Lakes and Canals provide refuge to thousands of migratory aquatic birds, fish and *ajolotes*. The El Pedregal ecological preserve, an area covering about 140 hectares in the National Autonomous University of Mexico's University City, is still home to 20 species of mammals like gray foxes, ringtailed cats and spotted skunks, as well as hundreds of species of birds, reptiles, amphibians

and plants. Worth noting, for example, is that this is the only place where a small cactus, *Mammillaria sanangelensis*, continues to exist tended by man and which conservationists are trying to reintroduce into the Pedregal preserve.

On this cold afternoon, we are looking at a small artificial pond in Chapultepec's children's recreational area where we have put more than 15,000 of the two species of fish. It is incredible that in this tiny space, so many fish can be held without being visible to the casual observer. In a few weeks, after the lakes have been dragged and cleaned, they will be returned there. Soon it will be dark. The last rays of light fade away. We walk slowly away from the pond amid the construction materials and the dust, holding onto the hope that the pro-

ject will be successful. Looking at the restored lakes, the city lights and the chaotic noise of the heavy traffic seem to be a different world. Soon it will be dark. We hope it will never be too dark to shed the light of life on these forgotten species. ■■■

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FURTHER READING

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