Hurricane Otis in Acapulco

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The garden, founded 22 years ago by a group of 32 women, is the first six-hectare urban forest in the city, providing it with a beautiful space for plant conservation, propagation and environmental education. It has a collection of 1,600 plants, 85 families, 264 genera, and 423 species.

In the early hours of 25 October 2023 the 850,000 plus inhabitants of Acapulco, on the Pacific coast of Mexico, suffered the consequences of climate change. In just a few hours, high temperatures in the Pacific changed a tropical storm to a Category 5 hurricane, with wind speeds of over 165 miles per hour. Never before had a hurricane of this magnitude hit the coastal state of Guerrero.

Its terrifying destructive forces severely damaged most buildings, causing a tremendous loss in all the vegetation of the subtropical deciduous forest in the surrounding mountains. The garden lost about 70% of its trees, there is no shade and unfortunately only a few of the very old trees are left. The preliminary report after Otis showed that 353 trees, 104 species from 41 families were lost. The families most affected were the Arecaceae, Fabaceae and Moraceae. It is too early to complete an analysis of the causes, which include wind strength, weak roots, damage from trees falling on each other, and tree age, but once

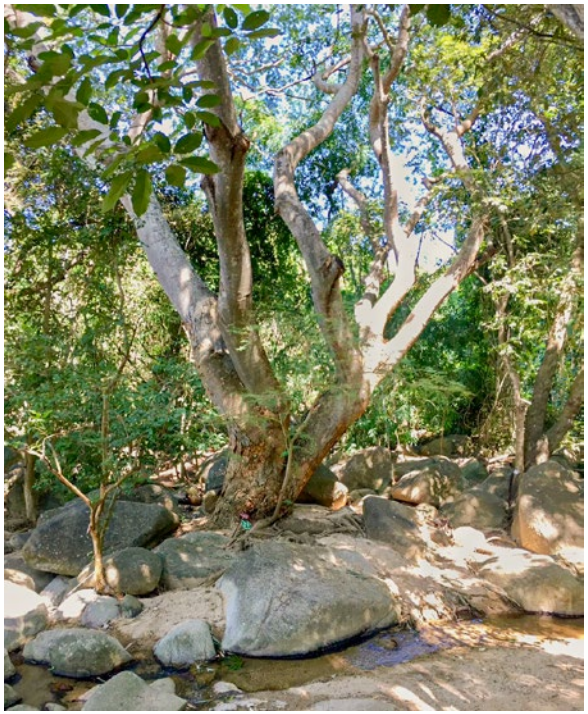
Mature *Enterolobium cyclocarpum*, one of many large trees brought down by the wind. The damaged buildings at the back housed the administrative offices and audiovisual classroom; the open metal structure of the elevator tower (right), allowed it to survive the onslaught.

all the data are gathered we will have a clearer understanding of which trees have better resistance. Among those lost are *Acacia paniculata, Aspidosperma megalocarpon, Astronium graveolens, Bursera simaruba, Carica mexicana, Ceiba pentandra* (kapok tree), *Enterolobium cyclocarpum* (parota, guanacaste), *Genipa americana, Heliocarpus pallidus, Lysiloma acapulcense* and *Peltogyne mexicana*.

Weeks went by before the garden paths were safe to use; the enormous number of fallen trees and branches, and the destruction of our installations (electrical, plumbing), roofs, concrete stairs, and even ponds was sad to see. The Mexican Association of Botanic Gardens contacted us and offered their help, as did many universities and environmental agencies, but where to start?

The residents of Acapulco were struggling to get food and water, communication was erratic and on top of everything the dengue mosquito attacked with fury, making people afraid to go near green areas. The remaining collection of plants was drying up and we could not get water from our well and water treatment plant because it took over eight weeks for electricity to be restored.

Obtaining a solar submersible pump was impossible as there were no couriers entering the city. Thankfully, volunteers came to the rescue, bringing private trucks, pumps, chainsaws and many extra hands to clear the paths and water the plants with whatever utensils they could find. The first gardeners were sent from the Puebla University Botanic Garden. The plan of action was firstly to clean up, secondly to assess the damage and then to begin restoration. With the city in a state of emergency this was far from easy; every step took a lot of time and supplies and labour were difficult to find. Locating 'mother plant' specimens that could provide seeds was a priority in order to start a nursery and collect germplasm (genetic material for conservation, as stored in seed banks, for example) for the restoration process.



Large *Enterolobium cyclocarpum* in the garden before the hurricane. A fast-growing member of the Fabaceae, the tree is valued for shade, and for the quality of its wood, which has good water resistance and an attractive grain.

The seeds are used to make jewellery, eaten as a snack and ground for flour; their pulp is used to make soap, while the gum from the bark is used medicinally to treat respiratory disorders.

Native to Mexico, it grows below 800 m in coastal areas. Wild populations have declined greatly in the last 10 years due to felling for the furniture industry without sustainable management.

The entrance to the Bromeliad collection, where two *Sterculia apetala* (Malvaceae, national tree of Panama) fell down, causing much damage. A medium-sized *Zuelania guidonia* was affected by the impact. The palm *Latania lantaroides* lost some fronds but escaped being crushed.

However, spirits soar when new sprouts and signs of life show up on fallen trunks, and patches of green appear in scattered areas. The vigour and resilience of nature gave us much encouragement and we planned to open a path for visitors in January 2024. It is part of the new role of botanic gardens to raise awareness of the climatic risk we are facing and how to give nature a hand to restore its balance. They need to strengthen global networks to establish sources of germplasm reservoirs of resilient species required to restore natural habitats. It is our legacy for future generations.

An account of the restoration of the garden will appear in a future yearbook.