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Report Shows Significant Reduction in Illegal Logging in Monarch Butterfly Biosphere, but Other Factors Decimated Butterflies Last Winter

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There was mixed news coming from the Monarch Butterfly Biosphere Reserve this past winter. On the positive side, the government's efforts to crack down on illegal logging in the habitat of this protected species have been extremely successful. But this bit of good news is countered by reports of unprecedented damage from winter storms in the ecosystem that hosts the butterflies. The storm damage, which some scientists say could be the result of global climate change, resulted in a record-low count for the number of butterflies reported in the habitat this past winter season. In the midst of the problems, there are some efforts to restore the butterfly's habitat, including a campaign by Fundación Telcel and other groups to plant hundreds of thousands of trees in an area of the biosphere that was damaged by severe storms during the winter months.

The efforts to protect the biosphere from illegal logging appear to have borne fruit ([SourceMex, December 12, 2007](#)). A report released by the Mexico chapter of the World Wildlife Fund (WWF) showed that only 1.5 hectares of pine and fir forest were lost to illegal logging in the biosphere during the past year, compared with the peak of about 461 ha reported in 2005. Strict enforcement of anti-logging laws and donations from private foundations and conservation groups to the communities that live within the reserve contributed significantly to reducing the area lost to illegal cutting of trees.

There is also increased awareness by the indigenous communities living near the reserve that protecting the forest is more important than any economic benefits derived from giving access to illegal loggers. "[Local communities] have come to realize that there are more benefits from preserving the forest, from promoting tourism, and developing tree nurseries than from cutting trees down," said Omar Vidal, Mexico director of the WWF.

The WWF worked in cooperation with the Fondo para la Conservación de la Mariposa Monarca (Fondo Monarca) to take aerial inventories of the habitat using digital photography. The Fondo Monarca is based at the Universidad Nacional Autónoma de México (UNAM) in Mexico City.

Extreme weather reduced butterfly numbers to record low

But the biosphere, which was designated a World Heritage Site in 2008 ([SourceMex, July 9, 2008](#)), might be facing a much greater threat from variations in the climate. Some scientists suggest that extreme weather patterns in the biosphere this past winter, including heavy rain, intense winds, and mudslides, might have been the result of global climate change. Unprecedented floods were reported this past winter in the states of Michoacán and México in February, typically one of the driest months in the region ([SourceMex, February 17, 2010](#)).

The aerial views show that severe weather damaged about 106 ha in the 13,550-ha biosphere in the most recent season, which runs from November to March. While the damaged area might not seem

very large, it compares with virtually no weather-related damage in previous seasons. Forest fires damaged another 9.3 ha of forests in the biosphere.

And the weather damage appeared to have been a major contributing factor in the significant decline in the number of monarch butterflies present in the biosphere this past year. Scientists do not count butterflies directly but measure their numbers by the amount of land they occupy during the winter. This year, butterflies were found on about 2 ha, the lowest area since records were first kept 17 years ago. In comparison, butterflies on average occupy about 5.6 ha in the biosphere each winter.

Felipe Martínez Mesa, a biologist who works in the biosphere, said many trees in the biosphere were weakened by extended periods of drought in central Mexico in recent years. The weak trees became more susceptible to insect infestations, which contributed to the damage in the butterfly's habitat.

Other scientists say factors north of the border, such as the use of pesticides, might also be a contributing factor in reduced butterfly numbers migrating to Mexico.

Global climate change worries scientists, environmentalists

Scientists generally agree that global climate change poses a threat to the monarch butterfly. "If atypical winter storms continue to appear in the area, the repercussions for the population of insects in the area could be significant," said Martínez Mesa. "It is here in Michoacán where the biological cycle of reproduction begins."

Similar warnings came from other nongovernmental organizations (NGOs). "We can say that extreme climate events will be more frequent and more intense," Juan Bezaury, Mexico representative for The Nature Conservancy, said at a press conference.

The concern about greenhouse emissions and their impact on global climate change is a topic that President Felipe Calderón's administration has taken very seriously. Mexico, which has made a strong push for sustainable forestry and reforestation ([SourceMex, June 10, 2009](#)), is scheduled to host the next round of talks on global climate change in December 2010 ([SourceMex, January 27, 2010](#)).

There are also some private efforts to address the problems related to the loss of habitat for the monarch butterfly. Fundación Telcel, which is associated with the Telcel cellular telephone company owned by Mexican billionaire Carlos Slim Helú, has supported a reforestation campaign for the biosphere for the past five years. This year, the foundation has joined the WWF and local communities to replant between 500,000 and 700,000 trees in the biosphere, more than 10 times the number thought to have been lost to weather-related problems during the past winter.

Organizers said they hope to complete the efforts on about 236 ha by the end of October to avoid any disruptions to the next seasonal arrival of the monarch butterflies in November. The seedlings will take 10 to 15 years to develop.

Marcela Velasco, Telcel's director of marketing, said 300 ha have already been restored, "with very good results."

Environmental advocates emphasize that efforts to restore and enhance the biosphere will benefit more than the monarch butterflies, since the ecosystem also supports 132 species of birds, 56 breeds of mammals, and 423 types of plants.

Velasco said the foundation is working with eight community groups to promote a series of projects connected to the biosphere, including cultivating seeds and mushrooms and creating handicrafts using local woods.

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