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Less Monarch butterfly presence and increased degradation in its hibernation forests

- **Monarch presence in Mexico's hibernation sanctuaries decreased by 26%.**
- **The degradation of temperate forests in 2020 in the Monarch Butterfly Biosphere Reserve is four times higher than in 2019.**
- **Climate change, land-use change and reduction of milkweed in their breeding places affect the lepidopteran migration process.**
- **Coordination between Mexico, Canada and the United States is needed urgently.**

MEXICO CITY - The presence of the Monarch butterfly in the Mexican hibernation forests decreased by 26% last December, occupying 2.10 hectares (*ha*) compared to the 2.83 *hectares* reported during the same month in 2019. Meanwhile, the core forest area in the Monarch Butterfly Biosphere Reserve (MBBR) where the lepidopteran establishes the main hibernation colonies recorded, between March 2019 and March 2020, 20.26 *ha* of degradation, four times more than in 2018-2019 when 5 *ha* were degraded, reveal two studies by the WWF-Telmex Telcel Foundation Alliance, in collaboration with the National Commission of Protected Natural Areas (CONANP) and the National Autonomous University of Mexico (UNAM).

In addition to the change in land use and the reduction of milkweed in their breeding sites in the United States recorded in recent years, climate change had a considerable impact on the Monarch's migration process. During the spring and summer of 2020, climatic variations in the southern United States were not favorable for milkweed blossoms and the development of eggs and larvae. This limited the reproduction of the Monarch population, with an impact on the migrant generation, reducing the population of this insect throughout North America and leading to a smaller population occupying the Mexican forests during its hibernation.

According to the colony monitoring report, during the second half of December 2020, nine Monarch butterfly colonies were recorded - two in Michoacan and seven in the State of Mexico - occupying 2.10 *ha* of forest. The monitoring report found that five colonies (1.32 *ha*) were within the Monarch Butterfly Biosphere Reserve (MBBR) and four (0.78 *ha*) outside of it, but still belonging to the Monarch Region. The largest colony (0.73 *ha*) was in the El Rosario ejido (Sierra Campanario sanctuary) and the smallest colony (0.01 *ha*) was in the San Joaquín Lamillas ejido; for the third time, the Ojo de Agua neighborhood (Peña Ahumada sanctuary) registered an occupation of 0.02 *ha*. The Atlautla colony, which is located outside the Monarch Region, in a community bordering the Iztaccihuatl-Popocatepetl National Park, occupied 0.08 *ha* of forest.

Jorge Rickards, Director General of WWF-Mexico, pointed out that, although this butterfly is not in danger of extinction, its migratory process is at risk, for which he urged the governments, the scientific community and civil society from Mexico, the United States and Canada to reinforce their tasks, each within its own field but with a common focus. "Monarch butterflies show us how individual work, in this case, migration, can become an exceptional collaborative exercise, when all these migrants gather in the forests to hibernate together and buffer the climate".

The analysis of forest cover in the MBBR also detected clandestine logging as the primary cause of forest degradation in the core area. The ejido of Crescencio Morales and the Indigenous Communities of Nicolás Romero and San Felipe de los Alzati suffered the greatest damage from this cause, with 6.71, 2.13 and 1.87 hectares respectively. The degradation also corresponded to the fall of trees by wind and drought and by sanitation activities, due to pest control activities.

Mexico, Canada and the United States are part of the Monarch's migration route and are aware of the major challenges it faces: i) the reduction of its habitat in the breeding sites due to the decrease



of milkweed in the United States; ii) land-use change in the United States and Mexico; iii) forest degradation in hibernation sites in Mexico, and iv). extreme weather in all three countries. Today's urgent call is to double-down on our efforts and work together to confront all the situations that threaten its journey and reproduction.

The WWF-TELMEX Telcel Foundation Alliance has collaborated with CONANP to monitor the hibernation of the Monarch since 2004, and joins the Institute of Biology at UNAM to analyze the changes in forest cover in the core area of the MBBR in order to have scientific data that support the implementation of conservation strategies to benefit the species, the ecosystems and local communities.

WWF has been measuring the forest area occupied by butterflies during their hibernation and monitoring the Reserve's forest for 17 years. It has also developed conservation strategies by promoting, monitoring and strengthening sustainable projects that include the participation and support from the communities.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) recognized the core area of the Monarch Butterfly Biosphere Reserve, which has 13,551 hectares protected, as a Natural World Heritage Site. The Reserve offers refuge to 132 species of birds, 56 mammals, 432 vascular plants, and 211 different fungi. The region's basins filter water into the Cutzamala System for over 4.1 million people in 13 municipalities of Mexico City and 14 municipalities of the State of Mexico, while generating oxygen.

About WWF

WWF is one of the largest and most experienced independent conservation organizations in the world. WWF was established in 1961 and is widely recognized for the panda symbol. It has a global network that works in over 100 countries. For more information: www.wwf.mx and www.panda.org

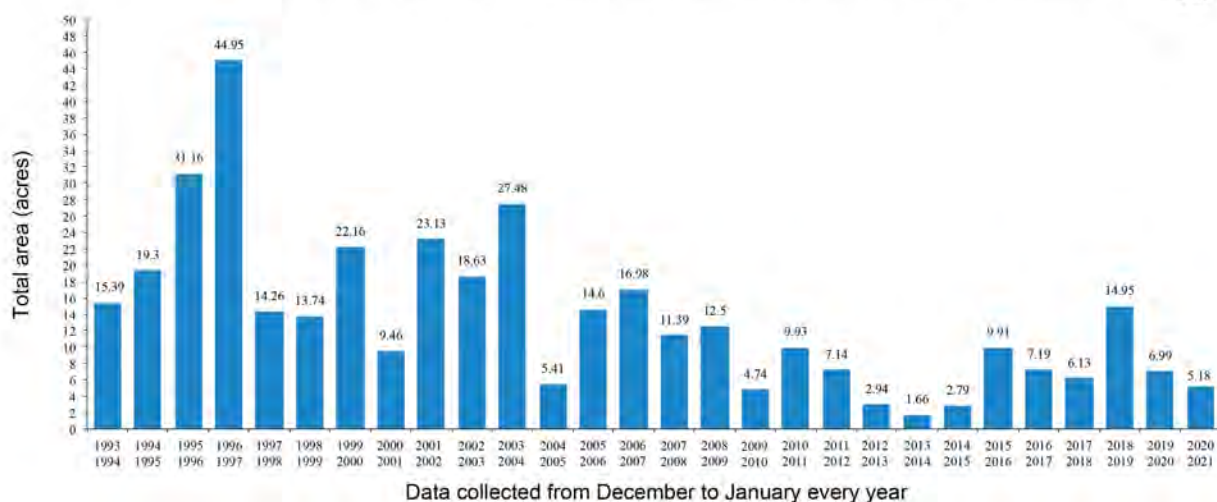
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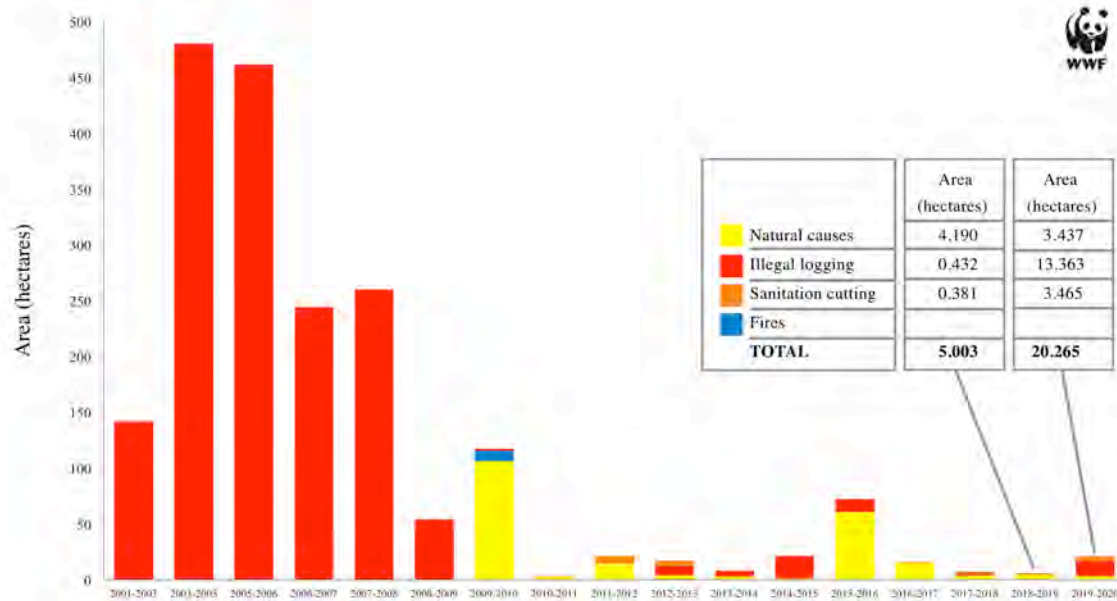
Hibernation colonies and occupied forest area during the second half of December 2020. E= Ejido, C. I.= Indigenous Community P. P.= Small Property, B. C.= Communal Goods, * No colony found

Location	State	Sanctuary	Colonies (Agricultural properties)	Area (ha)
Inside the Monarch Butterfly Biosphere Reserve (MBBR)	Estado de México	Cerro Pelón	E. El Capulín	*
			E. Mesas Altas de Xoconusco	*
			C.I. San Juan Xoconusco	0.07
			B.C. San Pablo Malacatepec	0.42
		Sierra Campanario	E. San Joaquín Lamillas	0.01
			E. La Mesa	*
	Michoacán	Cerro Altamirano	E. Contepec	*
		Cerro Pelón	E. Nicolás Romero	*
		Chivatí-Huacal	C.I. Carpinteros	*
		Sierra Campanario	E. El Rosario	0.73
		Sierra Chincua	Propiedad Estatal	0.09
			Propiedad Federal	*
			E. Cerro Prieto	*
			E. El Calabozo Fracción 1	*
	Lomas de Aparicio	E. Crescencio Morales	*	
Superficie ocupada dentro de la RBMM				1.32
Outside the MBBR	Estado de México	Cerro del Amparo	E. San Francisco Oxtotilpan	0.05
		Palomas	E. San Antonio Albarranes	0.43
		Piedra Herrada	E. San Mateo Almomoloa	0.28
		Peña Ahumada	E. Ojo de Agua	0.02
		Cerro de la Antena	E. El Potrero	*
	Michoacán	Los Azufres	P.P. San Andrés	*
		Mil Cumbres	E. Río de Parras	*
	Occupied area outside MBBR			
Total occupied area				2.10

Area of forest occupied by monarch butterflies hibernating in Mexico



Forest degradation in the Monarch Butterfly Biosphere Reserve core area (2002-2020).



Forest degradation in the core zone of the Monarch Butterfly Biosphere Reserve (2001-2020)

The Monarch's region includes the Monarch Butterfly Biosphere Reserve and seven other sanctuaries for North American migratory butterflies.

