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Huge monarch kill in Mexico

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Abstract
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A massive moisture-bearing weather system moved into central Mexico late on 11 January 2002, which was followed by clearing skies and overnight lows in the mid-to-low 20s on the mornings of January 14-16. Ten centimeters of rain fell followed by 5-10 cm of snow. Tens of millions of monarchs at the two largest monarch overwintering sites in Mexico died. The monarch mortality at one site was estimated to be 74 percent and at another site at approximately 81 percent. Approximately 60-70 percent of the total monarch population typically overwinters on these two mountains each year. Snowfall per se seems to be less of a factor in killing monarchs than the effect of wetting the butterflies combined with temperatures below 26°F.

The monarchs overwinter in fir forests high in the mountains west of Mexico City, where they form dense clusters in the forest with 10 million or more butterflies per hectare. The butterflies take flight on warm days, visiting flowers for nectar and damp areas for moisture but for the most part they are inactive and sustain themselves through the winter by metabolizing stored fat. The forests provide substantial protection for the monarchs and the temperature and moisture changes within the forest are modest compared with the changes that occur in cleared areas adjacent to the colonies. Degradation of the forests at colony sites is likely to break down this protection, leading to higher mortality and greater vulnerability of the clustered butterflies to the occasional snow or freezing rain. It is clear that monarchs require relatively intact forests to successfully overwinter. The challenge is to maintain the integrity of these forests when the economic conditions are such that the local landowners view the trees as a source of income. This again confirms the long-held view that it is the overwintering sites that hold the key to the continuation of the monarch migration in eastern North America.

Currently, the number and condition of the remaining butterflies are the most important issues. It is this remnant of the population that must survive the rest of the winter, and the return migration, to recolonize the summer breeding habitat in the United States. If the population is as low or lower than that of last spring, it could take the monarchs more than one season to rebound from the freeze of 2002.

I have two final thoughts. First, monarch populations will be down considerably this summer,
but don't blame Bt corn. Second, I walked into an Ames grocery store at noon on Easter (March 31) and there was a young girl holding a living monarch butterfly in her hand. Its wings were slowly flapping up and down. I was stunned at what she held in her hand and asked where she found it. Her mother replied that it was lying on the sidewalk outside. I don't know where it came from and I don't know what it means. It could be an unusual year for insects.

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