

Loggers Imperil Monarch Butterflies

Satellites show severe deforestation in a rare monarch butterfly overwintering site.

Recall the Ecology Disrupted curriculum learning goals:

1. Human daily life can disrupt ecological function leading to environmental issues.
2. Scientists can collect data to investigate human impact local ecology.

Students watch additional Science Bulletins videos to learn about how human daily life can affect ecological function, and to pull out the ecological principles. An introduction to the video and background information are provided below.

While watching the Bulletins they will complete a graphic organizer with the following questions:

1. How have people changed the habitat in this example?
2. Why do people change the habitat? How does it help us?
3. How do the habitat changes impact populations in this area?
4. How do you know that the habitat is being changed and that local populations are affected? Describe the evidence or data.
5. Suggest how to solve this problem.

Introduction

"Have you ever seen a monarch butterfly? They are beautiful and orange (if no one volunteers). They live in New York City and the surrounding area from the end of August into the beginning of September. Do you know that these butterflies migrate just like birds? We are going to watch another *Science Bulletin* like we did for the bighorn sheep when we began this unit. This one will be about the monarch migration. Get ready to fill out your graphic organizers."

Background Information

Biology: Monarch butterflies have a distinct orange and black pattern, and they are the only butterfly species that migrates north and south like species of birds. They fly all the way from Canada to Mexico.

Migration: Starting in August, Monarch butterflies found east of the Rocky Mountains begin migrating to an area in central Mexico. The Monarchs that fly south are different biologically than other generations of Monarchs because they are able to live much longer. The life cycle of Monarchs is usually 6-8 weeks, but the migrating generation lives for 6-8 months. These Monarchs go into a non-reproductive state called diapause, which allows them to make the long journey south and to survive the long winter months in Mexico. After the winter months, multiple generations successively make the journey north to the United States and Canada.

Importance of Overwintering Sites: The sites in central Mexico, 12 high-elevation Oyamel Fir forests, are extremely important because they keep the butterflies at an optimal temperature, a few degrees above freezing. This protects the butterfly. Too cold and butterflies die. Too warm and they use up their fat stores and will die without being able to reproduce and migrate north in the spring.

Impact of Loggers: Loggers in central Mexico have been illegally logging in some of these sites destroying the winter habitat of the eastern monarch butterflies. Without these trees the monarch butterflies will not be protected during winter, and there will likely be a large decrease in monarch butterfly populations because they are unable to reproduce.