



Unit 3 Section 1 Lesson 2: Migration Relay

Overwintering Monarchs

Handout 3

Monarchs west of the Rocky Mountains return to the California coast, where they roost in eucalyptus trees, Monterey pines and Monterey cypresses. Long ago, the Monarchs roosted in sycamores, too. But with the dramatic rise in southern California's human population, trees were cut to make room for shopping malls, freeways and houses, and the sycamores have almost disappeared. The remaining clustering sites lie in bays sheltered from wind, or farther inland where they are protected from storms. Scientists estimate that the California Monarchs make up about 5 percent of the overall worldwide Monarch population.

Monarchs east of the Rockies migrate each year to the Transvolcanic Mountains of central Mexico. Millions and millions of butterflies from the central and eastern Canadian provinces and the eastern and Midwestern United States fly south to Mexico. Their flight pattern is shaped like a cone, as they come together and pass over the state of Texas on their way south. In massive butterfly clouds, they sweep up into the mountain ranges of central Mexico. In 1975 the scientific community finally tracked down the wintering sites of the Monarch in Mexico. Until then, the Monarch butterflies' winter hideouts had been a secret known only to local villagers and landowners.

The sites the Monarchs use during the winter have particular characteristics that enable their survival. These characteristics are important because they provide the Monarch with the right overwintering conditions. Trees on which to cluster are one of the most important elements of the sites. The climate



Cluster of overwintering Monarchs on a fir branch

and the whole surrounding area are also important. Nearby trees, streams, underbrush, and fog or clouds all form an intricate natural ecosystem that is the Monarchs' winter habitat. These conditions are found in oyamel fir forests, which occur in a very small area of mountaintops in central Mexico. Overwintering sites are about 3000 meters (nearly 10,000 feet) above sea level, and are on steep, southwest-facing slopes.

In particular, the butterflies need a cool place. When they are cool, they don't metabolize, or use up, their energy reserves as fast. They also need to be protected from snow and winds. The surrounding trees serve as a buffer to the winds and snow. Because they also need water for moisture, the fog and clouds in this mountainous region provide another important element for their survival.

The butterflies choose spots that are close to but not quite, freezing. They cluster together,



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covering whole tree trunks and branches, and cling to fir and pine needles. The forest floor in the overwintering sites is covered with young trees, shrubs, lichens, and moss. When Monarchs fall out of the trees and are too cold to fly back up, they can sometimes crawl to the lower bushes to avoid predators. The tall trees make a thick canopy over their heads. Protective trees and bushes soften the wind and shield the butterflies from the occasional snow, rain, or hail. Fog and clouds settle on the Monarch groves. On sunny days, they often warm up enough to fly to nearby water where they will drink. They must fly back to the roost before getting too cold, and one can sometimes see them take off in flight, heading back to the roosts as soon as a cloud passes over.

Each of the above elements is important to the butterflies, and makes up the Monarch habitat - trees in which to roost, other trees and shrubs to protect them, the cool air, and the presence of water.

