The Seaside Goldenrod Planting Project

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"The butterfly…it goes where it pleases and pleases where it goes."
Anyone who has experienced the sheer joy of watching a butterfly waft gently from flower to flower can certainly appreciate the beauty of this delicate creature! Yet the butterfly, like all creatures, is driven by strong biological imperatives. The journey of the butterfly to fulfill its reproductive cycle can be a truly remarkable performance.

Take, for example, our own eastern population of the Monarch Butterfly. The migration and wintering biology of this insect, which weighs no more than a penny, has been called a "biological phenomenon". As part of its annual life cycle, some of these beautiful "flying flowers" make an autumn journey of 2200 miles, facing many perils along the way, to reach their winter sanctuaries high in the mountains of Mexico!

In our Mid-Atlantic region, Monarchs may have up to five broods or generations. The summer adult Monarchs live only two to three weeks. Only the adults of the last generation, which usually emerge in September, will migrate toward Mexico. These adults may live up to eight or nine months, dependent on wind/weather conditions and availability of host plants during their northward migration in the spring. Chincoteague National Wildlife Refuge(CNWR) is fortunate to be a stopover along the route for Monarchs migrating south from Canada and New England. Assateague Island is a critical point for Monarchs. They use the refuge's resources to rest, refuel, and roost for the night, using the blooming plants on the refuge to supplement or replenish depleted fat reserves. Our location is key. Intense development along the Atlantic Coast has depleted habitat and natural nectar sources for the Monarchs migrating south from New England. Monarchs traveling between Cape May and Assateague Island must fly over the narrow strip of urbanized sprawl of Ocean City where habitat is scarce, nectar sources are few, and wind buffers are lacking. It is very likely that the Monarchs will have to tap into their fat reserves during this leg of the journey south. CNWR, with its abundance of nectar sources and dense vegetation, can provide a welcome respite for a tired, hungry traveler!

For a 10 year period, from 1997-2006, the Chincoteague Monarch Monitoring Project was conducted in cooperation with the CNWR and the U.S. Fish and Wildlife Service. The primary researcher, Denise Gibbs, meticulously recorded census data, tagging results, feeding and roosting habits, timing of migration, and threats to the migrating Monarchs; she also recommended management actions for fall-migrating Monarchs on CNWR.

Some interesting findings from the study:
- On the best Monarch migration day, over 100,000 Monarchs were counted migrating low over the primary dune along the beach!
- During the 10 year period, the largest Monarch night roost at CNWR had over 30,000 Monarchs clustering in the branches of a wild black cherry tree.
- Migrating Monarchs tagged in the fall at CNWR were later recovered at the Florida panhandle and in the 10,000 feet high mountains of Mexico!
- The ideal weather conditions on the island for migrating Monarchs were full sun, North wind 10-15 mph, and temperatures in the 70's. The lowest temperatures at which Monarchs were observed migrating was 45 degrees.
- In most years, there were three peaks or "waves" of Monarchs. These waves occurred most often after the passing of a cold front. Over the 10 year study, the data showed the highest Monarch numbers during the fourth week of September and the first week of October.

The study reinforced the importance of CNWR in the Monarch's life cycle. It also offered a number of actions to improve Monarch butterfly habitat on the island and to increase the likelihood of a successful migration. One of the recommendations was to plant seaside goldenrod *(Solidago sempervirens*) to enhance areas where it already grows as well as in new areas that could support it. Seaside goldenrod is the most important nectar source for coastal fall-migrating Monarchs as well as other species on the refuge. Recommended planting areas were also given based on the data from the study.

Monarch nectar feeding sites vary from year to year based on weather conditions and other natural phenomenon that can affect bloom abundance or even availability of the plants favored by the Monarch. For example, fall hurricanes caused flooding and high tides, with the ocean washing over the dunes where the goldenrod grew. Plants were uprooted or killed by salt water. With some hurricanes, several feet of sand were deposited on top of the goldenrod. All of these scenarios are bad news for the Monarchs who were forced to continue their migration without refueling. There were a

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