

### Monarchs & OE

The protozoan parasite *Ophryocystis elektroscirrha* (OE) infects monarch and queen butterflies. It is an obligate parasite and requires a host to live within and to grow and multiply. It was first discovered in the 1960's infecting monarchs in Florida. Since then, it's been found in monarch populations across the world. It is thought that the parasite has co-evolved with monarchs.

There are three major populations of monarchs in the United States- one east of the Rocky Mountains that winters in Central Mexico and migrate north into the US and Canada; another west of the Rocky mountains that overwinters on the coast of California; the third population are non-migratory and can breed year round in areas such as Florida, Texas and Hawaii. All three populations are infected with OE.



Monarchs infected with OE will have spores wedged between the scales on their body, with the greatest concentration usually occurring on the abdomen. The spores are very small and require a microscope to see. The spores are lemon shaped and are brown to black in color. To check for spores, rub a piece of clear tape on the tip of the abdomen of the monarch and then look for spores under a microscope.

Female monarchs pass OE spores onto their offspring when they lay eggs. When the caterpillars emerge from the egg, they eat the egg shell and ingest the spores. When the spores reach the midgut of the insect, they break open and release the protozoan parasite. The protozoans move through the gut lining to the epidermis where they reproduce asexually (divides multiple times increasing the number of protozoans). In the butterfly chrysalis stage, the protozoans go through sexual reproduction (again increasing the number of protozoans). Spores form so the emerging

butterfly will be covered in spores. Spores can also be scattered onto milkweed from butterflies laying eggs or feeding on nectar and then consumed by caterpillars as they eat foliage.

Once the butterflies are infected, they do not recover. OE does not grow or reproduce on the adults. The spores remain dormant until they are ingested by a caterpillar.

Infected pupae have dark blotches 2-3 days before emergence. Adults that are heavily infected often have problems emerging from the chrysalis. Some may even die before emerging. Others that do emerge may fall to the ground before their wings are expanded and die quickly. Mildly infected adults may be smaller than healthy adults. The parasites can damage the cuticle of the insect and cause the insect to lose weight faster. Many infected monarchs look healthy, so the only way to determine infection is by looking for spores.

What can you do? Check monarchs for spores and destroy any you find that are infected. I know this seems harsh, but infected monarchs further spread the protozoa and kill more butterflies in later generations. Cut down milkweed several times per year to get rid of any possible spores that may be on the plants and to encourage new, healthy growth.

For more information or help with identification, contact Wizzie Brown, Texas A&M AgriLife Extension Service Program Specialist at 512.854.9600. Check out my blog at [www.urban-ipm.blogspot.com](http://www.urban-ipm.blogspot.com)

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