

# Raising Monarchs

This document is not a comprehensive tutorial on raising Monarchs, but a synopsis of the important things to be aware of. Monarchs are declining in numbers due to a number of reasons, although they are not on the U.S. endangered species list.

**Generations:** Monarchs go through 4 generations on their journey back and forth to their wintering grounds in Mexico. The first generation are the offspring of the overwintering monarchs. This generation, as well as generations 2-3 continue to lay eggs all across the US as they migrate up and settle around the country. Generation 4 are genetically different, as they will migrate south and not lay eggs until the next spring when they come out of their winter migration.

**Lifespan of an adult Butterfly:** Except for the migrating Monarchs, the lifespan of an adult Monarch is about 14-28 days. The migrating monarchs that make it through their winter migration grounds will start their journey north about 8-9 months later.

**Host Plants:** Monarchs only lay eggs and feed on milkweed plants. There are lots of milkweed plants; the ones I have are: Common milkweed, Swamp milkweed, Butterfly weed, Showy milkweed (all perennials); Tropical milkweed and Balloon flower milkweed (annuals here).

**Monarch Eggs & Collecting Them:** Eggs are generally laid on the underside of the leaf. Look for healthy leaves; monarch mamas also like to lay eggs on young tender leaves, and sometimes on seed pods and flower buds. You can also find caterpillars of all sizes on leaves. A couple of signs to look for are tiny holes in the leaves, and tiny caterpillar frass (poop) on leaves. Every now and then you'll find a large caterpillar that has managed to avoid predators.

If you collect eggs, generally take the entire leaf if it's small enough; otherwise cut a decent size piece from around the egg. Gently wash the leaf and egg in water and put into a container with paper towel on the bottom and place the lid on the container – there's enough air for the eggs and any hatchlings that emerge. Check the container daily, and when you find 'hatchlings' remove them and put them into their own container. They are VERY small and sometimes look like a tiny vein on the leaf – that is why I always use a magnifying glass to see them. Look for signs like tiny holes in leaves and tiny frass in the container – then you know someone has hatched.

**Caterpillars (Cats):** You can raise the cats in containers or on floral tubes. I raise them in containers in small mesh cages until they're about the Instar-3-4 stage, then I put them on floral tubes also in large mesh cages. Cats molt 4 times during their growing stage which allows them to grow into their 5 stages of life. Those stages are called Instar(I): I-1 is the little hatchling; I-2 are about .2 - .4 inches long; I-3 are about .4 - .6 inches long; I-4 are about .6 – 1 inch long; and I-5 are > 1 inch long. As they grow their stripes become more prominent and they eat a lot. When a cat is getting ready to molt it will find a place and stay there for as long as a couple of days. Wherever it is – do not disturb it. It'll start moving again when it's done – and if it's in an inconvenient place you can relocate it then. The entire growing period of a caterpillar ranges from 7-18 days. The warmer the weather the faster they grow.

Always feed your cats fresh, healthy milkweed, free of any pesticides or leaf fungus. Wash your milkweed leaves or cuttings in water, or a solution of 1 tbs. of hydrogen peroxide to 1 cup water. I do both. Make sure there aren't any little buggy creatures lurking on the leaves (like tiny spiders). I also clean out their containers and floral tubes/cages twice a day.

I also check the leaves in the cages and containers and if they are too dry I spritz water onto them from a spray bottle. A dehydrated cat will not survive long.

**Pupating Cats:** When a cat is ready to pupate into a chrysalis, it will climb or hang somewhere and create a little silk 'button' to attach to. Once it's attached it hangs upside down like a 'J'. NEVER try to pull a J'd caterpillar down or disturb it if you suspect it's weaving its silk. Its body is already starting to transform inside and disturbing it weakens it and it probably won't survive; You can always relocate the chrysalis later. The chrysalis is very soft when first formed; after a couple of days it's hard enough to handle.

**Chrysalides:** The chrysalis is very soft when it's first formed, and after a day or two it hardens enough for you to handle it. While it's still soft it's vulnerable to predator insects and a particular type of wasp that lays hundreds of eggs into the soft chrysalis which is why it's important to make sure the chrysalides are protected from predators. If a chrysalis happens to fall down and it's not damaged, you can place it on a towel or paper towel close to the side of a cage. It will be able to eclose and climb up to dry its wings. It's also easy to relocate if it's in an inconvenient place. Just spritz the area around the top with water to loosen the silk around it, then gently pry the chrysalis off taking as much of the silk with it as possible. You can then rehang the chrysalis using any number of methods. The chrysalis takes up to 2 weeks and possibly longer to fully develop. You know the butterfly is ready to emerge when the chrysalis turns transparent (I call it black) and you can see the colors of the butterfly wings through it.

**Emerging Butterflies:** When a butterfly emerges, its wings are small and crinkled up. The butterfly needs to hang from something so it's wings can fill up and straighten out. If the wings don't dry straight it won't be able to fly. If you notice a newly-eclosed butterfly has fallen, quickly get it to climb up something (cage, towel, etc.) so it can fill out and dry its wings. It takes AT LEAST 2 hours for a butterfly's wings to dry – I always wait at least 4-6 hours to release. If it's very windy, cold, or rainy I wait until the next day – they'll be fine.

**Diseases & Parasites:** There are lots of diseases and pests that can harm and kill your caterpillars. Some you can prevent, and some they may already have when you find them. Some are:

**Tachinid Flies** – lay eggs inside monarch eggs.

**Ophryocystis elektroscirrha (OE)** - a protozoan parasite that caterpillars ingest on milkweed.

**Black Death:**

- a. NPV (Nuclear Polyhedrosis Virus) - caterpillars will deflate, turn black, then liquify.
- b. Pseudomonas Bacteria - This bacteria can be found in soil and on plants.

**Tainted Milkweed**

**Trichogramma Wasps** - lay their eggs inside of monarch eggs.

**Chalcid Wasps** - mini parasitic wasps lay hundreds of eggs inside of a newly formed chrysalis while it's still soft which kills the butterfly.

### **Monarch Information Resources:**

The web site I have found most useful is [www.monarchbutterflylifecycle.com](http://www.monarchbutterflylifecycle.com). I subscribe to the newsletter and order all my raising supplies through this site.

Another site I use is [www.monarchwatch.org](http://www.monarchwatch.org). I order my monarch tags through this site, and there is also much useful information.

I'm working on putting a presentation with lots of pictures on our Sandwich Garden Club website: [www.sandwichgardenclub.org](http://www.sandwichgardenclub.org).