



Early stage instars show a different banding pattern and less developed black tentacles in the fore and hind sections than the fifth stage, mature caterpillars



Fifth stage instars in line here may compete aggressively for food



Caterpillars final act secures a silk pad and forms a brilliant green chrysalis with gold and black band



One to two days before the adult butterfly emerges, the chrysalis becomes transparent and the pattern of the butterfly is visible



For several hours after emergence the new butterfly rests, stretching and drying its wings.

Local Gardeners Can Assist Monarchs

By SUSAN LAUME
THE CONNECTION

Likely the most recognized species of butterfly in our area, and in 90 countries around the world, is the familiar bright orange, black and white pattern of the monarch butterfly (*Danaus plexippus*). The monarch is drawing new attention these days, beyond its bright flight in our gardens. After two decades of hearing of impacts to this migrating species, due to loss of habitat and climate change, in July of this year, the Switzerland-based International Union for Conservation of Nature (IUCN) added the monarch to their “Red List” of endangered species. However, the monarch is not now protected under U.S. law. The U.S. Fish and Wildlife Service (FWS) explained, “In December 2020, after an extensive status assessment ..., we determined that listing the monarch under the Endangered Species Act is warranted but precluded at this time by higher priority listing actions. With this finding, the monarch butterfly becomes a candidate for listing; we will review its status each year until we are able to begin developing a proposal to list the monarch.” Fish and Wildlife further notes, “While monarch viability is declining and is projected to continue declining over the next 60 years, monarchs on the east coast are faring better than those that migrate on the west coast.” In their most recent annual assessment, FWS made no change to the monarch’s status.

The plight of the beloved butterfly has touched area gardeners. Hoping that increased availability of the host plant, on which the monarch depends to lay its eggs and provide ready nourishment for its caterpillars, will make a difference, many local gardeners now plant milkweed. This month the egg deposits of monarchs on those plants are producing an abundance of caterpillars to the delight of all who spot their familiar striped pattern.

Area citizen scientist Jim Waggener’s group has surveyed local flora and fauna for years, watching for monarchs as well as other Mid-Atlantic butterflies and dragonflies. (See Connection, Springfield edition, July 14, 2022: “Citizen Scientists Monitor Ecosystem;” <http://www.connectionnewspapers.com/news/2022/jul/13/citizen-scientists-monitor-lortonmason-neck-ecosys/>)

Waggener’s records indicate, “observations of monarchs may become common as early as mid-July, increasing through August, reaching a peak, normally, in September; the likely period of peak occurrence is in the first two weeks of September. Sightings usually remain common through October, with rare records past mid-November. We generally see most monarch caterpillars from mid-August through late September, with isolated reports of caterpillars at least into early October.”

Monarch Life Stages

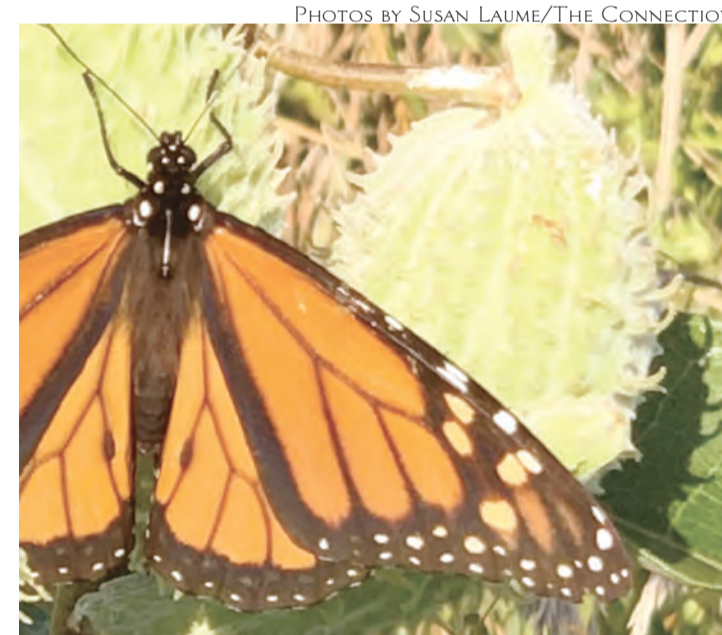
Caterpillar and adult butterfly are the two easiest to spot of the remarkable insects’ four life phases: egg, caterpillar or larva, pupa or



A newly emerged healthy butterfly appears fresh with all microscopic scales intact.

chrysalis, and adult. A mature female monarch secretes a small amount of glue to attach a tiny egg to the underside of a Milkweed leaf. She may mate several times with different males and lay 300-500 eggs in a two to five-week period. Eggs hatch in three to eight days, producing a tiny caterpillar. The caterpillar goes through five molt stages, called

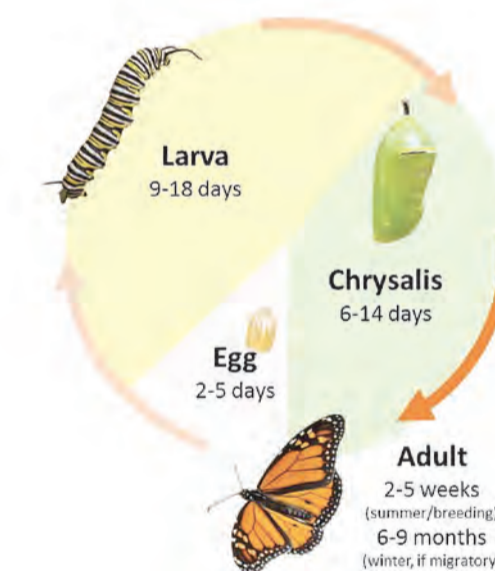
instars, from the Latin word meaning form or likeness; growing larger in each. Each instar also sees changes in coloring and banding pattern, with small front legs forming close to the head, and development of increasingly longer front and back tentacles. Voracious eaters, caterpillars stop feeding and may travel from their food source to a higher point to pupate at the end of the fifth instar.



Adult monarchs, like this male identified by the two spots on his lower wings, can be found in our area between July and November.

During the pupa or chrysalis stage, the caterpillar spins a silk pad, latches onto it and forms a hanging “J” shape. It then sheds its skin a final time to reveal a pale green chrysalis with a slim gold and black band. Inside another seemingly miraculous transformation is taking place. In eight to 15 days, the butterfly is fully formed and ready to emerge. The chrysalis becomes translucent

PHOTOS BY SUSAN LAUME/THE CONNECTION



U.S. DEPT. FISH AND WILDLIFE SERVICE
Monarch butterfly four stage life cycle

with the orange and black butterfly patterns visible in the last two days before emergence. The new butterfly will stretch and dry its wings for several hours before flying off. The adults become sexually mature in four to five days to begin the next generation and die in about two weeks, after mating. However, Fall Eastern monarchs live about six months and do not reproduce right away, but instead migrate south to Florida or Mexico. Monarchs which emerge in the Fall migrate the thousands of miles south in that single generation. They overwinter there, and then are the first generation of the next year to fly north. It will take four, or even five, generations for the monarchs to complete their

are not deterred. The toxicity level of milkweed can change with temperature and other climate changes. Some gardeners protect their caterpillars by moving them to protected areas. Experts advise caution since removing them from diurnal cycles and temperature fluctuations is thought to impact their migration ability. Use of mesh enclosures kept outside in a protected area, but open to light, wind, and natural temperatures gives a better chance of producing healthy adults than use of plastic or glass habitats inside the house. Mesh butterfly enclosures are readily available for purchase. Experts also warn against purchasing caterpillars from factory farmed butterfly operations since mass pro-

duction increases the likelihood of introducing parasites. Further “farmed” monarchs mating with native wild insects are believed to produce specimens which are unable to migrate successfully.

Raising Monarchs?

Gardeners may feel compelled to further monarchs beyond planting Milkweed. Fewer than ten percent of eggs and caterpillars survive the wild. While chemicals ingested from the Milkweed plant help to protect the monarch from predation in all its stages, some area birds are not deterred. The toxicity level of milkweed can change with temperature and other climate changes. Some gardeners protect their caterpillars by moving them to protected areas. Experts advise caution since removing them from diurnal cycles and temperature fluctuations is thought to impact their migration ability. Use of mesh enclosures kept outside in a protected area, but open to light, wind, and natural temperatures gives a better chance of producing healthy adults than use of plastic or glass habitats inside the house. Mesh butterfly enclosures are readily available for purchase. Experts also warn against purchasing caterpillars from factory farmed butterfly operations since mass pro-

duction increases the likelihood of introducing parasites. Further “farmed” monarchs mating with native wild insects are believed to produce specimens which are unable to migrate successfully. Providing improved and abundant monarch habitat, by planting native milkweed, remains the best thing one can do to help. Studies by Michigan State University and others have found that monarch caterpillars prefer milkweed plants which are “soft and fresh;” a characteristic of younger plants. Gardeners may attract more egg-laying females by cutting back Milkweed stalks early in the season, in June, to stimulate regrowth of plants in the best condition to attract monarchs when they appear later in the summer. Along with growing Common or Swamp Milkweed host plants, eliminating the use of pesticides and increasing plantings of nectar sources such as purple coneflowers, goldenrod and Joe Pye weed enjoyed by monarchs, also is helpful.

For more information on the FWS’s documentation of monarch monitoring, see <https://www.fws.gov/sites/default/files/documents/monarch-Butterfly-SSA-Report-September-2020.pdf>