

# MASSACHUSETTS WILDLIFE

No. 2, 2019

\$3.00



**Milkweeds,  
Frog Hunting,  
Nightlighting Ducks**



# MASSACHUSETTS WILDLIFE

Vol. 69

No. 2

## FEATURES

### MARVELOUS MILKWEEDS

4

— Robert Wernerehl

*Meet our native milkweeds, all eight species, and find out what is so special about this intriguing group of plants.*

### PHOTO ESSAY: NIGHTLIGHTING DUCKS

14

— Troy Gipps

*Crashing through aquatic vegetation with bright lights to the tune of a roaring engine might seem like an odd way to sneak up on a duck but it is, in fact, the most efficient way to capture ducks for banding.*

### JOURNAL OF A FROG HUNTER

18

— Troy Gipps

*While the buzz surrounding opening day of frog season may currently be falling on deaf ears, the aggressive nature of the American bullfrog, and its oh-so-delicious legs, may prompt you to buy a fishing license and make a beeline to the nearest wetland.*

### A GOOD MAN. A GOOD HUNT.

33

— Dan Hayner

*A hunter who befriended an elderly man and gained permission to hunt his north shore property discovered everything that a deer hunt should be.*

Tracking the Eastern Whip-poor-will

2

Catching Tigers

26

Go for Gold! Freshwater Sportfishing Awards

29

Faces of Conservation

36

**On the Cover:** A monarch butterfly feeds on the nectar of a common milkweed. Monarchs require milkweed for all stages of their life cycle, yet shifting land management practices have resulted in the loss of habitat for our native milkweeds. You can help us conserve milkweeds and the pollinators that depend on them by donating to MassWildlife's Natural Heritage & Endangered Species Fund, [mass.gov/supportNHESP](http://mass.gov/supportNHESP). Photo © Troy Gipps

### TO SUBSCRIBE OR BUY A GIFT SUBSCRIPTION

PLEASE VISIT [mass.gov/masswildlife](http://mass.gov/masswildlife)

OR CALL (617) 626-1590 ANY WEEKDAY

Questions about your subscription?

Change of address?

Call toll free: (800) 289-4778



Photo © Robert Wernerehl

Photo by Troy Gipps/MassWildlife

Photo © Troy Gipps

Photo by Troy Gipps/MassWildlife



# Marvelous Milkweeds

by Robert Wernerehl

Who hasn't watched a playful child discover seeds popping out from a split in a milkweed pod while exploring the weedy edge of an open field? The seed's silky white fluff glistens in the sunlight, demanding to be pulled by the child's fingers and released skyward by the gentlest zephyr. To the child's eye, it must look like a magical fairy taking flight, and indeed it is in one sense.

The milkweed depends on the wild hope that its seed will land in a spot of bare soil where a new plant can take root and prosper. Those places have become fewer and fewer in the last century, as humans have busily altered the landscape in ways that make some of our eight native milkweed species rare.

But the fascinating story of milkweeds goes much deeper. Through Linnaeus and herbal medicine, the story has ties to ancient Greece. Through biochemistry, the story has links to toxins and poisons, which ties directly to evolution and ecology for multiple species, including the monarch butterfly and, perhaps, your beloved family dog.

Did milkweed help save the United States? It's possible. During World War II, schoolchildren were paid small sums for collecting bushel-sized onion bags of milkweed pods. The buoyant, hollow threads of the fluff are water resistant

due to a wax covering and perfect for use in life vests (now called personal flotation devices or PFDs). Other materials were tested and found less suitable and much less available than milkweed, and so, especially in the Upper Midwest, the call went out to collect. Numerous archives and state history magazines tell the story of the citizen war effort that no doubt saved the lives of many U.S.

Navy sailors and airmen. A milkweed, fluff-filled life jacket could keep a 150-pound person afloat for 40 hours (*Michigan History* magazine, 2014). Prior to this, a fluffy plant fiber from Java was used, but Japanese occupation of Java cut off the supply to the U.S. My own mother recalled going out from Milwaukee into neighboring fields to collect milkweed pods for the war effort. Right here in Massachusetts, Middleborough students were called into action in the fall of 1944. The superintendent of schools gave presentations to middle school students, and two weeks later, they had collected 40 onion bags of milkweed seed pods, ending with a fall total of 109 bags.

In this article, we will explore the eight milkweed species that are native to Massachusetts, learn what makes them interesting, and what, in some cases, makes them rare, and how they are tied to rare pollinators such as the charis-



matic migrating monarch butterfly. We will also learn a bit about the complexity of botany and the evolution of intricate survival strategies of flowering plants.

Milkweeds are in the dogbane family (*Apocynaceae*). This plant family includes dogbanes, of course (genus *Apocynum*), which have a similar habit to some milkweeds of sunny edges. Many of the dogbanes are favored by fire and do well where long-ago wildfires and fires spread by Native Americans would have been common. Native peoples used many members of this family for fiber, twine, and bowstrings, including probably almost all of our native milkweeds. One species of dogbane is even called “Indian hemp.”

Linnaeus, the Swedish biologist and founder of the binomial system of scientific names, gave the name *Asclepias* to the genus of milkweeds. In doing so, he referred to a well-known figure in Greek mythology. The demi-god Asclepius, mentioned in the *Iliad*, was an ancient god of healing to whom many temples of healing were built, and games held

in honor of his healing powers. He was considered so successful at healing, Zeus feared he could make humans immortal, and so he struck him down with a thunderbolt. The use of the name *Asclepias* by Linnaeus ties this ancient world to the modern, as the “rod of Asclepius” icon might be found on the wall of your doctor’s office and is on the flag of the World Health Organization. Asclepius may even be found in the night sky as the constellation “The Serpent Holder” in Roman mythology.

When we think of milkweed in Massachusetts, we tend to think of common milkweed (*Asclepias syriaca*) if we are on the mainland, or of the “butterfly weed” (*Asclepias tuberosa*) that prefers the dry, sandy soil found on Martha’s Vineyard and Nantucket. Both show the tendency in milkweeds of mid- to late summer bloom times, a large bright umbrella-like cluster of flowers, and their importance to pollinators such as bumblebees, fritillaries, and monarchs. Common milkweed gives off nectar both night and day, nurturing moths at night and butterflies during the day. Looking

Photo courtesy Recollecting Nemaasket

*Milkweed Pods for War: Middleborough public school officials stand with bushel-sized onion bags full of milkweed pods collected by schoolchildren to support the war effort in 1944. The buoyant, hollow threads of the fluff are water resistant due to a wax coating and were used to make life vests for U.S. Navy sailors and airmen. Ultimately, the Middleborough students gathered 109 sacks or an estimated 87,200 pods, enough for 54 life vests. It is estimated that 11 million pounds of milkweed fluff were gathered nationwide during the war.*





*Milkweeds cluster all their pollen into tight structures called pollinia (singular: pollinium), which must be delivered intact to the next flower. The milkweed flower's hoods and horns help to carefully guide the leg of an insect over the precise spot where it can latch onto the corpusculum, a structure that both joins the pollinia together and clamps onto the insect leg like a saddle bag with two pollen sacks.*

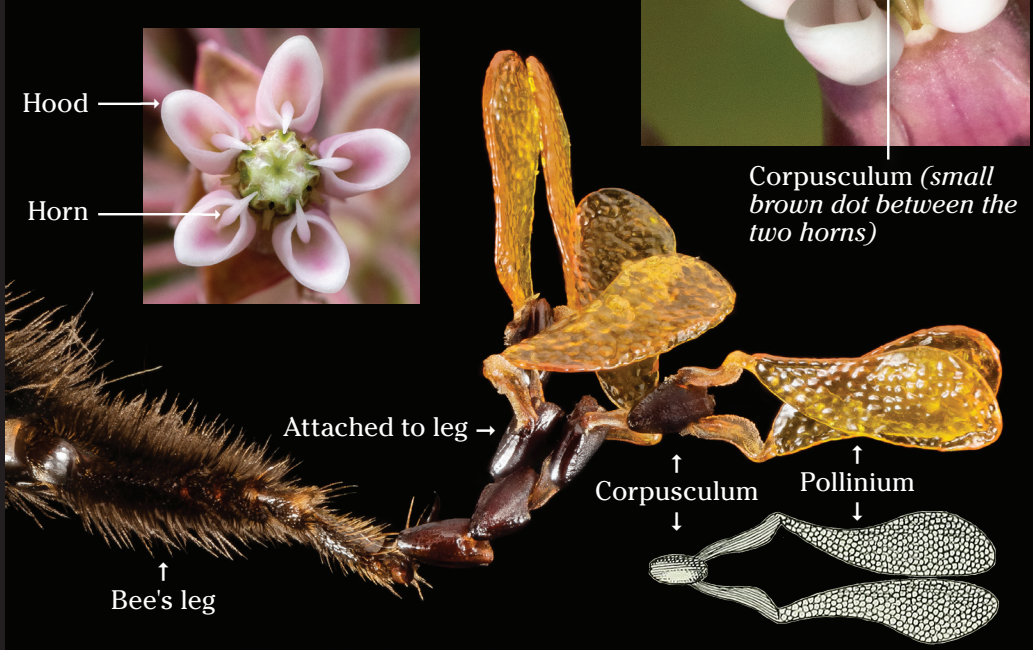


Photo by USGS, Bee leg; Photos by Troy Gipps/MassWildlife, flowers

more closely at the flower, we can observe some interesting and unusual features (see above). A typical flower consists of petals (together called a corolla) and sepals (together called a calyx); the stamens with pollen-bearing parts; and the style, stigma, and ovary as the female parts. Any of these can be separate or be fused together. Milkweeds have yet another fusion of flower parts called a corona. The corona consists of a very clever and attractive design of “horns and hoods” that surrounds another fused structure in the center where the female stigmatic surfaces lie that must receive the pollen from another plant.

Milkweeds have evolved, like orchids, an all-or-nothing strategy of fertilizing the ovary for reproduction. This means they cluster all their pollen into tight

structures called pollinia (singular: pollinium) that must be delivered intact to the stigmatic surface of the receptive plant of the same species nearby. If it works, many ovules will be fertilized all at once, creating many seeds. If it doesn't succeed, which is often the case, there will be no seeds that year for that plant. Both milkweeds and orchids have evolved special adaptations to make certain the pollen is delivered properly. The milkweed flower's hoods and horns help to carefully guide the leg of a bee or other pollinator over the precise spot where it can latch onto the corpusculum that both joins the pollinia together and clamps onto the insect's leg. The bee takes off with the pollinia attached to its leg as two pollen sacks, almost like saddle bags. Upon arriving at the next flower,



ideally on a separate plant, the bee moves rapidly around in search of the right stance to get at the nectar. The leg with the pollinia will slip down between the horns and hoods around the central female column (the gynostegium). If everything goes right, the pollen sacks will slip into the narrow vertical slot in the gynostegium, drop off the bee's leg, and remain behind to fertilize a number of ovules inside the ovary. A seed cluster called a follicle will eventually form with many seeds that, when ripe, will split open along a single suture and slowly release the seeds into the wind.

Let's begin our venture through native milkweeds of Massachusetts with the **common milkweed**, *Asclepias syriaca*. Note the name "syriaca" looks like Syria. Labeling mistakes were common in the mid-18th century when Linnaeus was naming plants. In this case, Linnaeus was led to believe this eastern North American plant specimen came from Syria, and so he used that name. It is native to all 14 counties in Massachusetts, and the plant most often thought of when "milkweed" is referred to in conversation. Common milkweed spreads easily through long rhizomes—underground lateral stems reaching out from the main plant and forming new above-ground stems, similarly to young aspen trees. Once established, common milkweed does not need to reseed often, another adaptation to the improbable seed production strategy of milkweeds. It grows from three to five feet in height and produces several clusters (umbels) of flowers.

Monarch caterpillars readily feast on the leaves of common milkweed, and the adult feeds



Common Milkweed (*Asclepias syriaca*)



A monarch caterpillar feeds on milkweed

Photos © Troy Gipps





**Butterfly Weed (*Asclepias tuberosa*)**

on the nectar given off by the flowers. But herein lies an interesting bit of co-evolution. To most insects (as well as cats, dogs and horses), the leaves of all milkweed species are toxic, filled with a heart-stopping compound called cardiac glycosides. The monarch has evolved a strategy to sequester the cardiac glycoside chemicals in specialized structures so that they don't escape and harm the insect. And the story is just getting interesting, because these sequestered glycosides are toxic to birds who would otherwise consider the monarch caterpillar to be a tasty morsel. Birds have evolved to recognize the caterpillar and the adult butterfly and avoid eating it to avoid the toxins. That means the monarch has evolved this chemical defense not only to avoid the harmful toxin itself, but then in turn uses that same chemical to defend itself from being eaten. That is an amazing twist of evolution. But wait, there's more! Viceroy butterflies have not evolved this sequestering technique, but they side-step the issue by having evolved a nearly identical coloration to the mon-

arch butterfly. Birds are thus tricked into thinking they are loaded with toxins as well and avoid eating them. In ecology, these are good examples of what are called multi-trophic interactions, which highlight the diversity, intricacy, and complexity of natural systems.

There are two other milkweeds commonly seen in parts of Massachusetts. The most colorful of these is **butterfly weed**, *Asclepias tuberosa*, whose brilliant, blaze-orange flowers light up meadows on Martha's Vineyard, Nantucket, and Frances A. Crane Wildlife Management Area on Cape Cod. This species has a wide range in North America, found in prairies in Texas and Oklahoma, all the way to Florida and northern Minnesota, as well as in New England. It was found at one time in every single county except Suffolk County in Massachusetts, but almost all populations have disappeared. Why? Like most milkweeds, it is a species of open habitats whose small and lightweight seeds must land on bare soil without much duff in order to germinate



and grow. Some of the milkweeds may have flourished in the far more open landscape of the early-to-mid-19th century, when Massachusetts forests were almost entirely cleared for farming and other uses. Currently, Massachusetts is about 70 percent forested. Another factor is fire. Prior to the mid-19th century, fire was relatively widespread and common in parts of Massachusetts with thin or sandy soil. As with many prairie species, butterfly weed flourishes from controlled burns or wildfire.

The next most common milkweed graces open wetlands and pond shores across the state beginning in July. This is **swamp milkweed** (*Asclepias incarnata*), rising about four feet tall in wet meadows covered with grasses and sedges. It displays large, attractive clusters of pinkish-purple flowers that draw in pollinators from near and far. The species is found in all New England states and is the only milkweed species to thrive in wetlands. We have two distinct varieties of this milkweed; one with a stem covered

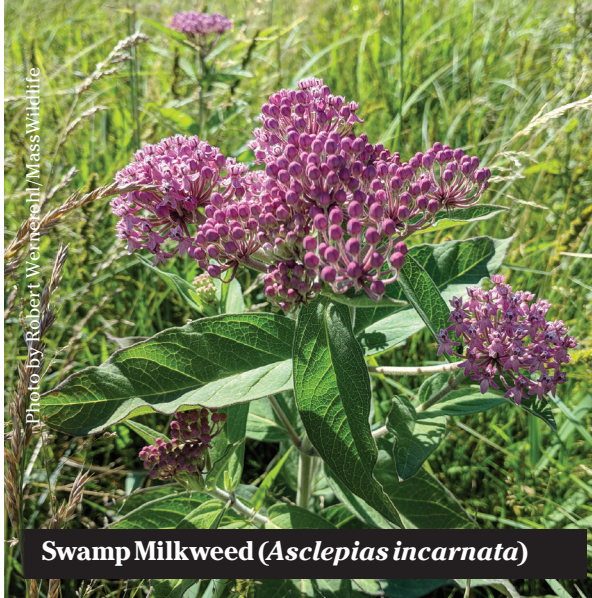


Photo by Robert Weirich/MassWildlife

**Swamp Milkweed (*Asclepias incarnata*)**

with short, white hairs (*A. incarnata* var. *pulchra*) and the other (*A. incarnata* var. *incarnata*) without hairs. This would be a colorful species to plant if you are creating a rain garden on your property to capture runoff and it is readily available in the native plant nursery trade.



**Four-leaved Milkweed (*Asclepias quadrifolia*)**

Photo © Douglas McGrady





**Poke Milkweed (*Asclepias exaltata*)**

Those who walk trails in open oak woodlands on richer soil, such as in the Holyoke range, might come across two different white-flowering milkweed species, both with attractive sprays of more delicate off-white flowers. The first of these is the **four-leaved milkweed**, which has at each node two to four leaves attached to the stem. The name *Asclepias quadrifolia* is a good example of the rare case where the meaning of the scientific name exactly matches the common name. This plant grows to about two feet tall and lives in deciduous forests that are not densely shaded. Although widespread in Massachusetts, it is never common, and always a joy to see brightening a trailside glade.

The second of our woodland milkweeds is **poke milkweed**. It blooms in June, is about four feet tall, and has a delightful, starburst pattern of cream-colored flowers. It occurs in very similar habitat to four-leaved milkweed: oak woods on fertile soil, especially if there is a history of fire. The scientific name is *Asclepias exaltata*, meaning, in this case, tall, but I like to think of it as the English word “exalt” that has the same root, and means

to hold something in very high regard. When I first saw this species in bloom in a sunny Wisconsin oak woodland, it nearly took my breath away for its striking beauty, and so, to me, it was exalted.

One other uncommon milkweed in Massachusetts is seen on Cape Cod and the Islands, as well as in parts of Plymouth County. This is the **clasping-leaved milkweed** (*Asclepias amplexicaulis*). There are historical records of this species from every county in Massachusetts, from the time when the Bay State was a more open landscape. This plant needs full sun and sandy soil to flourish. This two- to three-foot-tall plant has a drab green color that is easily camouflaged when growing with a mix of other plants, and not on the side of a sandy dirt road where it might stand out. To me, this is a very amusing milkweed. A sideways look at one of the leaves reveals bizarre but consistent sinuous curves resembling very much what a cartoonist would draw of the line where the lips meet on someone who has clearly imbibed too much alcohol. This is one of the important milkweeds that occur on rare sandplain grassland





Claspingleaved Milkweed (*Asclepias amplexicaulis*)



Whorled Milkweed (*Asclepias verticillata*)





Photo © Robert Wernerehl

habitat in Massachusetts found in sandy flats from the Pioneer Valley eastward to Cape Cod and the Islands.

Of the final two milkweeds left to complete the suite of eight, one is rather short and the other fairly tall at about four feet. **Whorled milkweed** (*Asclepias verticillata*) is a delicate plant, about a foot tall, with very narrow leaves and a small spray of white flowers, adapted to dry, sunny habitats. At one time, it was found in 10 of our 14 counties, but now is hanging on by a thread of milkweed fluff, metaphorically, with only a half dozen active and small populations. Poor site management, as well as deer browse pressure, fire suppression, and canopy closure over formerly open rocky outcrops, has greatly diminished this once more widespread species. The plant is currently listed as state-threatened under the Massachusetts Endangered Species Act (MESA).

The tour of the eight native milkweeds comes to a climactic close with the

extremely rare and beautiful **purple milkweed** (*Asclepias purpurascens*). This four-foot-tall species has, next to butterfly weed, the most dramatic color, with an intense, deep reddish-purple head of perfectly formed milkweed flowers, with large “horns and hoods” typical of this genus. Unfortunately, populations of this species have steeply declined, with only three state populations remaining, and it is now listed as state-endangered under MESA. Two populations are threatened sufficiently by deer browse that they need to be fenced off for protection. The third hasn’t been seen for some time, but the site has just recently been under active management to allow much more sunlight to hit the forest floor. We expect that in a year or two we will see the plants reappear. Management is tricky because the plants, in their current condition, rarely flower, making positive counts very uncertain. Without the flower, the plant looks like both the common and poke milkweed, as well as some of the dogbane species. This species is known

to respond dramatically to prescribed fire. Applying this type of site treatment can be quite challenging, especially when motorized access is too difficult due to the terrain, but MassWildlife has been increasing its efforts and abilities to apply this crucial habitat management technique to its lands across the state.

Our milkweed tour has provided a glimpse into the great importance of keeping rare plants on the landscape. You never know when some unusual property of any given species or genus may become extremely valuable, such as we saw nearly 80 years ago during World War II, and now more recently with monarch conservation needs. The challenges of milkweed conservation highlight the many threats that face rare species in our state, both animals and plants, as our habitats change beyond the ability of some species to adapt and persist. What we do now to step up and continue the commitment to preserve our state's natural heritage will answer the question of whether or not that young child on the field edge will have the chance to watch milkweed fluff ascend into the sky, or watch a monarch sip sweet nectar from a brilliant orange butterfly weed flower. The nature of Massachusetts is clearly one well worth exploration and discovery. If you do come across one of our rare, listed milkweeds, please report it using our Vernal Pool & Rare Species (VPRS) Information System, [mass.gov/vprs](http://mass.gov/vprs).

If you'd like to do more to help rare milkweeds and other threatened pollinators in Massachusetts, please donate to MassWildlife's Natural Heritage and Endangered Species Fund at [mass.gov/supportNHESP](http://mass.gov/supportNHESP). This Fund can only be used for the conservation of non-game species in Massachusetts.

## About the Author

*Robert Wernerehl, Ph.D., has been the State Botanist of Massachusetts with MassWildlife's Natural Heritage and Endangered Species Program since 2015.*

**Common Milkweed, *Asclepias syriaca***  
Watercolor by Kay Kopper  
New England Society of Botanical Artists





MASSACHUSETTS DIVISION OF  
**FISHERIES & WILDLIFE**

**FIELD HEADQUARTERS**

1 Rabbit Hill Road | Westborough, MA 01581

NONPROFIT ORG.  
U.S. Postage  
Paid  
N. Reading, MA  
Permit No. 211



To protect and manage habitat for the endangered Northern Copperhead, MassWildlife is working to control invasive swallow-wort plants. These plants grow quickly, smother native vegetation, and can take over important habitat for copperheads and limit access to den sites and basking areas. Additional threats to copperheads include development, habitat fragmentation, roadway mortality, unauthorized trail development, intentional killing, and collection. Through collaboration with our conservation partners, we protect and manage critical copperhead habitat, support research, and monitor all known population sites that occur in Connecticut River Valley and the Boston area. This juvenile was photographed by Liam Griffin, MassWildlife Intern.



# MASSACHUSETTS WILDLIFE



**Like what you read?  
Become a subscriber!**

Massachusetts Wildlife magazine is a quarterly publication packed with award-winning articles and photos on the environment, conservation, fishing, hunting, natural history and just about everything relating to the outdoors in Massachusetts.

**Subscribe online through our licensing system: [mass.gov/massfishhunt](http://mass.gov/massfishhunt) or mail subscription requests to:**

Magazine Subscription  
Division of Fisheries & Wildlife  
251 Causeway St, (9th floor)  
Boston, MA 02114

**Please include the following with mailed subscription requests:**

1. The name and mailing address of the subscriber.
2. A check payable to Massachusetts Wildlife Magazine. You will be billed if a check does not accompany your request. We cannot accept credit card payments by mail.

**1 year subscription (4 issues) \$6.00  
2 year subscription (8 issues) \$10.00**