

The Monarch

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This family rules by hereditary right and is called migratory milkweed butterfly, *Danaus plexippus* family. It has orange-and-black wings and feeds on the milkweed plant which belongs to the Nymphalidae, the largest family of butterflies, so named by Linnaeus, 1758.

When they arrive here in Northern Indiana it is a special delight, indicating the Monarch has truly brought us summer. Observed by gardeners and general population as well the Mexico connection is based on the phenomenon connected to changing weather patterns.

Butterfly Weed is the iconic, bright orange beauty that's a staple in the diet of the large Monarch butterfly. This showy native wildflower is easy to grow, cold hardy, and does well in poor, dry soils, but has also been reported on stream margins. Long-lasting clusters of small, flat-topped flowers are crowned with a yellow, sun-kissed "corona" and blooms from June through August. Butterfly Weed is an important nectar source for Monarch butterflies. They are attracted to the plant by its color and its copious production of nectar. It is also the larval food plant of the queen, *Danaus gilippus*.

It is most easily propagated by seed sowing outdoors after frost. A plant will flower and produce seed in the third year. It is difficult to transplant once established and requires full sun. Its name is *Asclepias tuberosa*.

The gorgeous fragrant Common Milkweed, species *Asclepias syriaca*, produces purple/pink flower clusters that hosts the Monarch egg and its leaves provide essential food as the caterpillar grows until it is mature and makes a chrysalis. Error in identification using common names and the long standing disgust for milkweed or weeds in general may result in loss of pollinators. Become proactive for plants and prevent their demise by identifying the species to which the insects belong, because if its called it a weed, somebody will pull it out of the ground.

Monarch, migration pattern of 3,000 miles from Canada and United States to the oyamel fir trees of Michoacan, Mexico, have been observed for many years, and has been a barometer of weather patterns. It needs to go south when Fahrenheit temperature reaches 55 degrees and the scent of asters and goldenrod is in the air.

Science magazine for June 22, 2018, reported yet another decline in Monarch Butterflies checking into Mexico, Fall 2017. The never ending summer of 2017 may have led to a second generation being reproduced and a late start and suffering the out of sync routine was questioned as a possible reason.

Goshen College Herb Garden, 7/25/2018



Following Milkweed and the Monarch

There are many species of milkweed, **asclepias**. The USDA has identified 76 species in North America. The monarch a migrating species, may have just as many pathways they follow all over North.America, just like humans seeking the identifying locations for survival.

Your travels, such as ours, always reveal the habitats and styles of people, but most evident is the climate. However I'm always looking at the fauna and flora, Ron the significance of historical drama.

There are identifying factors of milkweed, the host plant for the monarch that should be noticed.

The common milkweed, **asceplias syriaca** is the host plant where the monarch lays her eggs. Page 9 describes some plants that may be confused with this plant, through out the article there are illustrations of the orange, butterfly with accents of white, yellow, black and brown. I have Lady Bird's Wildflower accounts and other International documents giving lists and pictures as well. I've decided not to include all or try to find 76 species, just those of Northern Indiana.

I'm closing with a story about one milkweed, antelope-horns **asperula**, and ending "following" saga with just a few places where most of us travel.

I have an antelope trophy that my brother captured in Montana. I'm not sure why he was hunting in Montana because usually he and my dad hunted in Canada. Dad had always hoped for a moose which he did bag, but brother came home with the antelope.

Antelope shares a space on the wall with Tenpoint I just always called him Mr. Ed Antelope. Now he's mixed up with the milkweed!

Lets get started by looking at some butterflies called Monarch.
Including a few "look alike"

Asclepias tuberosa is a native species of milkweed native to eastern North America. It does not have milky sap. It is a perennial plant growing to (1 ft to 3 ft 3 in) tall, with clustered orange or yellow flowers from early summer to early autumn, containing nectar that butterflies feed upon. The leaves are spirally arranged, lanceolate, 5–12 cm long, and 2–3 cm broad.



It is host to the butterflies shown here. There are many orange and black butterflies found through this article.



Danaus plexippus is the Family Name.



Male Monarch

Other common names of Monarch depending on region include milkweed, common tiger, wanderer, and black veined brown. It may be the most familiar North American butterfly, and is considered an iconic pollinator species. Its wings feature an easily recognizable black, orange, and white pattern, with a wingspan of 8.9–10.2 cm (3 ½–4 in) The viceroy butterfly is similar in color and pattern, but is markedly smaller and has an extra black stripe across each hindwing.



Female Monarch

Asclepias syriaca, common milkweed, butterfly flower, silkweed, silky swallowwort, and Virginia silkweed, is a species of flowering plant. It is in the genus *Asclepias*, the milkweeds.



Common milkweed (*Asclepias syriaca*) is a choice wild vegetable that supplies many edible parts over its long growing season. Dogbane (*Apocynum androsaemifolium*) is a look alike plant that is considered toxic. Milkweed and dogbane resemble one another by producing a milky sap when leaves are broken. *Syriaca* has hollow stem and *Apocynum*'s stem is solid. Both are used to make wilderness cordage. They grow best in full sun, that's why they are often in open fields or roadways.

This species is very similar to , the **Apocynum androsaemifolium**) and the two easily hybridize. Common milkweed can be distinguished by several characters. Its blunt-tipped leaf blades have a coating of hairs on the undersides and are straight on the stem, not curving up. The flowers are smaller and more numerous, and the surface of the follicle is rougher,



Apocynum androsaemifolium
Dogbane(resembles milkweed)
Indian Hemp



A distinct variety of the **Cannabis sativa** plant, known as **hemp**, can be grown to maximize the fibers in the stalk, of the plant.

Hemp and Common Milkweed can both be used for cordage by breaking the stalks by pounding until the outer covering breaks away and then twisting the inner soft fiber into a cord.

Asclepias exaltata is a species of flowering plant in the family Apocynaceae known by the common names poke milkweed and tall milkweed. It is native to eastern North America. It blooms from late spring to early summer.



Poke milkweed is most easily recognized by its tall stature, loosely packed inflorescences of whitish flowers, and broad leaves that resemble leaves of pokeweed (*Phytolacca americana*). The flowers produce ample nectar and will attract a wide variety of insects and the occasional clever hummingbird. The floral design of milkweeds is highly unusual as the hoods modified from stamens are most colorful and serve as nectar reservoirs. The greenish petals of poke milkweed reflex back along the flower stalk and cover the diminutive sepals. Like all milkweeds, pollen is dispersed in “saddlebag-shaped” pollinia that attach to the legs of nectar foraging insects. Each pollinium carries more than enough pollen grains to sire a complete set of seeds in a milkweed pod.

Swamp Milkweed
Asclepias incarnate
Asclepias incarnata,
the swamp milkweed,
rose milkweed, rose milkflower, swamp
silkweed, or white Indian hemp, is a herba-
ceous perennial plant species native to
North America. ... Like most other milk-
weeds, it has sap containing toxic chemi-
cals, a characteristic that repels insects and
other herbivorous animals.



*Asclepias in-
carnate* or
pink milk-
weed planted
August
2018, in
Pakeechie
Wetland





Asclepias hirtella (Tall Green Milkweed) matures to 4' in height and has white-green flowers that tend to be the most prolific of the upland Milkweeds. Each umbel has up to 100 flowers. Another characteristic is its narrow, alternate leaves; most Milkweeds have opposite leaves. Similar in appearance in flower color and narrow leaves is Whorled Milkweed; but it is shorter and has thinner leaves. Tall Green Milkweed prefers medium-wet through dry soil conditions and grows best in full sun to partial shade. It will reproduce by seed rather than by its central taproot which makes the plant very drought-tolerant. Like most Milkweeds, it blooms mid-summer: June, July, and August. It is attractive to butterflies and bees, mostly notably honeybees, bumblebees, and leaf-cutting bees



Verticillata White
Whorled milkweed



Tropical Queen



Queen Monarch

Asclepias viridiflora

Green milkweed is a perennial from a vertical rootstock. Two foot tall stems are mostly solitary or in pairs and bear opposite leaves up to four inches long. Leaves are variable in shape with plants from dry sites having long narrow leaves and those from moist sites having round leaves. 20-80 pale green flowers occur in two inch clusters in upper leaf axils. The pods of green milkweed are about four inches long and pointed at both ends. The pods lack the warts or tubercles found on other common milkweeds.

The specific epithet *viridiflora* means green-flowered in botanical Latin. Milkweed flowers have a special mechanism to trap insect legs and cause pollen masses to be pulled from the plant.



Narrow leaf *Asclepias fascicularis* is a flowering perennial sending up many thin, erect stems and bearing distinctive long pointed leaves which are very narrow and often whorled about the stem, giving the plant its common names. It blooms in clusters of lavender, pale pink, purple, white, to greenish shades of flowers. They have five reflexed lobes that extend down away from the blossom. The fruit pods are the smooth milkweed type, which split open to spill seeds along with plentiful silky hairs. They bloom from late spring to late summer. The plant is a common perennial in the Western United States and Baja California. It is found in numerous habitats, including deserts, chaparral and woodlands, and montane locales below 7,000 feet (2,100 m).



The viceroy (*Limenitis archippus*) is a North American butterfly that ranges through most of the contiguous United States as well as parts of Canada and Mexico. The westernmost portion of its range extends from the Northwest Territories along the eastern edges of the Cascade Range and Sierra Nevada mountains, southwards into central Mexico. Its easternmost range extends along the Atlantic and Gulf coasts of North America from Nova Scotia into Texas.^[2] It was long been thought to be a Batesian mimic of the monarch butterfly, but since the viceroy is also distasteful to predators, it is now considered a Müllerian mimic instead. The viceroy was named the state butterfly of Kentucky in 1990.



Asclepias speciosa is a milky-sapped perennial plant in the dogbane family (Apocynaceae), known commonly as the showy milkweed.

Common milkweed (**Asclepias syriaca**) is a choice wild vegetable that supplies many edible parts over its long growing season. Dogbane (**Apocynum androsaemifolium**) is a look alike plant that is considered toxic. Milkweed and dogbane resemble one another by producing a milky sap when leaves are broken. **Syriaca** has hollow stem and

Apocynum's stem is solid. Both are used to make wilderness cordage. They grow best in full sun, that's why they are often in open fields or roadways.





Asclepias amplexicaulis is also known as sand milkweed and grows to 3 or 4 feet in height. It has pink flowers like the common milkweed, but the flower cluster is less dense. The distinguishing feature of the plant, however, is the way the leaves are curled or whorled. This milkweed prefers dry soil conditions, and grows best in full sun to partial shade. *Asclepias amplexicaulis* blooms from mid June to early July, on Cape Cod. It requires dry, sandy soil, is rhizomatous, and drought tolerant. This plant attracts

bees, ants, and butterflies.

I would not mind seeing more of this species in my woodland garden. Although the bloom period is rather short (by July 31 all the flowers were gone), the flowers do attract many insects and the leaves are showy,

The eastern North American monarch population is notable for its annual southward late-summer/autumn migration from the northern and central United States and Canada to Florida and Mexico.

During the fall migration, monarchs cover thousands of miles, with a corresponding multi-generational return north. The western North American population of monarchs west of the Rocky Mountains often migrates to sites in southern California but has been found in overwintering Mexican sites as well. Monarchs were transported to the International Space Station and were bred there.

Asclepias lanceolata, the few-flower milkweed, is a species of milkweed that is native to the coastal plain of the United States from New Jersey to Florida and Southeast Texas. *A. lanceolata* is an upright, perennial plant that can grow between 3 and 5 feet tall, with red-orange flowers blooming in the summer months. It can also be referred to as Cedar Hill milkweed, as it was first described by Dr. Eli Ives in the neighborhood of Cedar Hill in New Haven, Connecticut. It is taller than *Asclepias tuberosa*.



some from out of state

Asclepias texana, commonly called Texas milkweed, is a species of flowering plant in the dogbane family (Apocynaceae). It is native to North America, where it is widespread in the regions of the Chihuahuan Desert and Edwards Plateau. Its range spans from the states

of Durango and Coahuilla in Mexico, north to the state of Texas in the United States. Its natural habitat is in dry rocky areas in canyons or along arroyos.



Asclepias amplexicaulis

Clasping Milkweed, Bluntleaf Milkweed

Asclepiadaceae (Milkweed Family)

These milkweed plants are stout, glabrous (without hairs) and usually grow erect 80 to 100 cm tall with upper

leaves sessile, clasping the stem. The sap is milky. Leaves (75-150 mm long and 50-75 mm wide) are opposite; blades are thick and firm, broadly lanceolate to oblong, broadly notched at the base, broadly rounded or blunt at the tip with margins usually conspicuously wavy. Several pedicelled flowers occur in a showy umbel; greenish, tinged with purple or rose. The leaves and stems are also often tinged with purple.

Milkweed species are the food source for Monarch butterfly caterpillars.



to

Asclepias purpurascens, the purple milkweed, is a herbaceous plant species. It is in the genus *Asclepias*, making it a type of milkweed. It is native to the Eastern, Southern and Midwestern United States similar to the range of the common milkweed



Indian Paint Brush *Not a Milkweed*



Indian paint brush, also called Painted Cup, Painted Lady, or Paint Brush, any plant of the genus *Castilleja* (family Scrophulariaceae), which contains about 200 species of partially or wholly parasitic plants that derive nourishment from the roots of other plants.

This should not be confused with *Asclepias tuberosa* as this bright orange flower in our Northern Indiana area is often called Indian Paint Brush.

For this reason the plants are seldom cultivated successfully in the flower garden. The small, tubular flowers are irregular (two-lipped). They are surrounded by upper leaves that are brightly coloured either throughout or at the ends only, giving the plant an appearance of having been dipped in a pot of red, ora.

Mechanisms behind the Monarch's decline

Science, 22 Jun 2018

Anurag A. Agrwal, Hidetoshi Inamine

mechanisms driving their decline is crucial to reversing the trend. Monarchs have experienced a decline over decades and face diverse threats, including extreme weather, pesticides, habitat loss, and disease. The U.S. Fish and Wildlife Service is required by law to reach a decision about federal protection by 6/2019. Population dynamics of migratory animals must be understood in terms of ecological limits across the whole cycle of breeding, migration, and overwintering. For monarchs, this challenging task has been advanced not only by traditional academic work, but by 25 years of monitoring by nongovernmental organizations like the WWF and by large numbers of citizen scientists. This collaborative effort has provided clear evidence for a precipitous decline of monarchs during overwintering in Mexico and during their first generation in spring in the gulf states of the southern United States. However, evidence of this decline diminishes during the next three summer generations as monarchs migrate to the Midwest and Northeast of the United States and into Canada.

Agricultural intensification, particularly the widespread adoption of herbicide threats to migratory success.

Monarch butterflies overwinter in Mexico and breed primarily in the Midwestern and Northeastern United States and Canada. Conservation efforts are focused on protecting overwintering forests in Mexico and restoring milkweed in breeding areas. Migratory mortality may also play a role in falling populations at overwintering sites but the connectivity between summer and winter populations is complex and little understood.

Intolerant crops in the Midwest, has reduced the availability of milkweed as a food source for monarch caterpillars, and this has been championed as the cause of the monarch's decline. Although the number of eggs produced regionally has declined substantially in the Midwest, this trend is ambiguous in the Northeast and in broadscale counts of adult butterflies. Mortality during the annual autumnal migration to Mexico has received less attention, but its potential role in the decline was implicated by studies attempting to connect the abundance of migrating butterflies in late summer to the abundance of those that arrived in Mexico.

Mortality during migration threatens other migratory animals and may have increased in recent years for monarchs, potentially contributing to the declines in the overwintering population. For example, the abundance of monarchs was one of the highest in decades in the Northeast during the 2017 breeding season, but in the subsequent winter, the population was well below historic levels in Mexico. The autumn of 2017 was the hottest in over 100 years, and the extended warmth induced an extra generation of butterflies late in summer.

This delayed much of the monarch migration, potentially changing the rate of migratory success. Stress during the breeding season and migration may affect not only migratory success, but also the likelihood of overwinter survival and the subsequent northbound migration in spring. Continued degradation of the fir forests in the Monarch Butterfly Biosphere Reserve in Mexico could also explain declining numbers through reduced migratory success.

Butterfly migrants cease to rely on milkweed at the end of the summer. Instead, they depend on floral nectar from a range of plants, water to drink, and safe passage for their journey to Mexico. Thus, the connection between the summer and winter abundance, and factors that may disrupt migratory success, is critical for guiding monarch conservation.

Regardless of whether summer monarch abundance correlates with winter abundance on average, it is clear that migratory success is highly variable from one year to the next. The latest data from 2017 are a case in point, showing no obvious correlation between summer and winter abundances. If nectar resources, landscape quality, and intact overwintering sites continue.

(read from Science Magazine for full script. This is an abbreviation)

in closing

Antelope-horns Asclepias is a milkweed plant that spreads out along the ground and grows 8 to 24 inches in height. This plant is attractive to bees, butterflies and/or birds. This species of milkweed attracts huge bees as pollinators. This plant is reported to be toxic to animals, and like other plants in the genus *Asclepias* is probably also poisonous to humans. The sap of some causes skin irritation in humans. Sensitivity to a toxin varies with a person's age, weight, physical condition, and individual susceptibility. Children are most vulnerable because of their curiosity and small size. Toxicity can vary in a plant according to season, the plant's different parts, and its stage of growth; and plants can absorb toxic substances, such as herbicides, pesticides, and pollutants from the water, air, and soil.



1 Mr. Ed



2 Blossom

3 Seed Pods

4 Dispersal of seeds from the pods.

