

BUTTERFLY WEED: A PRAIRIE MEDICINE

Because many prairie forbs species have either white or yellow flowers, a tallgrass prairie in full bloom may seem monotonous to some viewers. Fortunately, there are some species of prairie forbs that have other flower colors. One of those species would be the Butterfly Weed (*Asclepias tuberosa* L.).

The Butterfly Weed is a member of the Milkweed Family (*Asclepiadaceae*), the *Asclepiadoideae* Subfamily, the *Asclepiadeae* Tribe, and the *Asclepiadinae* Sub-tribe. (Some references may list this plant as being in the *Apocynaceae* Family.)

The generic name, *Asclepias*, was named after Asklepios (or Aesculapius), the Greek god of healing and medicine. The specific epithet, *tuberosa*, is Latin for “tuberous”, because of its tuberous root system.

The Butterfly Weed often goes under different names. Another scientific synonym for this species is *Asclepias decumbens* L. At different times and different places, other common names for this plant have been Archangel, Butterfly Flower, Butterfly Milkweed, Canada Flux, Canada Root, Canada Tuber, Chigger Flower, Chigger Plant, Chigger Weed, Colicroot, Coralweed, Fluxroot, Fly Catcher, Indian Bokey, Indian Nosy, Indian Paint, Indian Paintbrush, Indian Plume, Indian Posy, Orange Apocynum, Orange Milkweed, Orange Root, Orange Swallowwort, Pleurisy Root, Rubber Root, Ruber Root, Silkgrass, Silkweed, Swallowwort, Tuberous-rooted Swallowwort, Tuber Root, White Root, Wind Root, Wind Weed, Wine Tree, and Yellow Milkweed.

DESCRIPTION OF THE BUTTERFLY WEED

Perennial

Height: 1-3½ feet. This species is shorter than most of the other Milkweeds.

Stem: Its stem is round, ascending, erect, stout, red or green, rough, coarse, and hairy. These stems may branch near their tops.

When the plant is young, it may have a single stem. When the plant is older, it may have multiple stems. Multiple stems give this plant a bushy appearance.

If broken, this stem exudes clear, watery sap. This is the only Milkweed that does not exude milky latex sap.

Roots: The root system consists of a long, deep, branching, fleshy, thick, knobby, twisted, woody, tuberous, and fibrous taproot. These deep taproots enable this plant to withstand long, dry periods.

Leaves: The leaves are simple. They are alternate along the main stem and are opposite, or even whorled, upon the branches. This is the only Milkweed that has alternate leaves.

Each leaf’s topside is smooth and shiny or is hairy. Its bottom side is hairy. It is about 1½ -6 inches long and about ¼-1 inch wide. It is also narrow and linear, or may be oblong, ovate, or lanceolate. The leaf may either be sessile or have a short petiole. It has a tapered or cordated base and a tapered tip. Its margin is entire, but wrinkled.

Flowers: The flowers are arranged in erect, rounded or flat-topped, branched, and umbelled clusters. These clusters are either located at the top of the stem or at the ends of the branches.

These flowered clusters are about 1½ -3 inch wide and contain about 12-25 flowers per cluster. These flowers initially bloom from the inside and progressively bloom outwards.

Each flower is primarily orange. However, its color can vary from bright red to pale yellow. They may also be bicolor.

This species is the showiest of the Milkweeds. It was displayed at the 1876 U. S. Centennial Exhibition in Philadelphia. However, this flower is not fragrant.

Each flower is less than ¾ inches long, is about 3/8 inches wide, and is radially symmetrical. It has 5 small and persistent sepals, 5 curved-back petals, 5 curved stamens, and a single pistil.

The stamens' filaments unite to form a tube that encloses the pistil. The stamens' anthers all adhere to the pistil's 5-lobed stigma. These united stamens and the stigma form a central columned structure known as the crown (or corona).

This crown has 5 small, inflated, spreading, and erect hooded nectaries. Each hooded nectary contains 1 incurved horn.

Flowering season is usually April to September. However, for the first few years, this plant may not produce any flowers.

Fruit: The fruits consist of long, erect, slender, follicled capsules or seedpods. They are initially green but may later become brown. Each seedpod is about 3-6 inches long and is about 3/8-¾ inches thick. They are either smooth or finely hairy, spindle-shaped, and are pointed at both ends. There are very few seedpods per plant.

These seedpods contain numerous, tightly- and spirally-packed seeds. When ripe, they split open along 1 side to release those seeds.

Seeds: The seeds are brown, round, flattened, and margined. Each seed is about ¼ inches in diameter. Attached to each seed is a tuft of long, white, silky hairs, which act as parachutes. These seeds are all windborne

Habitat: The Butterfly Weed prefers open areas with dry, sandy soils. It cannot tolerate wet soils.

Butterfly Weed can be found in prairies, meadows, pastures, hillsides, old fields, savannas, open woods, woods' edges, roadsides, and waste areas. It is moderately tolerant of shade.

Range: The Butterfly Weeds is found throughout the eastern U.S., east of the Great Plains, excluding northern Maine and southern Florida.

Pollination of the Butterfly Weed

These flowers are insect-pollinated. This flower attracts many species of butterflies, especially the Monarch Butterfly (*Danaus plexippus* L.). Other attracted butterfly species are members of the Swallowtail Family (*Papilionidae*), the Sulphur Family (*Pieridae*), and the Copper and Hairstreak Families (*Lycaenidae*).

The sides of the central crown contain narrow slits to accommodate the flying, long-legged, pollinating insects. When the insect lands upon the crown to obtain the nectar, it inserts its legs into those slits. While placed inside of those slits, their legs can get caught upon the filaments of the yoked pairs of waxy pollen sacs. When the insect pulls its legs out of those slits, it may have some of those filaments still attached to its legs. When the insect lands upon another central crown, it will insert its legs into those narrow slits and will deposit some of that pollen into that new flower for pollination.

Unfortunately, some insects may not be able to free their legs from those slits and will remain trapped upon that flower. Those trapped insects will eventually die upon that flower.

Despite all of these pollinating efforts made by the insects, only a few of those flowers are ever pollinated. This explains the small numbers of seedpods per plant.

Toxicity of the Butterfly Weed

The Butterfly Weed contains substances that are toxic to both humans and livestock. If consumed by either humans or livestock, toxic symptoms may include bloating, breathing difficulties, dilated pupils, dullness, fevers, seizures, spasms, staggering, stupor, weakness, coma, and even death.

Because this plant is avoided, it is able to survive, reproduce, and spread within the fields. However, White-tailed Deer (*Odocoileus virginianus* [Boddaert]) have been observed consuming this plant with little or no ill effects.

All parts of this plant are toxic. These toxins include cardiac glycosides, such as asclepiadin, coroglaucigenin, frugoside, glucofrugoside, syriagerin, azarin, and uzarigenin. Other chemicals contained within this plant, some of them also being toxic, include alkaloids, resinoids, lignins, pectins, salts, gallic acid, tannic acid, and fixed and volatile oils.

Some insects also cannot tolerate this plant's toxins. However, the Monarch Butterfly larva can eat the leaves, accumulate those toxins inside of its body, and suffer no ill effects. Those accumulated toxins actually protect the Monarch Butterfly from its predators

Medicinal Uses of the Butterfly Weed

Despite this plant's toxicity, both the Native Americans and the early European settlers used this plant as medicine. The roots and leaves were used for making decoctions, infusions, and teas. The roots were collected in the fall and the leaves were collected when in foliage. Both the roots and the leaves were used either fresh or dried.

This plant was boiled and was used internally as an alterative, an anodyne, an astringent, a carminative, a diaphoretic, a diuretic, an emetic, an expectorant, a purgative, a sedative, a stimulant, a subtonic, and a vasodilator. It was used mainly for treating bronchial and pulmonary ailments, such as asthma, bronchitis, catarrh, consumption, influenza, pneumonia, and pleurisy. It was also used internally for treating stomach and intestinal ailments, such as colic, dysentery, dyspepsia, helmenthiasis, and typhoid. This plant was also used for treating hysteria, prostration, and rheumatism.

Butterfly Weed was sometimes used externally as well. A poultice from the macerated and pulverized roots was used for treating arthritis, bruises, cuts, eczema, hemorrhage, lameness, snakebites, sores, swellings, ulcers, and wounds. Some tribes also used this plant as body wash to improve both lifting and running strength.

Many prominent 19th Century physicians endorsed this plant's medicinal qualities. It was mentioned in William P. C. Barton's book, *Vegetable Materia Medica of the United States*. The Butterfly Weed was listed in the *U.S. Pharmacopoeia* (1820-1905) and in the *National Formulary* (1916-1936). Some of these roots were once gathered and sold to pharmaceutical companies.

Edible and Other Uses of the Butterfly Weed

The Native Americans had some edible uses for this plant as well. The flower buds, the young seedpods, and the young shoots were sometimes boiled as a potherb. Even the tubers were used as food, after they were boiled a few times to remove their toxins.

The flowers were sometimes used as a sugar substitute. For best results, they had to be gathered in the early morning before the dew evaporates.

Aside from food, this plant served other uses. The early European settlers used the silky tufts as candlewicks or to stuff cushions, mattresses, and pillows. These tufts were sometimes used with other fibers to make cloth. Later uses of these tufts included stuffing life jackets and cleaning up oil spills in the water.

Some Native American tribes used the stem fibers as textiles. These fibers were best harvested in the late fall. It took about 5 stalks of fiber for every foot of cordage. These fibers were used in making clothing or for making twine for belts or bowstrings. Some traces of these fibers were discovered while excavating an Ohio Adena Mound.

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