

## INTRODUCTION

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Missouri's central location on the North American continent, its temperate climate, its abundant rainfall, along with its rich forests and prairies, and its notable glades, have provided it with some remarkable plants. Among these are its milkweeds, milkvines and pipevines. There are 15 species of milkweeds native to Missouri, 4 species of milkvines, and 2 species of pipevines. All of the milkweeds belong to a single genus, *Asclepias*, while the milkvines belong to 3 different genera; 1 in *Cynanchum*, 1 in *Gonolobus* and 2 in *Matelea*. Milkweeds and milkvines are members of the Family Apocynaceae, subfamily Asclepiadoideae. Both pipevines are in the genus *Aristolochia* and are members of the Family Aristolochiaceae. All members of both families have peculiar adaptations to insect pollination and all are long-lived perennials. Some of them are known to live for more than 20 years. But if you wish to really appreciate these plants, you need to do more than just admire their beauty. You need to understand what makes them remarkable in the first place. And that involves taking a look at how their flowers are formed and how they function.

If you wish a more technical description of these species, I refer you to Steyermark's Flora of Missouri, Volume 2, by George Yatskievych 2006.

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## The Milkweeds: *ASCLEPIAS* Linnaeus

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The common name "milkweeds" refers to the milky sap that all members have, all save *A. tuberosa*, which has clear sap. The genus name *Asclepias* comes from the ancient Greek name, Asklepios, who was their god of healing. It was once the name of a European plant noted for its medicinal uses, but is now an American genus of about 100 species, members of which occur from Canada, throughout the United States, and down through Central America and into northwestern South America. They are mostly perennial herbs, with a few woody members that do not die back in the winter. All of the Missouri species are perennial herbs that do die back in the winter and resprout in the spring. They are dependent upon insects for cross pollination and have evolved a very complex floral mechanism for doing this. Members of *Asclepias* may have the most complex floral structures of any flowering plant. It took botanists nearly 200 years before they finally fully understood how they work.

If you look closely at a milkweed flower from the top, you should notice 5 black dots near the top of the central column. These are the corpuscula and each one is connected to 2 tiny sacks filled with pollen grains. Milkweeds do not have loose pollen like most other flowers. When an insect visits a milkweed flower in search of nectar, one of the hairs on its legs will slide into a groove on one of these corpuscula and be clamped fast to it. When the insect raises its leg, it will pull out this corpusculum and the 2 pollen sacks, a structure called a pollinarium. When the insect visits another flower on a different plant, it may insert one of these pollen sacks into a slot in the side of the column and leave it there. The small chamber behind the slot is filled with nectar and this causes the pollen grains in the pollen sack to germinate. The pollen tubes will grow into the stigma and down to the ovules and pollinate the flower. If you take a stiff fiber or hair and slide it up the side of the column, it will catch in the corpusculum and you will lift out a pollinarium. You can take this to another flower and insert it into the slot and pollinate the flower yourself. In the early morning, the hood-shaped nectar cups of the corona, are often filled with nectar. This is what attracts so many insects and even hummingbirds to the milkweed flowers.

The milky sap in the stems and leaves is often thought of as being distasteful to cows, horses, sheep and goats, but deer will eat their flowers and young fruits. And many chewing and sucking insects are attracted to the leaves and fruits and

## 15. *Asclepias viridis* Walter

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*Viridis* is Latin for green in reference to the petals of the flowers; hence, the common name is "Green milkweed."





*A. viridis* is a prairie species that forms large rosettes with many stems on older plants. The stems are ribbed rather than round and the corona resembles spokes on a wheel. It occurs in the southern half of Missouri but is most common in the western quarter. Blooms May-June.



## The Pipevines: *ARISTOLOCHIA* Linnaeus

The genus name of *Aristolochia* comes from two Greek words *aristos* for best and *lochía* for delivery, in reference to childbirth. A European plant was once used to ease its pains.

*Aristolochia* is a large, mostly tropical genus composed of vines and herbs. In Missouri there is one small herbaceous species and one large climbing one. The flowers are uniquely pipe-shaped, a modification of the calyx for insect cross-pollination; there is no corolla. Tiny flies enter the flower, attracted by its musty odor, hopefully coated with pollen from a previous visit to a flower, and deposit the pollen on the stigmas. They must then wait one day for the stigmas to close and the anthers to open and coat them with new pollen. The flower then wilts and releases them to fly off to another flower. Each flower produces a nectar-like food-source so the flies don't leave unrewarded for their service and will be willing to enter yet another flower.

