

SEEDS OF DIVERSITY



Iowa DNR Prairie Resource Center

June 2009

Species Spotlight: Butterfly milkweed

by Elizabeth Ford

One of the many interesting things to learn about prairie plants is their many uses in daily life. We often read about the plants medicinal uses by Native Americans or early settlers, but what about more recent history? Well, one plant that is common in the Iowa prairie did have a few interesting and modern uses. During WWII the milky sap of the milkweed, which contains trace amounts of natural latex, was tried as a rubber substitute though no proof of wide scale usage has been found. Fibers from the milkweed pod were tried as a substitute for kapok in life preservers during the same time. These soft fibers have also been used to stuff pillows. Kapok fibers come from the Great Kapok Tree in Southeast Asia and are very similar to milkweed silk in that it is produced in pods and is attached to the seeds of the tree. It is also highly flammable, water resistant and buoyant; though more so than milkweed silk. These attempted uses did not last long as both the sap and fluff proved fairly ineffective. Even though the modern attempts at using the parts of this plant failed, it is still amazing to see the versatility and usefulness of these plants, even today.

Butterfly milkweed, *Asclepias tuberosa*, also known as Pleurisy root or Butterfly weed is one of the species highly touted in the prairie. Peculiarly, it does not produce the milky sap that is its namesake. Plants grow to a height of 2 to 3 feet and produce clusters of bright yellow, orange, or red flowers. Its alternating leaves are elongate (3" by 1/2"), taper to a point and are slightly hairy. The fruit of this milkweed is long and thin (4" by 3/8"), is hairy and has a long beak. Butterfly weed is found mostly in dry soils but can grow in moist prairies and is often found near ground that has been disturbed. This milkweed is a main food source for the Monarch caterpillar.

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The Native Americans used parts of the milkweed plant for both food and medicine. Teas made from the roots or seeds were used to induce temporary sterility, settle stomach aches and draw the poison from a snake bite. The flowers were collected and used in soups or as preserves; one tribe boiled the juice from the flowers of the Common milkweed down to make a kind of brown sugar. The young shoots, pods and flowers can be eaten as a vegetable if repeatedly boiled. Though the plant can be eaten if thoroughly cooked, if consumed in large quantities uncooked the plant is toxic. Livestock tend to stay away due to the plants bitter taste. Consequently, milkweeds can be found in many unplowed pastures. Light to moderate grazing may increase the number of plants found on an area.

July is a great time to be out in the prairie as many species are in flower. Butterfly milkweed is one of those species that radiate with color in a July prairie walk. Look for the bright red, orange or yellow blossoms in early to mid July.



Contrasting colors of Butterfly milkweed,-Yellow(left), Red (right), and Orange in both photos. Orange is the most common color found in Iowa, but all three can be seen on an individual prairie.

Iowa's Rainforest

By Leah Zimek

As a child I was introduced to saving the rain forest. This was a topic of discussion in many classrooms. Now I find it strange that we spent all of this time talking about saving the rain forest in Brazil when we as a nation devastated our own diverse ecosystem, the tall grass prairie. Iowa's land once consisted of 70 to 80 percent prairie, totaling about 30 million acres. Many reasons for saving the rain forest today are equivalent to reasons to protect and expand the prairie that remains. One of the reasons includes the medicinal value in plants. For instance, many people do not realize that aspirin comes from a plant (Willow tree). Previously a plentiful source of medicinal plants utilized by Native Americans, the prairie holds tremendous value in medicine today. Our focus has been on the rain forest when we have never completely understood the potential of the prairie. There are over 200 native prairie plants that were used medicinally by the Plains Indians who were skilled at successfully administering the correct dosages of poisonous or harmful plants. Modern medicine has only begun to explore the pharmacopeia of the prairie ecosystem, but with the increasing rarity of select native prairie plants (soon to become protected species); they may never get the chance to solve some of the world's medical mysteries. Following are six of the most commonly used herbs and some of their historical applications, which has helped us realize their potential today.

Echinacea

Purple coneflower *Echinacea* is the most commonly used herbal product in the United States.



The roots of three of the species (all species native to at least parts of Iowa); Narrow-leaf coneflower, *Echinacea angustifolia*, Purple coneflower, *Echinacea purpurea*, and Pale purple coneflower, *Echinacea pallida* (the species grown, harvested, and distributed at the Prairie Resource Center) are used in medicine and research. Other species are not usually harvested because of their rarity. Plant roots are most commonly used since they are the most potent. Pale purple coneflower possesses antibacterial, antiviral, and antifungal properties and North American Plains Indians used it for these general medicinal qualities. One Native American tribe called it *Icahpe hu* and used it for snake bites, sepsis, and rabies. Either taken orally as a tea or externally by using freshly scraped bark as a poultice, some Plains Indians used it for wound healing or a snake

bite remedy. They also chewed pieces of the root stalk to relieve toothache pain since chewing the root causes the mouth to go numb. Some tribes saw it as a remedy for toothaches and other tribes used it for cough medicine, venereal diseases, sore throats, rheumatism, colds and eye infections.

Gerhard Madaus, a German pharmaceutical manufacturer, imported Pale purple coneflower seeds to Germany in the 1930s. Since then, German scientists have conducted research into the biochemistry, pharmacology, and clinical usefulness of the herb. Its popularity grew in both Europe and America as an herbal medicine.

Echinacea is believed to boost the immune system and strengthen the body's defense system, and treatment for the common cold can be traced back to the 1960s. Pale purple coneflower has been approved by European physicians for fighting fevers and colds. In India the root is used as an antivenin. In Italy a hot water extract of the dried leaves is used for inflammations. Here in the U.S. the herb is used for a number of ailments besides boosting the immune system. Tea is made from the roots or leaves and taken orally to treat sore mouth and gums, to relieve nausea and high fevers, to alleviate diarrhea accompanying septic conditions, and to relieve the pain of gastric cancer and breast cancer. It is also taken orally as an aphrodisiac. Externally the herb is used to relieve pain and combined with its antiseptic properties it helps to treat hemorrhoids, wounds, and carbuncles.

Great St. John's-wort, *Hypericum punctatum*

Native Americans considered Great St. John's-wort, *Hypericum punctatum*, to possess magical properties, having the ability to rid the body of both evil spirits and sickness. They used it to treat a range of illnesses including various "nervous conditions," depression, anxiety, insomnia, urinary incontinence, sleepwalking, hysteria, and others. They brewed a tea from the plant to treat tuberculosis.

Today, Great St. John's-wort is one of the most commonly purchased herbal products in the United States. After 1942, when the compound hypericin was isolated from the plant, St. John's-wort has received much attention as a treatment for depression. It also has antibacterial, antiviral and anti-inflammatory properties and has shown promise in treating alcoholism, bacterial infections, HIV infections and AIDS, premenstrual syndrome (PMS), seasonal affective disorder (SAD), viral encephalitis, flu, gout, insomnia, irritability, ulcers, and earache from an ear infection. Externally, St. John's-wort can be made into an ointment for bruises, wounds, burns, hemorrhoids, herpes sores, varicose veins, sciatica, and nerve pain. Oil can be produced to rub on areas affected by arthritis and rheumatism, and massaged around the spinal column for back pain symptoms.

Wild garlic, *Allium canadense*



Wild garlic, *Allium canadense*, was considered one of the most powerful herbs because of its antiseptic properties. Plant juices were often applied directly to open wounds and burns. Some Native American tribes crushed the bulbs and used them in a poultice for treating boils or snakebites and others used it for bee stings. The physician who accompanied Lewis and Clark made note of consumption of raw *Allium canadense* to control scurvy among the members of the exploration team. They also made a tea to control coughs and vomiting. An infusion of bulbs was used as an eyewash and ear drops for ear infection. Garlic was also used to prevent gangrene during World Wars I and II.

Wild Licorice, *Glycyrrhiza lepidota*

Historically, Wild licorice root, *Glycyrrhiza lepidota*, was not just a flavoring, it was used by the Plains Indian tribes for toothaches, fever, sore throats, and to strengthen the voice for singing. Earaches were treated with this plant by both steeping leaves in water and drinking the liquid, or made into a poultice of steeped leaves and applied directly to ears. A tea of the root was used to speed delivery of the placenta after childbirth. Some Native Americans prepared an infusion of roots or leaves to treat a case of diarrhea. It was also used to treat coughs, chest pains, fevers, stomachaches, etc.

The sweet roots of Wild licorice contain glycyrrhizin which is used by druggists and confectioners alike. Clinically, Wild licorice is useful against gastric and duodenal ulcers. Because of its soothing properties, it is a popular remedy for cough, some complications of tuberculosis, chest complaints in general, and relieving inflammation of mucus membranes. In humans, the adrenal glands are responsible for hormones that keep the body systems balanced. Some compounds in Wild licorice are thought to help the adrenal glands function more smoothly. Wild licorice is being used to treat hypoglycemia, diabetes, and Addison's disease, which is a malfunction of the adrenal gland.

New Jersey tea, *Ceanothus americanus*



Native Americans used the whole plant of New Jersey tea, *Ceanothus americanus* to make a tea they called *kituki manito*, meaning "spotted snake spirit," because they used it to treat snake bites and believed it had great powers. The root system of New Jersey tea is tangled and intricately knotted which apparently reminded the Indians of intestines, so they thought it should be good to use for GI upset (gastro-intestinal upset). New Jersey tea was also used for chest ailments including asthma, bronchitis, and whooping cough. It was used as a gargle for inflammation and irritations of the mouth

and throat and swollen tonsils. It was also once used to treat syphilis, gonorrhea, dysentery, and eye trouble in small children. The flowers are rich in saporins and when crushed and mixed with water, they produce an excellent lather. This was an effective and gentle soap which the Plains Indians used as a wash for skin cancer and venereal sores. Powdered bark has been used to dust sores and wounds.

Current day usage of the roots concentrates on their astringent (an 8% tannin level), expectorant, and antispasmodic actions that are employed in treatment of complaints such as asthma, bronchitis, and coughs. Mainly used as an infusion of one teaspoon root bark steeped in one cup of water taken one to two times a day which is recommended to promote heart-health.

Culver's root, Veronicastrum virginicum



Culver's root, *Veronicastrum virginicum*, or Culver's physic, was historically an American doctor's cure for a sluggish liver, constipation, and gallbladder inflammation. It was mixed with herbs such as fennel for the expulsion of gas. It also has a long history of Native American usage to induce vomiting for medicinal and ritual purposes.

Culver's root is officially listed in the United States Pharmacopoeia and is used as a cathartic and in disorders of the liver. It contains leptandrin, which excites the liver gently and moves bile through the bowels. The dried root is made into a tea or boiled with milk and taken as a laxative. It is often used for chronic constipation since it has a mild action that does not cause a depletion of physical strength, which can be common among purgative medicines. However, the fresh root can be a violent cathartic causing bloody stool.

Prairie plants still hold great potential as a medicinal source. Some are being studied for potential use in the treatment of cancer, heart disease, and for immunostimulant properties in fighting off viruses. With new medical ailments emerging, the reasons for preserving prairie for new drug discoveries are all the more important. Only about 0.1% of Iowa's original prairie is remaining, and it continues to diminish. Native Prairies are among the most threatened landscapes in America today. Education is the key to understanding what we are losing before it is too late.

Disclaimer:

[Do not concoct medicinal remedies from prairie plants. Many plants are toxic if used incorrectly or in conjunction with other medications. This article should not be used as a medicinal guide; it is solely a source of information and entertainment.]

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