



it's a
*Wildflower
World*

by Wayne Owen



MCMARCH BUTTERFLY ON BLAZING STAR (Liatris pycnostachya) IN BRANDENBURGMINNEN PICTURES

What are Wildflowers



Wildflowers are fun and colorful. Wildflowers make you smile, and they smell good, too. Wildflowers are flowering plants that are not woody like trees and shrubs, although many trees and shrubs have beautiful flowers. Ferns, mosses, and lichens are not wildflowers, either—such plants do not make flowers.

Wildflowers can be large or small, showy or modest, even weird and bizarre. Grasses can be wildflowers, too. Some wildflowers, called *epiphytes* (EP-uh-fites), live on other plants. Some wildflowers are *aquatic* (aw-KWAW-tik), meaning



Large-flowered columbine

Alpine and subalpine flowering plants

Wildflowers?

they live in water. Some wildflowers live underground for years, only to pop up and flower. Still others capture and eat small animals! In short, 3/4 of all plant species in the world could be called wildflowers.

Whether you live in the country or the city, wildflowers are everywhere. Wildflowers are important to both people and animals. Most of all, wildflowers are beautiful and fascinating.



ALKALI PROBOCIS (Pinnellia alcalina) JANET SKIPPYOW

What are Weeds?

Ask a dozen people to define "weed," and you get a dozen different answers. Some tell you that a weed is any plant not growing where you want it. Others say weeds are plants that come from other countries and spread rapidly (like kudzu vine). Others will tell you that unless a flower is growing in a garden, it's a weed.

The truth is...weeds are just like other plants! They make flowers, they are important to insects and wildlife, and they are pretty (even though you might have to look at them closely to see the beauty). It is also true that some plants are not welcome in some places but are perfectly at home in other places. A big, burly thistle is a weed if it grows in your yard, but goldfinches go crazy for thistle seeds, so thistles can be great garden plants.

Wildflowers N



SUNFLOWER (*Helianthus annuus*) USDA FOREST SERVICE

All wildflowers have at least two names. *Botanists* (BAW-tuh-nists)—scientists who study plants—give each kind of wildflower a one-of-a-kind scientific name. The scientific name has at least two parts. Scientific names are in Latin, a language no longer spoken. However, scientists worldwide use Latin to describe things. By using the scientific name for a flower, everyone everywhere knows what is being talked about. For instance, consider the sunflower, common in North America. It is also familiar to people in France and Russia, but the French call it *tournesol*, while

Russians call it *podsolnychnik*. Unless you are fluent in those languages, you probably wouldn't know that your French and Russian friends were talking about sunflowers.

A plant may have several different common names, even in the same country. The flower that you know as glacier lily might be known elsewhere as fawnlily, troutlily, dogtooth violet, avalanche lily, or adder's tongue. To add to the confusion, the same common name can

be used for several different flowers. For instance, two dozen or so different kinds of plants throughout North America share the name "mountain mint."

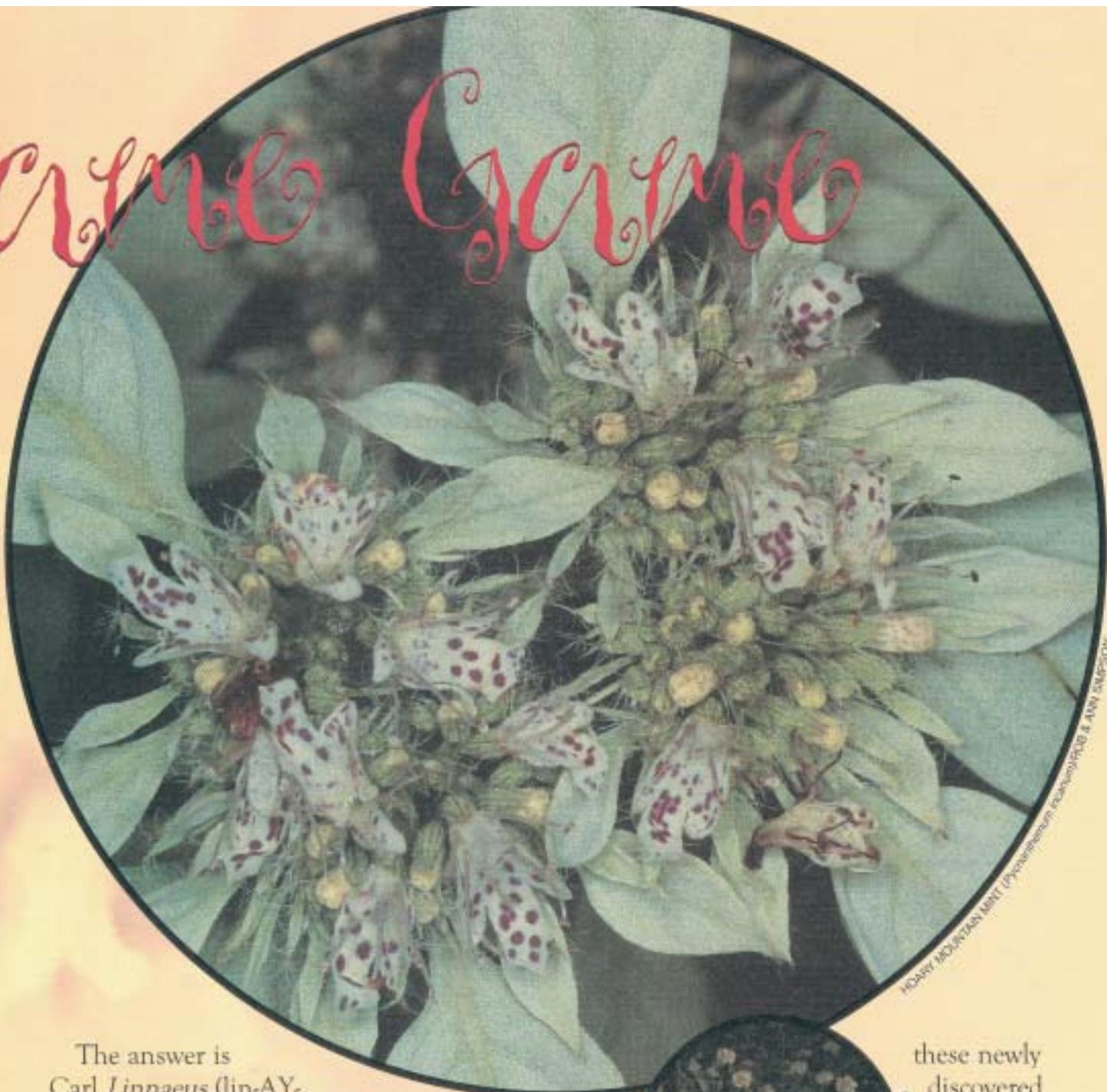
See why scientific names are important? They give us a universal language, understood by all. Common names can be a good thing, though. They often describe the flower well and are usually easier to pronounce than scientific names.

Who came up with the scientific naming system?



GLACIER LILY (*Luzula parryi*) KEN ARCHER

Crime Germs



HOARY MOUNTAIN MINT (*Phacelium tuberosum*) & ANN CAMPION



COLORED MINT (*Mentha sylvestris*) BROTHER ALFRED BROUSSEAU, ST. MARY'S COLLEGE

The answer is Carl *Linnaeus* (lin-AY-us), a botanist who lived from 1707 to 1778. Linnaeus worked at Uppsala University in Sweden. In the mid-1700s, Europeans were exploring the world and, for the first time, making collections of all the new plants and animals they were encountering. These

explorers sent such a huge variety of specimens back to the universities of Europe that scientists there were soon overwhelmed. They needed a simple way of organizing

these newly discovered organisms. Although they tried other methods, Linnaeus' system worked best, by far.

The secret of Linnaeus' success? Organisms are grouped according to their similarities.



QUEEN VICTORIA AGAVE (Agave victoriae-reginae) CONNIE TOOPS

These groups are called *genera* (JEN-er-uh)—singular *genus* (JEE-nus). All organisms in the same genus are given the same name, called the genus name. Then, each different kind of organism in the

genus is given a second name, a *species* (SPEE-sheez) name. Hence, all sunflowers in the world belong to the genus *Helianthus* (hee-lee-

AN-thus). All popcorn flowers are in the genus *Plagiobothrys* (play-jee-o-BAWTH-ris). How do we know if two flowers belong in the same genus? They share certain important characteristics—like number



SPRINGFIELD MISSOURI BOTANICAL GARDEN
PRAIRIE SUNFLOWER (Helianthus annuus)

degree from Washington University. She was a teacher and devoted plant collector in Idaho and the deserts of the southwestern United States. The scientific name for prairie rose is *Rosa arkansana*. Can you tell where this rose was first discovered? Although the prairie rose grows throughout the midwestern United States and Canada, its species name tells us it was first discovered in the state of Arkansas.

Agave victoriae-reginae was named after Queen Victoria of England (1819-1901).

of flower petals or kind of seeds they make.

The species name usually tells us something about the plant. For example, the species name *annuus* (AW-noo-oos) means "annual." An "annual" is a plant that grows from seed to flower, then dies—all in one year. *Helianthus annuus* is the annual sunflower. The species name *mollis* means soft, so *Plagiobothrys mollis* is the soft popcorn flower.

Sometimes, a plant is named after the person who discovered it. It may also be named for where it lives, or as a tribute to a famous person. Mulford's milkvetch (*Astragalus mulfordiae*) is named for Anna Isabel Mulford (1848-1943), first woman to receive a Ph.D.



MULFORD'S MILKVETCH (Astragalus mulfordiae) USDA FOREST SERVICE

What Good are

Through the ages, wildflowers have inspired authors and poets.

Evening Primrose

By John Clare (1793-1864)

When once the sun
sinks in the west,

And dewdrops pearl
the evening's breast;

Almost as pale
as moonbeams are,

Or its companionable star,

The evening primrose
opes anew

Its delicate blossoms
to the dew;

And, hermit-like,
shunning the light,

Wastes its fair bloom
upon the night,

Who, blindfold to
its fond caresses,

Knows not the beauty
it possesses;

Thus it blooms on
while night is by;

When day looks out
with open eye,

Bashed at the gaze
it cannot shun,

It faints and withers
and is gone.

Wildflowers also inspire great works of art. Consider the paintings of Claude Monet and Georgia O'Keeffe.

Wildflowers often have symbolic meaning in art. For example, lilies symbolize (stand for) purity, roses symbolize love, passionflowers symbolize religious faith, and water lilies symbolize eloquence.

For centuries, traditional Chinese paintings have focused on nature, and flowers have always been popular subjects. Dutch paintings of the 17th century featured elaborate *still lifes* (pictures of cut flowers). Nineteenth-century French and North American impressionists often painted fields of wildflowers and gardens.

This is not surprising. Beautiful things have always inspired creative people.

FOOD FROM FLOWERS

Wildflowers are the ancestors of almost every plant you have ever eaten. Wheat for bread comes from a wild grass that still grows

on hillsides in the Middle East. Ancestors of the first tomatoes and potatoes still grow in the highlands of western South America. Yams and okra come from wild plants first grown in the warmer parts of central Africa. Radishes and cabbages come from wild plants growing in the cool grasslands of northern Asia. Lettuce and broccoli come from plants eaten by the earliest Europeans.

You might be surprised to learn that all the flowers you see in gardens—roses, daisies, delphiniums, sweet peas—come from ancient wildflowers. But common garden flowers are considered tame, not wild, because they have been cultivated by humans for centuries.

Increasingly, people worldwide are planting wildflower gardens. These have several advantages over tame gardens. Wildflower gardens usually need less water and are free of serious insect pests and



Do Wildflowers?

diseases. Wildflowers come in a great variety of colors, shapes, and sizes. Perhaps most important, wildflowers attract birds and butterflies.

Almost all wild creatures

depend on wildflowers. Birds eat the seeds and berries produced by wildflowers. Bees, butterflies, and other insects eat and drink the pollen and nectar. Kangaroo mice thrive on fat, juicy seeds of wild grasses and sunflowers. In just one day, a grizzly bear can eat 80 pounds of wildflower fruit such as elderberries or huckleberries. Songbirds use the downy seeds of wildflowers to make cozy nests for their young. Some kinds of ducks pad their nests with big clumps of cattail fluff.



EASTERN TIGER SWALLOWTAIL ON PURPLE CONEFLOWER
ILLUSTRATION BY RICHARD DRY



BEAR CLUB EATING WILD ROSEBERRY & PECONY BARKER

Wildflowers

Every state and province has an official flower, usually a wildflower treasured by its citizens. Some examples:

United States

Alaska
Forget-me-not
California
California poppy
Colorado
Colorado columbine
Kansas
Sunflower
Kentucky
Goldenrod
Montana
Bitterroot

Canada

New Brunswick
Marsh violet
British Columbia
Pacific dogwood
Alberta
Wild rose

cities are full of rough, tough wildflowers such as bright yellow *tarweed* or sky-blue *chickory*. Roadsides and highway medians are often full of wildflowers, at least where they aren't mowed, poisoned, or sprayed. In fact, many states plant wildflowers along their highways to make them prettier.

One of the coolest things about wildflowers is that they grow almost everywhere: forests, fields, mountains, prairies, and deserts. Vacant lots and parking pads in



CALIFORNIA POPPY (*Euphrasia californica*)
BITTERROOT (*Lewisia rediviva*)

Do They Grow?

FLOWERS IN THE COLD

In central Alaska, temperatures regularly dip to 60 degrees below zero (-51.1 Celsius). In this harsh climate, wildflowers do not grow tall, but instead, hug the ground where it is a little bit warmer. How do these flowers get pollinated? After all, flowers depend on bees, flies,

butterflies, moths, and beetles to move their pollen around so they can make seeds. When temperatures are too cold for insects, flowers may have trouble making seeds. To solve this problem, some cold-climate



WITTELL'S LINANTHASTRUM (LUPINUSOIDES)

flowers wait until mid-summer to flower, or they develop ways *not* to depend on

insects. For example, several kinds of flowers pollinate themselves, and some flowers don't need pollen to make seeds.

FLOWERS IN THE HEAT

In desert areas like central Nevada's Humboldt Sink, or near Phoenix, Arizona, water is scarce. In the interior west of both the United States and Canada, as little as five inches of rain may fall in a whole year.

Compare that with places like Seattle, Washington, which receives nearly 40 inches per year; Halifax, Nova Scotia, with 46 inches per year; or New Orleans, Louisiana, with more than 60 inches per year.



EVENING PRIMROSE (Oenothera densiflora)

Wildflowers cope with extreme drought in a number of ways. Some grow and bloom during winter or early spring when temperatures are cool and a little bit of moisture is available. Others are super-speedy. They grow and make flowers rapidly after a heavy summer thunderstorm. Still others—most cacti, for example—have adaptations that enable them to survive desert heat and dryness.

FLOWERS IN THE WATER

Wildflowers face special challenges in wetlands such as Everglades National Park in southern Florida. Most plants “breathe” through their roots; plants that live in wet soil have trouble getting the air they need. That is why houseplants die when they are over-watered.

Plants such as water lilies and rushes have air chambers in their roots and stems. These chambers serve as “snorkels.”

A special group of plants, *epiphytes* (EP-uh-fytes), are fairly common in the Florida Everglades. Epiphytes live on other plants. Epiphytes do not harm the plants on

which they live (usually trees or shrubs); they simply use the plant as a place to “hang out.” Epiphytes have specialized roots that never find their way into the soil. The roots still serve a purpose, though. They help

the epiphyte cling to trunks and limbs. Like other plant roots, those of the epiphyte absorb moisture and nutrients—but they get these directly from the air! The most common epiphytes in southern Florida are *orchids* (OR-kids) and *bromeliads* (bro-MEE-lee-ads).

WATER LILY (Nymphaea odorata) COURTESY L. R. KUBOTA

SHOPLIP ORCHID (Laelia) MISSOURI FOREST SERVICE



Grassland wildflowers live in cramped conditions. Grass stems crowd the surface of the ground. Wildflowers may have difficulty growing up through the stems. Flowers that live among grasses tend to live a long time. Once they find a place to grow, they are likely to stay as long as they can. However, not all wildflowers of the plains are long-lived. Some species take advantage of badger holes and buffalo *wallows* (dust baths), where soil is bare. Usually, such habitats last only a few years

before grasses take over. Wildflowers that live here have to grow fast to beat the grasses. You can often spot badger holes and buffalo wallows from far away because the plants that grow here produce abundant flowers.

Many people would say that grasses are wildflowers, too. In fact, grass flowers are beautiful. Look at a grass flower through a magnifying glass. You will see a surprising array of colors and shapes. Grasses can be lovely in a garden or landscape.



GRASSLAND WILDFLOWERS

On the vast plains of North America, grasses are the main plant life. In summer, this "sea of grass" is dotted with grazing animals both tame and wild: horses, cows, sheep, deer, antelope, and buffalo. Wildflowers form patches of color among the grasses.



GRAY-HEADED CONEFLOWER (Pilosus Conosyria) B. SHELDON

Hard-to-Find



RARE WILDFLOWERS

Not all wildflowers are rare. Many are quite common. However, more and more are

becoming rare or even endangered. The Endangered Species Act identifies plants and animals in danger of becoming extinct. Presently, this act protects more than 700 flowering plants.

A wildflower can be rare in many different ways.

Some flowers have always been rare and probably always will be. These usually live in highly specialized habitats like mountaintops or hot springs, or have other unique needs (some require a certain kind of pollinator). Many plants occur over a wide range and can be common in some areas but rare



Wildflowers

in others. Other plants are rare because their habitats have been changed or destroyed. When humans build houses and roads, or drain wetlands, without consideration for wild things, rare plants can be the biggest losers.

You can become active in rare plant conservation by joining the native plant society in your state.

WILDFLOWER WORD SEARCH

These 10 words are hidden in the word scramble. Find and circle them (answers on last page of special section).

- Pollinator
- Botanist
- Bird
- Seeds
- Wildflower
- Garden
- Farm
- Rare
- Weed
- Butterfly

JUST FOR FUN!

After completing the Wildflower Word Search, look at the left-over letters to spell out this "secret" message: "Wildflowers will improve your life by making you smile."

ALPINE AND SUBALPINE FLOWERS IN A FOREST SERVICE



W	I	P	L	D	F	L	O	W	E
R	B	O	T	A	N	I	S	T	B
S	W	L	I	L	I	M	S	I	
W	I	L	D	F	L	O	W	E	R
P	R	I	O	A	V	W	E	E	D
E	Y	N	O	R	A	R	E	D	U
R	L	A	I	M	F	E	B	S	Y
B	U	T	T	E	R	F	L	Y	M
A	K	O	I	N	G	Y	O	U	S
G	A	R	D	E	N	M	I	L	E

ANSWER KEY WILDFLOWER WORD SEARCH



IT'S A WILDFLOWER WORLD was produced through a partnership between the U.S. Forest Service and Wild Outdoor World (W.O.W.)®, the Rocky Mountain Elk Foundation's magazine for kids. To subscribe to W.O.W.®, call **1-888-301-5437**.



All background images by Dennis Flaherty unless otherwise noted

WEB SITES

www.fs.fed.us/outdoors/naturewatch/wildflowers/flower.html

U.S. Forest Service and Bureau of Land Management celebrate wildflowers each May. Find wildflower information, classroom resources here

botany.about.com/science/botany/

The only general botany news service on the Internet

daphne.palomar.edu/wayne/wayne.htm

Best source of cool stuff about plants of every kind

plants.usda.gov/plants/

Shows distribution of every plant species in the United States

endangered.fws.gov/

Lots of information about endangered plants and animals

www.rbgekew.org.uk/

Kew Garden, most famous botanical garden in the world

www.mobot.org/

Missouri Botanical Garden, among the best botanical gardens in North America

www.wildflower.org/

Lady Bird Johnson Wildflower Center, leading source of information on wildflower gardening

www.nps.gov/plants/

Plant Conservation Alliance, promotes native plant conservation and research

tncweeds.ucdavis.edu/

The Nature Conservancy's exotic, invasive plant species page

www.ou.edu/cas/botany-micro/idb/

Mother lode of botany and wildflower links