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# Habitat Garden Guide



This guide introduces you to the plants that grow where the old Flagstaff sawmill operated for more than 80 years. Today the site is home to Willow Bend Environmental Education Center's straw bale, passive-solar building that hosts our Environmental Discovery Room. Surrounding the building are five habitat gardens made up of plants that are native to the Colorado Plateau:

- 1. Lizard Garden**
- 2. Pond Garden**
- 3. Forest Garden**
- 4. Wildflower Garden**
- 5. Hummingbird Garden**
- 6. Three-Sister's Garden**

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## Lizard Garden

The lizard garden is a hill with two distinctive environments based on the north or south facing aspect of the hillside. The south slope of the hill is hot and dry, and is similar to what is found at the southern base of Mt. Elden. It features agaves and yuccas, mixed with grasses and some shrubs. The surface is mulched with a cinder soil with rocks that retain the sun's heat. The warm rocks and logs are attractive habitats for lizards. The north side of the hill gets more shade, resulting in less heat, but is still a dry environment. This habitat is reflective of the Great Basin Desert. Predominant plants here are sagebrush with juniper and pinyon trees.

## Plants that were planted in the Lizard Garden:

Parry's Agave, *Agave parryi*\*  
 Claret Cup Cactus, *Echinocereus triglochidiatus*\*  
 Prickly Pear, *Opuntia*\*  
 Banana Yucca, *Yucca Baccata*\*  
 Western Yarrow, *Achillea lanulosa*  
 Sacred Datura, *Daturameteloides*  
 Yellow Wallflower, *Erysimum asperum*  
 Western Wallflower, *Erysimum capitatum*  
 Adobe Blanketflower, *Gaillardia pinnatifida*  
 Golden Aster, *Heterotheca villosa*  
 Scarlet Gilia, *Ipomopsis agregata*  
 Gayfeather, *Liatris punctata*  
 Pearseed, *Macromeria viridiflora*  
 Desert Four O'Clock, *Mirabilis multiflora*  
 Pale Evening Primrose, *Oenothera pallida*\*  
 Lambert's Locoweed, *Oxytropis lambertii*  
 Sunset Crater Penstemon, *Penstemon clutei*  
 Pineleaf Penstemon, *Penstemon pinifolius*  
 Paperflower, *Psilostrophe tagetina*  
 Groundsel, *Senecio spartoides*  
 Prairie Zinnia, *Zinnia grandiflora*  
 Sideoats Grama, *Bouteloua curtipendula*  
 Blue Grama, *Bouteloua curtipendula*  
 Arizona Fescue, *Festuca arizonica*  
 Beargrass, *Nolina microcarpa*  
 Indian Ricegrass, *Oryzopsis hymenoides*  
 Mutton Grass, *Poa fendleriana*  
 New Mexico Needle Grass, *Stipa neomexicana*  
 Fringed Sagebrush, *Artemisia frigida*  
 Prairie Sage, *Artemisia ludoviciana*  
 Big Sagebrush, *Artemisia tridentate*  
 True Mountain Mahogany, *Cercocarpus montanus*  
 Green Rabbitbrush, *Chrysothamnus nauseosus*  
 Rubber Rabbitbrush, *Chrysothamnus viscidiflorus*  
 Cliff Rose, *Cowania mexicana*  
 Mormon Tea, *Ephedra viridis*\*  
 Apache Plume, *Fallugia paradoxa*\*  
 Threelobed Sumac, *Rhus trilobata*  
 Pinyon Pine, *Pinus edulis*\*

Note: All of these plants  
may not have survived

\* Highlighted on following pages

## THANK YOU SUPPORTERS!



Arizona Game and Fish



City of Flagstaff



Coconino Natural Resource Conservation District



Ecological Restoration Institute of Northern Arizona  
University



Flagstaff Cultural Partners



Greater Flagstaff Forest Partnership



Urban and Community Forestry Challenge Grant–  
Arizona State Lands



U.S. Forest Service

### Guide to Willow Bend's Habitat Gardens

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## Willow Bend Environmental Education Center

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Willow Bend Environmental Education Center is a private, non-profit 501©(3) organization, sponsored by the Coconino Natural Resource Conservation District (NRCD). Our mission is to provide educational outreach services which build environmental awareness and an ethic of responsible stewardship of our natural and cultural resources. Willow Bend was founded in 1978 (as the Resource Center for Environmental Education) to coordinate and assist in developing environmental education programs in Northern Arizona.

### Where did Willow Bend's name come from?

Willow Bend gets its name from the patch of coyote willow trees at the bend of the Flagstaff Urban Trail south of the educational center. The willows are just visible from the center, can you see them?



### PARRY'S AGAVE *Agave parryi*



©W.L. Wagner @ USDA-NRCS PLANTS Database

You may be more familiar with Parry's agave's other common name: century plant. They are both the same plant- *Agave parryi*.

This agave shoots a flowering stalk up to 18-feet high (yes, *feet*). The plant sends up the stalk after about 25 years, blooms, and then dies. Luckily, new plants grow on the root systems before its death and are ready to take over.

### CLARET CUP CACTUS *Echinocereus triglochidiatus*



© Br. Alfred Brousseau, Saint Mary's College

The claret cup cactus, like most cacti, is spiky! Its spines are white and its stems are green to bluish green.

The outstanding beauty of this plant is its flower- a gorgeous scarlet-red bloom. Look at the center of the flower. The long green stem is the flower's stigma, which is part of the plant's reproductive system.

The distinctive flower has resulted in other names for this cactus, including *heart twister* and *strawberry cactus*.

## PRICKLY PEAR *Opuntia*



© Br. Alfred Brousseau, Saint Mary's College

Prickly pear is in the cactus family. It has large spines that grow up to three-inches. Do not touch them because they are sharp and they hurt! The spines grow from the cactus pads, though they are usually absent from the lower part of the pads. Large yellow flowers with thin petals grow on the pads. Some people compare the flower petals to tissue paper because they are so thin.

In the summer months, prickly pear cactus fruits appear. The fruits are fleshy, egg-shaped, and about two-inches long. These edible fruits can add a delightful flavor to summer drinks, such as lemonade. The fruits are often available at the Flagstaff Farmer's Market if you want to sample the delicious flavor.

## BANANA YUCCA *Yucca baccata*



© Br. Alfred Brousseau, Saint Mary's College

Banana yucca is part of the agave family, so you may note the resemblance between this yucca and Parry's agave. The yucca is different because its leaves are thinner with no marginal spines, and its flowering stalk only reaches up to five-feet (still an impressive height!).

Yuccas produce edible banana-shaped fruits. Its flowers and seeds are also edible.

The yucca was a special plant to Native Americans in the area because its leaves contain a natural fiber that was used to make baskets, rope, sandals, and mats.

## CREATE BACKYARD HABITATS

*Improve our human communities while  
enhancing natural communities*

Gardening is a wonderful way to learn about nature and to support diverse wildlife in Flagstaff. Nature-friendly landscapes that use native plants are well-adapted to our special environment—requiring less water, energy, fertilizer, and labor. These plants enhance natural communities by supporting wildlife of all kinds: mammals, birds, butterflies, other insects, and more.

## USEFUL RESOURCES

### Flagstaff Native Plant and Seed

928-773-9406

### Nature's Rewards

928-714-9492

### Warner's Nursery and Landscaping

928-774-1983

### National Wildlife Foundation

[www.nwf.org](http://www.nwf.org)

### Native Plants for High-Elevation Western Gardens

Book by Janice Busco and Nancy R. Morin

## GAMBEL OAK *Quercus gambelii*



www.Southwestcoloradowildflowers.com

Gambel oak is Arizona's only oak with shiny, bright green oak-like leaves: 2 to 6 inches long and deeply lobed like an eastern oak. A deciduous tree, its leaves come out rather late in spring, often in May, and they turn yellow to reddish-brown and fall in October.

The Gambel Oak grows most often in thickets of a dozen or more. They are usually clones that grew up from a single root system, often after a fire (similar to aspen trees).

Gambel Oaks provide forage and cover for livestock and wildlife. The leaves are often browsed and many mammals and birds enjoy the acorns. Humans use the protein-rich acorns as well, grinding them into a meal or flour. Gambel oak has been a common source of fence posts, construction and fuels and is often an important plant in watershed protection.

## ROCKY MTN. BEEPLANT *Cleome serrulata*



www.Southwestcoloradowildflowers.com

A member of the caper family, Rocky Mountain Beeplant (also known as Beeweed) is an erect annual that grows to about three feet in our area. The flowers come in the form of dozens of bright, pink to purplish flowers about ½ long with long stamens, giving the plant a fuzzy appearance.

This plant has historically been collected by peoples of the Southwest for food, medicines, and dye. The young shoots, leaves, and flowers can be cooked and used as potherbs high in calcium and Vitamin A. Seeds can be eaten raw, cooked, or dried and ground into meal. The whole plant can be boiled down into a thick syrup for use in painting pottery.

## PALE EVENING PRIMROSE *Oenothera pallida*



Pale evening primroses grow around sandy areas. They grow up to 18-inches tall.

Their white flower blossoms open in the early evening and close in the morning- this adaptation allows the wildflower to retain its water by not losing it to the sun.

*Primrose*, in its title, comes from the latin word *primus*, meaning *first*. It is fitting that *prim-* is part of the pale evening primrose's name because its flowers are some of the first to bloom in early spring.

## MORMON TEA *Ephedra viridis*



© Br. Alfred Brousseau, Saint Mary's College

Mormon tea is a coniferous shrub that grows up to three feet tall. It is a jointed plant with inconspicuous scaly leaves at its stem joints.

Male cones and female cones are on separate plants. The male and female plants even grow in different environments! Males prefer windier, steeper, drier spots to disperse their pollen with help from the wind, while females prefer moister areas with more nutrients for seed production.

Native Americans and early pioneers used *Ephedra viridis* as a medicinal tea because it contains pseudoephedrine, a drug commonly used in nasal decongestants today.

## APACHE PLUME

*Fallugia paradoxa*



G.A. Cooper @ USDA-NRCS PLANTS Database

Apache plume is an evergreen shrub that grows up to six feet.

Its leaves are alternate and dull green.

It is in the Rose Family and its flower is (not-surprisingly) rose-like. The flower is pure white with five petals, a yellow center, and a lovely fragrance.

Apache plume is typically found in drier areas such as roadsides, dry washes, and hillsides.

Its root system is complex, helping prevent erosion on slopes.

Native Americans used its stiff stems to make arrowshafts and outdoor brooms. Its roots were used to make cord for fences.

## PINYON PINE

*Pinus edulis*



© Br. Alfred Brousseau, Saint Mary's College

Pinyon pines and junipers usually grow in the same community, sometimes referred to as the pygmy forest.

Pinyon pines are common trees across the Colorado Plateau and Northern Arizona. They have leaves in bundles of two that are usually about two-inches long. Their crowns are distinctly rounded.

The *edulis* part of its scientific name signifies that part of the tree is edible- the pine nuts. A pound of these nuts has over 3,000 calories, making pine nuts a high-energy, nutritious food.

## THREE-LEAF SUMAC

*Rhus trilobata*

[www.Southwestcoloradowildflowers.com](http://www.Southwestcoloradowildflowers.com)



Each leaf of the Three-leaf Sumac has three leaflets, which turn a rich orange-red color in the fall. The fruit of the sumac shrub have sticky, hairy berries that are red to orange in color. These showy clusters are eaten by wild birds, can be boiled down to make tea and lemonade, and are used in breads and cakes.

This plant is often referred to as skunkbush because when the branches are broken, they have an unpleasant aroma.

The bark, fruit, leaves, and roots of this plant have all been used in medicinal ways. All parts of the sumac can be used to make dyes for baskets and rugs, and the branches are often used in basketry because they are strong and flexible.

## WILD ROSE

*Rosa woodsii*



[www.Southwestcoloradowildflowers.com](http://www.Southwestcoloradowildflowers.com)

*Rosa woodsii* is a beautiful native shrub that showcases delicate, fragrant 5-petaled pink flowers with numerous yellow stamens. This plant has colorful reddish-brown stems and leaves that color up in the fall.

The rhizome system of this plant makes it effective in erosion control, and the species has been used to revegetate disturbed areas.

Plants are used as ornamentals near homes to attract birds and other wildlife. Thickets formed by Wild Rose provide nesting and escape cover for many birds and small mammals.

The hips are a great source of vitamin C and are dried for use in flavoring, jellies, fruitcakes, and puddings.

**MOUNTAIN PARSLEY***Pseudocymopterus montanus*

[www.Southwestcoloradowildflowers.com](http://www.Southwestcoloradowildflowers.com)

The characteristic umbels above finely cut leaves mark this as a member of the Parsley Family. Mountain Parsley's golden-yellow or paprika-colored flowers are widely distributed and very common in the Four Corners area.

Its blooming season is very long, ranging from early spring in the low foothills to late summer in alpine meadows.

The stalks and leaves of this plant can be used as a summer green or as flavoring in soups and salads. Though many plants in the parsley family are edible, not all are! Some, such as poison hemlock and water hemlock are deadly. Therefore, it is very important to correctly identify this species before partaking in its deliciousness.

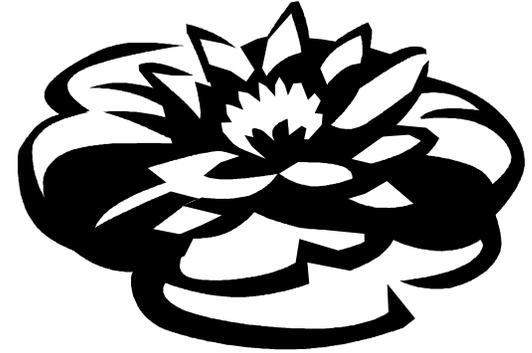
**BUTTERFLY MILKWEED***Asclepias tuberosa*

[www.Southwestcoloradowildflowers.com](http://www.Southwestcoloradowildflowers.com)

Butterfly Weed is a type of milkweed that is a long-lived and hardy perennial. The magnificent bright orange flowers are concentrated in compact clusters at the top of branching stems. The flowers produce a large quantity of nectar, which attracts butterflies, honeybees, and hummingbirds throughout the growing season.

This plant, unlike other milkweeds, contains little or no milky juice.

Butterfly Weed has both edible and medicinal properties. The seed pods are edible and cooked before the seed floss forms. The flowers can be harvested, and when cooked are said to taste like sweet peas. The leaves and new buds are edible and can be cooked like spinach.



## Pond Garden

This garden offers two types of riparian areas that may be seen on the Colorado Plateau. The first is a flowing stream and pond that hosts a variety of aquatic plants, insects, birds, and wildlife. The second component is the ephemeral wetland that is fed by runoff from the parking lot. Since this area is dry much of the time, it supports different plants than those at the edge of the pond.

## Plants that were planted in the Pond Garden:

Torrey's Rush, *Juncaus torreyi*  
 Hardstem Bulrush, *Scirpus americanus*  
 Three Square Bulrush, *Scirpus*  
 Softstem Bulrush, *Scirpus validus*  
 Cattail, *Typha latifolia*\*  
 Golden Columbine, *Aquilegia chrysantha*\*  
 Western Blue Flag, *Iris missouriensis*  
 Cardinal Flower, *Lobelia cardinalis*  
 Rocky Mountain Iris, *Iris missouriensis*  
 Yellow Monkeyflower, *Mimulus guttatus*  
 Jacob's Ladder, *Polemonium foliosissimum*  
 Red Cinquefoil, *Potentilla thurberi*  
 Mountain Parsley, *Pseudocymopterus montanus*  
 Cutleaf Coneflower, *Rudbeckia laciniata*\*  
 New Mexican Checkermallow, *Sidalcea neomexicana*\*  
 Blue-Eyed Grass, *Sisyrinchium demissum*  
 Blue Grama, *Bouteloua gracilis*  
 Arizona Fescue, *Festuca arizonica*  
 Red Twig Dogwood, *Cornus stolonifera*  
 New Mexican Olive, *Forestiera neomexicana*  
 Bebb Willow, *Salix bebbiana*  
 Coyote Willow, *Salix exigua*\*  
 Arroyo Willow, *Salix lasiolepis*  
 Russet Buffaloberry, *Shepherdia canadensis*  
 Grape, *Vitis arizonica*  
 Thinleaf Alder, *Alnus tenuifolia*\*  
 River Birch, *Betula occidentalis*  
 Narrowleaf Cottonwood, *Populus angustifolia*\*

*Note: All of these plants  
 may not have survived*

*\* Highlighted on following pages*

## BLUE FLAX *Linum lewisii*

[www.Southwestcoloradowildflowers.com](http://www.Southwestcoloradowildflowers.com)



Blue flax is a perennial flowering plant with long, narrow, grayish-green foliage. This plant may have dozens of bright blue flowers, 1-2 inches in diameter in drooping branches at the tip of each stem. The flowers, lasting only one day, are funnel-shaped when they open in the morning, flatten as the day progresses, and are dropped by the following day. These five-petaled flowers attract butterflies.

The fiber of blue flax has been used by Native Americans for cord, fishing nets, mats, and baskets. Cultivated flax is used to make linen and seeds are crushed to produce linseed oil.

This species is named "lewisii" in honor of Meriwether Lewis, or Lewis and Clark.

This Western native tolerates

## WILD ONION *Allium cernuum*



USDA Thomas G. Barnes

*Allium cernuum* is called the "nodding" wild onion because of the little bend near the top of the stem, causing the blossoms to turn downward. The grassy leaves become a foot tall, with the flowers rising a half foot higher, but on wire stems that may tip lower. The loose clusters of those nodding bell-flowers range from light pink to creamy white.

All parts of this plant smell like onion if bruised.

The bulbs can be used as a soup or stew flavoring, the leaves are a good substitute for chives, and the flowers make a very decorative and tasty addition to salads. The whole plant is said to repel insects and moles.

## Plants that were planted in the Three Sisters Edible Plant Garden:

### “Trees and Shrubs”

Gamble Oak, *Quercus gambelii* \*  
 Chokecherry, *Prunus virginiana*  
 Banana Yucca, *Yucca baccata*  
 Canyon Grape, *Vitis baccata*  
 Utah Serviceberry, *Amelanchier utabensis*  
 Currants, *Ribes spp.*  
 Wild Rose, *Rosa woodsii* \*  
 Roundleaf Buffaloberry, *Shepherdia rotundifolia*  
 Three-leaf Sumac, *Rhus trilobata* \*  
 Pinyon Pine, *Pinus edulis*

### “Herbs and Other Crops”

Heirloom varieties of squash, beans, and corn  
 Maximilian’s Sunflower, *Helianthus maximilianii*  
 Rocky Mountain Beeplant, *Cleome serrulata* \*  
 Wild Onion, *Allium cernuum* \*  
 Wild Bergamont, *Monarda fistulosa*  
 Mountain Pennyroyal, *Monardella odoratissima*  
 Mountain Parsley, *Pseudocymopterus montanus* \*  
 Yarrow, *Achillea millefolium*  
 Butterfly Weed, *Asclepias tuberosa* \*  
 Miner’s Lettuce, *Claytonia perfoliata*  
 Strawberry, *Fragaria spp.*  
 Fireweed, *Epilobium angustifolium*  
 Blue Flax, *Linum lewisii* \*

*Note: All of these plants may not have survived*

*\* Highlighted on following pages*

## NEW MEXICAN CHECKERMALLOW *Sidalcea neomexicana*



©Al Schneider @ USDA-NRCS PLANTS Database

New Mexican Checkermallow fits appropriately in the pond garden because this plant species can only live in moist environments such as along streams and in wet meadows.

The wildflower grows up to three-feet. Despite its height, it is difficult to recognize outside of summer and early fall months. It is easiest to recognize New Mexican checkermallow from June to September when its deep pink to purplish, five-petal flowers are in bloom.

Butterflies and hummingbirds are attracted to the pretty and plentiful New Mexican Checkermallow flowers.

The leaves of this herbaceous perennial plant can be eaten as greens.

## CATTAIL *Typha latifolia*



© Br. Alfred Brousseau, Saint Mary's College

Cattails are tall, stiff reeds that are found in freshwater marshes. These aquatic plants bear yellowish, club-like spikes of tiny male flowers extending directly above a brown cylinder of female flowers.

Native Americans and early colonists used cattails for diverse purposes. The young shoots, immature flower spikes, and the sprouts at the tip of the rootstock were eaten. Also, the seed fluff was used to stuff pillows, mattresses, and diapers.

Would you sleep on a pillow stuffed with cattail seed fluff?

## GOLDEN COLUMBINE

*Aquilegia chrysantha*



J.S. Peterson @ USDA-NRCS PLANTS Database

Golden columbine is in the Buttercup family. Although flowers in that family do not have to be the canary-yellow that buttercup flowers are, golden columbines exhibit that same shade of yellow, so it is easy to remember which family it belongs to.

The sepals of columbines form a star-shaped backdrop for the five flower petals.

Golden columbine's leaves are bluish-green and are divided into three leaflets.

The habitat of golden columbines is along streams and in rich soils in mixed conifer and aspen groves.

## ROCKY MOUNTAIN IRIS

*Iris missouriensis*



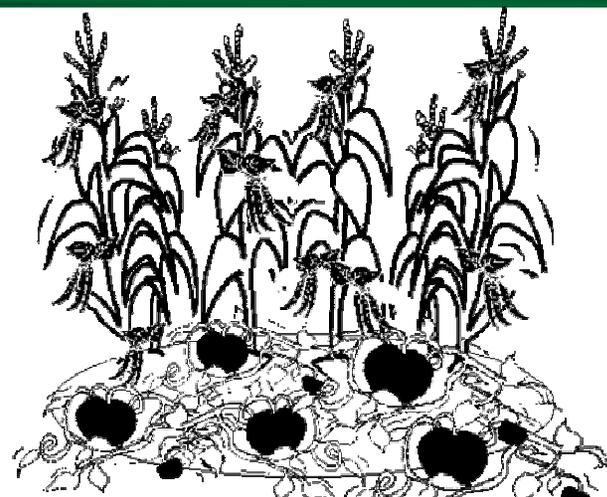
Al Schneider @ USDA-NRCS PLANTS Database

Rocky mountain iris is found along streams, in wet meadows, and in moist forest clearings.

Rocky mountain iris leaves are sword-shaped, long, and dark green. Although beautiful, the leaves are poisonous if eaten.

The flower of *Iris missouriensis* is typical of other irises: three erect petals with three wider sepals that fall towards the ground. The flowers are pale blue to violet color and are streaked with white.

The lovely iris flowers attract butterflies when in bloom.



## Three Sisters Edible Plant Garden

**The Three Sisters Edible Plant Garden highlights plants which are native to Arizona and have edible and/or medicinal properties. Many of these low-water natives provide forage and cover for birds and wildlife and have been used as sources of dyes and materials for basketry and construction.**

**This garden includes heirloom varieties of corn, beans and squash which were graciously donated to us by a Hopi dryland farmer. These varieties are well-adapted to dry landscapes and grow well without supplemental irrigation. Other vegetables grown in this garden demonstrate the ability to grow fresh, organic produce in the high country.**

**ROCKY MTN. PENSTEMON**  
*Penstemon strictus*



Judy Sedbrook CSU

Rocky mountain penstemon, also referred to as “Beardtongue”, has striking blue-violet flowers. The nectar-filled flower tubes attract hummingbirds and insects.

Since the Rocky Mountain Range is this wildflower’s native land, it grows best in environments similar to the Rocky Mountains. It thrives off of bright full sun and semi-arid soils. This penstemon can be successfully grown and maintained in Flagstaff with average waterings.

**SCARLET BUGLER**  
*Penstemon barbatus*



Wikipedia

The scarlet bugler is part of the Figwort Family, similar to other penstemons. The flowers are seen in panicles, meaning there are several off of one main stem.

The flowers are a deep scarlet (red) color. Red is the only flower color that is not apparent to insects, so red flowered plants depend on birds for pollination. Hummingbirds are especially attracted to scarlet buglers for their color, which leads the birds to the rich nectar inside the flower tube.

**THINLEAF ALDER**  
*Alnus tenuifolia*



© Br. Alfred Brousseau, Saint Mary's College

Thinleaf alders are large shrubs or small trees that live near streams or in moist high-altitude meadows.

Alders have groups of small cones. Their leaves are dark green on top and a lighter green on the bottom side. If you can get close enough to an alder leaf, check out the bottom side- it almost looks like the top of the leaf folds over the bottom side like a sewing hem.

An interesting historical note about the thinleaf alder is that the Navajos used to make a red dye from its bark to dye wool.

**NARROWLEAF COTTONWOOD**  
*Populus angustifolia*



R. Jackson

Like willows, cottonwoods grow in riparian environments. They are very important to riparian communities because their deep roots prevent erosion and keep soils porous so that water can reach great depths.

The narrowleaf cottonwood has narrow, triangular leaves. The female seeds release white cotton that can be seen around the tree’s base. The cotton helps the seeds catch wind for easy dispersal.

## COYOTE WILLOW

*Salix exigua*



© Br. Alfred Brousseau, Saint Mary's College

Willows are one of the dominant plants found along streams, an area called the riparian environment. They are only found in riparian areas because they need abundant water that is close to the ground's surface to survive.

This species of willow grows up to nine feet. It is easy to identify willows in the early spring by their signature catkins. Catkins are short spikes of cottony flowers.

Rub a catkin across your face, what does it feel like?

## CUTLEAF CONEFLOWER

*Rudbeckia lacinata*



Larry Allain @ USDA-NRCS PLANTS Database

Another name for this herbaceous perennial is brown-eyed Susan.

Like other coneflowers, the disk of this flower is long and cylindrical.

The plant itself can grow stalks up to eight feet tall with dark green leaves that can reach almost one foot long. The flowers are typically three to four inches and are bright yellow.

Cutleaf coneflowers are particularly long-blooming and attract butterflies throughout the blooming season.

Interestingly, this plant is poisonous to livestock (cattle, sheep, and swine).

## HUMMINGBIRD MINT

*Agastache pringelii*



Friends of Cheyenne Canyon

Native to the Southwest, hummingbird mint is another tubular flower that hummingbirds adore due to its rich nectar.

Agastaches tend to be drought-tolerant plants, a desirable characteristic in the high-desert.

The common name contains the word "mint" due to its highly fragrant leaves. Can you find *Agastache pringelii* and smell the mint fragrance?

## HUMMINGBIRD MINT

*Agastache cana*



Friends of Cheyenne Canyon

*Agastache cana* is very similar to the *pringelii* variety. It has pinkish tubular flowers filled with nectar that attracts hummingbirds.

Hummingbird mint is a good example of plants that has several species, denoted by different scientific names, but go by the same common name. The scientific names are assigned by botanists so that plants can be recognized internationally, no matter what language a person speaks. How are "scientific names" or "Latin names" assigned anyway? The first word (capitalized) is the plant's genus name. Plants that have similar physical characteristics will have the same genus name. The second word (lowercase) is the plant's specific epithet, providing the plant with a typically two-word species name. So, you are able to see two different *species* of hummingbird mint!

## SCARLET GILIA

*Gilia aggregata*



Keir Morse

Scarlet gilia produces flowers ranging in color from red to white. The plant is very adaptable to environmental and seasonal changes. For example, in spring the scarlet gilia flowers are typically red, attracting the hummingbirds in the area. Later in the summer, when birds have migrated, the flowers change to a light pink or white color, attracting the pollinators in the area at that time, moths.

Scarlet gilies have star-shaped, pointed-tipped flowers, distinguishing them from penstemons in the hummingbird garden.

## FIRECRACKER PENSTEMON

*Penstemon Eatonii*



Utah Native Plants

Firecracker penstemon has brilliant scarlet-red flowers. The plants prefers well-drained soil and is partially drought-resistant.

Penstemons do not have fragrant flowers, one reason why insects are not usually attracted to them. Birds, on the other hand, have a very poor sense of smell, so they are attracted to flowers simply by their color, making firecracker penstemon an attractive candidate for a sweet nectar snack.



## Forest Garden

The forest garden makes use of the shady north side of the building. It features some of the trees and shrubs that can be found in the Ponderosa Pine forests characteristic of this region. The shrubs, grasses, and forms that may be overlooked when walking through a forest are more noticeable in this garden.

## Plants that were planted in the Forest Garden:

Western Yarrow, *Achillea lanulosa*  
 Rocky Mountain Pussytoes, *Antennaria parvifolia*  
 Dayflower, *Commelina dianthifolia*  
 Redroot Buckwheat, *Eriogonium racemossoum*  
 Purple Cranesbill, *Geranium caespitosum*  
 White Cranesbill, *Geranium richardsonii*  
 Silvery Lupine, *Lupinus argenteus*  
 Purple Aster, *Machaeranthera canescens*  
 Bee Balm, *Monarda menthefolia*  
 Flagstaff Penstemon, *Penstemon nudiflorus*  
 Pineleaf Penstemon, *Penstemon pinifolius*  
 Red Cinquefoil, *Potentilla thurberi*  
 Fendler's Meadow Rue, *Thalictrum fendleri*  
 Goldenpea, *Thermopsis pinetorum*  
 Valerian, *Valeriana arizonica*  
 Pine Dropseed, *Blepharoneuron tricholepsis*  
 Blue Grama, *Bouteloua gracilis*  
 Arizona Fescue, *Festuca arizonica*  
 Mutton Grass, *Poa fendleriana*  
 Utah Serviceberry, *Amelanchier utabensis\**  
 Fringed Sagebrush, *Artemisia frigida*  
 Greenleaf Manzanita, *Arctostaphylos patula\**  
 Fendler's Buckbrush, *Ceanothus fendleri*  
 Mountain Spray, *Holodiscus dumosus*  
 Common Juniper, *Juniperus communis\**  
 Barberry, *Mahonia repens\**  
 Wax Currant, *Ribes cereum*  
 New Mexican Locus, *Robinia neomexicana*  
 Woods Rose, *Rosa woodsii*  
 Elderberry, *Sambucus racemosa*  
 Mountain Snowberry, *Symphoricarpos rotundifolius*  
 Rocky Mountain Maple, *Acer glabrum*  
 Arizona Walnut, *Juglans major\**  
 Blue Spruce, *Picea pungens\**  
 Bristlecone Pine, *Pinus aritata*  
 Limber Pine, *Pinus flexilis*  
 Ponderosa Pine, *Pinus ponderosa\**  
 Aspen, *Populus tremuloides\**  
 Coffeeberry, *Rhamnus californica*

*Note: All of these plants may not have survived*

*\* Highlighted on following pages*

## ARIZONA PENSTEMON *Penstemon pseudospectabilis*



Patrick J. Alexander, USDA

Arizona penstemon's stems can almost appear bluish at times. This hint of blue is due to the waxy coating on the stems (they are called *glaucous* for this reason).

Its flowers are one to two inches on a three foot spike. The flowers are pinkish.

In our gardens, the Arizona penstemons is a little bit out of its usual environment, which is usually below 4000 feet altitude. It is native to Southern California. However, the location of the hummingbird garden allows this species to receive more sunlight and thrive here in Flagstaff.

## ORANGE CARPET ZAUSCHNERIA *Zauschneria garrettii*



[http://tryon.blogspot.com/2004\\_07\\_01\\_tryon\\_archive.html](http://tryon.blogspot.com/2004_07_01_tryon_archive.html)

Orange carpet zauschneria is native to dry slopes in the Chaparral of the United States. Chaparral is defined as a plant community found in Mediterranean climates (hot, dry summers and mild, wet winters), such as Southern California. Chaparral communities have drought-tolerant plants, like the orange carpet zauschneria.

This plant grows to be 60 centimeters tall, blending in with the sub-shrubs of Chaparral communities.

## Plants that were planted in the Hummingbird Garden:

Rocky Mountain Penstemon, *Penstemon strictus*\*

Pineleam Penstemon, *Penstemon pinifolius*

Orange Carpet Zauschneria, *Zauschneria garrettii*\*

Scarlet Bugler, *Penstemon barbatus*\*

Palmeri Penstemon, *Penstemon palmeri*

Firecracker Penstemon, *Penstemon eatonii*\*

Hummingbird Mint, *Agastache cana*\*

Scarlet Gilia, *Ipomopsis aggregate*\*

Hummingbird Mint, *Agastache pringelii*\*

Arizona Penstemon, *Penstemon pseudospectabilis*\*

\* Highlighted on following pages

## COMMON JUNIPER *Juniperus communis*



© Br. Alfred Brousseau, Saint Mary's College.

Common juniper is a small evergreen shrub. It has needles that are usually in bundles of three. Touch the needles only if you dare because they are very prickly. The female cones of junipers are bluish-black and look like berries.

The “berries” are favored as a food by both coyotes and humans. Americans do not often use juniper berries in their cooking, however, Europeans include them in their soups, stews, and gins.

## CREeping BARBERRY *Mahonia repens*



©Al Schneider

Barberry is a plant with leathery, holly-like leaflets growing on short stems. In spring and early summer, barberry bears dark blue-black to reddish berries. The berries attract small animals and birds. Humans, too, can eat the berries in jellies and jams.

Just before the fruit forms, yellow six-petaled flowers appear in clusters on the plant.

This is a very common Flagstaff plant, found as undergrowth in forests and a landscaping plant in neighborhoods and downtown. It is typically found in bunches because it grows from a creeping underground rhizome- hence its name, *creeping barberry*.

**ARIZONA BLACK WALNUT***Juglans major*

©W.L. Wagner @ USDA-NRCS PLANTS Database

The Arizona black walnut is Arizona's only species of walnut tree. These trees produce round, hard-shelled nuts that squirrels, such as the Abert squirrel, love. The tree is a deciduous tree (meaning it loses its leaves in the fall) with yellow-green, lance-shaped, coarsely-toothed leaves.

To spot the tree outside of the habitat garden, explore Sedona's stream banks and Oak Creek Canyon.

**BLUE SPRUCE***Picea pungens*

©J.S. Peterson @ USDA-NRCS PLANTS Database

Are the needles on this tree blue or silver? Botanists debate. The common names for *Picea pungens* are silver spruce *and* blue spruce.

It grows to be 80-feet tall, has grayish-brown bark, and chestnut brown cones.

Blue spruce thrives best at high altitudes- 7,000 to 11,000 feet- so look for it in and around Flagstaff.

Engelmann spruce (*Picea engelmanni*) is closely related to *Picea pungens* and can also be found in Arizona's higher altitudes.



## Hummingbird Garden

The hummingbird garden is focused on providing habitat components that will attract a variety of birds, including hummingbirds. The garden is planted with a selection of penstemons, and other nectar producing plants that are essential for hummingbirds. In addition, there are several types of berry producing shrubs that will provide forage for a wide range of birds. Water is available at the birdbath. In an open, sunny area, the flowers are able to get an earlier start in the spring.

**RUBBER RABBITBRUSH***Chrysothamnus nauseosus*

USU Extension

Rabbitbrush is a widespread plant found in riparian habitats and in disturbed areas along roads. The pungent plant grows to be 1-7 feet in height with uniform three-inch linear leaves.

Check for its beautiful yellow flowers that bloom between June and September. Its flowers have been described as umbrellas because of their shape, do you see the mini-umbrellas?

Rabbitbrush produces natural rubber. The U.S. government studied rabbitbrush during WWII as a possible substitute for commercial rubber. Today, some of the plants are used for rubber production, but not extensively.

**BIG SAGEBRUSH***Artemisia tridentata*

USU Extension

The big sagebrush is the most common sagebrush species in the west. Each year the average big sagebrush produces 350,000 seeds! Besides just the benefit of high seed quantity, each and every seed has a floatation bubble inside that allows it to float in water and travel great distances.

Smell the plant. Native Americans in the Great Basin and Colorado Plateau traditionally burn sage for many ceremonies.

Sage grouse, deer, and antelope feed on sagebrush. It is extremely nutritious, with more protein content than alfalfa, and comparable carbohydrate and fat.

**PONDEROSA PINE***Pinus ponderosa*

©J.S. Peterson @ USDA-NRCS PLANTS Database

Ponderosa pine trees are the most common pine in North America, and is the dominant tree found in Flagstaff's forests. It is this tree that gives Flagstaff air its fresh vanilla scent- smell its bark!

The bark is cinnamon-colored and scaly. It is especially thick to help protect the tree during forest fires. Its cones are prickly and its needles are in bundles of three. Ponderosa pines can grow up to 130 feet.

**QUAKING ASPEN***Populus tremuloides*

© Br. Alfred Brousseau, Saint Mary's College.

Aspens are trees that grow up to 40 feet tall. Their bark is white with black stretch marks. Their leaves are green and triangular, though in fall the deciduous leaves turn a brilliant yellow color before falling to the ground for winter.

Aspens form clonal stands with several trees. In other words, if you see a group of aspen trees living close to one another, chances are they are part of the same organism.

Aspen leaves quake or tremble in the wind, hence the names *quaking* and *tremuloides*.

## UTAH SERVICEBERRY

*Amelanchier utahensis*



©G.A. Cooper @ USDA-NRCS PLANTS Database

Utah serviceberry is a shrub or tree that grows up to 15 feet. It has lovely smelling flowers made up of five petals. The flowers bloom in spring before the plant's leaves emerge.

The plant has blueberry-like berries that ripen in the fall. The berries are slightly sweet and edible, enjoyed even by Lewis and Clark who ground them with buffalo meat and fat to make pemmican, a traditional high-energy food.

## GREENLEAF MANZANITA

*Arctostaphylos patula*



© Br. Alfred Brousseau, Saint Mary's College.

Greenleaf manzanita is an evergreen shrub that only grows to three-feet tall. Its smooth bark is a lovely red color, its leaves are oval and bright green, and its branches are irregularly crooked.

*Manzanita* is Spanish for *little apples*, describing its small, brown fruits. These fruits were used by Native Americans in food and beverages.

Look for this species of manzanita at the North Rim of the Grand Canyon and in open coniferous forests.

## WESTERN YARROW

*Achillea lanulosa*



USU Extension

Yarrow is a very common wildflower in Flagstaff. Its flowers bloom from April to July, and range from pinkish to white with yellow centers. Its stems have dense wooly hairs with fern-like leaves attached. Yarrow grows in a range of environments, from the semi-desert zone to the subalpine zone.

Historically, Native Americans made tea from yarrow to cure several medical ailments. During the Civil War, yarrow was used to treat soldiers' wounds, lending it another name: *soldiers' woundwort*.

Yarrow is a native plant that can be densely planted and then mowed as a turf substitute in your backyard.

## RED PRARIE CONEFLOWER

*Ratibida columnaris*



Clarence A. Rechenthin

Coneflowers have stiff stems and leaves. Their showy flowers are yellow or red. One distinctive characteristic is their thimble-like center, called a disk. It resembles a cone found in trees.

Another common name is *Mexican hat*, can you guess why?

Butterflies and honeybees are attracted to the coneflower's bright flowers.

Heavy clay soils are characteristic of Flagstaff's soils. Some plants cannot live in such dense soils, however, coneflowers are able to tolerate clay soils making them good candidates for native plant backyard gardens.

## HORNY TANSYASTER

*Machaeranthera canescens*



©Al Schneider @ USDA-NRCS PLANTS Database

Have you ever seen a purple sunflower? Find this wildflower that resembles just that.

Horny tansyasters are part of the Sunflower Family and look similar to sunflowers, except that they are purple. They grow up to four-feet, have gray toothed leaves, and a thick hairy stem.

This plant is quite drought-tolerant and a heavy bloomer, meaning that it produces a lot of beautiful flowers. Horny tansyasters are a great addition to any backyard garden.

This wildflower attracts butterflies, too!

## BEE BALM

*Monarda menthifolia*



©W.L. Wagner @ USDA-NRCS PLANTS Database

Also known as Bergamot, Bee Balm looks like an exotic plant due to its wild bloom, however it is an Arizona native.

Bee balm grows along roadsides and in transition zone pine forests. It can grow up to three-feet tall and is easy to spot when its pink, tubular flowers are in bloom. When the flowers are not available to help you, the opposite paired leaves that have a natural mint scent may give away its identity.

Bee balm attracts butterflies, bees, and hummingbirds because of their long tubular flowers.

Bee balm contains thymol, a chemical that helps fight fungi and bacteria.



## Wildflower Garden

The hummingbird garden is focused on providing habitat components that will attract a variety of birds, including hummingbirds. The garden is planted with a selection of penstemons, and other nectar producing plants that are essential for hummingbirds. In addition, there are several types of berry producing shrubs that will provide forage for a wide range of birds. Water is available at the birdbath. In an open, sunny area, the flowers are able to get an earlier start in the spring.

## Plants that were planted in the Wildflower Garden:

Western Yarrow, *Achillea lanulosa*\*  
 Fendler's Sandwort, *Arenaria fendleri*  
 White Aster, *Aster falcatus*  
 Winecups, *Callirhoe involucrata*  
 Cosmos, *Cosmos parviflorus*  
 Larkspur, *Delphinium geraniifolia*  
 Redroot Buckwheat, *Eriogonium racemosum*  
 California Poppy, *Eschscholtzia californica*  
 Goldeneye, *Heliomeris multiflora*  
 Rocky Mountain Iris, *Iris mousuriensis*  
 Blue Flax, *Linum lewisii*  
 Silvery Lupine, *Lupinus argenteus*\*  
 Horny Tansyaster, *Machaeranthera canescens*\*  
 Spreading Four O'Clock, *Mirabilis oxybaphoides*  
 Bee Balm, *Monarda menthefolia*\*  
 Evening Primrose, *Oenothera elata*\*  
 Scarlet Bugler, *Penstemon barbatus*  
 Flagstaff Penstemon, *Penstemon nudiflorus*  
 Bridges Penstemon, *Penstemon rostriflorus*  
 Porch Penstemon, *Penstemon strictus*\*  
 Silver Cinquefoil, *Potentilla hippiana*  
 Red Prairie Coneflower, *Ratibida columnaris*\*  
 Goldenrod, *Solidago spaciiflora*  
 Utah Serviceberry, *Amelanchier utahensis*  
 Big Sagebrush, *Artemisia tridentata*\*  
 Fendler's Buckbrush, *Caenothus fendleri*  
 Fernbush, *Chamaebatiaria millefolium*  
 Green Rabbitbrush, *Chrysothamnus nauseosus*  
 Rubber Rabbitbrush, *Chrysothamnus viscidiflorus*\*  
 Apache Plume, *Fallugia paradoxa*  
 Threelobed Sumac, *Rhus trilobata*  
 Wax Currant, *Ribes cereum*  
 Narrowleaf Cottonwood, *Populus angustifolia*  
 Gambel Oak, *Quercus gambelii*

*Note: All of these plants may not have survived*  
 \* Highlighted on following pages

## PORCH PENSTEMON

*Penstemon strictus*



Gary A. Monroe @ USDA-NRCS PLANTS Database

Penstemons are good wildflowers for early botanists to look for because their flowers are distinctively tubularly shaped and attract hummingbirds because of their sweet nectar treat.

Penstemons look like tall spires that have flowers blooming from just one side of the stem.

Porch penstemon gets its name from the two upper petals that hang over the lower petals like the roof over a porch. Its flowers bloom down the whole 32-inch stem.

This type of penstemons thrives in Flagstaff's high, 7,000-foot elevation, so look for it along the urban trails and on local hikes.

## SILVERY LUPINE

*Lupinus argenteus*



© Br. Alfred Brousseau, Saint Mary's College

Spread out your fingers and your hand will resemble the leaflets characteristic of lupine plants. Along with their distinctive leaflets, lupines have beautiful bluish to purple flowers in clusters along their stems. The flowers are wonderfully fragrant.

Lupine has a long tap root that is able to reach deeper ground waters than most wildflowers, making them typically more drought-resistant than their neighbors.

*Lupus* is Latin for *wolf*. This plant was named after a predator because it was believed that lupine stole nutrients from the soil. Now, however, scientists know that lupines absorb free nitrogen from the air, convert it into a useable form, and actually enrich the soil with nutrients.