

# Backyard Wildlife Habitat and Fire Safety

## *A Guide for Residents of Flagstaff*



*Native trees, shrubs, and wildflowers can provide a beautiful, safe setting for homes and business properties in and around Flagstaff.*

Residents of Flagstaff live in a beautiful area of the county—a region of volcanic mountains, deep canyons, crimson deserts, pines and firs, oaks and aspens, and wide variety of native shrubs and wildflowers. This natural palette presents us with a remarkable guide that we can use to create beautiful, natural landscapes around our homes that will provide habitat for a stunning variety of native plants and animals as well as protect our dwellings from the dangers of wildfire. Gardening and landscaping with native plants offers us a way to use our creativity and energy while at the same time learning about and caring for northern Arizona's native plants—plants that exhibit a combination of beauty and function formed over thousands of years. We should recognize how lucky we are to have the opportunity to enjoy these plants and the many benefits they bring to us and the other beings that share our environment in Flagstaff.

This booklet describes how to design our backyards and larger properties to promote wildlife habitat, reduce water use, and minimize risk to property from unnatural wildfire. It also provides information about local and state resources that can be useful in such efforts.

### **CREATING A NATURAL LANDSCAPE**

Creating areas for plants and animals begins with an assessment of what you want and/or hope to achieve (a retreat for birds, a butterfly garden, a model of a nearby natural plant community) and what barriers there may be to achieve those goals (lack of time or funds, incompatible adjacent property uses, buried utilities). Although fostering diversity and building wildlife-friendly habitat while reducing wildfire risks and weed invasions sounds great, it can be a lot of work. It's wise to make your plans according to realistic time commitments and funds. Remember: Start small and expand as your project progresses.

Planning your project also requires a site analysis of your property—a task that is relatively easy and one in which you will often learn more about your property than you knew before. The idea is to look closely at several landscape elements that influence habitat development and planting success. These include soils, sun/shade, topography, and water availability. Each of these items needs to be studied and considered when developing a planting plan for a property. Using a matrix of these elements often helps in making decisions about what plants to purchase and where to place a particular species or group of species.

## Site Analysis

### *Soils*

Soils are fundamental to achieving success when growing plants. Soils hold nutrients and water that plants require for their survival and growth. Matching plants to compatible soils is often key to their establishment and long-term success. Taking soil samples to the Flagstaff Natural Resources Conservation Service office, or other soil sampling labs, can help you determine the type of soil(s) that you have.

### *Sun/Shade*

It's important to take time during the growing season to note which parts of your backyard or property receive sunlight and for how long during the daylight hours. This activity is important because matching plants to sunny and shady areas is another key to their survival and growth. Some plants do well in the sun, others do not, and still others can live quite happily in partial or dappled shade.

### *Topography*

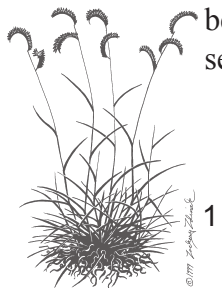
Even the smallest yard has changes in topography that create a variety of microclimates, which will each support very different plants. Amazingly, some of these microclimates exist within a few feet of one another. South-facing, treeless areas typically support sun-loving plants, while north-facing areas are better for plants that prefer shade and more moisture. Even small depressions will support plants that like more water. Microclimates can also be built using rocks or other structural material.

### *Water Availability*

Water is a key element in the Flagstaff environment, and its availability, especially to germinating seeds and young plants, is critical. That's why it's important to seed and/or plant at times when the water availability in the soil is relatively high or the chance of obtaining moisture is good (just prior to winter snows or summer monsoonal rains). Watering with a hose or drip irrigation system (see below) is another alternative.

### *Inventory*

Finally, you'll need to inventory what already exists on the property to determine what will stay, be removed or reduced, and what needs to be added. Check the Natural Landscaping Resources section of this guide for books that help identify native and non-native plants.



### **Give Invaders the Boot**

Invasive plant species, such as dalmation toadflax, cheatgrass and knapweed, spread rapidly, are undesirable food for wildlife, and prevent the establishment of native plants. Cheatgrass, in particular, creates volatile fuel that helps spread wildfires. Keep invasive plants at bay by mulching, maintaining healthy populations of native plants, and minimizing soil disturbance (areas where most weeds prefer to locate). If invasive plants do appear, hand weeding and selective herbicide use can often control them.



### **Where Feasible Go Native**

Native plants have many desirable characteristics, including using less water and providing more wildlife habitat than imported varieties. Native plants have adapted over thousands of years to northern Arizona's dry and windy conditions. In turn, native animals have co-adapted to use these plants. Native plants can help create a beautiful yard that is in harmony with its surroundings. In the long run, native plants can be easy to care for, although it's not always easy to get them established.

### **Xeriscaping**

Xeriscaping minimizes water use by landscaping with drought-tolerant plants. Many native and nonnative plants alike are able to thrive with minimal supplemental watering. Landscaping with these plants can save time and money, and precious water supplies. Flagstaff is an especially good place to minimize water use because the city government has enacted permanent watering restrictions. However, a permit can be obtained to water new landscaping to facilitate the successful establishment of new plants.

### **Use Drip Irrigation**

Drip irrigation reduces water use and weed growth, and saves time and money. Drip irrigation eliminates the high evaporation rates of sprinklers by sending water straight to plants instead of to sidewalks, gutters, and bare ground. Drip irrigation systems vary between expensive, professionally installed systems to strategically located, punctured hoses.

### **Collect Water**

Many Flagstaff residents collect runoff from their roof for later use in the garden. Many gardeners prefer rainwater or snowmelt because it hasn't been purified with chemicals. Rain barrels that catch water from rain gutters are available at a number of retailers and from the City of Flagstaff.

### **Reduce Flammability through Plant Selection and Spacing**

Landscaping that is compatible with fire protection doesn't mean surrounding a home with bare ground or rock. Smart planning and appropriate plant selection will create a beautiful yard that supports wildlife and minimizes fire danger.

To provide fuel breaks in the event of a fire, plant small, irregular clusters of trees and shrubs with space between them. Plants close to a house should be widely spaced and low to the ground. Keep them well watered and free of dead leaves so they don't become fuel. Use deciduous trees,



such as Gambel oak, because they are not as flammable as conifers. Many native southwestern plants, especially succulents, resist fire. If landscaping is intended to increase privacy, create “islands” of trees at a distance from a home or use deciduous trees to produce a visual screen.

Decorative rock, gravel, and stepping stones provide excellent protection from creeping ground fire. Mulch can conserve water and inhibit weed growth, but should not be touching any flammable surfaces leading up to or next to a house. Cinders and gravel also work well to conserve moisture without becoming a fuel source in the event of fire.

## **NATURAL LANDSCAPING RESOURCES**

### **Plant Identification Books and Web Sites**

- *Plants of Arizona* (Falcon Press 1995)
- *Native Plants for High-Elevation Western Gardens* (Fulcrum Press 2003)
- *Beyond the Ponderosa: Successful Landscape Trees for Higher Elevations in the Southwest* (Flagstaff Community Tree Board 1998)
- *River and Desert Plants of the Grand Canyon* (Mountain Press Publishing 2006)
- Southwest Exotic Plant Information Clearinghouse, <http://www.usgs.nau.edu/swepic/>
- Invasive Weeds of the Southwest, <http://www.invasiveweeds.com/canido/welcome.html>

### **Places to Visit for Natural Landscaping Ideas**

- Willow Bend Environmental Education Center, 703 E. Sawmill, 779-1745, [www.willowbendcenter.org](http://www.willowbendcenter.org)
- The Arboretum at Flagstaff, 4001 Woody Mountain Road, 774-1442, [www.thearb.org](http://www.thearb.org)

### **Places to Purchase Plants in the Flagstaff Area**

- Flagstaff Native Plant and Seed, 409 West Pine Avenue, 773-9406, [www.nativeplantandseed.com](http://www.nativeplantandseed.com)
- Nature’s Rewards, corner of Postal Boulevard and East Route 66, 714-9492
- Warner’s Nursery and Landscaping, 1101 East Butler Avenue, 774-1983
- Flagstaff Native Plant Nursery, 1107 North Navajo Drive, 774-3584
- The Arboretum at Flagstaff holds a native plant sale each June.

### **Contacts and Web Sites for Help Identifying and Managing Invasive Plants**

- Center for Invasive Plant Management, [www.weedcenter.org](http://www.weedcenter.org)
- Southwest Exotic Plant Information Clearinghouse, [www.usgs.nau.edu/SWEPIC](http://www.usgs.nau.edu/SWEPIC).
- Laura Moser, plant ecologist with the Coconino National Forest, 527-3423
- Wade Albrecht, Coconino County Extension Service, 774-1868

### **Programs that Promote Xeriscaping**

- The City of Flagstaff offers a Turf Removal Rebate Program for local homeowners and businesses who replace a minimum of 1,500 square feet of established, water-consuming turf grass with native plants or an alternative low-water landscape. To check eligibility, contact Flagstaff’s Water Conservation Office at 779-7685 ext. 4827.

### **Saving Water**

- The City of Flagstaff has a watering ordinance limiting even-numbered addresses to watering on Wednesdays, Fridays, and Sundays. Odd-numbered addressed can water on Tuesdays, Thursdays, and Saturdays. Watering is not allowed on Mondays or between 9 a.m. and 5 p.m. on any day of the week.





- The City orders rain barrels annually for distribution to residents at cost. Rain barrels are typically ordered in May and are available for pick-up in early July. Contact the Water Conservation Office at 779-7685 ext. 4827 or [www.flagstaff.az.gov](http://www.flagstaff.az.gov). County residents can call 526-2735 for rain barrel information.
- Information about drip irrigation is available from The Arboretum at Flagstaff or local nurseries and hardware stores. The Master Gardener Program, through the University of Arizona-Coconino County Cooperative Extension, can help with other watering ideas. Call 774-1868 ext. 19, April through September.

#### **Native Landscaping Design and Consultation**

- Contact Patrick Pynes for personalized, organic landscaping through his Flagstaff-based business, Earth Gardner at 527-4578 or [pinewood@npgcable.com](mailto:pinewood@npgcable.com).
- Flagstaff Native Plant and Seed, 409 West Pine Avenue, 773-9406, [www.nativeplantandseed.com](http://www.nativeplantandseed.com). Flagstaff Native Plant and Seed designs and installs landscaping using natives and/or plants compatible with a high-altitude environment.

## **BACKYARD HABITAT**

Backyards aren't separate from their surroundings—they're part of a landscape that has the potential to provide habitat for many wildlife species. Migratory birds, for example, stop in droves in Flagstaff's shade trees and flower gardens during spring and fall. Through careful design, a yard can become a safe haven to wildlife—and a desirable human habitat as well!

### **Water**

Well-designed, small water features that do not consume an excessive amount of water will attract many wildlife species, from birds to dragonflies. Whether it's a birdbath, a small fountain or pond, water features are particularly important during dry weather. Water must be changed frequently to prevent the growth of algae and mosquito larvae.

### **Plants as Food for Wildlife**

Many plants provide food for animals. Leafy trees, shrubs, and wildflowers support populations of small insects that attract birds and other animals. Showy wildflowers produce nectar for hummingbirds, butterflies, and moths. Shrubs and trees that bear fruits or nuts create buffet lines for many animals, often into the winter. To ensure a variety of food sources, planting many different types of plants.

### *Flowers*

There are many flowers that attract wildlife. Penstemons are one widely used group of native flowers because they attract hummingbirds, bees, and butterflies. There are many different species of penstemons with showy flowers—red, blue, or purple—and they grow at a range of elevations. Another option is to establish a perennial wildflower meadow using a variety of species. This approach ensures that some flowers will bloom every year since precipitation can vary and different species have evolved to respond to a range of moisture conditions. Native wildflowers, such as yellow coneflower (*Ratibida columnaris*), many flowered viguiera (*Viguiera multiflora*), and blue flax (*Linum lewisii*), are a few plants to consider. A perennial wildflower meadow will take effort to get started, but, once established, requires less of a gardening commitment.



### Berries

Currants, gooseberries, serviceberries, chokecherries, and barberries are all native bushes with abundant, sweet fruits eagerly sought by birds and other wildlife.



### Grasses

It is expensive and difficult to maintain a classic bluegrass lawn in Flagstaff. A more economical and environmentally compatible alternative is to use native grasses that are drought tolerant. The grass usually suggested is blue grama (*Bouteloua gracilis*), a native grass. Many people mix this grass with Western yarrow (*Achillea lanulosa*), a flowering plant. The aesthetics of a yard using native grass may take some getting used to for people accustomed to turf. Native lawns can be mowed, but in many neighborhoods they can be allowed to grow long and develop seed heads (doing so increases their value as wildlife cover and food). A natural yard can present a managed or tidy look if they include neat borders and plants are clipped around fences, sidewalks, and walkways.



### Artificial Feeding of Birds and Other Animals

Many people enjoy feeding birds. Providing a variety of foods—including suet and seeds--will attract many different bird species. Once a commitment is made to feeding, it is important to maintain it through the winter. Feeders should be cleaned periodically with a solution of one part bleach to ten parts water in order to kill disease-spreading organisms.

Feeding small wild animals, however, can have unintended consequences, such as attracting rodents, skunks, or larger predators. There are also certain animals that should never be fed, such as bears, coyotes and javelinas, because they can become a nuisance or threaten human safety. More information about backyard wildlife is available from the Arizona Game and Fish Department.

### Shelter

Animals find shelter in all sorts of places. Provide cover for wildlife by establishing an “island” or two of dense vegetation, such as shrubby junipers, away from the house. Brush piles and discarded Christmas trees also provide shelter from harsh winter winds, but place them well away from the house or dispose of them before fire season.

Rock piles rather than brush piles can also be used as cover for wildlife. They can be made to look beautiful, provide microclimates for plants, and don't contribute to fire danger.

To avoid wildlife conflicts seal crawl spaces, attics, and garages to keep out skunks, squirrels, rodents, and other unwanted animals.

Artificial shelters, such as bird and bat houses, are attractive and beneficial to wildlife. Visit a birding supply store or nursery or consult Backyard Wildlife Habitat Resources for information.



Where there is enough space and distance between a house or other building, dead trees or snags should be left because they are a preferred shelter for many species of wildlife—especially woodpeckers. Once they fall down, these snags become valuable habitat to mice, chipmunks, and all other small animals.

### Controlling Cats

Cats are popular pets, but they're hard on birds. Domestic cats kill millions of birds and small mammals every year, including many endangered and threatened species. Cats hunt even when they're well fed. They can outcompete native predators for food and transmit disease to wildlife. Keep cats indoors whenever possible or put audible bells on their collars as a warning to birds. Keep dogs indoors or fenced in a yard, and keep them on a leash when hiking.



## BACKYARD WILDLIFE HABITAT RESOURCES

### Sources of Information about Backyard Wildlife Habitat

- The National Wildlife Federation's Backyard Habitat Program, [www.nwf.org/backyardwildlifehabitat](http://www.nwf.org/backyardwildlifehabitat)
- The Arbor Day Foundation, [www.arborday.org/backyardwoods](http://www.arborday.org/backyardwoods)
- *Coexisting with Urban Wildlife* by Robert L. Hoffa is a practical guide for encouraging or discouraging animal visits. It is available through the Sharlot Hall Museum, 928-445-3122, [www.sharlot.org](http://www.sharlot.org).
- The Arizona Association of Conservation Districts distributes a Backyard Conservation for Arid Lands Starter Kit that includes an 11-minute video or DVD showing conservation practices, ten fact sheets, and children's activity books. Call 1-800-729-0694 x 85012 or purchase a kit from Willow Bend Environmental Education Center, 779-1745.
- The Arizona Game and Fish Department, [www.azgfd.gov/w\\_c/urban\\_wildlife.shtml](http://www.azgfd.gov/w_c/urban_wildlife.shtml) or call the Flagstaff regional office at 774-5045.

### Sources for Information about Birds

- Northern Arizona Audubon Society, [www.nazas.org](http://www.nazas.org)
- Cornell University Lab of Ornithology, [www.birds.cornell.edu/AllAboutBirds/attracting](http://www.birds.cornell.edu/AllAboutBirds/attracting) for information about bird-friendly plants, birdhouses and water features.

### Information about Bats and Bat Houses

- Bat Conservation International, [www.batcon.org/home/index.asp?idPage=47](http://www.batcon.org/home/index.asp?idPage=47)
- Bat Conservation and Management, <http://www.batmanagement.com/>

## PROTECTING HOMES AGAINST WILDFIRE

Fires in the wildland-urban interface are fed by two general types of fuels: building materials and vegetation. Through conscience action, an individual can go a long way to reduce fuels and improve a building's resistance to fire.

Landscaping and landscape management play a critical role in minimizing the risk of property and homes to wildfire. Ensuring that dry vegetation and needles are minimized is not only prudent, it's neighborly because wildfire can spread easily from one property to another. In recent years the market for fire-resistant building materials has expanded astronomically. Using fire-resistant building materials is scientifically proven to improve the survivability of structures in the event of a fire.



The actions highlighted below are some of the most important things a landowner can do to help reduce damage to structures and property in the event of fire. Additional information can be found in the Wildfire Protection Resources section.

### **Home Protection**

Research shows that fire-resistant roofing is the first line of defense against burning embers created by fire. Replace wooden roof shingles and siding with fire-resistant materials. Removing flammable materials, such as pine needles, from the roof and gutters and around the foundation of houses following needle drop and before fire season in May and June is also a great way to protect your home. Propane tanks, wood piles, and gas grills should be placed away from the house as well.

### **Create Defensible and Accessible Space**

Trim, rake, and mow vegetation within 100 feet of any structure. In particular, make sure no flammable materials touch the base of a house. Ignitions can occur when fire creeps along the ground and touches the foundation, decks or walkways leading to a house. Diligently remove piles of leaves and branches in close proximity to structures. In order to help firefighters make a quick response in the event of a fire, house numbers should be visible and any access routes free of clutter. Dangling branches and tall grasses around tree trunks located more than 100 feet of any structure should be cut. These are referred to as ladder fuels and, as the name implies, they can enable fire to climb into tree crowns.

### **Thinning Trees**

Thinning overly dense pine trees will not only curb the risk of damage to homes and surrounding areas from wildfire, it will enhance the health and appearance of your property. Where trees grow too close together, they compete for nutrients, water, and sunlight. Thinning will increase the amount of nutrients and precipitation for remaining trees. They typically respond by growing larger, healthier, and more resistant to insect and disease outbreaks.

Thinning treatments can also be used to create grassy openings that act as a fire break between trees and tree clumps. Reducing the number of trees makes sunshine and precipitation available to understory plants such as wildflowers, grasses, and shrubs. Understory vegetation is very attractive to many species of wildlife. Balance, however, is a good thing—maintain some tree clumps, and even isolated dead branches and wood piles, away from the house for wildlife cover and aesthetics.

### **Be Safe**

If you choose to thin trees or brush by yourself, be safe. The chainsaw is probably the most dangerous and easily abused of all restoration tools. If you're going to use one, follow these guidelines:

- Read all instructions thoroughly, and have an established work plan.
- Work while well rested and sober, and be alert.
- Use the correct safety gear (protective chaps, safety goggles, gloves, helmet), no matter what.
- Keep your tools well maintained.





## Know the Rules

Flagstaff city codes and some codes, covenants, and restrictions developed by home owner associations prohibit the removal of some trees. Information on restrictions can be obtained by contacting the city.

## Prescribed Burns

Prescribed burns (fires that are set) remove accumulated tree litter and prevent the growth of saplings that can contribute to an overly dense forest. Prescribed burning returns nutrients to the soil and supports development of a diversity of wildflowers, grasses, and shrubs. It is illegal for a landowner to burn within the Flagstaff city limits without a permit from the fire department. Permits can be obtained for burning woodpiles. However, the city will not allow landowners to conduct prescribed burns intended to move across the entire property. Fortunately, the fire department will do this for homeowners free of charge when crews are available.

## WILDFIRE PROTECTION RESOURCES

### Assistance with Forest Thinning and Property Protection

- The Flagstaff Fire Department conducts free home assessments to identify what a homeowner needs to do to protect their home and property. In addition, the fire department does thinning and burning for property owners. For more information, call 779-7688, <http://www.flagstaff.az.gov/index.asp?NID=160>.
- Highlands Fire Department, 525-1717 (Kachina) or 525-9144 (Mountaineer)
- Summit Fire Department, 526-9537 (Doney Park)
- The State Land Department assists private landowners with developing and implementing forest management and hazardous fuel reduction plans. These plans improve forest health and reduce the risk to their homes and property. Contact the State Land Department in Flagstaff for more information on this program at 774-1425.
- The Greater Flagstaff Forests Partnership (GFFP) Forest treatments designed to reduce the risk of destructive wildfire can be expensive. The Greater Flagstaff Forests Partnership now offers a program whereby eligible landowners can receive financial assistance to treat their property. Property owners must own more than 2 acres, but less than 10. Those who wish to treat their entire property receive first priority. Those who own less than 2 acres can join together with adjacent neighbors to meet the minimum acreage requirement. Those who own more than 10 acres are encouraged to contact the Arizona State Land Department at 774-1425 for other cost share options, [http://www.gffp.org/about\\_gffp/cost\\_share.htm](http://www.gffp.org/about_gffp/cost_share.htm) or call 226-0644
- The Natural Resources Conservation Service's Environmental Quality Incentive Program offers a 50-percent cost share on thinning for landowners who claim at least \$1,000 a year in agricultural income. Applications are accepted each fall. For more information, contact Gary Parrott, range conservationist for NRCS, 774-2401 ext. 112.
- The following web sites list homeowner activities to reduce fire risk. They include:
  - National FireWise: [www.firewise.org](http://www.firewise.org)
  - Arizona Firewise: [cals.arizona.edu/firewise](http://cals.arizona.edu/firewise)
  - National Interagency Fire Center: [www.nifc.gov/preved/protecthome.html](http://www.nifc.gov/preved/protecthome.html)

### Information on Flagstaff Building and Property Codes

- Contact the City Clerk, at 779-7607

### Information on Fire-resistant Backyard Habitat Ideas

- The Ecological Restoration Institute at Northern Arizona University, [www.eri.nau.edu/cms/files/General/ERI-homeowners.pdf](http://www.eri.nau.edu/cms/files/General/ERI-homeowners.pdf) or call 523-7182

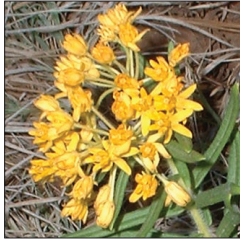
### Information on Chainsaw Safety

- [www.oregonchain.com/precautions.htm](http://www.oregonchain.com/precautions.htm)
- [www.nestormsurge.com/chnsaw.htm](http://www.nestormsurge.com/chnsaw.htm)



# NATIVE PLANTS FOR FLAGSTAFF BACKYARD HABITATS

## WILDFLOWERS



Butterflyweed (*Asclepias tuberosa*)  
Flowers: Orange to yellow in mid-summer  
Height: 8 inches Width: 20 inches  
Exposure: Full sun  
Soil: Well-drained

Little golden zinnia (*Zinnia grandiflora*)  
Flowers: Orange-yellow, blooms May to October  
Height: 6 to 12 inches Width: 6 to 12 inches  
Exposure: Full sun  
Soil: Warm, well-drained



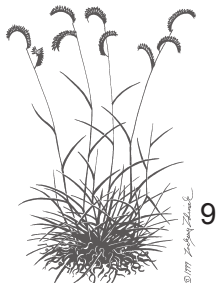
Hopi blanketflower (*Gaillardia pinnatifida*)  
Flowers: Yellow w/red centers in early summer  
Height: 1.5 feet  
Exposure: Full sun  
Soil: Any type

Prairie smoke (*Geum triflorum*)  
Flowers: pinkish red, blooms early spring  
Height: 4 inches Width: Spreading  
Exposure: Sun to partial shade  
Soil: Any type



Showy goldeneye (*Heliomeris multiflora*)  
Flowers: Yellow petals w/dark centers, blooms late summer to autumn  
Height: 3 feet Width: 3 feet  
Exposure: Full sun  
Soil: Any type

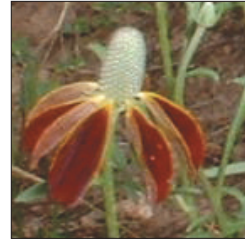
Blue flax (*Linum lewisii* var. *lewisii*)  
Flowers: Blue, blooms early spring into summer  
Height: 2 feet Width: 3 feet  
Exposure: Full sun  
Soil: Well-drained





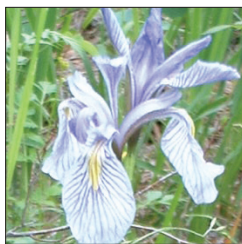
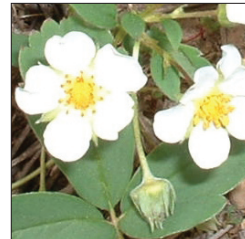
Silvery lupine (*Lupinus argenteus*)  
 Flowers: Lavender, blooms early summer to late summer  
 Height: 3 feet Width: 2.5 feet  
 Exposure: Sun to light shade  
 Soil: Any type

Yellow coneflower (*Ratibida columnifera*)  
 Flowers: Yellow petals w/elongated, purplish centers, blooms summer  
 Height: 1 to 3 feet Width: 3 feet  
 Exposure: Full sun  
 Soil: Any, tolerates heavy clays



Cutleaf coneflower (*Rudbeckia laciniata*)  
 Flowers: Yellow petals w/yellow centers, blooms summer  
 Height: 3 feet with long flower stalks Width: 3 feet  
 Exposure: Full sun to light shade  
 Soil: Any; moist

Wild strawberry (*Fragaria virginiana* subsp. *glauca*)  
 Flowers: white, blooms early spring  
 Height: 3-6 inches Width: Spreading groundcover  
 Exposure: Sun to shade  
 Soil: Any, but add organic matter



Western blue flag (*Iris missouriensis*)  
 Flowers: Lilac-blue; blooms late spring, early summer  
 Height: 2 to 3 feet Width: Clumping  
 Exposure: Full sun to light shade  
 Soil: Seasonally moist

Banana yucca (*Yucca baccata*)  
 Flowers: Creamy white in upright stalk, blooms early summer  
 Height: 2 to 2.5 feet Width: 3 feet  
 Exposure: Sun  
 Soil: Warm, well-drained



## GRASSES



Blue grama (*Bouteloua gracilis*)  
Inflorescence: Resembles an eyelash, curling as it matures  
Height: 6 to 20 inches  
Exposure: Sun to light shade  
Soil: Tolerates sand or clay

Mountain muhly (*Muhlenbergia montana*)  
Inflorescence: Large, open panicles, straw-colored  
Height: 2.5 feet  
Exposure: Sun to moderate shade  
Soil: Well-drained or seasonally dry



Little bluestem (*Schizachyrium scoparium*)  
Inflorescence: Many, small wispy white seed heads  
Height: 2 to 4 feet  
Exposure: Sun to light shade  
Soil: Adaptable, needs good drainage

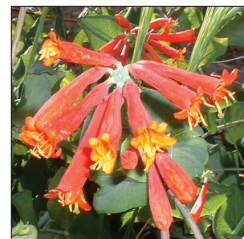
## SHRUBS/VINES

Serviceberry (*Amelanchier alnifolia*)  
Flowers: White, blooms late spring; edible berries  
Height: 6 to 10 feet Width: 6 to 8 feet  
Exposure: Sun to light shade  
Soil: Adaptable, tolerates clay



Apache plume (*Fallugia paradoxa*)  
Flowers: White w/yellow centers, blooms in summer  
Height: 3 to 6 feet Width: Spreading  
Exposure: Full sun  
Soil: Well-drained

Arizona honeysuckle (*Lonicera arizonica*)  
Flowers: Red, trumpet-shaped; blooms in early summer  
Height: 18 feet, vine-like  
Exposure: Sun to shade  
Soils: Moist





## GENERAL RESOURCES

- Willow Bend Environmental Education Center, 703 E. Sawmill Rd., 779-1745, [www.willowbendcenter.org](http://www.willowbendcenter.org), offers a variety of resources and classes about environmentally friendly living.
- The Greater Flagstaff Forests Partnership, 226-0644 or [www.gffp.org](http://www.gffp.org), is an organization dedicated to restoring and conserving local ponderosa pine forests.
- The Ecological Restoration Institute at Northern Arizona University, 523-7182 or [www.eri.nau.edu](http://www.eri.nau.edu), conducts research and provides public outreach to improve the health of ponderosa pine forests.
- The Nature Conservancy, 2601 N. Ft. Valley Rd., 774-8892, or [www.nature.org/arizona](http://www.nature.org/arizona)
- Coconino National Forest Supervisor's Office, 1824 S. Thompson Street, Flagstaff, AZ 86001, 527-3600, [www.fs.fed.us/r3/coconino](http://www.fs.fed.us/r3/coconino)
- The Natural Resources Conservation Service, 1611 S Plaza Way, Flagstaff, AZ 86001, 214-0459, [www.nrcs.usda.gov](http://www.nrcs.usda.gov)
- The Coconino Natural Resource Conservation District, 703 E. Sawmill Road, Flagstaff, AZ 86001, 779-1745





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**For More Information**

For more information about forest restoration, contact the ERI at 928-523-7182 or [www.eri.nau.edu](http://www.eri.nau.edu)





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