



Bring Conservation Home Site Visit Report

Name: Parkview Parks, c/o Mary Gass
Habitat Address: Parkview Neighborhood common grounds
City: St. Louis & University City
State: MO Zip: 63130 Date: Nov 5, 2020
Habitat Advisors: Mitch Leachman

I. NON-NATIVE INVASIVE PLANTS

First, let's take a look at non-native invasive plants growing on the property. Why start here? Because native plants struggle to compete with non-native invasive ones for light, nutrients and moisture. Most of these plants were brought to the U.S. intentionally for ornamental value, erosion control or other good intentions. Unfortunately, their spread was not impeded by insects and diseases that control them in their native country. Without intentional control, non-native invasives continue to spread, wreaking havoc on native landscapes.

Why should we care? Non-native plants may look attractive. However, they do not support the reproduction of butterflies and moths or the birds that depend upon their caterpillars for food. All native Missouri songbirds need insect protein to feed their young, most frequently caterpillars.

No native plants = no insects/butterflies/moths = no song birds
With landscapes full of non-native and invasive plants that do not provide nourishment, the insects have retreated to the countryside, forcing many of our native songbirds to do the same. We are depleting their food sources when landscaping with non-native plants. We strongly recommend reading *Bringing Nature Home* by Doug Tallamy (www.bringingnaturehome.net) for a full description of these interactions.

We observed or discussed the following non-native invasive plant species' presence in your landscape during our consultation:

Burning Bush (Euonymus alatus)
Bush Honeysuckle (Lonicera maackii)
English Ivy (Hedera helix)
Japanese Honeysuckle (Lonicera japonica)
Wintercreeper (Euonymus fortunei)

We applaud your having essentially cleared the non-native invasive bush honeysuckle from basically all the park areas! We found only a few small plants and urge you to continue to monitor for such re-sprouts and new volunteers to maintain the areas free of this problem plant. Your work also provides a positive message to individual residents, encouraging them to do the same in their own yards.

Unfortunately, Burning Bush, when allowed to reproduce, can spread beyond your landscape just like bush honeysuckle by birds depositing their seeds. We noted one large plant in Washington Park, and we urge its removal. So long as you have it or should you choose to retain it, we urge significant pruning once or twice a year to prevent them from flowering and fruiting.

As aggressive as the non-native invasive English ivy and wintercreeper/euonymus can be as spreading ground covers, they only mature and reproduce when they are able to climb a vertical surface such as a fence, house or tree. We noted one such significant occurrence in Washington Park where the vine had climbed a tree and produced fruit. We urge you to kill at least the tree-bound portion of that plant with all due haste. This work will help reduce the spread of this invasive plant to other yards, common ground and natural areas. Like the bush honeysuckle, this can also serve as an example and learning opportunity for residents that allow either of these plants to mature in their own yards.

Many vines on the ground, fortunately including both the ivy and wintercreeper, can somewhat easily be pulled out by the roots. They have an extensive, but not very deep, root system. Of course, this process is often aided by moist soil from recent rainfall. The work is made easier when the soil is moist after a soaking rain. Monitoring in future seasons will be required as some root pieces may re-sprout. Even large areas can be addressed chemical free by pulling the plants up by their roots. It may take



several seasons, and you might work in specific sections to help insure you can see your progress.

Unfortunately, woody vines like the Japanese honeysuckle have significant tap roots and can be very difficult to remove mechanically, especially more mature plants. For just a few plants, you might try repeatedly cutting to try to starve the plant, but keep in mind a vine may have stems and leaves that you don't see or have access to, making the exercise somewhat futile. Unfortunately, herbicide is often required to kill these plants.

We have provided links below to details on the ecology and steps to eradicate these plants. While keeping vigil in the park grounds, we trust you will share the info and recommendations for removal with the residents. Please follow the detailed instructions in the reference and follow all safety precautions.

Burning Bush: <https://www.invasive.org/alien/pubs/midatlantic/eual.htm>

Bush Honeysuckle: <https://nature.mdc.mo.gov/discover-nature/field-guide/bush-honeysuckles>

English Ivy: <https://hgic.clemson.edu/factsheet/english-ivy-control/>

Japanese Honeysuckle: <https://nature.mdc.mo.gov/discover-nature/field-guide/japanese-honeysuckle>

Wintercreeper: <https://nature.mdc.mo.gov/discover-nature/field-guide/wintercreeper>

II. NATURESCAPING

We discussed several opportunities around your landscape for the establishment of native habitat for bird and butterfly food/cover and the residents' enjoyment. As discussed previously, we are not providing you a design, but lists of native plants that will provide benefits to a variety of wildlife.

Our recommendations are typically outlined by specific physical area of the landscape. Given the large expanse of park land and the many unique areas we discussed, we felt it would be much more useful and efficient if we provided our recommendations by generalized site conditions, specifically the average amount of direct sunlight received each day during the growing season. You can then select from the appropriate list for any space that has those same lighting conditions. We did not note during our visit any special moisture situations. So, all the plants selected tolerate average, well-drained soil.

As you consider your landscape design, one of the best ways to decide what colors and arrangements you would like to try is to see examples. The Shaw Nature Reserve's Whitmire Wildflower Garden in Gray Summit is one of the largest and most diverse native gardens in the region. We recommend visits throughout the year to see the seasonal variations. Closer to St. Louis, excellent examples also exist at Brightside St. Louis Demonstration Garden, the Powder Valley Nature Center in Kirkwood, the U City Bird Garden at Centennial Commons.

When suggesting plants for your landscape, we have provided rather short lists of those we feel best suited for the site conditions, your interest, and habitat value. Do keep in mind diversity makes a healthy natural community. Also keep in mind the very critical idea of 'quantity' of pollen, nectar, fruit or leaf material for your visiting birds, bees or other wildlife. As important as diversity is when landscaping with natives, we're sure you do not want your wild critters to 'run out of food' when foraging in the park lands. Consider a single Monarch butterfly caterpillar on a single milkweed plant. If the plant is small and there are no others of the same species nearby, the caterpillar could literally run out of food. So, it is wise to consider quantity whenever you add a new plant species to the landscape.

Also, when shopping for native plants, use the botanical names on our list (the fancy, hard-to-pronounce names after the common name) and look for the *Grow Native!* logo. Where the logo may be hard to find or absent entirely, simply avoid cultivated varieties (cultivars) of the natives by looking for any extra labels/names in quotes after the botanical name. Cultivars have been selected for certain plant traits and may have lost some of their critical ecological functions. For example, *Echinacea purpurea* is the wild Purple Coneflower, but *Echinacea purpurea* 'Pink Poodle' has been selected and propagated for different petal color and shape and perhaps even different flower structure. Animals may still visit the flower, but not likely the same ones that are looking for the wild *Echinacea purpurea*.

Native Flowering Plants for Full Sun:

Native flowering plants for full sun are basically about pollinators like butterflies and native bees. We have separated our ideas for these conditions by plant type and size.

First, the "shortish" plants ordered by primary blooming season:

For spring flowering:



Downy Phlox (*phlox pilosa*), Missouri Primrose (*Oenothera macrocarpa*), Prairie Blue-eyed Grass (*Sisyrinchium campestre*), Thread-leaf bluestar (*Amsonia ciliata*)

Summer flowering:

Butterfly or Spider Milkweed (*Asclepias tuberosa* or *viridis*), Glade or Pale Purple Coneflower (*Echinacea simulata* or *pallida*), Purple Prairie Clover (*Dalea purpurea*), Yellow coneflower (*Echinacea paradoxa*).

Fall flowering:

Cliff Goldenrod (*Solidago drummondii*), Fall Glade Onion (*Allium stellatum*) and Southern Prairie Aster (*eurybia hemispherica*)

For taller perennial flowers in full sun, consider:

Spring flowering:

Foxglove Beardtongue (*Penstemon digitalis*), Purple Milkweed (*Asclepias purpurascens*)

Summer flowering:

Eastern Blazing Star (*Liatris scariosa*), Garden Phlox (*Phlox paniculata*), Silphium Sunflower (*Helianthus silphioides*) or Wild Bergamot (*Monarda fistulosa*)

Fall flowering:

Blue Sage (*Salvia azurea*), New England Aster (*Symphyotrichum novae-angliae*), Showy Goldenrod (*Solidago speciosa*) or Smooth Aster (*Symphyotrichum laeve*)

Note, some of these plants, including many of the fall-bloomers like blue sage and new England aster, can reach 6 feet tall and might flop over if not supported by adjacent plants or a physical structure. Should you want to avoid this, consider cutting them in half in late spring. Most of our fall-blooming plants can be handled this way, creating a shorter, shrubbier look.

For sun-loving shrubs in the same sunlight conditions, you might like one or more of these very pretty, smallish and functional flowering native shrubs:

Missouri maidenbush (*Phyllanthopsis phyllanthoides*) is a small rounded bush, 2-3 feet high, with yellow blossoms suited for bees that may flower from May to October.

New Jersey Tea (*Ceanothus americanus*) with clusters of tiny white flowers in late spring; host plant to the Mottled Duskywing and the Summer Azure. One of the smallest of our native shrubs and certainly the smallest of this group.

Shrubby St John's Wort (*Hypericum prolificum*)—unique yellow flowers in mid-summer; dense early foliage that persists into fall; mature plants show reddish exfoliating bark.

Sun-loving and spreading ground covers can be an ideal way to help minimize garden maintenance in suppressing unwanted “weeds” by serving as a green mulch, covering the bare soil surface in-between shrubs and non-spreading plants where weed seeds would germinate, while delivering interesting flowers and functional habitat.

Prairie Pussytoes (*Antennaria neglecta*) blooms in spring with cream-colored flowers said to resemble cat feet. It will fill in with attractive foliage for the entire growing season and is a host plant to the American Lady butterfly.

Purple Poppy Mallow (*Callirhoe involucrata*)—sprawling long-blooming pink/purple flowers for a variety of pollinators including our native bees. Can be readily cut back, with little, if any, impact on flowering cycle.

Rose Verbena (*Glandularia Canadensis*)—pink-purple flowers may bloom from April to October; thrives sunny and dry conditions; dissected foliage persists throughout the year; draws butterflies and some bees.

Sand Phlox (*Phlox bifida*) can form a dense, creeping mat of neat foliage; very early flowers give nectar and pollen for early hummingbirds and butterflies. Shortest bloomer, spring only, but does retain a neat, dense foliage through the season. Non-aggressive.

Wild Strawberry (*Fragaria virginiana*)—neat white flowers in spring yield edible, sweet fruit in early summer; like most strawberry plants spreads overground by runners and can readily “fill in” between other plants.



Native Flowering Plants for Part Sun:

For areas that receive no or a very little direct afternoon sunlight and certainly less than the 6 hours required for a full sun garden, consider these highly adaptable ‘part sun’ native perennial flowers that can still support our native bees and butterflies.

Spring flowering:

Coral Bells (Heuchera richardsonii)—large, clumping foliage with tall stalks of tiny, bell-shaped flowers; not a true groundcover as it doesn’t spread, but can be used as such with a dense planting.

Ohio Horsemint (Blephilia ciliata)—neat, long-blooming pagoda-like flowers for small pollinators

Summer flowering:

Bee Balm (Monarda bradburiana)—a short, adaptable lavender flower in late spring that attracts both butterflies and hummingbirds.

Purple Coneflower (Echinacea purpurea) is very adaptable and can bloom most of the summer; leave the seed heads on thru winter as food for finches and sparrows.

Garden Phlox (Phlox paniculata)—our tallest and longest-blooming phlox; excellent for a variety of pollinators including hummingbirds.

Fall Flowering:

Gray Goldenrod (Solidago nemoralis) and ***Late Purple Aster (Symphyotrichum patens)***. The latter is our most flexible aster with long-blooming rose-purple flowers.

We specifically mentioned the critical importance of asters and goldenrods to fall pollinators, especially migrating butterflies like the Monarch.

In addition, consider one or more of these long-blooming and adaptable natives:

Showy Coneflower (Rudbeckia fulgida)— this plant looks like black-eyed susan, starts blooming mid-summer and continues into September. Supports a variety of tiny pollinators.

Star Tickseed (Coreopsis pubescens)—wide “platform” flower for butterflies to nectar; the seeds of most coreopsis are sought after by Goldfinch and a variety of other small birds; this one can bloom from spring to fall!

For adaptable flowering native ground covers in these same ‘part sun’ conditions, we like:

Barren Strawberry (Waldsteinia fragarioides)—with yellow buttercup-like flowers in spring and sprawling basal foliage that can stay green thru the winter.

Golden Groundsel (Packera obovata) produces 15-inch tall yellow flower spikes in spring—critical for early pollinators—and retains its basal foliage year-round. It does self-seed quite easily and can fill in an area readily.

Pussytoes (Antennaria parlinii) shade-tolerant cousin to *A. neglecta* described earlier for the sunny spaces, but otherwise identical.

Robin’s Plantain (Erigeron pulchellus)—daisy-like flowers on short stalks in early spring with dense basal foliage that persists the rest of the season.

Sand Phlox (Phlox bifida) can form a dense, creeping mat of neat foliage; very early flowers give nectar and pollen for early hummingbirds and butterflies.

Wild Stonecrop (Sedum ternatum) a native succulent with star-like white flowers in spring and foliage that can stay green in most winters. It is referred to as a shade plant but is actually quite adaptable and take significant direct sunlight.

Goldfinch Plants:

We thought this section might also be of interest. Pollinators get so much of the attention with native plant gardening, but with a little creativity, you can garden for certain songbirds. Who doesn’t like our American Goldfinch!

The American Goldfinch is a rather unique songbird, feeding its young an exclusively vegetarian diet. Most every other small native songbird in our area feeds their nestlings insect protein, most especially butterfly and moth caterpillars. This helps explain why the goldfinch is one of the last birds to nest in our area. They wait for certain native wildflowers to form seeds which they feed their young and



incorporate the associated plant fibers in their nests.

So, you also might be interested in gardening for this very neat birds. Below is a list of native perennial flowers known to be visited by goldfinches. For the plants that flower and go to seed 'early,' these are especially valuable to keep the adult birds nourished as they prepare for breeding and feeding of their young.

Generally, these are sun-loving wildflowers. While most thrive in open, full sun 'prairie' spaces in the wild, they are actually quite flexible plants. You should feel very comfortable including them in 'part sun' locations. Also, do not forget that as seed-eating birds, dead-heading spent flower heads is not helpful for them. Rather than see a 'natural' look as unkempt, consider it just one more educational opportunity for your residents.

Coreopsis: **Lanceleaf** (*C. lanceolata*), **Prairie** (*C. palmata*), **Star Tickseed** (*C. pubescens*)

Echinacea: **Pale Purple** (*E. pallida*), **Purple** (*E. purpurea*), **Yellow** (*E. paradoxa*)

Rudbeckia: **Black-eyed Susan** (*R. hirta*), **Missouri Coneflower** (*R. missouriensis*), **Showy Coneflower** (*R. fulgida*)

Ratibida: **Gray-head Coneflower** (*R. pinnata*), **Long-head Coneflower** (*R. columnifera*)

Sunflower*: **Ox-eye Sunflower** (*Helianthus helianthoides*), **Silphium Sunflower** (*Helianthus silphoides*), **Western Sunflower** (*Helianthus occidentalis*)

* We have limited our selections to the 'shorter' of the helianthus and silphium genus. There are a good number more commercially available in both genus. Should you be open to taller and more aggressive plants, please explore them at your preferred native plant nursery.

Native Plants for Shade:

For fully shaded settings, native perennial woodland flowers would be ideal candidates. These plants naturally occur in Missouri's Ozark woodlands and thrive in settings that are fully shaded all day long once the leaves emerge in the spring on the overhead/canopy trees. Do be aware the majority of woodland flowers grow in rich bottomland soils. In establishing any new bed for native woodland flower, you should consider at least adding a good layer of fine leaf mulch. We provide our ideas by plant type.

Spreading groundcovers:

Barren Strawberry (*Waldsteinia fragarioides*)—with yellow buttercup-like flowers in spring and sprawling basal foliage that can stay green thru the winter.

Crested Iris (*Iris cristata*)—our shortest and most shade-tolerant iris; will spread slowly by rhizomes.

Celandine Poppy (*Stylophorum diphyllum*) when happy, it is an aggressive spreader with big leaves, dramatic yellow flowers that yield unique seed capsules that explode when ripe.

Golden Groundsel (*Packera obovata*) is a more aggressive option that produces 15-inch tall yellow flower spikes in spring—critical for early pollinators—and retains its basal foliage year-round. It does self-seed quite easily and can fill in an area readily.

Pussytoes (*Antennaria parlinii*) blooms in spring with cream-colored flowers said to resemble cat feet. It will fill in with attractive foliage for the entire growing season and is a host plant to the American Lady butterfly.

Robin's Plantain (*Erigeron pulchellus*)—daisy-like flowers on short stalks in early spring with dense basal foliage that persists the rest of the season.

Wild Ginger (*Asarum Canadense*) produces a dense layer of heart-shaped leaves with unique maroon flowers that are, unfortunately, largely hidden underneath them.

Wild Stonecrop (*Sedum ternatum*) should also be considered. A native succulent with star-like white flowers in spring and foliage that can stay green in most winters. It is referred to as a shade plant but is actually quite adaptable and take significant direct sunlight.

You also might consider:

Pennsylvania Sedge (*Carex pennsylvanica*)--sedges are non-flowering grass-like natives that resemble liriopie (monkey grass) and can be host plants for some Skipper butterflies. This one is widely adaptable, spreads slowly by underground rhizomes and does not grow very tall.

Specimen plants that spread slowly if at all:

Coral Bells (*Heuchera richardsonii*), **Indian Pink** (*Spigelia marilandica*), **Jacob's ladder** (*Polemonium*



reptans), *Solomon's seal (Polygonatum biflorum)*, *Wild geranium (Geranium maculatum)*
Early flowering spring wildflowers that go dormant once the flowers are spent (ephemeral). Should you plant any of the following, mark them well since their above-ground vegetation disappears completely after their flowering season, and you don't want to damage their roots.

Bloodroot (Sanguinaria canadensis)

Trillium (Trillium sessile)

Virginia Bluebells (Mertensia virginica)

Wild Sweet William (Phlox divaricata)

For a summer/fall bloom in shady areas you could use

Downy skullcap (Scutellaria incana), *Garden Phlox (Phlox paniculata)*, *Rose Turtlehead (Chelone obliqua)* or *Littleflower Alumroot (Heuchera parviflora)*

For structure and additional habitat and interest, consider these shrub and shrub-like flowers:

American Spikenard (Aralia racemosa)—a “shrubby perennial” that dies back to the ground each fall but looks like a shrub all summer dramatic; clusters of white flowers that produce FRUIT

Goatsbeard (Aruncus dioicus)—another “shrubby perennial;” feathery creamy/yellow flowers in late spring with dense, compound leaves.

Wild Hydrangea (Hydrangea arborescens)—true shrub with flat clusters of tiny white flowers in mid-summer serves as excellent pollinator support to our native bees.

Ideally the shade-tolerant woodland plants above would be protected during the summer by multiple ‘layers’ of shade. In the wild, they typically grow under large canopy trees and small flowering understory trees that reinforce the shade of the canopy trees. Should there be shaded areas where only the canopy layer exists, consider adding one or more small flowering trees such as:

Carolina Buckthorn (Rhamnus caroliniana)—neat, shade-tolerant tree; fall fruit for birds; red fall color

Eastern Redbud (Cercis Canadensis)—pink-purple flowers in early spring; heart-shaped leaves; fast-growing and neat, reddish bark as plants mature.

Pagoda Dogwood (Cornus alternifolia) cousin to our state tree with later-blooming clusters of tiny white flowers that yield dark blue fruit in fall for birds. Supports many more pollinators than Flowering Dogwood. The cornus genus supports over 100 species of butterfly and moth caterpillars, including the Spring Azure in Missouri.

Serviceberry (Amelanchier arborea)—white flowers in early spring yield edible red berries in mid-summer; genus is host to over 100 species of butterfly and moth caterpillars; neat fall color.

Native Shrubs:

We also mentioned the potential of adding a small variety of native shrubs, especially in either Washington or Pershing Parks. These could be single ‘accent’ plants or used as significant habitat spots with a small cluster of shrubs. As they mature, the plants would be ‘easy’ to maintain, provide valuable habitat and seasonally changing landscape features.

Like everything we are suggesting, the exact layout is entirely up to you. No matter what, we do like to suggest single-species clumps of 3, 5 or more plants wherever possible. This increases their visibility to wildlife, maximizes pollinator foraging efficiency and creates a very dramatic look.

Basically, all our recommendations are shrubs that flower and will provide nectar/pollen to our native butterflies and other pollinators. Most provide fruit at various times of the year that birds will eat, and most importantly, the foliage will provide food for native plant-eating insects that are critical protein sources for all our native songbirds.

We like these highly adaptable natives that do well with any amount of direct sunlight:

Arrowwood (Viburnum dentatum)—smallest of our native viburnums. All viburnums produce neat white flowers in spring and fruit for birds; dense branching gives opportunity for small birds to nest or roost; genus is host plant to over 100 species of butterfly and moth caterpillars. Viburnums want to be large. Should you decide the straight native species would be too much, consider the ‘blue muffin’ variety which tops out at 6 feet or less.

Black Chokeberry (Aronia melanocarpa) – white spring flowers; red fall foliage; large “edible” berries



for birds in early fall

Elderberry (*Sambucus canadensis*) fast growing and thicket forming. Full-partial sun, average to moist soil, including rain gardens. Fragrant white flowers in early summer become dark berries in fall that may be made into jelly, pie, or wine...or simply left to feed the birds.

Golden Currant (*Ribes odoratum*) ‘open’ shrub that will spread by root suckers to form colonies. Fragrant yellow flowers that last for weeks in early spring. Dark berries in early summer popular with birds and humans if two or more plants are present for cross-pollination.

Mock Orange (*Philadelphus pubescens*)—a honeysuckle look-alike with much more interesting flowers and bark in winter; fast-growing

Ninebark (*Physocarpus opulifolius*) – neat white flowers in spring; 4-season dense shrub for bird nesting, roosting and forage.

Prairie Willow (*Salix humilis*)—a dry soil and rather small native willow which blooms in very early spring and supports the life cycle of a large number of butterfly and moth species. Separate male and female plants should you want to be sure of full willow life cycle.

Winterberry Holly (*Ilex verticillata*) female plants have red berries which provide important winter fruit for the birds and great color. You would need at least one male to insure pollination and berry production. We think they are quite dramatic especially through the winter after they drop their leaves but retain a profusion of red berries. Unfortunately, all hollies are slow-growing. Thrives especially with limited direct sunlight just like the ‘part sun’ plants described earlier as well as lower, moist soil areas.

For the shadiest spaces that receive little, if any direct sunlight:

Hazelnut (*Corylus americana*)—dense shrub for nesting/roosting; will spread; edible nuts

Red Elderberry (*Sambucus racemosa*)—summer fruit for birds; smaller, shade-loving Elderberry

Spicebush* (*Lindera benzoin*)—tiny yellow flowers in spring yield unique fruit for birds; host plant to spicebush swallowtail butterfly.

Virginia Sweetpire (*Itea virginica*)—smallish native shrub with tassels of white flowers in spring; red fall foliage; can spread by root suckers.

* Spicebush has male and female flowers on separate plants. To insure full ecological function, you would need both sexes. Unfortunately, nursery stock is not always old enough to determine the sex of the plant. In that case, we suggest planting at least 3 to improve the odds of having both.

Your Ash Trees:

You’re already familiar with the Emerald Ash Borer (EAB) which is a non-native insect that has been spreading across the St. Louis region since 2015 and will eventually kill most all of our native ash trees. Should you choose to keep any of your large mature ash trees, ongoing treatment will be required. We urge you secure the services of a professional for this task. Do keep in mind that any systemic pesticide that kills the Emerald Ash borer may very well kill countless other beneficial insects as well. For more information: https://mdc.mo.gov/sites/default/files/downloads/mo_eab_management_guide.pdf.

Shade Tree Replacements:

We discussed the idea of planning in advance for the eventual loss of the Ash trees. Even without the Ash Borer, this is good advice. All plants eventually die, including large trees, and yet it takes many years for a shade tree to mature. So, best to plant large trees well in advance of the ‘need’ for them. We have selected a small array of native canopy trees that tolerate dry soil once established.

American Linden (*Tilia Americana*) is a very pretty plant with attractive flowers in spring supporting our native bees.

Black Cherry (*Prunus serotina*) fastest grower of the list here. VERY high on the wildlife-value list by feeding caterpillars with its leaves AND supporting birds with its fruit. Widely adaptable and very pretty spring flowers. Landscapers do not recommend and consider it unattractive and ‘messy,’ but of course, that’s a human-centric attitude. ☺

Black Gum (*Nyssa sylvatica*) – once established it is resistant to drought and flooding. Provides cover and food for songbirds; attracts butterflies; is host for white Hebrew moth; provides honey nectar. Spectacular fall color. Not related to Sweet Gum tree that produces spiky seed balls.



Bur, Chinkapin or White Oak (*Quercus macrocarpa, muehlenbergii or alba*) – all form attractive shade trees that are relatively resistant to insects and disease. They are the slowest growing of the trees listed here, but Chinkapin grows the fastest of the three oaks.

Tulip Tree (*Liriodendron tulipifera*)—rather fast-growing shade tree with dramatic showy flowers; potential host to the Tiger Swallowtail butterfly; broadly tolerant of suburban clay soils.

The black gum, linden and tulip all naturally occur in 'rich woods' and along streams in Missouri. Should you choose, monitor closely in the early years and provide supplemental water during dry periods.

Do keep in mind that native canopy trees often grow very slowly under the shade of mature trees, waiting for one of those trees to die and provide an opening to more sunlight. So, try to plant future shade trees in as open/sunny a space as possible.

Small Native Flowering Trees:

We also discussed the potential for adding small flowering trees within one or all of the parks. Our small native trees are highly attractive and beneficial plants. They can also be very flexible landscape elements. In particular, we noted their potential as 'bench plants' to accent one or more of your park benches without the 'crowding' which can occur by a shrub or perennial flower planting.

All those listed below are highly adaptable and naturally occur in Missouri's woodlands. As such, they will grow with very little direct sunlight after spring when the overhead trees leaf out. They will also thrive in more open spaces with significant direct sunlight during the growing season. In the latter situation, they simply grow faster and fuller with denser branching.

Carolina Buckthorn (*Rhamnus caroliniana*)—neat, shade-tolerant tree; fall fruit for birds; red fall color
Eastern Redbud (*Cercis Canadensis*)—pink-purple flowers in early spring; heart-shaped leaves; fast-growing and neat, reddish bark as plants mature.

Flowering Dogwood (*Cornus florida*), 15-30 ft; neat and large white flowers in spring; crimson fruit ripens in winter for birds; nearly 100 butterfly/moth species use cornus genus as host plants; branches may support nesting of native songbirds; deep red fall color.

Green Hawthorn (*Crataegus viridis*)—white flowers in spring; nearly thornless; fruit for a variety birds

Pagoda Dogwood (*Cornus alternifolia*) cousin to our state tree with later-blooming clusters of tiny white flowers that yield dark blue fruit in fall for birds. Supports many more pollinators than Flowering Dogwood. The cornus genus supports over 100 species of butterfly and moth caterpillars, including the Spring Azure in Missouri.

Red Buckeye (*Aesculus pavia*)—dramatic deep red flower spikes in spring that support early-arriving hummingbirds. Neat compound leaves. Likes sun and moisture. Unfortunately, rather slow-grower.

Serviceberry (*Amelanchier arborea*)—white flowers in early spring yield edible red berries in mid-summer; genus is host to over 100 species of butterfly and moth caterpillars; neat fall color.

Leave the Leaves:

We also discussed the potential of simply 'leaving the leaves' in various areas of the Parks to begin to replicate the natural process in our woodlands. Fallen leaves provide a natural mulch to the ground and the plants, helping retain soil moisture and "insulating" the soil from temperature extremes. As the leaves decompose, they provide nutrients to the soil, and most butterfly/moth species actually use the leaf layer to complete their life cycle.

We understand large areas will remain tidy and leaf-free for turf grass. For targeted areas, most especially under large, mature shade trees like your cypress that naturally collect leaves simply go "rake free." The single biggest challenge to "partly" managing a landscape in a natural manner is to avoid leaves "piling up" in certain locations, almost like snow drifts, where the natural processes described earlier may be compromised. Some active management of those 'drifted' spaces may be required, but mostly try to avoid actively 'blowing in' leaves from the nearby open spaces.

Other Issues--Mosquitos

There are thousands of mosquito species around the world while only a few dozen are known to carry disease. In the St. Louis region, the numbers are a few dozen and several. Further, mosquitos are a



part of a functional, natural ecosystem, serving as food for other organisms both in their aquatic and adult flying stages. Unfortunately, we tend to live in spaces where we have displaced the natural ecosystem with its predator/prey relationships. Numerous mosquito species have adapted to those disturbed conditions and lead to our frustration and infection risk when we want to enjoy our yards and park spaces.

Not surprisingly, the single best approach to minimizing your interaction with mosquitos is the same as increasing your support for birds, bees and butterflies—work at restoring those natural processes and systems through native plantings and other wildlife stewardship practices as we discussed during our visit and in this report. Of course, that is a long-term strategy, and its success, especially with regard to mosquitos in average residential neighborhoods, is very dependent upon what everyone else is doing. If nearby properties maintain dense groundcovers of ivy or wintercreeper that shelter adult mosquitos during the day or include sources of stagnant water which support mosquito reproduction, your efforts may be slow to yield results.

The first three references below describe mosquito biology and ecology and are listed in order of increasing level of detail. The Bob Vila page includes several ideas on how to construct small devices that may help reduce your local mosquito population. We suggest you consider installing one or more ultra-simple “ovitrap” with a dark bucket or pail of water with grass clippings or other vegetation in a shady location that you empty about once a week. This trap is especially suited for the *House Mosquito (Culex pipens)*. This encourages females to lay eggs which you then prevent from maturing by emptying onto any surface where the eggs/larvae dry up, most obviously stone or other hard surface but typically the lawn works as well. Consider adding the 10 minute or so exercise to your preferred digital calendar with a reminder every 7 to 10 days.

Finally, you might check out the Stanford reference which connects you with a study using mobile phone technology and curious citizens to take audio recordings of mosquitos to help researchers map the species and their spread around the globe.

<https://nature.mdc.mo.gov/discover-nature/field-guide/mosquitoes>

<https://extension2.missouri.edu/g7400>

<https://extension.entm.purdue.edu/publichealth/insects/mosquito.html>

<https://www.bobvila.com/articles/diy-mosquito-trap/>

<http://web.stanford.edu/group/prakash-lab/cgi-bin/mosquitofreq/the-problem/>

III. WILDLIFE STEWARDSHIP

Bird bath

We discussed the potential for a moving water feature for the woodland in Washington Park. We suggest a pondless bubbler. One landowner in Kirkwood with one has documented over 100 species of birds in her landscape. These two videos describe the construction of a small one here in St. Louis; the second was filmed after the owners discovered the need for some modifications. We have also attached a pdf with step-by-step instructions and equipment list for such an installation.

http://www.youtube.com/watch?feature=player_embedded&v=x7K3hHADgls#!

<http://www.youtube.com/watch?v=nUld39nkbuM>.

Bird nest boxes:

Bird nest boxes can be a relatively easy way to bring bird and their families up close. You can find specific houses at the local bird supply stores; many of 100% recycled materials. For small birds such as wrens, be very aware of the encroachment by English House Sparrows. They are aggressive and will take over most nest boxes that are available. To help prevent this, be sure the entrance hole is 1.125 inches in diameter and no more. You might consider a Screech Owl box for one of your large trees.

<http://www.allaboutbirds.org/page.aspx?pid=1139#basics>

If you prefer to build your own houses, the Missouri Dept of Conservation has a Woodworking for Wildlife publication available at their nature centers that we believe is free of charge. For online info:

<http://nature.mdc.mo.gov/discover-nature/activities/woodworking>

One significant concern with a Screech Owl box is intrusion by squirrels. However, this is somewhat easily avoided with a simple predator guard. Here's a pic and detailed description of the predator guard I would recommend.



<http://nestwatch.org/wp-content/uploads/2013/06/guardnoe.pdf>

Note, this device is designed for use with the smaller birds. To use with the larger screech owl, I would enlarge it and apply it to the outside edge of the front face of the box. However you size/place it, just be sure it is still able to deter climbing animals from the tree while not impacting the flight of the birds.

Bee hotel

Monitoring and stewardship of nest sites for our native bees can be a source of enjoyment for you and your residents. With over 300 species of bees native to Missouri and nearly all of them solitary, non-colony nesters, the potential is huge and highly educational. Bees need not be feared as their interest is in collecting pollen. They only attack when their colony is threatened (for example, by non-native honeybees or colony-nesting bumble bees) or they are swatted by accident. The Xerces Society has an array of online resources, including details on native bee “hotels.”

<https://www.xerces.org/blog/5-ways-to-increase-nesting-habitat-for-bees>

http://www.xerces.org/wp-content/uploads/2008/11/nests_for_native_bees_fact_sheet_xerces_society.pdf

IV. STORMWATER MANAGEMENT

The existing trees on your property are ideal to help slow down rain water runoff. The additional plantings will help further to reduce water runoff from your landscape and improve water quality in your community.

MSD Project Clear Large Grants:

You might check into the MSD Project Clear Large Grants program which provides reimbursement for landscape projects that help retain rainwater on your property. The effort is focused on replacing impervious surfaces like pavement and turf grass with natural systems that allow water to infiltrate the soil, but they also support other creative native plant upgrades.

<https://msdprojectclear.org/what-we-do/rainscaping/large-grants/>

V. EDUCATION AND VOLUNTEERISM

Our community has so many opportunities for learning about native plants. The Missouri Conservation Department has activities of interest at places like Powder Valley in Kirkwood, Columbia Bottoms Conservation Area in north county, and the August A. Busch Memorial Conservation Area in St. Charles which might be of interest to you. That calendar can be found here: <http://mdc.mo.gov/mdc-events>.

There is an organization of native plant enthusiasts called Wild Ones whose monthly meetings are often tours of members’ gardens (<http://stlwildones.org/>). Their meetings are open to the public.

Shaw Nature Reserve has an annual series of classes called Native Plant School. Programs at Shaw Nature Reserve, Missouri Botanical Garden, and the Butterfly House at Faust Park can be found here: <http://www.missouribotanicalgarden.org/learn-discover/classes.aspx>.

Shaw Nature Reserve also has produced, with the Missouri Department of Conservation, a 4-chapter native landscaping manual which is available to download for free or hardcopies can be purchased for just \$5 a chapter. <http://www.missouribotanicalgarden.org/visit/family-of-attractions/shaw-nature-reserve/gardens-gardening-at-shaw-nature-reserve/native-landscaping-for-the-home-gardener/native-landscaping-manual.aspx>

St. Louis Community College, especially at the Meramec campus, often offers short classes of interest through its Continuing Education program. In addition, there is an entire Master Naturalist curriculum that includes both credit and non-credit classes: http://guides.stlcc.edu/master_naturalist.

St. Louis Audubon has many education, outreach and conservation programs. Should you want to volunteer or simply learn more about the programs, check out our website at www.stlouisaudubon.org.

Citizen Science: If you do not already do so, we encourage you to checkout and consider any of the variety of citizen science programs, especially of course those focused on birds. The National Geographic has assembled a very good list of easily accessible projects. We especially like Project BudBurst.



<https://www.nationalgeographic.org/idea/citizen-science-projects/?page=1>

Spread the Word: We look forward to returning to certify your landscape. In the meantime, please share your experience, the program and our resources with your friends, neighbors and relatives. Every yard that incorporates native plants becomes wildlife habitat that is critical for the future of our birds, native animals and our quality of life.

CERTIFICATION

Please refer to the Certification Criteria sheet that was included in your resource packet.

For SILVER CERTIFICATION complete the following:

1. Kill any wintercreeper growing up vertical surfaces such as fences and trees.
2. Convert sufficient non-native/ornamentals and/or turf grass to native plants, per the suggestions in Section II above, to equal at least 5% of your total available space, a total of 6,000 square feet by our estimate.
3. Install sufficient native plants to satisfy at least one of the wildlife habitat gardens and at least two more of the criteria in the Wildlife Stewardship section.
4. Stormwater Management criteria already satisfied for this level.

For GOLD CERTIFICATION—maintain all existing Silver elements, and complete:

1. Remove the Burning Bush and English Ivy.
2. Convert sufficient non-native/ornamentals and/or turf grass to native plants, per the suggestions in Section II above, to equal at least 15% of your total available space, a total of 18,000 square feet.
3. Install sufficient native plants to satisfy at least two of the wildlife habitat gardens and at least two more of the criteria in the Wildlife Stewardship section.
4. Satisfy at least two Stormwater Management criteria.
5. In addition, you would need at least one Education and Volunteerism element. See the Certification Criteria list for available options.

Steps for the Platinum level will be provided after achieving SILVER certification. *Contact St. Louis Audubon at www.stlouisaudubon.org/BCH when you are ready y for your initial certification. No additional fee is required; the initial payment covers two (2) surveys/reviews of your landscape.*

RESOURCES

The St. Louis Audubon website has a number of resources related to the elements of the Bring Conservation Home program:

www.stlouisaudubon.org/BCH

www.grownative.org

<http://www.audubon.org/conservation/creating-bird-friendly-communities>

www.monarchwatch.org

www.stlwildones.org

www.xerces.org

Bringing Nature Home by Doug Tallamy. This is the “why” book which provides important background on the critical importance of landscaping with native plants. www.bringingnaturehome.net. *Nature’s Best Hope* also by Doug Tallamy and just published is a ‘call to action’ especially suitable for helping inspire others to follow in your footsteps.

Native Landscaping for Wildlife and People by Dave Tylka. This is the only “how to” native landscaping book for the Missouri/Illinois region. No longer in print, but available used through Amazon, etc.

Tried and True: Missouri Native Plants for Your Yard by the Missouri Dept of Conservation is a shorter, beginner version of the Tylka book: <https://www.mdcnatureshop.com/product.php?productid=340>

Garden Revolution: How Our Landscapes can be a Source of Environmental Change by Larry Weaner and Thomas Christopher. A very important book about native plant landscaping that bridges the gap between gardening and ecology. <https://www.workman.com/products/garden-revolution>

1001 All-Natural Secrets to a Pest-Free-Property by Dr. Myles H. Bader

Missouri Wildflowers Nursery, <http://www.mowildflowers.net/>, is overall one of the single, best sources



for natives in the state. They deliver via UPS.

For another year-round source of trees and shrubs (that may not be available at MO Wildflowers) consider Forrest Keeling in Elsberry. <http://www.fknursery.com/>

Many St Louis area nurseries are improving their stock of native plants, especially those listed in the Grow Native Resource Guide in your resource packet. Examples include Greenscape, Sappington and Sugar Creek Gardens.

Finally, the Shaw Nature Reserve in Gray Summit has native wildflower sales in both the spring and fall. The larger sale is on Mother's Day weekend in May every spring.

<http://www.missouribotanicalgarden.org/visit/family-of-attractions/shaw-nature-reserve/gardens-gardening-at-shaw-nature-reserve.aspx>

We will keep you posted via quarterly e-mails.

DISCLAIMER

The St. Louis Audubon Society, its employees or volunteers make no direct or implied guarantee about any of the recommendations in this report or discussions during the related landscape survey. Our advice is focused on selecting the right native plants for the right place to provide the desired habitat values. Yet, the success of any habitat gardening approach is determined by many other factors as well, including in part the quality and origin of the materials, the installation process and the maintenance routine.

Landowners especially concerned about their ability to achieve the desired results are encouraged to consult the references included in their Resource Packet and provided on our website, including the services of a native landscape professional.

