

# FIELD JOURNAL

Sustainability  
in Bartholdi Park



UNITED STATES  
BOTANIC GARDEN



# Welcome to Bartholdi Park

Since 1932, the centerpiece of Bartholdi Park has been the stately cast-iron *Fountain of Light and Water* designed by Frédéric Auguste Bartholdi for the 1876 Centennial Exposition in Philadelphia.

The park was recently renovated as a sustainable garden, certified at the SITES® Gold level by Green Business Certification Inc™.

The park incorporates many best practices in sustainable landscaping including reducing rainwater runoff, reusing plants and materials, locally sourcing sustainable materials, growing native plants, and providing food and habitat for wildlife.

Use this journal to learn about sustainability as you explore Bartholdi Park.

***Please help us conserve this living museum by staying on paths and not picking any plants, fruits, or flowers.***







As you explore Bartholdi Park, look for this oak leaf to help you find examples of these features:



- |                          |                        |
|--------------------------|------------------------|
| 1. Material Conservation | 6. Water Conservation  |
| 2. Sweetbay Magnolia     | 7. Grass Diversity     |
| 3. Dry Fruit             | 8. Oak Diversity       |
| 4. Fleshy Fruit          | 9. Kitchen Garden      |
| 5. Franklin Tree         | 10. Carnivorous Plants |



-  Rain Garden
-  Kitchen Garden
-  Bartholdi Fountain
-  Administration Building



## Material Conservation

A big part of conservation in Bartholdi Park is selecting sustainable materials, reusing materials, and buying locally.



### FLAGSTONE

During renovation, flagstone in the walking paths was removed from the park and cleaned. It was then returned to create new paths.



### WOOD

Instead of using wood that is over-harvested or shipped from far away, the park's furniture was made from white oak trees that fell during a wind storm in Virginia.



### STONE, COBBLE, AND BRICK

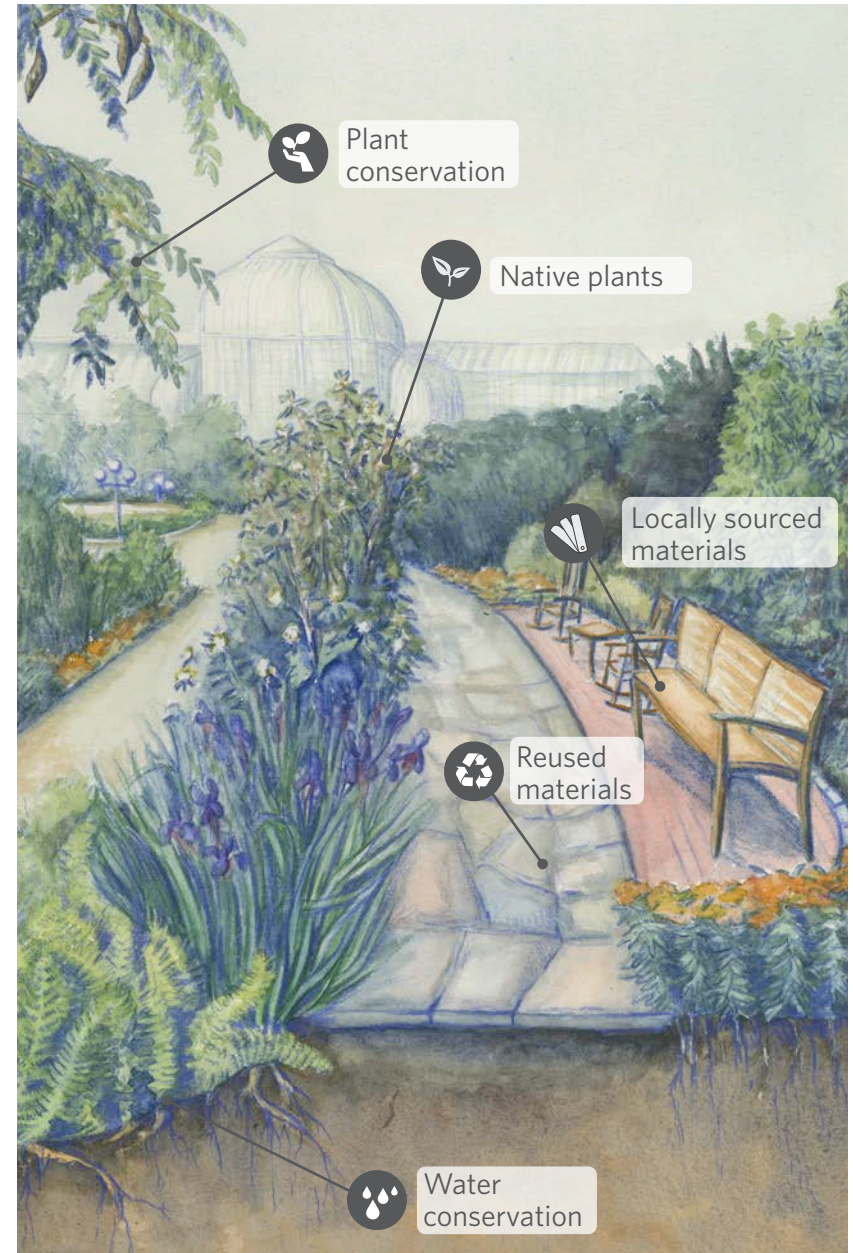
The stone in the Kitchen Garden walls, the cobblestones, and most of the bricks were repurposed from materials previously present in the park.

### CONCRETE

Sidewalks previously in the park were broken-up and crushed to provide a base layer for newly poured concrete paths.

**ACTIVITY:** As you walk through Bartholdi Park, find at least three materials and think about your own garden. Are there materials you could re-purpose or reuse instead of throwing them away?

## FEATURES OF A SUSTAINABLE GARDEN







## Sweetbay Magnolia

*Magnolia virginiana*



Sweetbay magnolia flowers bloom in early summer months.

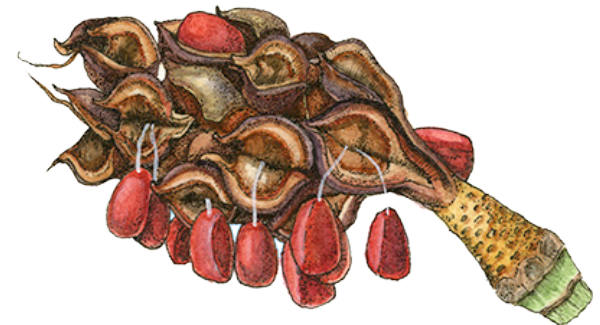
Sweetbay magnolia is native to low areas and swamps of the Atlantic Coastal Plain of the eastern United States. Its fragrant white flowers, smooth gray bark, dark red fruit, and sweet-smelling foliage offer year-round beauty and provides important habitat for wildlife species. Native magnolias support more than 20 species of caterpillars, and birds and squirrels eat the bright red fleshy seeds that dangle from the cone-like fruits.

**ACTIVITY:** What features do you see when you look at this tree? Do you see any birds eating the seeds or caterpillars on the leaves? Note the season and describe the features or animals that you observe:

Season: \_\_\_\_\_

Features/Animals: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_



sweetbay magnolia fruit



# FRUIT

Fruits and the seeds they contain provide food for more than just people. Animals rely on fruits and seeds for nutrients, and plants rely on them for propagation. Fruits can be fleshy like a peach or dry like an acorn.

## 3 Dry Fruit

Dry fruits protect, store, and disperse seeds that can grow into new plants, just like fleshy fruits do. Their seeds may be dispersed by wind, gravity, animals, or even water!

**ACTIVITY:** Look at the dry fruits and seeds of the Kentucky coffeetree, butterfly weed, and sweetgum. How do you think the structures help protect and/or transport seeds?

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Kentucky coffeetree  
(*Gymnocladus dioica*) fruit

Kentucky coffeetree  
(*Gymnocladus dioica*) seeds



sweetgum  
(*Liquidambar styraciflua*) fruit



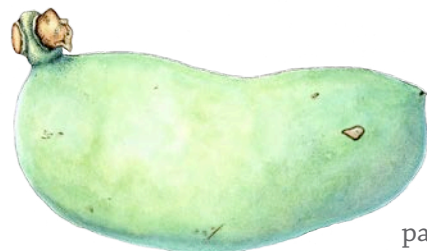
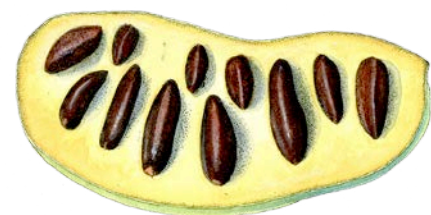
butterfly weed  
(*Asclepias* sp.) fruit and seeds





## Fleshy Fruit

Fleshy fruits have soft tissue surrounding the seeds or pit, like blueberries and peaches. The fleshy part of the fruit is eaten by wildlife and people that act as dispersers by moving the seeds to new places.



pawpaw (*Asimina triloba*)  
fruit and leaves



The pawpaw (*Asimina triloba*) is native to most of the eastern U.S. It is an edible, fleshy fruit with a rich, custard-like texture and sweet flavor. While many humans find this fruit tasty, it is also an important food source for wildlife.

**ACTIVITY:** Can you find another fleshy fruit in the park that your local grocery store may not have? Locate it and use the plant's label to fill in the information on the next page.

### PLANT LABEL

_____	family
_____	scientific name
_____	common name
_____	native distribution range



Jujube (*Ziziphus jujube*) is native to China and southeastern Europe. The fruit has a crisp, sweet taste and can be eaten fresh or dried like a date.



American holly (*Ilex opaca*) is toxic to humans, but is an important food source for wildlife.

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## Franklin Tree

*Franklinia alatamaha*



Franklin tree flowers bloom in the summer and give off a sweet fragrance.

The Franklin tree, named for Benjamin Franklin, was collected in 1765 by botanist William Bartram along the Altamaha River in Georgia. Bartram grew Franklin trees from the seeds he collected and sold them to patrons of his nursery. Unfortunately, the plant has not been seen in the wild since the early 1800s and is presumed to be extinct.

The Franklin tree survives today in gardens around the world thanks to the collecting and propagating efforts of William Bartram. This early American horticulturist likely created one of the first cases of ex situ conservation of an almost-extinct American species. Ex situ conservation saves species outside of their native habitats (in situ conservation occurs in native habitats). Today, botanic gardens around the world protect over 40% of known threatened plant species.



Tiny brown dried fruits (capsules) can be found on the tree during winter months.



Franklin trees are beautiful in the fall, with their bright red foliage.

**THINK:** Why do botanic gardens work to preserve rare and endangered plants?





## Water Conservation

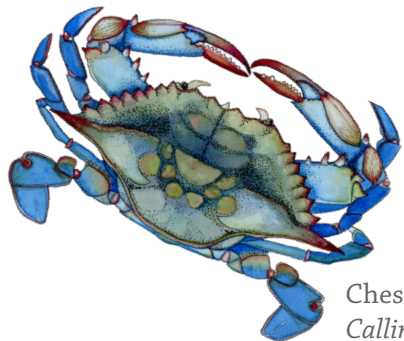
Gardens can play an important role in the conservation and protection of water resources. In cities, impervious surfaces like roofs, streets, and sidewalks prevent rainwater from soaking into the ground. Rainwater runoff can transport pollutants to rivers, lakes, and streams, endangering aquatic ecosystems and drinking water. Rain gardens, like those in Bartholdi Park, protect the environment by capturing water and allowing it to soak into the ground.

**THINK:** In many cities, like Washington, D.C., much of the rainwater flows over impervious surfaces and through combined sewer systems into rivers, lakes, and oceans. Pollutants carried by the water can pose a threat to the environment.

In your area, do you know where rainwater ends up?  
What can you do to help conserve water resources?

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Chesapeake blue crab  
*Callinectes sapidus*



striped bass  
*Morone saxatilis*

## FEATURES OF A RAIN GARDEN

To learn more about rain gardens and protecting water resources visit: [www.USBG.gov/RainGardens](http://www.USBG.gov/RainGardens)







## Grass Diversity

Did you know grasses come in many shapes, sizes, and colors? The grass family (Poaceae) has nearly 12,000 species. While turf grass is great for a picnic, large areas planted with one species, called a monoculture, is not usually healthy for the environment. Monocultures don't provide a diversity of resources for wildlife and tend to require a lot of resources to grow properly. For example, turf grass lawns need lots of water, fertilizer, fuel, and time to maintain.

Planting native grasses and closely related, similar-looking sedges in your garden creates a beautiful landscape, provides habitat and food for wildlife, and can help conserve resources since they are adapted to the natural conditions of the area.

Indian grass  
*Sorghastrum nutans*

blue wood sedge  
*Carex flaccosperma*

**ACTIVITY:** Find one of the native grasses or sedges illustrated on these pages and record some things you notice.

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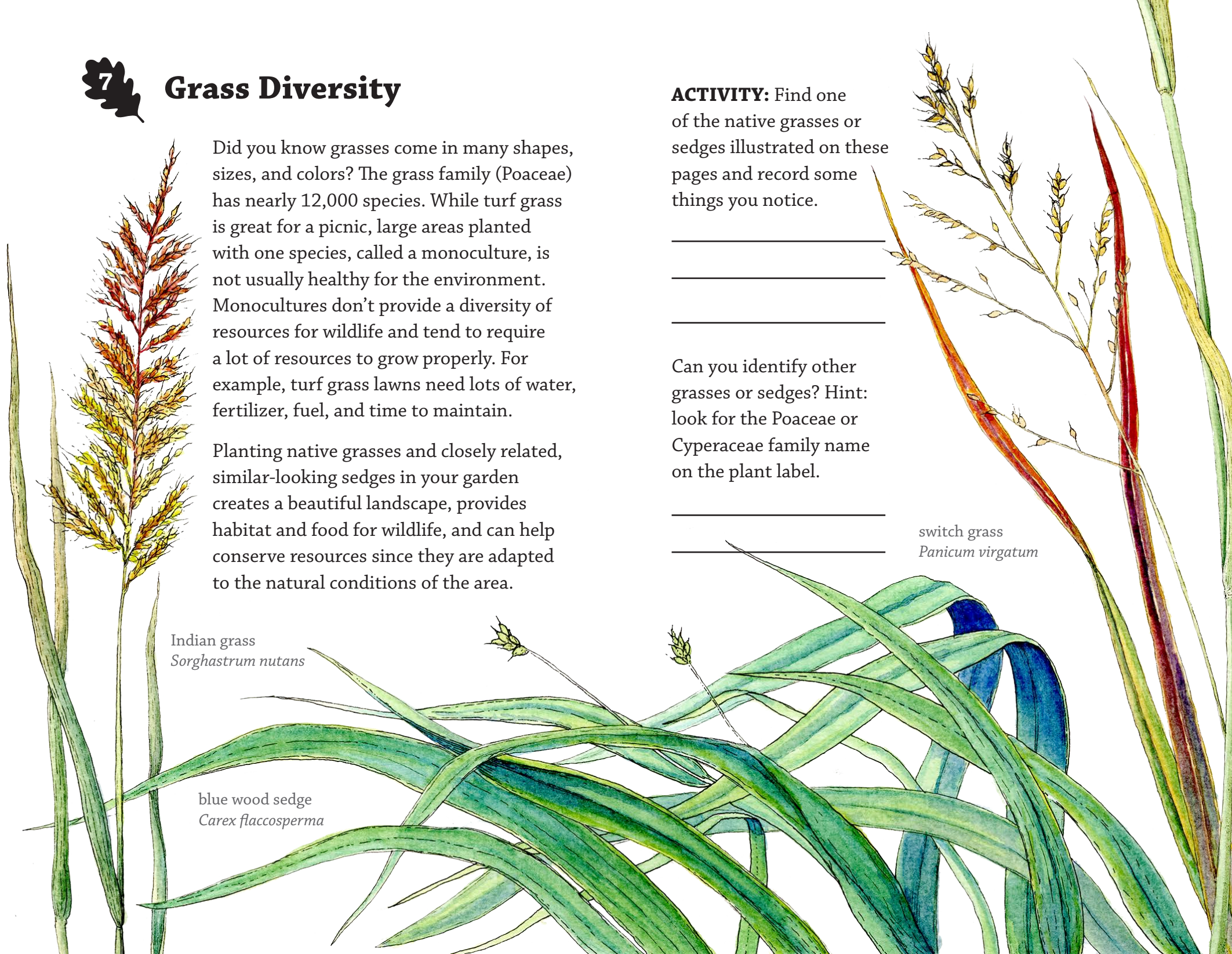
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Can you identify other grasses or sedges? Hint: look for the Poaceae or Cyperaceae family name on the plant label.

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switch grass  
*Panicum virgatum*





## Oak Diversity

There are around 450 species of oaks (genus *Quercus*). These trees are often keystone species in an ecosystem, meaning that they are very important in providing habitat and ensuring the survival of many insects and other wildlife.

Oak trees provide food and shelter to animals of all sizes including squirrels and deer. Studies have identified over 500 butterfly and moth species that are supported by oaks!

**ACTIVITY:** Use these drawings to help you identify oaks in the park. Once you have found a favorite oak, spend a few minutes drawing it below. Are oaks growing where you live?



willow oak  
*Quercus phellos*



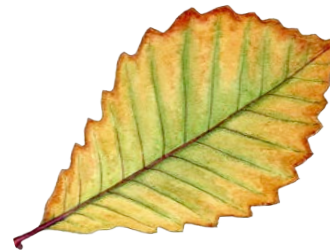
red oak  
*Quercus rubra*



Texas red oak  
*Quercus texana*



pin oak  
*Quercus palustris*



swamp chestnut oak  
*Quercus michauxii*



swamp white oak  
*Quercus bicolor*



bur oak  
*Quercus macrocarpa*

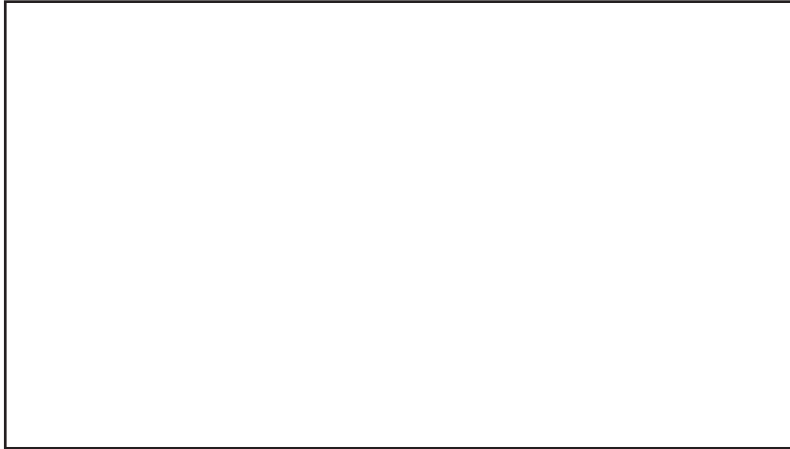




## Kitchen Garden

Herbs, vegetables, and fruits are delicious, and growing them at home conserves resources by reducing the distance they have to travel from the plant to your plate.

**ACTIVITY:** Do you recognize all the fruits and vegetables in this garden? Find the Asian pear— it produces beautiful, golden fruits that are large and delicious! Find another fruit or vegetable and describe or draw it below.



### CONSERVATION AT HOME:

Fruits or vegetables all have a specific planting and harvesting time. Do a bit of research to determine the best time to plant fruits and vegetables in your area.

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Asian pear (*Pyrus pyrifolia*)  
flowers and fruit



## Carnivorous Plants

Carnivorous plants, such as the pitcher plants pictured here, grow in forest and wetland habitats with soils low in nutrients. These plants have evolved to capture and digest insects, which allows them to obtain some of the nutrients the soil lacks.

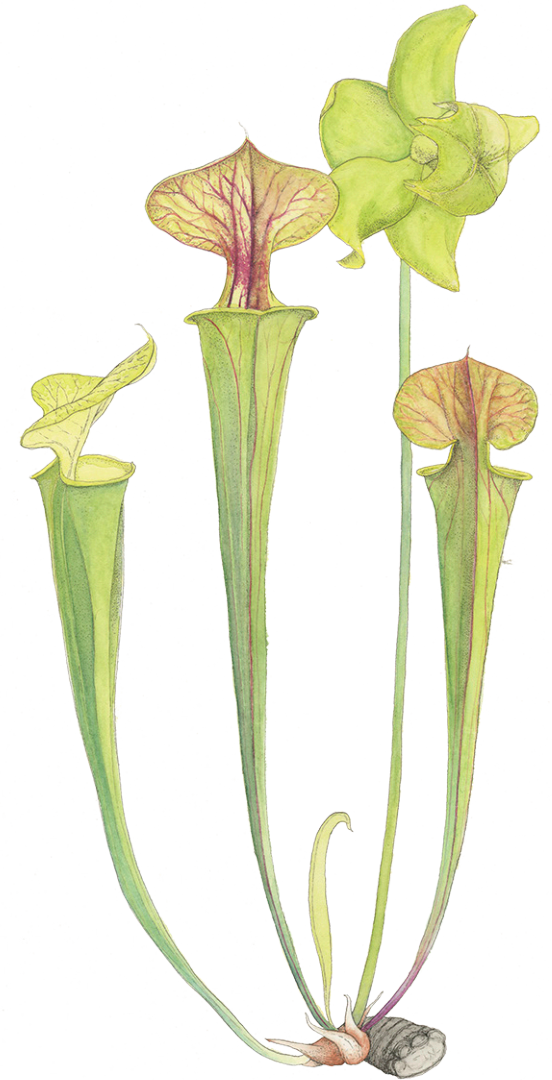
Unfortunately, development has destroyed many carnivorous plants' habitats and endangered some species. Growing plants at botanic gardens is one way to save them from extinction. Can you think of another way?



purple pitcher plant  
*Sarracenia purpurea*



hooded pitcher plant  
*Sarracenia minor*



yellow pitcher plant  
*Sarracenia flava*



## Continue Your Journey

- Pick up the field journals for the Conservatory and Regional Garden to have fun learning about plants in those areas of the U.S. Botanic Garden!
- Remember the fleshy and dry fruits? Explore the National Garden and Conservatory to see fruits from around the world.
- Interested in carnivorous plants? Visit the Regional Garden to learn about their habitat or the Conservatory to find tropical pitcher plants (*Nepenthes* spp.).
- The USBG maintains nearly 500 threatened plant species. For more information:  
[www.USBG.gov/PlantConservation](http://www.USBG.gov/PlantConservation)

## Continue Your Observations

### Project BudBurst<sup>™</sup>

*Timing is everything!*

You can contribute many of the observations you made today to Project BudBurst, which collects flowering, fruiting, and leaf drop timing information. This improves our understanding of how plants respond to changes in climate locally, regionally, and nationwide. Learn more at [www.budburst.org](http://www.budburst.org)



Make a difference at home! Landscape For Life is a program that demonstrates how to create a beautiful garden that supports and benefits the natural world. Learn more: [www.landscapeforlife.org](http://www.landscapeforlife.org)

## U.S. BOTANIC GARDEN CAMPUS MAP



**ADDITIONAL OBSERVATIONS IN BARTHOLDI PARK:**

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U.S. Botanic Garden  
100 Maryland Avenue SW  
Washington, DC 20001  
[www.USBG.gov](http://www.USBG.gov)