

# ORNL Native Plant Landscaping – Can You Match Names to Plants?



1\_\_



4\_\_



7\_\_



10\_\_



2\_\_



5\_\_



8\_\_



11\_\_



3\_\_



6\_\_



9\_\_



12\_\_

- A. Christmas Fern
- B. Dogwood
- C. Butterfly Weed
- D. Dwarf Fothergilla
- E. Horsetails/ Equisetum
- F. Purple Coneflower

- G. Virginia Sweetspire/ Itea
- H. Eastern or Orange Coneflower
- I. River Oats
- J. Blackgum
- K. Oakleaf Hydrangea
- L. Cinnamon Fern

## ANSWERS

- 6. A
- 5. F
- 4. K
- 3. G
- 2. E
- 1. B
- 7. J
- 8. I
- 9. C
- 10. L
- 11. H
- 12. D



Native Plants  
in the ORNL Landscape  
or  
What Happened to the  
Bradford Pear Trees?

Pat Parr (F&O) and Mike Ryon (ESD)

Reflect uniqueness



Attractive



Ecologically functional

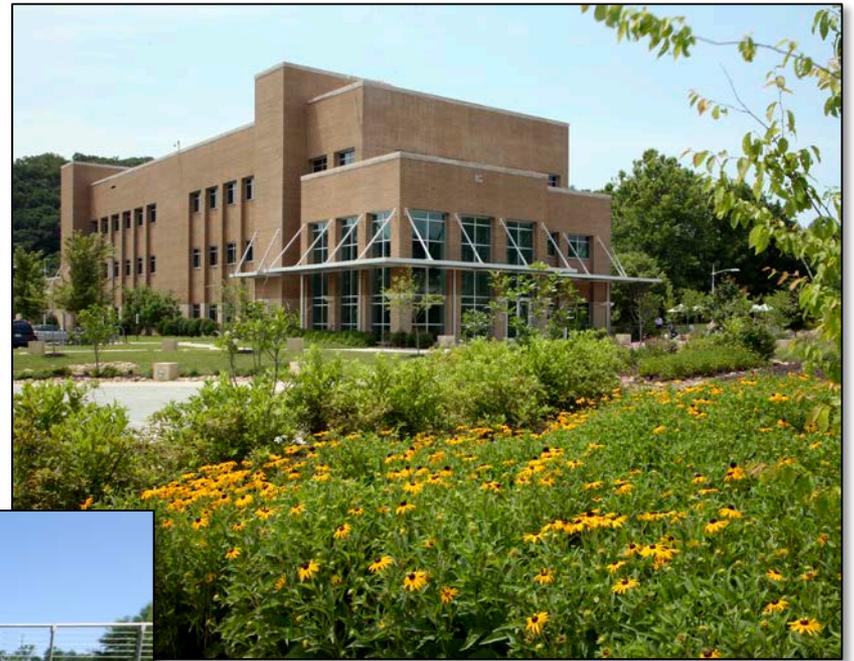
Biologically diverse



Low maintenance



"Lab within a Park" concept

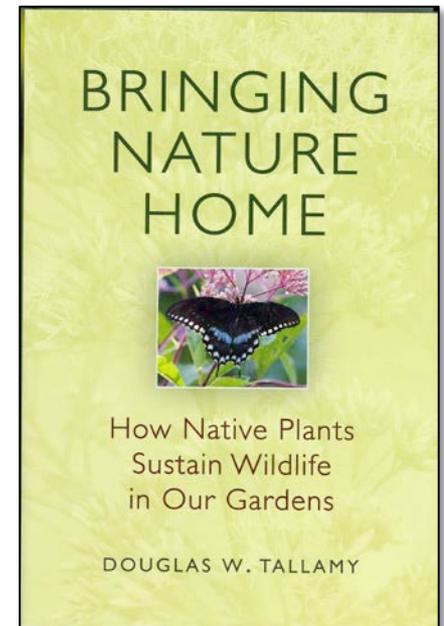
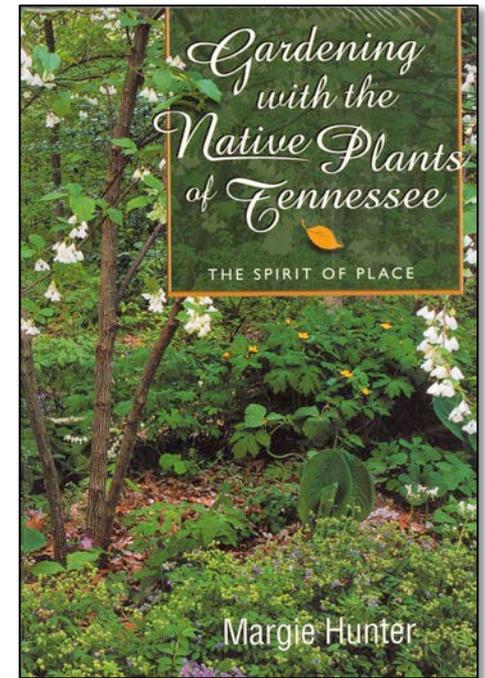


Use native plants



## Advantages of native plants

- Provide a sense of place and highlight native flora
- Adapted to site and environmental conditions
- Not aggressive as many non-natives are
- Provide opportunities to educate and demonstrate sustainable approaches
- Support native insects, birds, and other wildlife for pollination, food sources, and nesting
- Often are deep-rooted providing effective stabilization



## Why does native matter?

- no two plant species have the same leaf chemistry
- leaf chemistry gives each plant species a particular and unique taste, digestibility, and toxicity—probably related to protection
- most insects are adapted to feed or lay eggs on certain plant species
- native insects have adapted over the years to certain native plants
- if native plants are replaced by non-native plants, the insects cannot eat



**Butterfly bush provides nectar for butterflies, but because native butterflies have not adapted to this non-native shrub, butterfly larvae cannot eat it so they die.**

## Why are insects important?

- worldwide 37% of animal species are insects
- insects excel at converting plant tissue to insect tissue
- insect tissue = high protein food for other wildlife
- insects pollinate plants, recycle nutrients from plants to soil, aerate and enrich the soil, and provide food



**96% of terrestrial bird species  
rely on insects to feed young**



Bradford Pear  
is on the Tennessee  
Invasive Plant list



**Serviceberry – *Amelanchier arborea***



Bees, birds, butterflies



# Bradford Pear reverting to wild





Dogwood – *Cornus florida*



Witch hazel – *Hamamelis virginiana*



**Rusty Blackhaw - *Viburnum***  
*rudfidulum*



Blackgum – *Nyssa sylvatica*



Cedarglade St. Johnswort– *Hypericum frondosum*

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- A close-up photograph of a Winterberry (Ilex verticillata) branch. The image shows several bright red, round berries clustered together on a stem. The leaves are large, green, and have a prominent, textured vein pattern. The lighting is bright, creating strong highlights and shadows on the leaves and berries.
- use instead of non-native, invasive Japanese Barberry
  - attracts bees and birds

Winterberry/ Deciduous Holly - *Ilex verticillata*



**Dwarf Fothergilla – *Fothergilla gardenii***

use instead of non-native,  
invasive burning bush

Sweetspire – *Itea virginica*





**Oakleaf Hydrangea – *Hydrangea quercifolia***

- use instead of non-native, invasive butterfly bush
- attracts butterflies



Summersweet or Sweet Pepperbush - *Clethra  
alnifolia*



Fragrant sumac – *Rhus aromatica*



**Prairie Coneflower – *Ratibida pinnata***



**Purple Coneflower – *Echinacea purpurea***



Eastern or Orange Coneflower – *Rudbeckia fulgida*



**Ironweed – *Veronica gigantea***



Coralberry - *Symphoricarpos orbiculatus*



- milkweed flowers June-Sept
- it supports monarch butterflies and 11 other butterfly species

**Butterfly Weed – *Asclepias tuberosa***



Switchgrass – *Panicum virgatum* “Shenandoah”



**Prairie dropseed – *Sporobolus heterolepis***



**River Oats – *Chasmanthium*  
*latifolium***



**Big Bluestem – *Andropogon gerardii***



Little Bluestem – *Schizachyrium  
scoparium*



Indian Grass – *Sorghastrum nutans*





**Royal Fern – *Osmunda regalis***



Cinnamon Fern – *Osmunda cinnamomea*



**Christmas Fern – *Polystichum acrostichoides***



Horsetails or Scouring Rush – *Equisetum*

*hymale*









## LANDSCAPING at OAK RIDGE NATIONAL LABORATORY

Oak Ridge National Laboratory (ORNL) is the largest and most diverse energy research and development institution within the Department of Energy. ORNL's landscaping plan specifies that species native to the Oak Ridge Reservation (ORR) or the Valley and Ridge biological province of East Tennessee in which ORNL is located are the preferred choice for new plantings. It also advocates using ecological approaches to protect and enhance the lab's environment.

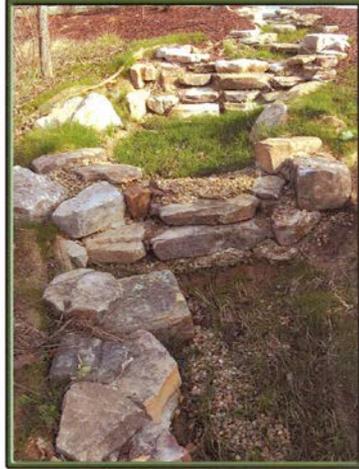
Ecological landscaping uses sustainable practices to improve habitat, protect water quality, and enhance native wildlife. Using local plant species in an appropriate community design instead of typical ornamentals highlights the lab's uniqueness, strengthens its relationship with its natural surroundings, and demonstrates its dedication to conserving and showcasing the environment.

People often expect plants to conform to their image of the "perfect" tree or flowering shrub and to show conformity that is not exhibited in nature. ORNL's outdoor environment demonstrates how a less controlled landscape provides equal beauty and an experience that allows the user to notice small changes and variations.

### Landscape management

Landscapes are living entities that are in a constant state of flux—growing, changing with the seasons, and responding to even subtle changes in the environment. Plants in the wild survive without human help. Unfortunately, the developed environment provides numerous stresses for plants, requiring more management.

ORNL's landscaping plan includes a clear set of management principles covering watering, pruning, fertilizing, pest management, and lawn care. Prescribed burns, for example, provide more benefit to native grass communities than periodic mowing and are more cost effective. Following these principles ensures that the landscape meets or exceeds the expectations outlined in the plan.



Rain gardens, such as this one along First Creek, reduce stream bank erosion and flooding by slowing stormwater runoff. They also improve water quality, help to recharge local groundwater supplies, provide nesting sites and habitat for songbirds and other wildlife, and bring beauty and visual interest to the landscape. (ORNL photo)



Many native plants used in ORNL landscaping delight viewers with their beautiful flowers, including (from left) oakleaf hydrangea (*Hydrangea quercifolia*), purple coneflower (*Echinacea purpurea*), Virginia sweetspire (*Itea virginica*), butterfly weed (*Asclepias tuberosa*), and dwarf fothersgilla (*Fothergilla gardenii*). (Photos by P. D. Parr)



## Tennessee's Native Plant Alternatives to Exotic Invasives

### A Garden & Landscape Guide

Beautiful flowers, interesting foliage, ample fruit, tough constitution, and fast growth are plant qualities that appeal to gardeners and landscapers. When these desirable horticultural characteristics occur in plants that are not native to Tennessee or the eastern U.S., these exotics could escape from maintained landscapes, invade natural areas, and damage native plant communities in the state. Non-native plants that readily spread in natural areas, either vegetatively or via seed, pose a significant threat to the health and welfare of Tennessee's rich biological diversity. These plants are considered exotic invasive pests.

### The Problem

Plants introduced to the U.S. from other areas of the world are an important part of gardening and landscaping. Most of these plants are well-behaved and rarely stray beyond the garden wall. Only about one percent of these non-natives readily escape into the wild and become invasive in natural areas. Invasive plants exhibit certain traits.

- Adaptation to local climate
- Rapid growth
- Mature quickly to flower and set seed
- Produce copious amounts of seed
- Effective seed dispersal
- Rampant vegetative spread
- No major pest or disease problems

These traits can give exotic invasive plants undue advantage in wild habitats like forests, wetlands, cedar glades, and grasslands. Exotic species can overwhelm native plants depriving them of nutrients, water, light, and space and may totally displace native species, replacing a diverse ecosystem with a near sterile monoculture and resulting in the reduction of biodiversity, loss of endangered species and their habitats, loss of habitat and food sources for wildlife, and disruption of native plant-animal associations. Exotic invasive plants threaten the health and stability of Tennessee's beautiful natural heritage and across the United States cost an estimated \$35 billion annually in control efforts and crop losses. (Pimentel, et al., 2004)

Continued inside

### Discover Tennessee's Natural Beauty

To learn more about our state's natural beauty, visit these websites:  
Tennessee Native Plant Society  
[www.tnpps.org](http://www.tnpps.org)

Tennessee State Parks  
<http://tn.gov/environment/parks/>  
TDEC Resource Management Division  
<http://tn.gov/environment/na/>

Other good sources to explore the natural beauty of Tennessee include municipal parks, nature centers, botanic gardens and arboretums.

### Native Plant Sources

Please support local nurseries carrying nursery-propagated native plants—stock supplied through seed, division or tissue culture of existing nursery plants and not collected from the wild. A partial list of state nurseries selling native plants may be found on TN-EPPC's website [www.tneppc.org](http://www.tneppc.org)

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ORNL homepage "L" landscaping