CFAES OHIO STATE UNIVERSITY EXTENSION

Native Trees in Ohio Landscapes

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Kathy L. Smith
Extension Program Director, Forestry
School of Environment and Natural Resources

1

What is 'Native'?

- A native plant is one which occurred within the state before settlement by Europeans.
- An introduced or non-native plant is one that has been brought into the state and become established. Sometimes called 'naturalized'
- An invasive plant is a species that has become a weed pest. One that grows aggressively, spreads, and displaces other plants.

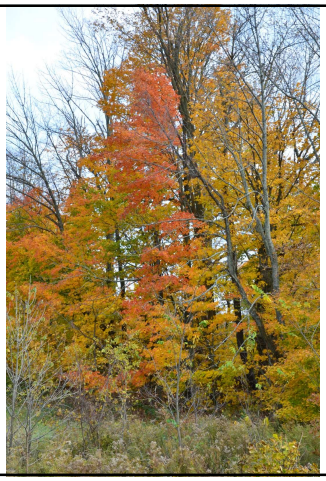


2

3

4

5



6

7

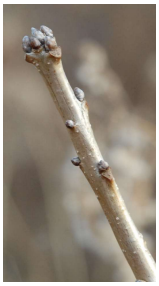
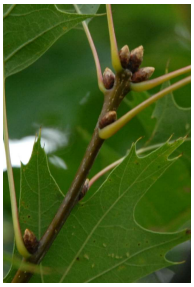
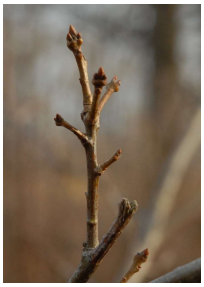
8

9

10

Let's look at the oaks:

How do I know it's an oak?

11



12

Genus Quercus

- Large genus – 600 species worldwide
- Part of the Beech Family (Fagacae)
- 50 oak species are represented in 2/3 of the eastern North American forest cover types and dominate 68% of hardwood forests (191 million acres)
- Subgenera in Ohio
  - *Lepidobalanus* – white oaks
  - *Erythrobalanus* – red oaks

13

The White Oaks

Lepidobalanus

- Inner surface of nut shell smooth
- Nuts are 'sweet'
- Lobes of leaves rounded
- Acorn matures in 1 year
- Acorn cap scales relatively thickened
- Acorn begins to germinate immediately in fall

14

Bur Oak *Quercus macrocarpa*

- Mature trees are tall (upwards of 80 feet) and very broad if left to open grow (spread of 60 feet plus)
- Good growth rate (2 feet a year)
- Tolerates a wide variety of soils
- Unique leaf shape

15

Bur Oak

- Deep green color – fall color orange to russet
- Large acorn – sometimes golf ball sized
- Fruits heavy every 3-5 years
- Twigs stout with 'wings' of bark

16

Chinkapin Oak *Quercus muehlenbergii*

- One of the smaller oaks – 60-80 ft. in height
- Leaf finer textured than most oaks – resembles a chestnut leaf
- Fruit is one of the smaller acorns
- Found on dry limestone outcrops and alkaline soils

17

Chinkapin oak

- Can have red to burnt orange fall color
- Acorns are sometimes eaten raw by hunters
- Sometimes known as 'sweet oak'

18

Swamp White Oak *Quercus bicolor*

- Mature height in the 70-80 foot range
- Spread can be greater than 40 ft.
- Foliage is dark green above with a white/light underside
- Fall color can range from russet to scarlet

19

Swamp white oak

- White oak version of pin oak – keeps lower dead limbs
- Fruit is attached with a long stem
- Grows on a wide variety of sites

20

The Red Oaks

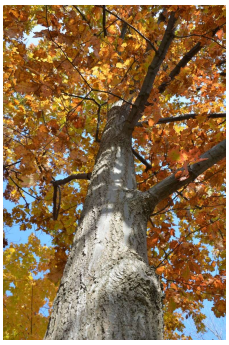
Erythrobalanus

- Inner surface of nut shell woolly
- Nut is bitter
- Acorns take 2 years to mature
- Lobes of leaves tipped by bristle hairs
- Acorns require cold, moist stratification for germination
- Acorn cap scales relatively thin

21

Northern Red Oak – *Quercus rubra*

- 60-80 ft. in height
- Most important and widespread of the northern oaks
- Inhabits mesic, well-drained slopes, coves and drier ridges
- Deep root system



22

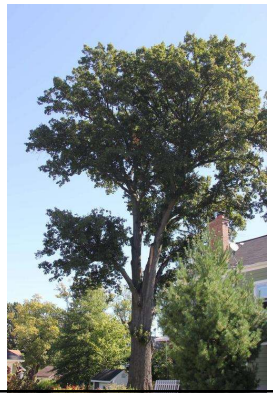
Northern Red Oak

- Good acorn crop occurs in 2-5 year intervals
- Seedling growth is fast
- Interesting fall colors – reds to golds

23

Shingle Oak – *Quercus imbricaria*

- Medium sized tree; 50-60 ft. in height
- Leaves not lobed with single bristle hair
- Moist soils along streams or on lower hillsides
- Prone to stem galls
- Red fall color
- Was used to make shingles



24

- Leaves 3-8” in length, tipped with one bristle, shiny dark green above
- Acorn cap encloses up to ½ of nut – chestnut brown with faint stripes

25

26

Scarlet Oak *Quercus coccinea*

- Fast growing large tree up to 120’
- Usually retains dead branches
- Found in poor soils in mixed forests, especially on upland ridges
- Red fall color
- Leaves 5-9 lobed with wide nearly circular sinuses

27

Scarlet Oak

28

Swamp Chestnut Oak *(Quercus michauxii)*

Native to southern Indiana and eastern PA

Large tree 60-80 ft.

Also known as basket oak

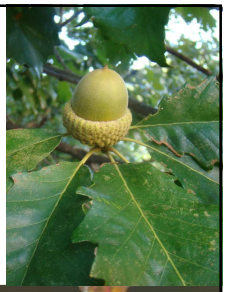
Bottomland/stream/swamp habitat

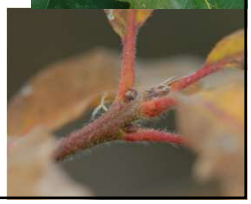
Excellent for wildlife

Yellow-gold fall color

Fast grower

3-5 years between large seed crops

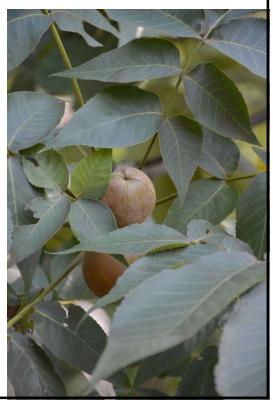




29

Genus Carya

- This group includes 13 different hickories that occur in the U.S. and Canada
- They have sizable taproots which makes them difficult to transplant
- Monoecious
- They traditionally hybridize
- Many are valuable timber and wildlife trees
- As a group they are alternately branched with pinnately compound leaves
- There are two groups True Hickories and Pecan Hickories



30

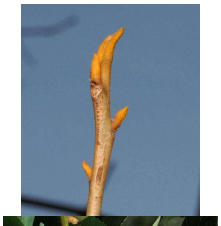
The Hickories

- **True Hickories**
  - Leaves 3-9 leaflets (mostly 5-7)
  - Fruit husks are unwinged, occasionally ribbed at the sutures
  - Bud scales overlapping with more than 6 scales
  - Includes shagbark, shellbark, mockernut and pignut

31

The Hickories

- **Pecan Hickories**
  - Leaves with 5 – 17 leaflets (mostly more than 7); commonly sickle shaped leaflets
  - Fruit husks usually broadly winged at the sutures
  - Bud scales valvate with 4-6 scales
  - Includes pecan and bitternut



32

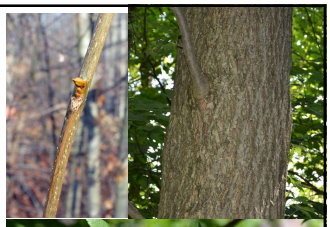
Bitternut Hickory – *Carya cordiformus*

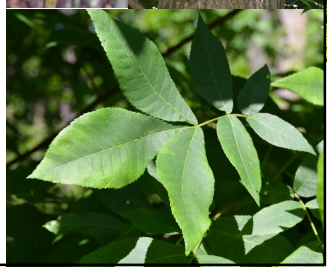
- A Pecan Hickory
- One of the faster growing of the hickories
- Pinnately compound leaf
- Deep gold fall color
- Fruit thin shelled and bitter
- Usually found on wet bottom land soils

33

Bitternut Hickory

- One of the smooth barked hickories
- Has sulfur yellow buds
- Grows on a wide variety of soils
- Mature height 60-80 feet
- Monoecious
- 30 yrs. Before produces fruit





34

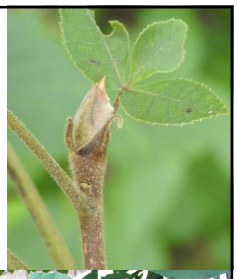
Shagbark hickory *Carya ovata*

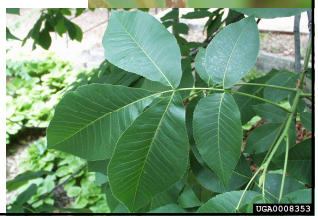
- A True Hickory
- Sensitive to changes in soil fertility
- Intermediate in shade tolerance
- Has 'shaggy' – loose plated bark
- Leaves usually with 5 leaflets

35

Shagbark Hickory

- Normally produce a long taproot and very little top growth during early development
- Wood is known for its strength, toughness





36

Shagbark vs Shellbark

- Shagbark is an upland species
- Nuts are smaller than Shellbark
- Leaves with 5 leaflets
- Nut 1.5” in diameter

- Sometimes referred to as ‘king nut’ for its large fruits
- Native to bottomland areas where it tolerates some standing water
- Leaves with 7 leaflets
- Nut 1.75” in diameter

37

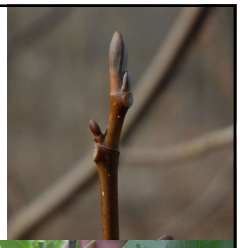
Tuliptree ***(Liriodendron tulipifera)***

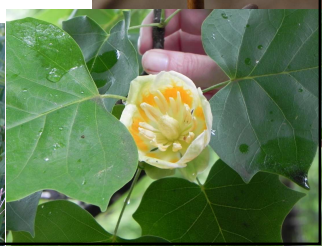
Unusual flat topped leaf

Can reach heights of 200’

Even though often called yellow-poplar – it is NOT a poplar

Flower resembles a magnolia flower





38

Fruit good identifier in winter – cone like

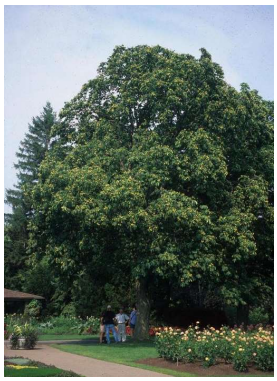
Likes cool moist sites

Also known as yellow-poplar, tulip poplar

39

Yellow buckeye – *Aesculus flava*

- Palmately compound leaf – 5-6 leaflets
- Foliage less susceptible to disease issues
- Mature height 60-90 ft. – taller than Ohio
- Tolerates shade
- Flowers in spring are yellowish



40

Yellow buckeye

- Fruit has a smooth husk
- Found naturally on mesic slopes and coves; along rivers and streams
- Wood is used for turnings and carving



41

Ohio Buckeye

- More of a bottomland species
- Leaves slightly smaller than yellow
- Twigs when scratched have a foul odor
- Fruit is spiny



42

43

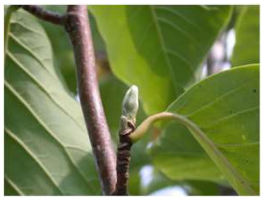
Cucumbertree *Magnolia acuminata*

- Doesn't have showy flowers
- Mature height is 80 – 90 feet
- Can have a spread greater than 60 feet
- Fruit has a cucumber shape

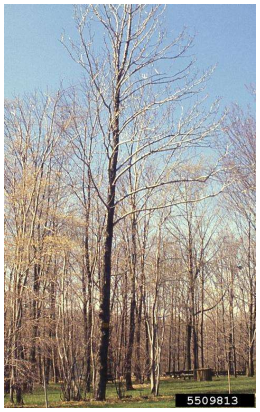
44

Cucumbertree

- Has a pyramidal crown
- Deep wide spreading root system
- Moist fertile soils



45



46

Kentucky Coffeetree – *Gymnocladus dioicus*

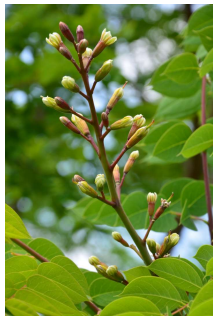
- Leaf is bi-pinnately compound
- A medium to large tree (upwards of 100 feet)
- Found natively in valleys and mixed forests
- Imperfect flowers (dioecious)
- Lacks a terminal bud

47

48

Kentucky Coffeetree

- Fruit is a pod – 4-7 inches in length
- Roasted seeds were used as a coffee substitute
- Raw seeds and pulp are poisonous



49

American Beech – *Fagus grandifolia*

- Averages 70 – 80 feet in height
- Dark green leaves with texture
- Fruit is an edible nut
- Found on a wide variety of soils
- Requires more moisture for growth than many other hardwoods

50

American Beech

- Tolerates shade
- Shallow root system

51

Beech Leaf Disease

List of counties with beech leaf disease (BLD) symptoms in 2019: OH – Ashtabula, Cuyahoga, **Erie**, Geauga, Lake, **Lorain**, Mahoning, Medina, Portage, Stark, Summit, Trumbull, Wayne; PA – **Allegheny**, **Beaver**, Crawford, Elk, Erie, **Forest**, Lawrence, **McKean**, Mercer, Potter, **Venango**, Warren; NY – **Erie**, **Cattaraugus**, Chautauqua, **Suffolk**, **Rockland**, **Westchester**; CT – **Fairfield**; ON, Canada – Chatham-Kent, Elgin, Haldimand-Norfolk, **Lambton**, Middlesex, **Niagra**, Oxford, **Toronto**. Counties in bold were detected in 2019

Dark bands between lateral veins of leaves
Thickened and leathery in texture

52

Blackgum *Nyssa sylvatica*

- Also known as Black tupelo; sourgum
- Medium sized tree, 50-60 ft. tall
- Fall color is orange-yellow to brilliant red to dark red
- Bark 'blocky'
- Associates with both wet and dry soils
- Fruit excellent for wildlife

53

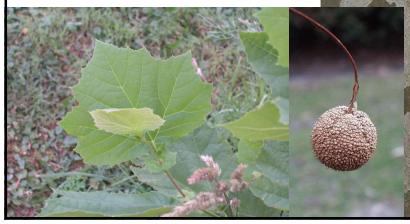
54

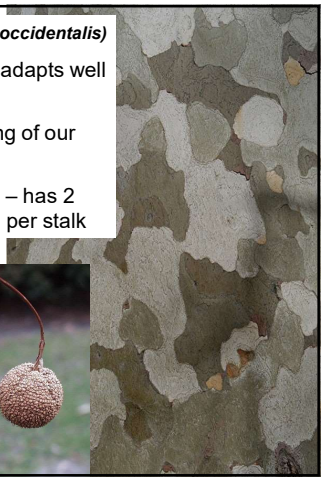
American Sycamore ***(Platanus occidentalis)***

Bottomland species that adapts well to a variety of sites

One of the fastest growing of our native trees

London plane is a hybrid – has 2 seed balls per stalk vs. 1 per stalk





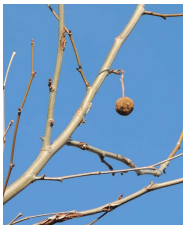
55

Base of leaf petiole encircles the entire bud

Bark can be considered a problem

Susceptible to anthracnose

Wood is excellent for butcher block

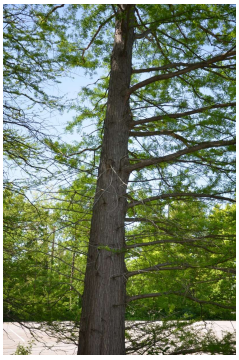


56

Baldcypress

Taxodium distichum var. distichum

- A deciduous evergreen
- Fine textured lacy needles
- Can grow in a wide variety of soil types
- Mature height can be 100 – 150 ft.
- Fruit is a cone
- In the right conditions will develop knees



57

58

Sweetgum ***(Liquidambar styraciflua)***

Also known as redgum

Bottomland tree

Moderate to rapid growth rate

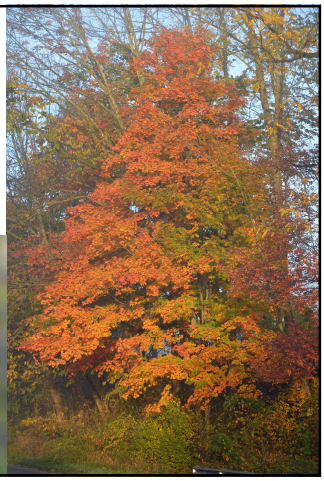
Excellent for wildlife

Variety of fall colors

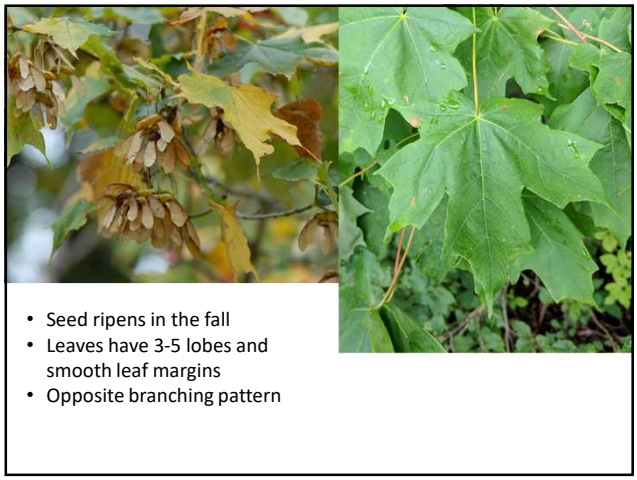
59

Sugar Maple ***(Acer Saccharum)***

- A large tree (upwards of 90 feet) that tolerates shade well
- Thrives in moist, well-drained soil
- Usually has great fall color
- Does have some disease issues especially when not planted on the ideal site



60



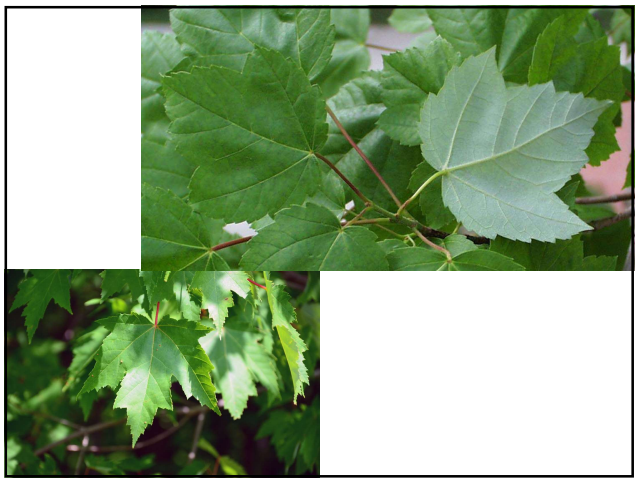
- Seed ripens in the fall
- Leaves have 3-5 lobes and smooth leaf margins
- Opposite branching pattern

61

Red/Silver Maple - Freeman

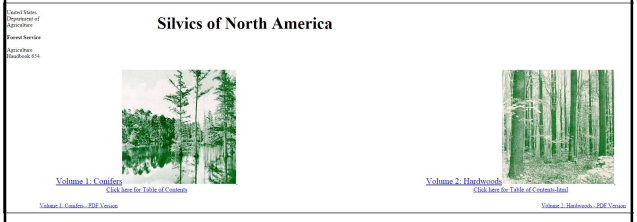
- A hybrid of both red and silver maple
- Naturally occurring in the woods
- Sold in the nursery trade as ***Acer freemanii***

62



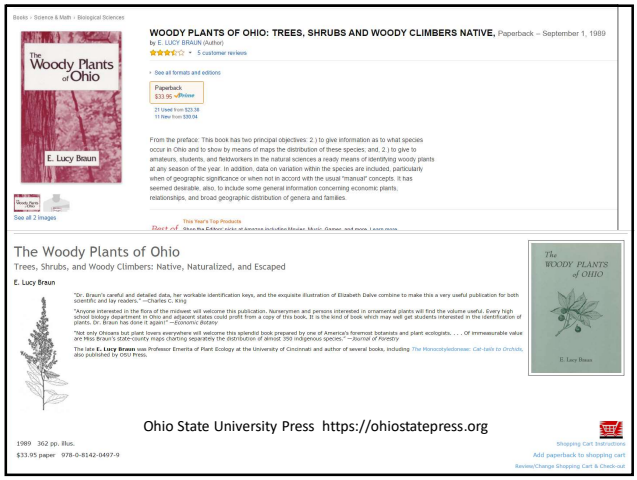
63

Resources

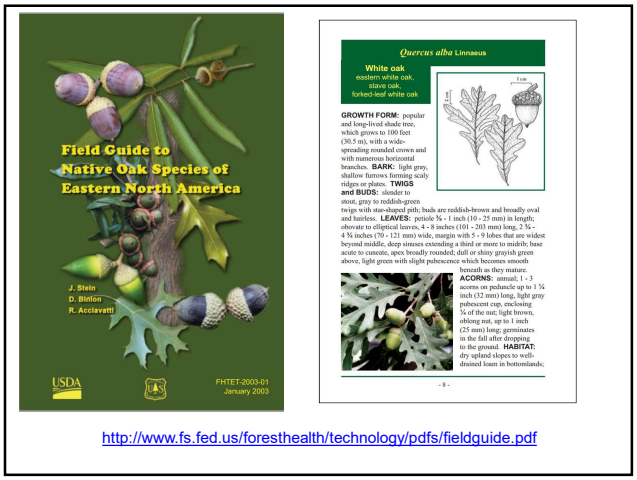


http://www.na.fs.fed.us/Spfo/pubs/silvics_manual/table_of_contents.htm

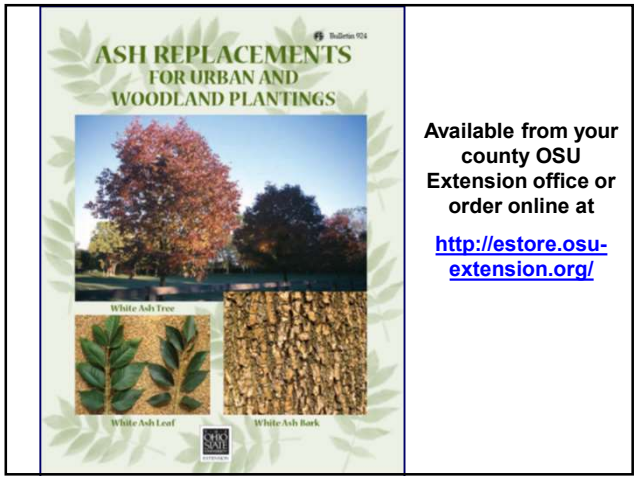
64


WOODY PLANTS OF OHIO: TREES, SHRUBS AND WOODY CLIMBERS NATIVE, Paperback – September 1, 1989
The Woody Plants of Ohio
E. Lucy Braun
The Woody Plants of Ohio
Trees, Shrubs, and Woody Climbers: Native, Naturalized, and Escaped
E. Lucy Braun
Ohio State University Press https://ohiostatepress.org

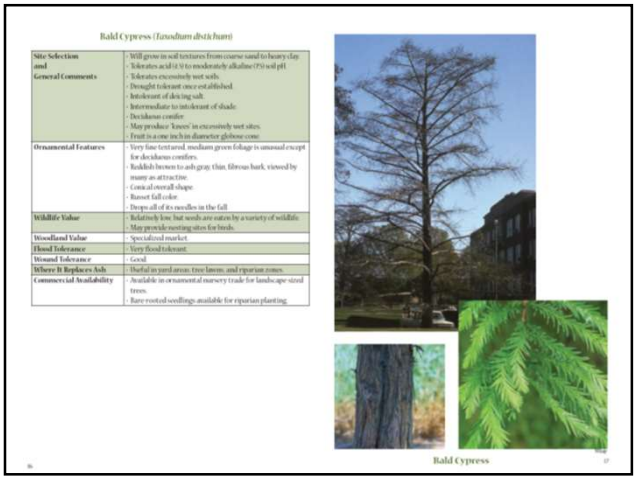
65


Field Guide to Native Oak Species of Eastern North America
J. Stein
D. Binion
R. Acciavatti
USDA
FHTET-2003-01
January 2003
Quercus alba Linnaeus
White oak
eastern white oak,
stave oak,
forked-leaf white oak
http://www.fs.fed.us/foresthealth/technology/pdfs/fieldguide.pdf

66

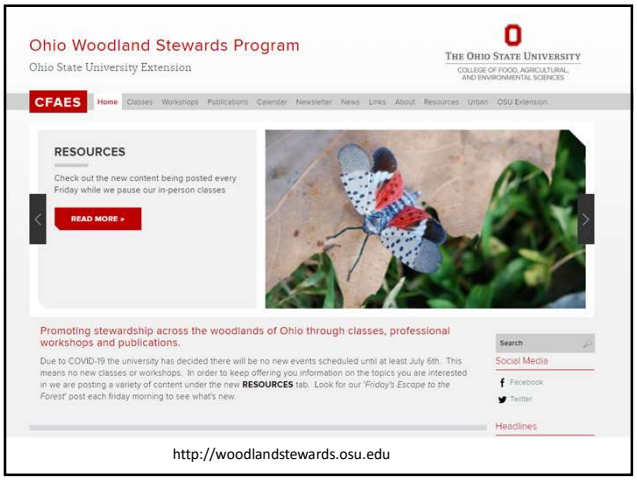

ASH REPLACEMENTS FOR URBAN AND WOODLAND PLANTINGS
White Ash Tree
White Ash Leaf
White Ash Bark
Available from your county OSU Extension office or order online at
http://estore.osu-extension.org/

67


Bald Cypress (Taxodium distichum)
Site Selection and General Comments
Ornamental Features
Wildlife Value
Woodland Value
Flood Tolerance
Wound Tolerance
Where It Replaces Ash
Commercial Availability
Bald Cypress

68

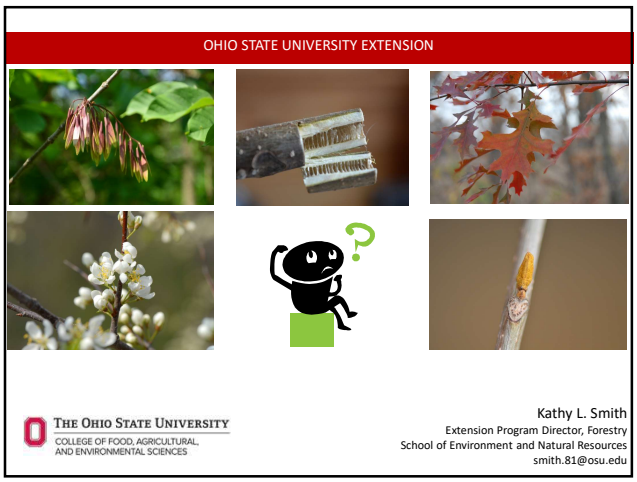
69



http://woodlandstewards.osu.edu

70

71



72