

# Chicago Region Trees in Winter

Iza Redlinski, Laura Milkert, John Balaban & Ellen Woodward  
Field Museum

Photos by J&J Balaban, Laura Milkert, Iza Redlinski, Kathryn Corio & Agnes Wojnarski. Drawing by Ian Viteri. Produced by Iza Redlinski and Tyana Wachter.  
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Although winter tree identification can be more challenging without cues such as leaves and flowers, it is not impossible: by looking at trees' and shrubs' bark, buds, leaf scars, and the placement of these structures on the twig/trunk we are able to distinguish a variety of woody vegetation. This guide aims to help decode winter trees that grow around us. You can approach this quest in two ways: 1) by using the photographs provided here and divided into broad groups or 2) by following the dichotomous key at the back of this guide. Non-native species are listed in red.

**Opposite: Branches and leaves that grow across from one another from the same node**

Maples  
Ashes  
Dogwoods  
Buckeyes  
Family Caprifoliaceae and others



**1 Box Elder *Acer negundo*:** 1<sup>st</sup> year twigs often green; woolly buds

**2 Silver maple *Acer saccharinum*:** buds in clumps



**3 Red maple *Acer rubrum*:** bud scales red and rounded; smooth bark

**4 Sugar maple *Acer saccharum*:** elongated buds; pale reddish-brown, shiny, and slender twigs



**5 Dogwood *Cornus* spp.:** shrub; reddish to purplish twigs, buds with 2 outer scales; narrow leaf scars (< ¼ inch across)

**6 Green Ash *Fraxinus pennsylvanica subintegerrima*:** half-moon leaf scar; buds thicker at twig end

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**7 Blue Ash** *Fraxinus quadrangulata*: winged stems with corky ridges; found in wetter areas

**8 Amur Honeysuckle** *Lonicera maackii*: light tan bark; arching branches, no pith (hollow), break easily. Highly invasive.



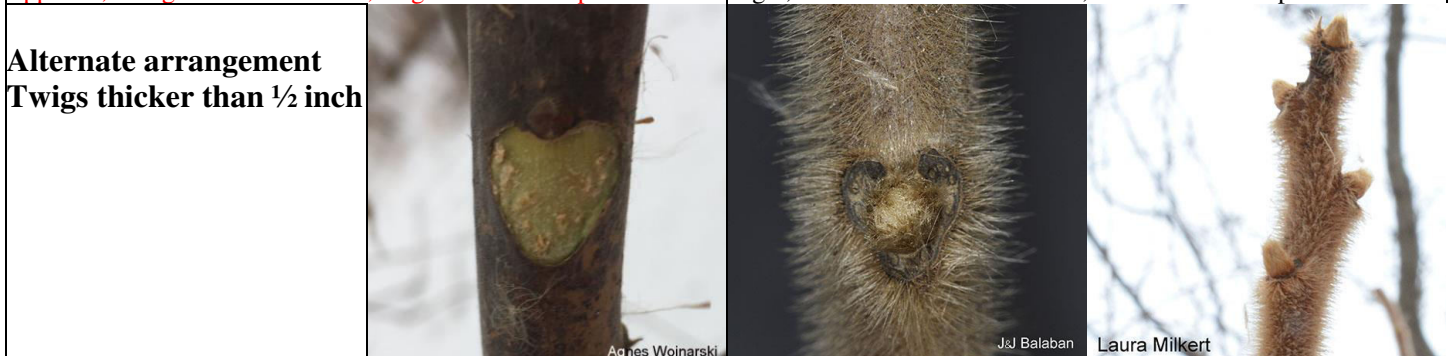
**9 Ninebark** *Physocarpus opulifolius*: shrub, up to 9' tall; woody recurved stems, bark on lower stem dark brown to orange

**10 Wafer Ash** *Ptelea trifoliata*: shrub, up to 20' tall; might have eggs of treehopper *Enchenopa* sp. visible on branches



**11 Common buckthorn** *Rhamnus cathartica*: sub-opposite; orange underneath bark; single "thorn" at tip of branch

**12 Nannyberry** *Viburnum lentago*: twigs almost at a right angle; smooth bark with lenticels; buds with two exposed scales



Alternate arrangement  
Twigs thicker than 1/2 inch

**13 Tree of Heaven** *Ailanthus altissima*: twigs velvet to smooth; no terminal bud; shield-shaped leaf scar with 7-9 bundle scars. Highly invasive.

**14 Staghorn Sumac** *Rhus typhina*: hairs on young branches, twigs, and fruit; red fruit persists in winter. If branches are smooth then it is most likely smooth sumac, *Rhus glabra*



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**Hickories and Walnuts** – alternate leaf arrangement; tough twigs; light-colored lenticels; large, heart-shaped leaf scars; end bud larger than side buds.

**Walnuts** – pith in layers; three bundle scars on a crescent-shaped leaf scar; round lenticels

**Hickories** – pith not layered and somewhat 5-sided, elongated lenticels



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J. J. Balaban



J. J. Balaban

**15 Bitternut Hickory** *Carya cordiformis*: mustard yellow terminal bud, flattened; yellowish husk, thick skinned, 4-ribbed



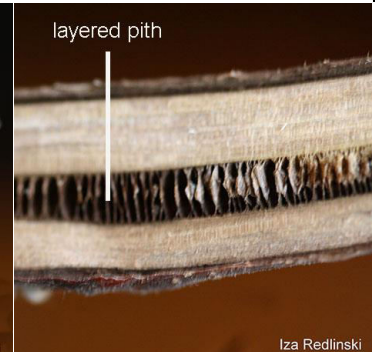
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**16 Shagbark Hickory** *Carya ovata*: terminal bud  $\geq \frac{1}{2}$  inch with dark outer scales; bark peels; dark brown husk

**Trees, shrubs and vines with thorns and prickles and alternate leaf arrangement**



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**17 Black Walnut** *Juglans nigra*: short and gray terminal bud short; side buds at the upper end of leaf scar; fruit globular



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**18 Illinois rose** *Rosa setigera*: difficult to identify without leaves; shrubby vegetation includes *R. multiflora* with small fruit ~1/4 inch, fringed petioles on leaves



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**19 Blackberries** *Rubus* spp.: sparse thorns; twigs often purple with white powder on them



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**20 Bristly Cat Brier** *Smilax hispida*: parts green, thorns weak and flexible; can be painful



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**21 Hawthorn** *Crataegus* spp.: fleshy bud scales; smooth sharp thorns irregularly spaced; rarely more branched than above



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**22 Prickly Ash** *Zanthoxylum americanum*: shrub; small paired thorns less than 10 mm long





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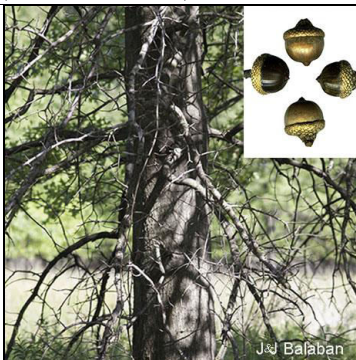
**Oaks** — alternate leaf arrangement; several buds of varied sizes clustered irregularly at the tip of the twig; pith is 5-sided or star-shaped; scattered bundle scars on a slightly raised leaf scar



**23 Bur oak** *Quercus macrocarpa*: corky twigs; hairy buds with fine gray hairs, stipules near terminal buds; acorns covered by fringed cap; lenticels might appear warty



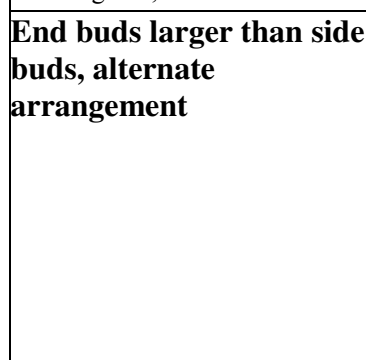
**24 White oak** *Quercus alba*: acorns not stalked; right-angled branching; leaves stay into winter; dark red-brown, hairless buds



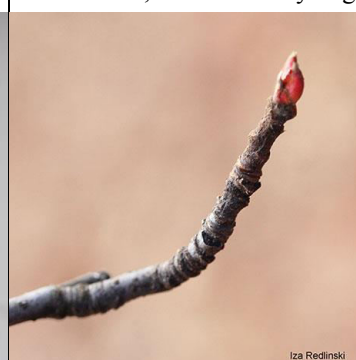
**25 Swamp white oak** *Quercus bicolor*: smooth twigs & buds; light brown bark, often curling scales on branches



**26 Pin oak** *Quercus palustris*: silhouette cone-shaped like an evergreen; reddish brown to dark brown buds



**27 Red oak** *Quercus rubra*: acorn cup w/o hairs; hairless, reddish buds, not noticeably angular; red-brown to purplish twigs



**End buds larger than side buds, alternate arrangement**

**28 Sassafras** *Sassafras albidum*: green or reddish buds; young twigs aromatic and green

**29 Apples, wild and cultivated** *Malus* spp.: gray, woolly buds, much longer than broad; narrow leaf scar, bundle scars hard to see; native crabapples may have thorns and buds with reddish scales



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**30 Cottonwood** *Populus deltoides*: bark with deep, long furrows and thick ridges; lowest bud scale directly above leaf scar

**31 Black cherry** *Prunus serotina*: very shiny, reddish-brown buds; light horizontal lenticels; bark looks like burnt chips

**Branching towards the end double-ranked or appearing zig-zagged in shape, alternate arrangement**



**32 Birch** *Betula* spp.: Zig-zag twig arrangement; buds 3-4 outer scales; bark usually whitish & peeling. *B. nigra* in pictures has hairy twigs. European *B. alba* has shiny buds with resin



**33 Blue beech** *Carpinus caroliniana*: 12 exposed bud scales; smooth bark resembles gray stone, known as musclewood

**34 Hackberry** *Celtis occidentalis*: gray/brown twigs; small reddish-brown buds growing along twig; corky bark



**35 White mulberry** *Morus alba*: twigs not downy; buds pressed to twig, often globular; orange bark; invasive. If twigs downy, buds spread away from the twig, then native *R. rubra*

**36 Ironwood** *Ostrya virginiana*: buds slightly pointed, bud scales six, elevated leaf and bud scars; also known as Hop Hornbeam



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**37 American basswood** *Tilia americana*: two overlapping bud scales, buds red or red and green; leaf scars with 3+ bundle scars

**38 Elm** *Ulmus* spp.: buds to side of the leaf scar; chunky bark. *U. rubra* has downy buds. *U. americana* has smooth buds

Trees and shrubs with alternate leaf arrangement and other characteristics



**39 Serviceberry** *Amelanchier laevis*: multiple trunks; thin bark; 3+ bud scales overlap

**40 Buttonbush** *Cephalanthus occidentalis*: bud scars in bundles of three, one bundle scar; shrub grows in low, wet areas



**42 American hazelnut** *Corylus americana*: catkins, buds globular w/ ~12 bud scales

**43 Glossy buckthorn** *Frangula alnus*: rusty buds without scales; invasive

**44 Witch hazel** *Hamamelis virginiana*: terminal bud can be larger; twigs can be zig-zagged; no scales on winter buds; yellow flowers in late fall/early winter



**45 Spicebush** *Lindera benzoin*: aromatic twig; clustered buds

**46 Sycamore** *Platanus occidentalis*: bud with 1 scale, stipule scar goes all around; bark peels off leaving light patches

**47 Willow** *Salix* spp.: 1 scale on bud, bud fuzzy beneath scale

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## Dichotomous Key to Identifying Woody Vegetation in Winter<sup>1</sup>

### If leaf scars are in bundles of three,

1. If one bundle scar and shrub in wet low areas it is **Buttonbush** (*Cephalanthus occidentalis*).
2. If many bundle scars, large tree, and bean-shaped fruit it is **Catalpa** (*Catalpa* spp.).

### If leaf scars are opposite,

- and there is one bundle scar, spongy pith, green twigs, can be 4-winged; fruit is a 4-lobed capsule with red seeds it is **Eastern Wahoo** (*Euonymus atropurpureus*).
- and there are more than three bundle scars **go to #2**.

### #2

- if there are more than nine bundle scars, rough and dry terminal buds, and oval- or shield-shaped leaf scars it is an **Ash** (*Fraxinus* spp.). **Go to #3**.
- if there are 3–7 bundle scars **go to #7**.

### #3

- if twigs are 4-sided, corky lines of growth on twigs it is **Blue Ash** (*Fraxinus quadrangulata*).
- if twigs are not 4-sided **go to #4**.

### #4

- if leaf scar is deeply notched at the top (horseshoe-shaped), bark is ridged with diamond-shaped areas, trunks not swollen at base, lenticels inconspicuous it is **White ash** (*Fraxinus americana*).
- if leaf scar is not notched or is slightly notched, semi-circular, or shield-shaped **go to #5**.

### #5

- if buds and new twigs are rusty and hairy it is **Red Ash** (*Fraxinus pennsylvanica*).
- if the buds are not as described above **go to #6**.

### #6

- if buds are almost black, bark is smooth, and seed wings are broad, blunt and notched it is **Black Ash** (*Fraxinus nigra*).
- if buds are red brown, bark is ridged, and seed wings are narrower, tapered, not notched it is **Green Ash** (*Fraxinus pennsylvanica subintegerrima*).

### #7

- if there is no terminal bud (sometimes two terminal buds on tip) and papery seed capsules it is **American Bladdernut** (*Staphylea trifolia*).
- if there is a terminal bud present **go to #8**.

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<sup>1</sup> This guide is based on  
Cliburn J. & G. Wallace. 1990. *A Key to Missouri Trees in Winter*. Conservation Department Missouri.  
Theilgaard Watts, M. & T. Watts. 1970. *Winter Tree Finder*. Nature Study Guild.  
Wilhelm G. & L. Rericha. 2017. *Flora of the Chicago Region: A Floristic and Ecological Synthesis*. Indiana Academy of Science.

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#8

- if leaf scars are very broad, at least ¼ inch across, **go to #9**.
- if leaf scars are narrow (< ¼ inch across), terminal buds are present and not rough and dry **go to #10**.

#9

- if terminal bud is ½ to 1 inch long, dark, and sticky it is **Horse Chestnut** (*Aesculus hippocastanum*).
- if bud is brown, not sticky, and has scales with fine-hairy edges; twigs when bruised have a fetid odor it is **Ohio Buckeye** (*Aesculus glabra*).

#10

- if buds have two exposed outer scales **go to #11**.
- if buds have more than two exposed outer scales, three bundle scars and V-shaped leaf scars it is a **Maple** (*Acer* spp.). **Go to #12**.

#11

- if twigs are purplish it is **Dogwood** (*Cornus* spp.).
- if twigs not purplish and are short, stubby, and at right angles to main stems it is one of the **Viburnums** such as **Nannyberry** (*Viburnum* spp.)

#12

- if young twigs are green or glaucous and buds are woolly it is a **Box Elder** (*Acer negundo*).
- if twigs are brown or reddish-brown it is a **Maple** (*Acer* spp.). **Go to #13**.

#13

- if buds are rounded and there are several in a cluster **go to #14**.
- if buds are elongated and twigs are pale reddish-brown, shiny and slender it is **Sugar Maple** (*Acer saccharum*).

#14

- if twigs have an unpleasant smell when broken, mature bark is scaly, and bud scales are pointy it is **Silver Maple** (*Acer saccharinum*).
- if twigs have no odor when broken, bark is not scaly, younger trunks are smooth, and bud scales are rounded it is **Red Maple** (*Acer rubrum*).

## If leaf scars alternate,

1. If pith is chambered, twigs are tough and hard to break with light colored-lenticels, heart- or shield-shaped bud scars and terminal bud larger than side buds **go to #2**.
2. If pith is solid, and twig and bud combination is not as described above **go to #6**.

#2

- if leaf scars are 3-lobed with three groups of bundle scars, buds are pale and downy, lenticels are round, and there are nuts on the ground with husks that do not split open it is **Walnut** (*Juglans*). **Go to #3**.
- if leaf scars are half-round, not 3-lobed, pith is somewhat 5-sided, lenticels are elongated, and bundle scars are in groups of three or more it is a **Hickory** (*Carya*). **Go to #4**.

#3

- if pith is pale brown, leaf scars without brown velvety hairs at the top, terminal bud is gray and short, bark is dark and furrowed it is **Black Walnut** (*Juglans nigra*).
- if pith is brown, leaf scars with hairs, terminal bud is cream colored and up to two times longer than wide it is **Butternut** (*Juglans cinerea*).

#4

- if terminal bud is mustard yellow, up to ¾ inch long it is **Bitternut Hickory** (*Carya cordiformis*).
- if buds are not yellow and flattened **go to #5**.



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## #5

- if terminal bud is longer than ½ inch with two or more dark outer scales, twigs are dark brown or red-brown with pale lenticels it is **Shagbark Hickory** (*Carya ovata*).
- if terminal bud is less than ½ inch and smooth with no scales, bark is smooth or furrowed but not scaly it is **Pignut Hickory** (*Carya glabra*).

## #6

- if leaf scars form a ring almost completely around the bud **go to #7**.
- if leaf scars do not form a ring around the bud **go to #9**.

## #7

- if buds are not hairy **go to #8**.
- if buds are hairy and most twigs about ½ inch thick or more it is **Sumac** (*Rhus* spp.).

## #8

- if buds are clearly visible, stipule scars encircle the twig, buds are brown, conical with one scale, whitish bark has flakes, large globular seeds it is **Sycamore** (*Platanus occidentalis*).
- if buds are hidden in leaf scars, stipule scar does not encircle twig it is **Thornless Honey Locust** (*Gleditsia triacanthos*).

## #9

- if twigs are aromatic when cut **go to #10**.
- if twigs are not aromatic when cut **go to #11**.

## #10

- if twigs are stout, green, buds generally smooth, solitary it is **Sassafras** (*Sassafras albidum*).
- if twigs are thin, olive brown, flower buds clustered, stalked it is **Spicebush** (*Lindera benzoin*).

## #11

- if buds do not have scales **go to #12**.
- if buds have scales **go to #17**.

## #12

- if terminal bud is larger than rest of buds **go to #13**.
- if terminal bud is smaller than other buds, or there is no terminal bud, **go to #15**.

## #13

- if buds are gray-woolly, not much longer than broad, leaf scar is very narrow, bundle scars very hard to see, and some twigs might have thorns and buds with reddish outer scales it is **Crabapple** (*Malus* spp.). **Go to #14**.
- if buds are smooth and when hairy not conspicuously so, brown with leaf scars unlobed and twigs often zig-zagging it is **Witch Hazel** (*Hamamelis virginiana*).

## #14

- if twigs are smooth it is **Wild Crabapple** (*Malus coronaria*).
- if the twigs are wooly it is **Prairie Crabapple** (*Malus ioensis*).

## #15

- if milky sap is present **go to #16**.
- if milky sap is not present, and the fruit on trees appears flat and round it is **Common Hop Tree/Wafer Ash** (*Ptelea trifoliata*).

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- #16**
- if twigs are velvety and pith yellow it is **Staghorn Sumac** (*Rhus typhiana*).
  - if twigs are smooth it is **Smooth Sumac** (*Rhus glabra*).

- #17**
- if buds have only one scale it is a **Willow** (*Salix* spp.).
  - if buds have two or more scales **go to #18**.

- #18**
- if stipule scar encircles the twig, bud is long and pointed and bark is thin and smooth it is **American Beech** (*Fagus grandifolia*).
  - if stipule scar does not encircle the twig and there are two or more bundle scars **go to #19**.

- #19**
- if buds are four or more times as long as wide **go to #20**.
  - if buds are less than four times as long as broad **go to #21**.

- #20**
- if twigs are yellowish brown, with the lowermost bud scale directly above the leaf scar, and buds are resinous it is **Cottonwood** (*Populus deltoides*).
  - if lowermost bud scale is to one side of the leaf scar, twigs reddish brown, with pale lenticels it is **Downy Serviceberry** (*Amelanchier arborea*).

- #21**
- if pith is triangular or variously lobed in cross section **go to #22**.
  - if pith is round or nearly so in cross section **go to #29**.

- #22**
- if buds are clustered near end of twig and bud scales occur in five rows it is an **Oak** (*Quercus* spp.). **Go to #23**.
  - if buds are not clustered towards the tip of the twig, buds are up to 3/16 inches long, and twigs have a bitter taste it is a **Cherry** (*Prunus* spp.). **Go to #28**.

- #23**
- if terminal buds are ¼ inch or longer **go to #24**.
  - if terminal buds less than ¼ inch long **go to #26**.

- #24**
- if buds are hairy or velvety **go to #25**.
  - if buds are reddish and not hairy, twigs are red-brown to purplish it is **Red Oak** (*Quercus rubra*).

- #25**
- if there are stipules near terminal buds, twigs with warty lenticels, corky ridges on older stems, hairy buds, if bark on older trees is deeply furrowed it is **Bur Oak** (*Quercus macrocarpa*).
  - if terminal bud has no conspicuous stipules, lenticels are small, twigs are brown or red brown and shiny (no ridges), buds are gray to brown, inner bark is yellow it is **Black Oak** (*Quercus velutina*).

- #26**
- if buds are rounded and not hairy **go to #27**.
  - if buds are pointed and reddish brown, and tree is shaped like a Christmas tree in that the branches point down and the shape is conical it is **Pin Oak** (*Quercus palustris*).



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## #27

- if twigs and buds are dark red-brown, bark on young branches is not peeling off, leaves often remain on branches into winter it is **White Oak** (*Quercus alba*).
- if twigs and buds are light brown, and bark on young branches is peeling off it is **Swamp White Oak** (*Quercus bicolor*).

## #28

- if buds are very shiny, lenticels are horizontal, and adult trunk bark looks like burnt corn flakes it is **Black Cherry** (*Prunus serotina*).
- if buds are pointed, reddish brown, smooth, and hairy it is **Wild Plum** (*Prunus americana*).

## #29

- if terminal bud is present **go to #30**.
- if terminal bud is absent **go to #32**.

## #30

- if two to three bud scales are visible and buds are 1/8 to 1/4 inch long it is **Alternate-leaved Dogwood** (*Cornus alterniflora*).
- if there are more than four visible bud scales **go to #31**.

## #31

- if bud scales are fleshy it is a **Hawthorn** (*Crataegus* spp.).
- if bud scales are not fleshy it is a **Wild Plum** (*Prunus* spp.).

## #32

- if leaf scars are at least 3/8 inch wide, and there are nine bundle scars it is **Tree-of-Heaven** (*Ailanthus altissima*).
- if leaf scars are less than 3/8 inch across, and there are not nine bundle scars **go to #33**.

## #33

- if stipular scar is absent and it has small inconspicuous buds it is **Redbud** (*Cercis canadensis*).
- If stipular scar is present **go to #34**.

## #34

- if there are two exposed bud scales, usually reddish, and if the tree has many trunks that grow together or close to each other it is **Basswood** (*Tilia americana*).
- if there are more than three exposed bud scales **go to #35**.

## #35

- if there are three to four exposed bud scales it is a **Birch** (*Betula* spp.).
- if there are more than four exposed bud scales **go to #36**.

## #36

- if there are not three bundle scars, bud scales are 2-toned, a milky sap is present, and side buds are the same width as the twigs **go to #37**.
- if there are three bundle scars, no milky sap, scales not 2-toned **go to #38**.

## #37

- if buds are 1/4 inch long, twigs are downy, and buds spread away from the twig it is **Red Mulberry** (*Morus rubra*).
- if buds are less than 1/4 inch long, twigs are not downy, buds are globular and pressed to twig it is **White Mulberry** (*Morus alba*).

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## #38

- if there are about 12 exposed bud scales and it has a smooth trunk that resembles gray stone it is **Musclewood/Blue Beech** (*Carpinus caroliniana*).
- if there are exposed bud scales, usually six, **go to #39**.

## #39

- if buds are globe-shaped and there are catkins dangling in the winter it is **American Hazel** (*Corylus americana*).
- if buds are somewhat pointed **go to #40**.

## #40

- if leaf and bundle scars are elevated and shreddy bark is peeling vertically it is **Ironwood/Hop Hornbeam** (*Ostrya virginiana*).
- if leaf and bundle scars are depressed and bud is off-center of the leaf scar **go to #41**.

## #41

- if buds are less than 1/8 long it is **Siberian Elm** (*Ulmus pumila*).
- if buds are at least 1/8 inch long **go to #42**.

## #42

- if buds are rusty and hairy, about 1/4 inch long, and trunk bark does not have lighter and darker sides when sliced it is **Slippery Elm** (*Ulmus rubra*).
- if buds are light brown, smooth, and about 1/8 inch long, and trunk bark shows light and dark layers when sliced it is **American Elm** (*Ulmus americana*).

