



RUTGERS
THE STATE UNIVERSITY
OF NEW JERSEY

How to Look at Trees: Tree Identification Basics

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Accurate Tree ID

UTILIZES MULTI-POINT INSPECTION

LEAVES (BOTH SIDES) • Leaf Arrangement • Arrangement on Stem • Shape • Size • Margin • Venation • Texture • Color • Smell • Petiole/Rachis • Glands	BUDS • Arrangement on Stem • Shape • Color • Size • Texture • Scales • Scar BARK • Pattern • Color • Texture • Thickness	TWIGS • Arrangement • Thickness/shape • Texture • Color • Smell • Form TREE FORM/HABIT • Trunk • Shape • Canopy density • Height • Sprouting	BRANCHES • Arrangement • Thickness/shape • Density • Texture • Form • Pattern FLOWER & FRUIT • Timing • Structure/shape • Color • Texture • Smell
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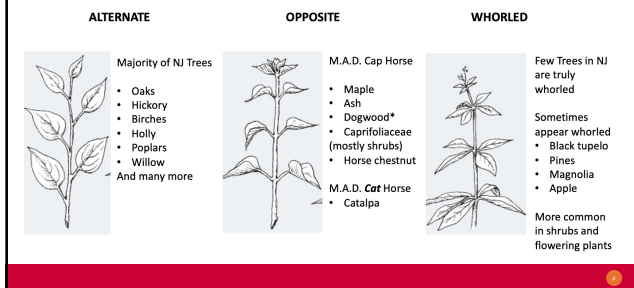
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Leaf Types

DECIDUOUS BROADLEAF  - Majority of NJ Trees • Maples • Oaks • Hickory • Birches • Etc.	EVERGREEN BROADLEAF  • American holly	SEMI-EVERGREEN BROADLEAF  • Sweetbay magnolia	DECIDUOUS NEEDLE  • Bald Cypress • Larch • Dawn Redwood	EVERGREEN NEEDLE  (needles in bundles) • Pines (single needles) • Firs • Spruces	EVERGREEN SCALE-LIKE  • Arborvitae/ Cedars • False Cypress • Junipers (some have short needles)
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Leaf Arrangement on Stems

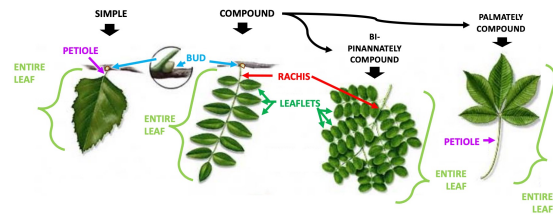


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Leaf Arrangement & Parts

AND BUD ARRANGEMENTS

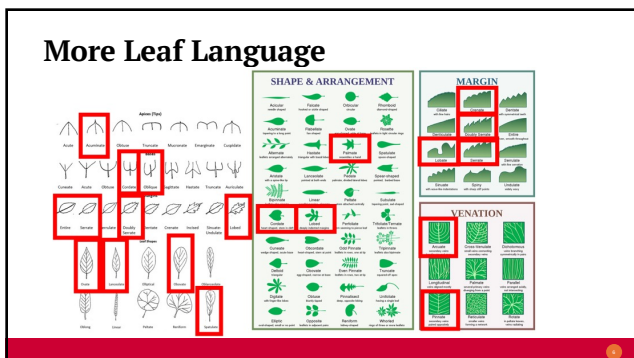


<http://texastreeid.tamu.edu/content/howToID/>

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More Leaf Language



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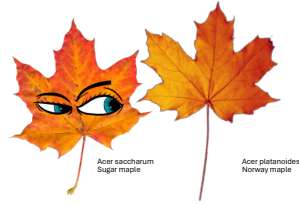
Leaves are ID Tricksters, Beware!

DON'T SOLELY DEPEND ON THEM. LEAF FEATURES CAN HELP YOU ID A FAMILY OR GENUS **TAKE HEED WHEN DETERMINING SPECIES!**

- YOU'LL NEED MORE CHARACTERISTICS THAN LEAVES FOR ACCURATE ID

SOME COMMON LEAF CONFUSIONS

- Maples: sugar vs Norway; red vs silver
- Oaks: red vs black; pin vs scarlet
- Hickories ALL
- Birches: paper vs grey; yellow vs black
- Elms MOST
- Hornbeam vs hop-hornbeam
- White vs green ash
- Black walnut vs butternut
- Walnuts vs sumacs
- Rose family → Cherries, apples etc.
- Pines → 2 needle pines

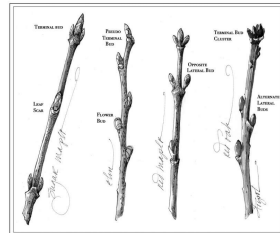


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Buds

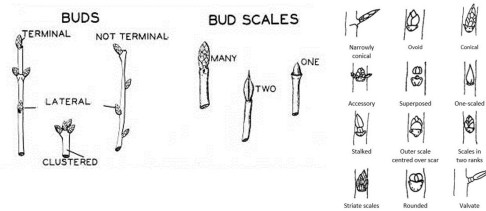
MAKE THEM YOUR BUDS!

- One of the most diagnostic characteristics for accurate tree ID – (better than leaves)
- Available when leaves are not
 - All dormant season & early summer through fall
 - Not best for spring ID
 - Can be swollen and have emerging leaves



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Bud Types & Features



<http://hort.bh.cornell.edu/tree/bulletin.htm>

<https://pau.pressbooks.pub/plant-identification/chapter/plant-growth-characteristics/>

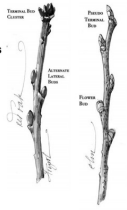
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Twig Arrangement

ALTERNATE

Most trees are alternate

i.e. Oak
Hickory
Sumac
Elm
Sycamore
Willow



OPPOSITE

M.A.D. Cat Horse (Cap)

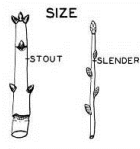
Maple
Ash
Dogwood
Catalpa (Caprifoliaceae)
Horse chestnut



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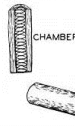
Twig Characteristics

Basic parts of a twig



SIZE

PITH

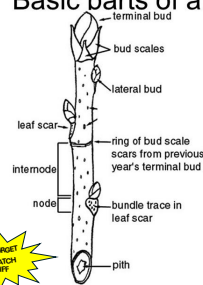


CHAMBER

SOLID

STAR

DON'T FORGET
NOISEWATCH & SHIRT



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Spurs & Stipules



SPUR

- Many bundle scars next to each other
- Shows very little growth per year
- Many species do this, some more often than others



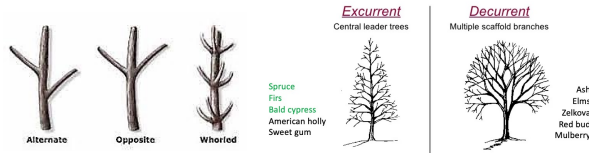
STIPULE

- Leafy growth at base of petiole, near bud
- Some species do this
- Common in rose family, planetrees, tuliptree
- Apparent in spring, usually falls off by summer



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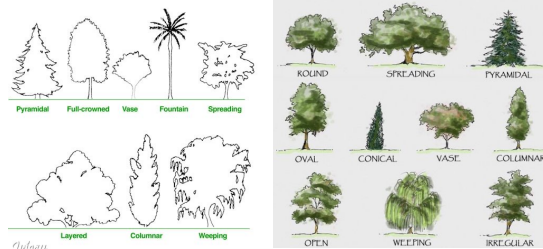
Branch Arrangement



<https://hort.ifas.ufl.edu/woody/poor-quality1.shtml>

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Tree Forms / Habits



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Challenging to Determine FORM in a Mature Forest



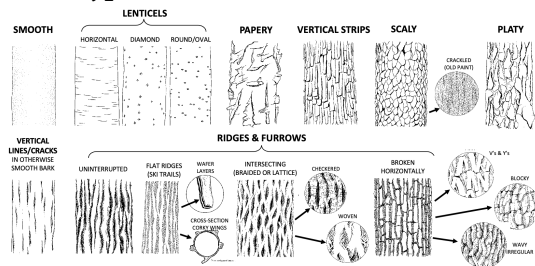
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Challenging to Determine FORM in an Urban Forest, too



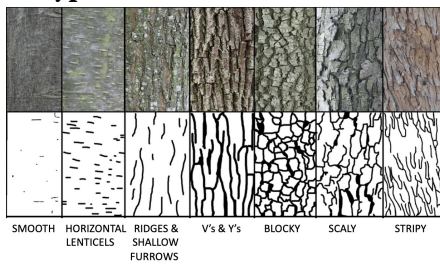
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Bark Types



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Bark Types



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Bark Samples



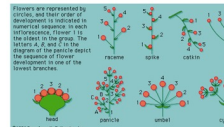
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Flowers & Fruits

SELECT FLOWER TYPES

INCONSPICUOUS (not showy)

- Strobili – Pine family
- Catkins – birch, oak
- Cluster – maple



SELECT FRUIT TYPES

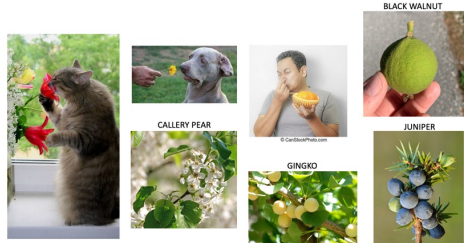
- Cones – Pine family
- Aril – yews (berry-like)
- Catkins – birch family
- Fleshy
 - Drupes – black gum
 - Berries – cherry, hackberry
- Pods – legume family
- Aggregate – magnolia
- Samaras
 - Winged – maples, tuliptree
 - Papery disc – elms
 - Lantern – silverbell
- Nuts
 - Acorns – oaks
 - w/ Husks – walnuts, hickory
- Armed
 - Spiky – chestnut, beech
 - Sticky/spiky – sweetgum



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Flowers & Fruits

DON'T FORGET TO STOP AND SMELL THE FLOWERS... AND FRUIT TOO!



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- Timing
- Structure/shape
- Color
- Texture
- Smell

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Manual of Woody Landscape Plants, by Michael Dirr

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