TREET IDENTIFICATION

ILLINOIS ARBORISTS’ CERTIFICATION STUDY GUIDE

Chapter 2

Jennifer Hitchcock
TAXONOMY OR PLANT CLASSIFICATION

Based on similar biological characteristics

- Kingdom
- Division or Phylum (vascular and nonvascular plants)
  - Angiosperms and gymnosperms
- Class (monocots and dicots)
- Orders, Families, Genus, Species (Table 2.1)
ANGIOSPERMS
(Flowing Plants)

- Seeds covered by an ovary
- **Deciduous trees**
- **Broadleaved evergreens**
- Classes of angiosperms
  - **Dicots** – two cotyledons or seed leaves
  - **Monocots** – one cotyledon or seed leaf
GYMNOSPERMS
(Cone-bearing Plants)

- “Naked” seeds
- Conifers or cone-bearing plants
COMMON NAMES

- Can be confusing and are localized
- *Carpinus caroliniana* may be called American hornbeam, blue beech, ironwood, musclewood
- *Tulip poplar* may be *Magnolia x soulangiana*, *Spathodea campanulata*, and *Liriodendron tulipifera*
SCIENTIFIC NAMES

- Two parts to the name
  - *Pinus nigra*
  - *Quercus alba*
  - *Acer rubra*
PLANT NOMENCLATURE

- **Variety:**
  - Subdivision of a species that has a difference and **breeds true to that difference**
PLANT NOMENCLATURE

- Cultivar:
  - A cultivated variety
  - Names are written with single quotes
  - *U. ‘Morton’-Accolade™*
PLANT MORPHOLOGY

- Woody plant identification is based on plant morphology

- Morphology – the size, shape and appearance of plant parts
PLANT MORPHOLOGY

Important to identify trees using a number of features including:

- Leaves
- Fruit
- Bark
- Texture
- Buds
- Flowers
- Growth form
PRINCIPLES OF IDENTIFICATION

- Leaf structures
  - Leaf margin
  - Leaf base
- Trichomes
LEAF MARGINS, TIPS AND BASES

- **Leaf margins**
  - Entire
  - Dentate
  - Serrate
  - Lobed

- **Leaf tips**
  - Acuminate
  - Obtuse
  - Acute
  - Truncate

- **Leaf bases**
  - Rounded
  - Cordate
  - Acute
acuminate  acute  obtuse
truncate  cuspidate
LEAF TYPES

- **Simple** (white oak)
- **Compound** (ash)
- **Pinnately compound** (locust)
LEAF TYPES

- **Bi-pinnately compound**
  (Kentucky coffee tree)

- **Palmate**
  (buckeye)
LEAF ARRANGEMENTS

- **Alternate** (oak, elm)

- **Opposite** (maple, ash, dogwood, buckeye)  
  -MAD Buck/Horse

- **Whorled** (catalpa)
LEAF ARRANGEMENT FOR CONIFERS

- Needles in **clusters** of 2, 3, 5 (pines)

- Needles produced **singly** (firs and spruces)
LEAF ARRANGEMENT FOR CONIFERS

- **Awl-like** or **scale-like**
  (junipers, cedars, and arborvitae)
BUDS

- Narrowly conical
- Conical
- Scaled
- Valvate

- Ovoid
- Stalked
- Rounded
BEECH: narrowly conical

CHESTNUT: ovoid

CHESTNUT OAK: conical

SCRUB OAK: accessory

WALNUT: superposed

WILLOW: one-scaled

STRIPED MAPLE: stalked

ASPEN: outermost scale centered directly over leaf scar

ELM: scales in two ranks

HOPHORNBEAM: striate scales

WHITE ASH: rounded

TULIPTREE: valvate, showing stipule scar encircling twig
IDENTIFICATION KEYS

- Step by step method for identifying plants
- Consist of yes or no questions
- Must understand the terms used