Best Management Practices for Plant ID
By L. Ted Szczawinski, NJ Licensed Tree Expert #340

Understanding plant morphology is key to identifying plants!

Plant ID utilizes close observation and physical examination

Plant morphology is the observation of the physical form and external structure of a plant; it is also important to identify and assess the environment's impact on plant growth and its manifestation in the respective plant parts.

Always keep in mind, a **plants growth** is determined by its **genetic potential** (parent's traits) and **environment** (soil & climate)**.**

Key plant parts used for identification:
Bud position on twig (opposite – sub-opposite-whorled or alternate)
Twig thickness (slender, medium, stout)
Flower bud (size and shape based on flower timing)
Flower (timing and color)
Leaf type (needle or broadleaf), (deciduous or evergreen), (simple or if compound (pinnate – bi-pinnate or palmate)
Leaf color (early, midseason and fall)
Twig pith characteristics (chambered, solid, color, texture and shape after bisected) - (fragrance)
Bark texture (smooth, course, (depth and width of ridges & furrows) - (vertical or horizontal - exfoliation) - (patterns)
Fruit (dry, fleshy, conifer) note; it is your best clue, it never lies)
Modified plant parts (thorns, tendrils, flower and fruit bracts, etc.)

Identify the stage of plant growth:
Germination - (growth begins from seed, epicotyl & hypocotyl)
Juvenility - (period of rapid growth, may exhibit mixed traits)
Maturation - (a plants ability to reproduce, exhibits mature traits)
Senescence - (growth slows, plant focus on sustaining its mass)

Consider the following factors and features of the plant
Type of Plant (shrub-prostrate-low-upright), ornamental, shade tree)
Condition of plant will affect morphology (poor, fair or good)
Growth form/habit (excurrent, decurrent, fastigiate, weeping etc.)
Timing of flowering, if mature (late winter, spring, summer, fall)

Location impacts growth (wet or dry site, sun, full sun, shade)

Consider the following factor
Perspective of individual conducting the ID (amateur or expert)

Use a Dichotomous Key to assist in determining a plants genus

Classification
Common names are nicknames and can be confusing!
Genus + specific epithet = species, is a clear communication
Example: common name – Hydrangea
Example: Genus = Hydrangea and Specific Epithet = quercifolia
Example: Species = Hydrangea quercifolia

Apply basic rules and remember the devil is in the details!

MAD Horse – Maple-**A**sh-**D**ogwood **Horse** chestnut (alternative acronym)

- ➢ Large leaf scar on twig can indicate compound foliage (except-Catalpa-Paulownia)
- ➢ Small Leaf scar can indicate simple leaf (with the exception of-Catalpa-Paulownia)
- ➢ Point of flowering (throughout the crown, on the branches or on the terminal – on old wood or on new wood)
- ➢ Native plants (low-land or up-land location) natural environment aligned to growth
- ➢ Leaf apex, base, midrib, margins-entire-toothed-or-serrations
- ➢ Leaf structure - lobed, un-lobed, depth of sinuses
- ➢ Group plants by similar characteristics, example; Mulberry and Sassafras
- ➢ Offset leaf bases are common on Linden, Elm and Hackberry
- ➢ Bud shapes and scales covering the flower and fruit buds (number of scales)
- ➢ Flower timing-color-type-form-structure (male-female-hermaphrodite)
- ➢ Dissecting flower buds for ID purposes
- ➢ Texture of twigs, buds and leaf (smooth/glabrous or trichromes/fuzzy)
- ➢ Common and Latin names, especially the specific epithet, may hold a key to ID
- ➢ Read description and closely observe characteristics
- ➢ Be prepared for the task at hand; tools, resources and appropriate attire
- ➢ As with any skill this one takes practice, practice, practice!
- ➢ Take pictures so you can share them, prune off samples (make the cut count) take notes, be tenacious!