Botanical Identification Steps



7Song, Director Northeast School of Botanical Medicine P.O. Box 6626 Ithaca, NY 14851 607-539-7172 www.7Song.com

The following questions form a preliminary examination for identifying a plant species. Draw comparative samples from a few places on the same plant and from nearby plants to avoid making an error due to individual aberrations.

1. Monocotyledon or Dicotyledon

- Two major subdivisions of plants
- Are the flowers in parts of 3: potentially a monocotyledon
- Are the flowers in parts of 4 or 5: a dicotyledon
- Are the veins in the leaf parallel: potentially a monocotyledon
- Are the veins in the leaf net-veined: a dicotyledon

2. Flower: Regular or Irregular

- Is the flower regular, radially symmetrical and evenly divisible through two opposite planes
- Or is it irregular-asymmetrical with at least one set of opposite halves unalike

3. Flower: Corolla Polypetalous or gamopetalous

- Are the petals separate and distinct (except for being attached at the base)polypetalous
- Are the petals fused together-gamopetalous
- If the perianth is of only one series (indistinct petals and sepals) the parts are now called tepals or sepals (not petals or corolla)

4. Flower: Corolla Petals

- If the petals are separate (polypetalous)-how many petals per flower
- If the petals are attached to each other (gamosepalous)-how many lobes to the individual flower
- Do not count the ray flowers of the Asteraceae as individual petals

5. Flower: Calyx Polysepalous or gamosepalous

- Are the sepals separate and distinct (except for being attached at the base)polysepalous
- Are the sepals fused together-gamosepalous

6. Flower: Calyx

- If the sepals are distinct (polysepalous)- how many sepals per flower
- If the sepals are fused (gamosepalous)- how many lobes per flower
- Be sure the calyx subtends an individual flower (rather than an inflorescence, which would make it a bract)

7. Flowers: Stamen

- How many stamen per flower (a pistillate flower will not have any stamen)
- Where does the stamen attach to the flower; on the petal, sepal or elsewhere
- Do the stamen appear fertile, or vestigial

8. Flower: Pistil

- How many pistils per flower
- How many styles, stigma, and ovaries per pistil
- Note-pistils can be complex structures, it can be hard to figure out individual versus joined parts

9. Flower: Ovary Placement

- Where is the ovary located in relation to the perianth (petals and sepals)
- Is the ovary; superior (hypogynous), inferior (epigynous), or partially so (perigynous)

10. Inflorescence: Placement/Type

- Are the flowers individually placed, or clustered together
- If individual, where are they located on the plant, terminal (top of stems), axillary (where leaf meets stem), basal (directly from the ground) or otherwise
- If the flowers are grouped together in an inflorescence are they terminal, axillary, umbel, capitate or otherwise

11. Leaves: Placement

- Where and how are the leaves placed on the plant
- Basal, alternate, opposite, whorled, or absent
- Do the individual leaves have leaf stems (petioles) or is the leaf blade directly attached to the stem (sessile)

12. Leaves: Simple or compound

- Telling simple from compound leaves can be difficult
- If the leaves are compound, are the leaves pinnate or palmate
- If pinnate, are they an even number (even pinnate) or an odd number of leaflets (there is a leaflet terminating the leaf in odd pinnate)

13. Bracts or bract-like parts

- Bracts are often leaflike structures subtending a leaf or inflorescence
- Bracts are a major identification feature for the Asteraceae (where they are called an involucre)
- Not all plants have bracts
- Important to distinguish between bracts and calyxes
- A calyx subtends an individual flower, bracts subtend two or more flowers