Common plant families of the prairie

Flowering plants, like all other organisms, can be classified using a hierarchical series of categories. These categories, sometimes referred to as the **taxonomic hierarchy**, include the kingdom, phylum, class, order, family, genus, and species. By classifying flowering plants into this taxonomic hierarchy, you can organize the great diversity of species encountered in nature. In addition, if the classification is done properly, species that are evolutionarily related to each other will be grouped in the same categories. Identifying where a plant fits into the taxonomic hierarchy thus serves both the practical function of organizing diversity and the biological function of indicating a species evolutionary history.

The most useful taxonomic category for the plant world is the **family**. If you learn the characteristics of the common plant families in your area, you will be able to identify plants much more readily. However, not all plant families are equally represented in all communities. The commonness or rarity of any family can reflect where the family first evolved. Alternatively, a plant family may be common in a certain community because members of that family migrated to an environment that suited them. For whatever reason, certain plant families are very common in the prairie. These families are described below.

*The big three*

1. **Poaceae, the grass family**

In terms of overall biomass, the grasses are the most common plants on the prairie. Grass leaves are simple, alternate, and have parallel venation. The base of a grass leaf is modified to form a sheath that surrounds the stem. Grasses reproduce sexually via 3-parted, inconspicuous, wind-pollinated flowers (*Note: See the attached figure for a description of their unique floral morphology*). However, prairie grasses primarily reproduce vegetatively via rhizomes (underground stems).

Common grasses at CERA: *Andropogon gerardii* (Big bluestem), *Sorghastrum nutans* (Indian grass)

2. **Asteraceae, the aster family**

Leaves of plants in this family are usually alternate, and can be either simple or compound. Members of the Asteraceae have numerous tiny, 5-parted flowers. The flowers are clustered into disk-like heads or loose, linear inflorescences. These aggregations of flowers are very showy and Asteraceae are often insect-pollinated. Flowers can be purple, white, or yellow. Because Asteraceae tend to bloom in the late summer and fall, you will learn many of them this semester.

3. **Fabaceae, the legume family**

Members of this family are very important species on the prairie because they often fix nitrogen via bacterial nodules in their roots, enriching the soil. Leaves are alternate, compound, and often have conspicuous stipules. Flowers are 5-parted and often zygomorphic. Flowers can be purple, white, or yellow and are generally animal-pollinated. Fruits resemble common beans or peas.

Common legumes at CERA: *Chamaecrista fasciculata* (Partridge pea), *Baptisia lactea* (Wild white indigo)

*Other conspicuous families*

1. **Lamiaceae, the mint family**

Stems are often square. Leaves are opposite or whorled and generally simple. Flowers are 4-parted, zygomorphic, and generally animal-pollinated. Flowers can be pink, white, or blue.

Common mints at CERA: *Monarda* spp. (Bee balm/Wild bergamot), *Prunella vulgaris* (Self-heal)

2. **Apiaceae, the carrot family**

Leaves are alternate and generally compound. Flowers are actinomorphic, 4-parted, often clustered into inflorescences, and animal-pollinated. Flowers are often white.

Common carrots at CERA: *Eryngium yuccifolium* (Rattlesnake master), *Zizia aurea* (Golden alexander)

3. **Cyperaceae, the sedge family**

Stems are often triangular, but the plants otherwise look very much like grasses. Like grasses, sedges have 3-parted flowers that are often wind-pollinated. Vegetative reproduction can occur through rhizomes. Sedges are often very difficult to identify to species.

4. **Fagaceae, the oak family**

The few trees that can be found in prairies are often oaks. Leaves are alternate and simple. Flowers are very small, wind-pollinated, and clustered into inflorescences known as catkins. Many birds and mammals depend on their nuts (acorns) for winter food.
Common oaks at CERA: *Quercus macrocarpa* (Burr oak)

5. **Asclepiadaceae, the milkweed family**

Leaves are simple, usually opposite or whorled. Stems and leaves release a milky sap when injured. Flowers are 5-parted, clustered into large inflorescences, and are animal-pollinated. Flowers can be white, pink, or orange. Wind-dispersed seeds are kept aloft by a silky appendage.

Common milkweeds at CERA: *Asclepias syriaca* (Common milkweed), *Asclepias tuberosa* (Butterfly weed)

6. **Scrophulariaceae, the snapdragon family**

Leaf morphology and arrangement is highly variable. Flowers are 4- or 5-parted, zygomorphic, and animal-pollinated.

Common Scrophs at CERA: *Penstemon* spp. (Beardtongue)

7. **Campanulaceae, the bellflower family**

Leaves are alternate and simple. Flowers are 5-parted, but can be either actinomorphic or zygomorphic. Flowers are generally white or blue.

Common bellflowers at CERA: *Campanula americana* (Common bellflower), *Lobelia siphilitica* (Great lobelia)

3a-34. Grass flowers (florets) usually develop in clusters. (a) As a cluster matures, a single pair of dry, chaffy bracts—the glumes—separate a little, exposing the rachilla, with from one to many florets depending on the species of grass attached to a central axis, or rachilla. (b) Each floret is surrounded by two distinctive parts of its own: the palea and the lemma. These are forced apart, exposing the inner parts of the flower (c), by the swelling of the lodicules—small, rounded bodies at the base of the carpel—and are spread wide when the grass is in flower. The stamina, filaments and long, feathery stigmas are typically long and feathery, and so are efficient at intercepting the wind-borne pollen.