**Poales— Cyperaceae, Juncaceae & Poaceae**

Today you will be looking at three families in the order Poales: Cyperaceae (sedges), Juncaceae (rushes) and Poaceae (grasses). Poales is a large order of flowering plants containing 17 families and 997 genera. The APG III system (2009) places it in a clade called commelinids in the monocots. Members of the 3 families are usually superficially alike in morphology, and they can be difficult to identify due both to their similarities and the species-richness of their families. Phylogenetically however, Juncaceae and Cyperaceae are closely related and they form sister groups on one clade of Poales, while Poaceae is on another clade that is more closely related to Joinvilleaceae, Eriocaulaceae and Flagellariaceae.

Listed below are the characteristics for each of the 3 families to help you differentiate between each other.

**Juncaceae – the Rush Family**

**Habit**: Terrestrial, Herbaceous, Perennials

**Roots**: Rhizomes, Sap clear

**Stems**: elongate, rounded, solid

**Leaves**: Leaves - sheathing at base, Leaves - sheath closed, Leaves - simple, Leaves - basal (rosette), Leaves - alternate, Leaves - 2-ranked (distichous), Leaves - 3-ranked, Leaves - spiral, Leaves - linear or filiform (grass-like), Leaves - venetion parallel, Leaves - ligulate, Leaves - soft, Leaves - margins entire

**Inflorescence**: terminal, lateral or axillary, bracteate, cymes, spikes, panicles, heads, Flowers pedicellate

**Flowers**: Flowers bisexual, Perianth present, Perianth reduced to bristles or scales, Perianth absent, Flowers minute barely visible, Flowers 3 merous, Flowers actinomorphic, Floral bracteoles present

**Sepals/Tepals**: Tepals 6 (Sepals indistinguishable from petals), Sepals chaffy

**Petals/Tepals**: Petals 6, Petals mostly separate

**Stamens**: Stamens 3, Stamens 6 (3+3)

**Pistil**: Carpels united, Carpels 3, Ovary superior, Styles 1, Styles 3 or 3-branched, Stigma terminal capitate or trilobed, Stigma plumose or brush-like, Locules 3, Placentation axile, Placentation parietal

**Fruit**: capsule

**Seeds**: Seeds - few (2-10) per locule, Seeds - numerous per locule, Seeds - lacking tuft of hair, Seeds - surface +/- smooth, Seeds - round or ellipsoid

**Cyperaceae – the Sedge Family**

**Habit**: Aquatics growing in or on water, Aquatic emergent, Aquatic fresh water, Terrestrial, Herbaceous, Annuals, Perennials

**Roots**: Rhizomes, Bulbs, Stolons or runners, Sap clear

**Stems**: elongate, contracted, triangular, solid, aerenchyma

**Leaves**: Leaves - sheathing at base, Leaves - sheath closed, Leaves - simple, Leaves - basal (rosette), Leaves - alternate, Leaves - whorled, Leaves - 3-ranked, Leaves - linear or filiform (grass-like), Leaves - venetion parallel, Leaves - soft, Leaves - margins entire

**Inflorescence**: terminal, lateral or axillary, bracteate, flowers solitary, cymes, racemes, spikes, panicles, umbels, spikelets, Flowers sessile

**Flowers**: Flowers unisexual, Plants monoecious, Flowers bisexual, Perianth reduced to bristles or scales, Perianth absent, Flowers minute barely visible, Flowers small, Flowers 3 merous, Flowers actinomorphic, Floral bracteoles present, Glumes (empty bracts)

**Stamens**: Stamens 3, Stamens 6 (3+3)

**Pistil**: Carpels united, Carpels 3, Ovary superior, Styles 3 or 3-branched, Stigma terminal capitate or trilobed, Stigma plumose or brush-like, Locules 1, Placentation basal (or apical), Perigynium sac around ovary

**Fruit**: Fruit - achene (nutlet), Fruit 1-seeded

**Seeds**: Seeds - single per locule, Seeds - surface +/- smooth, Seeds - angulate

**Poaceae – the Grass Family**

**Habit**: Aquatic emergent, Aquatic fresh water, Terrestrial, Herbaceous, Woody, Annuals, Perennials

**Roots**: Rhizomes, Stolons or runners, Sap clear

**Stems**: elongate, contracted, rounded, hollow, nodes swollen or brittle

**Leaves**: Leaves - petiolate, Leaves - sheathing at base, Leaves - sheath open, Leaves - simple, Leaves - cauline, Leaves - basal (rosette), Leaves - alternate, Leaves - 2-ranked (distichous), Leaves - linear or filiform (grass-like), Leaves - venetion parallel, Leaves - ligulate, Leaves - soft, Leaves - margins entire

**Inflorescence**: terminal, racemes, spikes, panicles, spikelets, Flowers sessile, Flowers pedicellate, Flowers - pedicel articulated

**Flowers**: Flowers unisexual, Flowers bisexual, Perianth reduced to bristles or scales, Perianth absent, Flowers minute barely visible, Flowers 3 merous, Flowers zygomorphic, Floral bracteoles present, Glumes (empty bracts)

**Stamens**: Stamens 1, Stamens 3, Stamens 6 (3+3)

**Pistil**: Carpels united, Carpels 2, Carpels 3, Ovary superior, Styles 2, Styles 3 or 3-branched, Stigma plumose or brush-like, Locules 1, Placentation basal (or apical)

**Fruit**: Fruit - caryopsis, Fruit 1-seeded

**Seeds**: Seeds - single per locule, Seeds - fused to ovary wall, Seeds - lacking tuft of hair, Seeds - surface +/- smooth