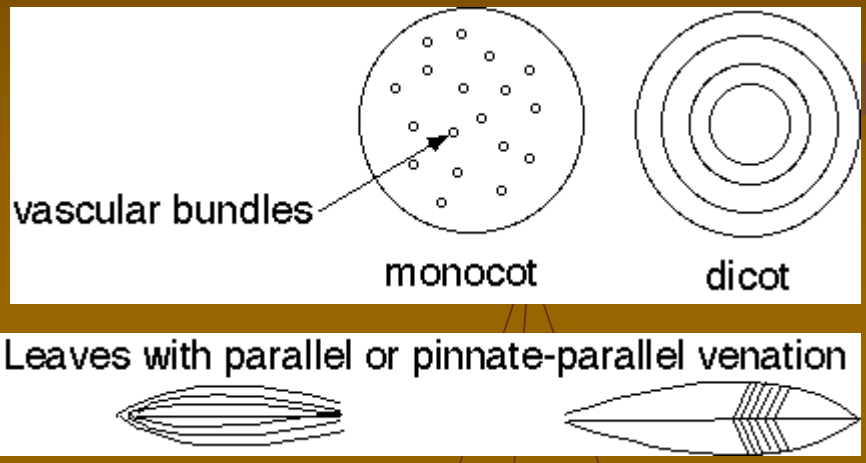
LILIOPSIDA - MONOCOTYLEDONS

Herbaceous and less often woody, never with typical secondary growth rings



Floral parts in sets of 3, seldom 4 or 2, never 5

One cotyledon

5 subclasses

19 orders 65 families 50,000 species

COMMELINIDAE

Perennial herbs, no secondary growth

Leaves alternate, often all basal

Flowers 3-parted, pollinated by pollen-gathering insects (no nectar) but more often wind-pollinated

7 orders, 16 families, 15000 species - 50% in Poaceae, 30% in Cyperaceae

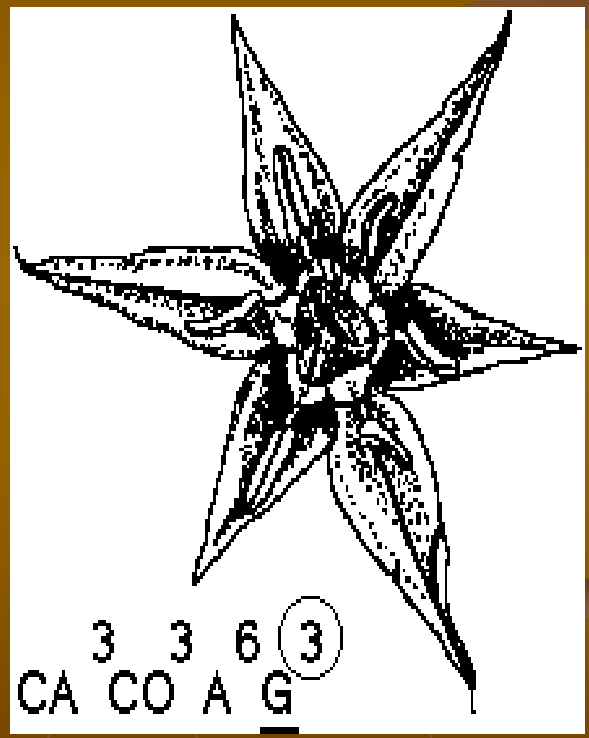
Relationships between orders are unclear

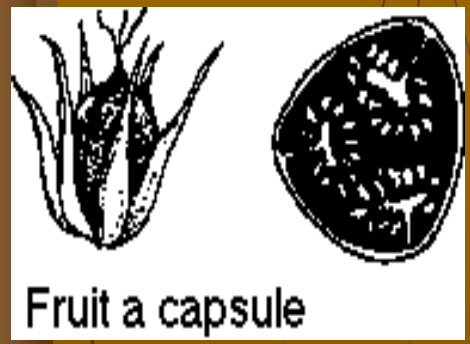
JUNCACEAE - Rush Family

Perennial or annual tufted herbs, stems leafy only at base

Leaves - basal, cylindrical to flat, sometimes reduced to a sheath only.

Flowers bisexual, actinomorphic, small, in a variety of inflorescences, perianth scaly, not petaloid .





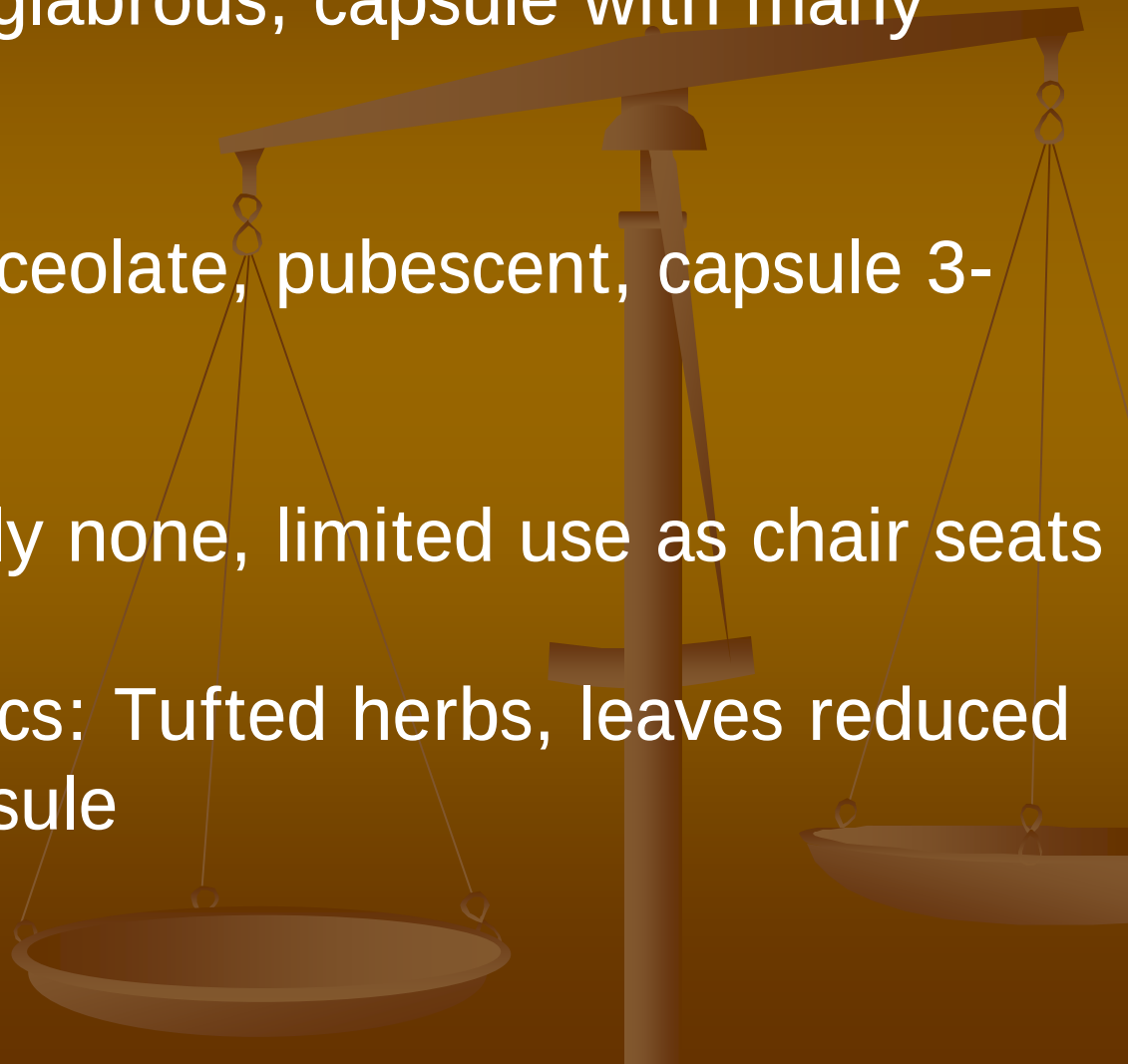
8 genera, 300 species in moist, cool places

Juncus - leaves linear, glabrous, capsule with many seeds

Luzula - leaves flat, lanceolate, pubescent, capsule 3-seeded

Economic uses: basically none, limited use as chair seats

Diagnostic characteristics: Tufted herbs, leaves reduced to a sheath, fruit a capsule

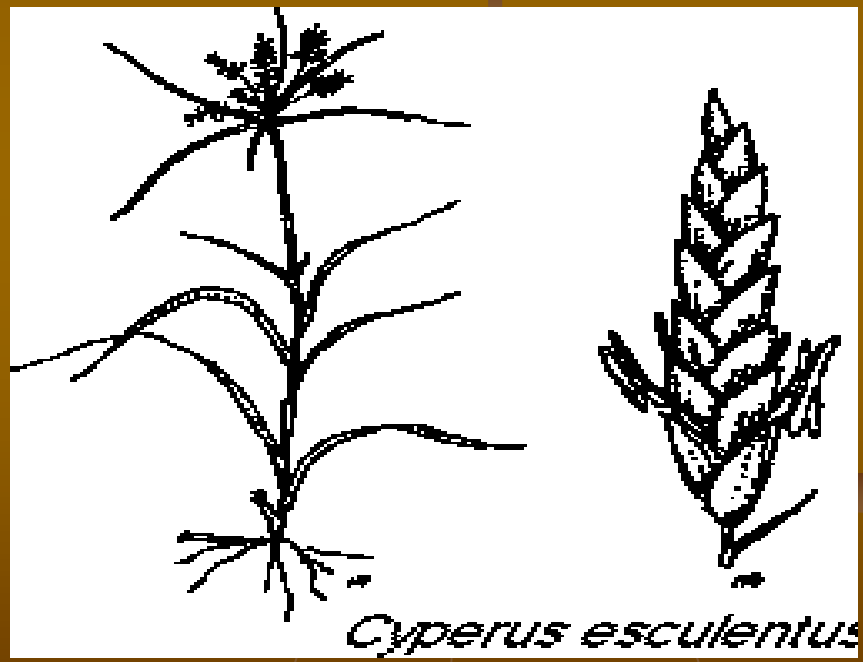


CYPERACEAE - Sedge Family

Herbs, often with triangular stems, stems solid, mostly found in wet areas

Leaves 3-ranked with closed sheath, blades grass-like

Flowers bisexual or unisexual, inconspicuous, perianth reduced to bristles or scales or absent, infl. various. Insect-pollinated but some members of the genus *Rhynchospora* (formerly *Dichromena*) have white bracts that attract pollinators.



Fruit an achene or nutlet

70 genera, 4000 species worldwide

Major genera

Carex **- 2000 species, northern temperate, largest genus of flowering plants**

Cyperus **- mostly tropical**

Rhynchospora

Economic uses:

Papyrus (*Cyperus papyrus*)

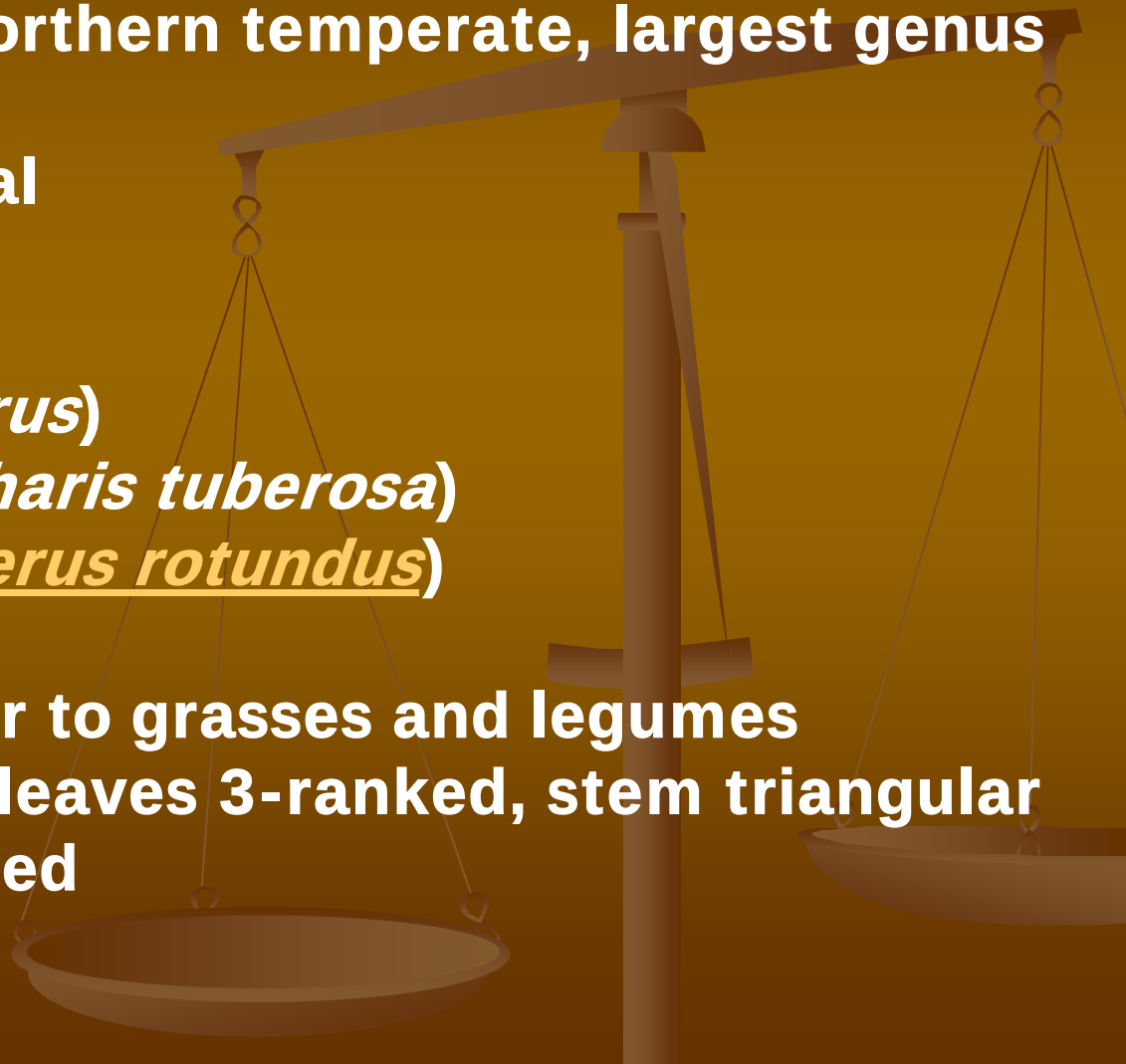
water chestnuts (*Eleocharis tuberosa*)

weeds - nut grass (*Cyperus rotundus*)

Ornamentals

Hay and fodder - inferior to grasses and legumes

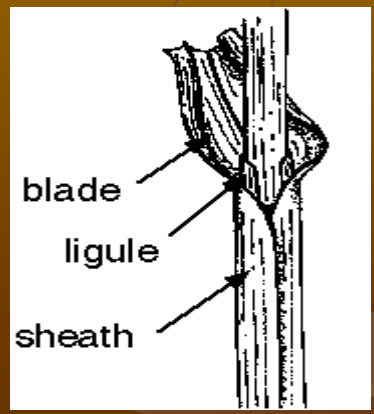
Diagnostic characters - leaves 3-ranked, stem triangular and solid, flowers reduced



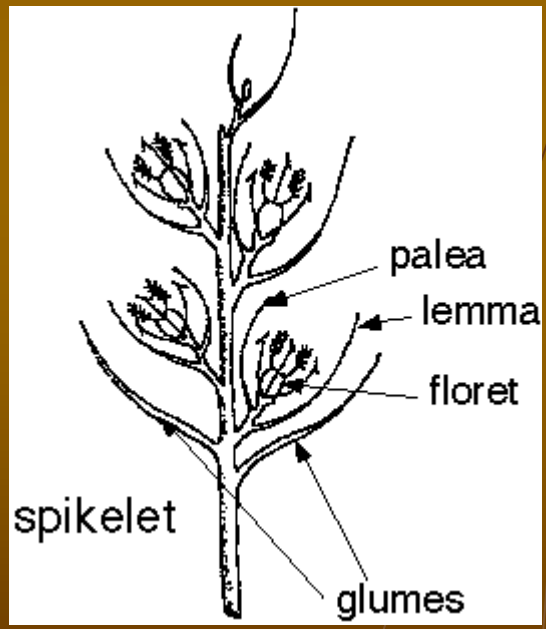
POACEAE (GRAMINAE) - Grass Family

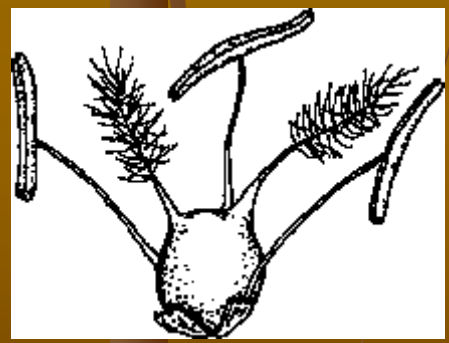
Perennial or annual herbs, stems (culms) erect, ascending, prostrate or creeping, round, hollow or solid at internodes, solid at nodes

Leaves - 2-ranked, alternate, composed of an open sheath, ligule and blade, sheath encloses the culm



Florets - usually bisexual, sometimes unisexual. florets have 2 bracts - the outer is the lemma, the inner is the palea. Perianth is reduced to 2 or 3 lodicules. Lodicules are not always present. Styles feather-like

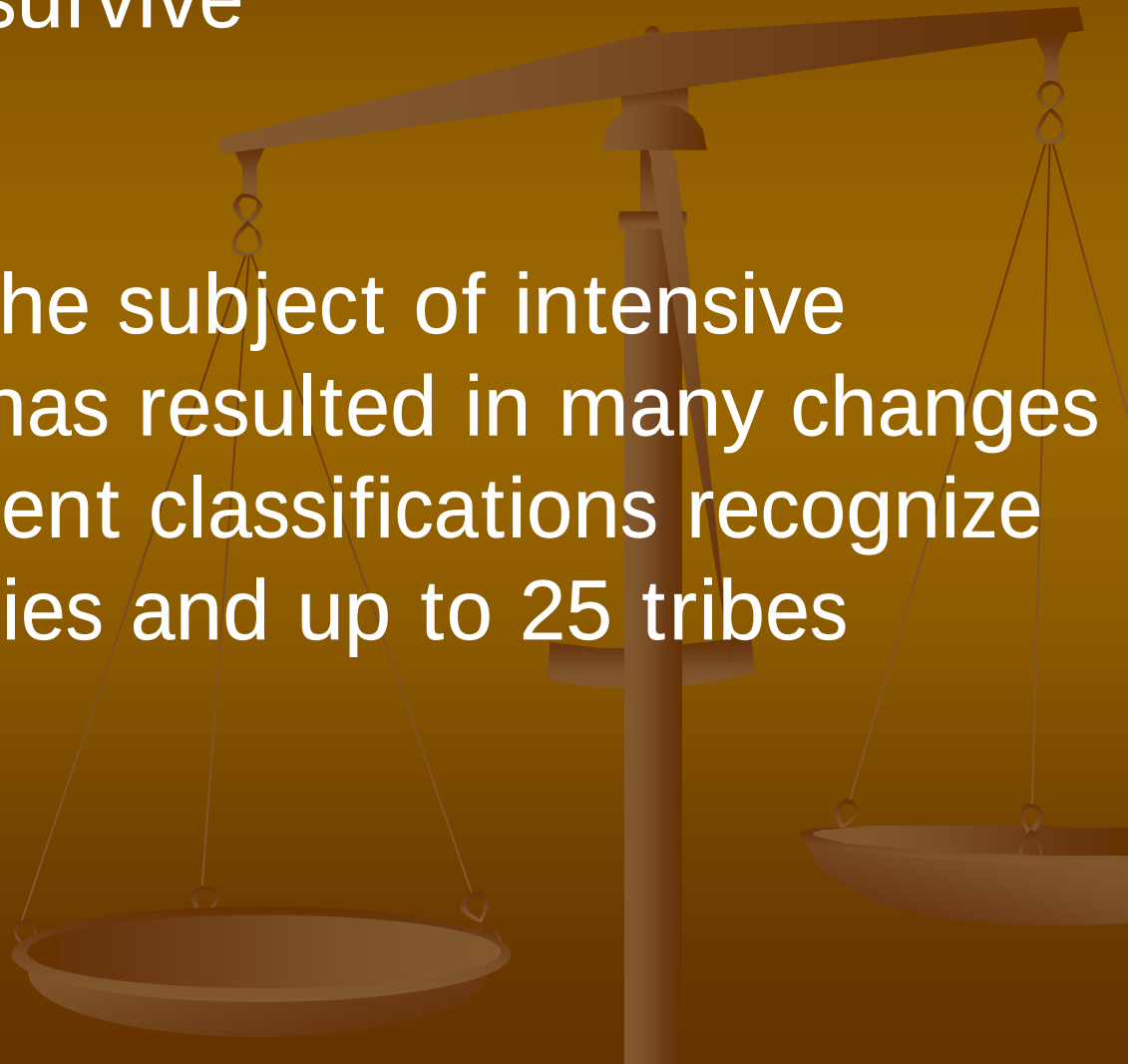




Fruit a caryopsis (grain), rarely a nut, berry

500 genera, 8000 species, found anywhere vascular plants can survive

Systematics
Grasses have been the subject of intensive investigation which has resulted in many changes in classification, current classifications recognize three to six subfamilies and up to 25 tribes



Common genera - almost too many to list

Panicum **- panic grass - largest genus in Poaceae**

Festuca **- fescue**

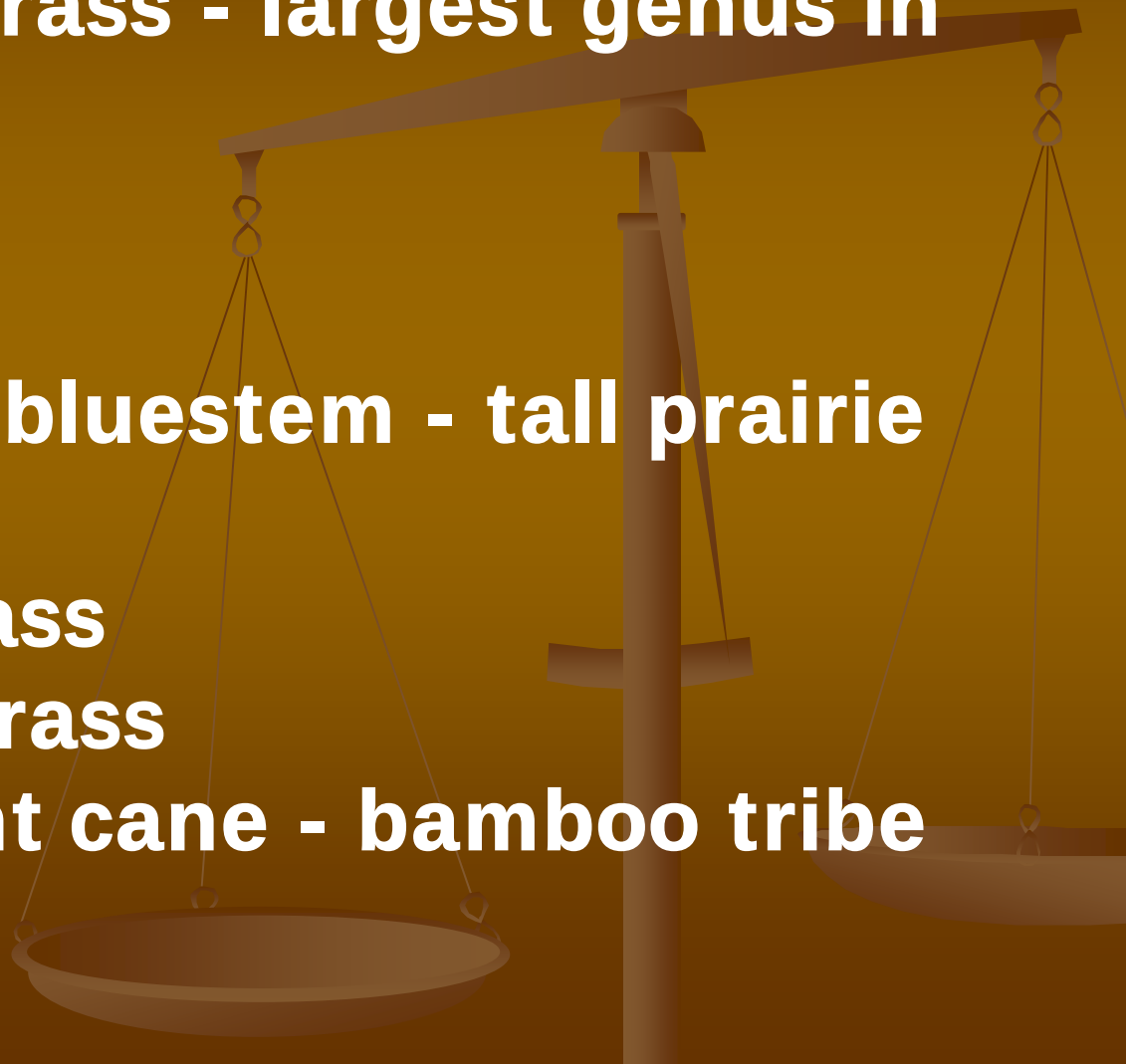
Poa **- blue grass**

Andropogon **- big bluestem - tall prairie grass**

Digitaria **- crabgrass**

Aristida **- 3 awn grass**

Arundinaria **- giant cane - bamboo tribe**



ECONOMIC IMPORTANCE - MOST IMPORTANT FAMILY

Food:

Avena **- oats**

Triticum **- wheat - more produced than any other**

Secale **- rye**

Hordeum **- barley**

Saccharum **- sugar cane**

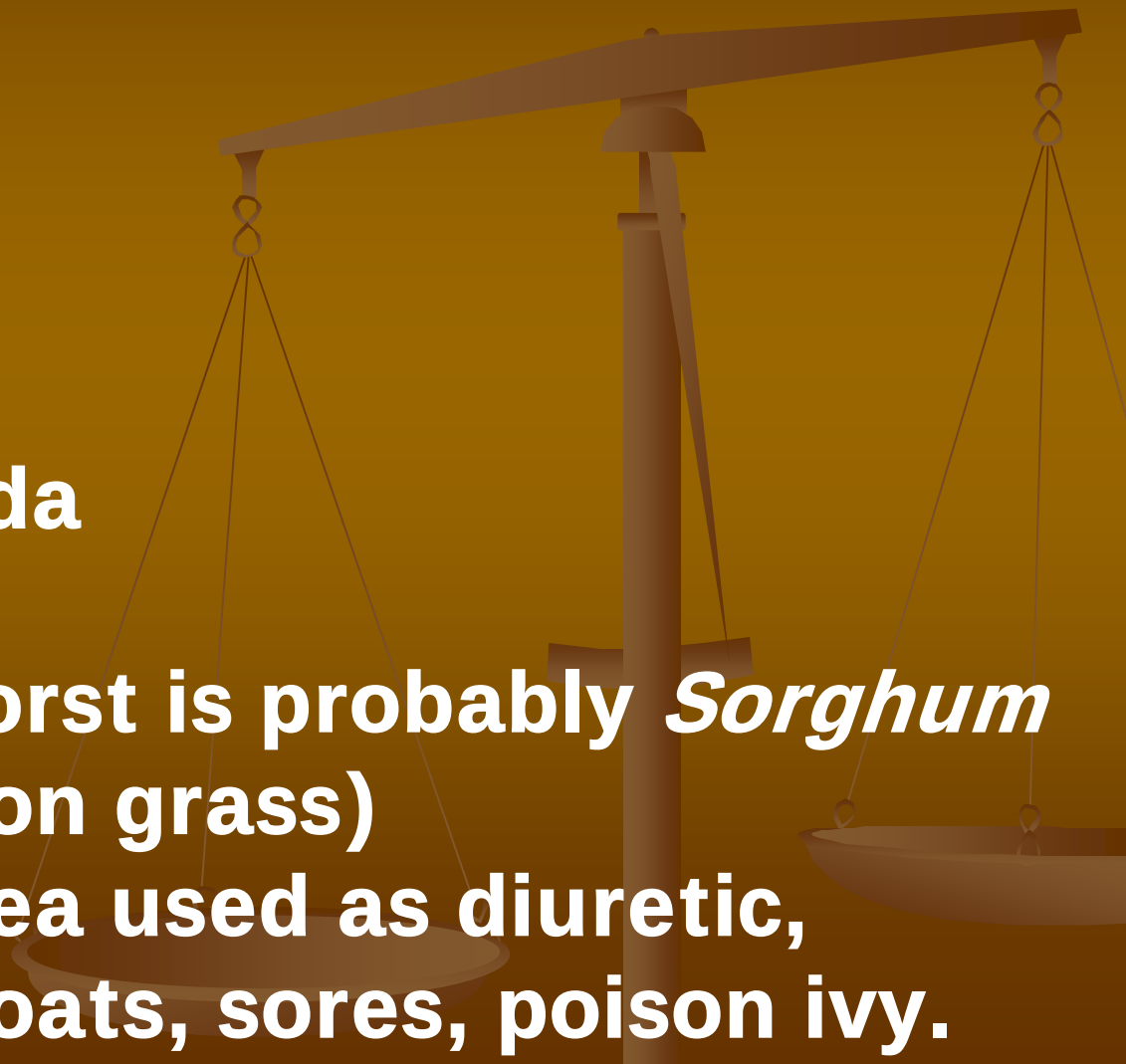
Oryza **- rice - most important for direct human consumption**

Zea **- corn (maize)**

Grazing and livestock feed
Festuca **- fescue**
Sorghum **- milo, sorghum**
Setaria **- millet**
Zea **- corn**

Lawn grasses
Poa **- blue grass**
Cynodon **- Bermuda**

Weeds - many, worst is probably *Sorghum halepense* (Johnson grass)
Medicinal uses - tea used as diuretic, diarrhea, sore throats, sores, poison ivy.



A Short Synopsis of Cronquist's System

1 Division- Magnoliophyta

2 Classes - Monodots(Liliopsida and)Dicots(Magnoliopsida

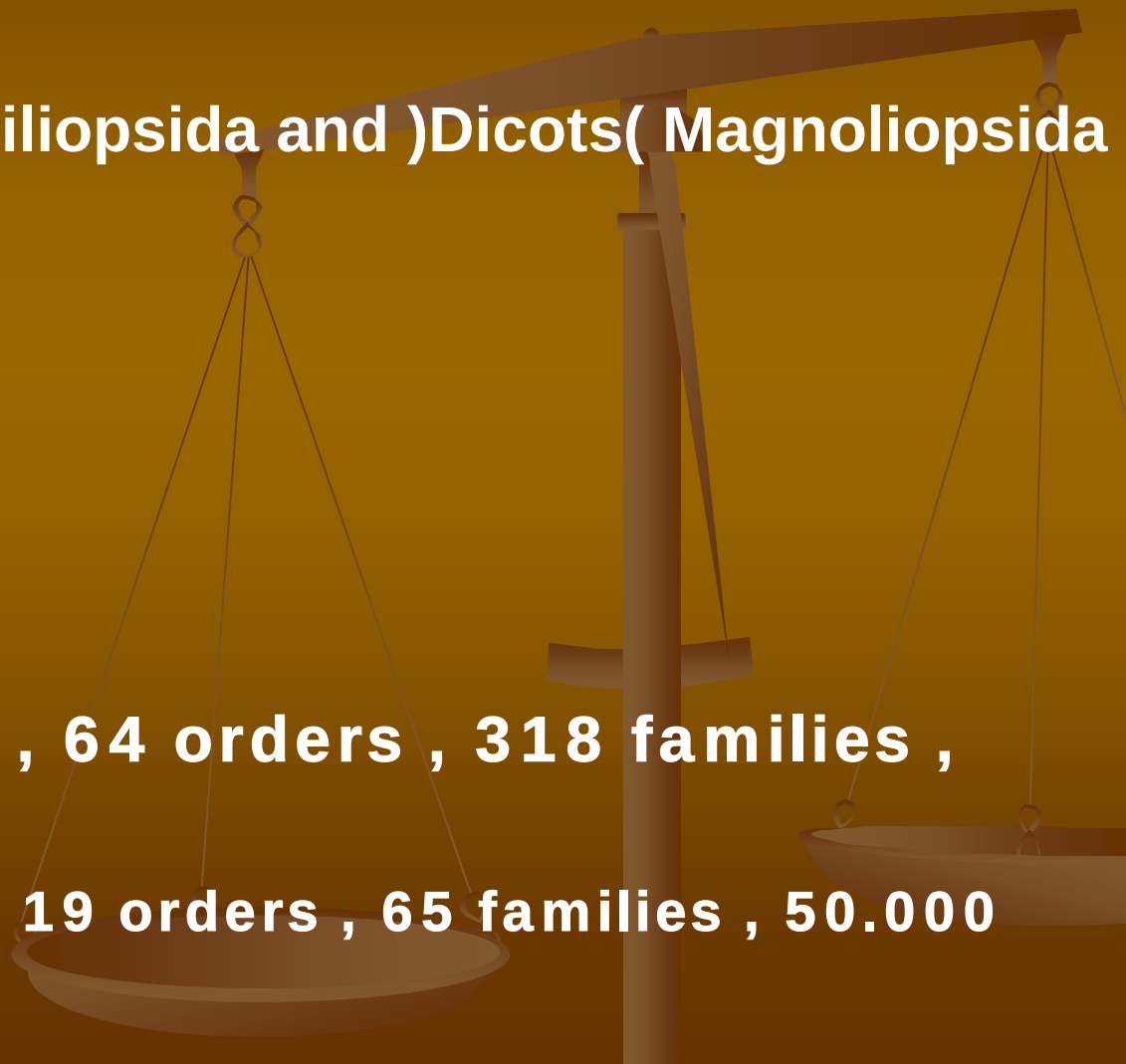
Subclasses

Orders

Families

Dicots – 6 subclasses , 64 orders , 318 families , 170.000 species

Monocots – 5 subclasses 19 orders , 65 families , 50.000 species

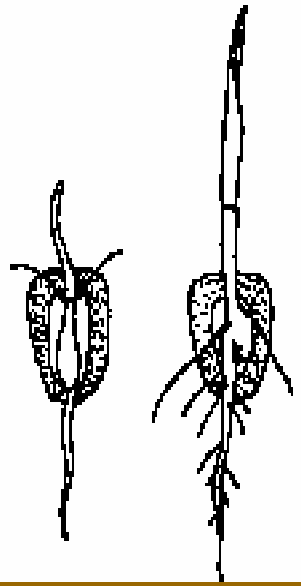


MONOCOTS VS. DICOTS

MONOCOTS

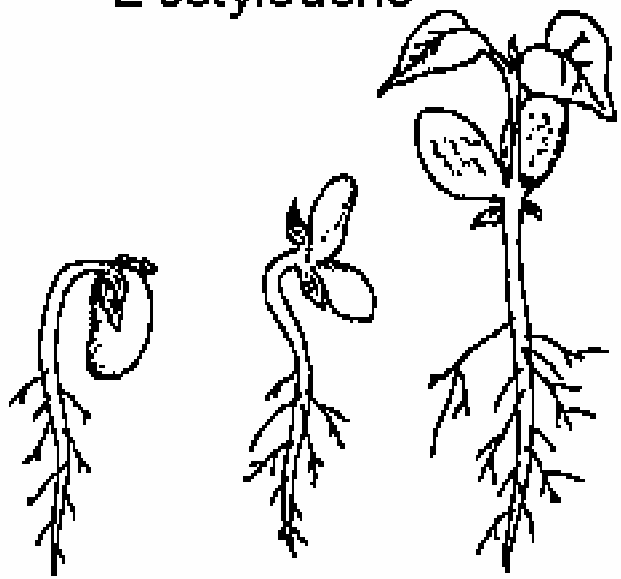
1 Cotyledon (seed leaf)

cotyledon



DICOTS

2 cotyledons



MONOCOTS VS. DICOTS

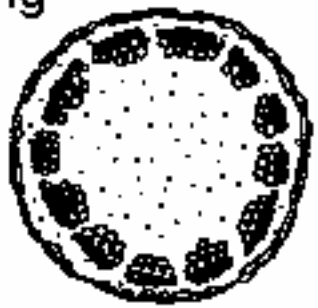
Parallel-veined leaves

Net-veined leaves

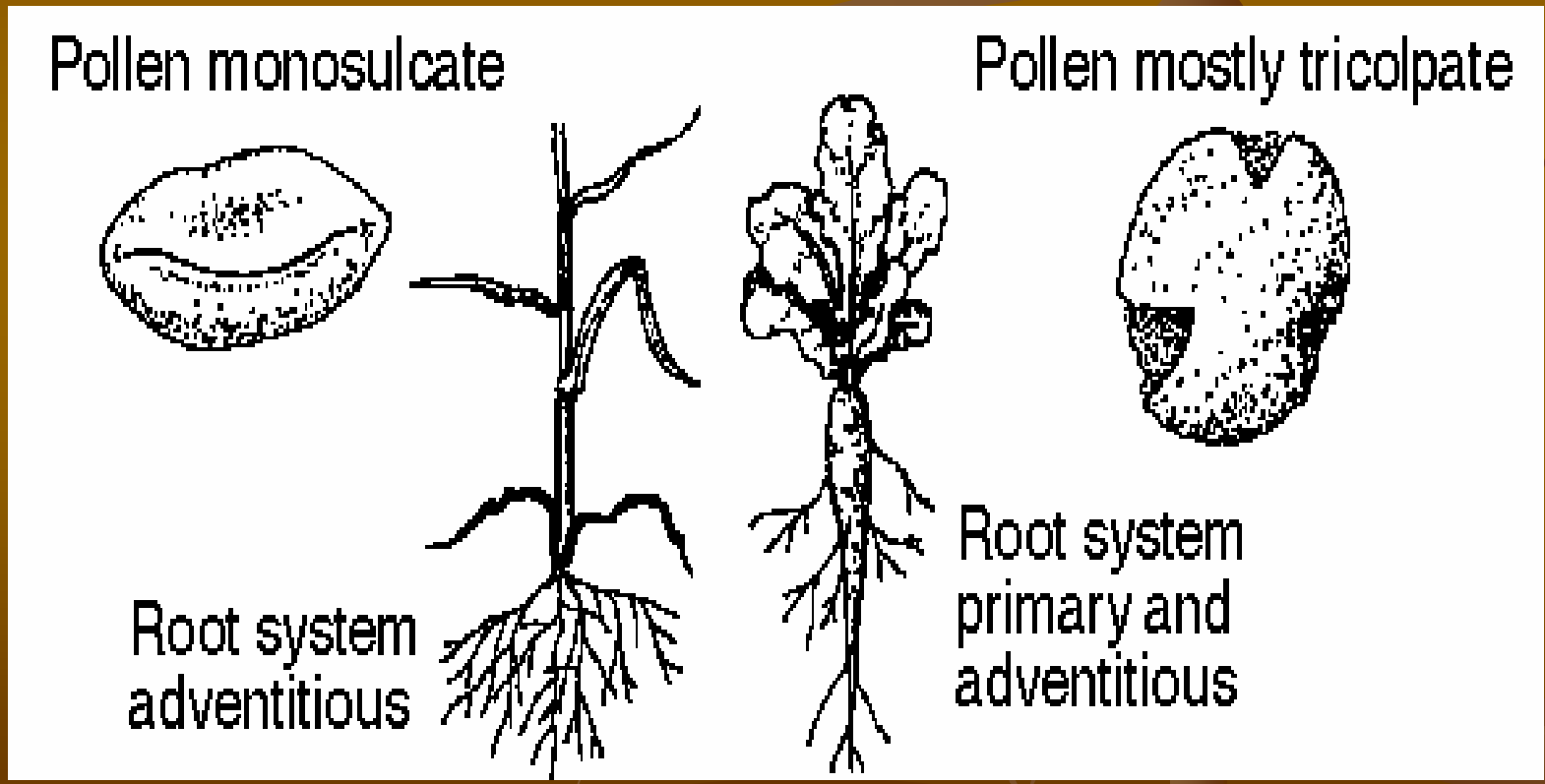
MONOCOTS VS. DICOTS

Primary vascular bundles scattered

Primary vascular bundles in a ring



MONOCOTS VS. DICOTS



MONOCOTS VS. DICOTS

Floral parts in 3's	Floral parts in 4's or 5's
Fewer than 10% of species are woody	About 50% of species are woody