

PLANTS: THE BASIC RESOURCE

- Plants are the “ultimate” source of organic every in ecosystems:
 - “Food” for animals & microbes
 - Fuel fires
 - Organic carbon to drive bio-geochemical cycles (water, carbon, etc.

- Plants produce their food from photosynthesis:
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- To manage we must understand _____ and _____ influences on photosynthesis.

- **Overview of Plant Types on Rangeland**
 - Grasses – are plants with long narrow leaves and hollow stems. They produce grain-like seeds and do not have colored flowers.

 - Grass-like plants – look like grasses, but have solid stems (not hollow) without joints. Stems are often triangular. Veins in the leaves are parallel. Sedges and rushes are in this group of plants.

 - Forbs – are herbaceous (non-woody) plants that usually have broad leaves and showy flowers. Most of the plants commonly called wildflowers and range weeds are forbs.

 - Shrubs – are woody plants that usually have broad leaves. They are different from trees because they do not have a main trunk, instead they have several main stems. Some plants can take both a tree and a shrub form depending on soil and topographic conditions.
 - Browse is
 - Mast is

 - Weed is a designation that can be given to any plant that grows where it is not wanted or interferes with the growth of desirable plants.

 - The term “weed” is usually reserved for plants that have a persistent and aggressive growth habit.

 - Noxious weeds are

- **Life Span:** Length of time from germination through death of the plant.
 - Annual –
 - Winter annuals germinate in the fall and form a small rosette of leaves that persists through the winter. The following growing season, the plant continues to grow, flowers, produces seeds in the summer, and then dies.
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 - Summer annuals germinate in the spring and complete all growth, including seed production, by the end of the growing season and then die.
 - Biennial plants live
 - Perennial plants live
 - *Why is this important?*

- **Origin:** *Where a plant came from*
 - Native (or endemic) plants are those that originated and evolved in North America.
 - Introduced (or exotic) plants were brought to North America from another continent.
 - Several of these plants were intentionally introduced to rangelands because they have good forage value.
 - Other plants were accidentally introduced to North America usually as contaminants in crop seeds. Weedy introduced plants were accidentally introduced or brought in for their ornamental value, but then “escaped” into rangelands.
 - Naturalized =
 - *Why is this important?*

▪ **Level of Lignification:**

Lignin =

- Herbaceous = Non-woody plants
 - Plant dies back to ground each year
 - All annuals are herbaceous
 - All grasses and forbs are “herbaceous”
- Woody =
- Suffrutescent =
- *Why is this important?*

▪ **Season of Growth:**

- Cool season species:
 - Make most growth in cool weather of spring and fall
 - Flower mostly in early summer
 - Have C₃ photosynthetic pathway – adapted to cool, wet conditions
 - Provide spring/fall forage at lower elevations and summer forage at high elevations
 - Most plants in Idaho are C₃ plants
- Warm season species:
 - Make most growth in warm summer periods
 - Flower from mid-summer to early fall
 - Have C₄ photosynthetic pathway – adapted to hotter, drier conditions
 - Provide forage in summer months
 - Warm regions of Idaho have a few C₄ plants; southern states such as Texas and New Mexico have nearly all C₄ plants
- Evergreen:
 - Woody plants that retain leaves throughout the year
 - Cool-season plants (remember, they photosynthesize in winter)
 - Important forage in drought and winter.
- *Why is this important?*

- **Forage Value** – Plants can also be classified by how well it provides nutrients to grazing animals. The forage value of a plant varies depending on which animal is grazing because nutritional needs and dietary preferences differ by species of grazing animals. For example, a plant could have excellent forage value for cattle and poor forage value for deer.
 - High forage value designates plants that are nutritious, palatable, and produce abundant forage.
 - Medium forage value denotes a plant that will provide adequate nutrients if eaten, however, it is not preferred by animals or does not produce abundant forage.
 - Low or poor forage value describes plants that simply do not provide nutrients to the grazing animal. Some plants with poor forage value would be described as poisonous or toxic plants. These plants contain natural chemicals that are harmful to grazing animals and can even cause death if eaten in sufficient quantities.