**University of California Agriculture and Natural Resources (UCANR)**

**Ecosystem Categories**

Ecosystem services have been defined into four categories;
***regulating*, *provisioning*, *supporting*,** and ***cultural*** *(*Millennium Ecosystem Assessment*)*.
The formal definition of each category is listed below, followed by examples of rangeland ecosystem services for each.

***Regulating***, such as the control of climate & disease;

* ***Carbon sequestration*** filtering carbon dioxide and other pollutants out of the air, thus increasing the carbon stored in the soil profile.
* ***Water as it relates to filtration, water quality and quantity, water retention and aquifer recharge.***The importance of water quantity and quality cannot be overestimated.  According to the California Rangeland Trust “Most of California’s vital water resources originate on or flow through rangelands.” (*Fact Sheet No. 1:* California Rangeland Water Quality Management Program)
* ***Fire fuel reduction*** when lands are properly grazed, reducing fire fuel by vegetation removal.
* ***Habitat for pollinating insects, natural land cover, and pest regulation*** all of which occur naturally on healthy rangelands.

***Provisioning*** such as the production of food & water;

* ***Forage production which allows for the raising of livestock****.  Managed properly, the grasses grown on rangelands can reduce the costs of food supplements for livestock thereby reducing the cost to raise the animal and food costs to consumers.*
* ***Plant genetic diversity*** which benefits the environment with better drought tolerance with biodiversity and native species, diverse vegetation which benefit a variety of species and greater resistance to invasive species.

***Supporting***, such as nutrient cycles & crop pollination;

* ***Fertile soil*** which provides the basis for healthy plant growth and sustaining life.  Natural ecosystems both create and enrich soil through weathering and decomposition and can also retain soil by preventing erosion.

***Cultural***, such as spiritual & recreational benefits;

* ***Open space and view sheds*** are areas of land, water, or other *natural* environmental elements, visible to the human eye from a fixed vantage point.
* ***Recreation*** such as hiking, horseback riding, swimming, skiing, hunting and so on.

<https://ucanr.edu/sites/RangelandES/Ecosystem_Categories/>