where would you be without conservation

since the 1930s New Mexico weathered two droughts worse than the Dust Bowl. did you notice? no? maybe it was because of conservation

state-of-the-art conservation techniques

brush management

NRCS

Save Grass Through Brush Management

Brush management is the conservation practice used for the management of invasive or increaser woody plants to restore and maintain Grasslands. In Grassland Restoration we are trying to restore the natural range of variability to plant communities on a large scale. The range of variability can be thought of as more like what the early settlers found when they first came into the desert southwest. Originally fire provided the disturbance regime required to maintain grasslands. Applying brush management can ultimately restore the land to a point where fire can be reintroduced as the primary method of managing brush and maintaining grassland ecosystems.

The presence of excessive brush in rangeland environments is a high-priority issue among landowners. Whether managing for livestock, hunting, or wildlife watching, maintaining woody plants in their natural range of occurrence remains a serious and pervasive question.

Range Ecology

High concentrations of livestock facilitate woody plant invasion into grasslands in several ways. Seed dispersal by livestock and wildlife contributes to brush invasion processes. Animals provide a means of dispersing woody species by eating the seeds and depositing them after they pass through their digestive tract. Compaction of surface soils by livestock can favor recruitment of woody species over grasses. Inappropriate grazing reduces vigor of forage species and decreases their ability to compete for water and nutrients against encroaching woody species and reduces the amount of herbage or “fine fuel” available to carry a fire. Historically, fire has been a principle force responsible for reducing woody species movement into grasslands. It is important to note that even in the long term absence of large ungulate grazing (either cattle or wildlife) many brush species will invade and eventually dominate ecological functions on a grassland site without the disturbance regime of fire.

Brush Management Measures

Biological, mechanical, cultural, and chemical management measures are available to manage brush. Any brush management plan that seeks to treat in a sustainable manner will contain more than one of the measures from this list.

Chemical: One of the most promising measures to manage brush is herbicides. Herbicides have advantages such as ease of timing, ease of use, predictability of results and low risk of harm to non-target species when applied according to label directions. The following are general classes of herbicide treatment:

- Broadcast Application - Herbicides can be broadcast applied aerially or by ground equipment. Where the targeted brush stands are tall and/or dense aerial application may be most suitable. Aerial applications may be applied by fixed-wing aircraft or helicopter.
- Individual Plant Treatment Techniques - Individual plant treatment can be an efficient, cost-effective alternative to broadcast applications to control brush, shrubs, or vines. Individual plant treatments include spot applied concentrate, high volume foliar, low volume basal, and cut-sump applications. Individual plant treatment is also a good grassland maintenance technique, eliminating brush encroachment before it becomes a larger problem.

Biological: Biological management usually involves the introduction of some insect or disease that negatively impacts the growth of the target species. Work is being conducted in the U.S. at this time on biological control of salt cedar. This has proven wildly successful in Utah along the Colorado River in managing salt cedar invasions. Another type of biological

control would be the use of grazing animals that use and possibly prefer woody plants. One such example are goats. Although goats will consume a considerable amount of grass in the spring when forage quality is high, they prefer browse (barks, twigs, and leaves from woody plants) during most of the year. Goat browsing behavior is a classic form of brush management. Their appetite for brush species as well as their ability to deal effectively with some of the toxic chemicals contained in some brush species as a defense mechanism have made goats or "goating" an effective brush management strategy in many parts of the world.

Mechanical Management: This includes the use of hand methods and larger equipment. Hand methods include the axe, lopping shears, equipment for grubbing or digging, chainsaws, and girdling. Mechanical methods are most effective on non-sprouting species. Hand methods are most appropriate to use on scattered stands. Mechanical removal of top growth of resprouting species is seldom effective alone and needs to be repeated or combined with an herbicide as with a cut stump treatment. Large equipment for dozing, mowing, shredding, and tree cutting can be expensive. In some cases considerable soil disturbance can occur.

Cultural Control. In general, the principles of suppressing brush like sagebrush in pastures by maintaining a highly competitive mix of desired species also apply to other woody species. However, once established, cultural practices alone are not sufficient to achieve brush management. Nevertheless, efforts to maintain a dense, vigorously growing mix of desired forbs and grasses usually inhibit brush species from germinating and becoming established. And once brush has been managed mechanically or chemically, a sound cultural management program of rotational grazing, etc. will help the desired species remain the dominant vegetation in the site for as long as site ecology will allow.

Those who plan brush management systematically apply the correct treatment, and follow up properly can achieve both technically and economically successful results.

Your NRCS field office staff and the soils and ecological site information they can provide to you can be an important resource in your quest to achieve your short term goal of brush management and longer term goal of grassland restoration and sustainability.