



## Natural Resources Conservation Service

### CONSERVATION PRACTICE STANDARD

## RANGE PLANTING

### CODE 550

#### (ac)

#### DEFINITION

The seeding and establishment of herbaceous and woody species for the improvement of vegetation composition and productivity of the plant community to meet management goals.

#### PURPOSE

This practice is used to accomplish one or more of the following purposes:

- Restore a plant community to a state similar to the ecological site description reference state for the site or another desired plant community
- Provide or improve forages for livestock
- Provide or improve forage, browse, or cover for wildlife
- Reduce erosion by wind and water
- Improve water quality and quantity
- Restore hydrologic function
- Increase and/or stabilize carbon balance and sequestration

#### CONDITIONS WHERE PRACTICE APPLIES

This practice applies to land where the principle goals and method of vegetation management are or will be based on ecological processes and interactions. This practice will be applied where desirable vegetation is below the acceptable level for natural reseeding to occur or where the potential for enhancement of the vegetation by management of herbivory is unsatisfactory.

#### CRITERIA

##### General Criteria Applicable to All Purposes

Specified seeding/plant material rates, methods of planting, dates of planting, and/or species selection will incorporate ecologically based, up-to-date information on adaptive management strategies in highly variable rangeland systems. They will also be consistent with documented guidance cited by the NRCS Plant Materials Program, research institutions, or agency demonstration trials for achieving satisfactory establishment.

Species, cultivars, or varieties selected for richness and or diversity must be compatible with ecological site descriptions, local laws and regulations, and management objectives; occur within the species' documented range as documented by the USDA PLANTS database; and be adapted to climate conditions, soils, landform or position (e.g., aspect), and recommended seed transfer zones.

Species, cultivars, or varieties selected will provide adequate cover to control erosion by wind and/or water within an acceptable period of time.

Preplanting treatments to control invasive plants in highly degraded areas is required for enduring management and restoration.

Seedbed preparation, planting methods, equipment, and planting schedules will be suitable to meet any special needs for obtaining an acceptable establishment of planted materials.

Recommended planting depths, hydrologic conditions, dates, seeding rates, and soil amendments needed for establishment; minimum seed quality standards; and management during the establishment period, such as weed control and deferment from grazing, will be followed to enhance establishment success.

Seeding rates will be calculated on a pure live seed (PLS) basis.

**Additional Criteria to Restore a Plant Community to a State Similar to Its Ecological Site Description Reference State or the Desired Plant Community**

Select a species or combination of species that will meet or move the site to the ecological site description reference state or the desired plant community.

**Additional Criteria to Improve Forages for Livestock**

Select a species or combination of species that will meet the desired nutritional requirements for the kind and class of livestock.

Select a species or combination of species that will meet the desired season of use or grazing period.

Species planted as mixtures will exhibit compatible palatability to avoid selective grazing.

**Additional Criteria for Improved Water Quality and Quantity**

Select a species or combination of species that will maintain a stable soil surface and increase infiltration.

Species that have high evapotranspiration rates will not be planted when watershed hydrology is the primary objective.

A mixture of functional groups inherent to the site's hydrologic zones will be planted when riparian area streambank stability and water temperature criteria are important.

**Additional Criteria for Improving Forage Browse or Cover for Wildlife**

Selection of planted species will meet dietary requirements for the intended wildlife species, including pollinators.

Species will be selected and planted in a designed manner that will meet the cover and life history requirements of the wildlife species of concern.

**Additional Criteria to Increase Carbon Sequestration**

For optimal carbon storage, select species that increase site biomass.

Select deep-rooted perennial species adapted to the ecological site when conservation goals include carbon sequestration.

Reduce the temporal frequency of carbon releases caused by nonhistorical repetition of wildfires on degraded sites by selecting less flammable perennial plants appropriate for the site.

**CONSIDERATIONS**

Prioritize the use of plant species native to the region, adapted to the ecological site and local conditions, and resilient to the effects of climatic fluctuations.

Planting materials selected should contribute to wildlife and aesthetics when opportunities exist.

Use of certified planting materials and seed should be encouraged; however, distance and source limitations on seed and planting stock should be considered.

Any special handling requirements for planting materials should be followed for best results (e.g., beards or awns on seed, hard seed coats, legume inoculant, seed mixture ratios).

Where air quality concerns exist, site preparation techniques that minimize airborne particulate matter generation and transport should be used.

Multiyear planting strategies may be required for plant functional group establishment to mitigate weed and climate risks.

## **PLANS AND SPECIFICATIONS**

For standard plantings, appropriate forms, worksheets, etc., may be used to develop specifications and documentation. Where plantings require more detailed information or require the use of other conservation practices prior to planting, this information will be included in a specific site specification.

## **OPERATION AND MAINTENANCE**

For operation, identify any required items needed to assist in stand establishment, such as mowing, prescribed burning, flash or target grazing, or herbicides to control weeds and invasive plants. Address insect and disease control needs where they are likely to create establishment problems. Focusing on the ecological mechanisms and processes that influence succession is central to successful stand establishment.

For maintenance, the cooperators have an understanding of the management required to maintain the resulting plant community. Any necessary replanting due to drought, insects, or other uncontrollable event that prevented adequate stand establishment should be addressed. Recommendations may vary from complete reestablishment to overseeding or spot replanting. Thin stands may only need additional grazing deferment during the growing season.

## **REFERENCES**

Hardegree, S.P., T. Jones, B. Roundy, N. Shawd, and T. Monaco. 2016. Assessment of Range Planting as a Conservation Practice. *Rangeland Ecology and Management* 69: 237–247.

Jones, T.A. 2005. Genetic Principles for the Use of Native Seeds: Just the FAQs, Please, Just the FAQs. *Native Plants Journal* 6: 14-18, 20-24.

Mangold, J.M., C.L. Poulsen, and M.F. Carpinelli. 2007. Revegetating Russian Knapweed (*Acroptilon repens*) Infestations Using Morphologically Diverse Species and Seedbed Preparation. *Rangeland Ecology and Management* 60: 378-385.

Sheley, R.L., J.M. Mangold, and J.J. Anderson. 2006. Potential for Successional Theory to Guide Restoration of Invasive Plant Dominated Rangeland. *Ecological Monographs*. 76: 365-379.

USDA NRCS. n.d. "PLANTS Database." Accessed September 2, 2021. <https://plants.usda.gov/>

USDA NRCS. n.d. Plant Materials Program. "Technical Publications." Accessed September 2, 2021. <https://www.nrcs.usda.gov/wps/portal/nrcs/main/plantmaterials/technical/publications/>

USDA NRCS, USDA ARS, and New Mexico State University. n.d. "EDIT: Ecosystem Dynamics Interpretive Tool." Accessed September 2, 2021. <https://edit.jornada.nmsu.edu/>