

DESIGN, INSTALLATION & DOCUMENTATION GUIDE

Restoration and Management of Declining Habitats – 643

This document provides conservation planners with the parameters, procedures, and requirements for developing site-specific plans for Restoration and Management of Declining Habitats. Where appropriate, specific references are noted to provide more detailed information.

Restoration and Management of Declining Habitats is applicable to tallgrass prairie east of the Missouri River, mixed grass prairie state wide, riparian forests state wide, aspen parkland in Bottineau, Rolette, Cavalier, McHenry, Pembina, Walsh and Dunn counties and sagebrush/grassland habitats in Bowman and Slope counties. This practice is to be applied only on landscapes which once supported or currently supports the habitat type to be restored or managed.

Tall and Mixed Grass Prairie

Restoration of Tallgrass Prairie: Applicable to ecological sites where historical climax plant community was or is tallgrass prairie. If area needs to be seeded, a minimum of 15 native species will be planted. The mix must include a minimum of five native grasses and five native forbs, legumes or shrubs adapted for the site. Cool season grasses can not exceed 40% of the mix by pure lives seed (pls) basis except for saline lowland, claypan, thin claypan or closed depression sites. Forbs, legumes or shrub species shall consist of 15% to 25% of the mix by pls. Forb, legume or shrub species shall not exceed 4% pls/each species except for stiff sunflower, western yarrow and black-eyed susan shall not exceed 2% pls./each species.

The planting will be done in accordance with Herbaceous Vegetation Establishment Guide, found in ND-FOTG, Section I – Reference Subject – Plant Materials Subsection.

Restoration of Mixed grass Prairie: Applicable to ecological sites where historical climax plant community was or is mixed grass prairie. If area needs to be seeded, a minimum of 15 native species will be planted. The mix must include a minimum of five native grasses and five native forbs, legumes or shrubs species adapted for the site. Cool season grasses can not exceed 40% of the mix by pure lives seed (pls) basis except for saline lowland, claypan, thin claypan or closed depression sites. Forbs, legumes or shrub species shall consist of 15% to 25% of the mix by pls. Forb, legume or shrub species shall not exceed 4% pls/each species except for stiff sunflower, western yarrow and black-eyed susan shall not exceed 2% pls/each species.

The planting will be done in accordance with Herbaceous Vegetation Establishment Guide, found in ND-FOTG, Section I – Reference Subject – Plant Materials Subsection.

Management of Tallgrass and Mixed Grass Prairie: Management needs to accomplish two goals:

- removal of standing residual vegetative cover
- removal of built-up litter

Mowing: Where possible, manage no more than 20% - 25% of the stand in any given year in 4 - 5 year increments to maintain adequate nesting cover on the balance of the field. Rotate

mowed areas across the field. Mowing will include removal of vegetation and litter in order to provide sunlight to the soil surface. Use of a rake is recommended to remove litter as close to the soil surface as possible. Mow prior to September 1, to allow for regrowth prior to first frost. Avoid mowing during the primary nesting season April 15 through August 1. However, mowing may be conducted during the primary nesting season if needed to manipulate targeted species.

Prescribed Grazing: Domestic livestock may be used to manipulate plant succession, and to reduce residual cover and litter depth. Prescribed grazing can maintain or improve the quality of herbaceous cover habitat and control excessive brush if properly planned. Duration, animal density, intensity, frequency, and season of grazing should be considered when developing the prescribed grazing plan. Refer to practice standard - Prescribed Grazing (528).

Consider the following when using prescribed grazing to manipulate herbaceous cover:

- Duration: In general, shorter grazing periods are preferred.
- Animal density: Animal density should not be less than 10 animals/ac.
- Intensity: Animal daily intake requirements must be met.
- Frequency: Frequency should not exceed once during the growing season in 4 - 5 year increments. More frequent grazing may be necessary depending upon target species.
- Season of use: Dependent upon targeted species. To negatively impact on Kentucky bluegrass, early spring grazing is required.

Prescribed Burning: Excess litter can be removed with prescribed burning. Prescribed burning can stimulate germination of seed-bearing annuals, increase plant species diversity, and control unwanted or excessive species.

- Frequency of burning should generally not exceed once every 4-5 years.
- An entire field may be burned in one year. However, limit size of burn to 160 acres to provide areas with residual cover for grassland nesting birds.
- Fall burns and early spring burns tend to favor forbs. August burns tend to reduce brush.
- Late spring burns provide maximum stimulus to warm season plants and work well to suppress cool-season grasses provided the cool season grasses are in the boot stage.
- Prescribed burning shall only be done according to an approved burn plan prepared by qualified personnel. See practice standard Prescribed Burning (338) for more information including restrictions.
- Prescribed burns are to be conducted at a time effective to manipulate the targeted species. Avoid burning during the primary nesting season. However, prescribed burns may be conducted during the primary nesting season if needed to manipulate targeted species. Avoid burning after September 1, to allow for regrowth prior to first frost. Burning after September 1 may be needed to manage for warm-season native grasses.

Riparian Forests

Restoration of Riparian Forests: Applicable to all riparian forests associated with perennial streams. Woody species selection should be based on historic plant communities. Only native trees and shrub species may be planted. Design and installation will be based on conservation practice Riparian Forest Buffer – 391 and "Tree Care and Management", in FOTG - Section I – Reference Subjects – Windbreaks and Woodland subsection.

Species to be planted shall be based on the following riparian forest types:

Eastern River Flood Plain Forest of the Red River and tributaries including the Sheyenne River: Bur oak, hackberry, basswood, green ash, box elder, cottonwood, black ash, peachleaf willow, ironwood, juneberry, chokecherry, nannyberry, redosier dogwood, false indigo, sandbar willow, diamond willow, snowberry, woods rose hawthorn and silver buffaloberry.

James River Floodplain Forest: Box elder, green ash, peachleaf willow, oak, cottonwood, redosier dogwood, false indigo, nannyberry, chokecherry, woods rose, juneberry, sandbar willow, snowberry, hawthorn and silver buffaloberry.

Souris River Floodplain Forest: Box elder, green ash, cottonwood, peachleaf willow, nannyberry, chokecherry, redosier dogwood, false indigo, hawthorn, sandbar willow, juneberry and woods rose.

Western Floodplain Forest including Missouri River, Little Missouri and its tributaries: Cottonwood, green ash, box elder, Rocky Mountain juniper, peachleaf willow, chokecherry, redosier dogwood, false indigo, Missouri willow, sandbar willow, diamond willow, western snowberry, woods rose, hawthorn, American plum and silver buffaloberry.

Management of existing riparian forests: Management will be based on conservation practice Forest Stand Improvement (666)

Aspen Parkland

Restoration of Aspen Forests: Applicable to areas where aspen are naturally occurring. Historically this habitat in Bottineau, Rolette, Cavalier, McHenry, Pembina, Walsh and Dunn counties was dominated by forest species include quaking aspen, balsam poplar, paper birch, bur oak, green ash, beaked hazelnut, pin cherry, highbush cranberry, woods rose, willows, and red raspberry on the uplands with wetlands and tallgrass prairies as sub-dominates.

Restoration of aspen will be established by one or a combination of the following methods:

1. Natural regeneration – due to the suckering characteristics of aspen, sites with minimal disturbance may best be established through discontinuing the disturbance activity and allowing passive regeneration. Where natural regeneration is planned planting native tallgrass prairie species adjacent to the existing aspen may be necessary to reduce weed competition. Natural regeneration will spread from an adjacent existing aspen stand at a rate of 10 to 15 ft. per year. Native tallgrass prairie species planting will be based on the area targeted for natural regeneration or the rate of spread times the number years targeted for regeneration.

2. Planting – on sites where natural regeneration will not meet restoration objectives, planting will be necessary. Planting will be in clumps at a rate of 25 trees/clump with 175 - 200 trees (7 to 8 clumps) per acre. Plant aspen approximately 10 feet apart. Site preparation and planting will follow conservation practice standard Tree Planting – 612 and "Tree Care and Management", in Section I FOTG. Up to 10% of the planting may be made up juneberry, beaked hazelnut, pin cherry, highbush cranberry, woods rose, and willow species. Weed fabric will not be used with this planting technique. Over time aspen will spread by suckering from the clump. Soil disturbance (ripping or disking) adjacent to the clump after year 5 or 6 will help accelerate suckering.

The balance of the acreage will be planted to tallgrass prairie species adapted to the site. Wetlands will be restored using conservation practice Wetland Restoration – 657.

Management Criteria for Aspen Forest:

Mature aspen stands lacking early seral woody vegetation use mechanical forest management to create dense stands of saplings and shrubs. These plants supply food for ruffed grouse in the form of buds, catkins, hips, and berries, as well as cover. The ideal is shrub cover with a density of 2,800 to 9,700 stems per acre or deciduous tree sapling density with a density of 20,000 to 40,000 stems per acre (5 – 10 stems/meter²) the first year after treatment. Preferred canopy height is 22 to 32 feet. Intersperse these blocks throughout the forest management unit at a spacing of 440 to 480 feet to optimize ruffed grouse habitat. Follow topographic contours for block perimeters as much as possible. Forests undisturbed for 30+ year's decline in value for ruffed grouse as plant community succession progresses and age diversity is lost.

Mechanical forest management can be used on up to 1/4 of the acreage every 10 years to maintain a mosaic of age classes. On old (over 50 - 60 years) stands of aspen, clear-cut 1/3 to 1/2 of the acres in small blocks every 5 years to spread the harvest over as long a time as the age and condition of the forest will allow. If the stand is over 60 years old and in poor condition, use mechanical forest management on the entire tract leaving scattered blocks or strips uncut for wildlife cover. In these cases, ruffed grouse life requests will need to be met in adjacent forests. Use conservation practice 666 - Forest Stand Improvement to renovate existing aspen stands for ruffed grouse, moose, white-tailed deer, etc. habitat.

The most effective method of rejuvenating decadent aspen stands appears to be bulldozing (shearing) or logging old trees to stimulate regeneration and rejuvenate the aspen stand.

Bulldozing shall only be applied in accordance with NRCS buried utilities safety policies and NRCS cultural resource protection policy.

Consider time of year and moisture conditions when dozing or logging. Compaction problems may occur if completed on wet soils especially in early spring. Avoid late summer to allow resprouts to harden off prior to freeze up.

Sagebrush steppe in Bowman and Slope counties:

Applicable to MLRA 58. These plant communities are dominated by grasses such as western wheatgrass (*Pascopyrum smithii*), needle grasses, forbs and shrubs such as big sagebrush (*Artemisa tridentata*), silver sagebrush (*Artemisa cana*).

Revegetation of Sagebrush Steppe: Revegetation will be completed by planting clumps of seedlings. Plant 20 to 25 plants per clump, 100 – 125 plants/acre. Plant big sagebrush approximately 4 feet apart. Once established, seed from these plantings will disperse. Refer to "Tree Care and Management", in FOTG - Section I –Reference Subjects – Windbreaks and Woodland subsection for quality of planting stock to use, planting techniques etc.

Planting the balance of the area will be done in accordance with Herbaceous Vegetation Establishment Guide, FOTG, Section I – Reference Subject – Plant Materials for grass and forb species. To allow seedlings of big sagebrush to compete and potential seed dispersal and germination to occur, strongly sod-forming species should not be planted.

Select four grasses from the following species (seeding rates are based on 10% of the full seeding rate):

- Bluebunch wheatgrass - 0.8 PLS lbs/ac
- Basin wildrye - 0.8 PLS/ac
- Prairie junegrass - 0.1 PLS lbs/ac
- Green needlegrass - 0.6 PLS lbs/ac
- Sideoats grama -0.6 PLS lbs/ac
- Slender wheatgrass - 0.5 PLS lbs/ac
- Blue grama - 0.2 PLS lbs/ac

Select a minimum of six native forbs, shrubs, or legumes from the following species (seeding rates are based on 10% of the full seeding rate):

- Lewis flax - 0.38 PLS lbs/ac
- Cudweed sage - .03 PLS lbs/ac
- Prairie coneflower – .15 PLS lbs/ac
- Purple prairie clover - 0.38 PLS lbs/ac
- Black-eyed susan – 0.08 PLS lbs/ac
- Winter fat – 0.7 PLS lbs/ac
- Lead plant – 0.54 PLS lbs/ac
- Four-winged saltbush – 0.7 PLS lbs/ac
- Prairie rose - .24 PLS lbs/ac

Space between the bunch grass and forbs will allow for germination sites for big sagebrush dispersal and subsequent establishment. Forbs will attract insects as a food source for young sage grouse.

Management of Sagebrush Steppe:

Management of existing sagebrush steppe will be completed according to conservation practice standard - Prescribed Grazing (528).

DOCUMENTATION

Record the purpose(s) for applying the practice and the goals.

Document vegetation establishment components of this practice according to ND_NRCS procedures for the applicable conservation practice standard(s), i.e., Riparian Forest Buffer – 391, Riparian Herbaceous Cover – 390, Range Planting – 550, Wildlife Upland Habitat Management - 645, or other applicable conservation practice.

Document management components of this practice according to ND-NRCS procedures for the applicable conservation practice(s), i.e., Prescribed Burning - 338, Prescribed Grazing – 528, Use Exclusion – 472, Forest Stand Improvement – 666, or other applicable conservation practices.

Record any additional information needed to understand the design of the practice and successfully install it.