

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE SPECIFICATION
HEDGEROW PLANTING

(Ft.)

CODE 422

DEFINITION

Hedgerows are an establishment of dense vegetation in a linear design consisting of shrubs, low growing trees, woody herbs, or tall bunchgrasses. Planted for the purpose of providing:

- wildlife, pollinator or beneficial insect habitat,
- interception of airborne particulate matter, chemical drift and/or odor movement,
- a barrier for visual or noise (screen), a living fence, or to serve as a boundary delineation.

Hedgerow or Windbreak/Shelterbelt

Hedgerows differ from shelterbelts or windbreaks primarily in their purpose. NRCS practice Windbreak/Shelterbelts Establishment (Code 380) is used for the purpose of controlling wind, noise, and visual resources. Although these purposes may overlap (i.e. noise/visual), hedgerows provide a lower plant height (avg. 3-12 ft. tall) and offers the ability to plant herbaceous vegetation.

Hedgerow or Filter Strip

Hedgerows differ from filter strips in their purpose. NRCS practice Filter Strip (Code 380) is an herbaceous planting situated below cropland, grazing land, or disturbed lands for the purpose of intercepting particulate organic matter or dissolved contaminants that may leave these areas and enter environmentally sensitive areas. Although hedgerows also provide herbaceous plantings, the purposes are different and different species would be selected (e.g. tall, bunchgrasses are used to intercept airborne particulates verses a filter strip that provides low stature plants to intercept surface run-off particulates).

RESOURCE MANAGEMENT SYSTEM

This practice is commonly applied concurrently with other NRCS practices as part of a resource management system. The associated practices vary depending upon the purpose(s) of the hedgerow.



A semi-mature planting at the field edge; adjacent to a riparian corridor and stream, for the purpose of intercepting chemical drift.

PURPOSE

Wildlife, Pollinator or Beneficial Insect Habitat

In fragmented landscapes, such as agricultural and urban lands, hedgerows can provide valuable "wildlife corridors" (safe passageways) for wildlife to travel between non-fragmented habitats. In addition, they can be designed to provide food and cover for wildlife species that don't require large habitat areas (such as small mammals, birds, pollinators and beneficial insects).

Hedgerows can be designed to target a specific wildlife species (i.e. quail), a group of species (i.e. pollinators) or it can be broadly designed for wildlife. Define the specific purpose(s) early in the planning process to ensure the appropriate habitat elements are met for the targeted species.

If targeting a specific wildlife species, use the guidelines found in the [NRCS Wildlife Habitat Evaluation Guides \(WHEGS\)](#) located in FOTG Section II. If a WHEG is not provided for the targeted species, contact your local or state biologist for guidance. If targeting pollinators, use the guidelines found in the [Pollinator Habitat Assessment Guide](#) located in FOTG Section II. If

targeting beneficial insects, use the [NM Biology Technical Note No. 59 - Habitat Development for Beneficial Insects](#) located in FOTG Section I.

Interception of Airborne Particulate Matter, Chemical Drift or Odor Movement

Properly designed hedgerows can dramatically reduce wind speed, thereby improving crop performance; as wind can disturb crop pollination, damage fruit and flowers, cause lodging, and result in wind stressed plants putting their energy into growing stronger roots and stems resulting in smaller and later yields. Reduced wind speed also lessens airborne particulate matter (such as dust) and odors. Dense, mixed-plant hedgerows also help improve air quality by absorbing carbon dioxide.

Visual or Noise Barrier (screen), Living Fence or Boundary Delineation

Dense, mature hedgerows can provide privacy screens or noise barriers along roadsides, between buildings and between properties. Another common use is to conceal non-aesthetically pleasing areas such as farm debris. Hedgerows can also serve as fencing.

For all purposes, there are additional practice criteria, refer to the NRCS practice standard.

PLANNING A HEDGEROW

Site Selection and Evaluation.

Identify the non-cropped areas that would be suitable for the intended purpose of the hedgerow. The most common sites are along agricultural fields or along a property border, ditch, fence or road. Consider any potential land use conflicts, such as ditch or road right-of-ways where vegetation may be cleared by a third-party. Other major factors limiting site selection could be topographical (steep slope), hydrological (limited precipitation or ground water)^{1]}, soil type or condition and adjacent land uses. Ensure the site is far enough away or otherwise protected from chemical overspray. Consider access to the site for maintenance. When suitable non-cropped sites are identified, ensure it will still meet the intended purpose.

In some cases it may be necessary to convert cropland to hedgerow; if there is not adequate space to establish a hedgerow, or the purpose of the hedgerow would not otherwise function.

^{1]} In the arid west, the hydrology (water resources) is often the primary limiting factor. Where possible, select sites where the micro-climate provides rainfall collection (in a depression) or where the groundwater is closest to the surface. Consider utilizing secondary irrigation water; a hedgerow placed at the field edge can be designed to receive overspray from a pivot sprinkler system, or subsurface water from an adjacent flooded field. Also consider a hedgerow offset along an open ditch (to receive ditch seep) or set along farm or ditch roads (to receive road runoff).

Other Considerations

Species Composition. Plants selected must be suited and adapted to site conditions, climate, and conservation purpose.

- Native species and/or local ecotypes will be used wherever possible. Refer to the site's Ecological Site Description (ESD), soils, aspect and climate to assist in selecting the most appropriate species.

Size & Diversity. Wider, longer and more diverse hedgerows with a tiered vegetative structure will promote a healthier, more functional hedgerow.

Buffer Zone. Provide a buffer between the hedgerow and the adjoining land use. Plants have roots within the topsoil and equipment compaction or tilling close to the hedge can damage roots and weaken or kill parts of the hedgerow. A vegetative buffer at least 3 feet wide should be maintained on both sides of the hedgerow. A six foot buffer is recommended. If possible, the buffer should not be disturbed more than once every three years.

Avoid Fragmenting Existing Wildlife Habitat. In grassland ecosystems, tall structures such as hedgerows can adversely affect grassland dependant nesting birds; by fragmenting habitat and increasing the risk of predation. In these cases, if a hedgerow must be planned only use herbaceous plantings.

Land Contours. When possible, design the hedgerow to follow land contours or create meandering lines on the landscape to produce a more natural appearance.

ESTABLISHMENT

Woody Hedgerow Plantings

For the establishment of a woody hedgerow planting, use NRCS practice Tree/Shrub Establishment (Code 612) and Tree/Shrub Site

Preparation (Code 490); to provide specifications and guidelines for tree and shrub plantings.

Herbaceous Hedgerow Plantings

For the establishment of herbaceous hedgerow plantings (stiff-stemmed bunchgrasses or small woody shrub/herb), use NRCS practice Range Planting (Code 550) or Forage and Biomass Planting (Code 512); to provide specification and guidelines for grass plantings.

In erodible areas or in areas which are otherwise difficult to establish plantings, consider using NRCS practice Critical Area Planting (342).

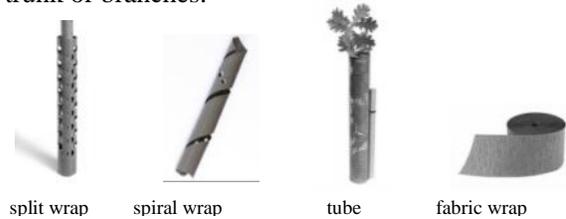
PROTECTION

Use Exclusion. Newly planted hedgerows are vulnerable to damage, especially from trampling or browsing and grazing on the tender new growth. For the first three years after planting, or until the plants have matured, it is required to protect the plantings from livestock access.

Plant Guards. It is recommended to install plant guards to protect from wildlife and other damages such as solar heat and wind. A variety of plant guards are available commercially or they can be easily and inexpensively made. The type of guard largely depends upon the type of damage anticipated. Typically hedgerow damage is from solar heat and wildlife browse from rabbits, rodents, deer and elk.

Small guards (usually 10-12" tall), often used to protect the plant from small mammals and solar heat, are used only during the first couple of years until the bark hardens or the herbaceous plant matures. They should then be removed, unless they're solar biodegradable or otherwise designed to remain on the tree. If not removed, small guards may cause damage by constriction, or prevention of air circulating which makes the plant susceptible to infection or disease. Also, correct installation of small guards is critical to ensure effectiveness and plant health. Refer to the manufacturer's recommendations or arborist recommendations. In general, guards should allow proper air ventilation and be light in color to reflect the sun's heat. They should also be installed about 2 inches below-ground if mice or voles are an issue. Typical types of small guards include: plastic mesh tubes, plastic spiral strips, paper or burlap wraps, and hardware cloth wraps.

Inspect your tree guards at least annually to ensure that they are functional and not restricting the plants growth. Adjust any guards that constrict the trunk or branches.



Larger guards are used primarily to prevent deer or elk browsing on the leading shoots of trees or shrubs until the plant is tall enough to be out of reach, or mature enough to recover from browsing. In most hedgerow settings, it is either not economical or feasible to install large tree guards on each tree. Consider an exclusion fence. Also, where heavy browse is anticipated consider selecting browse tolerant species. Refer to the USDA Plants Database.

For more information, refer to the NRCS practice Tree/Shrub Establishment (Code 612).

Competing Vegetation. Competing vegetation must be controlled until the hedgerow becomes established and may need to be continued beyond the establishment period, if necessary. Competing vegetation is defined as any vegetation that interferes with the establishment of the planted species or of desired regeneration. Common control methods include preventative measures such as ground fabric or mulch. However, if using ground fabric consider selecting biodegradable fabric and stakes. Other methods may include mechanical or hand treatments. If using chemical control methods, follow the guidelines provided in NRCS practice Herbaceous Weed Control (Code 315) or Brush Management (Code 314).

HEDGEROW RENOVATION

Hedgerows that are declining in vigor may need renovation to ensure they function as intended. For herbaceous hedgerows this may include mowing or cutting, or replanting. For woody hedgerows this may include pruning, planting gaps or replacement with new plants. In some cases, renovation may be necessary if a plant pest or disease is causing damage to the hedgerow or surrounding plants.

Renovation Criteria

1. Identify the species targeted for renovation.
2. If planting new species, revise the original conservation plan and map, and complete a new job sheet. Follow all planting guidelines as provided for new plantings.
2. Renovations which could potentially disturb nesting, fawning or pollination must be completed outside of those critical periods. Contact your local or state biologist for guidance on specific conditions or time periods to avoid.
3. When removing dead or dying shrubs/trees, strategically leave some woody debris and cavity providing trees to enhance wildlife habitat.
4. Use this opportunity to control invasive species.
5. Limit extensive renovation events to one-third of a hedgerow's length or width, per year, to prevent sudden elimination of the practice's function.

Pruning. A hedgerow may require renovation by pruning to keep it dense, to encourage new growth, or to promote more flowering or fruiting. Use NRCS practice Tree/Shrub Pruning (Code 660) to provide specifications and guidelines.

Planting Gaps. Over time hedgerows may develop gaps for various reasons such as age, damage or lack of regeneration. Those gaps may need to be planted with new plants in order to maintain the purpose and function of the hedgerow. This also provides an opportunity to increase the plant diversity by adding new species. Follow the same guidelines as provided for a new planting. In addition, initially the surrounding hedge may need to be cut back to ensure the new plants receive sufficient light.

Consult your local New Mexico State Forestry (NMSF) district office for information on species selection, tree and shrub health, insect and diseases. NMSF resources and contact information can be found online at:

<http://www.emnrd.state.nm.us/SFD/>

REFERENCES

Shepherd, M. D., S. L. Buchmann, M. Vaughan, S. H. Black. 2003. [Pollinator Conservation Handbook: A Guide to Understanding, Protecting, and Providing Habitat for Native Pollinator Insects](#), 145 pp. Portland: The Xerces Society

USDA. 2003. [National Biology Handbook](#), Part 613, "Conservation Corridor Planning at the Landscape Level". Natural Resources Conservation Service.

USDA. 2004. [National Forestry Handbook](#), Part 636.4 "Planning Considerations". Natural Resources Conservation Service.

USDA. Plants Database. [www://plants.usda.gov](http://plants.usda.gov)

RECOMMENDED PLANT SPECIES FOR ESTABLISHING A HEDGEROW

Common Name / Scientific Name		Native Status	Mature Height
Shrubs/Trees or Woody Herbs with Mature Height > 3 feet tall			
American black currant	<i>Ribes americanum</i>	native	3-6 ft.
American plum	<i>Prunus americana</i>	native	3-24 ft.
antelope bitterbrush	<i>Purshia tridentata</i>	native	2-6 ft.
Apache plume	<i>Fallugia paradoxa</i>	native	6 ft.
black chokecherry	<i>Prunus virginiana</i> L. var. <i>melanocarpa</i>	native	12 ft.
brittlebush/ incienso	<i>Encelia farinosa</i>	native	5 ft.
cerro hawthorn	<i>Crataegus erythropoda</i>	native	12 ft.
common snowberry	<i>Symphoricarpos albus</i>	native	3 ft.
desert false indigo	<i>Amorpha fruticosa</i>	native	3-10 ft.
desert princesplume	<i>Stanleya pinnata</i>	native	3-6 ft.
desert willow	<i>Chilopsis linearis</i>	native	15ft.
eastern redbud	<i>Cercis canadensis</i>	native	25-30 ft.
fireberry hawthorn	<i>Crataegus chrysoarpa</i>	native	3-20 ft.
fourwing saltbush	<i>Atriplex canescens</i>	native	4-8 ft.
golden currant	<i>Ribes aureum</i>	native	3-10 ft.
gray alder	<i>Alnus incana</i>	native	15-25 ft.
Illinois bundleflower	<i>Desmanthus illinoensis</i>	native	3 ft.
Mexican redbud	<i>Cercis canadensis</i> var. <i>mexicana</i>	native	5-12 ft.
mountain snowberry	<i>Symphoricarpos oreophilus</i>	native	5 ft.
mule-fat	<i>Baccharis salicifolia</i>	native	10 ft.
netleaf hackberry	<i>Celtis laevigata</i> var. <i>reticulata</i>	native	8-20 ft.
New Mexico olive	<i>Forestiera pubescens</i>	native	12-15 ft.
NM black elderberry	<i>Sambucus nigra</i> L. ssp. <i>canadensis</i>	native	7 ft.
red elderberry	<i>Sambucus racemosa</i> var. <i>racemosa</i>	native	18 ft.
redosier dogwood	<i>Cornus sericea</i>	native	4-10 ft.
russet buffaloberry	<i>Shepherdia canadensis</i>	native	6 ft.
shadscale saltbush	<i>Atriplex confertifolia</i>	native	3 ft.
shrubby cinquefoil	<i>Dasiphora fruticosa</i> ssp. <i>floribunda</i>	native	3 ft.
silver buffaloberry	<i>Shepherdia argentea</i>	native	3-18 ft.
silver sagebrush	<i>Artemisia cana</i>	native	5 ft.
skunkbush sumac	<i>Rhus trilobata</i>	native	3-8 ft.
smooth sumac	<i>Rhus glabra</i>	native	3-10 ft.
Torrey wolfberry	<i>Lycium torreyi</i>	native	10 ft.
Utah serviceberry	<i>Amelanchier utahensis</i>	native	6-13 ft.
wax currant	<i>Ribes cereum</i>	native	3 ft.
western chokecherry	<i>Prunus virginiana</i> L. var. <i>demissa</i>	native	3-20 ft.
western snowberry	<i>Symphoricarpos occidentalis</i>	native	3 ft.
western soapberry	<i>Sapindus saponaria</i> var. <i>drummondii</i>	native	20 ft.
winterfat	<i>Krascheninnikovia lanata</i>	native	2-3 ft.
woods' rose	<i>Rosa woodsii</i>	native	3-6 ft.
Stiff-Stemmed, Long-Lived Perennial Bunchgrass with Mature Height > 3 feet tall			
altai wildrye	<i>Leymus angustus</i>	introduced	3 ft.
basin wildrye	<i>Leymus cinereus</i>	native	5 ft.
beardless wheatgrass	<i>Pseudoroegneria spicata</i>	native	4 ft.
big bluestem	<i>Andropogon gerardii</i>	native	6 ft.
big sacaton	<i>Sporobolus wrightii</i>	native	5.5 ft.
blue wildrye	<i>Elymus glaucus</i>	native	3-5 ft.
bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	native	3 ft.
bushy bluestem	<i>Andropogon glomeratus</i>	native	6 ft.
deergass	<i>Muhlenbergia rigens</i>	native	4.5 ft.
Indiangrass	<i>Sorghastrum nutans</i>	native	6 ft.
Russian wildrye	<i>Psathyrostachys juncea</i>	introduced	3 ft.
sand bluestem	<i>Andropogon hallii</i>	native	6 ft.
sand dropseed	<i>Sporobolus cryptandrus</i>	native	3 ft.
tall wheatgrass	<i>Thinopyrum ponticum</i>	introduced	5 ft.

*These are recommendations, not a comprehensive listing.

Conservation practice specifications are reviewed periodically and updated if needed. To obtain the current version of this specification, contact the New Mexico Natural Resources Conservation Service [State Office](#) or visit the [NM Field Office Technical Guide](#) (FOTG).

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