

Part 645 – National Range and Pasture Handbook

Subpart I – Wildlife Management on Grazing Lands

645.0901 General

A. Wildlife occurrence and populations (numbers) are generally dependent on land use patterns in the region. Wildlife, in the broadest sense, represents all fauna, with the exception of domesticated or caged animals. Many State agencies subdivide the responsibilities of the State fauna between

- (1) birds and mammals as wildlife
- (2) cold-blooded aquatic species as fish
- (3) invertebrates as insects

B. NRCS implements an inclusive concept of the term “wildlife,” which includes aquatic fauna (fish and aquatic invertebrates) as wildlife. The wildlife habitat potential on grazing lands is dependent on the site potential, the adjacent land use and condition, and the habitat condition on the grazing operation. Willing landowners can strategically manipulate the vegetative communities with equipment, herbicides, or grazing intensity to improve the quality of the wildlife habitat. It is worth noting that those same tools (equipment, herbicides, and grazing) can result in degradation of habitat. For example, mowing too often or at the wrong time of year benefits non-native grass species that are common to the United States: smooth brome, old-world bluestems, cheat grass, Bahia grass, Bermuda grass, and fescue. If wildlife habitat is identified as a resource concern, the conservation planner uses information from the resource inventory, coupled with understanding of the client objectives, to identify opportunities for habitat improvement. These opportunities are presented to the land managers as alternatives.

C. The discipline of wildlife management involves population management (hunting or take restrictions, stocking, etc.), habitat management, and people management. The management of wildlife is the responsibility of the State Game and Fish agency (or similar entity), the U.S. Fish and Wildlife Service, or the National Marine Fisheries Service. The NRCS role is limited to providing technical assistance with the assessment and management of habitat. On most grazing lands, the operation relies on revenue from the sale of livestock, and profitability is a consideration of any decision. However, particularly on native grasslands, the management techniques for sustainability of forage production are also beneficial to those wildlife species that evolved on native grassland habitats. Conservation planning on grazing lands might include implementation of conservation practice standards directly for wildlife (e.g., Wildlife Habitat Planting; Code 420), or the conservation planner addresses wildlife concerns by presenting alternatives that will minimize the impacts of the installation of non-wildlife conservation practices. That assistance may or may not include a specific wildlife habitat management plan, as part of the overall conservation plan. Regardless, any wildlife habitat management planned and applied is the ultimate decision of the land manager in keeping with his or her overall objectives related to their grazing operation.

D. When it is the desire of the manager of grazing lands to improve existing wildlife habitat, a wildlife habitat management plan or actions are included as components of the conservation plan and should be developed and implemented in association with the client’s grazing strategy. Wildlife habitat potential varies widely on different types of grazing lands. On grasslands supporting primarily native grasses and forbs, and on grazed forest (i.e., silvo-pasture), the plant community can often, but not always, be more easily managed to allow for moderate and high-quality habitat. However, many of these native grasslands have been invaded by noxious or invasive species, such as smooth brome, cheatgrass, and old-world bluestems. Erosion, soil compaction, or overuse may

also result in a monoculture of native plants, drastically limiting both the value and the potential to produce quality wildlife habitat.

E. The implementation of wildlife habitat management plans on pasture is also made more difficult. As with other intensively managed land uses, the target condition often includes implementing “best management practices” to mitigate the impacts of pasture management to resident wildlife, along with establishing some set-aside habitat of higher quality. Most NRCS State offices have developed documents that provide wildlife “BMPs” for pasture and hayland. By policy (National Biology Manual), if wildlife is identified as a resource concern, the mitigation measures on pasture (e.g., delayed mowing, mowing patterns, and deferment) are those needed to meet the minimum score of 50 percent on the State approved wildlife habitat evaluation guide (WHEG). Assistance in the application of a State NRCS WHEG is available from NRCS area or State biologists. In some States, partner biologists are available to provide support to the conservation planner and client to meet their objective to create, maintain, limit impacts, or improve wildlife habitat.

F. Assessment and planning of wildlife habitat are unique to most other planning considerations because wildlife are free ranging, by definition, typically acquiring significant life needs on adjacent lands, not under the control of the client. This may include lands in adjacent States and countries for migratory wildlife species. Thus, a single farm or ranch very rarely provides all of the life needs of a local wildlife population. Additionally, wildlife habitat is commonly of secondary concern on grazing lands, adding complexity to the planning process.

G. When wildlife habitat management has been identified by the client as an objective, herbivorous wildlife species may need to be considered because they can affect forage resources available for livestock management. Wildlife species and domestic livestock are selective consumers, with diets depending on morphological and physiological adaptations of the species. Diet composition for wildlife varies by season and location in response to the variability of the quantity and quality of food sources available.

H. Some species of wildlife have become so greatly reduced in number or extent and are threatened with extinction. When threatened and endangered (T&E) species are of concern, NRCS shall follow agency policies to assure that the NRCS technical or financial assistance meets the mandates of the law.

645.0902 Technical Assistance to Landowners and Managers

A. NRCS policy and procedures for assisting land managers, local units of government, and others in planning and applying wildlife habitat management on private and other non-Federal land are in the National Biology Manual.

B. Technical assistance is provided according to the provisions in the National Planning Procedures Handbook (NPPH) and the nine-step planning process. The NPPH aids NRCS planners in providing alternatives and assistance during the conservation planning process to address all resources recognized by NRCS, including wildlife, on all land units. Procedures for providing wildlife management assistance are described in the following sections.

(1) Determine objectives

- (i) Each farm and ranch operation is different, and seldom are the long-range plans and objectives of different landowners the same. A good understanding of the livestock, wildlife, economics, and management aspects of the ranch or farm is the foundation to effective decision making. The planner needs to ask the landowner or manager which wildlife species or guild they want to target with their management efforts. The planner should also determine if their interest is to apply a more holistic approach to wildlife

habitat, where the target is not a particular species of wildlife but rather to create vegetative conditions similar to the natural state (e.g., a rich and diverse native plant community infused with periodic disturbance patterns). Additionally, the intensity and extent of the management must be identified in the conservation planning process because the landowner may wish to manage the grazing lands with wildlife as a primary purpose, as a secondary purpose, or only as a consideration. The landowner's objectives should be clearly defined.

- (ii) The planner will want to discuss the present capability and potential opportunity for producing and sustaining wildlife populations on the farm or ranch. Some operations are too small or lack the habitat to fully maintain local wildlife populations on the farm or ranch. In these situations, inventorying opportunities to provide part of the life requirements of local wildlife populations and migrants might be part of the planning process. For most wildlife management inventories, presented alternatives, and plans, the consideration of habitats on adjacent lands is required. Neither livestock grazing nor wildlife production can be maximized without affecting the other, and tradeoffs are necessary to optimize either or both. Wildlife management on grazing lands is best accomplished by viewing the livestock as a tool to manage the habitat, and always with profitability of the operation as an essential decision-making component.
- (2) Inventory the wildlife habitat components
- (i) Terrestrial and Wetland Wildlife. The quantity, quality, availability, and distribution, both seasonally and spatially, of all habitat elements (food, cover, water, and space) determine the habitat quality for a given area of land. There are two general types of wildlife habitat assessments.
 - Some NRCS State Offices have approved a few single-species wildlife habitat evaluation guides (WHEGs) to assess habitat conditions (e.g., sage grouse, monarch butterfly). If well designed, these species-based WHEGs are designed to not only identify habitat limitations for the species, but also identify conservation practice standards available to treat the identified habitat limitations. When one or more of these factors are limiting for the target wildlife species, they should be identified, and the conservation plan tailored to remove the limiting factor(s).
 - The other type of WHEG is a general wildlife habitat assessment based on land use. These land use-based assessments identify the habitat quality for wildlife in general. The interest and intensity of any inventory depends on the current land use and landform. For example, travel corridors used by upland wildlife typically warrant more consideration than would a large cropland field. Riparian areas always warrant high consideration for wildlife because they serve as corridors and provide unique habitat, being the interface between terrestrial and aquatic systems. Like cropland, improved pastures typically do not require any on-site inventory.
 - (ii) Plant community information. If wildlife habitat management is identified as an objective of the land manager, the planner will:
 - Determine the habitat condition for rangeland, grazed forest, native or naturalized pasture, and “improved” pasture. When available, state-and-transition models associated with Ecological Site Descriptions can inform the planner about whether a particular management will move the plant community toward or away from the desired plant community.
 - Appraise the condition and potential for wildlife habitat, giving special attention to food, cover, water, and space, and to their location and season of availability, for the target species or guild.
 - Identify and quantify plant species of value to the target species.
 - Consider vegetative structure, as it relates to the habitat type and condition.

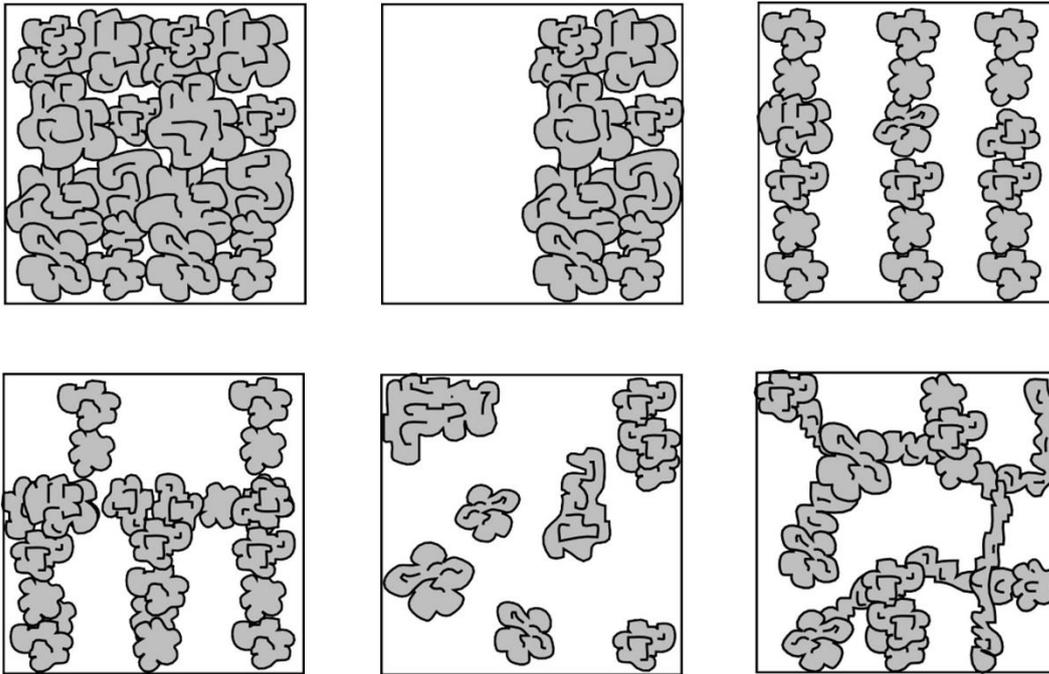
- Consider the objectives of the livestock operation and identify where competition for life needs of target species is occurring.
- Consider other spatial needs, such as interspersions of habitat types, and travel corridors between specific land use cover types and ecological sites. Each wildlife species or guild prefers different levels of species richness, abundance, and evenness. Some prefer edge (where two plant communities adjoin), while other wildlife species (interior species) prefer large blocks of similar habitat. Many species are particularly sensitive to the occurrence of woody plants. Others have very limited mobility (e.g., reptiles and amphibians), living their entire life in a very small habitat area. Because different species have vast variability in preferred habitat characteristics, the identification of the target species or guild is essential.

As an example, in semi-arid and arid systems, brush management (Code 315) is a common conservation practice standard implemented with wildlife as a consideration. Figure I-1 below provides six different brush management approaches. A specific brush management design will benefit some species and will be detrimental to others. None are better or worse for “wildlife,” as the term includes all species of fauna. Each species has a different preference for habitat, including the occurrence and interspersions of woody and grassland habitats. To this point, removal of all brush on a field or operation might be the preferred alternative for some species of wildlife (e.g., lesser prairie-chicken). If available, Ecological Site Descriptions can assist the conservation planner, if the objective is to promote habitat that resembles the historic reference conditions.

(iii) Animal information

- The interactions between species of wildlife and domestic livestock can present the land manager with a complexity of challenges and opportunities. For example, geese can impact grazing lands during winter along the Gulf Coast. Wintering elk and other big game can have similar impacts on some areas in the Rocky Mountain region.
 - Wildlife can also assist farmers and ranchers in reaching their goals. For example, in southern rice fields, winter flooding for waterfowl habitat can reduce red rice populations in a field.
 - The term “competition” is generally used to refer to any interaction that results in a negative outcome for one or more species. Competition for forage and habitat may occur between wild and domestic grazing animals. However, some grazing animals (wild or domestic) are more adaptable in their choice of forage and habitat than others.
- All wildlife species require food, cover, water, and space. To further the planning process, available information should be collected on the requirements of each target wildlife species and the forage utilization of livestock. Gaining as much of these details will provide the landowner with the proper technical assistance.
- Wildlife habitat elements need to be present in a pattern favorable to the target species within the livestock operation business model. Seasonal variations may occur.

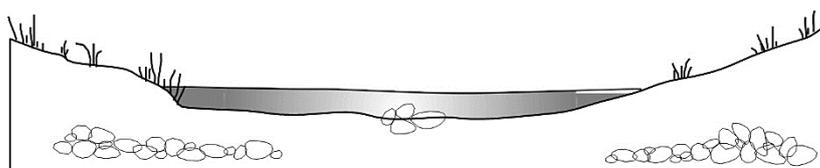
Figure I-1. Six alternative designs of brush management on grazing lands. Each design will impact wildlife species in different ways. Not provided below is removal of all brush in the planning unit, which might be the most advantageous design for some species.



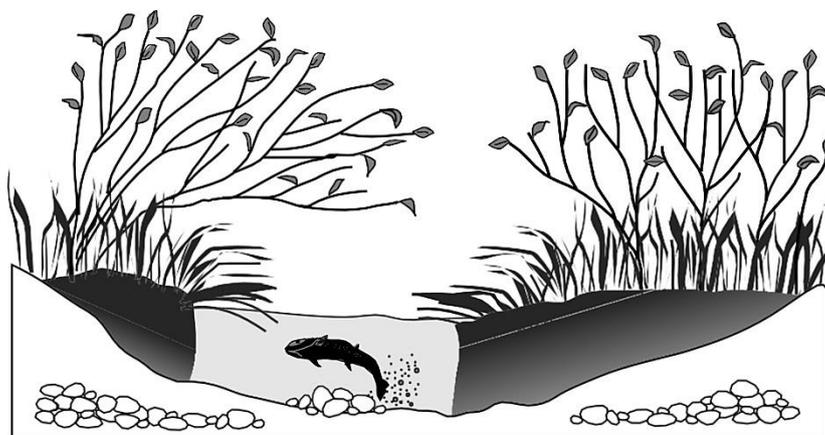
- Since wildlife species belong to the people of the State, the State wildlife department within each State has the responsibility of administering and managing the State’s fish and wildlife resources. If wildlife population management is identified as a concern by the land manager, they should be encouraged to contact federal, State, and local wildlife agency personnel to determine what course of action may be possible within their State.
 - NRCS responsibility is to present alternatives to improve habitat or mitigate impacts to local wildlife. The level and scope of habitat management on grazing lands, presented as alternatives to the client, are limited by the interests and abilities of the land manager to implement habitat improvement projects.
- (iv) Infrastructure
- Water is an essential element to all wildlife species. Some are more dependent on surface water than others. In general, adding artificial water for wildlife is not necessary and can actually lead to an increase in non-desirable plant and animal species distribution and abundance. For example, adding artificial water can increase the occurrence and populations of skunks and racoons into areas where they did not naturally occur (as both require surface water), thereby increasing predation of ground nesting birds adapted to nesting in large blocks of grassland habitat far from free water. When the land manager identifies a target species that relies on surface water, and their home range lacks such a source, then providing a water source may be warranted.
 - An inventory of livestock watering facilities can assist in the identification of the potential for wildlife death in some watering facilities, which can have a detrimental impact on the water quality of the livestock water.

- Some wildlife species are particularly sensitive to livestock fencing (e.g., pronghorn antelope). Inventory fences to identify types that are prone to snare, entangle, or limit movement of wildlife. Fencing can often be retrofitted using Conservation Practice Standard, Structures for Wildlife (Code 649), to safely accommodate wildlife movement.
- (v) Fish habitat.
- The management of a fish population is dependent upon the availability of water of sufficient depth, temperature, and quality, for the target fish species, coupled with adequate habitat structure. Proper planning and control of grazing are necessary to manage the fish habitat in streams and ponds adjacent to or contained within grazing lands. Management of grazing to assure water quality in receiving waters is necessary not only in the riparian area but also in the upland areas of the watershed. Detailed information is available in the NRCS National Biology Handbook.
 - Riparian areas (figure I-2) are extremely important habitat for fish in the receiving waters. Lack of proper management can severely degrade fish and wildlife habitat when the stream channel is altered through trampling and removal or destruction of streamside vegetation.

Figure I-2. An altered stream channel in an overused riparian area (a) in contrast to a stream channel in a well-managed riparian area (b).



(a)



(b)

- Streambanks with adequate undercuts, deeper water, and overhanging vegetation that shades the water and lowers the water temperature are desirable for many fish species. The fish population is severely depleted or eliminated where the streambank is altered and has fewer undercuts and less overhanging vegetation and where the water is shallow and has a high sediment load, lower oxygen levels, and a higher temperature. Most fish that live in streams and many that live in ponds depend on the riparian vegetation to:
 - stabilize the banks
 - keep sediment out of the channel

- supply food in the form of associated insects
 - provide shade to keep the stream from getting too hot
 - provide large woody debris to form pools and hiding cover
 - provide energy to the stream in the form of leaves and other plant material that falls into the stream
 - keep pollutants and nutrients out of the water
 - Grazing management can improve water quality in ponds and streams by reducing sediment yields from the drainage area and managing the desired vegetation around the shoreline. Excessive animal numbers can stir sediment, muddy the water by wading and drinking, and increase pollutant levels. Mismanaged grazing around the shoreline can remove valuable shade and cover vegetation for aquatic life.
 - A properly planned grazing system must account for the needs of the fish population and its habitat. The intensity, duration, and timing of grazing in the riparian areas, as well as in the entire watershed, should be planned and controlled to meet the objectives. The proper location of fences, mineral supplements, and water developments can be facilitating practices that enhance the manager's ability to implement a planned grazing system that is ecologically sound while maintaining desirable water quality.
- (3) Analyze the needs for improving, restoring, or maintaining wildlife habitat
- (i) The planner may use wildlife habitat evaluation guides, ecological site index and transition models, consultation with wildlife professionals, and other appropriate habitat evaluation procedures for the target wildlife species or guild. These tools can assist the NRCS planner and land manager in understanding which habitat elements are lacking.
 - (ii) Habitat patch size requirements for the target species is an important consideration when identifying conservation planning alternatives.
 - (ii) Grazing animals, both domestic and wild, select a wide variety of plants from the three major vegetation classifications: grass, forbs, and browse. The vegetation of an area is affected differently by different classes of livestock and different types of wildlife because of differences in foraging behavior.
 - (iii) The planner can use the technical information from (i) above to assist the landowner or manager in determining whether the area of interest is currently improving, being maintained, or deteriorating, and why. This determination normally includes an evaluation of current and past timing and utilization of plant species and evidence of satisfactory recovery periods to promote vigorous, healthy plant communities capable of sustaining wildlife.
 - (iv) The planner may also assist the landowner or manager to identify dietary overlap between major wildlife species and livestock. Dietary overlap may be found during critical seasons and may affect breeding, animal development, and survival for the wildlife species. It can also have detrimental impacts to the overall productivity of the livestock. The magnitude of the diet overlaps and the plant and animal species involved should be considered.
 - (v) As the kinds and amounts of vegetation decrease, competition increases. Competition for plants can also vary as physiological stages of the plants change.
 - (vi) Some livestock producers may be willing to sacrifice short-term livestock performance and profit to improve wildlife habitat. In these situations, livestock have the potential to serve as an effective tool to shift the plant community to a condition more suitable to the target wildlife species or guild.

(4) Develop and evaluate alternatives

Utilize the information acquired in the inventory to recommend alternatives to improve habitat, where needed. The planning process includes developing and evaluating alternatives to maintain, improve, or develop the desired wildlife populations and habitat. Alternatives are presented for habitat components that are determined to be limiting during the inventory process. This includes plant and animal resources as well as water resources. The grazing lands manager decides which alternative fits within their business operation goals. The NRCS planner will:

- Help the landowner or manager clarify the goals and objectives so that appropriate treatment alternatives are considered in the planning process.
- Provide information on the habitat needs and wildlife potential of the land.
Examples of such treatment are:
 - Manipulating kind and class of livestock, season of use, and intensity of use with a prescribed grazing system to provide required food and cover at critical times and locations for wildlife.
 - Planning systems for brush management, such as prescribed burning, to obtain a desirable combination of herbaceous and woody species.
 - Using seed mixtures that produce plants beneficial to wildlife.
- Help the landowner or manager select alternatives to meet their wildlife habitat objectives, while retaining profitability of the grazing lands operation.

(5) Provide follow-through assistance and evaluation

The planner will:

- Provide technical assistance to the landowner or manager in their installation of conservation practice standards.
- Assist the landowner or manager in checking habitat periodically to evaluate trend in habitat components. If appropriate, selection of habitat monitoring protocols can be shared with the client to assist them in determining when adaptive habitat management actions are needed (e.g., weed control, prescribed fire, rest or deferment).
- In follow-up assistance, particular attention should be given to priority areas identified in the planning process (e.g., riparian areas, hedgerows, stream crossings).