Upland Wildlife Habitat Management (ACRE)

Code 645

Montana Conservation Practice Specification

BACKGROUND

All land provides habitat for some wildlife species. Cropland, pastureland, woodland, and rangeland all produce and support wildlife to the extent of providing some or all of the basic habitat elements. Habitat value depends on the quality, quantity, and interspersion of food, water, cover, and living space. To provide complete habitat, all requirements for the target species must be found within its home range.

Planning alternatives for wildlife will be based on a habitat appraisal. The NRCS Wildlife Habitat Appraisal Guides will generally be used. These guides evaluate habitat for overall wildlife species diversity. When a habitat appraisal for a particular wildlife species is desired, the United States Department of Interior (USDI), Fish and Wildlife Service Habitat Evaluation Procedure (HEP), or other methods, may be used. Contact the state biologist for the appropriate model and training as needed.

NRCS planning assistance generally involves wildlife habitat appraisal and recommendations for habitat development and management. Request assistance for direct wildlife population management from local Montana Fish, Wildlife and Parks (FWP) biologists, or for migratory birds and Threatened or Endangered Species, USDI, Fish and Wildlife Service (FWS) biologists. NRCS can help landowners monitor population trends for some wildlife species. Contact the state biologist for population trend survey methods if the landowner is interested in more intensive management of these species.

NRCS wildlife habitat planning assistance will not adversely impact a federally listed Threatened, Endangered, or Candidate species or its habitat. This also applies to State Species of Special Concern.

It is important to remember that habitat manipulation for a given species may adversely affect other wildlife species.

All habitats will be planned and managed according to soil capabilities.

Evaluate each planning unit in the light of the larger landscape. Determine how management of the unit can benefit regional wildlife populations. It may not be beneficial to maximize habitat diversity on each planning unit. Ground-nesting birds, for example, often need minimum edge and larger blocks of uniform nest cover to escape predation. Consult with local FWP and/or FWS service biologists as appropriate.

This document provides minimum habitat requirements for a variety of Montana's wildlife species. To satisfactorily implement this practice, the habitat requirements for the planned kind(s) of wildlife must be available or created according to a planned management system.

NOTE: All underlined items throughout the document are required to meet the Field Office Technical Guide (FOTG), Section IV, Practice Standard and Specification for Upland Wildlife Habitat Management (Code 645).

BACKGROUND--CONTINUED

Upland Wildlife Habitat Management is a resource management system–not a single practice. In order to accomplish the goals of the resource management system, a variety of NRCS practices can be employed to maintain and enhance wildlife habitat.

Planning assistance may apply to two levels of wildlife habitat management. The first is for situations where wildlife production is the primary land use. The second applies to planning units where wildlife is a secondary crop.

HABITAT DEVELOPMENT–GENERAL SPECIFICATION AND PLANNING GUIDANCE

Each species of wildlife has a daily and seasonal home range. All of an animal's requirements for food, shelter, water, and living space must be found within this home range. Vegetative habitat components must be interspersed in a way to provide feeding areas near escape, nesting, and thermal cover.

The NRCS conservationist's primary wildlife management tool is the manipulation of vegetative habitat components. Use the information in this section as guidance in the evaluation of existing habitat and for planning to improve existing cover or to establish needed cover.

Grain and Seed Crops

These crops include, but are not limited to, corn, wheat, barley, oats, millet, sorghum, sunflowers, lentils and winter peas.

1. When planted specifically for wildlife, these crops can provide food as well as nesting, roosting, and winter cover.

    - Food plots will be at least one-half acre in size. Consult with NRCS biologists and/or partner agency biologists to determine the size and number of food plots required to assure that dependent wildlife do not deplete their food supply before spring.
    - Food plots will be no farther than one-quarter mile from winter cover - preferably within or immediately adjacent to winter cover.
    - Select food plot species that are lodge-resistant where snow accumulations are significant.
    - Suggested food plot species include: corn, forage and grain sorghum, sunflowers, and wheat. Barley, oats, and millet are also suitable where lodging is not a problem.

2. Where wildlife is a secondary land use, grain and seed crops can still provide food and cover for some species, particularly pheasants, if management of crop residue is adequate to minimize destruction of winter and nesting cover. Waste grain is essential to many wildlife species during fall and winter. To provide wildlife habitat on cropland:

    - Leave grain stubble standing using conservation tillage. Eliminate fall plowing of crop residue.
    - Plant winter wheat instead of spring grains when feasible.
    - Leave strips of un-harvested grain adjacent to winter cover.
    - Delay spring tillage of fallow fields as long as possible–substituting herbicides or the first spring tillage saves bird nests as well as soil moisture.
    - Establish tall wheatgrass barriers and/or field windbreaks.
    - Implement contour strip cropping.
    - Develop wildlife cover on odd areas between crop fields.
    - Leave at least 3.5 weeks between tillage passes to allow ground-nesting birds to raise a brood.

Introduced Grasses and Legumes

This group includes tame grasses and legumes such as orchardgrass, meadow bromegrass, intermediate and pubescent wheatgrass, alfalfa, white and red clover, birdsfoot trefoil, yellow sweetclover, and small burnet (a non-legume forb).

1. When planted and managed specifically for wildlife, tame species have the potential to produce large numbers of some ground-nesting birds.

   - Block plantings of at least 40 acres are necessary to minimize nest predation by red fox, skunks, badgers, raccoons, and other predators.
   - Use of rhizomatous alfalfa, i.e., Spreador II, is preferable to non-rhizomatous forms.
   - Plantings for wildlife will include mixtures of grasses and legumes/forbs that provide tall standing residue, at least 15 inches, in the fall. This cover will be maintained over winter to provide at least eight inches of standing nesting cover the following April. Methods for establishing tame grasses and legumes are found in the FOTG, Section IV, Practice Standard for Pasture and Hay Planting (Code 512).
   - Periodic management is necessary to maintain the quality of tame grass cover mixtures. Grazing, mowing, burning, or chiseling may be used as appropriate. Avoid these treatments during the primary nesting season (April 15–August 1).
   - Preferred plant materials for upland wildlife cover include:
     - **Grasses:** Tall, intermediate, and pubescent wheatgrass, meadow brome, and orchardgrass.

     NOTE: Crested wheatgrass, because of its competitive nature, will only be used in areas of less than ten inches mean annual precipitation.

     - **Legumes/Forbs:** Alfalfa, birdsfoot trefoil, sanfoin, red clover, small burnet.
     - Recommended Dense Nesting Cover Seed Mixture:

       Tall wheatgrass @ 3.5 lb. PLS/acre;
       Intermediate or Pubescent wheatgrass @ 2.5 lb. PLS/acre;
       Alfalfa @ 1 lb. PLS/acre;
       Yellow Sweetclover @ 0.5 lb. PLS/acre.

2. Management of tame pasture and hay land can include considerations for wildlife to achieve multiple uses. Following are suggestions for meeting wildlife habitat quality criteria on tame species seedings:

   - Critical area seedings, such as logging roads and landings, should include legumes or other forbs.
   - Delay haying on at least part of the fields until after the peak of the nesting season (after July 15).
   - Avoid cutting hay by mowing around the field. Instead, mow back and forth from one end of the field to the other or mow from the inside of the field to the outside. Consider using a flushing bar on swathers and mowers.
   - Leave un-harvested strips around field borders or establish permanent field borders.

Native Herbaceous Plants

Native plant materials are adapted to the local soils and climate and may persist longer than their non-native counterparts. Natives are often more difficult to establish from seed than introduced species, but generally require less maintenance over time.

1. Methods for establishing native herbaceous plants are found in the FOTG, Section IV, Practice Standard/Specification for Range Planting (Code 550).

2. Attempt to establish a diversity of species and life forms including bunchgrasses, sod-forming grasses, forbs, and where appropriate, shrubs.

3. Periodic management using fire or grazing may be necessary to maintain stand productivity and palatability for wildlife.

4. Grazing management is critical to maintaining wildlife cover and food values. Deer and elk may tend to avoid the pasture currently being grazed, but often make heavy use of fresh re-growth soon after the livestock are moved. A very effective system includes a full year of rest from grazing followed by a deferred grazing treatment, which effectively provides two growing seasons of rest.

5. Example native seed mixture alternatives for wildlife*:

   - Saline soils: Shoshone beardless wildrye @ 5.0 lb. PLS/acre.
   - Wet soils: Garrison creeping meadow foxtail @ 1.5 lb. PLS/acre; cicer milkvetch @ 3.5 lb. PLS/acre.
   - Medium- to fine-texture soils statewide: Basin wildrye @ 5.4 lb. PLS/acre and one of the following: small burnet @ 3.0 lb. PLS/acre, or alfalfa @ 0.5 lb. PLS/acre, or sanfoin @ 3.4 lb. PLS/acre.

     Another alternative is: Basin wildrye @ 3.6 lb. PLS/acre; western wheatgrass @ 1.8 lb. PLS/acre; Alfalfa @ 0.5 lb. PLS/acre (basin wildrye should be seeded in separate rows or cross-seeded).
   - MLRA's 53A, 54, 60B, eastern-half of 52 and eastern-half of 58A; coarse-textured or shallow soils: Bluebunch wheatgrass @ 2.1 lb. PLS/acre; Little bluestem @ 1.4 lb. PLS/acre; Slender wheatgrass @ 1.25 lb. PLS/acre; Alfalfa @ 0.5 lb. PLS/acre. Sideoats grama or big bluestem are also valuable, either as substitutes for little bluestem or as additions.
   - Run-in sites or coarse-textured soils in MLRA's 53A, 54, 60B, eastern-half of 52 and 58A: Switch grass @ 2.2 lb. PLS/ acre (13 inches mean annual precipitation minimum).
   - Medium- to fine-textured soils statewide: Western wheatgrass @ 2.1 lb. PLS/acre; Green needlegrass @ 2.4 lb. PLS/acre; Slender wheatgrass @ 1.0 lb. PLS/acre; Alfalfa @ 0.5 lb. PLS/acre.
   - Coarse-textured soils statewide: Thickspike wheatgrass @ 1.8 lb. PLS/acre; Bluebunch wheatgrass @ 2.8 lb. PLS/acre; Slender wheatgrass @ 1.0 lb. PLS/acre; Alfalfa @ 0.5 lb. PLS/acre.

***Native forb seed is often quite expensive and limited in supply but alfalfa can be overly competitive in native seed mixtures. For all-native species, substitute blue flax @ 0.5 lb. PLS/acre or purple prairie clover @ 0.5 lb. PLS/acre for alfalfa in the seed mixtures shown above.**

Planted Woody Cover

Deciduous and evergreen trees and shrubs provide thermal, reproductive, and escape cover for many wildlife species as well as food in the form of seeds, fruits, nuts, buds, catkins, twigs, and leaves.

Woody plantings will be planned and applied according to FOTG, Section IV, Practice Standards for Windbreak/Shelterbelt Establishment (Code 380), Windbreak/Shelterbelt Renovation (Code 650), or Tree/Shrub Establishment (Code 612). Use tree and shrub species recommended for the desired wildlife species. For adaptation of woody plants to specific soils and climate, check the FOTG, Section IV, Windbreak Suitability Groups. Trees and shrubs planted under Tree/Shrub Establishment (Code 612) must be planted in a block configuration as opposed to a linear shelterbelt design.

- Woody plantings for wildlife diversity should contain a variety of tree and shrub life forms, heights, and flowering/fruiting phenology. Evergreen trees and shrubs are critical for winter cover. The more shrubs and the greater the variety, the more value to wildlife.
- Provisions will be made for long-term control of weed and other herbaceous competition with planted trees and shrubs.
- There are many opportunities for planting shrubs for wildlife in and around cropland. American plum thickets, for example, can be planted in odd areas between fields. Field windbreaks add habitat diversity to cropland monocultures. Use at least two rows of shrubs in field windbreaks to better accommodate wildlife.
- Tall trees, which provide raptor perching and hunting sites, should not be used near wetland wildlife habitat.

Native Shrublands

Important wildlife shrubs include big sagebrush, silver buffaloberry, serviceberry, chokecherry, willow, bitterbrush, mountain maple, and many others. The acreage of big sagebrush-grassland has decreased in Montana because of conversion to cropland, subdivision, and brush control. Sage grouse, Brewer's sparrow, pronghorn, and other species are dependent on this habitat.

- Brush control will be done only according to a plan developed with input from Montana Fish, Wildlife and Parks.
- Grazing management implementation will be done considering the effects on upland and riparian shrub communities and target wildlife species.

Native Forestland

- Forestland represents a potentially significant source of income for private landowners as well as habitat for many wildlife species. These values are compatible if total resource planning is combined with willing management.
- Uneven-aged, mixed species forests maximize habitat diversity for the greatest number of wildlife species. Selection harvest methods can maintain this diversity.
- Lack of forest management can result in low habitat diversity, although dense stands of timber may be valuable for big game hiding cover. Some wildlife species, such as the great gray owl, goshawk, and fisher, depend on relatively old-growth forestland.
- Young, even-aged conifer stands provide important hiding cover for big game and other wildlife. Such stands can be provided throughout a timber harvest rotation.
- Large, uniform conifer forests may be improved for wildlife by creating small, irregularly shaped openings.
- Over-mature trees, snags, and downed logs provide important habitat for cavity nesting birds, raptors, and a variety of mammals. Cavity nesters, such as woodpeckers, chickadees, nuthatches, and others, help control forest insects.

Wetland Plants

Herbaceous and woody plants adapted to moist or wet sites provide valuable habitat for many upland wildlife species. Cattails, bulrushes, sedges, and willows provide important winter cover for pheasants, white-tailed deer, and other upland wildlife.

- Wetland plant communities can be manipulated for wildlife using fire, grazing, mowing, or water level control.
- Establishment of wetland plants often occurs naturally from seed reserves and seed transported by wildlife and livestock. Seed is commercially available for many species. Establishment from sprigs or plugs collected near the site is usually very successful.

Interspersion of Habitat Elements: Edges, Ecotones, and Habitat Fragmentation

"Edge" refers to the interface or point where two or more vegetation or cover types meet or where structural conditions within plant communities come together. The area influenced by this transition between communities or conditions is called an "ecotone." Edges and their ecotones are usually richer in wildlife than are the adjoining plant communities or structural conditions. As a result, they are an important consideration in the management of habitat. Examples of wildlife species that thrive along habitat edges include the white-tailed deer, red-tailed hawk, great horned owl, pheasant, and robin.

Too much habitat edge can be detrimental for some "area sensitive" wildlife species. For example, since predators often concentrate their activities along edges, some species avoid predation by nesting in the relative safety of larger blocks of uniform habitat. Fragmentation of large patches of habitat into small, isolated patches, characterized by abundant edge, can modify the microclimate required by a given animal or plant, make a species more vulnerable to predation or nest parasitism, and split a wildlife population into isolated segments which may not be viable.

- When general wildlife habitat diversity is the goal, attempt to intersperse the edge between adjoining plant communities or structural conditions in a mosaic pattern. This will maximize edge effect.
- Look at the conservation planning unit from a large-scale perspective. Evaluate the unit in the context of the surrounding landscape. Obtain input from local, state, and federal game management biologists to determine the effects of proposed alternatives on various wildlife species. Inform the landowner of the potential effects of alternatives under consideration.
- When establishing nest cover for waterfowl, game birds, and other ground-nesting birds, minimize edge effect by planting in large rectangular blocks as opposed to narrow, irregularly shaped strips.

WILDLIFE SPECIES MANAGEMENT–GENERAL SPECIFICATION AND PLANNING GUIDANCE

Ring-Necked Pheasant *(Phasianus colchicus)*

GENERAL HABITAT REQUIREMENTS

The average home range for pheasants includes an area within an approximately 1.5 mile radius. All habitat requirements must be provided within the home range.

- Optimum pheasant habitat consists of 25 to 50 percent uncultivated land in a combination of the following cover types:
  - Conservation Reserve Program, or other set-aside lands with grass-legume mixtures;
  - Weedy patches of sweet clover, sun-flower, kochia, and other seed-producing forbs;
  - Brushy draws;
  - Wetlands with tall, emergent vegetation;
  - Woody cover including brush patches and shelterbelts with species such as American plum, chokecherry, snowberry, silver buffaloberry, rose, serviceberry, and juniper.
- In addition, 50 to 75 percent of the land is cultivated with:
  - 59-65 percent in cereal grains with stubble retained through the winter and un-harvested strips or food plots left adjacent to uncultivated areas;
  - 15-20 percent in pasture or hay;
  - 5-10 percent in shelterbelts.

- Food requirements for adult pheasants consist primarily of grains, weed seeds, insects, and succulent green plants; young birds rely heavily on insects throughout the summer following hatching. Barley, corn, sorghum, and, to a lesser extent, wheat are preferred foods. Sunflowers, millet, and a variety of annual weed seeds are also eaten. Waste grain and food plots are critical food sources in winter. Persistent fruits of shrubs, listed above, supply survival food during harsh weather. A source of calcium-bearing grit is essential for healthy pheasant populations.

- Cover requirements are diverse:

  - Nest cover consists of undisturbed grass-legume mixtures, hay fields, winter wheat, and other areas such as vegetated roadsides, ditches, etc. Since pheasants initiate nesting in early spring, residual grass cover is essential to conceal nests prior to spring green-up and growth;
  - Winter cover consists of cattail marshes, tall grasses, shelterbelts, tall grain stubble, weedy patches and riparian areas. Tall, drift-free stands of shrubs and trees provide cover during severe storms;
  - Roosting cover is fairly open to allow escape from predators: tall grain stubble, grass-legume stands, and marsh vegetation are examples.

- The diversity and interspersion of cover types is the key to pheasant survival. The more cover types within an area, the greater the habitat value. Places where three or more cover types come together are especially valuable because many habitat needs are provided within a small area. Irregular borders between cover types increase the amount of edge available, which supplies more of the pheasant's habitat requirements.

- Water is essential for survival, but is usually not limiting to pheasant populations because it is available from dew, succulent fruits, green vegetation, and insects.

NEST COVER

- Nesting cover consists of herbaceous vegetation (preferably grass-legume mixtures) that provides new growth and/or standing residue at least eight inches tall from mid-April through July 1.

- Nest cover will be no further than 1.5 miles from winter cover.

- Nest cover seedings should be established in blocks, as opposed to narrow, linear configurations to reduce nest predation and should be at least ten acres in size. Except where site conditions are limiting, use at least two species of grass, sod-former plus bunchgrass, and one forb or legume species.

- Occasional mowing, grazing, burning, or chiseling may be required to maintain the productivity of pheasant nest cover. These treatments will not occur between mid-April and August 1. Avoiding nest cover disturbance from burning and disking during this period is one of the most important and simplest actions a landowner can take to benefit pheasant and other ground-nesting bird populations. Loss of cover at this time results in hen pheasants abandoning their nests, forcing them to re-nest in hay fields where later mowing may cause heavy losses.

Species recommended for nest cover establishment are included in the **Habitat Development** section.

WINTER COVER

Winter thermal cover is likely the most limiting factor for Montana pheasant populations.

- Accessible food supplies in the form of waste grain, food plots, and weed seeds must be within one-quarter mile of winter cover, preferably within or immediately adjacent to winter cover.

- Wildlife windbreaks that are established for winter storm cover will have at least five rows with low branches and shrubs around the outside. Minimum row length is 200 feet.

- Winter roosting and loafing cover consists of tall (at least ten inches) dense herbaceous plant residues. Unplowed stubble, standing grain, cattail marshes, tall grass-legume mixtures, and tall weedy patches are examples. Herbaceous seedings established for winter cover will be at least five acres in size.

- Winter cover must be protected from mowing, grazing, fire, etc., until spring.

- Use FOTG, Section IV, Practice Standards Prescribed Grazing (Code 528) and/or Access Control (Code 472) to provide high condition riparian habitat.

FOOD SUPPLIES

- Avoid fall tillage of grain stubble.
- Food plots and un-harvested grain strips will be no father than one-quarter mile from winter cover, preferably within or immediately adjacent to winter cover.
- Avoid use of insecticides in areas where pheasant broods are present.

HABITAT MANAGEMENT

- Let strips along fencerows, ditch banks, roadsides, and field corners revert to natural cover.
- Cut hay at slower speeds in a back-and-forth pattern or center to outside pattern.
- Cut hay fields with highest nest densities last; after the peak of the nesting season.
- Avoid fall tillage of grain stubble and implement conservation tillage.
- Seed ditch banks and roadsides to perennial grasses and legumes.
- Implement prescribed grazing to maintain grassland and riparian vegetation as cover.
- Encourage diverse rotations of small grains with legumes.
- Seed highly erodible cropland to perennial grasses and legumes.

Gray (Hungarian) Partridge *(Perdix perdix)*

GENERAL HABITAT REQUIREMENTS

Montana's smallest game bird, the gray partridge, occupies a very limited home range. All habitat requirements must be found within an area of about three-eighths of a square mile.

- Optimum habitat is more difficult to define compared to other game birds because the gray partridge lives in a wider variety of habitat conditions including cultivated lowlands, sagebrush-grasslands, and mountain foothill grasslands. Preferred habitat consists of a mixture of cultivated and uncultivated lands such as grasslands interspersed with grain fields, weed patches, and brush thickets.
- Waste grain and weed seeds are the primary food items year-round. Succulent green plant parts are used during the growing season. Insects such as ants, ant eggs, grasshoppers, crickets, and beetles are critical for chick survival, especially during the first three weeks after hatching. Certain weed seeds, like knotweed, may contain high levels of some nutrients compared to waste grain, and may be necessary for a balanced diet. Winter wheat appears to be preferred over spring grains.
- Cover is often the limiting factor for gray partridge in an agricultural landscape. Idle areas such as fencerows, abandoned farmsteads, ditch banks, and other "odd areas" are critical for nesting, roosting, escape, hiding, and winter cover. Brushy areas and shelterbelts are used throughout the year, most often during winter. The size of the cover patch is less important than the lack of disturbance from cultivation, grazing, pesticide spraying, etc. Interspersion of cover patches in a mosaic pattern within agricultural landscapes increases habitat value. Intensive agriculture and heavy grazing reduce cover needed by gray partridge.
- Water availability does not limit gray partridge populations in Montana. Consuming green vegetation and insects can satisfy water requirements.

NEST COVER

- Maintain fencerows, field borders, and other odd areas in an undisturbed condition during the nesting season (May 1 to July 15). Residual plant material from the previous year is critical cover for birds nesting early in the growing season.

- Implement grazing management that provides residual herbaceous cover on rangelands during the early nesting season.

WINTER COVER

- Avoid fall tillage of grain stubble.
- Implement grazing management that maintains or improves cover in riparian areas and woody draws.

FOOD SUPPLY

- Postpone pesticide spraying for insects until late July to maintain adequate food resources for recently hatched gray partridge. Implement Integrated Pest Management to minimize pesticide use.
- Avoid fall tillage of grain stubble.
- Provide food sources - waste grain, weed seeds - adjacent to winter cover.

Waterfowl *(Upland Ground-Nesting Species)*

GENERAL HABITAT REQUIREMENTS

Habitat requirements for breeding waterfowl are described in the FOTG, Section IV, General Specifications and Planning/Implementation Guide for Wetland Wildlife Habitat Management (Code 644).

Upland nesting cover is required by many dabbling duck species including mallards, pintails, teal, widgeon, shovelers, gadwalls, and others. Tall, very dense vegetation is necessary to optimize nest cover for these species, especially where the acreage of cover is limited (pintails and teal tend to nest in somewhat shorter, more open cover). Fallen-over vegetation and abundant litter are prerequisites for quality dense nesting cover. Nesting hens should be so concealed by the vegetation and litter as to not be visible at distances of two to three feet. Blocks of cover at least 40 acres in size are necessary to prevent excessive nest predation. Nests in cover patches smaller than this will probably suffer heavy losses by red fox, raccoons, skunks, and other predators. An exception to these cover criteria may occur in large blocks of rangeland where human-adapted predator populations are relatively low. Here, native nest cover may be sparse compared to that described above, but patch size is large enough and predator populations low enough to allow high nest success.

NEST COVER

- Management for dabbling ducks requires both upland and wetland habitats.
- Nesting cover consists of herbaceous material that will provide new growth and/or standing residue at least eight inches tall from mid-April through July 15.

Recommended seed mixtures for introduced dense nesting cover and native nesting cover are included in the **Habitat Development** section of this document, above.

<u>Waterfowl pair and brood habitat will be located within one-half mile of nest cover</u>. See FOTG, Section IV, General Specifications and Planning/Implementation Guide for Wetland Wildlife Habitat Management (Code 644).

Sharp-tailed Grouse *(Tympanuchus phasianellus)*

GENERAL HABITAT REQUIREMENTS

The majority of yearly sharptail activities occur within an approximately one-mile radius of the spring breeding ground (*lek*).

Preferred sharptail habitat is high condition native rangeland interspersed with brush-filled draws. Quality habitat is a mix of mid and tall grasses, associated shrubs, and a scattering of cropland. Habitat quantity is important but it is usually the quality of nesting and brood-rearing cover that limits grouse populations. Sharptails adapt to modern agriculture within limits. During winter, they readily feed on grain in stubble and in feed yards.

Because sharptails occupy a diversity of plant communities, species composition is not necessarily a prime factor in measuring quality of grouse habitat. The height and density of vegetation present are more important factors in determining habitat quality.

Sharptail diets may include over 300 food items, but the majority of food consists of less than a dozen plant species. Use of grain crops is greatest during fall and winter. Other winter foods include buds, seeds, and persistent fruits. Adult grouse are primarily vegetarians consuming buds, leaves and flowers of succulent plants, dry seeds, and fleshy fruits. Examples include prickly lettuce and dandelion greens, silver buffaloberry and snowberry fruits, and a variety of grass and weed seeds. Insects are critical to chicks for several weeks following hatching and are taken by adults during summer and early fall.

Winter cover requirements center around brushland. Species of brush are less important than condition. Woody draws and shelterbelts are critical as winter cover.

Sharptails require high condition grasslands and shrublands with residual grass cover from previous years for successful nesting. Most nests are found within a one-half mile radius of the spring breeding ground.

Sharptails can obtain adequate water from fruits, green vegetation, and insects. Free water is not limiting for Montana grouse populations.

NEST COVER

Grazing management is the key to improvement and maintenance of sharptail habitat. FOTG, Section IV, Practice Standard, Prescribed Grazing (528) will be implemented to assure adequate residual spring cover for nesting birds. An effective grazing system example is:

- Year 1 graze late - after seed set
- Year 2 graze early
- Year 3 full year's rest.

Nesting cover consists of residual and/or growing herbaceous plant material at least eight inches tall in blocks of at least 60 acres.

WINTER COVER AND FOOD

FOTG, Section IV, Practice Standard, Prescribed Grazing (Code 528) will assure that woody vegetation in draws, shelterbelts, and other areas is represented by a variety of size and age classes so that winter cover and food sources are available to sharptails.

New shelterbelt plantings will include species beneficial to sharptails such as silver buffaloberry, American plum, Rocky Mountain juniper, and blue spruce.

- Food plots, if used, will include suitable woody species which provide a winter food source, or at least two of the following grains:

  - corn
  - grain sorghum
  - wheat
  - barley
  - oats
  - millet

- Food plots will be at least one-half acre in size and located within one-quarter mile of winter cover.

Sage Grouse *(Centrocercus urophasianus)*

GENERAL HABITAT REQUIREMENTS

The spring strutting ground, or lek (an open area surrounded by sagebrush), is the center of sage grouse yearlong activities. About two-thirds of sage grouse nests and most nesting and most brood-rearing activities occur within two miles of a lek. Some southwestern Montana grouse migrate considerable distances from breeding and summering areas to suitable winter habitat. Most other populations are sedentary, remaining near the lek year-round.

Sage grouse are sagebrush-grassland obligates; they must have sagebrush as a year-round habitat component. Optimum habitat consists of extensive, varied canopy stands of Wyoming, mountain, or basin big sagebrush or silver sage with a vigorous grass and forb understory. Most sage grouse activities occur in stands ranging from 10 to 30 percent sagebrush canopy cover. Wet meadows, streamside areas, and forb-dominated openings are critical habitat components from spring through late summer.

Suitable nest cover consists of sagebrush stands with a canopy cover of 15 to 25 percent. Sage grouse hens usually select the tallest sagebrush plants for a nest location. Research has shown that hens nesting under a sagebrush plant have a 50 percent chance of success while hens nesting under other plants have only a 20 percent chance. The herbaceous understory is equally important to successful nesting. The chance of success may increase by 30 percent if the sagebrush nest site also has grass-forb residual cover at least eight inches tall. Sage grouse broods often feed in moist meadows and areas with lower sagebrush canopy cover and rest in stands with higher canopy cover.

Winter cover consists of sagebrush stands of varying heights and canopy coverages. Sage canopy cover in suitable winter habitat ranges from 10 to 30 percent.

Sage grouse do not have a muscular gizzard to grind seeds as do our other game bird species. Their diet is limited to soft foods. Sagebrush leaves are essentially the only food consumed from October through April. During May through September, the diet is dominated by succulent forb leaves and insects. Important forb species include dandelion, salsify, clover, sweetclover, alfalfa, prickly lettuce, yarrow, and milkvetch. Insects are critical for sage grouse chicks for several weeks after hatching. Commonly consumed insects include grasshoppers, beetles, and ants. Sagebrush leaves are still an important food item throughout the spring and summer.

COVER

FOTG, Section IV, Practice Standard, Prescribed Grazing (Code 528) will be implemented to maintain vigorous sagebrush and herbaceous plant communities and to provide residual grass cover in sage grouse habitat.

Brush control projects commonly have a detrimental effect of sage grouse habitat. Technical and/or financial assistance for brush control in sage grouse habitat will be done only under the following conditions:

- Input from the Montana Department of Fish, Wildlife and Parks will be obtained. This includes joint field review of the proposed project whenever possible.
- Use the following guidelines when considering brush control projects:
  - Obtain information about locations of leks, winter habitat, etc., from all available sources.
  - No brush control work will be considered where live sagebrush cover is less than 20 percent, or on steep (20 percent or more) upper slopes with skeletal soils where big sagebrush is 12 inches or less in height.
  - Brush control within two miles of a lek or within known sage grouse winter habitat will be done only under a conservation plan developed with input from FWP.
  - No brush control will be done along streams, meadows, secondary drainages, aspen stands, or willow thickets. A strip of living sagebrush, at least 150 yards wide, will be retained along each edge of meadows and drainages.

- When brush control projects are implemented, all treatment measures will be applied in irregular patterns using topography and other habitat considerations to minimize adverse effects to sage grouse.
- When herbicides are used, spraying will be done with a helicopter or ground rig. No spraying will be done when wind velocity exceeds six miles per hour. Diesel carriers will not be used.
- Avoid complete kill of the treated sagebrush stand whenever possible. Prescribed fire and low rates of Tebuthiuron are examples of ways to achieve a partial kill.

Avoid grazing in nesting cover during the primary nesting season (mid-April to mid-June).

FOOD

- Avoid use of insecticides in sage grouse brood habitat.
- Include forbs in range seedings implemented within sage grouse habitat. Important forbs include alfalfa, sanfoin, sweetclover, birdsfoot trefoil, and small burnet.

Use FOTG, Section IV, Practice Standard, Prescribed Grazing (Code 528) to improve or maintain range condition and to enhance the forb component.

Mule Deer *(Odocoileus hemionus)* – Rangeland Setting

GENERAL HABITAT REQUIREMENTS

Home range size is variable depending on habitat quality. Summer home ranges may be as small as one square mile in suitable habitat. Mule deer will remain in the same area year-round if all habitat requirements are present, but long movements between seasonal ranges occur where habitat components are dispersed.

Mule deer are most adapted to rugged, steep terrain where their “stotting” (bouncing) gait allows them to outrun predators. Typical habitat is characterized by rough, rocky topography including a complex of river breaks, grassland and shrubland benches, coulees, brushy draws, and open woodland. Mule deer prefer open, broken country where they can detect danger from afar. Complex topography provides warm, south slopes for winter foraging as well as cool, north exposures, which provide shade and mesic foraging areas during hot weather. This complex of natural plant communities provides high quality forage year-round.

Mule deer consume a variety of plant foods. Browse is important year-round, but particularly during winter. Important browse plants include: big sagebrush, rubber rabbitbrush, buckwheat, skunkbush sumac, chokecherry, serviceberry, mountain maple, red-osier dogwood, mountain mahogany, currant, bitterbrush, and Rocky Mountain juniper. Woody plants commonly make up 60 percent of yearly mule deer diets. During spring green-up, grasses are consumed. Forbs are important spring through fall. Prairie clovers, milkvetches, alfalfa, American vetch, hawksbeard, and many other forbs are eaten. Agricultural crops are readily consumed when available.

Mule deer cover requirements are complex, depending on the season. Hiding cover is provided by rugged topography and woody vegetation. Tree canopy with a shrub understory is best. Thermal cover is also provided in part by rough topography in the form of warm, south exposures during winter and cool, north slopes in summer. Tall shrubs and trees are necessary to break the wind and minimize radiant heat loss. Fawning areas require hiding cover closely interspersed with water sources and high quality forage.

COVER AND FOOD

Implement FOTG, Section IV, Practice Standard, Prescribed Grazing (Code 528) to maintain or improve mule deer habitat on managed rangelands. Uncontrolled grazing degrades mule deer habitat by removing cover and nutritional components. Well-planned grazing systems can improve and enhance deer habitat by providing an adequate supply of high quality forage. A rotation of full forage use followed by long enough rest to allow forage plants to fully recover has been effective in providing a high quality nutritional plane and in maintaining woody

cover. Livestock grazing is the most practical tool for manipulating forage over large areas. Remember, maintenance of shrub and forb components is critical to mule deer. This requires variety in successional stages represented on forest and rangelands.

- Give special consideration to riparian habitat when planning for grazing management. Woody riparian vegetation must be represented by a variety of size and age classes to meet mule deer cover and food requirements.
- In planning units where deer depend on livestock water facilities, water should still be available after livestock have left the pasture.
- Brush control projects can degrade mule deer habitat by replacing critical cover and browse resources with large expanses of grass. Quality deer habitat requires a mixture of grasses, forbs, shrubs, and trees. Obtain input from local FWP biologists when brush control alternatives are being considered. The success of any brush management project should be measured by impacts on all resources as well as the cost-benefit ratio.
- Shelterbelts can provide cover and travel lanes to increase mule deer use of cropland. Plant at least two rows, including a shrub row.

Pronghorn *(Antilocapra americana)*

GENERAL HABITAT REQUIREMENTS

Pronghorn home range size is variable depending on habitat quality. Winter ranges are often five to ten miles in diameter. Relatively long migrations between summer and winter ranges may occur. Optimum pronghorn habitat consists of open, level to rolling terrain with no major physical barriers to movement. Landscape irregularities, such as drainages and ridges, provide shelter from inclement weather as well as hiding cover. Pronghorn occupy areas ranging from about 11 to 15 inches of annual precipitation including hot semi-deserts to subalpine meadows. Good winter ranges seldom accumulate snow depths greater than ten to 15 inches for prolonged periods.

Cover is mainly provided by shrubs. Optimum cover height is about 18 inches; no greater than 24 inches. Big sagebrush-grasslands are the most important cover type in Montana. Silver sagebrush and rabbitbrush are also used for cover

Variety and diversity of plant communities and successional stages is important to meet seasonal habitat needs. Recent burns, prairie dog towns, intermittent lakebeds, and meadows are examples.

Food habits vary seasonally. Browse, particularly sagebrush, dominates the fall and winter diet. Other important browse species include rubber rabbitbrush, fringed sagewort, winterfat, and Gardner saltbush. Forbs are most important in spring and summer diets. Choice forb species include prairie clovers, dotted gayfeather, milkvetches, alfalfa, salsify, prickley lettuce, and scurfpea. Grasses are taken during spring green-up and average less than ten percent of the yearly diet.

Pronghorn need about one gallon of water per day during hot weather.

COVER

- Discourage conversion of sagebrush-grassland to the extent possible. Conversion to cropland has decreased the quality of pronghorn habitat on large areas of Montana. Educate landowners about the values and long-term economic advantages of well-managed rangeland. Farm programs come and go, but quality native rangeland can produce sustained livestock and wildlife-related recreational products indefinitely.
- Brush management projects will consider pronghorn habitat needs.
- Maintain five to 30 percent sagebrush and other shrub cover in pronghorn habitat. Brush management guidelines are included in the **Habitat Development** section (see sage grouse above).

FOOD

- Implement FOTG, Section IV, Practice Standard, Prescribed Grazing (Code 528) to provide a variety of plant community successional stages and to maintain vigorous sagebrush-grasslands.
- Manage for at least five percent canopy cover of desirable succulent forb species on pronghorn spring and summer range and five to 30 percent sagebrush and other desirable shrub canopy cover on fall and winter range.
- Provide permanent water sources spaced no more than three miles apart (see FOTG, Section IV, Practice Specification, Watering Facility - Wildlife (Code 614).

Merriam's Turkey *(Meleagris gallopavo)*

GENERAL HBITAT REQUIREMENTS

Wild turkeys are not native to Montana although they represent one of our most successful wildlife introductions and are now found across the state in suitable habitats.

Turkey home range size averages about two square miles, but is variable depending on habitat quality. Relatively long movements to winter habitat occur in some areas.

Prime Merriam's turkey habitat is found in Ponderosa pine forests with a good interspersion of grassy openings, woody draws, and woodland. A mosaic of vegetation types that maximizes edge effect is important. Optimum habitat is Ponderosa pine with 10 to 25 percent of the area in small, grassy openings, which are narrow and elongate (less than 240 feet wide). Shrub thickets and slash piles will allow use of larger openings. Pole-sized stands of pine with a semi-open understory and good ground cover are used year-round. Dense stands of conifer regeneration are important as loafing and escape cover. Ideal habitat in Ponderosa pine woodland consists of:

- 20 percent of area in small openings
- 25 percent in pine stands exceeding 100 sq. ft. of basal area per acre
- 20 percent in pine stands having 80-100 sq. ft. of basal area per acre
- 35 percent in pine stands with 50-80 sq. ft. of basal area per acre.

Riparian habitats allow turkeys to expand their range away from forested areas to access prairie edges and crop fields. Large cottonwood trees are often used as roost sites near ranch headquarters and grain fields.

Wild turkeys prefer to nest on slopes of about 30 percent grade with 60 percent tree canopy cover and fairly-dense horizontal cover within a five to seven foot radius of the nest. Overstory canopy within four feet above the nest usually exceeds 80 percent.

Downed logs, tree limbs, and slash tops are often used as nest sites. Hardwood draws and riparian bottoms are also used for nesting.

Roost trees are a critical component of Merriam's turkey habitat. Roost trees average 64 feet tall and at least 15 inches dbh with spreading, horizontal limbs spaced about 24 inches apart. Most are found on southeast exposures.

Wild turkeys eat a variety of nuts, seeds, fruits, tubers, flowerheads, green leaves, and insects. Ponderosa pine nuts are a preferred food. Snowberry, bearberry, hawthorn, serviceberry, chokecherry, and rose hips are important fruits taken. Insects are critical for poults during the weeks after hatching. Waste grain and livestock feed grounds sustain Montana wild turkey populations during winter.

COVER

- Implement FOTG, Section IV, Practice Standard, Prescribed Grazing (Code 528) to provide all age and size classes of trees and shrubs in woody draws and stream corridor habitat.
- Preserve roost trees and maintain at least a 130-foot protected buffer zone around roost sites. Leave clumps of roost trees on the upper-third of the slope. Ideal roost sites have greater than 80 square feet of basal area per acre with five or more trees larger than 12 inches dbh. Attempt to maintain two to six roost sites per square mile.
- Use thinning to provide semi-open stands of pole-sized pine. Leave patches of escape cover consisting of shrub thickets and/or dense trees with greater than 100 square feet of basal area per acre for a distance of 300 feet from the edge of the thinned stand. For additional cover leave five to six tons per acre of scattered slash, if consistent with fire hazard reduction guidelines.
- Maximize within and between stand diversity. Uneven-age management, using individual tree selection harvest is ideal. Under even-age management, maximum harvest unit size should not exceed 20 acres. Small openings can be provided using group selection harvest techniques, prescribed fire or cultivation. Minimize activity in turkey habitat during the April to July nesting season. Limit cutting to ten percent of the stand at any one time.

FOOD

- FOTG, Section IV, Practice Standard, Prescribed Grazing (Code 528) will be used to assure that livestock do not reduce herbaceous and woody food production for wild turkeys. Herbaceous ground cover in openings should be at least 70 percent with a minimum height of ten inches.
- Use thinning to stimulate herbaceous and shrubby food plants where necessary.
- Re-seed roadsides and other disturbed sites with suitable food plants such as small burnet, alfalfa, clovers, and large-seeded perennial grasses.
- Where food supplies are limiting, establish food plots within one-quarter mile of winter cover.
- Provide at least one water source per square mile.

Elk *(Cervus elaphus)*, White-Tailed Deer *(Odocoileus virginianus)*, Mule Deer—Forest and Woodland Setting

GENERAL HABITAT REQUIREMENTS

Home range size for big game animals varies widely depending on habitat quality. Management planning–particularly during livestock grazing and timber harvest operations–can improve the quantity, quality, and interspersion of forage areas, cover, and water sources to maximize use of a given area by big game species. In general, a ratio of 40 percent cover to 60 percent forage areas represents optimum habitat for deer and elk in the Northern Rockies.

Deer and elk make use of topography and the arrangement and juxtaposition of different vegetation types to meet their seasonal needs. For example, moderately steep, south-facing slopes are used during winter because of warmer temperatures and less snow. Stringer forest stands interspersed with grassland are consistently used because they provide thermal cover and protected travel lanes. Elk and deer tend to make disproportionately heavier use of areas within 1,000 feet of water. Riparian areas are especially important because they provide water, forage, thermal and hiding cover as well as habitat for rearing fawns and calves.

FOOD HABITS

Elk

- Elk diets vary widely depending on the habitat occupied. During spring, green grasses are the predominant forage. Forbs such as dandelion, geranium, asters, clovers, and milkvetches are heavily used during summer. Grasses again predominate during fall. Browse is an important component of year-round diets in western

Montana. Winter diets are of two types depending on the part of the state occupied. West of the Continental Divide, browse is the winter staple. Choice browse species include ceanothus, mountain maple, serviceberry, chokecherry, willow and red-osier dogwood. East of the Continental Divide, grasses tend to be the dominant winter food. Rough and Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass, and western wheatgrass are common grass species used.

White-Tailed Deer

- Whitetails prefer green, herbaceous forage, including a variety of grasses, forbs and agricultural crops, but use browse heavily when these are not available. Choice browse species west of the Continental Divide include serviceberry, chokecherry, snowberry, mountain maple, bearberry, Oregon grape, and bitterbrush. East of the Continental Divide–chokecherry, serviceberry, skunkbush sumac, snowberry, red-osier dogwood, and cottonwood are important.

Mule Deer

- Refer to Mule Deer (Odocoileus hemionus), see Rangeland Setting previously referenced.

COVER REQUIREMENTS

- The optimum mix of cover types on elk spring-fall ranges is about 20 percent hiding cover, ten percent thermal cover, an additional ten percent hiding or thermal cover, and 60 percent forage areas. On winter ranges, the proportion of thermal cover should be greater.
- For deer, an optimum is about 20 percent hiding cover, ten percent thermal cover, five percent fawning cover, five percent hiding, thermal, or fawning cover, and 60 percent forage areas. Again, thermal cover becomes more important during winter.
- Hiding cover consists of vegetation capable of hiding 90 percent of a standing adult deer or elk from view at a distance of 200 feet.
- Thermal cover is critical to protect big game animals from both cold and hot temperature extremes. Combinations of topography and vegetation provide thermal cover for deer and elk. Elk commonly use a stand of conifers with a crown cover of 70 percent or more for winter thermal cover. Deer often use a combination of small conifers and tall shrubs.
- Fawning and calving cover must contain all life requirements within a relatively small area. Optimum calving habitat for elk consists of small forage areas adjacent to hiding and thermal cover within forest stands. Hiding cover usually contains shrubs or downed logs that provide security for newborn calves. Quality fawning habitat for deer includes low shrubs or small trees from two to six feet tall under a tree overstory of approximately 50 percent crown cover. Succulent forage is required to provide lactating does with adequate nutrition. The estimated optimum size of a deer fawning area in a forest environment is one to five acres.

COVER AND FOOD - GENERAL SPECIFICATION FOR TIMBER HARVEST OPERATIONS

- Obtain input from local FWP biologists and other biologists to incorporate regional wildlife needs into timber harvest planning.
- Roads are a major source of disturbance to big game animals. Construct roads to the lowest standards possible. Encourage landowners to restrict road access during and after harvest operations. Limit road construction in riparian areas. Screen forest openings and harvest units from roads with forested buffer zones and use of topography.
- Combine timber harvest to a single drainage at a time, if possible, to maintain secure habitat. Restrict harvest activities to the smallest possible area for the shortest possible time to minimize adverse impacts to deer and elk.
- Use of clearcuts and other openings is reduced by untreated slash and inadequate cover at the edge of the openings and open roads. Average slash depth will be less than 18 inches. Use slash piles, consistent with fire hazard reduction regulations, to provide cover in large openings. Do not thin timber stands within 150 feet of openings and moist habitats.

- Maintain thermal cover in harvested areas.
- Fuel breaks should be as narrow as possible while still meeting fire control objectives.
- Protect wet meadows and other moist habitats and maintain an untreated buffer area around them.
- Re-seed skid trails, log landings, and roadsides with grasses and legumes to provide high quality forage. Clovers, small burnet, orchardgrass, and big bluegrass are examples.
- Use uneven-age timber harvesting when possible to maintain diverse cover types. Shelterwood cuts are the next best option.
- For maximum use by deer and elk, forage areas should have no point farther than 600 feet from the edge of un-thinned cover. This allows circular forage areas of up to 25 acres within forest stands. Use of openings is markedly reduced as animals must travel farther than 600 feet from security cover.

Ruffed Grouse *(Bonasa umbellus)*

GENERAL HABITAT REQUIREMENTS

Ruffed grouse habitat is very similar nationwide. Optimum habitat consists of fairly dense cover of mixed conifer and deciduous trees and shrubs. For example, ruffed grouse are especially abundant in second growth forests in northwest Montana and forested areas that burned in the 1910-1920 fires and since have filled in with brush and some conifers. Valuable species include birch, aspen, chokecherry, snowberry, serviceberry, mountain maple, and hawthorn. Brushy stream bottoms are particularly important. Vigorous aspen stands are prime ruffed grouse habitat across the country. Downed logs are a key habitat feature because male ruffed grouse use them for their “drumming” display used during the breeding season. The males are usually found within one-half mile of their drumming logs.

Ruffed grouse eat a variety of fruits, berries, buds, green vegetation, and insects.

COVER AND FOOD

- The importance of grazing management to maintain healthy shrub communities cannot be over-stressed. Cattle can reduce or eliminate snowberry, for example, while seeking succulent grasses in stream bottoms during late summer and fall. FOTG, Section IV, Practice Standard, Prescribed Grazing (Code 528) will be used to maintain or improve ruffed grouse habitat.
- Where dense stands of early seral woody vegetation are lacking, use prescribed fire and/or logging to create one- to 12-acre blocks of dense saplings and shrubs. These plants supply food 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 saplings with a density of 2,000 to 6,900 stems per acre. 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. Forest undisturbed for 30+ years may decline in value for ruffed grouse as plant community succession progresses.
- The most effective method of rejuvenating decadent aspen stands appears to be dozing over old trees to stimulate sprouting. Fire and logging also are feasible methods.
- Ruffed grouse chicks depend on insect food for several weeks. Maintain early seral forest stands adjacent to mature forest canopy.
- Re-seed skid trails, log landings, etc. to clovers, small burnet, and perennial grasses.

Blue Grouse *(Dendragapus obscurus)*

GENERAL HABITAT REQUIREMENTS

Blue grouse winter at high elevations where they eat primarily Douglas fir needles. In spring, they descend to lower elevations where they inhabit semi-open timber with thickets of pine and, primarily, Douglas fir. Spring and summer diets include succulent forbs, fruits, and insects. In summer, broods may range quite far from timber. Blue grouse need good visibility in openings, emphasizing the importance of downed logs. Populations are typically high in semi-open Ponderosa pine and Douglas fir stands, which were logged 20 to 30 years ago.

Average territory size for blue grouse is about two acres. The average size of conifer thickets within the territories is 0.2 acres with about 675 feet of edge along the openings. Conifer thickets used for cover have dense trees with an average stem diameter of about five inches.

COVER AND FOOD

- Implement FOTG, Section IV, Practice Standard, Prescribed Grazing (Code 528) to maintain herbaceous cover at least seven to eight inches high near forest openings and riparian areas.
- Use group selection timber harvest to regenerate conifer thickets, where necessary, and to provide herbaceous vegetation in forest openings which provides insects for broods.
- Use care during timber harvest operations to protect conifer thickets from damage caused by log skidding and construction of landings and skid trails.
- Limit large areas of slash piles. Blue grouse need good visibility.
- Goal for optimizing blue grouse habitat: Create uneven-aged stands of timber in which conifer thickets 20 to 60 years old are numerous.

Non-Game Wildlife

GENERAL HABITAT REQUIREMENTS

Non-game wildlife habitat requirements are highly variable depending on the species. In general, habitat diversity, consisting of a variety of seral stages, diverse age and size classes of trees and shrubs, standing dead trees (snags), downed logs, and vigorous herbaceous ground cover will provide habitat for numerous wildlife species.

Dead trees and downed logs provide a rich supply of insects to woodpeckers, chickadees, nuthatches, bears, and many others. They also provide cavities (used as nest sites and shelter), lookout and feeding sites, perches, and food cache sites. Snags are used by at least 47 species of birds and 19 species of mammals in Montana.

Some wildlife species, such as mountain plovers and black-footed ferrets, require early seral stages in the plant community. These can be created or enhanced using grazing management and/or fire. Other species, such as fishers and pine martens, require late successional habitats. Selection timber harvest methods can maintain this type of habitat while allowing for sustained income and control of fuel loads in forests. Fish habitats are best maintained and enhanced by limiting timber harvest near streams and very careful grazing management.

PREDATOR MANAGEMENT

Large predators, such as grizzly bears and gray wolves, are important to ecosystem function by keeping ungulate herds on the move, which limits overgrazing and browsing, as well as providing some level of population control. Large predators are also potentially dangerous to humans and their livestock.

Private landowners can limit large predator mortality and protect themselves by installing Power Fence (see Code 382 for specifications) around apiaries and calving pastures, removing livestock carcasses from the property and having herders stay with the livestock.

HABITAT MANAGEMENT

The following addresses management for general habitat diversity. It is important to remember that habitat management to favor one species may be detrimental to another. The landowner should be clear about the species to be managed and obtain input from wildlife biologists before implementing specific management actions.

- Grazing management is the key to maintaining and improving riparian habitats as well as upland grasslands and shrublands. Implement FOTG, Section IV, Practice Standard, Prescribed Grazing (Code 528) to provide vigorous shrub and herbaceous cover and residual vegetation for ground-nesting birds. Grazing may also be used to provide a variety of plant community successional stages.

- Always provide small animal escape ramps in stockwater tanks.

- Limit timber harvest in riparian habitats. Coarse woody debris, in the form of fallen logs, is crucial to maintaining fish habitat structure and leaves supplied by riparian vegetation fuel the food chain in headwater streams. Do not remove fallen logs from streams. On the other hand, do not allow green slash from timber harvesting to fall into streams because its decomposition may lower dissolved oxygen levels.

- Manage forests to provide a continuous supply of large, old trees. These trees provide diverse habitat structure for many wildlife species and serve as a supply of future snags, standing dead trees. Maintain some mature trees regardless of the timber harvest method used. The goal is to always have large, old trees–living and dead–standing above the general forest canopy.

- Retain un-merchantable trees as a source of snags. Provide clumps of snags and potential snags when possible since many woodpecker species may use more than one tree per year. Attempt to space snags evenly across the landscape since many species are territorial and will not tolerate others of their kind nearby. Provide snags on all slope classes, aspects, and successional stages to provide habitat for a variety of species with differing preferences. Retain a minimum of five large diameter snags per acre, when possible. Leave five to ten percent of clearcuts un-harvested to provide snag replacements. The larger and taller the snag, the better since some species, such as the pileated woodpecker, can only use large snags, but species that can use smaller ones can also use large snags. Look for various types of fungus on tree trunks as well as broken tops and limbs to indicate potential snags because these features indicate the onset of decay.

- Where snag supplies are limited, they can be created by killing select trees. Girdling, topping, and limbing are potential methods. Topping and limbing can be done by hand cutting, use of explosives, burning, or mechanical cutting. Limit firewood cutting in areas where snag supplies are inadequate.

Provide snags in various stages of decay. Some cavity-nesting birds can excavate holes in hard snags, but others must have soft (fairly decayed) wood in order to excavate nest cavities.

- Western larch, Ponderosa pine, and Douglas fir are preferred species for snags. Cottonwood and aspen also receive considerable use.

- Leave at least five large diameter dead and downed logs per acre during timber harvest activities. The larger the diameter and longer the log, the better. Avoid charring downed logs during broadcast burning. Retain slash on ten percent of clear-cut areas to provide downed woody material. Provide downed logs in all stages of decay.

- Orient downed logs across slope contours when possible to maximize cover underneath them.

- Use uneven-aged timber management to maximize habitat diversity. This provides trees of varying species, ages, and size classes for diverse habitat structure. Small group selection and shelterwood methods also provide habitat diversity. When clearcutting is necessary, retain up to 20 percent of the original stand scattered across the harvest unit to provide cover and diverse habitats. Leaving dense patches, at least one-half acre in size, of young conifer regeneration provides escape and hiding cover for many species.

- Avoid a plantation-like appearance when thinning timber stands. Leave dense patches of conifers and brush to provide cover and break up sight distances.

- Use artificial nest boxes, where tree cavities are limited, to favor such diverse species as mountain bluebirds and wood ducks.