Cover: Its Importance to Wyoming's Wildlife

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Rich Olson
Department of Rangeland Ecology and Watershed Management

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By
Professor Rich Olson
Department of Renewable Resources
Cooperative Extension Service
College of Agriculture
University of Wyoming

Introduction

Figure 1. The abundance and diversity of wildlife in any area is dependent on the quality and quantity of available "habitat." Good habitat includes adequate water, living space, food, and vegetative cover for wildlife occupying a specific area.

Humans generally consider the great outdoors to be a place for recreational activities and enjoyment of scenic beauty. For wildlife, however, the outdoor environment is a place to live from birth until death. Survival depends on their ability to find food and water, locate hiding areas to escape predators, and seek protection from harsh weather.

The abundance and diversity of various wildlife species in any area is a product of the land. Land areas differ in their ability to produce and support wildlife. The kinds and amounts of wildlife an area can support depend primarily upon the quality and quantity of available "habitat." Water, living space, food, and vegetative cover are essential for wildlife survival. A deficit in one of these four habitat requirements will limit populations of any wildlife species.

Importance of Cover

Water is usually not a limiting factor for wildlife except for wetland-dependent species. Water is also a concern during prolonged drought periods. Most wildlife species can obtain water from existing water sources, plants, and dew. Living space is also not usually a problem, especially in a state like Wyoming where human populations are low. There are some localized problems with available living space, but Wyoming generally offers vast open areas for wildlife to roam.

Figure 2. In Wyoming, natural wildlife food supplies are generally adequate due to the variety of different habitat types available. Sagebrush-grass comprises a large habitat type in Wyoming that supports a variety of different wildlife species at different times of the year.

Figure 3. Deficiencies in vegetative cover can result in high wildlife mortality due to exposure during severe weather and increased vulnerability to predation.

However, the variety of food and cover available on that living space is vital for wildlife survival in most areas. Because different wildlife species select different types of food and cover, the variety and amount of food and cover within the living space influences survival rates. In Wyoming, natural food supplies are generally adequate due to the variety of "habitat types" available and the relatively unrestricted access to these various habitat areas. For example, the different habitats available to wildlife in Wyoming include alpine tundra, coniferous forests, deciduous forests, juniper foothills, shrub-lands, sagebrush-grass rangeland, riparian areas or streamside zones, and wetlands. Lack of cover, however, may cause more wildlife deaths than starvation because of exposure during severe weather and increased vulnerability to predation.

Cover Types and Functions

Plants provide the basis for wildlife cover and can be grouped into woody (trees and shrubs), herbaceous (grasses, forbs, and legumes), and aquatic (marsh and wetland plant types). Each plant group is used by various wildlife species at different times of the year for different purposes. For example, an alfalfa field (herbaceous) is excellent for spring pheasant nesting but inadequate for protection from winter blizzards. Likewise, a cattail marsh (aquatic) provides good winter cover but is undesirable for spring nesting. Habitat requirements for a species will change from season to season.

Figure 4. Different plant groups such as herbaceous (grasses, forbs, and legumes), woody (trees and shrubs), and aquatic (emergent and submergents) are used by a variety of wildlife species at different times of the year for different purposes. For example, an alfalfa field provides excellent spring nesting cover for pheasants but poor protection against winter blizzards.

The value of plants in providing quality cover for different wildlife species is determined by amount, location, and interrelationships with other plant groups. For example, a shelterbelt or wooded draw located adjacent to cropland with a rank growth of weeds nearby would provide ideal cover for a variety of wildlife species. However, in many agricultural cropland areas, miles of row crops have replaced the natural diversity of plant groups, resulting in reduced habitat diversity and subsequent reductions of wildlife populations. Wildlife species need a variety of cover types for reasons such as protection from predators,

Figure 5. In many agricultural cropland areas, vast expanses of row crops have replaced natural vegetative cover, resulting in reduced habitat quality and subsequent declines in wildlife populations.

protection from severe weather, nesting, roosting, brood rearing, loafing, and feeding.

Pheasants can be used as an example to consider the various functions of different cover types with regard to survival.

(1) Nesting cover – In Wyoming, dense residual herbaceous cover is required for pheasant nesting. Absence of this cover type, especially in intensively farmed areas, becomes a major limiting factor in pheasant production. Rank, undisturbed stands of herbaceous vegetation provide essential nesting material and protection from nest predators. Waterways, roadsides, fence lines, and other grassy / weedy areas with knee-high or hip-high herbaceous vegetation provide adequate nesting cover. Annual cereal crops such as oats and wheat may also provide good nesting cover if planted early. Alfalfa offers excellent nesting cover habitat when cutting is delayed to allow hens a chance to bring off a brood.

(2) Brood-rearing cover – Stem plants with fairly open ground cover such as soybeans or second-year sweet clover provide room for pheasant chicks to run around beneath the foliage while still providing protection from predators. Absence of this type of cover results in higher chick mortality due to exposure and predation.

(3) Loafing Cover – This cover type is always needed for roosters, idle hens, and maturing young birds. It must provide enough shelter for a windbreak or sun screening, have some bare ground for dusting, and be reasonably close to food sources. Shrub thickets, tall crops, and grassy field corners are excellent examples of loafing cover.

Figure 6. In Wyoming, dense residual herbaceous cover provides essential nesting habitat for pheasants and other game birds. Absence of this type of cover becomes a major limiting factor in producing wildlife such as pheasants.

(4) Escape Cover – Pheasants and other wildlife generally stay close to emergency escape cover that provides protection against predators. This cover type must provide adequate density and area to allow escape from pursuing predators. Heavy woody shrub thickets, large cropland areas, and long woody draws are good examples.

(5) Roosting Cover – Low, dense, herbaceous (non-woody plants that wither away each year) vegetative growth in large land areas that discourages even the most ambitious predators will provide protection for night-time roosting pheasants and other wildlife. Alfalfa fields and heavy shrub thickets with dense herbaceous understory cover are ideal examples of roosting cover.

(6) Winter Cover – Heavy thickets of tall herbaceous plants and shrubs such as willow riparian bottoms, dense tree stands such as shelterbelts, and natural residual (remaining dead plants) aquatic wetland vegetation such as cattails pro-

Figure 7. For many wildlife species wintering in Wyoming, dense tree stands, heavy thickets of shrubs in riparian bottoms, and natural residual aquatic vegetation such as cattails provide protection against cold temperatures, snow, hail, and blizzards.

vide winter protection against cold temperatures, snow, hail, blizzards, driving rains, and predators. In Wyoming, the availability of winter and nesting cover are the two major factors limiting pheasant production.

Although the pheasant was used as an example to describe various cover types and functions, the same principles apply to other wildlife species such as big game. The only difference is terminology. For example, big game require fawning / calving cover for rearing young, bedding cover for periods of rest, hiding cover for protection against predators and hunters, and thermal cover for protection from winter cold and summer heat. Although the types of woody, herbaceous, and aquatic vegetation differ somewhat to fulfill cover requirements of big game and other wildlife species, the principles of cover-type functions are the same.

Cover Diversity Factors

One of the best ways to attract more wildlife to a particular land parcel is to improve cover diversity. This means adding a variety of plant species and improving their interrelationship with other habitat features such as open areas and watering sites. Terms commonly used to describe cover diversity include structure, patchiness, edge, size, and special habitat features.

(1) Structure – Many researchers believe that wildlife select habitat areas based on the structural "look" of the cover types (the outlines, density, vertical, and horizontal arrangement of existing vegetation as a whole). Plants comprising the cover type must provide the right shape, height, leaf density, vertical layering, and horizontal diversity (i.e. downed logs, topographic relief) in a spatial arrangement to be selected for nesting, calving / fawning, brood rearing, bedding, feeding, and protection from predators. The species of plant is not as important as its physical appearance (spreading shrubs, flowering forbs, vertical grasses, or mature trees).

Figure 8. Improving cover diversity of an area is the best way to attract more wildlife. This simply means adding a variety of plant species and improving their interrelationship with other habitat features such as open areas and watering sites.

Each vegetative life form (grasses, forbs, shrubs, trees) represents a vertical layer in the cover profile, providing places for nesting, calving / fawning, hiding, or feeding that differ slightly from the vegetative layer above or below. Different heights in a forest canopy, for example, have different temperatures, humidity levels, insect populations, and food resources. This vertical cover diversity or structure offers more opportunities for habitation by a wider variety of wildlife species. Improving cover structure will attract more wildlife.

(2) Patchiness – Horizontal diversity or variations in land surface cover are just as important as vertical cover diversity in attracting a variety of wildlife. Natural disturbances such as

Figure 9. "Edge," the area where two plant cover types adjoin one another, is particularly valuable to wildlife due to the greater biotic diversity offered compared to either neighboring cover type alone.

windstorms, fires, insect infestations, and rock slides can create openings in a large cover-type block that produce different stages of vegetative growth and increase cover-type diversity. A mosaic of openings in a coniferous forest, for example, provides a sunny area for wildlife to obtain food sources while remaining close to protective cover. A combination of different cover-type patches allows wildlife to meet all their needs without traveling far. Improving horizontal diversity or patchiness will also increase wildlife diversity and use of an area.

(3) Edge – In biological terms an "edge" is the place where two cover types or plant communities adjoin one another. These areas are particularly valuable to wildlife because they offer greater biotic diversity than either of the neighboring cover types alone. Research has demonstrated, for example, that wild birds are more abundant, both in absolute numbers and number of species, at the edge of woodland areas rather than within the woodland itself. That is because these edge areas offer not only a wider variety of food (each area supports different kinds of invertebrates, insects, and plants) but also more places for hiding and nesting. An area containing adjoining grassland meadows, sagebrush shrub pockets, forested woodlands, and artificial or natural ponds provides optimum benefits for wildlife. Using birds as an example, the grassland meadow offers food and nesting material, the sage-

brush pockets provide nesting spots and cover, and forested woodlands supply high resting and song perches. Increasing the amount of "edge" provides cover-type diversity by furnishing preferred activity centers for birds and other wildlife.

Figure 10. To maximize wildlife abundance and diversity, ensure that all the essential ingredients of quality habitat exist: living space, food, water, and vegetative cover.

(4) Size – Many wildlife species require large areas of unbroken cover types to minimize impacts from human disturbances and other factors. For example, grizzly bears need a wide range of undisturbed feeding territory to prosper. Wolves are especially sensitive to human intrusions, requiring vast acreages of wilderness to survive. In some cases, increasing the size of cover types can enhance wildlife abundance and diversity.

(5) Special Habitat Features – Some wildlife species require special habitat features in the cover types they occupy. These special features may include proximity to water, cavities in old trees, uncompacted soil for digging, and natural perches for resting. A cover type may be ideal, but if it fails to provide a particular ingredient essential to the animal's lifestyle, it will not be used. Providing the required special habitat features for wildlife species known to inhabit a particular area can enhance abundance and diversity.

Summary

Of the four essential ingredients comprising good wildlife habitat – living space, food, water, and cover – the lack of cover has the most impact on wildlife abundance and diversity. Whenever arguments occur about the wildlife habitat issue, one faction invariably blames predators, hunting pressure, lack of winter feeding, or some other phenomenon as the major limiting factor affecting wildlife populations. However, research has proven time and again that degraded cover and denuded areas are primarily responsible for wildlife disappearance. Intensive agricultural practices, land-leveling, shelterbelt and woodlot removal, wetland drainage, fall discing and plowing, winter burning of crop stubble, herbicide spraying of roadsides and fence lines, and numerous other cover removal practices have all contributed to a barren landscape. Where there is no cover, there is no wildlife.

With regard to wildlife, the most important concept to remember is to provide all the essential ingredients of wildlife habitat. Then, focus on increasing the diversity of cover by improving structure, patchiness, edge, size, and special habitat features through various habitat improvement techniques. Enhancing cover diversity will increase the abundance and diversity of wildlife and provide hours of recreational enjoyment.