North Central Forest Experiment Station 9.01

CENTRAL HARDWOOD NOTES

Principles Of Wildlife Habitat Management

Simply stated, habitat is where an animal lives and must include all the resources an animal needs to survive and reproduce. An animal's habitat has to provide five essential factors: food, cover, water, space, and interspersion. Habitat management is identifying which factors are scarce enough to limit populations, and then improving the habitat to remove the limiting factors. By putting your efforts on limiting factors you will get the greatest response in wildlife populations for the resources expended. You must accurately identify limiting factors, to avoid unnecessary efforts on nonlimiting factors.

Wildlife Habitat and Ecological Succession

Most habitat management consists of either increasing or decreasing certain plant communities, or reordering their composition because different wildlife species are adapted to particular plant communities. So habitat management is really managing successional stages.

Once the association between successional stages and wildlife habitat is understood, then broad management actions can be based on three questions:

1. What is the present successional stage?
2. What successional stage is needed by the wildlife species you want?
3. How do you move from the present stage to the stage you want?

Answers to questions 1 and 2 are relatively straight forward but require knowledge of ecological succession in your area, an inventory of the different communities, and some knowledge of the biology and ecology of the wildlife species to be emphasized. Answering question 3 is more difficult. Treatments to accomplish this task include prescribed burning, planting, mechanical and chemical treatments, and thinning and harvesting. You must decide which treatment is within budget, manpower, and environmental constraints. If early successional stages are maintained, frequent treatments may be required. On the other hand, maintaining climax communities may only require protection.

Interspersion and Edge

Interspersion is an essential habitat component that is often overlooked or underrated. Interspersion is the geographic distribution of an animal's habitat resources in relation to its cruising ability or mobility. For wildlife with a low cruising ability, the amount and quality of food, water, and cover in the habitat may not be as critical as how these resources are distributed. Many times habitat can be substantially improved by increasing the level of interspersion without changing the relative amounts of food, water, and cover.

Greater interspersion increases the amount of edge in a habitat. The number and kind of wildlife species is usually greater along edges than in either community forming the edge. When wildlife species associated with edges are being emphasized, management should be directed at increasing the amount and quality of edge. Rectangular shaped habitats have more edge per area than either circular or square shaped habitats. Edge quality should receive equal consideration. An edge formed by a forest stand and fescue pasture is lower quality for white-tailed deer and cottontail rabbits than an edge formed by a forest stand and an old field of bunch grasses, brush, and forbs. Further, abrupt edges are not as valuable as gradual transitions between communities. A transition zone is actually a separate habitat type. This zone may be used by wildlife that are not present in communities on either side.

The width of a transition zone can be increased by "feathering" the outside edge of a forest stand by removing the larger trees within 30 feet or more from the stand's edge and leaving scattered small trees and shrubs. Slash can be stacked on stumps, piles of rocks, or cull logs to provide wildlife with easy access under brush piles. If the edge is associated with an opening or field that is regularly plowed, mowed, or burned, the outside 30 feet or more can be set aside and treated only frequently enough to control invading woody species. Or several rows of plants selected for wildlife can be established along the edge of the field or opening.

Inherent Conflicts

Management goals are usually set to improve the habitat for a single wildlife species or groups of species. However, there can be conflicts inherent in these goals. Conflicts result because enhancement made to benefit some wildlife destroy habitat for other wildlife. For example, maximum habitat diversity is a common management goal. However, this approach could fragment contiguous stands of mature hardwood forest. While overall species richness would increase with increased habitat diversity and edge, species needing large blocks of forest may be eliminated. Some forest species have minimum habitat size requirements and will not occupy areas smaller than this critical size. Minimum size requirements must be accommodated if certain area-sensitive species are to be encouraged. The popular maximum diversity approach has been criticized because the value of individual wildlife species or special resource features may not be adequately considered.

When you consider diversity, it is important to remember the scale at which the concept will be applied. The lowest level is within a forest stand or small woodlot. The next level is the diversity within a compartment or management unit. The highest scale is the diversity within a large geographic area or region. Most managers are concerned with the smallest and next level of diversity. Usually the area and resources involved are not sufficient to completely avoid the inherent conflicts of fragmentation previously discussed.

However, resource managers of small tracts should consider the needs of individual species and special features in their prescriptions. Owners should be informed of these special needs and how their tracts can fit into a broader scheme for habitat management that includes neighboring tracts.

Some managers and most resource agencies have the opportunities to develop habitat management strategies at the highest diversity level. In these cases planning procedures should ensure that individual species and special resource features are considered in the alternatives. For large areas, the needs for both edge-sensitive and area-sensitive species can be met. For a region as vast and diverse as the central hardwoods, resource managers and land owners collectively need to be committed to a wide variety of management approaches to meet the needs of all wildlife species. It would be tragic to foster a "uniform" management that creates habitat for wildlife that may already be abundant at the expense of reducing habitat for species that are scarce.

References

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