



MANAGING WILDLIFE OPENINGS

FOREST STEWARDSHIP MANAGEMENT NOTE #25

INTRODUCTION

Of the nearly 400 species of birds, mammals, reptiles, and amphibians inhabiting the northern Lakes States region, almost half are closely linked to field-forest edge habitat. Herbaceous openings in the forest produce wildlife benefits in several ways. The dense herbaceous growth of sunny areas provides abundant food for herbivores and nesting sites for a variety of birds and mammals. The insects and small mammals that thrive in the herbaceous vegetation provide high-protein food needed by young animals for proper growth. The brushy "edges" between the opening and the forest provide preferred habitat for browsers and many other species.

Herbaceous openings are especially beneficial to upland game species where the landscape is heavily forested. However, in landscapes where forest cover is fragmented rather than continuous, wildlife openings can be detrimental to wildlife species that depend on large wooded tracts. Furthermore, permanent wildlife openings are expensive to construct and maintain. Thus, landowners should carefully consider the advantages and disadvantages.

This Note summarizes recommendations for constructing and maintaining wildlife openings, discusses possible problems associated with forest fragmentation, and lists sources of further information.

RECOMMENDATIONS FOR PLANNING AND CONSTRUCTING WILDLIFE OPENINGS

1. **OPENING SIZE AND DISTRIBUTION** - Published recommendations for opening size vary from 1/2 to 10 acres, but the trend is toward smaller sizes. Recommendations for distance between openings vary from 1/4 to 1/2 mile. In terms of density, 1-2 openings per 100 acres are suggested by some experts. It was formerly recommended by some wildlife agencies that openings comprise 5-10% of the total land area, but recent studies indicate that 1-5% is adequate if the openings are well placed and managed (#5).

When planning a system of openings, consider the overall availability of permanent openings and early successional forest types present or expected in the area, including utility rights-of-way, seeded forest roads, roadsides, farmland, and timber harvests. It is better to have several small clearings than a single large one. For short-ranging species, such as quail and grouse, openings should be smaller and more closely spaced. For wider-ranging species, such as turkey and deer, openings should be larger and farther apart.

2. **OPENING SHAPE AND ORIENTATION** - Make openings irregular in shape so that more edge will be created per acre and so that they appear more natural. Whatever the shape and orientation of an opening is, the minimum dimension should be at least 200 feet so that sufficient sunlight will reach the ground and frost will help to suppress woody regrowth.

3. **OPENING LOCATION** - Existing or partially overgrown openings (e.g., old pastures or homestead sites, gravel pits) should be given first priority because of the high cost of developing new openings. Similarly, it makes sense to expand small openings that are already established, such as log landings and forest roads. Where no openings exist, new openings should be located to minimize maintenance costs and to maximize their use by wildlife.

COST CONSIDERATIONS - In terms of minimizing maintenance costs, it is wise to locate openings in places where trees will be slow to reproduce, such as frost pockets, poorly drained sites, and sites with shallow soil. But, avoid very dry or infertile sites as desirable herbaceous vegetation is difficult to establish in such places (FSMN #4). Also avoid areas that are heavily stocked with vigorous sprouting species, such as red maple, basswood, cherry, and aspen. When creating openings on good (i.e., fertile) sites, try to select

areas where woody seedlings are less than 1 foot tall, as taller seedlings are likely to resprout.

WILDLIFE CONSIDERATIONS - In terms of maximizing wildlife use, try to locate openings bordering forest roads or wildlife trails. The more vegetation types an opening touches on (e.g., hardwoods, conifers, wetlands), the more diverse the resulting vegetation and wildlife will be.

4. OPENING CONSTRUCTION - Constructing permanent wildlife openings from forested land requires some or all the following steps:

REMOVE TIMBER by clearcutting, leaving a few snags and den trees (see FSMN #28). Leaving or planting clumps of conifers in and around the opening will provide cover and shelter and increase wildlife use (#2). If the opening is created in aspen, leave a strip of uncut trees along the edge to deter aspen root suckers from invading the opening (#6). Trees along the edge are likely to be drilled by sapsuckers, so valuable timber trees along the edge should usually be harvested (#9). Wildlife diversity will be increased if the edge between the opening and the forest is gradually "feathered" rather than made as a distinct boundary.

CLEAR STUMPS AND DEBRIS with a bulldozer equipped with a rockrake, creating brush piles (FSMN #26). Any cut banks, such as in gravel pits, should be preserved as nesting sites for bank nesters (#3). Construction should not be done when soils are wet, but adequate soil moisture is needed for successful seeding. Woody regrowth may be controlled by repeated mowing or by the use of approved herbicides (FSMN #10).

ESTABLISH HERBACEOUS VEGETATION for wildlife forage by discing, fertilizing, seeding, and mulching (see below, FSMN #7).

PLANT SHRUBS OR TREES for wildlife or aesthetics (see below, FSMN #27).

INSTALL NEST BOXES for wildlife (FSMN #24).

VEGETATION MANAGEMENT IN PERMANENT OPENINGS

- 1. HERBACEOUS VEGETATION** - Most publications on the topic recommend planting openings to non-native, cool-season grasses and legumes because they produce rapid growth in the spring and fall when the nutritional needs of wildlife are high and native forage is less available. However, where maintaining or restoring native biodiversity is an objective (FSMN #37), consideration should be given to alternative seeding mixes. Warm-season grasses and other native prairie/savannah plants are promising options to consider, possibly in combination with conventional species (FSMN #7).
- 2. WOODY VEGETATION** - Although the main purpose of openings is to provide herbaceous vegetation, wildlife values can be made even greater by giving some attention to woody plants. Leaving snags, den trees, and conifer clumps, has already been mentioned. Openings also are ideal places to plant wildlife shrubs (FSMN #27) and apple trees (FSMN #29). Periodic brush-hogging around the edges of openings will maintain a valuable brushy edges without letting them take over.

POSSIBLE PROBLEMS ASSOCIATED WILDLIFE OPENINGS

- 1. FOREST FRAGMENTATION** - Edge habitats, as created by wildlife openings, are increasingly widespread in human-dominated landscapes and are thought to threaten several components of biodiversity by creating overpopulations of certain herbivores, predators, and nest parasites (#1). Edges may also contribute to the invasion of weedy, exotic plant species.
- 2. WHITE-TAILED DEER OVERPOPULATION** - Deer are prone to overpopulation, and high densities of deer can seriously damage crops and native vegetation and cause other problems (FSMN #42). Thus, because they contribute to increased deer herd size, openings should be avoided in areas of high deer density.

3. NEOTROPICAL MIGRANT BIRD DECLINES - Many species of birds that nest in Michigan and spend the winter in the American tropics are experiencing significant population declines (#8). There are several causes of these declines, but high levels of nest predation and nest parasitism appear to be major factors, and edge habitat contributes to both these problems.

Nest predators, such as blue jays, crows, and raccoons, tend to search for nests along abrupt edges. Thus, maintaining brushy edges around openings is recommended.

Brown-headed cowbirds do not build nests or care for their own eggs; they lay their eggs in the nests of other species and their aggressive young outcompete the young of the host bird (#4,7). As adult cowbirds feed only in short herbaceous vegetation and do not penetrate deeply into the forest to parasitize nests, they are not much of a problem in heavily forested landscapes. However, in landscapes that are less than 70-80% forested, cowbirds can greatly reduce the breeding success of other birds. In such areas, openings should be maintained in tall herbaceous vegetation or avoided.

REFERENCES

FSMN #'s refer to other Forest Stewardship Management Notes in this series.

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- #2 Decker, D.J. and J.W. Kelley. 1982. Enhancement of wildlife habitat on private lands. Cornell Coop. Extension Publication - Information Bulletin 181.
- #3 Henderson, C.L. 1987. Landscaping for wildlife. Minn. Dept. Natural Resources.
- #4 Line, L. 1994 (Dec/Jan). Curse of the cowbird. National Wildlife.
- #5 McCaffery, K.R., et al. 1981. Forest opening construction and impacts in northern Wisconsin. Wisc. Dept. Natural Resources Technical Bulletin No. 120.
- #6 Payne, N.F. and F. Copes. 1988. Wildlife and fisheries habitat improvement handbook. USDA Forest Service Wildlife and Fisheries Admin. Rept. (unnumbered).
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- #8 Terborgh, J. 1989. Where have all the birds gone?: Essays on the biology and conservation of birds that migrate to the American tropics. Princeton U. Press.
- #9 Tubbs, C.H., et al. Undated. Making wildlife openings. Northern Hardwood Note No. 8.01. USDA Forest Service, North Central Forest Experiment Station.

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