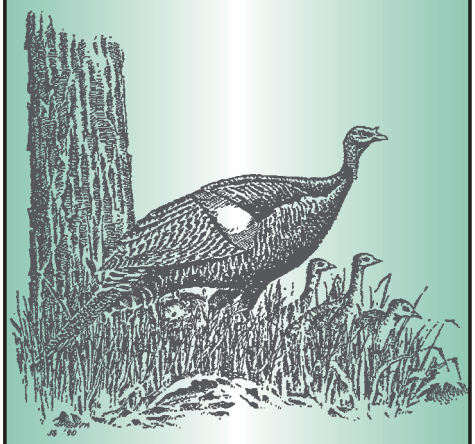
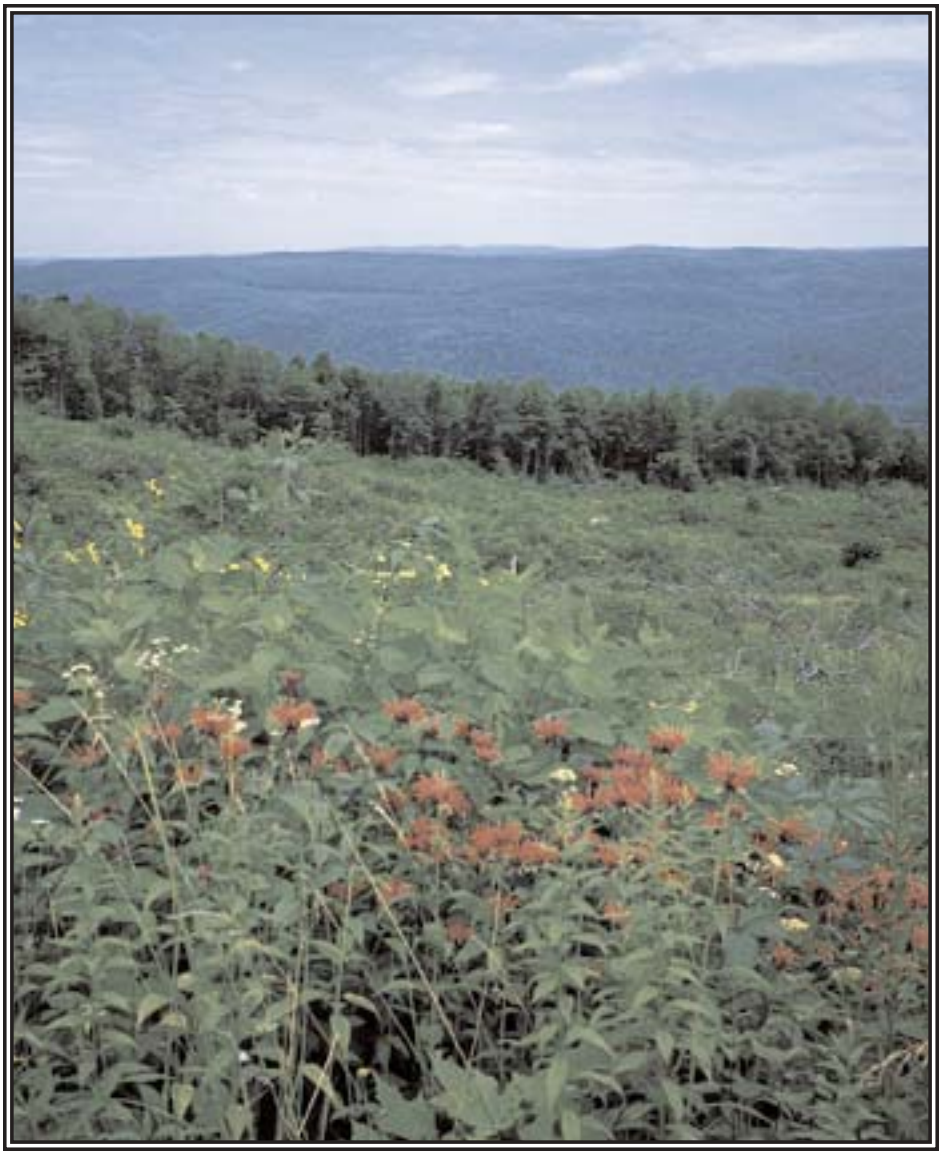


Managing for Timber and Wildlife Diversity

by Joe McGlincy

NWTF Wildlife Bulletin No.15

National Wild Turkey Federation



Ron Brenneman

Developing forestry practices that could potentially benefit all wildlife on the same area is difficult, if not sometimes impossible. The purpose of this bulletin is to outline options landowners have to diversify their timber harvest areas, thereby optimizing habitat for many wildlife species. Economic returns and regeneration will be briefly mentioned, but this bulletin will focus on including wildlife considerations as a part of a timber harvesting operation.

Pre-harvest Planning:

Perhaps the most overlooked part of any forestry operation is pre-harvest planning. Unfortunately, this step is often overlooked by many landowners. Only after the timber harvesting has begun or, even worse, is completed do they realize that certain wildlife provisions should have been considered.

The most important part of any forestry operation is pre-harvest planning.

Photo courtesy of Ron Brenneman

RON BRENNEMAN

A well planned timber harvest can provide economic returns to the landowner and enhance wildlife habitat.

Good pre-harvest planning should include the following:

- ***Economics:*** Is the harvest unit large enough to be economically feasible? What products are available for harvest? Do the financial returns meet the landowner's objectives?
- ***Regeneration:*** How will the stand be regenerated? Will it be planted, or will you rely on natural regeneration? Should the stand be burned prior to harvest to facilitate site preparation? How long will it be before regeneration occurs?
- ***Wildlife:*** Is the size and shape of the harvest area conducive to wildlife use? Are travel corridors provided? What provisions have been made to protect mast-producing trees. Is there a good diversity of different aged stands to benefit a variety of wildlife species? How will access be controlled to prevent illegal hunting?

Considering these 3 issues will get any landowner started down the road to designing a timber harvesting job that will meet the financial objectives and provide suitable habitat for many wildlife species.

Wild animals need several habitat components, and range quality depends on the size of each component and its proximity in relation to other provisions. The farther an animal must range to satisfy its needs or preferences, the more energy it must expend and the greater its exposure to mortality factors.

STAND CHARACTERISTICS AND POSITION:

The wildlife value of a clearing or forest stand is affected by size and shape. Size is important. If the cut units are kept small, the number of different forest stages on a tract is greater. Wildlife staying near a stand border can use more of a small stand

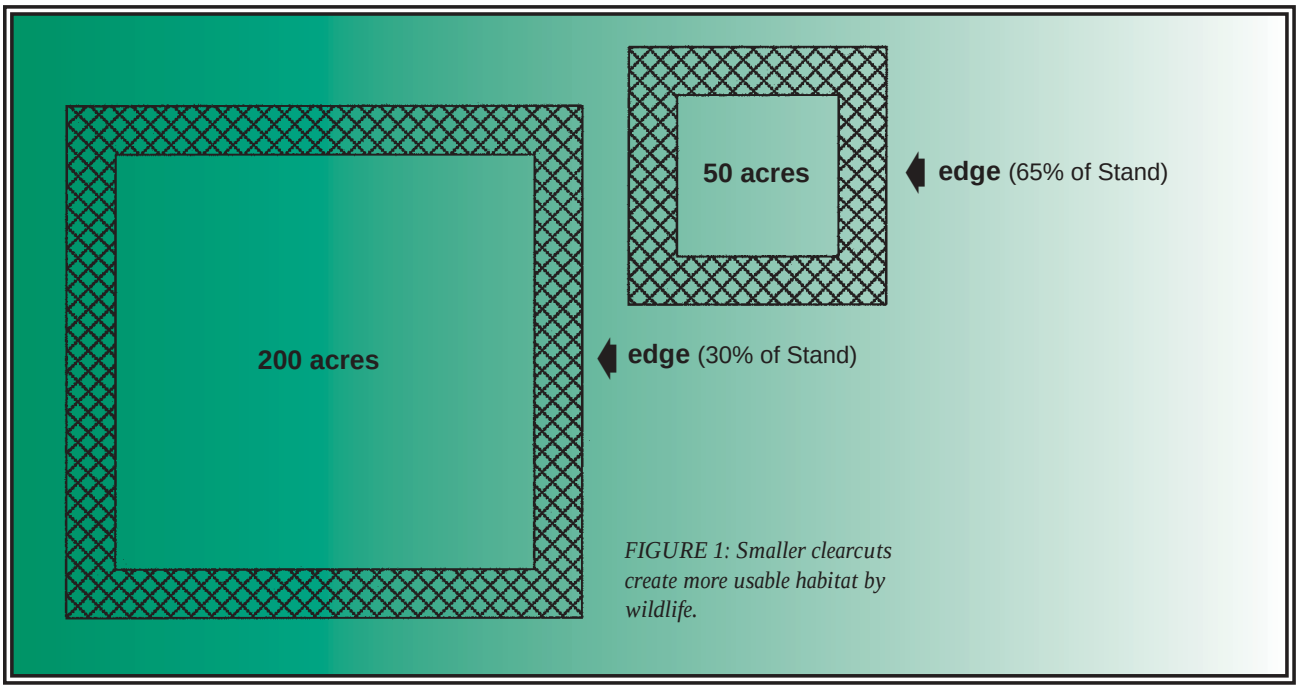


FIGURE 1: Smaller clearcuts create more usable habitat by wildlife.

HILLARY MIMS

than a large one. For instance, deer mainly use the outer 100 yards of a young stand, because concealment has not yet developed enough for them to feel secure in the stand interior. This outer or edge zone represents 65 percent of a 50-acre stand that is square but only 30 percent of a 200-acre stand of the same shape (Figure 1). Thus, the larger the stand, the smaller the percent usable by deer during the early years of stand development.

Very small stands, however, are not as economical to manage as large ones because of several reasons, including the total value of the sale and costs of moving equipment. This problem can be solved by adjoining the corners of units of the same age, using a checkerboard pattern.

The usable portion of any stand can be increased by planning its shape to increase the boundary length per unit area. For example, a 160-acre stand that is 4 times longer than wide (1/4 mile x 1 mile) has 25 percent more edge than a square one (1/2 mile x 1/2 mile) (Figure 2). Additional edge can be developed by making the boundaries irregular instead of straight.

Characteristics of the stand interior are also important. Varied features add diversity within a forest stand and should be planned at the time of site preparation. Features such as slash piles, windrows, snags, thickets, old house places, and groups of living mast trees (protected from fire and herbicides) are

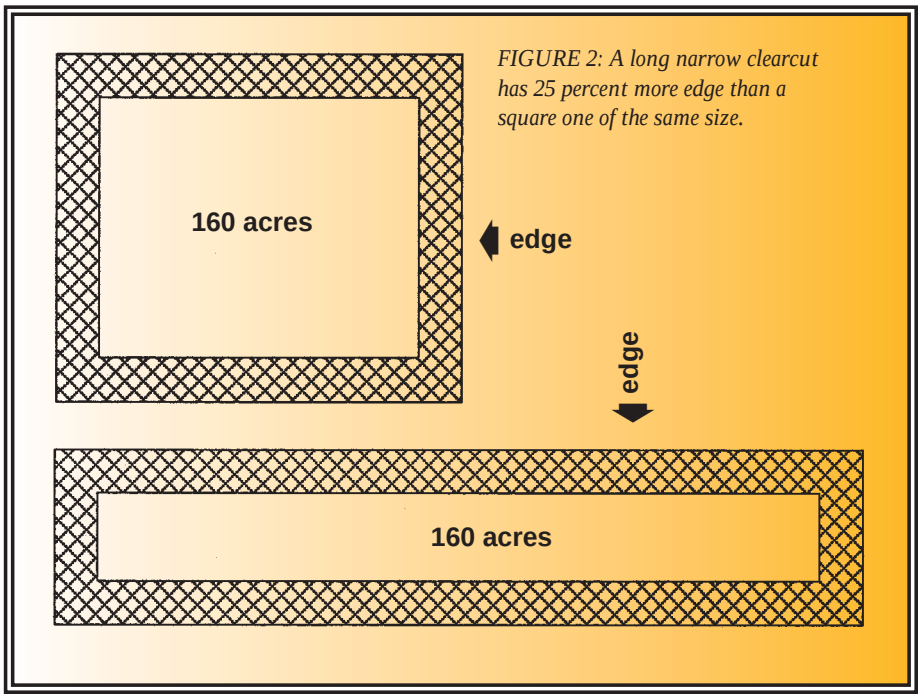


FIGURE 2: A long narrow clearcut has 25 percent more edge than a square one of the same size.

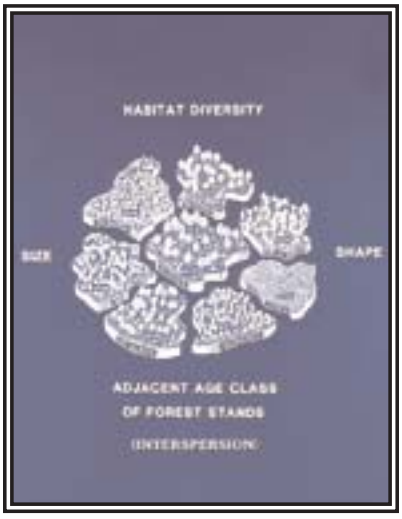
HILLARY MIMS

Deer primarily use the outer 300 feet of a clearcut.

RON BRENNEMAN

JOE MCGLINCY

Streamside management zones are important to maintaining wildlife populations.



INTERNATIONAL PAPER

Habitat diversity enhances wildlife populations.

all beneficial to wildlife. Such features are most effective if they are tied into the edge of a harvest unit where it meets a different habitat type. They also channel the movements of wildlife such as wild turkeys, deer, quail, and rabbits that otherwise would occur in a more random fashion in more uniform habitat. Habitat diversity in a stand tends to enhance wildlife populations and improve hunter success.

The position of different stand ages in relation to each other is as important as individual stand characteristics. Allowing an adjoining stand to reach a different successional stage (5-7 years for pines and 10-15 years for hardwoods) before harvesting the designated area results in a mosaic habitat effect. The resulting diversity would ensure that (1) animals requiring 2 or more different stages can find them within a reasonable travel distance, (2) animals that need only a single stage can find at least one suitable area in the forest block, and (3) there is always a progression from recently harvested clearcuts to young stands to older ones within the forest tract.

Areas around streams are particularly significant. Unfortunately, the tendency is to totally harvest along the full length of a stream section, often on both sides. An improvement would be to use the stream zone as a harvest boundary. This would minimize the need to cross streams with equipment and prevent potential problems in water quality or with water quality regulations. Further wildlife benefits would come from adjoining 2 different age-classes on each side of the stream. The same strategy is useful for planning activities around high-value habitat such as swamp margins and hardwood ravines.

Hardwood trees in SMZs provide mast for wildlife.

RON BRENNEMAN

STREAMSIDE MANAGEMENT ZONES:

There are many benefits of a streamside management zone, or SMZ. The hardwood or mixed pine-hardwood types, usually found in a SMZ, provide foods that are important to many wildlife species, especially from fall through winter. At this time, the kinds of plants common in pine stands are void of fruits and the nutritive value of browse has dropped, especially in deciduous plants. Streamside management zones produce mast (i.e. acorns from oaks, fruit from gums, etc.), den cavities, and climbing vines (grapes and greenbrier) which provide fruits and browse. Vines also add to a multilayered tree canopy, required by certain migrant and summer resident songbirds. Shaded areas under the forest canopy also offer a good escape from the midsummer heat for many wildlife species.

The optimum SMZ width for most wildlife is difficult to determine. Very narrow "picket fence" zones (<50 feet wide) are used by some songbirds but are insufficient for most game species. A zone should be at least wide enough so that large animals, such as deer and turkeys, will have security from people or predators and will find open conditions on the ground for easy walking. This latter requirement is generally not satisfied in a narrow zone because the increased sunlight along both edges causes vegetative growth to become too dense. Another consideration is that the SMZ be wide enough to shade the stream.

Forestry activities within SMZs differ with each landowner's objectives. Some allow no cutting within the SMZ. In pine forests some take all or most pines and leave hardwoods, while some take pines and only mature hardwoods. In hardwood forests the landowner may cut only the mature hardwoods from the SMZ. The impacts on wildlife are as mixed as the forestry activities.

Large hardwoods, especially oaks, are the major mast and cavity producers targeted for SMZ retention. Large pines or other conifers in an SMZ add diversity for insect-eating birds, which feed on the boles and foliage, while pine mast is a food for turkeys, bobwhites, some songbirds, and small mammals. Conifers are also very important as turkey roosts.

The streamcourse habitat is especially vulnerable to activities in adjacent stands and clearings. Prior to a timber sale, it is necessary to clearly mark, with a painted line, the boundaries of SMZs, to prevent timber harvesting encroachment. Later, it is necessary to monitor site preparation activities, especially if fire and herbicides are being used. In pine forests, a wide fire line between the SMZ and the adjoining stand is helpful in keeping site prep operations out of the stream zone. This control not only helps maintain wildlife habitat but prevents violations of water-quality regulations. See **NWTF Wildlife Bulletin No. 18** for more detailed information on management of SMZs.

CORRIDOR MANAGEMENT:

The term corridor refers to any strip of timber left standing at the time of harvest. Its main purpose is to provide for ease of animal movement across areas that are at first too open, as occurs with a new clearcut, or later become too dense, such as sapling stands. Such travel

lanes often contain types of food and cover not available nearby, while the corridor borders create quality edge. A corridor is most needed in larger clearcuts (200 acres or more) that do not contain an SMZ or when used to connect 2 similar types of habitats that have been separated by a clearcut.

Wildlife that benefits most from corridors are wild turkeys, deer, and, if enough hardwoods are present, squirrels. Habitat is also enhanced for quail and many edge species, which includes a number of songbirds.

Management within corridors varies with the wildlife objective and the existing understory conditions. If the understory in pine stands is thick, prescribed burning should be used at a proper frequency or time of year to achieve a specific desired condition. In pine uplands, a winter burn every 3-5 years is sufficient beneath a full tree canopy. Where the canopy is thin enough for tangles of blackberry and vines to grow, burning every 1-2 years in the corridor may be needed. If its purpose is to include mast potential and the canopy is dense enough to make an open understory, prescribed burning should not be practiced. This is especially true if the corridor is made up primarily of hardwood trees. Hot fires can be very harmful to most hardwoods and should not be used in their management.

Narrow SMZs allow vegetation to get too dense which decreases wildlife use.

Joe McGlincy

Travel corridors enhance movement of wildlife through harvested areas.

International Paper

The width of a corridor is important for the same reasons given for SMZs. A total width of 300-400 feet will ensure an interior zone that can be kept sufficiently open for most wildlife. This dimension is also adequate for timber management considerations later, when the adjoining stand has developed to the point that the corridor is no longer needed. Timber in the corridor may be cut when any adjacent stands are thinned. When the corridor timber is harvested, a new corridor can be made from adjoining stands. This moveable corridor approach has been successful in maintaining flocks of wild turkeys.

High-value Wildlife Habitats:

Beyond maintaining age-class distribution, conservative stand size, and developing edge, there is still potential to improve habitat conditions. Before this can be done, the landowner must be familiar with existing forest features used by different wildlife, especially far-ranging species like wild turkeys and deer. Such information can be accumulated by keeping a field map to mark animal sightings made personally, by hunters, and others. Quite often, special habitats include hardwood bottoms, permanent forest openings, such as rights-of-way, old house places, and wetlands.

After identifying such areas and mapping them, the next step is to make sure they remain linked together to allow animal movement from one important area to the next. This can be accomplished during pre-harvest planning by taking advantage of streamcourses, non-dynamic (steep or excessively erodible) sites, and swamp margins. For example, if a small watershed has an SMZ after a clear-cutting operation, habitat for big game is enhanced. But the value of this zone will be greatly increased if it is linked by a corridor to a similar zone in an adjacent watershed, or to a pasture, beaver pond, or other high-value habitat. Consideration should also be

Integration of wildlife and timber management practices allows landowners to meet multiple objectives.

Glenn "Tink" Smith

given to providing passageways to important habitats on neighboring properties.

The questions What does this practice do to wildlife? and How can I better manage for wildlife? are as hard to answer as if the word “trees” were substituted in place of “wildlife.” Confusion comes because every species has unique requirements and each one is affected differently by any change in the forest. Each animal species must be considered individually if we are to understand the influence of forestry practices and outline ways of improving conditions for both.

With proper planning, landowners and managers can integrate wildlife and timber management practices that will enable them to meet multiple objectives on a single piece of land. Economics, regeneration, and wildlife must all be considered to assure that the land will continue to produce timber and wildlife that future generations can profit from as well as enjoy.