

Chapter 11 B. Case study: Grouse Management at the Monongahela National Forest, West Virginia

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History and management objectives

The Monongahela National Forest, located along the eastern highlands region of West Virginia, provides approximately 935,000 acres available to the public for wildlife-related recreation opportunities such as hunting, fishing, wildlife watching, and other forms of non-consumptive use. Since 1946, the United States Forest Service and the West Virginia Division of Natural Resources, Wildlife Resources Section have taken a cooperative approach in the management of the fish and wildlife resources on the National Forest lands within West Virginia. An example of this joint management philosophy is illustrated in the establishment of a Ruffed Grouse Management Area (GMA) within the boundaries of the Potomac Ranger District, Monongahela National Forest. A 30-year memorandum of understanding and a cooperative agreement were developed in 1983 between the public agencies to guide the management activities within the boundaries of the 1,739-acre GMA. The primary objective of the GMA is to enhance habitat quality for early-successional forest wildlife species such as ruffed grouse, woodcock, and other nongame species.



Figure 1a and 1b. Ruffed grouse and eastern towhee are just two of the species that stand to benefit from the habitat management occurring in the Grouse Management Area of the Monongahela National Forest.

Landscape context

Northern hardwood forests dominate the GMA and the surrounding landscape. More specifically, black cherry, red maple, and American beech comprise the majority of tree species within the GMA. Northern evergreen forest communities, dominated by red spruce, are found in close proximity at higher elevations. The majority of the surrounding landscape is federally owned with a few scattered private inholdings. Elevations on the GMA range from 3,500 to 4,120 feet above sea level. The following general cover classifications are found on the GMA: forestland, primarily black cherry-maple (1,630 acres), fern/forb openings (87 acres), and wildlife openings maintained in grasses/legumes (22 acres).

Early-successional habitat management prescriptions

Commercial timber sales administered by the U.S. Forest Service are used to achieve the objective of the GMA. Generally, a 100 to 120 year timber harvest rotation applies to most areas of the National Forest not designated as Wilderness Areas. A control plot, which lies in close proximity to the GMA (treatment area), encompasses 1,906 acres and is also managed on a 100- to 120-year timber harvest rotation. In contrast, the management strategy on the GMA has been modified and subsequently will be managed on a shorter 60- to 70-year harvest rotation. Positioning the GMA in close proximity to a control plot provides wildlife biologists the opportunity to monitor the wildlife benefits and impacts of an accelerated harvest strategy (GMA) in comparison to a longer-term harvest rotation (control plot), which favors older growth trees. Since 1986, a total of 409 acres have been harvested in the GMA utilizing clearcut treatments (Table 1).

Individual timber stands harvested to date have averaged eight to nine acres in size, but have ranged from 3 to 22 acres. Spacing and timing of timber sales and cuts is varied throughout the GMA to maximize the interspersion of habitat types and age classes. Future timber sales will be positioned adjacent to or in close proximity to previously conducted sales to maximize stand size class diversity. This management approach will ensure a diverse mosaic of sapling, pole-timber, and saw-timber size classes, which is so important to early-successional forest wildlife as well as other species that thrive on habitat diversity.



Figure 2. Clearcuts averaging 8 to 9 acres are generally used to enhance early-successional habitat conditions on the Monongahela National Forest.

Other habitat enhancement activities conducted in the GMA

Seeding of skid roads and log landings

Upon completion of logging activities, a portion of the haul roads and log landings are graded to contour and seeded with an appropriate wildlife seed mix. Herbaceous plantings, including grasses and legumes such as Ladino white clover, Dutch white clover, and bird's-foot trefoil provide excellent brood habitat and foraging areas for ruffed grouse, wild turkey, and other nongame species. In heavily forested landscapes such as the Monongahela National Forest, the lack of quality brood habitat limits the abundance of various wildlife populations such as wild turkey and ruffed grouse. Herbaceous seeding costs vary depending upon fertilizer and liming needs, but will typically range from \$200 to \$300 per acre. Log landings and roads are mowed annually or every other year during late July or August to maintain a herbaceous cover. Private landowners should consider including habitat enhancement practices such as the revegetation of log landings to an appropriate wildlife seed mix and construction of forest openings as a condition of the timber sale contract.



Figure 3. Log landings planted with grasses and herbs provide excellent brood habitat and foraging areas for ruffed grouse, wild turkey, and other nongame species.

Conifer seedling underplantings

The GMA is dominated by deciduous species with little evergreen cover. Conifers provide thermal cover especially during the cold winter months at high elevations. In addition, they provide excellent roosting/loafing areas and escape cover for a variety of wildlife species. Small patches of spruce have been planted randomly throughout the logged areas immediately following completion of harvest operations. Conifer plantings should encompass a minimum of 1/2 acre with trees planted on a six to eight foot spacing grid. Conifers are relatively inexpensive and can commonly be purchased for \$15 to \$25 per hundred seedlings.

Drumming log placement

During logging operations, unmerchantable logs with a minimum diameter of 12 inches that are 8 to 14 feet in length, are placed and/or left in clearcut areas (one to two per acre) to provide suitable grouse drumming sites.

Road closures

The majority of the access roads within the GMA are gated to prohibit public vehicular traffic. This action protects against human disturbance during the critical nesting season and brood rearing period, which can have a negative impact on population recruitment.

Releasing and planting of shrubs

Within the GMA, stands of hawthorn, American holly, mountain ash, and apple are released to increase sunlight availability, and as a result, increase long-term survival of these valuable soft mast-producing species. Release cuttings involve the selection of desirable tree and/or shrub species and the removal, by way of chemical or mechanical methods, of the non-desirable species that are competing for the same space. In addition,

native species such as hawthorn and crabapples are planted along timber haul roads and temporary openings upon completion of timber sale activities. Young tree seedlings (18 to 24 inches in height) can commonly be purchased for \$70 to \$100 per hundred seedlings from various nurseries throughout the country.

Other management activities

Wild grape arbors are identified and protected during logging activities. In addition, clumps of aspen are regenerated or expanded, when feasible. Clearcutting the aspen stand and an adjacent buffer around the stand can accomplish this, and is best done during the dormant season to maximize root suckering.

Management results and wildlife monitoring

Since 1989, ruffed grouse population trends in the GMA have been monitored. Observers walk pre-determined transects through the GMA and the control plot to evaluate the response of ruffed grouse to the accelerated timber harvest regime. Drumming surveys are conducted annually during the third week of April with observers recording the number of grouse heard drumming. Since 1989, drumming surveys have revealed that ruffed grouse numbers have been consistently higher in the treatment area than the control area. However, over the past three years, both the control plot and treatment area have exhibited positive population trends. This population growth is primarily related to the high mortality of American beech caused by the Beech Bark disease. The extensive loss of beech trees has opened the forest canopy and stimulated regeneration. In addition to having a positive impact on ruffed grouse populations, a management focus on early-successional habitat also provides food, cover, and nesting sites for a variety of resident and neo-tropical songbirds such as chestnut-sided warblers, Canada warblers, eastern towhees, and dark-eyed juncos.

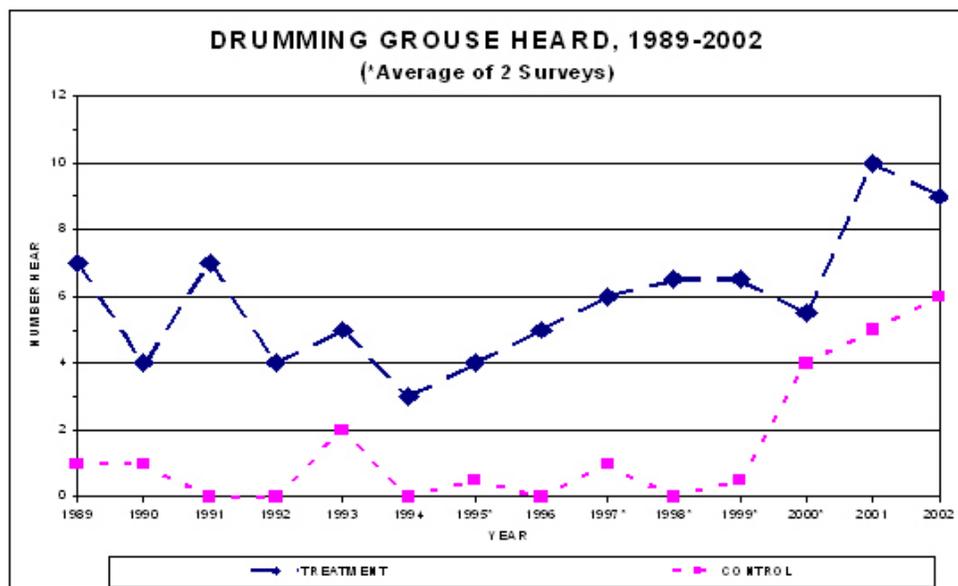


Figure 4. Comparison of the number of drumming grouse heard on the Grouse Management Area and the control plot, Monongahela National Forest, West Virginia.

The joint GMA effort will continue through 2013 at which time the project will be evaluated and a decision made to either extend the management regime for a future period or to terminate the project. Since the initiation of the GMA, similar management strategies have been incorporated in other Wildlife Management Areas throughout West Virginia, which have also exhibited positive results.

This traditional approach to early-successional forest management, as outlined above, may have applicability for industrial and private forest landowners throughout the Northeast, depending upon their

management goals and objectives. Property owners interested in managing their property for grouse or other species of wildlife should contact their state wildlife agency or a consultant wildlife biologist for additional technical advice.

Suggested reading

Brenneman, Ron., J.E. Kennamer and M. Kennamer. 1995. Managing openings for wild turkeys & other wildlife – a planting guide. National Wild Turkey Federation. Edgefield, S.C. 56 pp.

Gullion, G.W. 1984. Managing northern forests for wildlife. University of Minnesota Agricultural Experiment Station. St. Paul, MN. 71 pp.

Stoll, Jr., Robert J., W.L. Culbertson, M.W. McClain, R. W. Donohoe, and G. Honchul. 1999. Effects of clearcutting on ruffed grouse in Ohio’s oak-hickory forests. Ohio Fish and Wildlife Report 14. Division of Wildlife, Ohio Department of Natural Resources. Waterloo Wildlife Research Station, New Marshfield, OH. 27 pp.

Thompson, Frank R., III and Daniel R. Dessecker. 1997. Management of early-successional communities in central hardwood forests: with emphasis on the ecology and management of oaks, ruffed grouse and forest songbirds. General Technical Report NC-195, USDA Forest Service, North Central Forest Experiment Station, St. Paul, MN. 33p.

Biography

Gary M. Foster currently serves as a District Wildlife Biologist for the West Virginia Department of Natural Resources (WVDNR), Wildlife Resources Section based out of Farmington, West Virginia. In addition, he serves on the Northeast Upland Habitat Technical Committee and as the WVDNR’s Farm Bill Coordinator.

Table 1. Summary of timber harvests conducted on the Grouse Management Area, Monongahela National Forest, West Virginia (1985-1999).

Year Harvested	Total # of Acres	Total # of Stands	Harvest Method
1985-1989	57	11	Clearcut
1990-1994	148	17	Clearcut
1995-1999	204	20	Clearcut
Total	409 ^a	48	Clearcut

^aRepresents 23.5% of the GMA cutover between 1985-1999.