



Ruffed Grouse
Conservation Plan
Executive Report

prepared by Dessecker, Norman and Williamson

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August 2007

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Summary

The purpose of this report is to introduce the Ruffed Grouse Conservation Plan (Plan), an analysis, a discussion and recommendations published for the well being of ruffed grouse, North America's most widely distributed grouse species. It is of significant social and economic value as a game bird in some regions.

Ruffed grouse populations generally have declined since 1980 throughout much of the eastern United States where their popularity as a game species is greatest. Ruffed grouse populations in the western United States and Canada have probably increased as a result of recent large-scale wildfires.



ruffed grouse with chicks

Population declines of ruffed grouse and of other wildlife species that require thick, young forest habitats can only be stemmed or reversed by increasing the abundance of these habitats through the use of sustainable forest management. The negative public attitude toward this type of habitat management is the single greatest challenge faced by natural resource managers when proposing to manage forestland for ruffed grouse and for numerous other species of wildlife that prefer similar habitats. State, provincial, federal and tribal resource management agencies, nongovernmental organizations, and others interested in wildlife conservation must redouble their efforts to increase public understanding and acceptance of forest management practices that are capable of sustaining young-forest habitats and associated wildlife. Failure to do so will hamper efforts to conserve the full array of forest biodiversity and will threaten the future of North America's hunting heritage.

Ruffed Grouse Ecology and Management

The ruffed grouse is North America's most widely distributed grouse species and is the most popular resident game bird

Efforts must be redoubled to increase public understanding and acceptance of forest management practices that are capable of sustaining young forest habitats and associated wildlife.

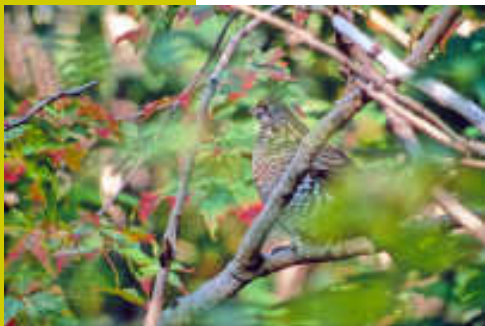


grouse hunters from rural community

throughout much of the eastern United States and Canada. Approximately 1,000,000 hunters harvest between 2.2 and 2.8 million ruffed grouse throughout North America during a year; ruffed grouse hunters contribute over \$500 million to local economies each year.

Ruffed grouse populations exhibit a 10-year cycle throughout the northern portion of the bird's range. Local populations will increase for 4 to 5 years, eventually becoming quite numerous. The population peak will then be followed by 4 to 5 years of steady decline until the birds become relatively scarce. Then, the cycle begins again. Populations south of the northern tier of the United States exist at relatively low population densities and do not consistently exhibit detectable 10-year population cycles. Both the

number of ruffed grouse hunters and the number of ruffed grouse harvested increase during years when populations are at or near the peak of the cycle (Figure 1). Ruffed grouse are numerous only in regions with extensive forests. Although ruffed grouse can be found in many different types of forest, deciduous forests, such as aspen, birch, maple or oak, are preferred.



ruffed grouse in maple tree

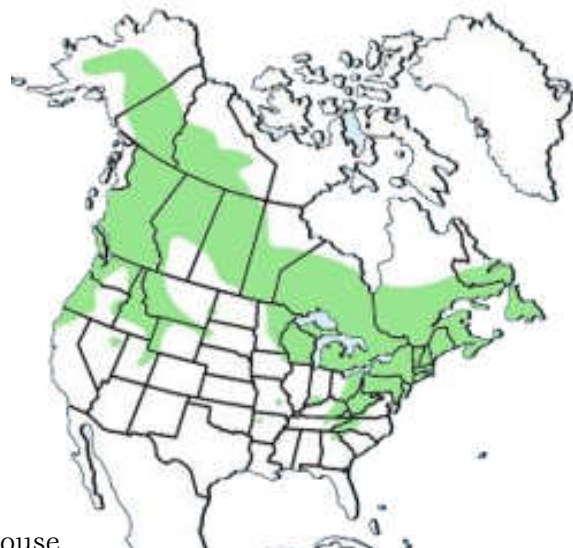


Figure 1. Range of the ruffed grouse.

Aspen forests can support many more ruffed grouse than other types of forest. Young aspen forests provide excellent year-round habitat for ruffed grouse, especially since the flower bud found on mature male aspen trees is an important source of winter food. Indeed, the aspen forests of the Great Lakes Region can be considered the very heart of the ruffed grouse range.

Ruffed grouse are abundant only where young forests, those from 5 to 20 years of age, are common. These young-forest habitats typically support 5,000 to 8,000 trees and shrubs per acre and provide ruffed grouse with excellent protection from hawks, owls and other predators.



ruffed grouse feeding on aspen buds

Historically, young-forest habitats were sustained throughout the ruffed grouse range primarily by fires caused by lightning or by Native Americans. Today, in most regions, mature timber must be cut at regular intervals (every 10 to 15 years) to provide a mosaic of forest habitats of various ages and a continuous supply of quality ruffed grouse habitat. Frequently, grouse habitat management is best accomplished through sustainable forest management.

Sustainable forestry practices that remove all or most of the trees at one time from an area of 3 acres (1.2 ha) or more are the best tools to establish and sustain quality ruffed grouse habitat. These practices are phrased *even-age management* because they result in a forest stand where all of the trees are nearly the same age. By removing all or most of the forest canopy at one time, a thick, young-forest habitat—ideal for ruffed grouse—develops. Unfortunately, because this type of habitat management can be visually dramatic, it is often both poorly understood and poorly accepted by some within the general public. The visual impacts of these types of habitat management practices can be mitigated by altering the size and shape of the harvest units and by retaining small patches of standing trees within the units.

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Development of the Ruffed Grouse Conservation Plan



recent clearcut in the central Appalachians

The same young-forest and shrub-dominated habitats preferred by ruffed grouse are preferred by various other wildlife species of conservation concern. For example, in the northeastern United States, state wildlife action plans collectively identify 58 species in great conservation need that are dependent upon young-forest and shrubland habitats similar to those preferred by ruffed grouse.

Ten of these 58 species are state listed as endangered in 1 or more states, 4 species are state listed as threatened in 1 or more states and 17 species are state listed as a species of special concern in 1 or more states. These 58 species include 37 birds, 14 mammals and 7 reptiles.

Due, in part, to the recent declines in young-forest habitats in some regions and to recent declines of ruffed grouse and other wildlife that use these habitats, in 2003, the Resident Game Bird Working Group of the Association of Fish and Wildlife Agencies endorsed the development of the Plan. The Plan was completed in 2006.

The objectives of the Plan are two-fold:

1. to compare ruffed grouse habitat conditions and populations between the base year (1980) and 2005
2. to identify the habitat management objectives required to sustain populations at or to restore them to the 1980 levels.

The Plan utilizes bird conservation regions (BCRs) as the landscape units used to compare historical and current levels of ruffed grouse habitats and populations. BCRs are geographic areas that contain similar patterns of landforms and vegetation and, hence, support similar environmental conditions for birds. The concept of using BCRs for bird conservation efforts is well supported by the scientific community. The continental United States and Canada

are divided into 37 different BCRs; ruffed grouse are found in 17 of these. A map showing the BCRs in the United States and Canada may be viewed at <http://www.nabci-us.org/bcrs.html>.

The year 1980 was used as the base year for comparison because it represents a point in time when ruffed grouse habitats and populations were probably at “normal” levels, at least for the recent past, and because data documenting the types and ages of forests were available for most portions of the ruffed grouse range. For some BCRs, however, forest composition data weren’t available for 1980, making it impossible to estimate trends in ruffed grouse habitat availability and population size.

Only a few states and provinces annually collect data on ruffed grouse populations—through drumming surveys, hunter flush counts or some other means—so definitive population data were quite limited. Data from the Breeding Bird Survey, which is coordinated annually by the U.S. Fish and Wildlife Service and the Canadian Wildlife Service, were not used because these surveys are typically conducted long after the peak of ruffed grouse drumming each spring and do not provide an accurate measure of local ruffed grouse populations. Therefore, estimates of the ruffed grouse population and of the population density for each BCR were based on the types and ages of forests within each BCR.



ruffed grouse drumming in spring to attract females

What the Ruffed Grouse Conservation Plan Tells Us

Ruffed grouse population densities, represented by the number of drumming males per square mile where estimates are available, have declined in most eastern BCRs and have increased in western BCRs (Table 1). Within those regions where ruffed grouse population data are available from state or provincial resource management agencies, data were consistent with the habitat-based population estimates developed for the Plan.

Table 1. Historical and current estimates of ruffed grouse breeding population density by Bird Conservation Region.

Bird Conservation Region	1980 Ruffed Grouse Density ¹	2005 Ruffed Grouse Density	Trend ²
4–Boreal Forest	na ³	na	
5–Northern Pacific Rainforest	0.19	0.28	47
6–Boreal Taiga Plains	na	14.1	
8–Boreal Softwood Shield Forest	na	10.3	
10–Northern Rockies	0.06	0.11	83
12–Boreal Hardwood Transition	12.8	12.8	0
13–Lower Great Lakes/ St. Lawrence Plain	9.5	9.1	-4
14–Atlantic Northern Forest	9.1	9.8	9
16–Southern Rockies Colorado Plateau	0.5	0.8	60
22–Eastern Tallgrass Prairie	4.3	3.2	-26
23–Prairie Hardwood Transition	10.9	9.6	-12
24–Central Hardwood Forest	1.9	1.7	-10
28–Appalachian Mountains	5.3	5.0	-6
29–Piedmont	1.9	1.9	0
30–New England/Mid-Atlantic Coast	6.6	6.3	-5

¹ drumming, male grouse per square mile (2.6 km²)

² data given in percent

³ comprehensive data for entire BCR are unavailable

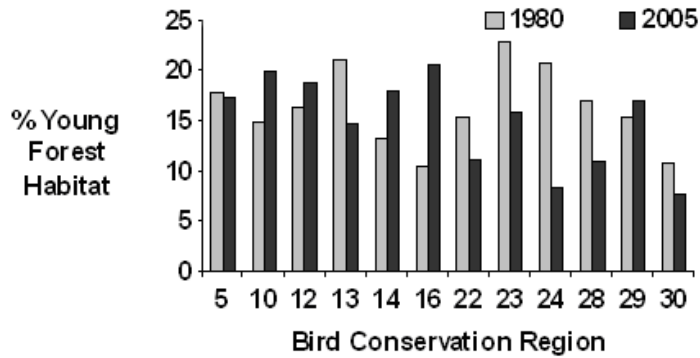
Because of the manner in which these population estimates were derived, it is probable the Plan's population density estimates for western BCRs (e.g., BCRs 5 and 10) underestimate actual ruffed grouse population densities. Likewise, ruffed grouse populations were probably overestimated for those eastern BCRs where large blocks of forest are uncommon and are becoming even more so (e.g., BCRs 22, 23 and 24). The authors of individual BCR chapters (found on-line in the Ruffed Grouse Conservation Plan) were encouraged to use their expertise and that of other resource professionals from the region, to determine the most accurate ruffed grouse population estimate.



young aspen forest provides quality grouse habitat

Because ruffed grouse populations are so strongly tied to young-forest habitats, it's not surprising that ruffed grouse populations have declined since 1980 in those BCRs where young-forest habitats have declined. It also is not surprising that populations have increased in those BCRs where these important habitats have increased. The amount of young-forest habitat in each BCR is shown in Figure 2.

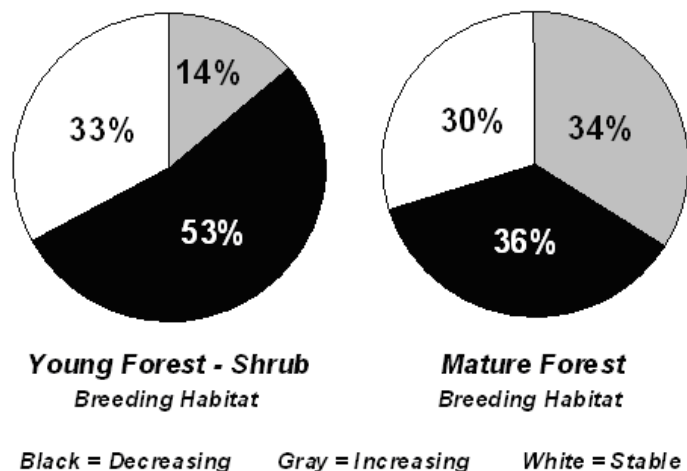
Figure 2. A comparison of the amount, in percent, of young-forest habitat (i.e., that is less than or equal to 20 years old), in 1980 and 2005, within those BCRs where 1980 forest inventory data are available.



Habitat Changes Affect More Than Just Ruffed Grouse

The same young-forest and shrub-dominated habitats preferred by ruffed grouse are preferred by numerous other species of wildlife, such as the American woodcock, golden-winged warbler, New England cottontail, blue-winged warbler, MacGillivray's warbler and the white-crowned sparrow. Some of the species that prefer young-forest habitats are experiencing precipitous population declines. Indeed, within the eastern portions of the United States and Canada, 53 percent of the bird species that breed in shrub-dominated or young-forest habitats have declined since 1980. Whereas, 36 percent of the bird species that breed in mature forests have declined during this same period (Figure 3). Conversely, only 14 percent of the bird species that breed in shrub-dominated or young-forest habitats have increased since 1980; whereas, 34 percent of the bird species that breed in mature forest

Figure 3. The proportion of species that is increasing, decreasing and stable, for bird species that breed in shrub-dominated and young-forest habitats, and for bird species that breed in mature forest habitats in the eastern portions of the United States and Canada (1980–2005).



Because land management policy can be strongly influenced by public sentiment, it is imperative that the general public gain a better understanding of the value of young-forest habitats and of the ecological role of sustainable forest management in forest conservation.

forests have increased during this same period. In 2007, the American Bird Conservancy identified young, deciduous, forest habitats in the eastern United States as one of the nation's 20 most threatened types of habitat for birds.

The decline of ruffed grouse populations may cause declines in the number of ruffed grouse hunters. In those states and provinces that track the number of ruffed grouse hunters, declines are evident since 1990 (Figure 4). These declines are consistent with U.S. Fish and Wildlife Service surveys that document a 50-percent decline in the number of small-game hunters in the United States between 1985 and 2001.

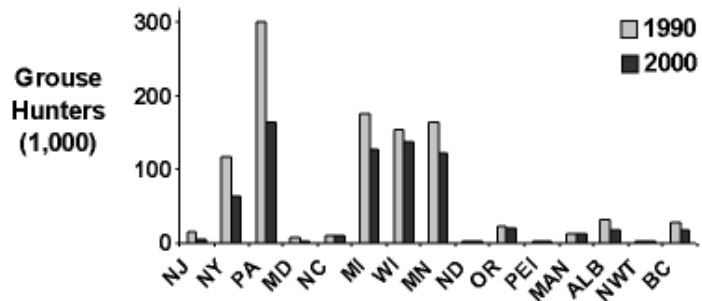


Figure 4. Trends in the number of ruffed grouse hunters from states and provinces with available data.

Returning Ruffed Grouse Populations to 1980 Levels

Although research from across North America has demonstrated that ruffed grouse have the opportunity to be numerous on landscapes that support abundant young forest habitat, there are additional challenges affecting the future of ruffed grouse management. There is widespread misunderstanding that old forests are inherently more important for wildlife than young-forests. Because land management policy can be strongly influenced by public sentiment, it is imperative that the general public gain a better understanding of the value of young-forest habitats and of the ecological role of sustainable forest management in forest conservation.

Within BCRs where ruffed grouse populations have declined since 1980, returning populations to the 1980 levels will require an increase in the amount of young-forest habitat from what exists today. In most instances, this will require an increase in the use of even-age forest management practices on both public and private forests lands. BCR-, state- and province-level recommendations for returning ruffed grouse populations to or sustaining these populations at 1980 levels are provided in the Plan.



small patch cuts are popular with private landowners

Throughout much of the range of ruffed grouse, large blocks of forest are being fragmented into smaller parcels due to suburban sprawl, housing developments and other land-use changes. In addition, the number of privately owned forest tracts is increasing as large, single-owner holdings are being divided into smaller parcels. Private individuals that own relatively small tracts of forest are less likely to manage their forests to establish young-forest habitats than are owners of large tracts. Both of these trends can reduce the likelihood that ruffed grouse habitat management will occur in the future.

Increasingly, forest management policies restrict the types of management that can occur along stream corridors and near other wetlands. Without question, forested areas adjacent to waterways warrant special consideration to ensure that water quality isn't degraded. But, young-forest habitats in these areas can be especially productive for ruffed grouse in some regions, as well as for other species, especially American woodcock. Inflexible policies regarding habitat development in these special areas complicate efforts to conserve ruffed grouse and other wildlife that require young-forest habitats.



woodcock hen and chick

Browsing by cattle, white-tailed deer, moose and elk can significantly reduce the density of trees and shrubs in young-forest habitats. This reduction in tree and shrub density can negatively

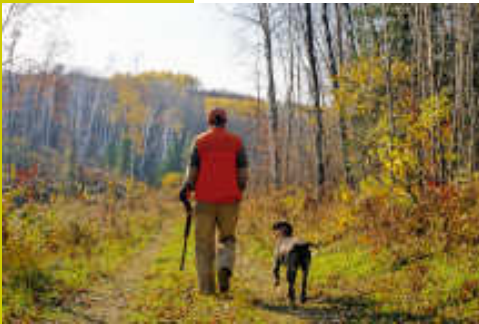
affect the value of these habitats for ruffed grouse. Populations of browsing animals need to be maintained within levels that do not adversely affect these habitats.

Basic data on ruffed grouse populations are unavailable in many regions. Few states or provinces collect information on ruffed grouse populations, harvest or hunter numbers. This lack of data can expose ruffed grouse habitat and population management efforts to public and legal challenge. In those states and provinces where the ruffed grouse is an important game species or is of concern due to low numbers, resource management agencies should attempt to fill in the most glaring of these knowledge gaps.

Acknowledgements

We are indebted to the authors of the Plan's 14 chapters and to the many other natural resource professionals who assisted this effort by providing data or reviewing draft versions of the Plan.

Financial support to offset costs associated with the development and delivery of the Ruffed Grouse Conservation Plan was provided by the National Fish and Wildlife Foundation, R. K. Mellon Family Foundation, Ruffed Grouse Society and the Wildlife Management Institute.



Hunters contribute to the economy.

Access the Ruffed Grouse Conservation Plan

The Ruffed Grouse Conservation Plan, in its entirety, may be viewed at: <http://www.ruffedgrousesociety.org>