## MANAGING YOUR FORESTS FOR RUFFED GROUSE & AMERICAN WOODCOCK



Wildlife Diversity Through Forest Management



RUFFED GROUSE SOCIETY | AMERICAN WOODCOCK SOCIETY

forests can produce more ruffed grouse than any other type of forest. Aspen forests are also important to many other types of game and nongame wildlife. Ruffed grouse, American woodcock and snowshoe hare rely upon aspen throughout much of the year for food and cover.

Many songbirds are more abundant in young aspen forests than in other forest habitats. These include the golden-winged warbler, which is one of the most imperiled songbirds in the eastern United States, as well as the chestnut-sided warbler, field sparrow and many others. Ruffed grouse, woodcock and many of these songbirds are declining throughout eastern North America as our forests mature and dense young forest habitats become uncommon.

Historically, aspen forests were renewed primarily by wildfires of natural and Native American origin. Prior to the presence of Europeans on the North American continent, these fires were common, particularly on relatively dry soil. Today, aspen forest habitats are sustained almost solely through commercial timber harvests and manual or mechanical cutting of aspen trees. This active forest management is essential if we are to sustain ruffed grouse and other wildlife of young forests.

Ruffed grouse are found throughout North America – from the southern edge of the Appalachian Mountains in Georgia to the interior of Alaska. But it is in the aspen (popple) forests of the Great Lakes where ruffed grouse are typically the most abundant.

Aspen forests are important to ruffed grouse in several ways. First, the dense young growth of a recently clearcut aspen stand provides grouse with protection from predators, especially hawks and owls. Second, the flower buds found on mature male aspen trees are a very important source of food for ruffed grouse during winter and early spring when foods on the ground may be covered with snow. Because ruffed grouse rely upon both young and mature aspen, ideal ruffed grouse habitat consists of small, 5-20 acre patches of young, middle-aged and mature aspen, all within close proximity to one another. (See Figure 1.)

Aspen trees reproduce by root suckers. The root system of a single mature aspen may support hundreds of buds, each of which will sprout and develop into a young tree when its "parent", the mature tree, is cut or killed by fire. Because these young sprouts require full sunlight, all of the trees within an existing stand of aspen must be cut at the same time (clearcut) to allow the young trees to develop. The shade from even a few trees left standing can negatively affect aspen growth and ruffed grouse habitat quality.

Ruffed grouse are most common in aspen habitats that are approximately 10 years old. At this age, the diameter of your aspen is about two inches. However, this ideal ruffed grouse habitat lasts for only seven-eight years. By



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age 15-20, many aspen trees have died and fallen to the ground. This natural thinning allows the remaining trees to take full advantage of available sunlight and soil nutrients. But as these stands thin themselves, they become more open and provide grouse with less protection from predators. This is why landowners interested in ruffed grouse should, if possible, manage their aspen forests to provide stands of different ages, ensuring that as one aspen stand becomes too old and too open for grouse a nearby younger and denser stand is just becoming ideal ruffed grouse habitat.

Providing aspen habitat of different ages can be accomplished by "breaking up" mature stands of aspen harvesting one portion now and another portion in 5-10 years. But if the mature aspen is unlikely to survive that long due to advanced age and declining health, regenerate the entire stand through a single clearcut harvest. If one objective of property management is to sustain abundant ruffed grouse, it is far better to regenerate the entire stand of aspen through cutting than to allow mature aspen trees to die. With the aspen degenerating, maple and other tree species of less value to grouse very likely will begin to dominate the uncut portions of the stand.

The best time to cut aspen is during the dormant season, between leaf fall and the beginning of green-up in the spring. At this time, the nutrient reserves are in the roots and will be available to produce the maximum number and quality of suckers. During aspen stand regeneration, landowners may wish to leave a few scattered logs on the ground greater than 12 inches in diameter to provide drumming logs for breeding grouse.

If snow conditions are favorable during the winter, grouse will roost under the snow to obtain protection from the elements. In those regions where snow depths are generally less than seven-eight inches or where periodic

thawing and freezing can form a hardened crust on snow, grouse often utilize conifers as protection from the elements. Densely needled conifers such as white spruce planted in small patches, can enhance ruffed grouse survival in winter. Patches of small conifers or a few scattered individual pine, spruce or fir can be retained during the harvest of a mature aspen stand, but leaving too many scattered trees is not advisable. Numerous scattered trees can cast sufficient shade to decrease the density of young aspen and associated shrubs, which will reduce the protective habitat for grouse.

Young aspen habitats adjacent to small streams, wetlands or other moist soil areas are especially attractive to ruffed grouse. These moist and cool sites provide abundant herbaceous vegetation, which is an important food for grouse throughout much of the year. In addition, these sites provide numerous insects in the spring and summer, an essential food source for ruffed grouse chicks.

American woodcock are typically common in young aspen forests, particularly on relatively moist sites. Moisture in the soil keeps earthworms, the principal food for woodcock, up near the soil's surface and available to foraging woodcock.



Declining habitat quality for grouse and woodcock

Older forest for other wildlife

**Figure 1.** Example of a 100-acre aspen woodlot where about 10 acres are harvested every 5 years. The numbers indicate the age of each stand after a full 50-year rotation.

forests can provide important habitats for ruffed grouse and many other wildlife species. Although grouse generally are more numerous in the aspen dominated forests of the northern Great Lakes region, they are common in oak forests where suitable young forest habitat exists.

Dense, young oak forests less than 15 years old (or older on some less productive sites) provide critical habitat for ruffed grouse, yellow-breasted chats, chestnut-sided warblers, eastern towhees and many other songbirds. Grouse and many of these songbird species are declining throughout the eastern United States as our forests continue to mature and young forests become uncommon. Because oak requires intermediate sunlight to reproduce and grow, proactive forest management is required to maintain oak as a component of future forests. In the process, critical wildlife habitat is created.

Historically, oak forests were maintained by periodic wildfires. These fires opened the forest and provided the sunlight required by oak seedlings / saplings and eliminated the competing vegetation, allowing the oak to remain dominant to grow and develop into a new, vigorous oak forest. Today, through fire suppression, we no longer allow fire to naturally shape our forests on many landscapes as it had in the past. Therefore, to provide the necessary growing condition, we must proactively manage oak forests through sound timber programs (silviculture). This includes, but is not limited to, the implementation of commercial timber harvests and prescribed fire, all under the direction of professional foresters. Without such management, oak forests will eventually convert to other forest types, such as maple, that are less valuable to grouse and other wildlife.

Landowners interested in supporting a diversity of wildlife and maintaining oak in their forest should consider incorporating wildlife habitat management practices, such as commercial timber harvests. Oak trees regenerate from seed and stump sprouts that arise from the base of a harvested



This shows tremendous "advanced regeneration" of oak seedlings following fire in the understory of a mature oak forest. The future forest is ready to thrive and create great grouse habitat should the overstory be harvested.



tree. Young oak grow best in intermediate sunlight (at least 50 percent). Therefore it is critical to space your remaining overstory trees for mast production and some shade across the stand. The oak seedlings will develop into a dense, young forest that will protect grouse from hawks, owls and other predators, and the remaining overstory will produce acorns for wildlife. Ruffed grouse benefit most from patches of young trees 5-15 years old and 5-40 acres in size.

In hilly terrain, young oak forests growing on north or east-facing slopes tend to provide the best habitat for grouse. These slopes are not exposed to the heat of the afternoon sun and stay relatively cool and moist. These conditions often support succulent ground vegetation, an important food source for grouse.

Positioning a cut low on a slope, adjacent to a shrubdominated old field or near a stream will provide grouse access to good brood cover and fruit producing shrubs, such as blackberry, dogwood, viburnum, elderberry and grape.

Protection from inclement weather can be an important habitat consideration. In those portions of the country where snow depths are generally less than seveneight inches, grouse often utilize conifers as protection from the elements. Densely needled conifers, such as white spruce, planted in small patches can greatly enhance their winter survival. The retained leaves on the dense regenerating oak stands also provide grouse protection from the elements in the absence of conifers.

Ruffed grouse are most common in oak forests that are 5-15 years old. At this age most of the young trees are about as large in diameter as a golf ball. By age 15-20, some of these trees will begin to die. This natural thinning allows the remaining trees to take full advantage of sunlight and soil nutrients. During this stem exclusion stage the stands become more open and provide grouse with less protection from predators. Because the benefits of young oak forests as cover for grouse last only a few years, landowners interested in ruffed grouse should try to maintain oak stands of varying ages if possible. This will help ensure the availability of the structure necessary for grouse habitat within the landscape for a longer period of time. This mix of ages can be accomplished by "breaking up" mature oak forests by harvesting a portion of a mature stand now and another portion in 5-10 years.

Another important product from oak trees that is essential to many types of wildlife is, of course, acorns. Acorns are a critically important mast for wild turkeys, white-tailed deer, black bear, squirrel and other small mammals that themselves are a primary food source for hawks, owls, fox and other predators. Ruffed grouse also commonly feed on acorns off the forest floor. Oak trees that are 50-60 years old and older typically produce more acorns than younger trees. To provide habitats for a diverse array of forest wildlife, a landowner who owns 100 acres could harvest 10 acres ever 10 years. (See Figure 2.) This property would eventually support 10 acres each of forest that is 10, 20, 30 years old and so on.



**Figure 2.** Example of a 100-acre oak woodlot where 10 acres are harvested every 10 years. This creates a wide variety of habitats, from very young forest to old forest, that benefit many species of wildlife. The numbers indicate the age of each stand after a full 100-year rotation.

## Northern Hardwood

The term "northern hardwood"

refers to forests often dominated by red or sugar maple, American beech and yellow or black birch, and may also include white ash, paper birch, black cherry, various species of oak, quaking or bigtooth aspen and conifers such as eastern hemlock, white pine, balsam fir and white or red spruce. Northern hardwood forests are abundant in the Great Lakes region, in the Northeast and throughout much of the Appalachian Mountains even as far south as North Carolina. Although ruffed grouse are generally more numerous in aspen forests, they can be quite common in northern hardwood forests where suitable young dense forest habitats exist.

Vigorous northern hardwood forests between 1 and 15 years old can provide important habitats for ruffed grouse, American woodcock, white-tailed deer, chestnutsided warblers, eastern towhees, snowshoe hares and many other types of wildlife. Ruffed grouse, woodcock and others of these species are declining throughout much of the eastern United States as northern hardwood forests continue to grow old and young forest cover becomes uncommon.

Historically, northern hardwood forests were renewed by natural forces such as wildfire, periodic flooding, windstorms, disease, insect infestations and landscapescale land clearing by Native Americans that opened the forest canopy and allowed dense stands of young trees to become established. Today, society no longer allows wildfire or flooding to shape our forest, as was the case for millenia, and the clearing of forests by Native Americans is a thing of the past. Therefore, habitats



**Eastern towhee** 



Viburnum cassinoides

created through commercial timber harvest and other forms of habitat management are essential if we are to sustain ruffed grouse and other wildlife of young forests.

Young trees of some hardwood species such as cherry, oak and gray birch grow well only in nearly full sunlight, conditions that are provided only by removing all or most of the mature trees within the stand being harvested. Other hardwood species such as sugar maple and American beech are tolerant of shade and can thrive even when only a portion of the trees from a stand are removed through management. Small patches of aspen are sometimes common in forests otherwise dominated by northern hardwood species. Aspen is extremely intolerant of any shade and must be clearcut to be sustained as a component of the forest.

Landowners interested in supporting a diversity of wildlife in their northern hardwood forest can do so by maintaining habitats of various ages, young and old, through the periodic implementation of thoughtful timber harvest operations. Ruffed grouse are most common in habitat patches that are 5-40 acres in size and covered by trees that are 5-15 years old.

By age 15-20 most young trees have a diameter approximating that of a baseball. At this age some of the trees will begin to die. This natural thinning allows the remaining trees to take full advantage of sunlight and soil nutrients. But as these stands thin themselves, the understory becomes more open and provides less protection against predators for grouse and other wildlife. Because the benefits of young hardwood forests as cover for grouse and other wildlife last only a few years, landowners should plan timber harvests so that their woodlots will be in a variety of age classes, if at all possible. This helps to ensure that as one stand matures and its understory becomes more open another younger stand is nearby to provide dense, high quality ruffed grouse habitat.

When harvesting northern hardwood forests specifically to provide quality habitat for ruffed grouse, it is important to leave standing no more than 15-20 mature trees per acre in the cutting unit. If too many mature trees are retained, the resulting shade can dramatically reduce the density of young trees and shrubs and, therefore, protective cover for ruffed grouse and other wildlife. Stands containing 15 or more mature aspen per acre within northern hardwood forests can be clearcut to provide outstanding ruffed grouse habitat.

In those regions where snow depths are generally less than seven-eight inches or where thawing and refreezing can form a hardened crust on the snow, grouse often utilize conifers as protection from the elements. Densely needled conifers such as white, red or black spruce planted in 1/4- to 1/2-acre patches, can enhance ruffed grouse survival in winter, particularly where conifers are rare.

In hilly terrain, the position on the slope of a timber harvest can affect habitat quality for ruffed grouse. Where climates are relatively cool, such as those in the northern tier of states, positioning habitat patches on south- or westfacing slopes exposes them to the greatest amount of sunlight, which can be beneficial during inclement winter weather. In more southerly latitudes, young forest stands on north- and east-facing slopes seem to be preferred by ruffed grouse, likely because these cool and moist sites support succulent ground vegetation, an important food source for grouse. Positioning these habitats low on a slope, especially adjacent to a stream or shrub-dominated old field, can enhance cover for grouse broods and the availability of fruitproducing shrubs such as blackberry, dogwood, viburnum, elderberry and grape.

To provide habitats for a diverse array of forest wildlife, including ruffed grouse, landowners should strive to maintain forests of different ages -- young, middle-aged and old. Harvesting a 5-10 acre portion of a forest approximately every 10 years easily provides this mix of age classes. For example, a landowner who owns 100 acres could harvest 10 acres every 10 years and eventually this property would support 10 acres each of forest that is 10, 20, 30 years old and beyond. (See Figure 3.) Within a northern hardwood forest, stands that contain 15 or more mature aspen per acre can be managed as if they were pure aspen; in other words,



**Figure 3.** Example of a 100-acre northern hardwoods woodlot where 10 acres are harvested every 10 years. The numbers indicate the age of each stand after a full 100-year rotation.

by clearcutting such stands on a shorter rotation, such as the 40-50 year rotation. (See Figure 1.)

Aspen, Oak and northern hardwood forests are home to many types of forest wildlife and are critically important to ruffed grouse and American woodcock. The Ruffed Grouse Society and American Woodcock Society encourage landowners interested in grouse and woodcock to do everything possible to sustain their forests through commercial forest management or some other type of active habitat development.



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For more information contact RGS & AWS at 1-888-564-6747 or visit ruffedgrousesociety.org