

Appendix A: Birds

Ruffed Grouse

Bonasa umbellus

Federal Listing	N/A
State Listing	SGCN
Global Rank	G5
State Rank	S5
Regional Status	High



Photo by Pamela Hunt

Justification (Reason for Concern in NH)

Ruffed Grouse are found throughout much of the eastern United States, yet are common only where extensive tracts of forest dominate the landscape (Dessecker and McAuley 2001). The decline, fragmentation, and isolation of early successional forest habitats may be limiting Ruffed Grouse recruitment and therefore population densities (Dessecker and McAuley 2001).

Distribution

The Ruffed Grouse is a year-round resident in New England. They are more common inland than along the seacoast (DeGraaf and Yamasaki 2001), generally at elevations below 3,000 ft. Development poses a significant threat to grouse habitat in the lower third of the state, but pockets of grouse habitat should persist there for the foreseeable future. The Western Highlands and northern two-thirds of the state continue to provide extensive grouse habitat. Continual harvesting of mature forests of the industrial timberlands of northern New Hampshire produce quality grouse habitat (Robinson 1994).

Habitat

The Ruffed Grouse uses deciduous and coniferous forests in both upland and wetland settings (DeGraaf et al. 1989). Ruffed Grouse are early successional forest specialists. Grouse require four different cover types for drumming, brood rearing, nesting, and wintering. In general, they inhabit brushy, mixed-age woodlands, early successional to mature hardwood and mixed forests, often with aspen and birch as a component. Optimal habitat for Ruffed Grouse include young (6 to 15-year-old), even-age deciduous stands typically supporting 20-25,000 woody stems/ha (Gullion 1984). These habitats are available to grouse for approximately one decade because stem densities decrease rapidly through natural thinning as succession proceeds (Dessecker and McAuley 2001). Although commonly identified as an “edge” species, Ruffed Grouse association with habitat edges largely reflects their use of various interspersed forest habitats at different times of the year and their use of marginal habitats where quality habitat is lacking. They typically avoid hard-contrast edges (Dessecker and McAuley 2001).

Old orchards are an ideal fall habitat in New England (DeGraaf and Yamasaki 2001). Catkin-bearing trees are also an indicator of grouse habitat. They use logs or stone walls for drumming sites and dense cover for protection (Brooks and Birch 1988). Hens and broods prefer areas with a dense understory and fairly open herbaceous ground cover. Grouse nest and feed in hardwood stands and dust themselves in sunny openings. Ruffed Grouse use mature woodlands, especially coniferous forests, during winter. When snow is deep and soft, birds will roost in the snow. Otherwise they will roost on the ground or in trees.

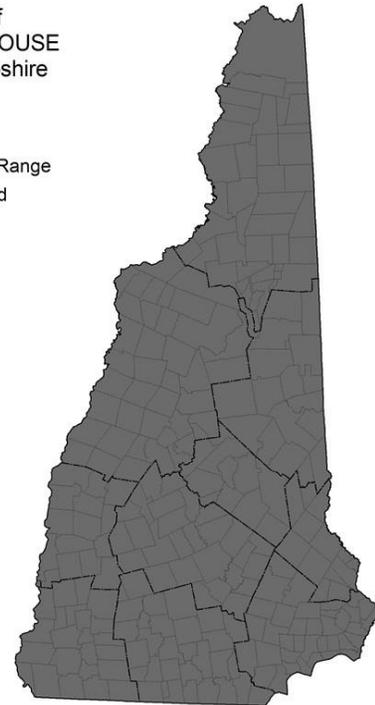
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NH Wildlife Action Plan Habitats

- Hemlock Hardwood Pine Forest
- Northern Hardwood-Conifer Forest
- Appalachian Oak Pine Forest
- Grasslands
- Lowland Spruce-Fir Forest
- Marsh and Shrub Wetlands
- Shrublands

Distribution of
RUFFED GROUSE
in New Hampshire

■ Current Range
▨ Localized



Distribution Map

Current Species and Habitat Condition in New Hampshire

Ruffed Grouse populations naturally experience irregularly cyclical booms and crashes (Robinson 1994). Cyclical patterns aside, it is difficult to ascertain trends in the state's grouse population since drumming surveys just started in 1999. However, declines in early successional forest habitats and the isolation of these habitats in some landscapes may be limiting Ruffed Grouse recruitment and therefore population densities in some regions of the state (Dessecker and McAuley, 2001).

Forests in the northeastern United States were historically subject to several sources of disturbance (DeGraaf and Yamasaki 2003). Fire, wind, beaver (*Castor canadensis*), flooding, and Native American activity continually produced early successional forests (DeGraaf and Yamasaki 2003). Largely in response to forest maturation, young forest habitats have now become critically uncommon in much of the eastern United States and especially the Northeast (Brooks and Birch 1988, Trani et al., 2001). Abandonment of agricultural lands reached a peak in New England in the late 1800s to mid-1900s and a wave of early successional habitats followed (Dessecker and McAuley 2001). Today, such habitats are less common than they were in pre-settlement times in several regions of the northeastern United States (Dessecker and McAuley 2001). On the other hand, the proportion of early successional habitat in northern industrial forests is currently several times that which occurred in pre-settlement times (Dessecker and McAuley 2001).

Population Management Status

Ruffed Grouse are managed by hunting regulations. Season length and daily bag are determined on a bi-yearly basis.

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Regulatory Protection (for explanations, see Appendix I)

- Harvest permit - season/take regulations

Quality of Habitat

Because no young forest habitat map was created, it is difficult to assess habitat quality at the patch scale (see Shrubland Habitat Profile).

Habitat Protection Status

Since no habitat map was generated, the habitat patch protection status of grouse habitat in New Hampshire is unknown. However, given the ephemeral nature of young forest habitats, tree harvesting and other vegetation manipulation techniques will need to be employed to generate suitable habitat for Ruffed Grouse. This can occur on both public and private land.

Habitat Management Status

Refer to the Shrubland Habitat Profile for information on habitat management programs that assist with managing shrubland and other early-successional habitats.

Threats to this Species or Habitat in NH

Threat rankings were calculated by groups of taxonomic or habitat experts using a multistep process (details in Chapter 4). Each threat was ranked for these factors: Spatial Extent, Severity, Immediacy, Certainty, and Reversibility (ability to address the threat). These combined scores produced one overall threat score. Only threats that received a "medium" or "high" score have accompanying text in this profile. Threats that have a low spatial extent, are unlikely to occur in the next ten years, or there is uncertainty in the data will be ranked lower due to these factors.

Habitat conversion due to development (Threat Rank: Medium)

Direct loss of shrubland habitat occurs through the conversion of these lands for residential, industrial, and commercial purposes. Development patterns lead to fragmentation of remaining undeveloped habitats, creating smaller patches that may not sustain wildlife populations and promoting generalist predators that prey on shrubland-dependent wildlife (Barbour and Litvaitis 1993, Litvaitis 2005).

Young forest habitats are important to a large suite of animals, including Ruffed Grouse (DeGraaf et al. 2005). Wildlife that utilizes young forest habitat conditions benefited from the wave of early successional habitats that followed the peak of farm abandonment in the late 1800s. As forests matured the amount of early successional habitats declined, leading to declines in associated wildlife species. In parts of New Hampshire, especially the southern tier, the amount of young forest habitat of functional quality for wildlife may now be falling below historic levels as current landscape conditions are strikingly different than in pre-settlement times (Brooks 2003, Litvaitis 2003, DeGraaf et al. 2005). Remaining patches of forest are broken up or fragmented into isolated patches. Species with small home ranges (such as Ruffed Grouse) may be able to occupy the remaining habitat patches. However, even these animals may be hampered by the consequences of human land uses that surround small patches of habitat. Increases in generalist predators may reduce or even eliminate small populations of prey species (Barbour and Litvaitis 1993, Oehler and Litvaitis 1996). Over time, these small patches may contain fewer species than similarly sized patches that are surrounded by extensive forests (Litvaitis 2005).

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Habitat degradation from forest maturation due to lack of management (Threat Rank: Medium)

Shrubland-dependent vertebrate wildlife species require dense understory cover; their occurrence is influenced more by the height and density of vegetation than by specific plant communities (Litvaitis 2003). Ruffed Grouse colonize a site after a woody understory is well developed (approximately 10 years post disturbance) and disappear from the site approximately 20 years post disturbance as the stand matures (DeGraaf et al. 2005). Hence populations of Ruffed Grouse and other young forest species shift in space and time in response to natural disturbances and human land uses (Litvaitis 2005). As more open land is converted to development there is less overall space for young forest-dependent species to shift into when natural forest succession or lack of active management makes their current habitat patch unsuitable. Proactive habitat management practices must be implemented at regular intervals to ensure a continuous supply of quality grouse habitat on the landscape.

The New England landscape has gone through dramatic changes over the last 350 years. In the mid 1800s, 75% of the arable land in central and southern New England was in pasture and farm crops. One hundred years later, New England was once again forested – a result of farm abandonment after richer farm fields opened up in the Midwest (DeGraaf et al. 2005). Today, about 80% of New Hampshire is forested again. However, the second growth forests lack the structural diversity including the range of seral stages present in pre-settlement forests (DeGraaf et al. 2005). The forests have matured, while natural disturbance processes, such as fire, have been disrupted, reducing the amount of early successional conditions (Litvaitis 2003, DeGraaf et al. 2005). The conversion of young forests to residential and commercial development combined with forest maturation (i.e., lack of disturbance) is reducing early successional habitat to levels at or below historical levels (Brooks 2003). Based on current trends and predictive models, New Hampshire's forested lands will continue to decline. Forest loss linked to population growth indicates the conversion of another 225,000 acres in the years out to 2030, dropping New Hampshire forest land to 78.5% of total land area (Sunquist 2010).

List of Lower Ranking Threats:

Species impacts from changing precipitation patterns and increased temperatures

Actions to benefit this Species or Habitat in NH

Map and maintain suitable young forest habitat for ruffed grouse

Primary Threat Addressed: Habitat degradation from forest maturation due to lack of management

Specific Threat (IUCN Threat Levels): Natural system modifications

Objective:

Find ways to create an adequate habitat map that allows prioritization of areas to field check for suitable young forest habitat.

General Strategy:

A better means of mapping grouse habitat is needed. It is difficult to assess the amount and condition of young forest habitats without an adequate habitat map to prioritize areas to field check. Partners should explore ways to create accurate maps, and use this as a basis to prioritize creation and maintenance of young forest habitat throughout New Hampshire. Sufficient young forest habitat for grouse should include areas with overhead canopy cover that provide downed logs, stonewalls, or

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large rocks for drumming. An effort should be made to increase participation in the Small Game Survey to get better information on the abundance and distribution of grouse throughout the state. Since Ruffed Grouse use Shrublands and Grasslands frequently, please see these lists of actions for additional measures that can benefit ruffed grouse populations in New Hampshire.

Political Location:

Statewide

Watershed Location:

Statewide

References, Data Sources and Authors

Data Sources

Two small game surveys are implemented annually. Small game sighting data are solicited from small game hunters and successful deer bow hunters, and these observations are used as an index of New Hampshire's small game species distribution and abundance. Ruffed Grouse drumming routes have been run each spring since 1999. Two routes were established in each Wildlife Management Unit. These surveys are efficient at generating useful population data. Over time, survey results will provide invaluable trend data for management decision-making. Sources of information include journal articles, websites, GIS data, and white papers.

Data Quality

Ruffed Grouse have been studied and monitored since colonial times. With the implementation of these surveys in 1999, quality data exist on the relative abundance of these species. It is difficult to assess the amount and condition of young forest habitats without an adequate habitat map to prioritize areas to field check.

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