

Three Island Ruffed Grouse Management Area

History:

In 1987 the Beltrami Natural Resource Management Department made a proposal to the Ruffed Grouse Society for a joint venture to manage portions of the north end of Three Island Park (TIP), and some tax forfeited lands just north of the Park, as a Ruffed Grouse Management Area. The deed for the lands in Three Island Park specifies the lands in the Park to be managed as a “County Park and Outdoor Recreational Area”. Considering the recreational value of grouse hunting, and hunting in general in Minnesota, such a management proposal for the area was deemed appropriate. The Ruffed Grouse Society collaborated on the project and provided funding of \$4400 in 1988 to help with access infrastructure such as gates, signs and seed for new roads. Aspen forest types are directly related to the habitat needs of Ruffed Grouse, which require aspen in various age classes from young to mature to meet their annual habitat requirements. In 1987 much of the aspen forest type in the project area was mature and the proposal included a plan to begin harvesting aspen in 2 to 25 acre blocks, to create the younger age classes required for part of the Ruffed Grouse annual life cycle. The area described for the original Ruffed Grouse Management Area included County managed lands in sections 5, 6, 7, 8, 17 and 18, T148N, R32W, Port Hope Township. (The portions in sections 5 and 6 are north of TIP.)

Ruffed Grouse Habitat Requirements:

Much of the research and information regarding Ruffed Grouse Management was conducted and compiled by Gordon Gullion of the University of Minnesota. “Managing Northern Forests for Wildlife”, by Gordon Gullion, 1984 was used as background material in the analysis of the stand conditions and subsequent plan review and development in 2014. In his publication Mr. Gullion describes 3 aspen age classes as being important to grouse through the course of a year.

- Young stands, 4 – 15 years old are used for brood rearing and protection
- Juvenile stands, 6 – 25 years old are used as spring and fall habitat, and
- Older Aspen stands to provide winter food, the aspen buds favored by grouse

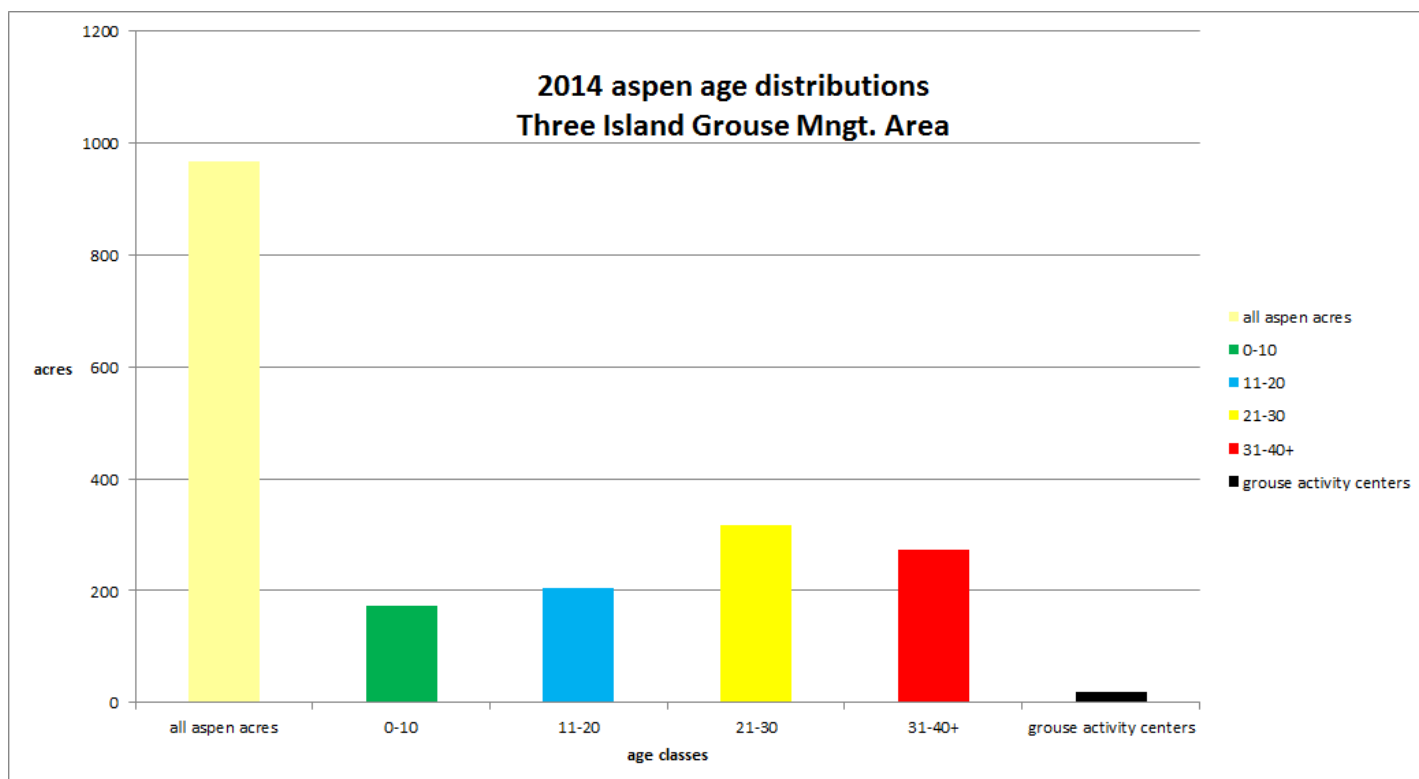
Mr. Gullion proposed that a forest management plan which provided these age classes in close proximity to one another created conditions the most favorable for grouse. In forest management, it is common to consider stands in age-class groupings of ten years, thus in the publication Mr. Gullion provided management examples which attempted to create what he referred to as grouse activity centers where 0 – 10, 11 – 20, and 31 – 40+ age classes would exist as a continually shifting mosaic across the management area, each age class not more than 100 yards from the other two. The 21 – 30 year age class of aspen is not of specific benefit to grouse and in fact the more open stand conditions in that age class may at times favor grouse predators more than the grouse, still it is not possible for a stand to age from 20 to 30 years of age without passing through this age class. To be sure, grouse utilize areas of the forest beyond these activity centers, but it is through the management which keeps these conditions close together that a forest manager can best provide the habitat needs which grouse prefer.

Conditions in 2014:

The Three Island Ruffed Grouse Management Area covers 2403.42 acres of County managed land. However, aspen forest types, the areas which would be managed for grouse, do not cover the entire area. The first step in our review was to identify and set aside the areas which are NOT aspen.

- Marsh
- Lowland flows
- Open water
- Lowland brush
- Roads and developed areas
- Man-made wildlife openings of upland grass and forbs
- Black spruce, tamarack and cedar
- Black ash and lowland hardwoods
- Northern hardwoods (including the Legacy Areas of 2013), and
- A small amount of Norway Pine type

Remaining were 967.4 acres of aspen forest type occurring on both fire dependent and mesic hardwood ecotypes. These acres, representing 40.2% of the overall GMA, are the actual areas where active grouse management would be proposed to continue.



As can be seen in the previous graph of 2014 age distributions, the four age classes are not balanced. There is an excess of the 21 – 30 year age class, the age class of least benefit to grouse, which resulted from the accelerated harvest immediately after the GMA was set up. To provide a continuing flow of grouse favored aspen age classes over time requires that the age classes be regulated and balanced. Functions in ArcMap were used to buffer the existing age classes (100 yard buffer) and to then intersect the buffers for the 0 – 10, 11 – 20 and 31 – 40+ age classes, to estimate the acreage of current grouse activity centers. This analysis revealed only 18.8 acres of grouse activity center at this time. This is due both to the combined effects of unbalanced age classes, stand sizes which create stand core areas too far from the other preferred age classes, and stand juxtapositions relative to each other.

Current conditions are shown on the following map.

- Gross GMA acreage = 2403.42 acres
- Aspen acreage about 967 acres
- Percent of GMA in aspen cover type = 40.2%
- Number of forest stands = 90
- Stand size average = 10.8
- Stand size range 0.7 – 64 acres
- 0 – 10 year age class about 172 acres
- 11 – 20 year age class about 204 acres
- 21 – 30 year age class about 318 acres
- 31 – 40+ year age class about 273 acres
- Grouse Activity Centers = 18.8 acres

Full Grouse Management Area

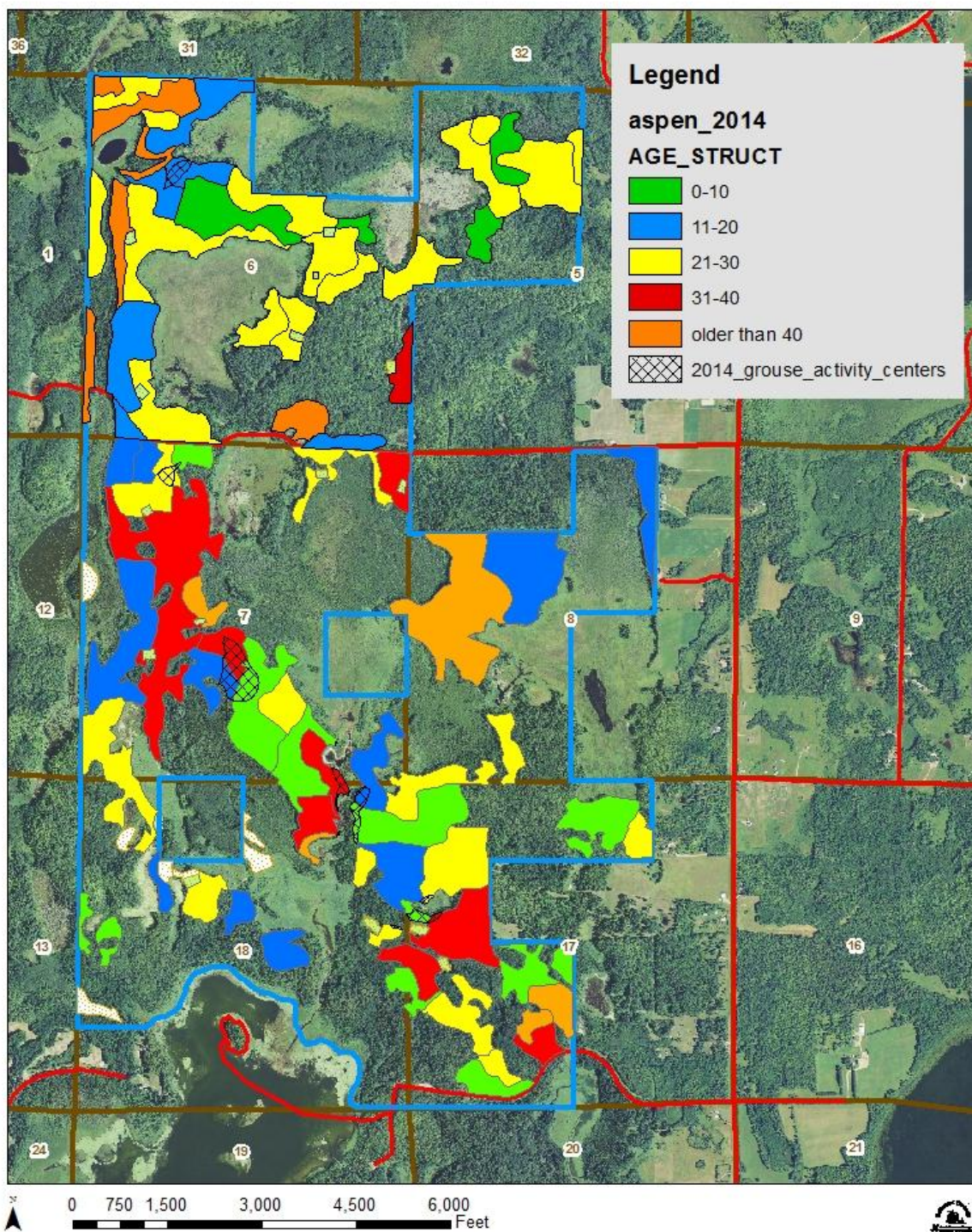


Figure 1

Management Plan for the Grouse Management Area, 2014 – 2054

A plan has been developed for the next 4 decades with the following objectives.

1. Through periodic harvest, adjust the age class distributions to something approaching a balanced structure. With ~967 aspen forest type acres, a fully balanced mix would have about 241.75 acres each of 0 – 10, 11 – 20, 21 – 30 and 31-40+ year old stands.
2. By modifying stand size and juxtapositions, increase the acres of grouse activity centers.
3. Package treatment blocks into just 2 or 3 entries each decade, to make the treatments as economically viable as possible.

Proposal 2014 – 2023

- ✓ Harvest the 25 blocks shown on the attached map (Figure 2) to create the 2024 young 0 – 10 year age class stands.
- ✓ Acreage of these stands is about 210 acres.
- ✓ The remaining age classes all increment in age by 10 years yielding the following conditions by 2024.
 - 0 – 10 year class about 210 acres
 - 11 – 20 year class about 172 acres
 - 21 – 30 year age class about 204 acres
 - 31 – 40+ age class about 381 acres
 - Grouse Activity Centers about 66 acres

Harvests would be clearcut silvicultural Rx or possibly clearcut with some reserves. Reserve trees may include good form and condition mast producing trees such as oaks, or may include some conifers. Retained trees should not provide a canopy closure of more than 10% across the treatment area. In an attempt to balance age classes in as few decades as possible, there will be some treatment stands of 35 – 40 year age during each decade. This age has been considered to be younger than the culmination of mean annual increment for fiber production but if a few borderline young stands are not included each decade it would be nearly impossible in human lifetime to achieve a nearly balanced, and thus sustainable over time, age class distribution in the GMA. Cavity nesting snags for other wildlife use may be retained at 3 – 6 per acre.

Existing stand polygons will frequently be fragmented to help distribute age classes across the area, as is necessary to increase grouse activity center acreages. When this takes place in a stand, if there is an identifiable clonal division available, stand lines would potentially follow that delineation to maintain the integrity of the individual clones. These changes would need to be weighed against the need to balance age classes across the area in time and space, to achieve the overall goal by 2054.

Specific trees should be marked as part of each treatment, to provide future grouse drumming logs. Two or three trees per acre which are 10 inches or more in DBH should be marked, and protected until the harvest is completed. As a final activity these trees should be felled with a high stump (3 – 6 feet

tall) with the tree then lopped down to ground contact. For a good description of these drumming log trees see pages 60 and 61 in the “Managing Northern Forests for Wildlife” publication.

Proposal 2024 – 2033

- ✓ Harvest the 26 blocks shown on the attached map (Figure 3) to create the 2034 young 0 – 10 year age class stands.
- ✓ Acreage of these stands is about 221 acres.
- ✓ The remaining age classes all increment in age by 10 years yielding the following conditions by 2034.
 - 0 – 10 year class about 221 acres
 - 11 – 20 year class about 210 acres
 - 21 – 30 year age class about 172 acres
 - 31 – 40+ age class about 364 acres
 - Grouse Activity Centers about 131 acres

Harvest prescriptions as noted previously.

Proposal 2034 – 2043

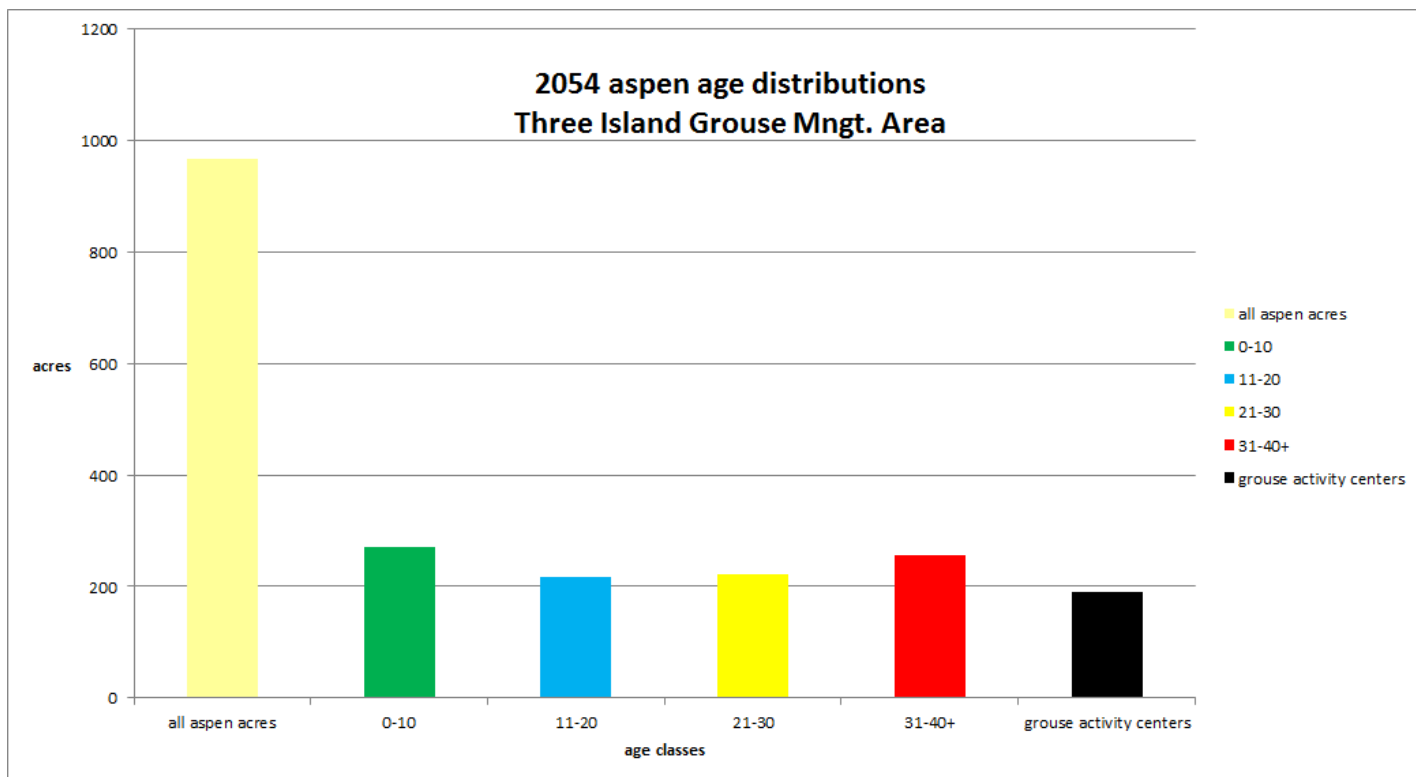
- ✓ Harvest the 26 blocks shown on the attached map (Figure 4) to create the 2044 young 0 – 10 year age class stands.
- ✓ Acreage of these stands is about 218 acres.
- ✓ The remaining age classes all increment in age by 10 years yielding the following conditions by 2044.
 - 0 – 10 year class about 218 acres
 - 11 – 20 year class about 221 acres
 - 21 – 30 year age class about 210 acres
 - 31 – 40+ age class about 318 acres
 - Grouse Activity Centers about 164 acres

Harvest prescriptions as noted previously. Then finally,

Proposal 2044 – 2053

- ✓ Harvest the 26 blocks shown on the attached map (Figure 5) to create the 2054 young 0 – 10 year age class stands.
- ✓ Acreage of these stands is about 272 acres.
- ✓ The remaining age classes all increment in age by 10 years yielding the following conditions by 2054.
 - Gross GMA acreage still 2403.42 acres
 - Aspen acreage remains at about 967 acres
 - Percent of GMA in aspen cover type unchanged at 40.2%
 - Number of forest stands = 127
 - Stand size average = 7.6 acres
 - Stand size range 0.7 – 17.6 acres
 - 0 – 10 year class about 272 acres
 - 11 – 20 year class about 218 acres
 - 21 – 30 year age class about 221 acres
 - 31 – 40+ age class about 256 acres
 - Grouse Activity Centers about 191 acres, a ten-fold increase

Harvest prescriptions as noted previously.



The harvest treatments in this last decade of the plan pick up some of the outlying aspen stands. These outlying stands will provide grouse habitat but do not yield any increase in grouse activity center acreage due to their isolation by other stand types.

The shifting creation of log landing areas provide some of the singing ground and roosting sites favored by Woodcock. Woodcock also would utilize the young aspen and intermixed alder lowland brush areas nearby. Those stands where some residual scattered trees are left, as well as stands with adjacent mature trees would provide areas favorable for the Golden-winged Warbler, as well as other species utilizing young forest habitats for portions of their life cycle.

Whitetail Deer would also benefit from the ever shifting mosaic of aspen age classes, all within the context of the brush and lowland conifer areas in this grouse management area.

Plan prepared by: D.J. Bakken, Forester Beltrami NRM

Plan reviewed by: Michael R. North, Ruffed Grouse Society Biologist for Minnesota

Plan Approved by: Richard Moore, Beltrami Land Commissioner

Full Grouse Management Area

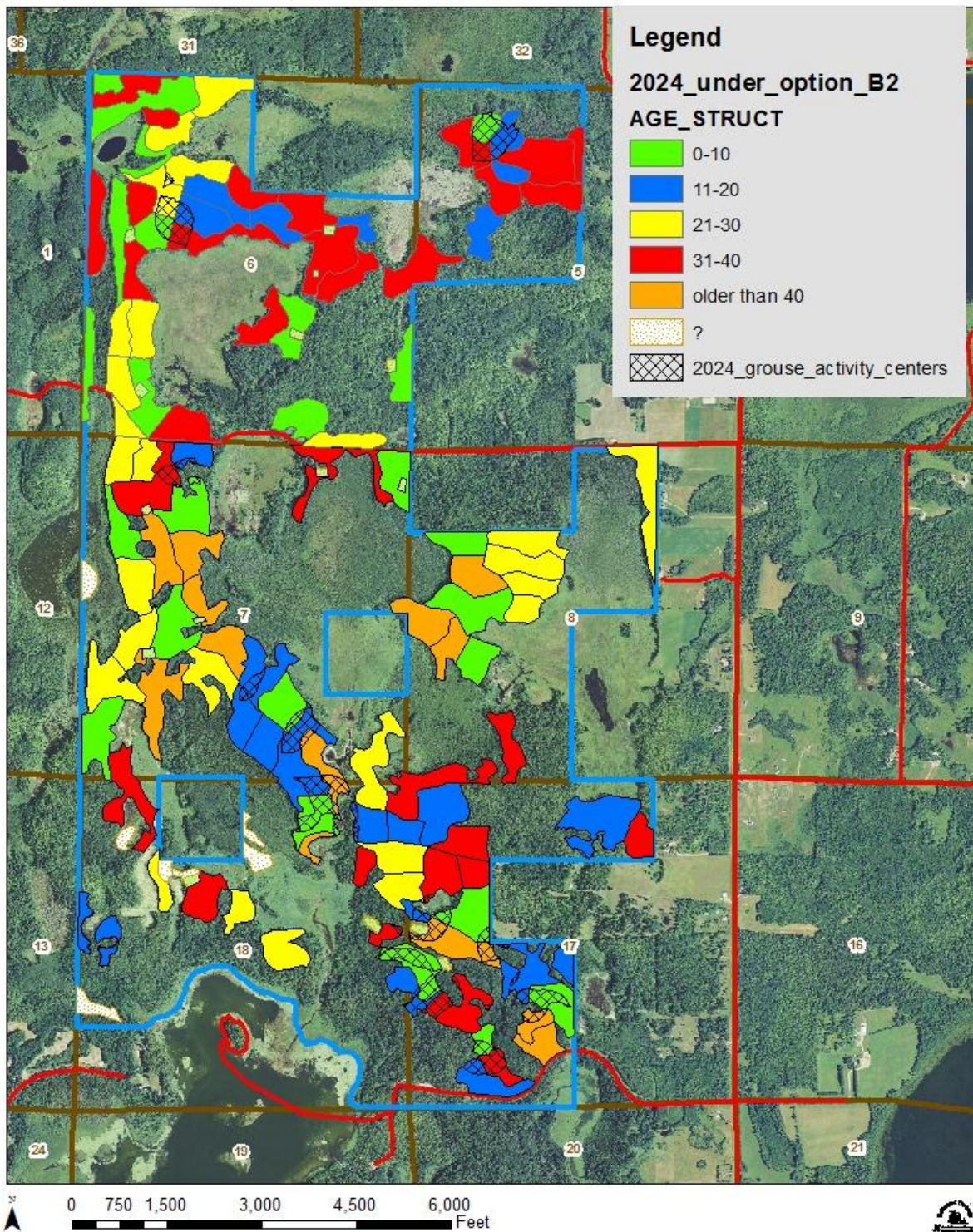


Figure 2

Full Grouse Management Area

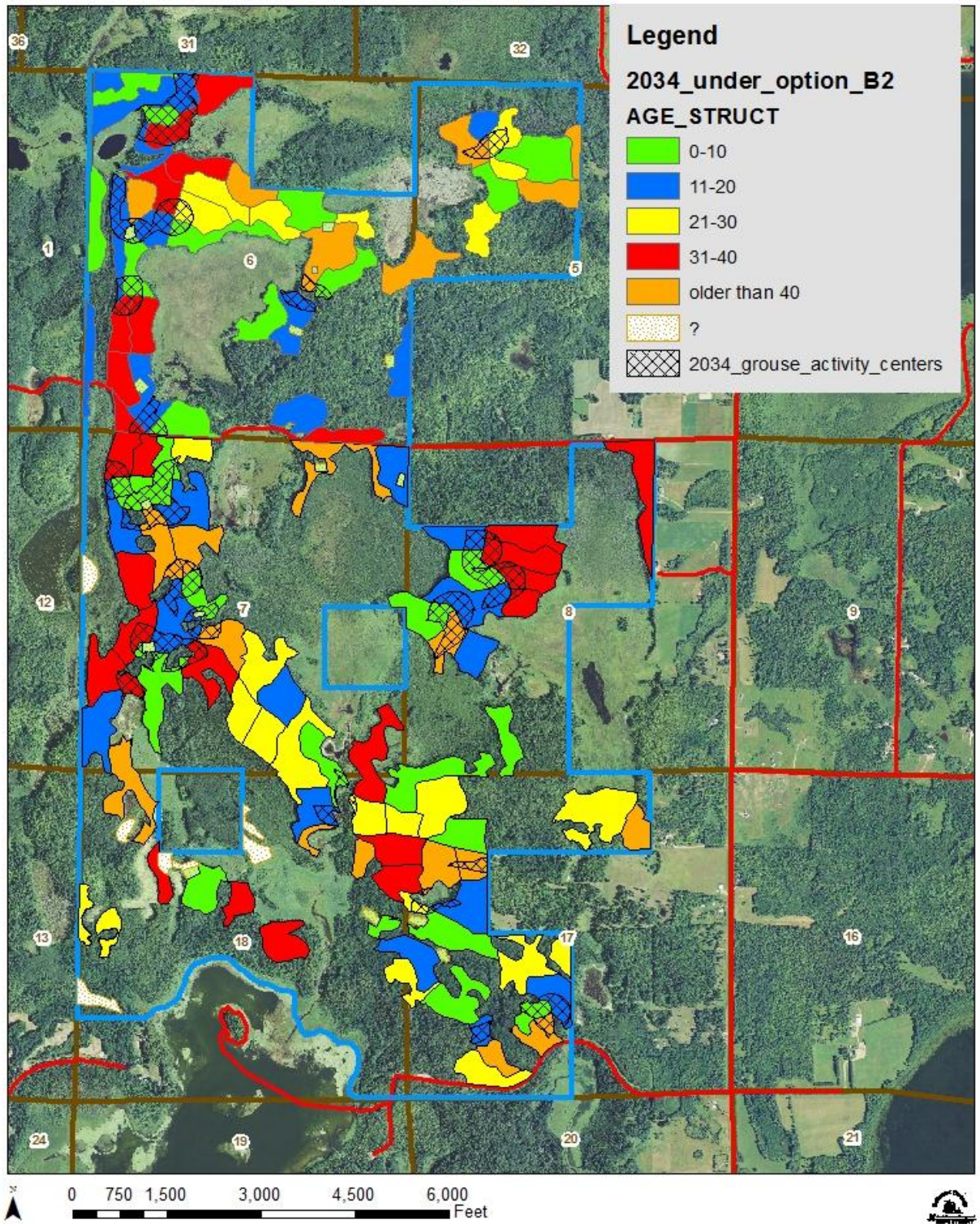


Figure 3

Full Grouse Management Area

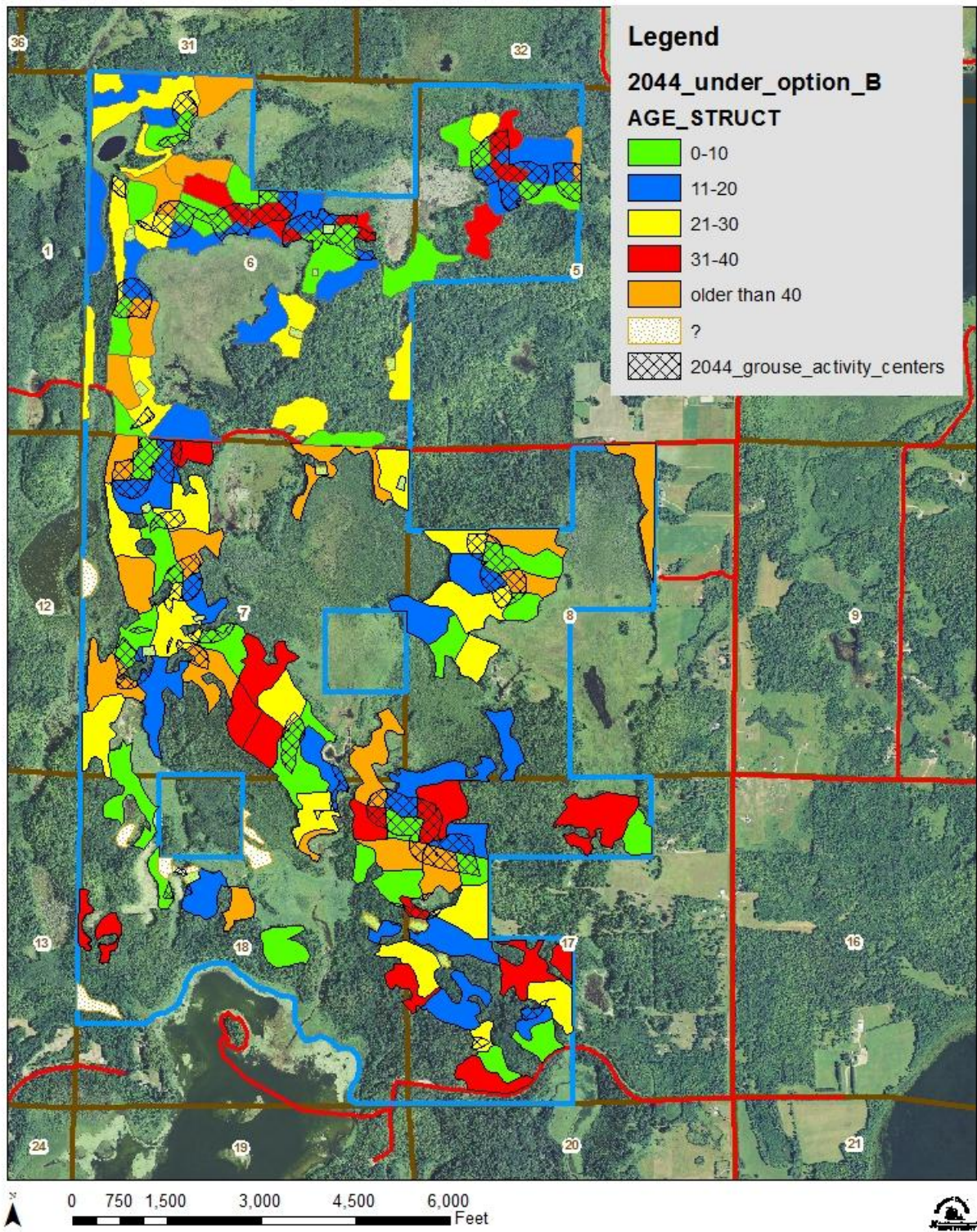


Figure 4

Full Grouse Management Area

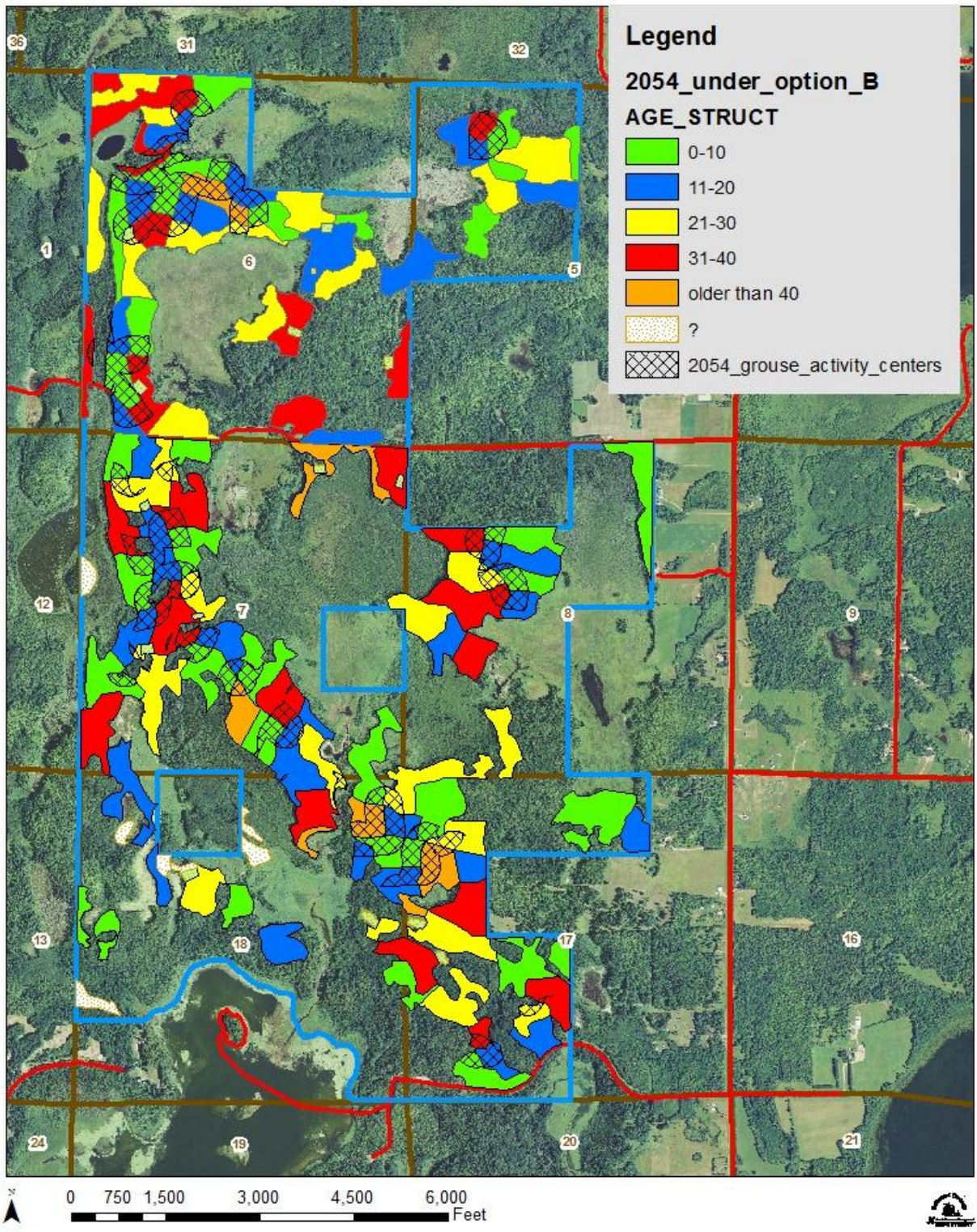


Figure 5