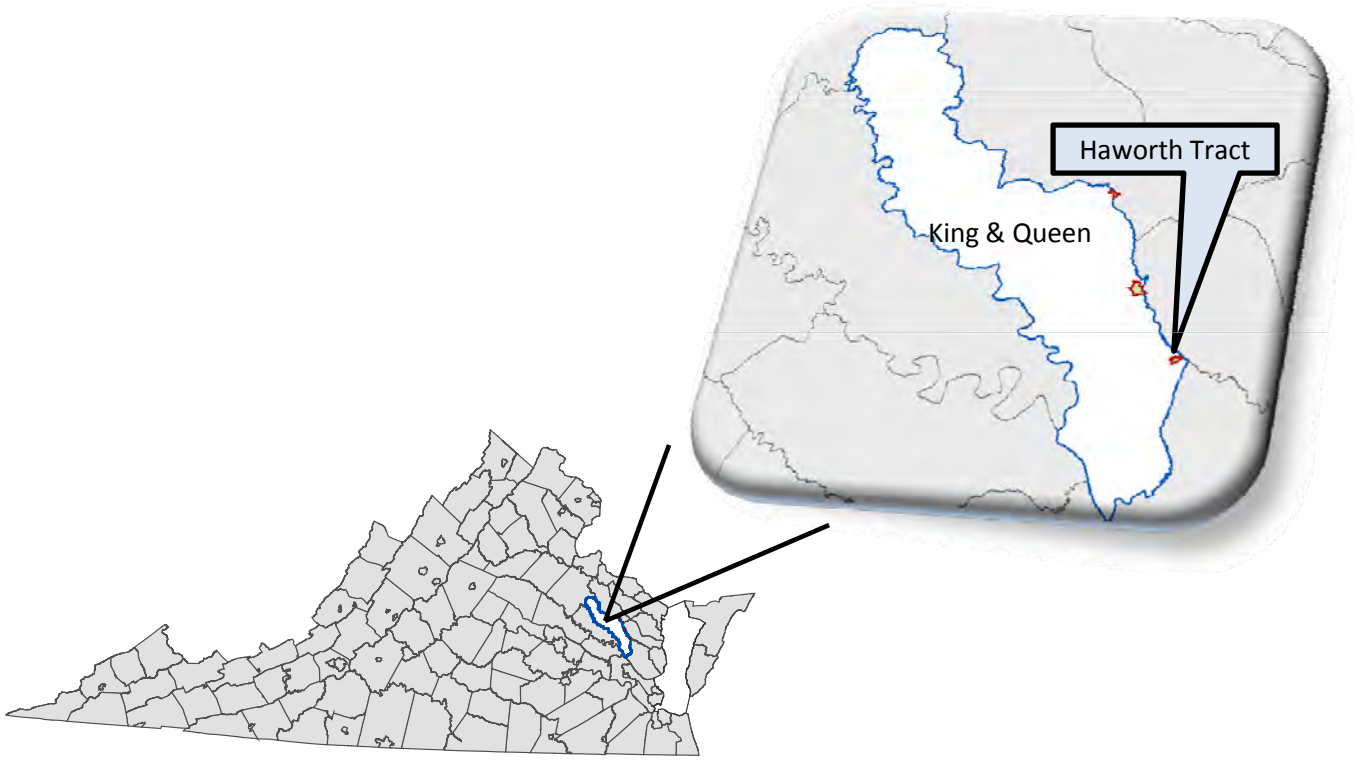
WILDLIFE HABITAT MANAGEMENT PLAN

HAWORTH TRACT



Introduction

This document was prepared through a cooperative agreement between the Virginia Department of Game and Inland Fisheries, the US Department of Agriculture – Natural Resources Conservation Service, and the Conservation Management Institute. The recommendations provided in this document are best management practices that could be applied to the Haworth Tract. The goal of this document is to provide the most effective approach for managing wildlife and conservation values while promoting recreational opportunities. To achieve the Chesapeake Bay Public Access Authorities (CBPAA) goals and objectives, these habitat management plans should be implemented.

Management Plans

Thinning

The area outlined as "Commercial Thinning" in the map view on page 4 is a dense stand of pines that should be thinned to a basal area of 45-60ft^2/acre in February or March 2012. Currently, the pine stands at the Haworth tract provide minimal wildlife habitat due to the overcrowding of pines, lack of plant diversity and a lack of an understory (Appendix A). Thinning will maximize the benefits of this stand for wildlife, as well as for timber value. Through proper management the Haworth Tract has the ability to provide productive habitat for quail, turkey and deer in addition to several other wildlife species. Proper management can also enhance recreational opportunities through hiking, hunting and bird-watching. In addition, it can also provide a source of income for the landowner(s) through timber sales. These funds can aid in future wildlife management plans for the Haworth Tract.

As a general rule, to achieve benefits for wildlife under a forest canopy, sunlight should strike at least 50% of the ground at noon. To accomplish this, pine stands must be thinned to 45-60ft^2/acre. Thinning to this level (45-60ft^2/acre) will provide optimal wildlife habitat, but still allow the loblolly pine to mature into a productive stand with a high commercial value. In addition, thinning heavily along field edges, road corridors and around stand openings will further enhance the property for wildlife. This "edge" habitat often yields the greatest dividend for wildlife, acre for acre. Some oak species do exist within these pine stands and we recommend leaving these oaks for their significant wildlife value.

Clear-cuts/Expanded Log Decks

The areas outlined "clear-cut/openings" in the map view on page 4 can be log decks that are expanded and/or sections where all of the trees are removed. These clear-cuts will add a mosaic of habitats to the property and maximize the benefits of the property for wildlife. In general, clear cuts should be irregular in shape and practically sized (10-30 acres). Many species including deer, turkey and quail like the edges of habitat.

A clear cut can be one of the most beneficial timber management practices for wildlife. The value of a clear-cut to wildlife is that it provides cover and forage in a fashion that is usable year around. Cover is not readily available in a mature stand of trees except in areas where trees have fallen or in dens. Within a year after a clear-cut, early succession species begin to dominate the site and a variety of food and cover is available during most of the year. This type of early succession habitat is generally available in a clear cut for eight to ten years.

These areas should be maintained by disking every 2-3 years. The clear-cuts can be seeded to partridge pea, lespedeza (Kobe or Korean) or to ladino clover. If partridge pea or a lespedeza is seeded, the site

should be lightly disked every spring or every other spring. The log decks will have to be cleared by the forestry crew using a bulldozer to remove the woody debris.

Prescribed Burning

After the thinning is complete, initiating a prescribed burning rotation can maintain excellent wildlife habitat. The sections that should be burned are outlined in the map view on page 6. The pine understory currently consists of a deep layer of pine needles that is preventing herbaceous vegetation from establishing. A prescribed burn of the entire tract in January or February of 2013, or 1 year after the thinning, will remove this layer of pine needles and reduce fuel loads. A rotational burn sequence should start in 2014, where only 1/3 of the property is burned each year. These burns can take place anywhere between March 1st and May 1st. Burning should be conducted by a certified burn manager 1 - 2 years after thinning and occur on a 3-year rotation. The suggested sections and rotation is outlined in the map view. Prescribed burning will provide many benefits to wildlife such as:

- Keeping vegetation at a height where it is most useful for wildlife.
- Improve the nutritional value and digestibility of the vegetation.
- Help maintain herbaceous vegetation (i.e. grasses, forbs, and legumes).
- Provide for a diversity of food and cover types for wildlife.
- Provide nesting habitat for quail, turkeys and songbirds.

The outlined sections should be sectioned off into even smaller units to provide better control of the fire. The outline is not a prescribed burning plan, only an overview of a rotational pattern that could be used. A prescribed burn manager will draw a more definitive plan when it comes time for the actual burn.

Firebreaks

Firebreaks should be incorporated into any planned burning activity. A firebreak is a strip or gap of bare land or vegetation that is established or created to act as a barrier to slow or stop the progress of wildfire and/or controlled prescribed burns. Firebreaks may be temporary or permanent and consist of fire-resistant vegetation, nonflammable materials, bare ground or natural geographic features such as rivers, rock outcrops, etc. Firebreaks should be located on the contour where practical, and stabilized in an appropriate manner to minimize the risk of soil erosion. Firebreak construction must comply with applicable federal, state, and local laws and regulations, including the state's Best Management Practices (BMP's) which can be viewed at the Virginia Department of Forestry's web site. Firebreaks must be 50 feet wide within the forest to allow sufficient sun light for grass and legume plants to grow successfully.

Four types of firebreaks are adaptable to the various needs and conditions existing in Virginia. They are:

1. Forest roads
2. Plowed, disked, or bladed firebreaks
3. Burned firebreaks
4. Vegetated firebreaks

These firebreaks can also serve as trails for hiking, birdwatching, and/or hunting. Seeding firebreaks to an annual lespedeza (kobe or Korean) or ladino clover will provide additional wildlife foods while still serving as trails for recreational users. If an annual is planted, light disking should occur every year or two. Annual plants require a disturbance to reseed and to prevent being out-competed by perennials.

Forest Roads

Forest roads may be used in any forest type and on nearly all terrain conditions. Existing or newly constructed forest roads or trails can be effective firebreaks if properly maintained. Forest roads are important not only for use as a prescribed fire tool but also for wildfire suppression access, timber harvesting, wildlife management, recreation, education and other forest management activities. Well planned roads provide low-cost access and require minimal maintenance. The travel surface of roads should be at least 10 feet wide. These roads already exist at the Haworth Tract, but we recommend widening these roads by removing the first few rows of adjacent trees. If seeded to ladino clover, partridge pea, or lespedeza; it will enhance the wildlife values of the property.

Where economically feasible, the road bed should be mulched with straw (do not use hay due to the high probability of introducing unwanted fescue to the roadbed) to help retain soil moisture and minimize seed loss from foraging wildlife. This allows the road to be used as a linear wildlife opening as well. If the road is to be maintained as a wildlife opening, the road should be planned and constructed to allow for adequate amounts of sunlight and rainfall which are necessary for proper establishment and continued vigor of the planting choice. Daylighting, or the removal of road side vegetation, may be necessary to allow ample sunlight to reach the road bed for several hours each day, aid in surface drying and create a soft transition zone between the forest and the road.

THREATENED/ENDANGERED SPECIES and SPECIES of CONCERN

A review of the Virginia Department of Game and Inland Fisheries (VDGIF) species list, and threatened waters list, shows the state threatened bald eagle (*Haliaeetus leucocehpalus*) as nesting within 2 miles of the tract. Tier IV unlisted species were documented within 2 miles, and also within the Dragon Run. The unlisted species found within 2 miles of the Haworth Tract include:

Ironcolor shiner (*Notropis chalybaeus*)
American eel (*Anguilla rostrata*)

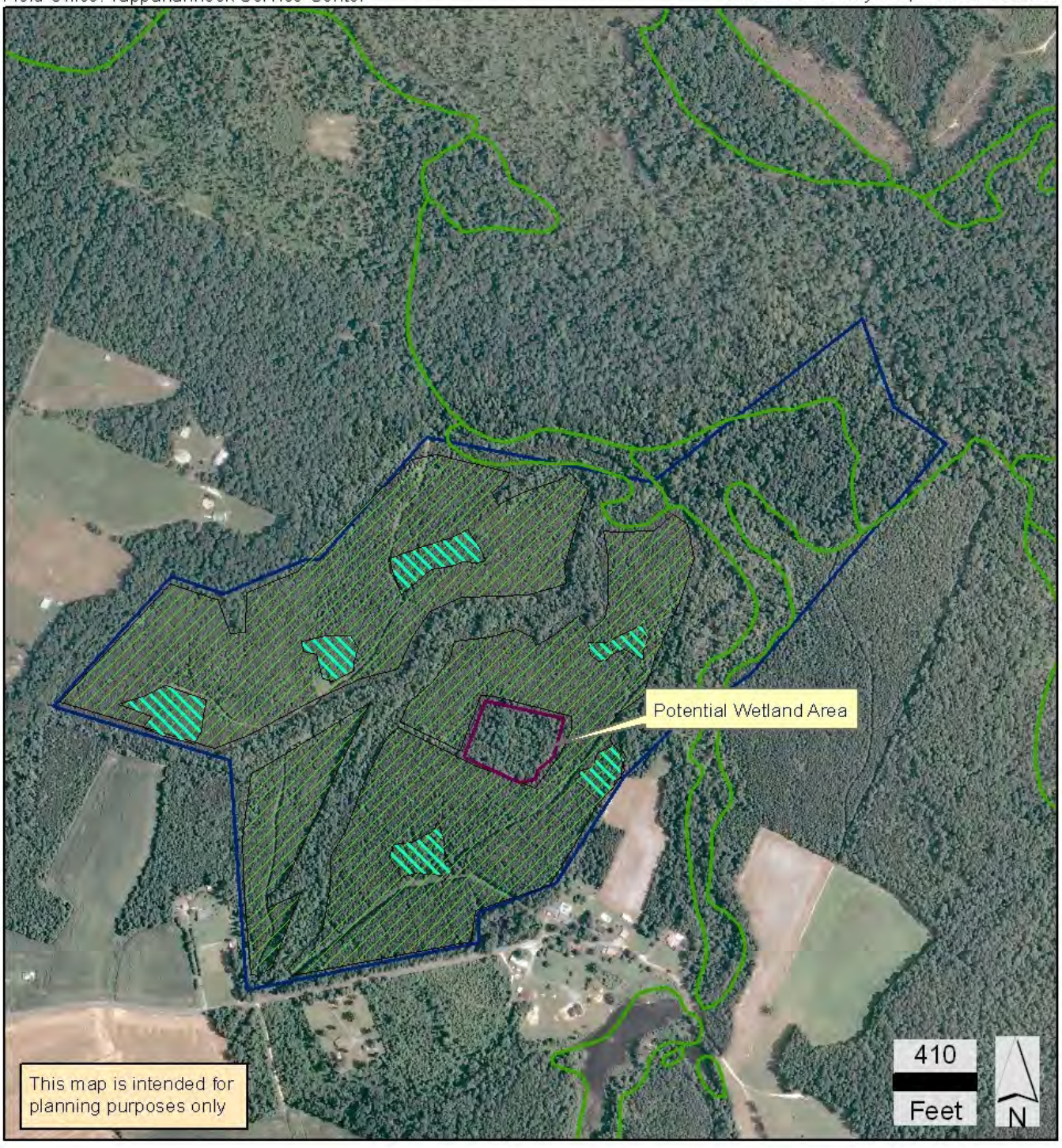
Tier IV species are still a species of concern; however other species have suffered greater population declines and have smaller populations. A review of the Department of Conservation and Recreation's (DCR) natural heritage list shows the federally threatened and state endangered, small whorled pogonia (*Isotria medeoloides*), as occurring within 2 miles.

Haworth Tract

Wildlife Mgmt Plan Map

District: Three Rivers Soil & Water Conservation District
Field Office: Tappahannock Service Center

Agency: USDA-NRCS & DGIF & CMI
Assisted by: Michael J. Budd
State and County: VA, KING & QUEEN



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- Clear-cut/Openings
- National Wetlands Inventory

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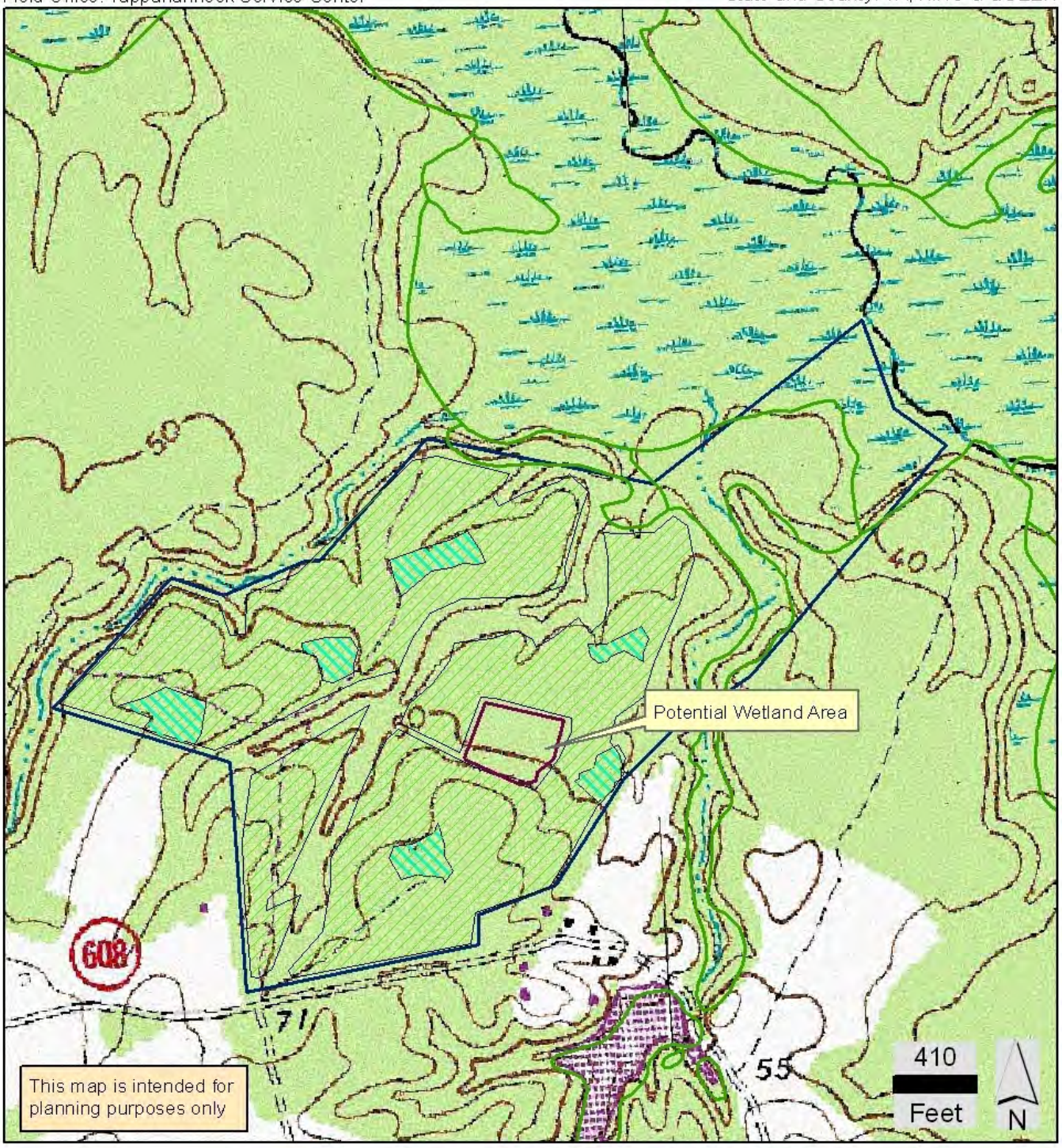

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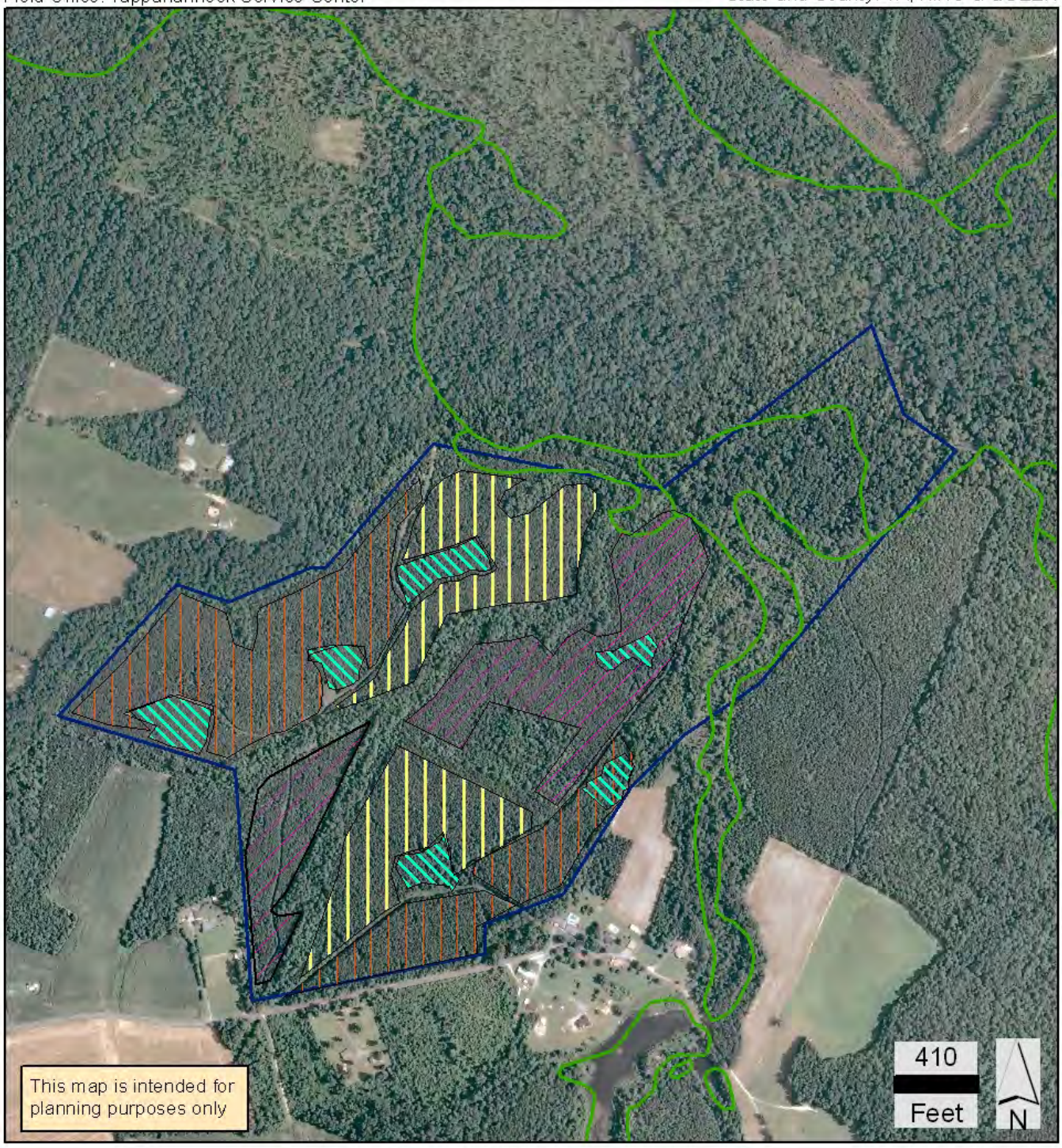

- Prescribed burn at year 3 post thin
- Prescribed burn at year 4 post thin
- Prescribed burn at year 5 post thin
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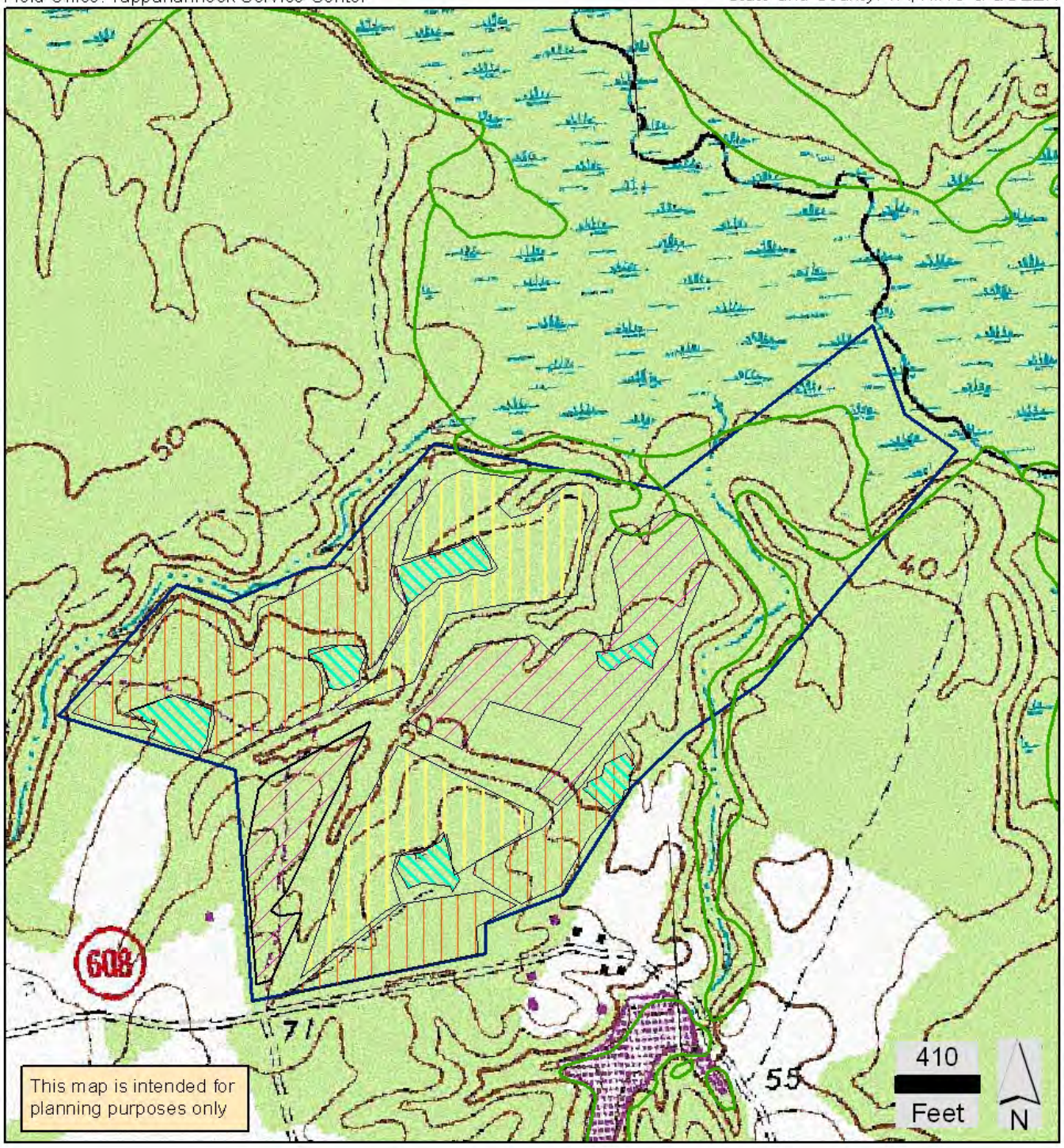

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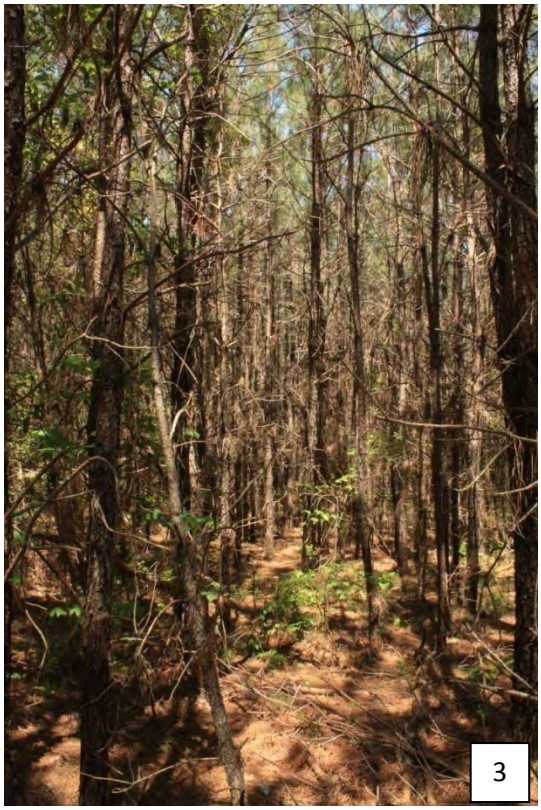
APPENDIX A

SITE PHOTOS



Pictures 1-3: These photos are representative of the Haworth Tract. The tree densities and/or pine needle build-up prevents an herbaceous understory. Loblolly pines may not be growing at desired rates as a result of their density.