

Flint River Council Conservation Committee
Conservation Plan for Thunder Scout Reservation

Introduction:

Thunder reservation is comprised of approximately 2200 acres located in Western Upson County near the Flint River. The Reservation contains the Gerald I. Lawhorn Canoe Base and the area commonly known as Camp Thunder. The area is used primarily for camping and training.

History:

In the 1839 White's Travel Guide to Georgia, mention is made of a hotel near a "thundering spring" in Upson County. The hotel was operated as a spa for many years and many considered the waters in the bubbling springs therapeutic. The hotel burnt in the 1880's and the thundering spring is now covered by the lake near the council ring. In the 1930's the land was transferred by the Lawrence family to the Flint River Council, BSA and became Camp Thunder.

In the early 1980's the pine on the south side of camp came under attack from the Southern Pine Beetle, which had reached epidemic status in Upson and surrounding counties. The area was harvested under salvage conditions, replanted 2 years later in Loblolly Pine in some areas, and allowed to regenerate naturally in Longleaf in others. The stumps of the harvested Longleaf were purchased by Hercules Powder Corporation and used in the production of gunpowder. The major portion of the camp is in a Longleaf pine, Chestnut Oak association that is reflective of the condition most of the land was in 200 years or earlier in this area of the Pine Mountain Range. Prior to being donated to the Flint River Council, the land was heavily farmed.

The Canoe Base is land purchased by Mr. Lawhorn and given to the Flint River Council for as a high adventure outpost. This portion(around 200 acres) of the reservation is operated separately from main camp.

Camp Composition:

The Canoe Base is mainly old field which is natural pine and sweetgum with an understory of water oak and high bush blueberry and a large flood plain consisting of bottom land hardwood species, mainly oak, black gum, hornbeam and scattered other hardwood species.

The part of the camp referred to as Camp Thunder is a part of the Pine Mountain range and is composed of Loblolly and Longleaf pine with a hardwood component of Chestnut Oak, Post Oak, Blackjack Oak, species of the Willow Oak variety, various hickories and a variety of low growth shrubs. Several small streams run through the camp and flow into the Flint River with the species composition in those areas being the bottom land hardwood varieties. Several areas are of pure pine composition; those in the area of the Flint being mainly Longleaf and those closest to the camp sites, Loblolly.

Current Use:

The Canoe Base contains 9 permanent campsites, a wilderness camping area, a cope course and a canoe launch. It has been used for 6 Wood Badge courses 6 Junior Leader Training course and 1 Regional Powder Horn course. It operates as a year round

high adventure area and offers high adventure instructor training. It has been utilized for many Council and District events (Camporees, Cuborees, and Order of the Arrow activities). The most recent addition is a new kayak and canoe training lake.

Main Camp has 13 permanent campsites, 8 pavilions, a maintenance compound, Lake Ini-To and the activities areas necessary for merit badge instruction. Camping is confined to about 100 acres on the main reservation with the remainder of the 200 acres used for hiking, orienteering or the merit badges dealing with camping.

The number of people that may be on the reservation for a specific activity has been set by the Camping Committee and is being enforced by the BSA personnel at the reservation.

Planned Usage:

Plans are being made to utilize more of the main camp for campsites and pavilions and new rifle, shotgun, muzzle loading and archery ranges are being considered for the near future. New additions to the Canoe Base are currently being considered.

Forest Management:

Excluding the salvage of beetle infested wood in the early 1980's, harvest at main camp and at the Canoe Base has been limited to single tree selection of over-mature pines and trees in campsites that were considered danger trees or had been attacked by pine bark beetles. The wood felled in these danger tree removal operations was utilized in the rebuilding of Howard Lodge and of other facilities.

Future harvest will depend on the location of future campsites and other improvements or finding other large tree creating potential dangers in the camping area. The loblolly pine area adjacent to campsite 5 is severely overstocked and can create some income if properly and timely thinned. A study of the feasibility of this harvest is being conducted. The area in the center of the main reservation between the river and the camping area consists of 70 to 80 year old oaks, hickories and other hardwoods and patches of Longleaf pine. No harvest is intended for this area, as it remains relatively unused except by those passing through it.

Water Quality:

Projects ,construction, timber removal and road maintenance can have and adverse effect upon water quality in respect to turbidity and downstream deposit of sedimentation. Any of these activities that affect water quality must be cleared by the Reservation Manager and the Conservation Committee prior to start up.

Recreation:

Camping and education of Scouts and Scouters is the primary mission of activities scheduled at Thunder reservation. The intention of the reservation activities is mainly that of Baden-Powell's reason for all Scouting activities-" a game with a purpose". Therefore, recreation remains the focus of the programs at Thunder.

Harvest :

Harvest, as mentioned earlier, had historically been confined to salvage and single tree selection. The area near campsite 5 will be inventoried so that decisions regarding it

can be made on stand health and mortality issues. No plans are being made to harvest any part of the camp on a clear-cut basis, except for those designated as future campsite or activity areas. Harvest, if elected, will be conducted under the supervision of the Foresters on the Conservation Committee.

Erosion Control:

The soils on the Camp are prone to erosion under moderate use. The Campsites and roads are being maintained by use of conservation projects and routine road work. Roads to planned sites and activity areas are to be placed with soil movement of foremost consideration and constructed with proper water control devices in place. Because of the slope in most of the camp, seeding of areas that might cause problems is recommended.

Pesticide Usage :

When it is necessary to remove undesirable species by use of herbicides, it is recommended that a non-restricted formulation be used. If the species cannot be controlled with over-the-counter products, any restricted usage herbicide must be applied by a licensed pesticide applicator and used according to the label on the product or the MSDS supplied by the manufacturer. An MSDS must be left on file for the product along with a map of the treated area; amounts applied and dates of application. A Date of Entry Poster must be placed at the area for the required amount of time before re-entry onto the site.

Insecticides used indoors will be applied by a licensed applicator and outdoor usage of insecticides will be prohibited unless deemed to be necessary by the Reservation Manager and the Conservation Committee.

Thunder Scout Reservation presents a challenge in terms of pesticide use and management of such pesticides. You have the dichotomy of campers coming to enjoy an “outdoor experience” coupled with the necessity of using pesticides in such a place.

"Pesticides are extremely important in protecting public health. Without pesticides, we would be in a difficult position," said Jerome Goddard, Ph.D., a medical entomologist with the Mississippi Department of Health and professor at The University of Mississippi Medical School. With the proper use of pesticides, the public is well protected. "Pesticide products that rid homes, schools, parks and workplaces of unwanted insects, plant diseases and weeds, are extensively tested for health, safety and consumer benefits as are antibiotics and other pharmaceuticals."

The flip side for this statement is of course, that the improper use of pesticides can leave the public at risk. The pesticide usage policy for Thunder Scout Reservation should be simple and straightforward.

1) Choosing Pesticides

A pesticide should never be casually used. Pesticides should only be applied when needed and as dictated by a specific situation. Know what the infestation and intended target is before selecting the pesticide. Only mix the needed amount of pesticide for the job at the proper rate. Failure to observe this detail can lead to disposal problems and improper usage of the pesticide.

2) Using Pesticides

In the event that a pesticide is required, only a pesticide that is labeled for the particular pest is to be used. All labeling instructions should be followed and the application should be made by trained personnel. This only makes sense and it is the law. If the pesticide in question is a restricted use pesticide, a pesticide applicator's license is necessary for the supervisor or the applicator. All spraying devices should be labeled as well as buckets that pesticides have been in. It is recommended that separate sprayers be used for herbicides, insecticides, and fungicides. Minors should not be put in the position of applying any pesticides at any time.

3) Disposing of Pesticides (from the 2004 Georgia Pest Management Handbook)

The EPD permits landfill disposal of certain concentrated pesticides as long as they are absorbed and bagged. Under EPD guidelines, up to 2.2 pounds of an *acutely hazardous pesticide* may be taken to a sanitary landfill; liquid formulations must first be absorbed by kitty litter or similar materials and contained in plastic bags. Up to one gallon liquid of a *toxic pesticide* may be taken to a sanitary landfill per visit. If you have more than one gallon but less than 220 pounds (about 25 gallons), you may take it to a sanitary landfill, but not in a liquid form. It must be absorbed and bagged as described above. If in one month you generate more than 220 pounds of toxic pesticide waste or more than 2.2 pounds of acutely hazardous pesticide waste, you must contract EPD for special instructions. Remember, local landfills have the right to refuse any pesticide, no matter how it is presented. The best method to dispose of mixed pesticides or rinse water is to apply it on the crop or site for which it is labeled. As pesticides are used up, bottles should be triple rinsed and the rinsate sprayed to the intended target or site. This will prevent costly disposal fees down the line. The triple rinsed bottles may be disposed of in a conventional manner.

4) Storage of Pesticides

Since Thunder Scout Reservation is in a unique environmental situation the policy should be to have as small an onsite storage area as possible. The effort should be made to anticipate potential problems and only buy pesticides as needed. No long term storage should be accommodated (longer than 2 years). All pesticides should be under double locks. This means storing in a locked cabinet in a locked building. The cabinet should be metal and be clearly labeled as to its contents. A clipboard with a log, to sign pesticides in and out, as well as to log purchase dates and amounts of pesticides is also to be recommended.

It is to be highly recommended that the all buildings be put under a licensed professional applicator's contract, for a monthly inspection and treatment service.

Other activities or usage not covered in the document will be approved by the Reservation Manger with the consultation of the Conservation Committee prior to beginning.

Summary of plant community classification on Thunder Scout Reservation.

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Introduction

The objective of the study was to identify ecological land units (plant communities) on Thunder Scout Reservation based on vegetation, soils, and landform features of mature forest communities. Based on the characteristics of each community identified, it is designated as Leave No Trace, Primitive, Semi-primitive, or Group Camping. The management recommendations for each category are below.

Leave No Trace -foot traffic only. No camping is recommended.

Primitive areas - camping is permitted but no permanent structures with the exception of Philmont style pit toilets and permanent fire pits. The establishment of foot and bike trails is permissible.

Semi-primitive – same as Primitive areas but Appalachian Trail type shelters can be constructed

Group Camping – construction of permanent buildings, campsites, and trails is permissible.

Methods

In the summer of 2003, 15 plots were established in suitable forested sites. Tree, sapling, seedling, and herbaceous strata were sampled in a 20 X 50 meter plot following the Carolina Vegetation Survey protocol. Soils samples were collected by horizon from four locations within the plot to determine soil horizon depth and chemical and textural properties. Landform variables sampled included slope gradient, aspect, and landform index (LFI). The data was then analyzed through multivariate statistics

Results

Four landscape scale plant communities ecological land units were identified with a unique species assemblage and soil and landform characteristics (Tables 1 and 2

A Longleaf pine-turkey oak (*Quercus laevis*)-goat's rue (*Tephrosia virginiana*) type was found on steep rocky upper slopes with low Ca. Landform index averaged 20 percent with B-horizon Ca averaging 163 ppm (Table 1). The relatively high landform index reflects the upper slope position and steep terrain. Species indicative of this site include *Carya pallida*, *Cnidioscolus stimulosus*, *Quercus margaretta*, *Q. marilandica*, *Prunus umbellata*, *Hypoxis hirsuta*, *Pteridium aquilinum*, *Hypericum hypericoides*, *Vaccinium pallidum* and *Solidago odora* (Table 2). Sites that support this community are too steep, rocky, and remote for the development of buildings or campsites. This is a Leave No Trace area.

A Longleaf pine-post oak (*Quercus stellata*)-blackseed needle grass (*Stipa avenacea*) type was found on mountain tops and side slopes with low Ca. The landform index was lower at 11.68 reflecting positions on mountaintops. B-horizon Ca was slightly higher at 389 ppm (Table 1). Species with affinity for these sites include *Carya pallida*, *C. tomentosa*, *C. glabra*, *Quercus marilandica*, *Baptisia tinctoria*, *Clitoria*

mariana, *Euphorbia pubentissima*, *Hypericum hypericoides*, *Hypoxis hirsuta*, *Ipomoea pandurata*, *Pteridium aquilinum*, *Prunus umbellata*, *Vaccinium pallidum*, *Smilax glauca*, and *Solidago odora* (Table 2). This community is abundant and the sites are relatively flat (ex. Muddy Slash Ridge). This is a Semi-primitive area.

Mockernut hickory (*Carya tomentosa*)-post oak- yellow passion flower (*Passiflora lutea*) type was found on mountaintops and moist slopes with high Ca. The landform index was the lowest of the land units at 6.44. This reflects the mountaintop position on the landscape. The B-horizon Ca was very high at 2505.95 ppm due to the parent material underlying the soil (Table 1). Species common on this site were *Quercus prinus*, *Quercus stellata*, *Galium circaezans*, *Ipomoea pandurata*, *Aesculus pavia*, and *Lespedeza repens* (Table 2). This unusual community is found on relatively flat terrain that can support bike and hiking trails, campsites, and wilderness outposts. However, due to the unusual mix of plant species found on these sites, development should be kept to a minimum. This is a Primitive area.

Chestnut oak (*Quercus prinus*)-sand hickory (*Carya pallida*)-Christmas fern (*Polystichum acrosticoides*) type was found on steep slopes bordering ephemeral streams. Landform index was the highest of the land units at 31.5 reflecting sites in protected valleys bordering streams. The Ca was relatively high at 599.25 reflecting the input and accumulation of Ca from upper slope sites (Table 1). Species indicative of this site include *Parthenocissus quinquefolia*, *Quercus rubra*, *Quercus nigra*, *Acer rubrum*, *Hexastylis shuttleworthii*, and *Baptisia tinctoria* (Table 2). These sites are too steep to support recreation outside of hiking and bike trials. However, such uses should be kept to a minimum. These sites border streams and intermittent streams (Double Branch, Matt Branch) and should be protected to prevent erosion onto the streams. This is a Leave No Trace area.

Flint River Floodplain is a mixture of water oak (*Quercus nigra*), Sweetgum (*Liquidambar styraciflua*), and American Hornbeam (*Carpinus caroliniana*). The landform index is 11.38 and the slope is 1 %. The B-horizon was high in clay (30%) reflecting floodplain geology and hydrology. A buffer strip of 150 feet bordering the river should be maintained to protect water quality and reduce erosion. Areas below 200 meters (660 feet) in elevation areas should be considered Semi-primitive. Areas above 200 meters are not likely to flood and are suitable for Group Camping.

Conclusions

The montane longleaf pine forests of the Pine Mountain Range represent a unique ecosystem blending coastal and Piedmont/Appalachian species. The results can be used in the context of a geographic information system (GIS) for mapping each community. Then land management decisions can be made.

This study examined the major ecosystems found on Thunder Scout Reservation but did not address some unusual ecosystems such as canebrakes and mountain-laurel thickets near Moss Falls. When funds are available, further research should be conducted to determine the species composition and presence of rare species in these ecosystems.

Acknowledgements

This research was supported by a Faculty Research Grant from Jacksonville State University and Thunder Scout Reservation, Flint River Council, Boy Scouts of America.

Table 1. Mean of diagnostic environmental variables for the Pine Mountain Region of West Central Georgia (p=0.10).

Community	Longleaf pine-turkey oak-goat's rue	Longleaf pine-post oak-blackseed needle grass	Mockernut hickory-post oak-yellow passion flower	Chestnut oak-sand hickory-Christmas fern
Landform Index	20.58	11.68	6.44	31.5
A Horizon Sand (%)	76.67	73.04	55.00	70.00
B Horizon C (%)	0.57	0.40	0.62	0.43
B Horizon P (kg/ha)	23.59	18.69	10.90	35.43
B Horizon Ca (kg/ha)	163.43	389.13	2,505.95	599.25
Elevation (m)	317.00	297.00	329.50	259.00

Table 2. Community type, habitat, and diagnostic species for the Pine Mountain Region of West Central Georgia.

Community	Longleaf pine-turkey oak-goat's rue	Longleaf pine-post oak-blackseed needlegrass	Mockernut hickory-post oak-yellow passion flower	Chestnut oak-sand hickory-Christmas Fern
Habitat	Steep rocky upper slopes low Ca streams	Mountain tops and side slopes with low Ca	Mountain tops and moist slopes with high Ca	Steep slopes bordering with ephemeral
Diagnostic Species	<i>Quercus laevis</i> <i>Tephrosia virginiana</i> <i>Pinus palustris</i> <i>Cnidioscolus stimulosus</i> <i>Quercus margaretta</i> <i>Hypoxis hirsuta</i> <i>Solidago odora</i> <i>Pteridium aquilinum</i> <i>Solidago odora</i>	<i>Quercus stellata</i> <i>Stipa avenacea</i> <i>Pinus palustris</i> <i>Carya tomentosa</i> <i>Ipomoea pandurata</i> <i>Baptisia tinctoria</i> <i>Clitoria mariana</i> <i>Euphorbia pubentissima</i> <i>Hypoxis hirsuta</i> <i>Hexastylis shuttleworthii</i>	<i>Carya tomentosa</i> <i>Quercus stellata</i> <i>Passiflora lutea</i> <i>Carya glabra</i> <i>Galium circaezans</i> <i>Ipomoea pandurata</i> <i>Aesculus pavia</i> <i>Lespedeza repens</i>	<i>Quercus prinus</i> <i>Carya pallida</i> <i>Polystichum acrosticoides</i> <i>Parthenocissus quinquefolia</i> <i>Quercus rubra</i> <i>Quercus nigra</i> <i>Acer rubrum</i> <i>Baptisia tinctoria</i> <i>Pteridium aquilinum</i>

Diagnostic Key to Major Plant Communities

1) Elevation below 280 m

2) LI of 30 or greater

Chestnut oak (*Quercus prinus*)-sand hickory (*Carya pallida*)-Christmas fern (*Polystichum acrosticoides*) type

Common species: *Parthenocissus quinquefolia*, *Quercus rubra*, *Quercus nigra*, *Acer rubrum*, *Hexastylis shuttleworthii*, and *Baptisia tinctoria*.



Baptisia tinctoria (Baptisia)



Hexastylis shuttleworthii (Wild Ginger)



Polystichum acrosticoides (Christmas Fern)

1) Elevation above 280 m

2) LI of 12 or less

Mockernut hickory (*Carya tomentosa*)-post oak- yellow passion flower (*Passiflora lutea*) type

Common species: *Quercus prinus*, *Quercus stellata*, *Galium circaezans*, *Ipomoea pandurata*, *Aesculus pavia*, and *Lespedeza repens*.



Passiflora lutea (yellow passion flower)



Aesculus pavia (pained buckeye)



Quercus stellata (post oak)

2) LI between 12 and 35

3) Turkey, Blackjack, and Sand Post Oak

A Longleaf pine-turkey oak (*Quercus laevis*)-goat's rue (*Tephrosia virginiana*) type
Common species: *Carya pallida*, *Cnidoscolus stimulosus*, *Quercus margareta*, *Q. marilandica*, *Prunus umbellata*, *Hypoxis hirsuta*, *Pteridium aquilinum*, and *Hypericum hypericoides*.



Quercus marilandica(blackjack oak)



Tephrosia virginiana (goat's rue)



Quercus laevis (turkey oak)



Cnidoscolus stimulosus (tread softly)

3) Post Oak, Mockernut Hickory, Pignut Hickory, and Blackseed Needlegrass

Longleaf pine-post oak (*Quercus stellata*)-blackseed needle grass (*Stipa avenacea*) type
Common species: *Carya pallida*, *C. tomentosa*, *C. glabra*, *Quercus marilandica*, *Baptisia tinctoria*, *Clitoria mariana*, *Euphorbia pubentissima*, *Hypericum hypericoides*, *Hypoxis hirsuta*, *Ipomoea pandurata*, *Pteridium aquilinum*, *Prunus umbellata*, *Vaccinium pallidum*, *Smilax glauca*, and *Solidago odora*.



Quercus stellata (post oak)



Hypoxis hirsuta (stargrass)



Stipa avenacea (blackseed needle grass)

Approved : _____ Reservation Director Date _____

Approved : Conservation Committee

