



SELECTED STATISTICS ON OLD-GROWTH STANDS IN THE CHATTAHOOCHEE NATIONAL FOREST:

**A site by site summary of the findings of the
Georgia Forestwatch Old Growth Project**

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Throughout this project, many volunteers, both members of Georgia Forestwatch and employees of the Patagonia Atlanta store, have contributed their much appreciated time and effort to the success of this endeavor. Forestwatch member's providing temporary housing for the field workers also enormously increased the efficiency of this effort.

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INTRODUCTION

During the summer of 2001, Georgia Forestwatch initiated an effort to survey the Chattahoochee National Forest (NF) for remaining stands of old growth. For this project, old-growth, a term with a multitude of varying definitions was defined as in the *Guidance for Conserving and Restoring Old-Growth Forest Communities on National Forests in the Southern Region*, a USDA Forest Service Publication. That document defines old growth on the basis of numerical thresholds for diameter breast height (dbh) of the largest trees, basal area, and age of oldest age class, and more qualitatively in terms of lack of human disturbance. For each of the numerical qualifiers, the Forest Service (FS) guidance provides values specific to individual community types. Of all of the parameters, Georgia Forestwatch saw the lack of human disturbance criteria and age requirements as the most restrictive on the Chattahoochee NF; consequently, the project focused on examining stands with minimal signs of human disturbance and collecting core samples to quantify stand age.

Georgia Forestwatch continued the work during the summers of 2002 and 2003, and to a lesser extent during winters, with two primary objectives: first, to influence the Chattahoochee NF's Forest Plan revision process, and second to gain a better understanding of the distribution and qualities of a rare resource, old growth, on the Chattahoochee NF. Some survey techniques were developed with the help of the FS, and at the end of each summer, Forestwatch presented results to the FS. At those meetings, the implications of the findings to the new Forest Plan were discussed in terms of both specific prescriptions and locations and in terms of forest wide goals and guidelines. The results also greatly enhanced the state of knowledge on old growth in the Chattahoochee NF. At the beginning of the project, estimates for remaining old growth on the project varied widely, and field surveying for individual stands had only been conducted in a small portion on the forest (Carlson 1995).

STUDY AREA

The Chattahoochee NF is located between 34° and 35° north latitude in the northern part of the state of Georgia, USA. The forest includes over 300,000 hectares of mountainous terrain in the southern Appalachians. Two disjunct sections contribute to that total: the Armuchee Ranger District in the west, and main body of the forest in the state's central and eastern region. The former lies in the Ridge and Valley physiographic province, which is underlain by sedimentary formations. Metamorphic rocks underlie most of the larger Blue Ridge physiographic province section. Ridge and Valley elevation generally range from 300 to 600m while Blue Ridge sites range from 225m to 1450m above sea level. The entirety of forest has a warm temperate climate with precipitation distributed roughly evenly throughout the year. Most precipitation occurs as rain, and annual totals range from approximately 140cm at low elevations to over 200cm on the highest peaks. Those conditions support extensive broadleaf deciduous and mixed conifer-deciduous forests. Most of stands have grown back following intensive logging by timber companies in the late 19th and early 20th century prior to FS acquisition of the land, and farming cleared some low elevation areas. Towns have developed within the general region occupied by the NF, but only isolated small facilities have been built on FS land. Other developments on FS property include reservoirs, and an extensive network of gravel roads.

METHODS

Since the NF had not previously been systematically surveyed for old growth, except the Chattooga River watershed, the initial goal was to identify candidate sites to verify in the field. To accomplish this task, steep, remote areas were identified on topographical maps; early timbering efforts sometimes bypassed such areas due to expense and difficulty of access and lack

of commercially valuable timber on such sites. At the start of the second summer, Rob Messick, an old-growth researcher from NC, contributed a list of candidate sites generated by a similar procedure. The sites in the least restrictive management prescriptions received the highest priority for visitation. The site visits included visually assessment of old growth attributes, collecting core samples, making notes on the species composition, structure and other aspects of the stands, and in some stands measuring basal area with a cruz-all. Large and/or exceptional stands were revisited to better determine boundaries and conduct plots with the Forest Service sampling protocol. Later, stand boundaries were drawn directly on digital maps, extrapolating between known points and taking into account topography where necessary.

Coring was conducted primarily to obtain an estimate of the age of the oldest age class present in the stand, rather than to establish stand disturbance histories or climate histories. Trees were selected for coring if they were of a species that constituted much of the overstory, appeared to be in the oldest age class, and appeared solid; trees were not cored in areas that clearly contained a few remnant trees that greatly exceeded the age of the surrounding forest. The circumference or diameter, and species of each tree cored were recorded, and a global positioning system (GPS) unit was used to obtain coordinates. Trees were cored at 4.5' (1.37m) above midslope on the uphill side of the tree or any lean. Cores were mounted on grooved boards and affixed with carpenters glue, and mounted cores were then either cut or sanded to expose rings. Rings were counted in sunlight, with the aid of a magnifying loop when necessary, and marked every ten rings. Each section of ten rings was counted at least twice for accuracy. Most of the species cored produce new rings every year, and rarely produce false rings, so for the level of accuracy required, crossdating was deemed unnecessary.

USING THIS DOCUMENT

Descriptions of individual stands verified by fieldwork comprise the bulk of this document. The stands are grouped according to the Forest Service Ranger District they occupy and then listed alphabetical. The format of each description follows the conventions used in the *Nantahala-Pisgah National Forest Old-Growth Survey*; within each description, an introductory line identifies the site and provides information on the sampling of the site, and the rest of the description lists categorized biotic and abiotic characteristics of the stand. For any stand in which multiple forest types occur, the description is subdivided by forest type, and each categorical label describes conditions found within the forest type that begins the paragraph.

Site name, the number and date of all visits to the stand, the total number of core samples collected, and the total number of photographs taken constitute the introduction to each description. Site names derive from the name of a prominent topographical feature that appears within or adjacent to the stand, and each name appears on the USGS 7.5' series topographic map for the area. Each name refers to a contiguous forest stand. If the number of core samples or photographs is not listed, assume none were collected.

Up to 13 categories of information occur in each stand description, but most contain far fewer. The absence of a category in the description usually indicates no observations were about that aspect of the stand, rather than that the feature was absent. The **Forest Type** category partitions the forest into discrete biotic communities. The forest types used in this document derive from the forest types used in "Old-Growth Communities in the Nantahala-Pisgah National Forest," which in turn derive from *Classification of the Natural Communities of North Carolina-Third Approximation, Old-Growth Project: Stand Delineation and Disturbance Rating-Great Smoky Mountains National Park and Guidance...* As used here in forest types, subxeric, xeric, submesic, and mesic describe a continuum of increasing moisture. In **Geographic Position**, an attempt is made to verbally describe the location of the stand and its boundaries, usually relative

to topographic features. For more detailed information a stand's boundaries, the associated digitized maps should be consulted, found in the companion GIS. In the **Core Samples** sections, "(i)" refers to an incomplete core resulting from either the increment borer being oriented incorrectly and missing the rings near the pith or the tree being hollow; hence any age marked "(i)" is less than the total age of the tree. "(e)" denotes an age obtained by extrapolating from a partial core. Only cores longer than half the radius of the tree were used for extrapolation. The radius of the tree in inches minus the length of the core minus two, to allow for the possibility that the pith was not centered, all multiplied by the average number of rings per inch for the innermost two inches of the core was used to estimate the number of rings missing. Thus, that estimate plus the number of rings on the core produced the extrapolated age. The length of time required for the tree to reach coring height was not estimated. **Signs of Human Disturbance** refers to any evidence of direct human activity within the stand. In particular, this section includes notes on any indication of past canopy manipulation such as roads, for logging access, or cut stumps. Also, ubiquitous human caused disturbance not directed at the site, chestnut blight or climate change for instance, were not included in this category. However, since chestnut blight could drastically alter the composition of a stand, that disturbance warranted a separate category, **Signs of Chestnut Blight**. That category notes wood and sprouts of both *Castanea dentata* and *C. pumila*, but does not describe any symptoms on less severely infected species. **Signs of Fire** primarily refers to any charred downed wood in the stand or any burned bark on live trees. **Basal Area**, the area of wood that would intersect an imaginary plane passing through the stand 4.5' (1.37m) above the ground per unit area of the stand, was collected using a ten factor cruz-all calibrated in feet per acre. The **Range of Large Trees** lists the dominant canopy species in the stand, and includes maximum diameter measurements of those species when available. **Shrub layer** simply lists the most common shrub species in the stand and a general description of their abundance. **Herbaceous Richness** refers to the diversity or number of herbaceous species present, and often lists the most abundant ones. The **Animal Sign** category includes sightings of vertebrates, their paths, or their droppings. **Substrate**, or bedrock, information comes from two sources: first, rock outcrop or float material identified on the surface or the site, and second, the Greenville 1°X2° geologic map produced by the USGS. The **Related Areas** category provides information on other stands that may or may not be contiguous, and lists other names applicable to the state to facilitate gathering all information relevant to the stand.

This document is designed to be used in an electronic format as part of a three-document set that forms the full summary of the Georgia Forestwatch Old-Growth Project. The other two documents, an Excel spreadsheets and a Geographic Information System, focus on the numerical and spatial aspects of the data respectively. While extensive overlap exists among the documents for ease of use and cross-reference, this document contains the most complete descriptions of each site. The categorized character of the descriptions should facilitate quickly finding specific information about sites, and using Word's Find function, accessed by holding the control key and depressing "F", may accelerate that process further. That function also provides the best means for scrolling through a particular characteristic and finding information on a single species within the summary. User's unfamiliar with species' scientific names will find appendix B helpful, and this document adheres to the convention of abbreviating genus names to the first letter when the genus has previously appeared on the page.

FUTURE RESEARCH

The Forestwatch Old-Growth Project, while by far the most extensive effort to locate old-growth in north Georgia to date, by no means identified all remaining old-growth stands on the

Chattahoochee National Forest; the project identified dozens of candidate sites that have not been searched yet, and the Ellicott Rock Wilderness is the only wilderness area surveyed thus far. Forestwatch remains committed to the project, and may renew fieldwork in the future to examine those areas.

Input from outside sources will enhance the future success of this project; thus, Forestwatch invites users of this document to nominate additional sites for future investigation. Detailed information on the site's location, recommendations for how to access the site, lists of any species abundant at the site, any available information of the disturbance history of the site, and reasons for suggesting the site will be most valuable to the project. Also, Forestwatch greatly appreciates any suggestions on how to increase the usefulness of this and companion documents.

Forestwatch also encourages the use of this information for any serious research projects. Please inform Forestwatch of any research making use of this information, and any additional information on this project that would be helpful.

CONTACT INFORMATION

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ARMUCHEE RANGER DISTRICT

BLUE SPRING BRANCH

Site visits: one on 12/16/04. Core samples: two.

Forest Type Dry Oak-Pine on south side of ridge grading to Pine-Oak Heath on north side
Geographic Position On the upper slopes of a narrow ridge separating Blue Spring Branch from an unnamed tributary. The stand extends west to a shallow gap at N34*30'55.4" W85*3'13.7" and, on both sides, approximately half way down the slope to the streams
Core samples *Pinus echinata* 127 years, 50cm dbh; *P. virginiana* 126 years, 53cm dbh
Signs of Human Disturbance One cut stump and one cut log, both *Pinus*, were observed in the stand
Signs of Fire Some large stumps on both the ridge crest and the north side of the ridge held fire char, but shrub dieback from fire was not apparent
Range of Large Trees *Quercus montana* and *P. echinata* dominate the south side of the ridge with *P. virginiana* replacing *P. echinata* on the north side and occurring in lower concentrations on the south side. *Q. coccinea*, *Q. velutina*, and *Carya* sp., also occur in the canopy. *Acer rubrum* and scattered *Oxydendrum arboreum* form the midstory
Shrub Layer *Vaccinium arboreum* is abundant on the south side while *Kalmia latifolia* occupies most of the north side. *V. pallidum* throughout
Animal Sign A game trail passes through the north side of the stand
Substrate Fine grained sandstone. Protruding boulders are scattered on the south slope
Comments: The log and stump on the south side may best be explained by selective logging for *P. echinata*, and they indicate that at least part of the stand is not truly uncut. However, the stand will still meet some definitions of old-growth. A wind event 10 to 20 years ago probably produced the many uprooted boles on the south slope. *P. virginiana* is present in at least two distinct age classes. Scattered *Q. marilandica* are further indication of nutrient poor soils at the site. That species has rarely been observed at uncut sites in the Blue Ridge section of the Chattahoochee NF.

MACK WHITE GAP (north)

Site visits: one on 12/16/04.

Forest Type Dry Oak-Pine **Geographic Position** On the slope above the junction of the fourth ridge north of Mack White Gap and the main body of Taylors Ridge. Extending north to a clearcut, east to a Forest Service road, west to the crest of the ridge, and an undetermined distance to the south; at approximately 34°29'20"N **Signs of Human Disturbance** Cut *Pinus* stumps are present in the stand, so the better formed *Pinus echinata* were likely removed. The stand is also bordered by a recent clear cut on one side and easily accessed from below **Signs of Chestnut Blight** A few sprouts occur scattered in the stand **Range of Large Trees** *Quercus montana*, *Q. velutina*, *P. echinata*, *P. virginiana*, *Acer rubrum*, and *Oxydendrum arboreum* all occur in the canopy. Near the ridge crest, *Carya pallida* is also a major component of the stand. The *Quercus* and *C. pallida* appear significantly older than the other species present **Shrub Layer** *Vaccinium pallidum*, and *V. arboreum* occur in the understory in addition to one other locally abundant species of *Vaccinium* **Substrate** Fine grained sandstone **Comments:** the stand cannot be termed virgin do to the likelihood of past high-grading for *P. echinata*; however, the *Quercus* component appears intact, and the density of trees over 150 years old is unusually high for the physiographic province. *C. pallida* was rarely encountered in uncut stands in the Blue Ridge province.

MACK WHITE GAP (east)

Site visits: one on 12/16/04. Core samples: one.

Forest Type Dry Oak **Geographic Position** On the slope on the south side of the second drainage north of Mack White Gap, approximately centered at N34°28'46" W85°17'3". Stand boundaries are not well defined **Core samples** *Q. montana* 137 years (i), 48.5cm dbh **Signs of Human Disturbance** Cut *Pinus* stumps and debris are present in the stand **Range of Large Trees** *Q. montana* dominates with minor *P. virginiana*. Young *A. rubrum* also grows in the midstory **Shrub Layer** Abundant *V. pallidum* and, along the northeast side, *A. leucoderme* **Herbaceous Richness** *Galax rotundifolia*, occurring in patches, is the only evergreen herbaceous species present in the stand **Substrate** Fine grained sandstone **Comments:** The *Pinus* debris may have fallen from the side of the road above, and the stumps may be the result of high-grading for *P. echinata*. Hence, the stand has been cut to some extent, but may still have a sufficient concentration of old trees to meet old-growth definitions.

MCCUTCHEON COVE

Site visits: one on 12/17/04. Core samples: two.

Forest Type Dry Oak-Pine **Geographic Position** Above a rock ledge on the west side of the third knob south of Cove Gap **Core samples** *Quercus montana* 56 years (i), 48.5cm dbh; *Pinus virginiana* 125 years, 50.5cm dbh **Signs of Human Disturbance** None were observed in this area **Signs of Chestnut Blight** One uncut log seen **Range of Large Trees** *Q. montana* and *P. virginiana* form the overstory. *Acer rubrum* and *Oxydendrum aboreum* occur in the midstory **Shrub Layer** *Vaccinium* sp., *Cornus florida* and scattered *Kalmia latifolia* **Substrate** Sandstone. An approximately 1.5m high rock ledge demarcates part of the lower boundary of the stand **Comments:** *P. virginiana* snags and regeneration are common, so the species is not reliant on large-scale disturbances at the site for establishment. Many age classes appear to be present.

BRASSTOWN RANGER DISTRICT

BIG BALD COVE (east)

Site Visits: one on 12/20/04. Core Samples: one. Photographs: four?

Forest Type Submesic Oak **Geographic Position** In a northwest facing, unmarked tributary of the main stream draining Big Bald Cove. The lower edge of the stand lies slightly below a cascade at approximately 2840' elevation and follows one fork of the small stream up to at least 3200' **Core samples** *Quercus montana* 184 years, 60cm dbh **Signs of Human Disturbance** none were encountered in this area **Signs of Chestnut Blight** uncut boles present **Range of Large Trees** The diverse, largely angiosperm dominated canopy includes *Tsuga canadensis* up to 122cm dbh and *Liriodendron tulipifera* up to 97cm dbh. Other species in the canopy include *Acer rubrum*, *Betula lenta*, *Quercus rubra*, *Q. montana*, *Nyssa sylvatica*, and *Tilia heterophylla* **Shrub Layer** *Rhododendron maximum* forms thickets over much, but not all, of the stand. *Tsuga canadensis* saplings are common in areas lacking *R. maximum* **Animal Sign** At least one active game trail is present in the stand **Substrate** mica schist forms the ledge the cascade flows over and associated overhangs and smaller ledges **Comments:** young *A. rubrum* are nearly ubiquitous in uncut stands in north Georgia, but individuals over 100 old are absent from most of those stands. Hence, the mature *A. rubrum* in the canopy of this area are an unusual occurrence.

Forest Type Pine-Oak Heath **Geographic Position** on a ridge adjacent to the south side of the submesic oak stand and on the associated southwest-facing slope **Signs of Human Disturbance** None were observed in this area **Range of Large Trees** *Pinus rigida* and *Q. montana* dominate with smaller amounts of *Q. coccinea*. The *Quercus* are stunted and the *P. rigida* flagged, pointing west. Young *A. rubrum* are also invading **Shrub Layer** Dense *Kalmia latifolia* throughout.

BIG BALD COVE (cascades)

Site Visits: Three, most recently on 12/20/04. Core Samples: one. Photographs: several.

Forest Type Acidic Cove **Geographic Position** At the confluence of two streams in Big Bald Cove, around 3200' elevation, bounded above by two cascades and a connecting rock wall, and centered at approximately N34°52'46.8" W83°49'10.1" **Core samples** *Tsuga canadensis* 234, 88.5cm dbh **Signs of Human Disturbance** None are apparent **Signs of Chestnut Blight** Minor debris present **Range of Large Trees** *T. canadensis* dominates most of the stand with *B. lenta*, *Magnolia fraserii* and *Tilia heterophylla* being locally important. Old *L. tulipifera* and small *B. alleghaniensis* and *Halesia tetraptera* are scattered throughout the canopy. The slope on the northeast side of the stream is largely angiosperm dominated. *Tsuga canadensis* reaches 133cm dbh and 46.7m tall **Shrub Layer** Dense *R. maximum* throughout **Comments:** *Adelges tsugae* had reached the area by the last visit to the site, and reached low to moderate densities; however, crowns of mature trees had not begun to thin. This stand differs from most uncut stands in north Georgia in being easily accessed by logging equipment and very productive; a turn around loop at the end of an old road remains just a few hundred meters downstream with no intervening barrier, and this stand contains the greatest density of *Tsuga* biomass of any known stand in Georgia. The stand also includes the second tallest known *Tsuga canadensis* in the state. The dense *Tsuga* shade and *Rhododendron* produce substantial aesthetic appeal, and the cascades and secluded atmosphere of the stand add to the recreational appeal.

BLACK MOUNTAIN (west)

Site visits: one on 7/22/02. Core samples: one.

Forest Type Dry Oak-Pine **Geographic Position** On the west side of the ridge extending south from Black Mountain where the ridge is 2850' high and extending down to 2560'. **Signs of Human Disturbance** None seen **Range of Large Trees** *Pinus virginiana* and *Quercus montana* form the overstory. **Shrub Layer** *Kalmia latifolia* forms a thicket in the understory. *Symplocos tinctoria* is also present. **Herbaceous Richness** Low except on rock outcrops at the lower edge of the stand. **Substrate** Probably Yrgg: mixed biotite gneiss and granitic gneiss. **Comments:** The *P. virginiana* are young, but old *Q. montana* are also present in the stand. A road follows the top of the ridge, but the path appears to have been constructed for reaching the Suches valley rather than for a commercial timber operation. The young trees in the overstory are probably the result of a natural disturbance.

Forest Type Dry Oak **Geographic Position** On the west side of the ridge extending south from Black Mountain where the ridge is 2850' high between 2820' and the above dry oak-pine stand. **Core samples** *Q. montana* 185 Years – 53cm dbh **Signs of Human Disturbance** None observed **Signs of Chestnut Blight** Downed wood is uncommon in this area. **Range of Large Trees** *Q. montana* dominates the overstory. *Acer rubrum* present in the midstory. **Shrub Layer** A dense, but upright, thicket of *K. latifolia* is present. **Herbaceous Richness** Low due to thick shrub layer and soil conditions: *Galax rotundifolia* **Substrate** Probably Yrgg: mixed biotite gneiss and granitic gneiss. **Related Areas** See below.

BLACK MOUNTAIN (east)

Site visits: one on 7/22/02.

Forest Type Dry Oak **Geographic Position** On the east side of the ridge extending south from Black Mountain where the ridge is 2850' high between 2560' and 2760'. **Signs of Human Disturbance** None within the stand **Signs of Chestnut Blight** Down woody debris and sprouts are common. **Range of Large Trees** *Q. montana* forms the canopy. *Oxydendrum arboreum* occupies the midstory. In the understory grow *Cornus florida* and young *Halesia carolina*. **Shrub Layer** *Rhododendron sp.* is common. **Substrate** Probably Yrgg: mixed biotite gneiss and granitic gneiss. **Related Areas** This stand is separated from the above stands by the old road and a narrow swath of younger forest on the ridge crest.

BUCKEYE KNOB

Site visits: one on 7/27/01. Core samples: one. Photographs: one.

Forest Type Mesic Oak **Geographic Position** On top of and extending along the ridge north from of Buckeye Knob down to 3400' **Core samples** *Quercus rubra* 123 years, 78cm dbh **Signs of Human Disturbance** None **Signs of Chestnut Blight** Sprouts present **Range of Large Trees** *Q. rubra* dominates and ranges up to 102cm dbh. One *Q. alba* is 104cm dbh **Shrub Layer** *Acer pensylvanicum* is common along with smaller quantities of *Aesculus octadra* seedlings **Herbaceous Richness** Moderate to high, and in some areas becoming tall and dense **Comments:** canopy trees in this forest have not attained the ages common in many other uncut forests in north Georgia; however, their ages are comparable to other ridge-top, old-growth forests in the southern Appalachians dominated by *Q. rubra*. Similar forest occurs nearby on Clements Mountain, and rapid growth by *Q. rubra* has been documented in an uncut stand on the southern edge of the Joyce Kilmer Wilderness in North Carolina.

BUCK KNOB

Site visits: two. Photographs: one+?

Forest Type Dry Oak **Geographic Position** On the southern side of Buck Knob above an extensive series of rock outcrops **Signs of Human Disturbance** None **Range of Large Trees** *Quercus montana* dominates in association with *Q. alba* and *Q. coccinea*.

Forest Type Subxeric Oak tending towards montane cedar woodland in some areas **Geographic Position** In association with rock outcrops on the southeast side of Buck Knob **Signs of Human Disturbance** None observed **Basal Area** 16.1 m²/het **Range of Large Trees** Partially stunted *Q. montana* occurs with smaller quantities of *Carya glabra* and *Juniperus virginiana* on the strips of soil between the rock outcrops **Shrub Layer** A *Vaccinium* sp. constitutes most of the shrub layer, but *Chionanthus virginicus* is also important in some areas **Herbaceous Richness** Absent to high, including some state rare species **Substrate** Biotite gneiss probably with high calcium or tending towards mafic locally **Related Areas** A similar stand occurs within the uncut tract on Eagle Mountain on the east side of the nearby Hollified Ridge. Outside of the national forest, similar stands may occur on Bell Knob and Cedar Cliff Knob, also in the same general vicinity **Comments:** this site supports sensitive and threatened species, and care should be taken in the distribution of this information.

CANE GAP

Site Visits: one on 12/30/03. Core Samples: one. Photographs: one.

Forest Type Dry Oak-Pine **Geographic Position** On the west side of the ridge extending north from Cane Gap, above approximately 2640' elevation **Core samples** *P. virginiana* 118 years, 36cm dbh **Signs of Human Disturbance** A small rock cairn is present on one of the rock outcrops. No other signs of human disturbance were found **Signs of Chestnut Blight** Woody debris was scarce **Range of Large Trees** *Q. montana* dominates with some *P. virginiana*, and minor *P. pungens*, and, on the ridge-crest, *Q. alba* **Shrub Layer** A dense layer of *R. minus* occurs in most of the stand, but the ridge-crest and south end of the stand are open and *Chionanthus virginicus* grows on the rock outcrops **Herbaceous Richness** Low: *Saxifraga michauxii* and *Andropogon virginicus* grow on the rock outcrops **Substrate** Gneiss **Related Areas** Along with stands on Columbia Mountain and at Columbia Gap, this stand forms the Cedar Ridge complex. **Comments:** The occurrence of *R. minus* is unusual for the area and the community type. *K. latifolia* is much more common under similar conditions.

CASS MOUNTAIN

Site visits: one on 7/25/02

Forest Type Dry Oak **Geographic Position** On the southeast side of Cass Mountain extending down to 3100'. **Signs of Human Disturbance** A mineshaft is located in this stand. How the mine was accessed and the location of the tailings were not determined. No signs of logging were seen in the stand. **Signs of Chestnut Blight** Sprouts are locally common. **Basal Area** 16.1m²/het **Range of Large Trees** *Quercus alba* and *Q. coccinea* form most of the overstory in this stand. *Nyssa sylvatica* and *Liriodendron tulipifera* grow in the midstory. **Shrub Layer** *Hypericum* sp. and *Toxicodendron radicans* are locally abundant. *Rhododendron* sp. and *Vaccinium* sp. are also present. **Herbaceous Richness** Low to moderate. *Desmodium nudiflorum* is common. **Animal Sign** One game trail passes through the stand, and one ruffed grouse was seen in the stand. **Substrate** Yrg: biotite gneiss

CEDAR KNOB

Site visits: one on 7/11/02. Core samples: one.

Forest Type Dry Pine-Oak **Geographic Position** On a south aspect slope on the south end of Cedar Knob between 2360' and 2840'. **Core samples** *Quercus montana* 166 years (e) – 51cm dbh **Signs of Human Disturbance** None seen **Range of Large Trees** *Pinus virginiana* and *Q. montana* form an open canopy. Scattered *Q. stellata* and *Carya pallida* are present in the midstory. **Shrub Layer** *Vaccinium sp.* is common in the area. **Herbaceous Richness** Variable. Low in most of the area, but high on some rock outcrops. **Substrate** Zgu: undivided rocks of the Great Smoky Group. Mica schist. Probably sillimanite-garnet-biotite-muscovite schist. **Comments:** A high proportion of the overstory in this stand consists of young *P. virginiana*. Most of the *Q. montana* in the stand are old. This situation could be the result of a past logging operation that left the stout *Q. montana* as culls. The rockiness of the site could obscure traces of roads if blasting was not used. Alternatively, the rockiness of the site and steepness of the slope may have prevented logging, and the present condition of the forest could be the result of a large natural disturbance several decades ago. Neither broken crowns nor hollow boles are unusually abundant among the old *Q. montana*; however, a windthrow event facilitated by thin saturated soils could leave remaining trees relatively intact.

CLEMENTS MOUNTAIN

Site visits: one on 6/21/01. Core samples: one.

Forest Type Submesic Oak **Geographic Position** On the ridge extending east from the top of Clements Mountain to a minor gap **Core samples** *Quercus rubra* 137 years; 71cm dbh **Signs of Human Disturbance** the Benton Mackeye hiking trail passes through this stand **Range of Large Trees** *Q. rubra* forms the canopy along with some *Carya sp.*.

COLUMBIA GAP

Site Visits: one on 12/30/03. Core Samples: one.

Forest Type Dry Oak **Geographic Position** Southeast of Columbia Gap between 2900' and 3040' elevation along a ridge **Signs of Human Disturbance** A fire-brake passes through this stand **Signs of Fire** West of the fire-brake and west of the ridge-crest, a large, low to moderate intensity fire encroached into the stand. The fire probably occurred during the fall of 1999. The fire did not affect the larger, eastern half of the stand **Range of Large Trees** *Quercus alba* with minor *Oxydendrum arboreum* forms the canopy **Shrub Layer** *Kalmia latifolia* and small *Pinus strobus* occurred throughout the stand, but were killed by the fire in the western part of the stand. **Related Areas** Along with stands on Columbia Mountain and at Cane Gap, this stand forms the Cedar Ridge complex.

COLUMBIA MOUNTAIN

Site Visits: one on 12/30/03.

Forest Type Dry Oak **Geographic Position** On the north side of Columbia Mountain and ridges extending from the mountaintop, above a rock bluff at approximately 2840' elevation **Core samples** *Q. montana* 220 years (i), 42cm dbh **Signs of Human Disturbance** None were seen in this area **Range of Large Trees** *Q. montana* forms the canopy in the stand, and is stunted in part of the area **Shrub Layer** *Rhododendron catawbiense* occupies most of the understory, but open areas, *R. maximum*, *K. latifolia*, and *Vaccinium sp.* are locally important **Herbaceous Richness** Low: *Galax rotundifolia* and a forb are locally abundant **Animal Sign** A grouse was seen **Substrate** Gneiss **Related Areas** Along with stands at Columbia Gap and Cane Gap, this

stand forms the Cedar Ridge complex. **Comments:** the occurrence of *R. catawbiense* is unusually far south and low elevation for the Blue Ridge physiographic province.

DOUBLE SPRING KNOB

Site visits: seven on 12/18/01, 12/20/01, 12/21/01, 8/12/02, 8/12/03, 8/13/03, 8/14/03.
Core samples: 13. Photographs: two.

Forest Type Dry Oak **Geographic Position** On the Ridge extending S from Double Spring Knob and on the south slope of Double Spring Knob above 4020' elevation **Core samples** *Quercus rubra* 101 years, 43cm dbh; *Q. rubra* 215 years, 62cm dbh; *Carya glabra* 113 years, 40cm dbh; *Q. alba* 139 years, 49cm, *Q. alba* 175 years, 49cm; *Q. alba* 185 years, 51cm dbh; *Q. alba* 198 years, 52cm dbh; *Q. alba* 210 years, 41cm dbh **Signs of Human Disturbance** The Appalachian Trail passes through this area **Signs of Chestnut Blight** Sprouts present **Basal Area** 17.2 m²/hct **Range of Large Trees** *Q. alba* dominates with some *Q. rubra* and minor *Carya glabra*, *Betula lenta*, *Oxydendrum arboreum*, and *Q. coccinea* **Shrub Layer** *Kalmia latifolia* forms thickets in most of this area, but *Cornus alternifolia* is common near the Appalachian Trail **Herbaceous Richness** Low: *Rubus* sp. and *Dennstaedtia punctilobula* **Substrate** Yrg: biotite gneiss

Forest Type Submesic Oak **Geographic Position** Along the ridge extending S from Double Spring Knob between 3440' and 4020' elevation **Core samples** *Q. alba* 209 years, 61cm dbh **Signs of Human Disturbance** The Appalachian Trail passes through this area **Signs of Chestnut Blight** Sprouts present **Basal Area** 16.1m²/hct **Range of Large Trees** *Q. alba* forms the canopy with some *Q. velutina* and minor *Liriodendron tulipifera* **Shrub Layer** *Cornus alternifolia* is locally common and *Toxicodendron radicans* is locally abundant **Herbaceous Richness** *Polygonatum* sp., *Heuchera americana*, *Silene stellata*, *Monotropa uniflora*, *Phytolacca americana*, *Actea pachypoda*, *Eupatorium rugosum*, *Eupatorium* sp., *Thalictrum* sp., *Asclepias* sp., *Oxalis* spp., *Coreopsis* sp., *Agrimonia* sp., *Collinsonia Canadensis*, *Phlox* sp., *Rubus* sp., *Desmodium* spp., *Scutallaria* sp., *Tradescantia virginiana*, *Campanula* sp., *Lobelia inflata*. **Related Areas** A similar ridge-top dominated by old *Q. alba* with dense, diverse herbaceous layer and many of the same species occurs west of Tray Gap.

Forest Type High Elevation Northern Red Oak **Geographic Position** One the N side of Double Spring Knob above 3850' elevation **Signs of Human Disturbance** Some flagging tape was seen at the top of the mountain **Signs of Chestnut Blight** Debris is common in the area and sprouts are present **Basal Area** 24.1m²/hct **Range of Large Trees** *Q. rubra* dominates with minor *Q. alba*, *Betula allegheniensis*, and *B. lenta*. **Shrub Layer** Scattered *Ilex montana* and *Acer pensylvanicum* **Herbaceous Richness** Low to medium including *Rubus* sp., minor *Veratrum viride* and *Eupatorium rugosum*. **Comments:** The area downslope of this forest type and above a cascade at 1000m appears to be a transition between high elevation northern red oak and mixed mesophytic forests. That area shows no evidence of timber cutting or other human disturbance. **Related Areas** High elevation northern red oak also occurs on Rocky Mountain in Gilmer County and on Penson Knob. Neither of the other two occurrences support *B. allegheniensis* or other generally northern species that grow in this stand.

EAGLE MOUNTAIN

Site visits: three on 7/9/03, 7/31/02, 7/12/02. Core samples: seven. Photographs: three.

Forest Type Mesic Oak **Geographic Position** On top of Hollifield Ridge above 3680' elevation. **Signs of Human Disturbance** A horse trail may follow the ridge crest. No signs of logging were seen in this area. **Range of Large Trees** *Liriodendron tulipifera*, *Robinia psuedoacacia*, *Quercus alba*, and *Q. rubra* are common in the area. *Tilia heterophylla* also occasionally reaches the overstory. **Shrub Layer** Minor *Hydrangea arborescens*, *Rubus* sp. and *Ribes* sp. **Herbaceous Richness** High: *Toxicodendron radicans*, *Parthenocissus quinquefolia*, *Actea racemosa*, *Campanula americana*, *Polygonatum* sp., *Impatiens pallida*, *I. capensis*, three species of ferns and others. **Substrate** Eagle Mountain is located on a thrust fault. Ycs: Schist of Crooked Creek (garnet-mica-quartz-feldspar schist) underlies the west side of the Hollifield Ridge on the S side of the mountain; Yrg: biotite gneiss underlies the east side of the ridge. **Comments:** Many of the canopy trees in this forest type are young; however, no evidence of logging is present in this stand, and other forest types containing old trees surround this forest type. The current age of the forest appears to be related to a major, past, natural disturbance, not human manipulation. High levels of Magnesium and Calcium and oreographically-induced rainfall probably account for the unusual topographic positioning of the mesic oak forest.

Forest Type Submesic Oak **Geographic Position** In a shallow drainage extending down to 3200' on the east side of Hollifield Ridge near the north end of the steeply inclined, due north-south oriented section of the ridge. **Core samples** *Q. montana* 214 years – 67cm dbh **Signs of Human Disturbance** None observed **Signs of Chestnut Blight** Sprouts present **Range of Large Trees** *Q. montana*, *Betula lenta* and *Q. abla* (reaches 92cm dbh) are the primary overstory species. *Oxydendrum arboreum* (up to 61cm dbh) occasionally reaches the canopy. *Hamamelis virginiana* is common in the understory. **Herbaceous Richness** Moderate **Animal Sign** *Ursus americanus* scat seen. **Substrate** Yrg: biotite gneiss **Related Areas** A small area of submesic oak is located on the west side of the ridge, near the north end, between the rich cove and dry oak forest. A 52cm dbh, 142 year old *Q. rubra* was cored in this area. The low basal area of 13.8m²/hct in this latter area is probably related to a major storm since uprooted downed logs are abundant in the area. *Q. rubra* plays a more significant role in this area than *Q. montana*. The midstory contains *Amelanchier laevis*. *Polystichum acrostichoides*, *Toxicodendron radicans*, *Parthenocissus quinquefolia*, *Desmodium* sp., and *Aralia nudicaulis* are common in the herbaceous layer. Another area of similar forest grows on the west side of the south peak of Eagle Mountain. The disturbance history of this stand, which is contiguous with the uncut areas on Hollifield Ridge, is uncertain. Scattered old trees in a generally young canopy grow in the area, and no signs of human disturbance were observed. One *Q. rubra* cored in this area is 62cm dbh and 71 years old.

Forest Type Dry Oak **Geographic Position** On the west side of Hollifield Ridge with a lower boundary generally around 3400', and as a narrow band near the ridge crest on the east side. Also on the west side of the parallel ridge to the east above approximately 3440' elevation. **Core samples** *Q. alba* 96 years (i) – 64cm dbh; *Q. alba* 195 years – 60cm dbh *Q. montana* 110 years (i), 64cm dbh **Signs of Human Disturbance** None seen **Signs of Chestnut Blight** Sprouts and standing snags are present. **Range of Large Trees** *Q. montana* and *Q. alba* are the most abundant canopy species. *Q. alba* is more common on the east side of Hollifield Ridge and near ridge crest and on the upper part of the opposite ridge. *Fraxinus americana* is locally abundant at the edges of some rock outcrops. *Q. rubra* and *Carya glabra* are also present in lesser quantities. *Oxydendrum arboreum* is common in the midstory. Locally abundant regenerating species include *C. glabra* and *Sassafras albidum*. **Shrub Layer** *Rhododendron* sp. and *Vaccinium* sp. are locally abundant. *Toxicodendron radicans* forms a continuous ground

cover in some areas. The rock outcrops support *Chionanthus virginicus*, *Cretegus sp.* and locally *Physocarpus opulifolius*. **Herbaceous Richness** Low in most of area, but high on some rock outcrops. Among others, *Saxifraga michauxii* is abundant and *Liastris sp.* is locally abundant. **Animal Sign** *Ursus americanus* claw marks on a *Castanea dentata* snag were seen. **Substrate** See mesic oak description.

Forest Type Subxeric Oak **Geographic Position** Adjacent to a rock outcrop near the top of the S side of the mountain **Core samples** *Q. alba* 134 years, 35cm dbh **Signs of Human Disturbance** None seen (**SACB**) None were observed **Range of Large Trees** Stunted *Q. alba* up to 59cm dbh form the canopy **Shrub Layer** *K. latifolia* and *Rhododendron sp.* are common. Scattered *Vaccinium sp.* and *Rubus* subgenus *Eubatus* are present, and a few *Chionanthus virginicus* and *Ptelea trifoliata* have seeded in from the adjacent rock outcrops. **Herbaceous Richness** Low: *Carex sp.*, rock tripe, and an evergreen fern are present **Animal Sign** A game trail and *Ursus americanus* scat seen **Substrate** Yrg: biotite gneiss **Related Areas** The adjacent rock outcrop is vegetatively similar to those on the W side of Hollifield Ridge, but also supports *Ptelea trifoliata*.

Forest Type Montane Cedar-Hardwood Woodland **Geographic Position** On steep southeast aspect slopes adjacent to where Hollifield ridge descends rapidly. **Core samples** *Juiperus virginiana* 176 years (i) – 34cm dbh **Signs of Human Disturbance** None observed **Signs of Chestnut Blight** This area is too dry for *Castanea dentata*. **Range of Large Trees** The canopy in this stand is almost entirely severely stunted (less than six meters tall) *J. virginiana* (up to 42cm dbh). Scattered *Carya glabra* grow in the stand, and one cluster of *Carya ovata* was seen. **Shrub Layer** *Chionanthus virginicus* is common throughout the stand. **Herbaceous Richness** Moderate to high: *Saxifraga michauxii*, *Parthenocissus quinquefolia*, *Polygonatum sp.*, and resurrection fern. **Animal Sign** Two *Cathartes aura* were seen in this area. **Substrate** Yrg: biotite gneiss .

FORK RIDGE

Site visits: two on 7/8/02, 7/29/02. Core samples: four.

Forest Type Dry Oak **Geographic Position** Along the crest of Fork Ridge south of the intersection with Mash Ridge and extending down-slope to 3200' on the west side. **Core samples** *Quercus montana* 196 years (i) – 60cm dbh; *Q. alba* 150 years (i) – 56cm dbh **Signs of Human Disturbance** None were seen. **Signs of Chestnut Blight** Both sprouts and downed woody debris are present. **Basal Area** 19.9m²/hct **Range of Large Trees** *Q. montana*, *Q. velutina*, *Q. coccinea*, and *Q. alba* are common in the overstory. *Q. alba* is most abundant along the ridgecrest, and *Oxydendrum arboreum* (up to 57cm dbh) occasionally reaches the overstory. *Acer rubrum*, *Nyssa sylvatica*, and *Amelanchier laevis* grow in the midstory. **Shrub Layer** *Kalmia latifolia* forms thickets at the lower edge of the stand, and thickets of *Rhododendron maximum* grow at the edge of the stand on the northeast side of the ridge. **Herbaceous Richness** Low throughout. **Substrate** Biotite gneiss

Forest Type Subxeric Oak **Geographic Position** Along the crest of Fork Ridge north of the intersection with Mash Ridge and extending down the west slope to at least 3225'. **Core samples** *Q. montana* 201 years – 49cm dbh; *Q. coccinea* 193 years – 58cm dbh **Signs of Human Disturbance** None seen **Signs of Chestnut Blight** Sprouts are common in this forest type. **Basal Area** 19.1m²/hct **Range of Large Trees** *Q. coccinea* and *Q. alba* are the most abundant canopy species in the area. *Q. montana* grows in the lower part of the stand, and *O. arboreum* infrequently reaches the canopy. Species present in the midstory include *A. laevis* and *Symplocos tinctoria* (up to 11cm dbh). Regenerating species include *Q. coccinea* and *Sassafras albidum*. **Shrub Layer** *K. latifolia* forms thickets at the edges of the stand, and *Castanea pumila*,

Rhododendron sp., and *Vaccinium sp.* are scattered throughout. **Herbaceous Richness** Low: soil conditions inhibit herbaceous growth. **Animal Sign** A ruffed grouse was heard drumming in this stand. **Substrate** Biotite gneiss **Comments:** At least three distinct age classes of *Q. coccinea* are present in the stand. The *Q. alba* in this forest type appear much younger than the *Q. coccinea* in the same area and the *Q. alba* farther south on the ridge. The *Q. alba* may have entered the stand after a major disturbance that also created the opportunity for the second group of *Q. coccinea*. **Related Areas** Another old-growth stand with a *Q. montana* canopy and a dense *K. latifolia* understory grows on the south side of the ridge farther north. This stand probably continues onto the adjacent, steep west aspect slopes, and an area of younger forest with no apparent human disturbance separates this stand from the areas described above.

FROZENTOP

Site visits: one on 7/25/02

Forest Type Dry Oak **Geographic Position** On the south side of the Frozentop (3197') extending down to 2950'. **Signs of Human Disturbance** None seen **Signs of Chestnut Blight** Sprouts are common. **Range of Large Trees** *Quercus alba* and *Q. coccinea* form the canopy. *Oxydendrum arboreum* occupies the midstory. *Acer rubrum* and *Castanea pumila* grow in the understory. **Shrub Layer** *Kalmia latifolia* is common but patchy. *Gaylussacia sp.* grows in openings in the *K. latifolia*. **Herbaceous Richness** Low **Animal Sign** Game trails are common in this stand. **Substrate** Yrg: biotite gneiss

HANSON MOUNTAIN

Site visits: one on 7/8/03. Core samples: three. Photographs: one.

Forest Type Dry Oak **Geographic Position** On the western part of Hanson Mountain and the ridge extending north from it. S of N34*49'21" and generally above 2980' elevation. **Core samples** *Nyssa sylvatica* 170 years (i), 58cm dbh; *Quercus montana* 213 years, 63cm dbh; *Q. montana* 221 years, 69cm dbh **Signs of Human Disturbance** None were observed in this area. Skidder trails are present in the areas to the N that have been cut. **(SACB)** *Castanea dentata* and *C. pumila* sprouts are common on the ridge tops. A few *C. dentata* sprouts are present on the slopes. **Signs of Fire** Fire char is present on tree trunks farther north, but does not occur within the stand area **Range of Large Trees** *Q. alba*, *Q. velutina*, and *Q. coccinea* are common on the ridge tops and uppermost slopes. *Q. montana* forms unusually pure stands on the slopes. *Q. Montana* grows much larger on the small NW aspect ridge slope at the western edge of the stand than elsewhere in the stand. The largest tree in that area is 113cm dbh and approximately 33m tall. **Shrub Layer** *Kalmia latifolia* forms dense thickets, especially on the E and W slopes where *Q. montana* concentration is highest; however, shrubs are sparse on the ridge crest. Scattered *Gaylussacia sp.* and *Vaccinium sp.* are present. **Herbaceous Richness** Low: *Toxicodendron radicans*, *Polystichum acrostichoides*, *Houstonia purpurea*, and *Desmodium sp.* occur in restricted areas. Dry soil conditions and dense ericaceous layer inhibit herbaceous growth in most of the stand. **Animal Sign** Game trails are common. Browse and deer scat seen in an area with open understory. **Substrate** Yrg biotite gneiss.

HIGH TOP

Site visits: two on 6/25/01 and ?03. Core samples: one.

Forest Type Dry Oak **Geographic Position** The High Top section of Duncan Ridge, between where the ridge descends to Sarvis Gap and where the ridge ascends to Parke Knob. How far down slope the stand reaches to the north or to the south is still uncertain. **Core samples** *Quercus alba* 240 years, 68cm dbh **Signs of Human Disturbance** The Benton Mackeye hiking

trail passes through this stand **Signs of Chestnut Blight** *Castanea dentata* sprouts present in the eastern part of the stand **Range of Large Trees** *Q. alba* dominates, but *Q. rubra* also reaches the canopy in the northwestern part of the stand **Shrub Layer** *Kalmia latifolia* is abundant in the western half of the stand.

OAK RIDGE

Site visits: one on 7/26/02. Core samples: two.

Forest Type Dry Oak **Geographic Position** On the east side of Double Poplar Top (3482') extending down to 3280'. **Core samples** *Quercus alba* 237 years – 62cm dbh; *Q. alba* 253 years (i) – 51cm dbh. **Signs of Human Disturbance** None observed **Signs of Chestnut Blight** Sprouts abundant **Basal Area** 21.8m²/hct **Range of Large Trees** *Q. alba* is the primary overstory species. *Liriodendron tulipifera* is a locally significant part of the canopy. *Acer rubrum* and *Oxydendrum arboreum* are common in the midstory. **Shrub Layer** *Rhododendron sp.* are scattered in the understory. **Herbaceous Richness** Moderate: *Thelypteris noveboracensis*, *Polystichum acrostichoides*, *Toxicodendron radicans*, *Parthenocissus quinquefolia*, *Desmodium nudiflorum*, and interrupted fern. **Animal Sign** A game trail is present. **Substrate** Yrg: biotite gneiss

OLD ROCKY KNOB

Site visits: one on 7/10/02. Core samples: two.

Forest Type Subxeric Oak **Geographic Position** On the north side of Old Rocky Knob extending down to 3200'. This stand continues south into the Brasstown Bald Wilderness, and may continue west into the wilderness. The stand may also continue north along the east side of Tarklin ridge. **Core samples** *Quercus montana* 162 years (e) – 43cm dbh; *Q. montana* 189 years (i) – 45cm dbh **Signs of Human Disturbance** Wilderness boundary signs on top of Old Rocky Knob. No signs of logging were seen within the stand. **Signs of Chestnut Blight** Small diameter downed woody debris is common in the lower part of the stand. Sprouts, some large enough to flower, are present on top of the knob. **Basal Area** 18.4m²/hct **Range of Large Trees** Stunted *Q. montana*, often less than 13m tall, are the primary canopy trees, but *Acer rubrum*, *Nyssa sylvatica*, *Amelanchier laevis* (up to 43cm dbh) and *Oxydendrum arboreum* also grow in the overstory. *Castanea pumila* (up to 14cm dbh) grow on the top of the knob. **Shrub Layer** Unusually upright *Rhododendron maximum* form a continuous midstory in the lower part of the stand. In the upper part of the stand *R. catawbiense* mixes with *R. maximum* to form a dense thicket. Scattered *Kalmia latifolia* grow in the lower part of the stand and along the main ridge at the edge of the wilderness. **Herbaceous Richness** Herbaceous plants are rare in this forest. **Animal Sign** A game trail is present. **Substrate** Zgu: undivided rocks of the Great Smoky Group. Mica schist. Probably sillimanite-garnet-biotite-muscovite schist.

PICKETTS KNOB

Site visits: one on 7/27/01. Core samples: one.

Forest Type Dry Oak **Geographic Position** In two shallow, rocky coves on the northwest side of the peak. In the eastern cove, the stand extends down to 3040', and in the western cove down to 3160' **Core samples** *Quercus montana* 116 years (i), 70cm dbh **Signs of Human Disturbance** None **Signs of Chestnut Blight** Debris present **Range of Large Trees** *Q. rubra* dominates along the shallow draws while *Q. montana* is more prevalent along the associated minor ridges **Shrub Layer** A deciduous *Rhododendron* is prevalent on the minor ridges, but shrubs are largely absent from areas of lower topographic position **Herbaceous Richness** Low.

POWELL MOUNTAIN (WEST)

Site visits: one on 7/9/02.

Forest Type Dry Oak **Geographic Position** On the southwest side of the west peak of Powell Mountain. The lower boundary has not been determined. **Signs of Human Disturbance** The Appalachian Trail passes through the stand near the northern edge. No signs of logging were seen in the stand. **Range of Large Trees** *Quercus alba* is the primary canopy species. **Herbaceous Richness** Low: *Dennstaedtia punctilobula* is abundant near the eastern edge of the stand. **Substrate** Biotite Gneiss

RAMEY MOUNTAIN

Site visits: two on 7/11/02 and ?03. Core samples: two + ?.

Forest Type Dry Oak **Geographic Position** On the south and southeast sides of Rocky Knob above 900m. **Core samples** *Quercus montana* 105 years – 49cm dbh; *Q. montana* 117 years – 53cm dbh **Signs of Human Disturbance** None were observed. **Signs of Chestnut Blight** None seen. Site may have been too rocky for *Castanea dentata*. **Range of Large Trees** *Q. montana* is the most common canopy species. *Juniperus virginiana*, *Malus angustifolia*, and *Juglans nigra* occur locally in the understory. **Shrub Layer** Scattered *Crataegus sp.* are present. **Herbaceous Richness** Moderate due to solar access associated with rock outcrops and pockets of amphibolite. **Substrate** Zgu: undivided rocks of the Great Smoky Group. Mica schist. Probably sillimanite-garnet-biotite-muscovite schist. Amphibolite occurs as float, and pockets of the rock are likely present in the bedrock **Related Areas** This area is an extension of a considerably larger stand located on the east side of Rocky Knob and south side of Ramey Mountain.

SHEEP STOMP KNOB

Site visits: one on 12/20/01. Core samples: one.

Forest Type Dry Oak **Geographic Position** On the northeast side of Sheep Stomp Knob extending down an underdetermined distance **Core samples** *Quercus alba* 182 years, 51cm dbh **Signs of Human Disturbance** None observed **Range of Large Trees** *Q. alba* is the most prolific canopy species **Shrub Layer** Primarily saplings of hardwood species.

SNAKE KNOB

Site visits: one on 6/26/03. Core samples: four.

Forest Type Dry Oak **Geographic Position** Throughout the stand except in areas of pine-oak heath and the S side of Snake Knob. On ridge crest between Jess Gap and Snake Knob and adjacent areas. **Core samples** *Quercus rubra* 135 years, 65cm dbh; *Q. velutina* 195 years, 64cm dbh **Signs of Human Disturbance** The forest to the W has been cut in recent decades, but no human disturbance was noted within the stand (**SACB**) Sprouts are common throughout the stand, except in areas of dense *Kalmia latifolia* understory. Uncut debris is exceptionally abundant in the small, level cove on the S side of the ridge between Snake Knob and Jess Gap. *Castanea pumila* sprouts are common on top of Snake Knob. **Range of Large Trees** *Q. alba* dominates much of the area and mixes with *Q. coccinea* in some W aspect areas. *Q. montana* is common off of the ridge-crest. Some *Acer rubrum* and *Q. velutina* reach the canopy. *Q. rubra* is present on the N side of the W peak of Snake Knob. Young *Liriodendron tulipifera* grow in the flat cove on the S side of the ridge, and may have invaded following *C. dentata* death. **Shrub Layer** *Kalmia latifolia* is common in *Q. Montana* dominated areas. *Gaylussacia sp.* and scattered *Rhododendron calendulaceum* grow in the area with *Q. rubra*. *Vaccinium sp.* grows in

the flat cove. **Herbaceous Richness** Low: *Thelypteris noveboracensis*, *Polystichum acrostichoides*. *Toxicodendron radicans* on top of Snake Knob **Substrate** Yrg biotite gneiss. Both amphibolite with quartz veins and mica schist occur as float on the W side of Snake Knob. **Comments:** Hemlock woolly adelgid is present to the S on Lovell Branch.

Forest Type Subxeric Oak **Geographic Position** Above approximately 3080' on the S side of Snake Knob **Core samples** *Q. montana* 164 years, 42cm dbh **Signs of Human Disturbance** None were found in this area **Signs of Chestnut Blight** Minor debris and no sprouts **Range of Large Trees** Stunted *Q. montana* and *Q. coccinea* form the canopy. Most canopy trees are under 60cm dbh **Shrub Layer** *K. latifolia* forms a dense, continuous understory **Herbaceous Richness** Very low due to thick ericaceous layer.

Forest Type Pine-Oak Heath **Geographic Position** Below 2790' on the ridge around Jess Gap and on a spur ridge near the south-central part of the stand. *Pinus rigida* is entirely absent from N aspect slopes. **Core samples** *P. rigida* 100 years (i), 49cm dbh **Signs of Human Disturbance** None observed **Signs of Chestnut Blight** *C. dentate* and *C. pumila* sprouts present **Range of Large Trees** *P. rigida*, and *Q. coccinea* dominate with minor *A. rubrum* and *Q. montana* **Shrub Layer** *Gaylussacia* sp. occurs in openings in the *K. latifolia* **Herbaceous Richness** Low **Comments:** Southern pine beetle has killed many of the *P. rigida* W of Jess Gap.

SOAPSTONE CREEK HEADWATERS

Site visits: one on 8/13/01. Core samples: two.

Forest Type Dry Oak **Geographic Position** On the south side of the ridge separating Fodder Creek and upper Soapstone Creek, east of the hairpin turn on highway 180 spur, and above 3960' but not extending to the crest on the ridge. The eastern edge of the stand has not yet been determined **Core samples** *Quercus alba* 157 years, 48 cm dbh **Signs of Human Disturbance** None seen **Range of Large Trees** *Q. alba* dominates this area **Shrub Layer** *Ilex montana* is common **Herbaceous Richness** Low. Primarily ferns.

Forest Type Subxeric Oak **Geographic Position** On the south side of the crest of the ridge separating Fodder Creek and upper Soapstone Creek, east of the hairpin turn on highway 180 spur, and upslope from the dry oak forest. The eastern edge of the stand has not yet been determined **Core samples** *Q. alba* 110 years (i), 39cm dbh **Signs of Human Disturbance** None Seen **Range of Large Trees** Stunted *Q. alba* comprise the canopy **Shrub Layer** Dense *Kalmia latifolia* throughout **Herbaceous Richness** Absent; most likely due to the density of the shrub layer and dry conditions.

SPANIARD MOUNTAIN

Site visits: three on 6/26/01, 8/16/01, and 8/17/01. Core Samples: five.

Forest Type Submesic Oak **Geographic Position** On the east side of the summit of Spaniard Mountain extending down an undetermined distance **Signs of Human Disturbance** None seen **Range of Large Trees** *Quercus rubra* and other deciduous species form the canopy.

Forest Type Dry Oak **Geographic Position** On the west side of the ridge extending north from the summit above 3240' elevation **Core samples** *Q. montana* 196 years (e), 53cm dbh; *Q. montana* 224 years, 63cm dbh; *Q. montana* 241 years, 62cm dbh; *Q. montana* 296 years, 41cm dbh; *Q. alba* 303 years, 74cm dbh **Basal Area** 20.7 m²/hct **Range of Large Trees** *Q. montana* forms cannot throughout the stand, except on the main ridge top where *Q. alba* is more prevalent **Shrub Layer** Ericaceous shrubs occur throughout the stand, but species varies. Directly below the summit and near the crest of the ridge *Rhododendron maximum* is prolific. Farther north dense stands of *Kalmia latifolia* occupy the relatively high areas while thick *Gaylussacia* sp. is present in the shallow drainages **Herbaceous Richness** Low.

STROUD CREEK

Site visits: one on 6/24/03. Core samples: two. Photographs: two.

Forest Type Dry oak **Geographic Position** On slopes west of Stroud Creek generally between 2920' and 3200' **Core samples** *Quercus montana* 59 years (i), 42cm dbh; *Q. montana* 195 years (i), 66cm dbh **Signs of Human Disturbance** None observed in this area **Signs of Chestnut Blight** Sprouts are rare and little debris was seen **Range of Large Trees** *Q. montana* dominates with lesser quantities of *Q. rubra*, and *Amelanchier laevis*. *Tsuga canadensis* grows along two small drainages in the stand. **Shrub Layer** A dense, upright layer of *Rhododendron maximum* is present throughout the stand, and scattered *Kalmia latifolia* are present. **Herbaceous Richness** Low: *Saxifraga michauxii* and mosses, including *Sphagnum* sp. are common on the many rock outcrops. *S. micranthidifolia* and *Thalictrum* sp. grow on the drainages. **Animal Sign** Tufted titmice were seen. Several game trails and fur from a dead mammal were seen **Substrate** Yrg biotite gneiss

TARKILN RIDGE

Site visits: one on 7/7/03. Core samples: one. Photographs: one.

Forest Type Dry Oak **Geographic Position** Along a small drainage on the E side of Tarkiln Ridge above 2380' elevation, S of the gap on Tarkiln Ridge **Core samples** *Quercus montana* 114 years (i), 53cm dbh **Signs of Human Disturbance** None were found **Signs of Chestnut Blight** Some debris and sprouts present **Range of Large Trees** *Q. montana* dominates and reaches up to 120cm dbh, but is usually much smaller. Minor *Acer rubrum* is present and, in the upper part of the stand, *Q. velutina* **Shrub Layer** *Kalmia latifolia* and *Rhododendron maximum* form thickets along the ridge slope at the southern side of the stand. *Pyrularia pubera*, *Clethra acuminata*, and scattered *Rhododendron* sp. grow near the drainage. Shrubs are largely absent from the uppermost part of the stand. **Herbaceous Richness** Low: *Polystichum acrostichoides*, *Galax rotundifolia*, *Monotropa uniflora*, *Medeola virginiana*, *Viola rotundifolia*, and minor *Osmunda cinnamomia*. *Desmodium* sp. is common in the uppermost part of the stand. **Animal Sign** Minor browsing seen **Substrate** Zgu Undivided rocks of the Great Smoky Group, mostly silliminite-garnet-biotite-muscovite schist **Comments:** Southern pine beetles have killed the *Pinus rigida* that formed the canopy on the slopes to the S. The slopes are covered with *K. latifolia* and show no signs of human disturbance to approximately N34*54'50".

WOLFSTAKE KNOB

Site visits: one on 7/9/02. Core samples: two.

Forest Type Submesic Oak **Geographic Position** This forest type occupies small portions of the stand on the west and east sides of the south peak of Wolfstake Knob. **Core samples** *Quercus rubra* 176 years – 69cm dbh **Signs of Human Disturbance** The Appalachian Trail passes through the western extension of this forest type. No signs of logging were seen in the area. **Range of Large Trees** *Q. rubra* (up to 69cm dbh), *Q. alba*, and *Betula lenta* form the canopy in this forest type. **Shrub Layer** *Rhododendron* sp., and *Vaccinium* sp. are scattered throughout this forest type. **Herbaceous Richness** Low: *Dennstaedtia punctilobula* throughout and cinnamon fern on the east side. **Substrate** Biotite gneiss

Forest Type Dry Oak **Geographic Position** On the east side of the north peak of Wolfstake Knob. **Signs of Human Disturbance** The Appalachian Trail passes through this forest type. No signs of logging were seen in the area. **Range of Large Trees** *Q. alba* forms the canopy. **Herbaceous Richness** Low **Substrate** Biotite gneiss

Forest Type Subseric Oak **Geographic Position** On the top of the south peak of Wolfstake Knob and extending south down to 3560'. **Core samples** *Q. alba* 152 years (i); *Q. alba* 231 years – 41cm dbh. **Signs of Human Disturbance** None observed **Basal Area** 18.4m²/hct **Range of Large Trees** Stunted *Q. alba*, in areas only 10m tall, along with a smaller number of *Q. coccinea* compose the overstory. **Shrub Layer** *Kalmia latifolia* forms a dense thicket on the south aspect slope. **Herbaceous Richness** Rare due to soil and understory conditions.

CHATTOOGA RANGER DISTRICT

ANDREWS COVE

Site visits: two on 7/11/03. Core samples: three + ?. Photographs: one + ?.

Forest Type Dry Oak **Geographic Position** Above the cascades at 2790' and 3000' elevation, on the eastern two tributaries of Andrews Creek, on the S side of Rocky Mountain **Core samples** *Q. montana* 141 years (i), 63cm dbh; *Q. velutina* 157 years, 61cm dbh; *Q. alba* 210 years, 47cm dbh **Signs of Human Disturbance** A cut *Castanea dentata* stump was seen just above the cascade on the W tributary, and the Appalachian Trail follows the ridge above the stand. No other signs of human disturbance were seen within the stand **Signs of Chestnut Blight** Debris and sprouts are common throughout **Basal Area** 20.7m²/hct on the ridge between the tributaries **Range of Large Trees** *Q. montana*, up to 96cm dbh and at least 29m tall, is common on both tributaries mixing with *Q. alba* and *Q. velutina* on the E tributary and *Carya glabra* on the W tributary. *Q. alba*, approximately 21m tall, and *Q. coccinea* constitute most of the canopy with minor *Q. velutina* on the ridge between tributaries. *Acer rubrum* reaches 82cm dbh and approximately 32m tall on the W tributary **Shrub Layer** *Kalmia latifolia* grows in the SE and SW corners of the stand. *Gaylussacia* sp. is infrequent on the E tributary, and *Vaccinium* spp. grow scattered throughout. *Castanea pumila* is common on the ridge between tributaries **Herbaceous Richness** Low: *Goodyera pubescens*, *Polystichum acrostichoides*, *Viola* sp., *Lysimachia* sp., *Carex* spp., and a Poaceae **Substrate** Yrg, biotite gneiss, and Yrss, quartzofeldspathic gneiss **Comments:** The *Castanea dentata* stump is probably related to salvage operations by the Civilian Conservation Corp rather than commercial logging. This explanation is supported by the inaccessibility of the area, lack of roadbed, and the campground constructed by the CCC less than 3km away. Trees on the ridge-top appear more consistently old than those on either tributary. The W tributary is exceptionally rocky and this stand is located at the W end of the Warwomen cleft **Related Areas** The S side of Andrews cove has not been explored to determine disturbance history; however, the lower slopes indicate that the steep slopes on the S side of the cove are likely extremely rocky and fast draining. Consequently, those slopes probably support non-commercial *Quercus* dominated forest with difficult access.

Forest Type Submesic Oak **Geographic Position** Above 3280' elevation on the two easternmost tributaries of Andrews Creek, on the S side of Rocky Mountain **Signs of Human Disturbance** None Seen **Signs of Chestnut Blight** Debris is common, but sprouts are absent from the rockiest areas. One standing snag is 82cm dbh **Signs of Fire** A hollow *Liriodendron tulipifera* shows fire char **Range of Large Trees** On the E tributary *L. tulipifera* is abundant with some *Q. alba*, *Q. rubra*, *Q. coccinea*, and *A. rubrum* on adjacent slopes. On the W tributary *Q. rubra* dominates with some *Q. montana*, *Carya glabra*, and *Prunus serotina*. **Shrub Layer** *Lindera benzoin* is abundant on the E tributary while *Toxicodendron radicans* is abundant on the W tributary. *Smilax* sp. is exceptionally prolific on the W tributary **Herbaceous Richness** Low

Comments: trees in this community are generally younger than those in the dry oak forest, but old trees, uncut chestnut debris, and a lack of human disturbance are still evident.

CRAIG CREEK

Site visits: one on 6/30/03. Core samples two.

Forest Type Dry Oak **Geographic Position** On the W aspect slope adjacent to the N fork of Craig Creek above 2425' and extending SE along ridge to approximately 2680' elevation **Core samples** *Nyssa sylvatica* 150 years (i), 39cm dbh; *Pinus rigida* 122 years, 49cm dbh **Signs of Human Disturbance** None were seen in this area **Signs of Chestnut Blight** Some *Castanea dentata* and *C. pumila* sprouts on ridge **Range of Large Trees** *Quercus montana* dominates W aspect slopes where it reaches 42.8" dbh, but most are much smaller. *Q. montana* and *Q. coccinea* mix on upper slopes and ridge. *P. rigida* near NW and SE edges of stand. The greatest concentration of old trees is on the W aspect slopes. **Shrub Layer** *Kalmia latifolia* abundant but not continuous on slopes. *Vaccinium* sp. abundant on ridge crest. **Herbaceous Richness** Low: primarily a grass **Animal Sign** Game trails present **Substrate** Yrss quartzofeldpathic gneiss.

CURRAHEE MOUNTAIN

Site visits: one on 8/1/01. Core samples: one.

Forest Type Dry Oak-Pine **Geographic Position** On the southwest side of the peak of Currahee Mountain extending down from area around the communication towers to 1460' **Core samples** *Pinus virginiana* 94 years, 42cm dbh; *Quercus montana* 164 years, 55cm dbh; *P. echinata* 180 years (i), 66cm dbh **Signs of Human Disturbance** Recreational rock climbing appears to be the only human disturbance in this area **Range of Large Trees** *P. virginiana* dominates with smaller numbers of *P. echinata*, *Q. montana*, *Q. velutina*, and *Carya pallida* **Shrub Layer** Shrubs are generally uncommon in this stand, but *Ptelea trifoliata* is present.

FLAT CREEK MOUNTAIN

Site visits: one on 7/26/01. Core samples: one.

Forest Type Submesic Oak **Geographic Position** On the south side of the top of the mountain between 2680' and 2880' elevation **Core samples** *Carya glabra* 240 years, 62cm dbh **Signs of Human Disturbance** None observed **Range of Large Trees** *Quercus alba* is common in the canopy, but the overall composition is quite mixed **Shrub Layer** Common and varied, but not dense **Herbaceous Richness** Moderate. Similar to shrub layer in pattern of distribution **Related Areas** The steep slopes below this stand show no signs of human disturbance, but relatively young *Q. montana* form the canopy on them **Comments:** uncommon species in this stand include small *Juglans nigra* and an *Ulmus*, probably *Ulmus rubra*.

HOGPEN MOUNTAIN

Site visits: one on 7/24/02.

Forest Type Dry Oak **Geographic Position** On the north side of the ridge that extends west from Hogpen Mountain, reaching down to 3080'. This stand may continue along the ridge crest down to 2790'. **Signs of Human Disturbance** None seen. **Signs of Chestnut Blight** Sprouts are common throughout the stand, and downed wood is common at the eastern edge of the stand. **Basal Area** 20.7m²/hct **Range of Large Trees** *Quercus montana* is common in the canopy throughout and *Q. alba* grows near the ridge crest. *Betula lenta* and *Acer pensylvanicum* grow in the boulderfield at the eastern edge of the stand. **Shrub Layer** *Kalmia latifolia* is common throughout but patchy. *Gaylussacia* sp. occupies openings in the *K. latifolia*.

Herbaceous Richness Low to moderate: primarily grasses with some *Galax rotundifolia*.

Substrate Yrg: biotite gneiss

HORSE RANGE MOUNTAIN

Site visits: two on 7/31/01 and 8/15/01. Core samples: four. Photographs: one.

Forest Type Dry Oak **Geographic Position** On the southeast side of the crest of the ridge that forms the mountain. The lower edge is variable, but extends down to 2680' at one point **Core samples** *Quercus montana* 160 years (i), 84cm dbh; *Q. alba* 74 years (i), 53cm dbh; *Q. alba* 128 years, 52cm dbh; *Q. alba* 235 years, 66cm dbh **Signs of Human Disturbance** None seen **Basal Area** 21.8 m²/hct **Range of Large Trees** *Q. alba* dominates along the ridge, but *Q. montana*, up to 107cm dbh, becomes increasingly important away from the ridge **Shrub Layer** Generally sparse, but deciduous *Rhododendron* and *Toxicodendron radicans* are locally abundant **Herbaceous Richness** Low **Animal Sign** A timber rattlesnake was encountered on a rock outcrop in this stand **Related Areas** Other uncut stands may remain on the nearby steep slopes southeast of Big Gap, and on the southeast aspect headwaters of Tom White Branch.

STONY MOUNTAIN (west)

Site visits: one on 7/26/01. Core samples: one. Photographs: one.

Forest Type Dry Oak **Geographic Position** Between the large clear cut on the ridge running west to Low Gap and the ANI communication site **Core samples** *Quercus alba* 251 years, 59cm dbh **Signs of Human Disturbance** A gravel road passes through this stand, and adjacent areas to the east and west have been cleared of forest **Range of Large Trees** *Q. alba* and *Q. coccinea* form most of the overstory. *Oxydendrum arboreum* is also present and reaches 68cm dbh **Shrub Layer** *Gaylussacia* sp. is most abundant, but *Kalmia latifolia* is also present at the southern edge of the stand.

STONY MOUNTAIN (east)

Site visits: one on 7/30/01. Core samples: one. Photographs: one.

Forest Type Dry Oak **Geographic Position** At a major ridge juncture on stony mountain around 2800' **Core samples** *Quercus alba* 272 years, 51cm dbh **Signs of Human Disturbance** None seen **Range of Large Trees** *Q. alba* dominates **Shrub Layer** *Gaylussacia* sp. is patchy **Related Areas** Farther down the south slope, on a moist and productive site, a *Q. alba* and *Liriodendron tulipifera* stand with a *Halesia tetraptera* understory has trees up to at least 114 years old, but cut stumps are also present in the stand.

COHUTTA RANGER DISTRICT

ALACULSY GAP

Site visits: two on 6/12/01 and ?. Core samples: four.

Forest Type Dry oak **Geographic Position** Above 2750' on the northwest side and top of the unnamed peak south of Alaculsy Gap, and extending down the steep southeast slope an undetermined distance **Core samples** *Quercus montana* 197 years, 68cm dbh; *Q. alba* 159 years, 75cm dbh; *Q. alba* 223 years, 53cm dbh **Signs of Human Disturbance** None **Range of Large Trees** *Q. alba*, up to 90cm dbh, dominates with smaller quantities of *Q. montana* and *Oxydendrum arboreum*, up to 62cm dbh **Shrub Layer** *Gaylussacia* sp. occurs throughout much of the understory.

Forest Type Submesic Oak **Geographic Position** Northwest of the next gap to the south Alaculsy Gap between 2350' and 2600'. This stand may or may not be contiguous with the dry oak forest above **Core samples** *Liriodendron tulipifera* 207 years (e), 72cm dbh **Signs of Human Disturbance** None seen, but the density of old trees in this area is noticeably lower than in the adjacent forest type, so selective cutting is a possibility **Range of Large Trees** *L. tulipifera*, *Q. rubra*, and *Q. Montana* are all present in the overstory **Shrub Layer** The shrub layer is sparse throughout **Herbaceous Richness** Coverage varies from low to high, primarily ferns, but diversity is consistently low **Animal Sign** One *Ursus americanus* seen, and trails present on the ridge-crest.

BETTY MOUNTAIN

Site visits: four on ?, 8/9/01, 5/22/02, and 6/17/02. Core samples: four.

Forest Type Dry Oak **Geographic Position** On top of several ridges on the east side of Betty Mountain **Signs of Human Disturbance** None seen **Comments:** This forest type received only a cursory examination, but no signs of human disturbance were seen. The canopy trees in this forest type were generally young, but more productive forest with valuable timber trees on both sides remain uncut; hence, the low age of canopy trees was attributed to natural disturbances.

Forest Type Submesic Oak **Geographic Position** In the cove draining northeast from Poplar Springs Gap above 2700', and between 2950' and 3250' elevation on the unnamed branch that drains the east side of the top of Betty Mountain. Additionally, at the top of the drainage that parallels Betty Creek to the north **Core samples** *Liriodendron tulipifera* 156 years (i), 79cm **Signs of Human Disturbance** A old roadbed enters the lower part of the Poplar Springs Gap section of this stand from the north, but merchantable trees remain in that area. No other signs of human disturbance were seen in this stand **Signs of Chestnut Blight** Snags and debris present, but not abundant **Basal Area** 24.1m²/hct **Range of Large Trees** *L. tulipifera*, up to 96cm dbh *Quercus montana*, *Q. rubra*, and *Betula lenta* all occur in the overstory. *Acer pensylvanicum* reaches 18cm dbh in the understory. Young *Tsuga canadensis* are abundant in the understory in the lower part of the Poplar Springs Gap section **Shrub Layer** Vary from absent to dense. *Vaccinium* sp. and *Ilex montana* mix in one area while *Rhododendron maximum* forms a dense cover elsewhere. *B. lenta* regeneration is locally abundant **Herbaceous Richness** Low. Primarily *Thelypteris noveboracensis*. *Polystichum acrostichoides* is also widespread in the stand **Animal Sign** Digging by *Ursus americanus*. A game trail was seen in the Poplar Springs Gap area.

Forest Type Rich Cove **Geographic Position** On a drainage that parallels Betty Creek to the north extending down to approximately 2300' elevation, and in a small area at approximately 3000' on the unnamed branch that drains the east side of the top of Betty Mountain **Core samples** *L. tulipifera* 238 years (e), 78cm dbh; *L. tulipifera* 254 years, 83cm dbh **Signs of Human Disturbance** None observed **Basal Area** 24.1m²/hct **Range of Large Trees** *L. tulipifera* is common and reaches at 131cm dbh and at least 42m tall. *Q. rubra* reaches 112cm dbh, *Nyssa sylvatica* 84cm dbh, and *Magnolia acuminata* 88cm dbh and 35.7m tall **Shrub Layer** One colony of *Asimina triloba* is present, and young *Tsuga canadensis* are common at the lower elevations.

Forest Type Acidic Cove **Geographic Position** On a drainage that parallels Betty Creek to the north below 2300' elevation and extending down to somewhere between 2240' and 2080', and between 2800 and 2900' on the unnamed branch that drains the east side of the top of Betty Mountain **Core samples** *L. tulipifera* 234 (e), 83cm dbh **Signs of Human Disturbance** None observed **Basal Area** 25.3 m²/hct **Range of Large Trees** *T. canadensis*, up to 101cm dbh,

dominates in association with *L. tulipifera*, *B. lenta*, and on the northern drainage *Tilia heterophylla* **Shrub Layer** *Rhododendron maximum* and small *T. canadensis* are common; many of the latter were bent over and killed by an ice storm in January 2000 **Herbaceous Richness** Low, generally absent.

COLD SPRING MOUNTAIN

Site visits: one on 6/21/02.

Forest Type Dry Oak **Geographic Position** On the south side of the second tributary to Rock Creek north of Cold Spring Mountain. The stand is located between 2080' and 2380'. **Signs of Human Disturbance** None were seen in this area. **Signs of Chestnut Blight** Neither sprouts nor downed wood was observed in the stand, but woody debris was seen in nearby areas. *Castanea dentata* probably grew in the stand. **Basal Area** 20.7m²/hct **Range of Large Trees** *Quercus montana* (to at least 83cm dbh) constitutes the entirety of the overstory. *Oxydendrum arboreum* and *Acer rubrum* grow in the midstory. In addition to species found in higher canopy layers, *Sassafras albidum* grows in the understory. **Shrub Layer** *Gaylussacia sp.* is present, but does not form a continuous layer. **Herbaceous Richness** Low: *Polystichum acrostichoides* and patches of *Galax rotundifolia*. **Animal Sign** Game trails were seen in nearby areas, but not within the stand. **Substrate** Probably schist **Comments:** this stand represents only a small area of a west aspect escarpment. The rest of the escarpment contains young forest of similar species composition with little ostensible human disturbance. Slope and growing conditions within the stand are similar to surrounding areas; consequently, why this stand avoided major past disturbances and the rest of the slope did not is puzzling.

EMERY CREEK HEADWATERS

Site visits: two on 7/5/01 and 8/8/01. Core samples: one.

Forest Type Dry Oak **Geographic Position** Between 2900' and 3100' elevation on an east-southeast facing slope adjacent to the headwaters of the main stem of Emery Creek **Signs of Human Disturbance** None observed **Signs of Chestnut Blight** Debris present **Signs of Fire** Small amounts of fire char and scarring were observed. These signs may be related to controlled burns set on the adjacent ridge **Basal Area** 20.7 to 23.0 m²/hct **Range of Large Trees** *Quercus montana*, up to 87cm dbh, dominates with some *Pinus strobus*, *Q. coccinea*, *Acer rubrum*, and *Oxydendrum arboreum* **Shrub Layer** Dense *Kalmia latifolia* occurs in this area **Herbaceous Richness** Low.

Forest Type Acidic Cove **Geographic Position** Around 2800' elevation on the headwaters of the main stem of Emery Creek **Signs of Human Disturbance** The adjacent upstream rich cove forest was accessed by a skidder off of Forest Service road 68, but no signs of logging or other human disturbance were seen in this area **Signs of Chestnut Blight** Some debris present **Basal Area** 29.8 m²/hct **Range of Large Trees** *Tsuga canadensis* dominates with a mixture of hardwoods that include *A. rubrum*, up to 89cm dbh, *Betula lenta*, up to 78cm dbh, and *Liriodendron tulipifera*, up to 109cm dbh **Shrub Layer** *T. canadensis* forms a dense understory, but shrubs are largely absent **Herbaceous Richness** Low.

Forest Type Submesic Oak **Geographic Position** Below the acidic cove forest on the headwaters of the main stem of Emery Creek, and extending down to possibly 2560' elevation **Core samples** *Q. montana* 153 years, 66cm dbh **Signs of Human Disturbance** None seen **Signs of Chestnut Blight** Debris present **Basal Area** 27.5 m²/hct **Range of Large Trees** *Q. montana*, up to 95cm dbh, *Q. rubra*, and *L. tulipifera*, up to 81cm dbh, form the overstory in this area **Shrub Layer** Patches of *Rhododendron maximum*, and young *T. canadensis* are present, but the understory is largely open **Herbaceous Richness** Moderate.

GRASSY MOUNTAIN

Site visits: eight on 12/31/02, 6/5/03, 6/13/03, 6/22/03, 7/24/03, 7/25/03. Core samples: 12 + ?. Photographs: five + ?.

Forest Type Dry Oak **Geographic Position** On the N fork of Cohorn Branch between 1800' and 2200', on the ridge between Cohorn and Milma branches between 2790' and 3040', and on the upper portions of some tributaries of Milma Branch **Core samples** *Quercus montana* 114 years (i), 61cm dbh; *Q. montana* 172 years (i), 63cm dbh **Signs of Human Disturbance** The Windy Gap Cycle Trail passes through the portion of this forest type on the ridge between Cohorn and Milma Branches **Signs of Chestnut Blight** *Castanea dentata* debris and sprouts infrequent **Range of Large Trees** *Q. montana* is generally dominant and frequently around 60cm dbh. *Q. alba* occurs on the watershed divide and *Q. coccinea*, *Acer rubrum*, *Nyssa sylvatica*, and *Oxydendrum arboreum* are present in smaller quantities **Shrub Layer** *Kalmia latifolia* is common in this forest type **Herbaceous Richness** Low: primarily Poaceae and *Galax rotundifolia* **Animal Sign** Game trails and a snapped off sapling were seen in this forest type **Substrate** Conglomerate with quartz, slate, and carbonate rock inclusions

Forest Type Dry Oak-Pine **Geographic Position** on midslope positions above 1960' elevation in the Milma, Cohorn, and Rockflat Branch watersheds and on Nebo Lead **Core samples** *Q. montana* 246 years (i), 63cm dbh; *Q. alba* 239 years; 46cm dbh **Signs of Human Disturbance** The Windy Gap Cycle Trail passes through this community on the upper parts of Milma Branch. No human disturbance seen elsewhere **Signs of Chestnut Blight** Debris and sprouts uncommon **Range of Large Trees** *Q. montana* and *Pinus virginiana* are the principal canopy species with *Q. alba* replacing *Q. montana* on the ridge between Cohorn and Milma branches. *A. rubrum*, *O. arboreum*, *P. strobes*, *Prunus serotina* and *N. sylvatica* occur at lower frequencies **Shrub Layer** *Kalmia latifolia* is abundant in most areas and scattered *Vaccinium* spp. grow in the area. *Calycanthus floridus* is locally abundant on Milma Branch **Herbaceous Richness** Low: primarily Poaceae and *Galax rotundifolia* **Comments:** this community occurs as a transition between the dry oak forests and the subxeric pine forests on the upper slopes and varies along a continuum of *Quercus-Pinus* dominance.

Forest Type Subxeric Pine **Geographic Position** On upper slopes and ridges in the Milma Branch and Rockflat Branch watersheds **Core samples** *Pinus virginiana* 84 years, 38cm dbh **Signs of Human Disturbance** The upper part of the Windy Gap Cycle Trail passes through this community on the upper parts of Milma Branch. None seen on Rockflat Branch occurrences (SACB) None noted **Range of Large Trees** *P. virginiana* forms nearly pure stands, especially on Rockflat Branch, with only minor *Q. montana* and *O. arboreum* **Shrub Layer** *K. latifolia* is abundant in Milma Branch and *Rhododendron minus* forms exceptionally dense thickets on the Rockflat ridge tops. *Vaccinium* sp. also occurs in the latter drainage **Herbaceous Richness** Generally absent, but *Carex* sp. and *Iris cristata* occur in areas **Comments:** The areas where this community occurs appear to have very poor, dry soil conditions and occupy exposed sites; consequently the dominance of conifers in this primarily hardwood region is not surprising. The relatively short lived *P. virginiana* dominates since the site is west of the ranges of *P. rigida* and *P. pungens* which often occupy similar sites.

Forest Type Submesic Oak **Geographic Position** Above 2200' on a NE tending tributary of Mill Creek draining Nebo Lead, above 2460' on a tributary of Mill Creek draining the W side of Nebo Lead, on the N fork of Rockflat Branch from 2460' extending at least as far as 2200', on the middle fork of Cohorn Branch between 2000' and 2120', and along Milma Branch and its tributaries above 1920' elevation **Core samples** *Q. montana* 61 years (i), 75cm dbh; *Q. montana* 158 years (e), 70cm dbh; *Liriodendron tulipifera* 153 years (i), 63cm dbh **Signs of Human Disturbance** None found **Signs of Chestnut Blight** Few sprouts. Debris generally

rare, but locally common **Signs of Fire** Fire char was seen on the inside of one large, hollow *L. tulipifera* **Range of Large Trees** *Q. montana* is ubiquitous in this forest type and reaches 124cm dbh but is usually much smaller. *L. tulipifera* is common in the canopy and reaches 126cm dbh. Other species occurring in the canopy include *Prunus serotina*, up to 90cm dbh, *Pinus strobus*, up to 86cm dbh, *Q. rubra*, up to 99cm dbh, *Tsuga canadensis*, up to 125cm dbh, *Nyssa sylvatica*, up to 94cm dbh, and *Aesculus octandra*, up to 74cm dbh **Shrub Layer** *C. floridus* is locally abundant, *Asimina triloba* is locally common, and *R. maximum* is abundant on the NE tending tributary of Mill Creek **Herbaceous Richness** Generally low, but includes *Collinsonia canadensis*, *Osmunda cinnamomea*, *Spigelia marilandica*, *Thalictrum* sp., and *Tiarella cordifolia* **Comments:** The NE flowing tributary of Mill Creek resembles acidic cove forest. This area has the highest concentration of canopy *T. canadensis*, although the species is common in the understory elsewhere, an abundance of old *N. sylvatica*, and a dense understory of *R. maximum*. This area differs from the acidic cove area in the lower concentrations of *T. canadensis* and *L. tulipifera* and the greater proportion of *Q. montana* and other hardwoods.

Forest Type Acidic Cove **Geographic Position** In a narrow corridor along the easternmost drainage that crosses the Windy Gap Cycle Trail, between 2620' and 3120' elevation, a tributary of Milma Branch **Core samples** *T. canadensis* 193 years, 72cm dbh **Signs of Human Disturbance** The Windy Gap Cycle Trail approximates the upper boundary of this stand. No human disturbance was observed within the area **Signs of Chestnut Blight** Minor debris present **Range of Large Trees** *T. canadensis* and *L. tulipifera* form the canopy with minor *Betula lenta* in the upper portions **Shrub Layer** *R. maximum* is abundant **Herbaceous Richness** Absent to low **Animal Sign** Bear scat seen, a barred owl seen **Comments:** moving away from the stream, conditions rapidly become drier, and *Q. montana*, *P. virginiana*, and *P. strobus* dominate with a *K. latifolia* and *T. canadensis* understory.

Forest Type Mesic Oak **Geographic Position** On the N side of Grassy Mountain, occupying much of the area between the E fork of Nebo Lead and Mill Creek. Elevations range from approximately 2380' to 3440' **Core samples** *Q. rubra* 138 years, 79cm dbh **Signs of Human Disturbance** None were seen in this area; however, maps from the Conasauga Lumber Company indicate the area was culled prior to 1930, which is consistent with the lack of large *L. tulipifera* **Signs of Chestnut Blight** Scattered debris **Range of Large Trees** *Q. rubra* is the most abundant canopy species and frequently 60 to 90cm dbh. *L. tulipifera* and *B. lenta* are common and *Prunus serotina*, up to 88cm dbh, *Fraxinus americana*, and *Tilia heterophylla* make up minor portions of the canopy **Shrub Layer** *Calycanthus floridus* locally common **Herbaceous Richness** Medium: *Dennstaedtia punctilobula*, *Tradescantia virginiana*, *Thelypteris noveboracensis*, *Collinsonia canadensis*, *Actea racemosa*, *Veratrum parviflorum*, and *Caulophyllum thalictroides* **Animal Sign** Black Bear scat seen.

Forest Type Rich Cove (Mixed Mesophytic) **Geographic Position** In a NE aspect cove draining into Mill Creek between 2560' and 2920' elevation, on the N fork of Cohorn Branch above 2380', and on the middle fork of Cohorn Branch above 2130' elevation **Signs of Human Disturbance** None seen, but culling may have occurred prior to 1930 in the cove that drains into Mill Creek **Signs of Chestnut Blight** None observed **Range of Large Trees** *L. tulipifera*, up to 121cm dbh, *Tilia heterophylla*, up to 86cm dbh, and *Q. rubra*, up to 140cm dbh, dominate. *Aesculus octandra*, up to 93cm dbh, *Prunus serotina*, up to 77cm dbh, *Fraxinus Americana*, *Carya cordiformis*, and *Magnolia acuminata* also reach the canopy **Shrub Layer** *Toxicodendron radicans*, *Aristolochia durior*, *Lindera benzoin*, *Hamamelis virginiana*, *Asimina triloba*, *Ribes* sp., and *Acer spicatum* are locally common **Herbaceous Richness** **Herbaceous Richness** Moderate to high with *Laportea canadensis*, *Collinsonia canadensis*, *Actea racemosa*, *Tiarella cordifolia*, *Lilium superbum*, *Thalictrum* sp., *Thylypteris hexagonoptera*, *Phacelia bipinnatifida*,

Sanguinaria canadensis, *Disporum lanuginosum*, *Osumunda cinnamomea*, *Caulophyllum thalictroides*, *Impatiens* sp., and *Adiantum pedatum* **Animal Sign** Black bear claw marks seen on tree **Comments:** timber company maps indicate the cove draining into Mill Creek was culled prior to 1930. The area has a lower concentration of old trees than other occurrences of the same forest type, but is richer and supports *Q. rubra* up to 138cm dbh. The cove may also be a new station for *Cladrastis kentukea* and *Acer spicatum*. This may also be the lowest elevation occurrence of *A. spicatum* in the state. The west aspect of the Cohorn Branch areas is unusual and may be related to orographically induced rainfall. On the upper part of the middle prong of Cohorn Branch, *Laportea canadensis* forms a monospecific herbaceous layer covering over a hectare.

HOLLY CREEK HEADWATERS

Site visits: five 6/17/02, 6/29/02, 7/21/03, 7/22/03, and 7/24/03. Core samples: three.

Forest Type Acidic Cove **Geographic Position** On Holly Creek from 2130' to approximately 2660' elevation. The upper boundary of the stand has not been determined. **Core samples** *Quercus montana* 174 years (e), 85cm dbh; *Liriodendron tulipifera* 201 years (i), 87cm dbh; *Liriodendron tulipifera* 259 years (e), 108cm **Signs of Human Disturbance** None were observed **Signs of Chestnut Blight** Downed logs are present but scarce **Basal Area** 21.1m²/hct **Range of Large Trees** *Liriodendron tulipifera* (up to 108cm dbh), *Quercus montana* (up to 90cm dbh), *Q. rubra*, *Tsuga canadensis*, *Betula lenta*, *Tilia heterophylla*, and *Fraxinus americana* are present in the overstory. Younger *Pinus strobus* dominates the area outside of the stream corridor. Midstory species include *Hamamelis virginiana*, *Cornus florida*, and *Ilex opaca*. Regenerating species include *Halesia tetraptera* along the stream corridor and abundant *T. canadensis*. **Shrub Layer** *Rhododendron maximum* is common in the area, but does not form extensive thickets. *Lindera benzoin* and *Asimina triloba* are locally abundant. **Herbaceous Richness** Generally low due to the abundance of *T. Canadensis*, but small areas of high diversity are present in the stream corridor: *Polystichum acrostichoides*, *Viola* spp., *Arisaema triphyllum*, and *Actaea pachypoda*.

LITTLE BALD MOUNTAIN

Site visits: two on 7/5/01 and 8/8/01. Core samples: three. Photographs: one.

Forest Type Dry Oak **Geographic Position** On the north side of the ridge running southeast from Little Bald Mountain between 3200' and 3640' elevation **Core samples** *Quercus alba* 224 years, 67cm dbh; *Q. alba* 273 years, 57cm dbh **Signs of Human Disturbance** A hiking trail passes through this stand **Signs of Chestnut Blight** Debris present **Basal Area** 29.8 m²/hct **Range of Large Trees** *Q. alba* dominates with much smaller *Q. rubra*, and *Pinus strobus* **Shrub Layer** One small colony of *Asimina triloba* occurs near a rock outcrop on the ridge. The topographic setting of this occurrence is very unusual for the species **Herbaceous Richness** Moderate with *Scutellaria* sp., *Convallaria montana* and *Lysimachia quadrifolia* among others.

Forest Type Submesic Oak **Geographic Position** Along the stream that flows south then southeast on the east side of Little Bald Mountain between 3200' and 3600' **Core samples** *Liriodendron tulipifera* 118 years, 56cm dbh **Signs of Human Disturbance** A hiking trail passes through this stand **Basal Area** 20.7 m²/hct **Range of Large Trees** *L. tulipifera*, *Tsuga canadensis* are prominent in the canopy with *Nyssa sylvatica* and *Quercus* spp. **Shrub Layer** *Rhododendron maximum* is abundant and *T. Canadensis* in the immediate vicinity of the stream, but the understory is open in most of the rest of the stand **Herbaceous Richness** Low with some ferns.

LITTLE MOUNTAINTOWN CREEK HEADWATERS

Site visits: one on 12/01

Forest Type Rich Cove **Geographic Position** Around 2600' elevation at the base of the steep slopes on the west side of Flat Top Mountain where the headwaters of Little Mountaintown Creek cascade off the mountain **Signs of Human Disturbance** None seen **Range of Large Trees** *Liriodendron tulipifera*, reaching 146cm dbh, dominates with some *Quercus* spp., *Carya glabra*, and *Aesculus octandra* **Shrub Layer** *Vitis* sp. common **Related Areas** The steep west facing slopes to the above and to the north appear to have younger forest. However, that dry oak forest shows no signs of previous human disturbance, and individuals familiar with the history of the area state that the slope was never logged.

RICH KNOB (a)

Site visits: one on 6/19/02

Forest Type Dry Oak **Geographic Position** On the upper slopes of the westernmost tributary to Crenshaw Branch. May extend nearly to the stream on the northwest aspect slope. **Signs of Human Disturbance** Evidence of past logging is absent from this area, the ridge crest above, and the adjacent area along the drainage. Both the ridge above and the drainage below lack old trees. The ridge may have been accessed from the opposite side, and the drainage may have been logged from below; alternatively, these areas may have been subject to a large-scale natural disturbance, and be uncut. **Signs of Chestnut Blight** Woody debris is present. **Range of Large Trees** *Quercus montana* is the most prolific species in the area. *P. strobus* is also present in the area. *Tsuga canadensis* is present in the understory. **Herbaceous Richness** Low.

Forest Type Rich Cove **Geographic Position** On south facing slopes near the head of the westernmost tributary to Crenshaw Branch. **Signs of Human Disturbance** None were observed. **Signs of Chestnut Blight** Downed logs are present. **Basal Area** 18.4m²/hct **Range of Large Trees** *Liriodendron tulipifera* (reaches at least 115cm dbh and commonly exceeds 100cm dbh), *Q. rubra*, and *Carya glabra*. **Shrub Layer** *Lindera benzoin* grows near seeps. The shrub layer is otherwise open. **Herbaceous Richness** High: *Hydrangea arborescens*, *Oxalis* sp., *Viola* sp., *Smilax* sp., *Trillium* sp., *Polystichum acrostichoides*, *Polygonatum biflorum*, *Houstonia* sp., *Dennstaedtia punctilobula*, and *Amphicarpa bracteata*. **Animal Sign** *Ursus americanus* claw marks seen on tree. **Substrate** Likely mica schist **Related Areas** See descriptions below.

RICH KNOB (b)

Site visits: one on 6/19/02

Forest Type Submesic Oak **Geographic Position** In a northwest aspect side cove that drains into a larger cove that in turn drains into Heddy Creek. **Signs of Human Disturbance** None observed **Range of Large Trees** *Q. montana* and *Q. rubra* (up to 116cm dbh) dominate the cove. Young *T. canadensis* are abundant in the understory. **Herbaceous Richness** Low **Substrate** Likely mica schist.

Forest Type Rich Cove **Geographic Position** In a west aspect cove that drains into Heddy Creek. **Signs of Human Disturbance** None seen **Signs of Chestnut Blight** Downed logs present. **Signs of Fire** One of the large *L. tulipifera* has been hollowed by fire. **Range of Large Trees** *Q. rubra* (to at least 100cm dbh), *L. tulipifera* (up to 155cm dbh), *Q. montana* and minor *Tilia heterophylla*, *Robinia pseudoacacia*, and *Prunus serotina* are present in the overstory. *Cornus florida*, *Oxydendrum arboreum*, and *Hamamelis virginiana* grow scattered in the understory. **Shrub Layer** *Smilax* sp. and *Calycanthus floridus* are locally abundant. **Herbaceous Richness** Medium: *Polystichum acrostichoides*, *Viola* sp., *Hydrangea arborescens*,

Actea racemosa, *Houstonia* sp., and *Veratrum parviflorum*. **Substrate** Mica schist **Related Areas** This stand may be contiguous with the stand on the tributary to Greenshaw Creek.

ROCKY FACE MOUNTAIN

Site visits: Three on 8/10/01, 6/18/02, and 8/1/02. Core Samples: five.

Forest Type Dry Oak **Geographic Position** On the main ridge of Rocky Face Mountain, minor ridges on the west side, and upper slopes. **Core samples** *Quercus montana* 89 years (i) – 77cm dbh; *Q. montana* 103 years - 56cm dbh; *Q. alba* 301 years – 69cm dbh. **Signs of Human Disturbance** No human disturbance was seen in this area. **Signs of Chestnut Blight** Downed wood and sprouts present. **Basal Area** 32.1m²/hct **Range of Large Trees** *Q. alba* (up to 97cm dbh), *Q. montana* (up to 112cm dbh), *Acer rubrum*, and *Pinus strobus* form the canopy. *Oxydendrum arboreum* is common in the midstory and occasionally reaches the canopy and 56cm dbh. *P. strobus* and *Sassafras albidum* form localized thickets in the understory. **Herbaceous Richness** Low: *Convallaria montana* is locally abundant. **Animal Sign** Game trails present. *Ursus americanus* scat common. Yellow jackets nest found.

Forest Type Submesic oak **Geographic Position** In coves draining into the main stream on the west side of Rocky Face Mountain and on lower slopes. **Core samples** *Q. montana* 162 years (i) – 67cm dbh; *Q. montana* 339 years – 73cm dbh. **Signs of Human Disturbance** A modified lean-to is present at 700m. This structure appears to be the work of a loan individual, without mechanized tools, in the 1950's. A cut *Castanea dentata* coppice is present near the shelter. No signs of human disturbance were seen outside of this immediate vicinity at the site. **Signs of Chestnut Blight** Logs and sprouts present. **Basal Area** 23.0m²/hct **Range of Large Trees** *Q. montana*, which reaches 111cm dbh, is the most abundant canopy species in these areas. *Liriodendron tulipifera* up to 130cm dbh grow in the drainages. *Acer rubrum*, *Nyssa Sylvatica*, *Q. rubra*, and *P. strobus* are found are present in the canopy at lower concentrations. Young *P. strobus* and *Halesia tetraptera* form localized thickets in the understory. **Herbaceous Richness** Low: royal fern is present at one seep. *Galax rotundifolia* grows in one cove. **Comments:** submesic oak serves as a transition between dry oak and acidic cove at this site.

Forest Type Acidic Cove **Geographic Position** Along the main watercourse draining the west side of Rocky Face Mountain below 2300', and extending down to at least 1960'. **Range of Large Trees** *Q. montana*, *Tsuga canadensis* and *L. tulipifera* are common in this area. One *P. strobus* measures 104cm dbh. **Shrub Layer** *Rhododendron maximum* forms a dense understory in this forest. Patches of *Asimina triloba* grow along the stream. **Herbaceous Richness** Low due to dense shrub layer. **Animal Sign** A game trail is present at the upper end of the stand. **Related Areas** Two boulderfields to the north that are sheltered by a large east-west ridge may be uncut. The southerly of the two is drier, and supports *Q. montana* and *Betula lenta*. The one closer to the ridge contains a rich cove plant community. The upper slopes between the east-west ridge and Forest Service road #64 also contain unlogged forest. Core samples in the area: *Carya glabra* 133 years – 53cm dbh; *Q. rubra* 105 years – 70cm dbh. West aspect slopes generally support much drier communities than this mesic oak stand with a dense herbaceous layer. This stand, which fails to meet Region 8 old growth definitions on the basis of age, was probably subject to a large-scale natural disturbance in the late 1800's; however, the stand is structurally diverse, represents a continuous genetic heritage, supports uninterrupted natural processes, and contains other attributes that constitute the essential nature of old-growth forests.

TALLULAH RANGER DISTRICT

ALEX GAP

Site visits: one on 6/20/01. Core samples: three.

Forest Type Dry Oak-Pine **Geographic Position** On the ridge extending south from Alex Gap between 3520' and 3600' elevation **Core samples** *Pinus rigida* 126 years, 56cm dbh **Signs of Human Disturbance** None seen **Range of Large Trees** *P. rigida*, *Quercus coccinea*, and *Q. montana* form the canopy. Some of the *Q. coccinea* appear senescent and some of the *P. rigida* are dead **Shrub Layer** Dense with *Gaylussacia* spp. **Related Areas** This stand is most likely contiguous with the dry oak forest to the west, but that connection has not yet been confirmed.

Forest Type Dry Oak **Geographic Position** Along the crest of the ridge extending west from Alex Gap, and extending down the steep slopes to the north and south an undetermined distance **Core samples** *Q. montana* 200 years, 71cm dbh; *Q. alba* 265 years, 63cm dbh **Signs of Human Disturbance** None seen **Range of Large Trees** *Q. montana* is more dominant on the north side of the ridge while *Q. Alba* is more often dominant on the south side of the ridge. At the western edge of the stand an exceptionally large *Acer pensylvanicum* is 32cm dbh **Shrub Layer** *Kalmia latifolia* forms a dense understory in much, but not all, of the stand **Related Areas** This stand may be contiguous with uncut dry oak stands on Alex Mountain, or they may be separated by a swath of more disturbed forest at Alex Gap **Comments:** One portion of the ridgetop may better be categorized as subxeric pine or pine-oak heath. In that area *P. rigida* protrude from a dense *K. latifolia* thicket along with mature *Castanea pumila*.

ALEX MOUNTAIN

Site visits: one on 6/20/01. Core samples: two. Photographs: one.

Forest Type Dry Oak **Geographic Position** In two distinct areas on Alex mountain that are likely contiguous, but without confirmed connection. One on the south side of the mountain between 3840' and 3960', and the other along ridge extending southwest towards Alex Gap between 3800' and 3880' elevation. The stand also likely extends north along the steep slopes on the west side of Alex Mountain **Core samples** *Q. montana* 139 years, 32cm dbh; *Q. alba* 236 years, 57cm dbh **Signs of Human Disturbance** None seen **Range of Large Trees** *Q. montana* is most common along the ridge while *Q. alba* is more prevalent on the south facing slope **Shrub Layer** Dense *K. latifolia* except where interrupted by rock outcrops **Herbaceous Richness** Rare except around the edges of rock outcrops. *Corydalis semprevirens* occurs on one rock outcrop **Substrate** Rock outcrops are common at this site **Related Areas** This stand may be contiguous with uncut dry oak stand west of Alex Gap, or they may be separated by a swath of more disturbed forest at Alex Gap.

BEN MOUNTAIN

Site visits: one on 6/19/05. Core samples: two.

Forest Type Dry Oak **Geographic Position** On the southwest side of Ben Mountain above 3200' **Core samples** *Quercus alba* 86 years (i), 57cm dbh; *Q. montana* 145 years, 48cm dbh **Signs of Human Disturbance** None seen **Signs of Chestnut Blight** *Castanea dentata* and *C. pumila* sprouts present **Range of Large Trees** *Quercus montana*, up to 95cm dbh, and *Q. alba* dominate **Shrub Layer** open except for patches of *Kalmia latifolia*.

CHESTNUT MOUNTAIN (a)

Site visits: one on 12/15/03. Core Samples one.

Forest Type Dry Oak-Pine **Geographic Position** On a ridge-crest on the northeast side of Chesnut Mountain between approximately 2800' and 2960' elevation **Core samples** *Quercus montana* 199 years, 55cm dbh. *Q. montana*, *Q. coccinea*, *Pinus rigida*, and *Nyssa sylvatica* are common in the canopy. Younger *P. strobus* also occupies a portion of the overstory. *Pinus* spp. are more prevalent in the northern part of the stand **Signs of Human Disturbance** None were observed in this area **Basal Area** 100 Ft²/acre **Range of Large Trees** *Amelanchier laevis* reaches 36cm dbh, and a 19cm dbh *Symplocos tinctoria* grows in the stand **Shrub Layer** *Kalmia latifolia* is abundant throughout the stand and *Gaylussacia* sp. is also common **Herbaceous Richness** Low: *Galax rotundifolia* **Related Areas** The stand listed below is separated from this stand by a swath of younger forest probably less than 100m wide.

CHESTNUT MOUNTAIN (b)

Site visits: one on 12/15/03.

Forest Type Submesic Oak **Geographic Position** On the northeast side of Chestnut Mountain above 3000', and extending to the crest of the mountain **Signs of Human Disturbance** Property boundary blazes and flagging tape are present at the top of the mountain **Signs of Chestnut Blight** Uncut debris is common. Cut debris is present on the slopes below this stand **Range of Large Trees** *Q. rubra* and *Q. Montana* form the canopy and often exceed 75cm dbh. *Oxydendrum arboreum*, and *Acer rubrum* grow in the midstory.

DADS RIDGE

Site visits: one on 7/10/03. Core samples: one.

Forest Type Dry Oak **Geographic Position** On the S side of the highpoint of Dads Ridge. Lower boundary uncertain **Core samples** *Q. Montana* 69 years (i), 47cm dbh **Signs of Human Disturbance** None were seen in this area. An old logging road accesses the ridge from the S just W of the stand **Range of Large Trees** *Q. Montana*, and scattered *Acer rubrum* form the canopy. *Pinus echinata* may have been a significant component of the stand in the past. **Shrub Layer** *Rhododendron minus* is common throughout the stand **Herbaceous Richness** Low **Animal Sign** Feral pigs were seen at a gap to the NE of the stand **Substrate** Probably Tq quartzite-schist member of the Tallulah Falls Formation

DOUBLE KNOB

Site visits: one on 7/17/02. Core samples: two.

Forest Type Dry Oak **Geographic Position** On the southwest and east slopes of the east peak of Double Knob (3545'). The stand extends south to 3280', and reaches 2980' to the north. The lower boundary on the east side has not been determined. **Core samples** *Quercus montana* 137 years – 56cm dbh; *Q. montana* 117 years (i); 58cm dbh **Signs of Human Disturbance** None observed **Signs of Chestnut Blight** Downed debris is locally abundant, and sprouts are common throughout, except on the west aspect. **Range of Large Trees** *Q. montana* and *Q. alba* along with lesser amounts of *Carya pallida* form the overstory. *Juniperus virginiana* grows around the rock outcrops. *Acer rubrum* and *Oxydendrum arboreum* occupy the midstory. **Shrub Layer** Patches of *Kalmia latifolia* and *Rhododendron maximum* occur in the stand. Two species of *Vaccinium* also grow in the shrub layer. **Herbaceous Richness** Low to high. Herbs are generally sparse in the area, but they grow prolifically in some canopy gaps and along fissures in rock outcrops. **Substrate** Dr: informal Rabun gneiss of Hatcher. Granodiorite gneiss. Undivided rocks of the Helen Group may also be present.

GULF KNOB

Site visits: four on 2002, 7/19/02, 7/17/03, and 8/7/03. Core samples: five. Photographs: one.

Forest Type Dry Oak **Geographic Position** Along the ridge N of Scaly Knob, especially on the E side, to approximately 3040' elevation, and along the ridge S of Gulf Knob to approximately 3360' **Core samples** *Quercus montana* 157 years (i); 36cm dbh; *Q. montana* 228 years, 63cm dbh; *Q. montana* 235 years (i), 49cm dbh; *Q. coccinea* 151 years, 54cm dbh; *Q. alba* 323, 65cm dbh **Signs of Human Disturbance** None were observed in this area **Signs of Chestnut Blight** Debris is abundant W of the gap between Scaly Knob and Gulf Knob, and sprouts are common near the N end of the stand **Range of Large Trees** *Q. alba* reaches 88cm dbh and grows on top of Scaly Knob, W of the gap, and near the southern edge of the stand. *Q. coccinea* also grows W of the gap, where it reaches 87cm dbh, and near the north end of the stand. *Q. Montana* grows in much of the stand and reaches approximately 90cm dbh on the E side of Gulf Knob. *Oxydendrum arboreum* reaches 60cm dbh in the midstory W of the gap. *Acer rubrum* is common throughout, and *Juniperus virginiana* grows in association with the E aspect rock outcrops N of Scaly Knob. **Shrub Layer** *Rhododendron maximum* grows in dense upright thickets just N of Scaly Knob, on the N side of Gulf Knob, and on W aspect slopes near the S end of the stand. *Kalmia latifolia* is common on the E side of Gulf Knob. *Gaylussacia* sp. is locally abundant. *Chionanthus virginicus* grows in association with the rock outcrops. **Herbaceous Richness** Low: *Galax rotundifolia* forms a continuous cover at the N end of the stand, and no herbs grow in the areas with dense *R. maximum*. However, herbaceous richness may be moderate of the rock outcrops. **Animal Sign** Game trail seen **Substrate** Pzpc: quartz diorite to tonalitic gneiss.

Forest Type Mesic Oak **Geographic Position** W of the gap between Scaly Knob and Gulf Knob extending down to approximately 3360' elevation. **Signs of Human Disturbance** None seen **Range of Large Trees** *Q. rubra* and *Liriodendron tulipifera* dominate and the former exceeds 1m dbh **Herbaceous Richness** Moderate.

OVERFLOW CREEK

Site visits: one on 12/19/03.

Forest Type Acidic Cove **Geographic Position** On the east side of Overflow Creek approximately 0.4km upstream of the confluence with Clear Creek **Signs of Human Disturbance** None seen **Range of Large Trees** *Liriodendron tulipifera*, over 1m dbh, *Tsuga Canadensis*, up to at least 112cm dbh, *Pinus strobus*, up to at least 99cm dbh, and *Quercus alba*, up to 93cm dbh, form most of the canopy **Shrub Layer** *Rhododendron maximum* is common, but inconsistent in the understory. The understory is generally more open underneath *Q. alba*.

PENSON KNOB

Site visits: three on 7/17/03, 8/6/03, and 8/8/03. Core samples: eight. Photographs: several.

Forest Type Dry Oak. **Geographic Position** On the west side of Penson Knob down to approximately 3200' elevation, on the N peak of Penson Knob, and on the E peak of Ledford Mountain **Core samples** *Quercus rubra* 78 years (i), 54cm dbh; *Q. montana* 133 years, 51cm dbh; *Q. montana* 269 years, 55cm dbh; *Q. montana* 279 years (i), 70cm dbh; *Q. alba* 178 years, 72cm dbh; *Q. rubra* 222 years, 46cm dbh **Signs of Human Disturbance** A deer stands are located along the top of Penson Knob. Access was likely from Rickman Creek. **Signs of Chestnut Blight** Debris common over much of the area and sprouts common where ericaceous layer is not thick. **Range of Large Trees** On the lower W slope of Penson Knob canopy trees

exceed 20m in height, but the canopy is much lower on the upper slopes. *Q. montana* dominates the slopes with minor *Acer rubrum*. *Q. coccinea* occurs at a shallow gap on Penson Knob. *Q. rubra* grows on the lower W slopes and at the northern edge of the area. Young *Liriodendron tulipifera* also grow near the northern edge. On the ridge top between Penson Knob and Ledford Mountain, *Q. Montana* reaches 109cm dbh, *Q. coccinea* reaches 80cm dbh, and *Qxydendrum arboreum* reaches 56cm dbh **Shrub Layer** Upright *Rhodendron maximum* forms a dense understory on the W side of Penson Knob, mixing with *Kalmia latifolia* on the upper slopes. *Diervilla sessilifolia* is common on the E aspect rock outcrops on the upper slopes. **Herbaceous Richness** Low, especially in ericaceous areas. *Galax rotundifolia*, *Carex* sp., *Saxifraga michauxii* a Poaceae, and others. **Animal Sign** Game trails on the W slope and *Ursus americanus* claw marks on a snag at the N end of the stand. **Substrate** Probably underlain by hu, undivided rocks of the Helen Group, and Dr, Informal Rabun gneiss of Hatcher. Multiple thrust faults occur in the area. **Comments:** Although *Quercus* spp. adapted to dry conditions form almost the entire canopy around Penson knob, the particular species, understory characteristics, and canopy height vary widely. The northern edge of the stand may be approaching submesic oak, while the upper slopes are similar to subxeric oak forest. **Related Areas** This stand may be contiguous with the uncut forest on Gulf Knob. The two stands area separated by the First Prong drainage. The stands may be connected along N facing slopes, but the Darnell Gap area appears young.

Forest Type Submesic Oak **Geographic Position** On top of the S peak of Penson Knob, on the W fork of Ledford Branch between 2870' and 3120' elevation, on a bench on the W side of Penson Knob at 3400', and in a NE aspect drainage above 3000' elevation on the E peak of Ledford Mountain **Core samples** *Q. velutina* 62 years (i), 66cm dbh; *Q. alba* 225 years, 64cm dbh **Signs of Human Disturbance** A deer stand on top of Penson Knob **Signs of Chestnut Blight** Sprouts common on both Penson Knob and Ledford Mountain. Sprouts and debris are abundant on the small bench. **Range of Large Trees** *Q. alba*, up to 88cm dbh, and *Q. velutina* form the canopy with minor *L. tulipifera* and *Q. rubra* on top of Penson Knob. *Acer rubrum*, up to 94cm dbh, and *Q. rubra* dominate the small bench. *Q. rubra*, *L. tulipifera*, *Q. montana*, and *A. rubrum* dominate of Ledford Mountain. **Shrub Layer** Generally open with *A. pensylvanicum*, but *R. maximum* forms a dense understory in Ledford Branch **Herbaceous Richness** Low to moderate: Cyperaceae spp., Poaceae *Goodyera pubescens*, *Thelypteris noveborascensis*, *Veratrum parviflorum*, *Cypripedium calceolus*, *Actea pachypoda*, *T. hexagonoptera*, and *Sanguinaria canadensis* **Animal Sign** Browse seen on bench **Substrate** Ledford Mountain is underlain hu: by undivided rocks of the Helen Group.

Forest Type High Elevation Northern Red Oak **Geographic Position** On NW and N aspect slopes between Penson Knob and Ledford Mountain. The lowest elevation of the stand in this area is not known. **Signs of Human Disturbance** None seen **Range of Large Trees** Most canopy trees approximately 60cm dbh, and are *Q. rubra* with minor *Q. montana*. **Shrub Layer** Upright *R. maximum* forms a dense nderstory with occasional openings **Herbaceous Richness** Herbs absent except in openings in *R. maximum* **Comments:** This forest type appears to grade into areas dominated by old *Q. montana* with similar understory conditions **Related Areas** Uncut high elevation northern red oak forest also occurs on Double Spring Knob and Rocky Mountain (Gilmer County). Both of these sites have open understories, dense herbaceous layers, and a higher proportion of *Betula* spp..

PINE GAP

Site Visits: one on 12/15/03. Core Samples: one.

Forest Type Dry Oak **Geographic Position** Primarily on the west side of the ridge extending south from Pine Gap. Extending from the ridge-crest, and in one small area crossing the ridge, probably down to the edge of Forest Service property. The southern edge stands at 3400' at the junction with a spur ridge **Core samples** *Quercus montana* 260 years, 61cm dbh **Signs of Human Disturbance** A faint path of uncertain origin follows the top of the ridge. No other signs of potential human disturbance were seen **Range of Large Trees** *Q. alba* is common near the ridge-crest, but *Q. cocinea*, and *Q. Montana*, up to 102cm but usually much smaller, form the canopy in the rest of the stand. Small *Oxydendrum arboreum* and *Acer rubrum* occupy the midstory **Shrub Layer** A dense layer of upright *Rhododendron maximum* occurs throughout much of the stand **Herbaceous Richness** Likely very low due to the dense heath understory **Animal Sign** At least one game trail is present in the stand.

PINNACLE KNOB

Site visits: two on 7/16/02, and 8/4/03. Core samples five.

Forest Type Dry Oak **Geographic Position** On the northwest side of Pinnacle Knob down to 2380' and on the northeast side down to 2760'. This stand does not include the peak of the knob. **Core samples** *Quercus montana* 89 years (i), 67cm dbh; *Q. montana* 177 years, 47cm dbh; *Q. montana* 133 years, 28cm dbh; *Q. montana* 157 years, 57cm dbh; *Q. montana* 215 years, 62cm dbh **Signs of Human Disturbance** Two fragments of roofing material were seen in the stand. The fragments were probably transported to the stand by air. No other signs of human disturbance were seen. **Signs of Chestnut Blight** Sprouts are sparse in most of the stand **Signs of Fire** The Ericacea on the northeast slope is exceptionally dense and only two to three meters tall. These conditions suggest the slope burned several decades ago. **Basal Area** Approximately 13.8 m²/hct over most of the stand, but only 6.9 m²/hct on the N end of the mountain **Range of Large Trees** *Q. montana* (up to 87cm dbh) forms most of the overstory. *Pinus virginiana* is locally common. *P. pungens* grows at the top of a cliff that marks the lower boundary to the northeast, and *Nyssa sylvatica* is also infrequent in the stand. *Oxydendrum arboreum* is present in the midstory. **Shrub Layer** Exceptionally dense thickets of mixed *Kalmia latifolia* and *Rhododendron maximum* cover much of the area. In parts of the stand *K. latifolia* occupies areas of higher relative topographic position and *R. maximum* grows in areas of lower relative topographic position. *Gaylussacia sp.* occurs as patches throughout the stand, but is most common on the upper northeast slope. **Herbaceous Richness** Rare due to dense shrub layer over most of the stand. *Heuchera americana* and *H. parviflora* grow on rock outcrops **Substrate** sa: interlayered amphibolite, biotite schist, biotite-muscovite schist, and quartzofeldspathic gneiss

RAINY MOUNTAIN

Site visits: one on 7/16/02. Core samples: one.

Forest Type Dry Oak **Geographic Position** On the southwest side of Rainy Mountain (2945) extending down to 2420'. Upper boundary uncertain **Core samples** *Pinus echinata* 212 years – 53cm dbh **Signs of Human Disturbance** None observed **Signs of Chestnut Blight** Down woody debris uncommon **Range of Large Trees** *Quercus montana* is the most abundant canopy species. *Carya pallida*, *P. rigida*, *P. echinata*, and *P. virginiana* are less abundant members of the overstory. *Acer rubrum*, *Oxydendrum arboreum*, and *Amelanchier laevis* are present in the midstory. **Shrub Layer** A dense thicket of *Kalmia latifolia*, and lesser amounts of *Rhododendron maximum* occupies most of the stand. **Herbaceous Richness** Low **Animal Sign**

Multiple game trails are present in the stand. **Substrate** Undivided rocks of the Tallulah Falls Formation. Probably mica schist.

REED CREEK

Site Visits: one on 12/17/03. Core Samples: one. Photographs: two.

Forest Type Dry Pine-Oak **Geographic Position** On a ridge draining into Reed Creek, at the north edge of a tributary that drains the east side of Rand Mountain, following the crest of the ridge between 2000' and 2400' elevation **Core samples** *Pinus echinata* 237 (i), 64cm dbh **Signs of Human Disturbance** None were seen in this area **Range of Large Trees** Young *P. strobus* and old *P. echinata*, up to at least 65cm dbh, form most of the canopy in the lower part of the stand with *Quercus coccinea* gaining importance higher in the stand and *P. strobus* becoming much less common. Some *Q. falcata* and *P. rigida*, up to 87cm dbh, grow in the lower part of the stand, and *Acer rubrum* grows in the midstory **Shrub Layer** Scattered *Kalmia latifolia* and *Gaylussacia* sp. are present and *P. strobes* regeneration is dense in areas.

Forest Type Dry Oak **Geographic Position** On the east side of the above ridge above 2200' **Signs of Human Disturbance** None were observed in the area **Range of Large Trees** *Q. montana*, *Q. coccinea*, *Q. alba*, and *Q. velutina* are all present in the canopy. Scattered young *P. strobus* and *Oxydendrum arboreum* also grow in the area **Shrub Layer** *P. strobus* regeneration is common and some *Tsuga canadensis* regeneration occurs at the lower edge of the area.

RIVER MOUNTAIN

Site visits: one on 7/15/03. Core samples: one.

Forest Type Dry Oak **Geographic Position** On the N side of River Mountain, east of the summit **Core samples** *Quercus montana* 181 years (i), 67cm dbh **Signs of Human Disturbance** None were found in this area, but a firebreak is present on the ridgetop to the W **Signs of Chestnut Blight** Some debris and sprouts are present **Range of Large Trees** *Q. montana* dominates with minor *Acer rubrum* and, on the ridge top, *Pinus rigida* **Shrub Layer** *Gaylussacia* sp. forms a continuous layer with scattered *Vaccinium* sp., *Rhododendron maximum* and *Kalmia latifolia* **Herbaceous Richness** Low: *Galax rutundifolia* **Substrate** Yrg biotite gneiss.

ROCK MOUNTAIN

Site visits: one on 7/15/03. Core samples: two. Photographs: one.

Forest Type Dry Oak **Geographic Position** On the NE side of Rock Mountain above 2400', and possibly lower, and on the uppermost SE slope **Core samples** *Tsuga canadensis* 153 years (i), 74cm dbh **Signs of Human Disturbance** None seen **Signs of Chestnut Blight** Some debris, but no sprouts due to thick ericaceous layer **Range of Large Trees** *Quercus montana* dominates with scattered *Acer rubrum* and small *Q. rubra*. *Tsuga canadensis* grows scattered in the stand on top of boulders. *Q. alba* is present on the level ridge N of the summit, but are younger than the *Q. montana* on the NE slope **Shrub Layer** *Rhododendron maximum* forms a nearly continuous, upright layer. Openings in the layer support *R. minus* and *Gaylussacia* sp. A cluster of approximately two dozen *Stewartia ovata* grows on the level ridge N of the summit **Herbaceous Richness** Extremely low except on small rock outcrops **Substrate** Yrg biotite gneiss **Comments:** The *S. ovata* on top of the mountain represent an unusual habitat occurrence of this uncommon species **Related Areas** The N side of Roundtop Mountain in South Carolina supports a similar uncut forest with a *Q. montana* canopy and dense ericaceous understory. In that stand, *T. caroliniana* grows scattered on top of boulders. The variables accounting for the difference in *Tsuga* species in these similar stands is not known.

Forest Type Dry Oak-Pine **Geographic Position** On the ridge extending N from Rock Mountain **Core samples** *Pinus rigida* 112 years, 44cm dbh **Signs of Chestnut Blight** *Castanea pumila* sprouts common **Range of Large Trees** *P. rigida* and young *P. strobus* on W side. *Q. montana* on E side and *Q. coccinea* on both sides in multiple age classes. **Shrub Layer** *Kalmia latifolia*, *Symplocos tinctoria*, and *Gaylussacia* sp. present

Forest Type Subxeric Pine **Geographic Position** On the summit and extending S from Rock Mountain above 2620' elevation **Range of Large Trees** Small, apparently young *P. virginiana* dominate with some *Carya pallida*. **Shrub Layer** *R. minus* forms a dense layer to the west **Herbaceous Richness** Low: *Pteridium aquilinum* and *Corydalis sempervirens* **Comments:** Rock outcrops form the eastern part of this area.

STILLHOUSE BRANCH

Site Visits: one on 12/18/03. Core Samples: two.

Forest Type Submesic Oak **Geographic Position** Along Stillhouse Branch below 2840' and along the west fork of Stillhouse Branch below 2580' elevation **Core samples** *Lirodendron tulipifera* ?, 86cm dbh **Signs of Human Disturbance** None were seen in this area **Signs of Chestnut Blight** Uncut debris is common along the slopes, but little is present close to the stream **Signs of Fire** Partially healed basal wounds were noted on the uphill side, where fire is likely to be most intense, on two large, old trees. No fire char or other signs of fire were observed **Range of Large Trees** No single species occupies a large proportion of the canopy. *L. tulipifera*, *Tsuga canadensis*, *Betula lenta*, *Quercus alba*, *Q. rubra*, *Q. velutina*, *Acer rubrum*, *Tilia heterophylla*, and *Carya glabra* all reach the canopy. The largest species are *L. tulipifera*, over 100cm dbh, *T. Canadensis*, over 120cm dbh and up to 36m tall, and *Q. alba*, up to 108cm dbh **Shrub Layer** *Rhododendron maximum* occupies most of the understory of the stand **Herbaceous Richness** Low: the heath understory prevents the growth of most herbaceous species **Comments:** This area may have been spared do to Mountain City's waterworks immediately downstream. If that juxtaposition has protected the area from cutting, the adjacent area of upper Blacks Creek is likely also uncut.

Forest Type Dry Oak **Geographic Position** On the relatively flat portion of Stillhouse Branch between approximately 2840' and 2960' **Signs of Human Disturbance** None found **Signs of Chestnut Blight** Uncut woody debris is abundant in the area **Range of Large Trees** *A. rubrum*, *Q. velutina*, and *Q. alba* are the most prevalent species in the canopy with *Oxydendrum arboreum* present in the midstory **Shrub Layer** *R. maximum* is common in the understory, but not as dense as in the more mesic areas **Related Areas** A similar flat area on the west fork of Stillhouse Branch has much less *Castanea dentata* debris and an open understory. *Q. velutina* is the principle overstory species with minor *Q. alba* and *Q. rubra*. The westernmost portion of that area is occupied by young *L. tulipifera*. Also, an old roadway is present below this area, but could not be seen within the flat. The age of the canopy dominant *Quercus* spp. is not known **Comments:** This area has few trees that appear old, but that state may be accounted by the profusion of *C. dentata* that once inhabited the stand.

Forest Type Dry Oak **Geographic Position** On the slopes on the south side of Oakey Mountain, draining into upper Stillhouse Branch, above approximately 3200' elevation **Signs of Human Disturbance** None seen **Signs of Chestnut Blight** Sprouts infrequent **Range of Large Trees** *Q. alba* dominates with minor *Q. velutina*, *Q. coccinea*, and *O. arboreum*. *Q. montana* is more common in the small portion of the area that drains into the west for of Stillhouse Branch **Shrub Layer** *Kalmia latifolia* is present, but varies widely in density **Comments:** *Q. montana* is generally more abundant in areas with similar topography in this region, and on similar site *Q.*

alba usually only occurs in the vicinity of the main ridge. The conditions leading to the proliferation of *Q. alba* at this site are unknown.

Forest Type Pine-Oak heath **Geographic Position** On the ridge separating the forks of Stillhouse Branch, on the ridge separating Stillhouse Branch from upper Blacks Creek, on small ridges between approximately 2960' and 3200' elevation on upper Stillhouse Branch, and on the west side of Blacks Creek Knob **Core samples** *Pinus rigida* 152 or more years (core in poor condition), 65cm dbh **Signs of Human Disturbance** None observed **Signs of Chestnut Blight** Scattered *C. pumila* grow in the area **Range of Large Trees** *P. rigida* is present throughout this community but varies in abundance; the species is least common on the west side of Blacks Creek Knob and most prolific on the dividing ridges. *Q. montana* and *Q. coccinea*, up to 72cm dbh, grow mixed in with the *P. rigida* **Shrub Layer** *Kalmia latifolia* is common, but varies in density.

WOLF KNOB

Site visits: one on 8/5/03. Core samples: two. Photographs: one.

Forest Type Dry Oak **Geographic Position** On Wolf Knob extending south down to 3600' and extending down the west side to at least 3400' elevation. The lower boundary is demarcated by a series of rock outcrops. The extent of the uncut area on the northeast and southeast slopes is unknown. **Core samples** *Quercus alba* 200 years (i), 52cm dbh; *Q. alba* 308 years, 66cm dbh. **Signs of Human Disturbance** None seen in area **Signs of Chestnut Blight** Sprouts and debris locally common **Range of Large Trees** *Q. alba* reaches 100cm dbh, and *Q. montana* reaches at least 102cm dbh. *Q. alba* dominates on the larger ridges and *Q. montana* dominates on the W aspect slopes. *Juniperus virginiana* grows on some rock outcrops. **Shrub Layer** *Rhododendron maximum* is abundant and on the west side of the knob and *Kalmia latifolia* often grows in the same area. The ridge extending north from the peak supports scattered *R. maximum*, *Rhododendron. sp.*, *Clethra acuminata*, and *Acer pensylvanicum*. *Hamamelis virginiana* grows on the ridge southwest of the peak. **Herbaceous Richness** Low to high: Forbes are abundant on a S aspect rock outcrop near the top. Herbaceous plants are also abundant on and near rock outcrops SW of the peak. *Heuchera Americana*, *Saxifraga michauxii*, *Veratrum parviflorum*, *Dennstaedtia punctilobula*, and *Veratrum parviflorum*, primarily in *Q. alba* dominated areas. **Animal Sign** Game trails, browse, and deer scat was seen **Substrate** Pzpc: quartz diorite to tonalitic gneiss **Related Areas** The top of the knob is similar in composition and tree age to the top of nearby Scaly Knob.

WORLEY RIDGE

Site visits: one on 7/2/01. Core samples: one. Photographs: one.

Forest Type Dry Oak **Geographic Position** on the east side of the junction of Worley ridge with a spur ridge northwest of Jameson Mountain between 2520' and 2660' elevation **Core samples** *Quercus velutina* 210 years (e), 65cm dbh **Signs of Human Disturbance** None observed **Range of Large Trees** *Q. alba*, *Q. velutina* and *Q. coccinea* form the overstory **Shrub Layer** *Gaylussacia sp.* forms a thick cover in parts of the area.

YORK RIDGE

Site visits: Three on 6/25/03, 7/9/02, and 12/17/01. Core samples: six. Photographs: two.

Forest Type Dry Oak **Geographic Position** From Powell Mountain extending S along York Ridge to the vicinity of Parks Gap, with some extensions to the N on relatively high topography **Core samples** *Quercus alba* 110 years (i), 61cm dbh; *Q. alba* 164 years, 59cm dbh;

Q. coccinea 107 years, 58cm dbh; *Q. velutina* 176 years (i), 53cm dbh; *Q. montana* 163 years, 48cm dbh; *Q. montana* 218 years, 62cm dbh **Signs of Human Disturbance** The Appalachian Trail passes through the northern part of the stand. No other signs of human disturbance were observed. **Signs of Chestnut Blight** *Castanea dentata* is strangely absent from this stand except for a few large sprouts on Powell Mountain **Range of Large Trees** *Q. alba* mixed with *Q. velutina* and *Q. alba* mixed with *Q. coccinea* are most common on the ridge crest. *Q. montana* dominates on the rapidly draining N aspects. **Shrub Layer** *Kalmia latifolia* density varies from absent to dense, often with abrupt transitions. *Gaylussacia* sp. also forms thickets in the area. *Vaccinium* sp. are also scattered in some areas. **Herbaceous Richness** Low: *Houstonia purpurea*, *Lysimachia* sp., *Carex* sp. and a Poaceae are common. **Animal Sign** A game trail follows the ridge crest for most of the stand, and bear hair was seen on a broken sapling **Substrate** Yrg biotite gneiss.

TOCCOA RANGER DISTRICT

AKIN MOUNTAIN

Site visits: one on 6/21/01. Core samples: one.

Forest Type Dry Oak **Geographic Position** On the south and southeast side of the peak above 3440' **Core samples** *Quercus alba* 133 years, 48cm dbh **Signs of Human Disturbance** A hiking trail crosses the upper edge of the stand **Signs of Chestnut Blight** Sprouts present **Range of Large Trees** *Q. alba* dominates, but most individuals are partially stunted **Shrub Layer** *Quercus* seedlings, and a species of deciduous *Rhododendron* are present in the understory.

AMICALOLA MOUNTAIN

Site Visits: One on 6/12/03. Core Samples: 2. Photographs one.

Forest Type Submesic Oak **Geographic Position** Along drainages from 2460' to 2700' elevation, in a hanging valley approximately 1.5km WNW of Amicalola Falls. **Core samples** *Liriodendron tulipifera* 86cm dbh. **Signs of Human Disturbance** None were observed in this area. **Range of Large Trees** *Quercus montana*, up to 100cm dbh, *Q. alba*, and *L. tulipifera*, which reaches 110cm dbh and is most common at the upper edge of the stand, form the canopy with smaller amounts of *Q. rubra*. **Shrub Layer** *Kalmia latifolia* occurs in patches and *Rhododendron* sp., probably *R. viscosum*, is common. *Alnus serrulata* and *Lindera benzoin* grow below the cascade at the upper edge of the stand. **Herbaceous Richness** Low to moderate with *Iris cristata*, *Thelypteris noveboracensis*, *Osmunda cinnamomea*, *Parnassia asarifolia*, *Thalictrum* sp. and, under *K. latifolia*, *Galax rotundifolia*. *Decumaria Barbara* is common below the upper cascade. **Comments:** Cascades at both the upper and lower edges of the stand along the main stream limited the potential for building roads into the area. **Related Areas** This stand is located at the top of the same escarpment that blocked access to the much larger uncut area above Cochran Falls.

Forest Type Dry Oak **Geographic Position** On areas of relatively elevated topographic position from approximately 2380' to 2700' elevation. **Core samples** *Q. montana* 139 years (i), 58cm dbh. **Signs of Human Disturbance** None were seen. (SACB) Some sprouts are present. **Range of Large Trees** *Q. montana* dominates with minor *Q. rubra*, *Q. alba*, and *Acer rubra*. **Shrub Layer** *K. latifolia* varies from absent to dense. **Herbaceous Richness** Low, under *K. latifolia* *G. rotundifolia*.

COCHRANS CREEK

Site visits: one + ? on 6/6/03. Core samples: three + ?. Photographs: one + ?.

Forest Type Pine-Oak Heath **Geographic Position** On the upper W aspect slopes of an unnamed tributary of Cochrans Creek, W of the headwaters of Chester Creek **Core samples** *Quercus montana* 175 years, 51cm dbh **Signs of Human Disturbance** Buried power-lines closely parallel the E edge of this area **Signs of Chestnut Blight** Some sprouts present **Range of Large Trees** *Q. montana*, *Pinus virginiana*, and *P. strobes* dominate with *Q. montana* typically much older than the other dominants. *Oxydendrum arboreum*, *Nyssa sylvatica*, *Acer rubrum*, and *Cornus florida* also grow in the area **Shrub Layer** *Kalmia latifolia* and a low growing *Vaccinium* grow in patches **Herbaceous Richness** Low **Animal Sign** Game trails and bear scat seen.

Forest Type Dry Oak **Geographic Position** On the S aspect slope across a ridge and E of Cochrans Falls **Core samples** *Quercus alba* 222 years, 54cm dbh **Signs of Human Disturbance** None seen **Signs of Chestnut Blight** Some debris present **Range of Large Trees** *Q. alba*, up to 83cm dbh, dominates with lesser amounts of *Q. montana*, up to 84cm dbh, *Q. velutina*, up to 74cm dbh, *Q. coccinea*, *Carya tomentosa*, *Oxydendrum arboreum*, up to 52cm dbh, and *P. virginiana* **Shrub Layer** Regeneration of *P. strobus* and *Sassafras albidum* is abundant and a low growing *Vaccinium* is present **Herbaceous Richness** Low: primarily a Poaceae **Animal Sign** Game trails present **Comments:** trees in this area are unusually large for the exposed, dry conditions.

Forest Type Submesic Oak **Geographic Position** On the unnamed tributary of Cochrans Creek W of the headwaters of Chester Creek, above 600m elevation **Core samples** *Carya glabra* 181 years (e), 64cm dbh **Signs of Human Disturbance** Small amount of trash seen on stream **Signs of Chestnut Blight** some sprouts and debris present **Range of Large Trees** *Q. montana*, up to 118cm dbh, and *Liriodendron tulipifera*, in all age classes and up to 89cm dbh and 40m tall, form the canopy. *Carya glabra* is a locally important overstory species, and *O. arboreum* is common in the midstory **Shrub Layer** *Cornus florida*, *Rhododendron* sp., and *Halesia tetraptera* regeneration are locally common **Herbaceous Richness** Low: A Poaceae, *Polystichum acrostichoides*, and *Scutallaria* sp. **Animal Sign** Game trails, black bear scat, and a bedding area are present in this community.

COLD MOUNTAIN

Site visits: one on 6/28/02. Core Samples: two.

Forest Type Pine Oak Heath **Geographic Position** On southwest aspect slopes on the west side of Cold Mountain between 2870' and 3480'. **Signs of Human Disturbance** None observed **Signs of Chestnut Blight** None observed. *Castanea dentata* probably constituted only a minor component of this forest type. **Range of Large Trees** *Pinus virginiana* and *Q. montana* dominate this forest type. **Shrub Layer** *Kalmia latifolia* occurs in patches. **Herbaceous Richness** Low: *Galax rotundifolia*. **Comments:** Rock outcrops are common in this area, and one boulderfield is present. The *P. virginiana* component of the stand is young. This species' presence may be explained by the easily saturated, thin soils and the exposed condition of the stand making trees in the area unusually susceptible to windthrow.

Forest Type Dry Oak **Geographic Position** On southwest aspect slopes on the west side of Cold Mountain between 2870' and 3480' to the southeast of the above forest type. **Core samples** *Quercus montana* 108 years (i); *Q. alba* 61 years (i) – 72cm dbh. **Signs of Human Disturbance** None were observed in this area. **Signs of Chestnut Blight** Sprouts are abundant in this forest type. **Basal Area** 18.4m²/hct **Range of Large Trees** *Q. montana*, *Q. alba*, and lesser *Nyssa sylvatica* (up to 87cm dbh). *Acer rubrum* and *Oxydendrum arboreum* grow in the

midstory. **Shrub Layer** *Rhododendron sp.* and *Vaccinium* are present. *Philadelphus sp.* is locally abundant. **Herbaceous Richness** Medium **Related Areas** Horse Cove on the better known northwest side of Cold Mountains contains boulderfields with rich cove and yellowwood boulderfield and slope forest that are probably uncut. Unlogged dry oak forest dominated by *Q. alba* grows on the northeast slope of the mountain.

DIXON CREEK

Site visits: one on 6/25/01. Core samples: one.

Forest Type Acidic Cove **Geographic Position** Between a Forest Service road and Dixon Creek and below 2520' between two northeast aspect coves that drain into the creek **Core samples** *Pinus strobus* 73 years (i), 68cm dbh **Signs of Human Disturbance** A maintained road bounds the upper edge of this stand, so logging access could have been present at an early date. The stand has not been searched thoroughly for other indications of past disturbance **Range of Large Trees** *P. strobus* and *Liriodendron tulipifera* form a high canopy with individuals of the former species frequently exceeding 90cm dbh and possibly reaching exceptional sizes **Shrub Layer** Largely absent **Herbaceous Richness** Low **Related Areas** The mix of large *P. strobus* with *L. tulipifera* is unusual for north Georgia, but closely resembles a stand on the lower part of Reed Creek in the Tallulah Ranger District **Comments:** determining whether this stand qualifies as old-growth by Region 8 guidelines is more difficult than for most stands on the forest. The clear modern disturbance at the upper edge of the stand and gentle topography of the site and surrounding area make past disturbance plausible, but no direct evidence of that supposed disturbance has yet been found. Also determining the ages of the trees is difficult due to their large size. The partial core collected in the stand suggests the stand predates the major era of logging in north Georgia, but lacks trees of the age *P. strobus* frequently reaches in undisturbed stands in the region. The age structure of this stand resembles more extensive stands along Cooper Creek in which old individuals are rare but in which old roadbeds, ubiquitous in the forests second growth stands, are absent.

HOGBACK MOUNTAIN

Site visits: one on 7/23/02. Core samples: two.

Forest Type Subseric Oak **Geographic Position** On the west side of Hogback Mountain above 2600', extending south to where the crest of the mountain is 2760', and extending north half way from that point to the top of the mountain. **Core samples** *Quercus montana* 48 years (i) – 52cm dbh **Signs of Human Disturbance** None seen **Signs of Chestnut Blight** Wood uncommon and sprouts absent. **Basal Area** 16.1m²/hct **Range of Large Trees** The stunted canopy is composed exclusively of *Q. montana*. **Shrub Layer** A *Vaccinium* species is exceptionally abundant. **Herbaceous Richness** Moderate: primarily grasses **Animal Sign** A game trail is present in the area. **Substrate** Gneiss

Forest Type Dry Oak **Geographic Position** On the west slope of Hogback Mountain north of the above forest type. **Core samples** *Q. montana* 62 years (i) – 50cm dbh **Signs of Human Disturbance** None observed. **Range of Large Trees** *Q. montana* (up to 86cm dbh) is the principal canopy species, but *Acer rubrum* and *Oxydendrum arboreum* are also present. *Q. rubra* grows at the northern edge of the stand. **Shrub Layer** A thicket of *Kalmia latifolia* occupies most of this area. **Herbaceous Richness** Low due to thick shrub layer and soil conditions. **Substrate** Gneiss

JONES CREEK HEADWATERS

Site visits: one on 7/1/02. Core samples: one.

Forest Type Submesic Oak **Geographic Position** Southeast of Winding Stair Gap in a cove at the head of a tributary to Jones Creek between 2380' and 2740'. **Core samples** *Liriodendron tulipifera* 163 years (e) – 99cm dbh **Signs of Human Disturbance** Two depressions that appear to be prospect pits are located at the lower edge of the stand. Large books of muscovite mica are common around the depressions. **Signs of Chestnut Blight** Debris is present but uncommon. **Basal Area** 18.4m²/hct **Range of Large Trees** *L. tulipifera* (to at least 99cm dbh), *Quercus montana* (up to 115cm dbh), and in lesser quantity *Q. rubra* (up to 93cm dbh). *Acer rubrum*, *Carya tomentosa*, and *Cornus florida* grow in the midstory. **Herbaceous Richness** Low: two species of grass form dense, localized ground cover. **Animal Sign** Small animals have made claw marks on *L. tulipifera* bark. **Substrate** Granite or granitic gneiss with pegmatites **Related Areas** This stand has now been found to be part of the larger Montgomery Creek stand **Comments:** loggers bypassed this area for reasons that may be associated with the prospect pits.

LONG MOUNTAIN

Site visits: three on 7/10/01, 8/6/01, 8/7/01. Core samples: eight.

Forest Type Dry Oak-Pine **Geographic Position** On a small ridge extending west from Long Mountain on the north side of a tributary of Two Run Creek **Core samples** *Pinus strobus* 162 years, 79cm dbh **Signs of Human Disturbance** None seen **Range of Large Trees** *Quercus montana* dominated with significant *P. strobus* **Shrub Layer** *Kalmia latifolia* is present.

Forest Type Dry Oak **Geographic Position** On south aspect slopes and at least some of the east aspect slopes on Long Mountain ranging from 1800' to 2800' elevation, and largely confined to steep slopes. The stand extends down to Forest Service road 243 in some areas, and some areas below the road may be undisturbed **Core samples** *Carya glabra* 80 years (i); *Q. velutina* 121 years, 70cm dbh; *Q. montana*, 150 years (e), 77cm dbh; *Q. montana* 153 (e), 69cm dbh; *Q. montana* 207 years, 79cm dbh; *C. tomentosa* 172 years, 70cm dbh; *Q. alba* 217 years, 75cm dbh **Signs of Human Disturbance** A faint old road parallels forest service road 243 a short distance upslope from the modern road. Cut stumps are present only in the immediate vicinity of the old road, yet well formed old trees are also present near the road. No signs of logging were seen on the steep slopes above the road **Basal Area** 24.6m²/hct **Range of Large Trees** *Q. montana* is the dominant canopy species over much of the area and exceeds 1m dbh; however, *Q. alba*, *Q. rubra*, *Q. velutina*, up to 95cm dbh, and *Carya spp.* may be locally abundant **Shrub Layer** Absent over most of the stand, but *Toxicodendron radicans* is locally abundant and *Celtis occidentalis*, a rare species on the National Forest that reaches 19cm dbh at the site, grows around some rock outcrops in the western part of the stand **Herbaceous Richness** Low in most of the stand, but areas of moderate diversity exist **Substrate** Mica schist may underlie most of the stand, but at least some pockets of amphibolite are present.

MILL CREEK

Site visits: Two on 6/19/03, 6/20/03. Core samples: four.

Forest Type Acidic Cove **Geographic Position** In a corridor along Mill Creek and its tributaries from 2200' to 2520' on the main stem of the stream, and up to 2760' on one tributary **Core samples** *Liriodendron tulipifera* 170 years (i), 85cm dbh; *Pinus strobus* 125 years (e), 95cm dbh; *Quercus alba* 162 years (e), 78cm dbh; *Tsuga canadensis* 94 years (i), 84cm **Signs of Human Disturbance** None were seen in the area **Signs of Chestnut Blight** Uncut debris locally common, but sprouts rare **Signs of Fire** Fire char seen on the inside of a hollow *T. canadensis*

near the W edge of the stand. The hemlock is on the slope away from the stream **Range of Large Trees** *P. strobus* reaches 118cm dbh and 47m tall. *T. Canadensis* reaches 120cm dbh and 45m tall, but is usually significantly shorter. *L. tulipifera* reaches 120cm dbh and *Q. alba* reaches 88cm dbh. *Oxydendron arboreum* in the midstory reaches 54cm dbh and 26m tall. **Shrub Layer** *Rhododendron maximum*, *Kalmia latifolia*, and *Gaylussacia* sp. occur in patches throughout the stand. *R. maximum* is denser on N aspects than S aspects. **Herbaceous Richness** Low with *Thelypteris noveboracensis*, *Monotropa uniflora* and, near the western edge of the stand, *Listera smallii* **Animal Sign** Game trails are common, and bear claw marks were seen on a large *Liriodendron tulipifera*. **Comments:** This stand is relatively level and accessible and supports commercially valuable trees. The stands position directly upstream of a fish hatchery is probably responsible for the lack of cutting in the area. **Related Areas** This stand structurally and compositionally resembles the Cooper Creek Scenic Area several kilometers to the E, but has less *P. strobus*. Soil conditions at the two sites appear to be similar.

MONTGOMERY CREEK

Site visits: five on 7/3/02, 7/20/02, 8/2/03, 8/9/02, 9/3/02. Core Samples: eight

Forest Type Dry Pine **Geographic Position** On a minor ridge on the east side of a tributary to the West Fork of Montgomery Creek between 2600' and 2880'. **Signs of Human Disturbance** None were seen. **Signs of Chestnut Blight** Little, if any, debris present, and no sprouts were seen **Range of Large Trees** The canopy is *Pinus strobus* with only scattered *Quercus montana*. **Shrub Layer** The top and east side of the ridge have an open understory, but *Kalmia latifolia* grows on the west side. **Herbaceous Richness** **Herbaceous Richness** Low **Substrate** Possibly gneiss. **Comments:** The canopy in this area is young; however, unlogged areas with old trees surround this forest type, and no evidence of human disturbance was seen in the stand. This area probably went through a major natural disturbance. The forest type still contains all of the integral attributes of old growth forests.

Forest Type Dry Oak-Pine **Geographic Position** On major ridges and exposed minor ridges in the upper Montgomery Creek watershed. **Core samples** *Q. montana* 114 years (i) **Signs of Human Disturbance** None are apparent in these areas. (SACB) *Castanea dentata* was likely present in these areas. **Basal Area** 23m²/hct **Range of Large Trees** *P. virginiana*, *Q. montana*, and *Q. coccinea* are common. **Shrub Layer** *Kalmia latifolia* is abundant and forms thickets of varying densities. **Herbaceous Richness** Low due to dry conditions and Ericaceous understory. **Animal Sign** One *Glaucomys volans* was seen in this forest type. *Ursus americanus* claw marks were observed on a fallen log. **Comments:** The canopies in these areas are young with scattered old trees; however, unlogged areas with old trees surround the forest type, and there is no evidence of human disturbance in the stand. These areas probably went through a major natural disturbance. The forest type still contains all of the integral attributes of old growth forests.

Forest Type Dry Oak **Geographic Position** On upper slopes near Coppermine Gap and Deerlick Gap and on low, sheltered ridges in Penitentiary Cove. **Core samples** *Q. alba* 139 years (i); *Q. alba* 180 years (i) – 61cm dbh; *Q. montana* 167 (i) – 76cm dbh **Signs of Human Disturbance** A foot trail was seen on one low ridge. No human disturbance was seen in any of the other occurrences of this forest type. **Signs of Chestnut Blight** Both sprouts and downed wood are present in these areas, but they are not plentiful. **Basal Area** 18.4m²/hct **Range of Large Trees** Closest to the main ridge *Q. alba* (up to 84cm dbh) dominates the overstory with locally abundant *Carya tomentosa*. *Q. montana* dominates the lower ridges. *Oxydendron arboreum* (up to 66cm dbh) and *Acer rubrum* are common in the midstory in this forest type. **Shrub Layer** Where *Q. alba* forms the overstory, scattered *Vaccinium* sp. are the primary

shrubs. On some of the lower ridges *Kalmia latifolia* forms thickets. **Herbaceous Richness** *Q. montana* dominated areas have low herbaceous richness while the upper slopes have moderate diversity of herbs. *Viola sp.*, *Iris cristata*, and *Thelypteris noveboracensis* are present in the stand. **Animal Sign** One deer in the rut was heard.

Forest Type Submesic Oak **Geographic Position** On several of the tributaries to Montgomery Creek in the upper part of the watershed. **Core samples** *Q. rubra* 144 years – 71cm dbh **Signs of Human Disturbance** None were observed in this forest type. **Signs of Chestnut Blight** None were observed, but small quantities of down woody debris are almost certainly present. **Basal Area** 24.1m²/hct **Range of Large Trees** *Q. montana* (up to 109cm dbh), and *L. tulipifera* (up to 106cm dbh), along with lesser numbers of *Q. rubra*, form the overstory in this forest type. The midstory includes *A. rubrum*, *O. arboreum*, and *Cornus florida*. Small *Halesia tetraptera* are locally abundant. **Shrub Layer** Shrubs are generally lacking, but *Rhododendron sp.* are scattered in some areas. **Herbaceous Richness** Low: *Thelypteris noveboracensis* and/or *Dennstaedtia punctilobula* are locally abundant.

Forest Type Mesic Oak **Geographic Position** In the upper part of coves near Coppermine and Winding Stair gaps. **Signs of Human Disturbance** None seen **Signs of Chestnut Blight** None seen **Range of Large Trees** *Q. rubra* (up to 89cm dbh), *L. tulipifera* (up to 116cm dbh), and smaller quantities of *Q. alba* form the overstory. *Ilex montana* is scattered in the understory. **Shrub Layer** Shrubs are uncommon in this forest type. *Rhododendron sp.* is present in small numbers. **Herbaceous Richness** Moderate: hog peanut, lady fern, cinnamon fern, and probably *Dennstaedtia punctilobula* are common. **Animal Sign** A yellow jacket nest was encountered where one occurrence of this forest type graded into dry oak on a minor ridge slope.

Forest Type Rich Cove **Geographic Position** Near the confluence of the two easternmost tributaries of the West Fork of Montgomery Creek, and in a minor drainage to the east. **Core samples** *L. tulipifera* 173 years (i) – 79cm dbh **Signs of Human Disturbance** None observed **Signs of Chestnut Blight** None seen **Range of Large Trees** *L. tulipifera* (up to 122cm dbh), *Q. rubra* (up to 94cm dbh), *Tilia heterophylla* (reaches 91cm dbh) and *Q. montana* are common in the canopy. *Betula lenta* and *Aesculus octandra* are present but scarce. *Halesia tetraptera* is locally abundant in the understory. **Shrub Layer** *Lindera benzoin* is present in eastern occurrence of this forest type. The shrub layer is otherwise open. **Herbaceous Richness** Moderate: hog peanut, camphor mint, broad leaf beech fern, and *Polystichum acrostichoides* occur at the upper edge of this area. **Related Areas** The Montgomery Creek stand has now been found to include the stand on the headwaters of Jones Creek.

NIMBLEWILL CREEK

Site visits: two on 6/10/03 and ?. Core samples: four + ?

Forest Type Dry Oak **Geographic Position** On the slope E of Bearden Creek down to an undetermined elevation, on the ridge between Bearden and Nimblewill Creeks, and along the tributary of Nimblewill Creek that drains the SW slope of Black Mountain above 2460' elevation **Core samples** *Quercus montana* 56 years (i), 61cm dbh; *Q. montana* 168 years (i), 73cm; *Q. montana* 226 years (e), 68cm dbh; *Q. alba* 207 years, 48cm dbh **Signs of Human Disturbance** Some clearcuts outside of the stand boundaries have occurred E of Bearden Creek since 1975. None found within stand boundaries **Signs of Chestnut Blight** Sprouts abundant on ridge and present E of Bearden Creek **Range of Large Trees** *Q. montana*, up to 102cm dbh, is dominant throughout and forms a nearly pure stand in some areas E of Bearden Creek. *Q. alba* and *Q. coccinea* occupy a greater proportion of the canopy on the ridge between Bearden and Nimblewill Creeks **Shrub Layer** *Kalmia latifolia* ranges from absent to abundant and *Vaccinium*

spp. are common in much of the stand. *Rhododendron maximum* grows along the drainage on the SW side of Black Mountain. *Sassafras albidum* regeneration is common on the ridge between the creeks **Herbaceous Richness** Low: *Thelypteris noveboracensis*, *Galax rotundifolia*, *Hieracium venosum*, *Carex* spp., *Lysimachia* sp., and a Poaceae **Animal Sign** Game trails and one venomous snake seen **Substrate** Probably mica schist.

Forest Type Submesic Oak **Geographic Position** On an unnamed tributary of Nimblewill Creek on the SW face of Black Mountain, between 2790' and 2900' elevation, and possible higher **Signs of Human Disturbance** None seen **Range of Large Trees** *Q. rubra* and *L. tulipifera* present in canopy

Forest Type Pine-Oak Heath **Geographic Position** Adjacent to the cascade on Bearden Creek at approximately 2620' elevation **Signs of Human Disturbance** None observed **Signs of Chestnut Blight** Sprouts present **Range of Large Trees** *Q. coccinea* and *Pinus virginiana* dominate with some *Q. montana* and *Oxydendrum arboreum*. **Shrub Layer** Dense layer of *K. latifolia* with scattered *Vaccinium* spp. **Herbaceous Richness** Low: abundant *G. rotundifolia* **Animal Sign** Game trail present.

NOONTOOTLA CREEK

Site Visits: Two on 6/11/03 and 12/31/03. Core Samples: six. Photographs: five.

Forest Type Hemlock **Geographic Position** Along Noontootla Creek and Chester Creek at locations 2, 4, 5, 6 upstream of the mouth of an unnamed tributary, 8 except at the downstream end and near the mouth of Davis Creek, and 9 **Core samples** *Tsuga canadensis* 217 years (i), 82cm dbh; *T. canadensis* 259 years (i), 70cm dbh **Signs of Human Disturbance** Most of these areas are bounded on the east by a gravel Forest Service, and small extensions of the stands cross the road. Significant silt washes of the road in areas and affects Noontootla Creek and the portions of the stands on the east side of the creek. A gated road also crosses through stand eight. Stone rings and minor litter indicate camping in some of the areas, but most camping occurs on more disturbed stretches of the Creek and rarely occurs on the west side of the stream **Signs of Chestnut Blight** A few standing snags occur in stand 8, but *Castanea dentata* appears to have been scarce in these areas **Range of Large Trees** Old *T. canadensis* dominates all of these areas and individuals frequently exceed 90cm. *Oxydendrum arboreum* and *Betula lenta* grow abundantly in the midstories of some of the stands. *Liriodendron tulipifera* is likely the second most abundant canopy species in these areas, and *Quercus alba* and *Acer rubrum* also occur as minor components of some of them. The most diverse of these stands, 9 and sections of 8, resemble acidic cove forest **Shrub Layer** *Rhododendron maximum* is common in all of the stands, and *Kalmia latifolia* mixes with it in some of the stands. A few areas have relatively open understories **Comments:** The ease of access to these stands and the size of the trees make the undisturbed nature of the canopy in these stands surprising. The relatively low value of *T. canadensis* as a timber species and, more recently, the recreational popularity of the area may be contributing factors.

Forest Type Hemlock-White Pine **Geographic Position** Along Noontootla Creek and Chester Creek at locations 1, 6 downstream of the mouth of an unnamed tributary, 7, and 8 at the downstream end and just upstream of the mouth of Davis Creek **Core samples** *Pinus strobus* 182 years (i), 86cm dbh **Signs of Human Disturbance** Most of these areas are bounded on the east by a gravel Forest Service, and small extensions of the stands cross the road. Significant silt washes of the road in areas and affects Noontootla Creek and the portions of the stands on the east side of the creek **Range of Large Trees** Old *T. canadensis* and *P. strobus* dominate all of these areas and individuals frequently exceed 90cm. The two species reach 42m and 45m in height respectively. *Oxydendrum arboreum* and *Betula lenta* grow abundantly in the midstories

of some of the stands. *Liriodendron tulipifera* is likely the second most abundant canopy species in these areas, and *Quercus alba* and *Acer rubrum* also occur as minor components of some of them **Shrub Layer** *Rhododendron maximum* is common in all of the stands, and *Kalmia latifolia* mixes with it in some of the stands. In some areas with more open understory conditions, *Gaylussacia* sp. is common **Comments:** The existence of large, old *P. strobus* in such an easily accessible area is puzzling.

Forest Type Submesic Oak **Geographic Position** In a small, rocky, southwest cove that drains into Noontootla Creek at approximately 2240' elevation, location 3, and at the southern end of location 2 **Core samples** No core samples were collected in these areas, but one *Q. alba* that was cut after falling across the road showed approximately 200 rings **Signs of Human Disturbance** A gravel Forest Service road passes through these stands **Range of Large Trees** *L. tulipifera* and *Q. alba* form most of the canopy in these areas **Shrub Layer** The understory is generally open in these stands.

PUNCHEON GAP

Site visits: one on 8/20/02. Core samples: one.

Forest Type Dry Oak **Geographic Position** On the north-facing slope above a small drainage that flows southeast from Puncheon Gap **Core samples** *Quercus montana* 117 (i), 62cm dbh **Signs of Human Disturbance** An old road on the opposite side of the drainage provides clear evidence of past logging along the drainage, but the timber company stopped cutting at the stream for unknown reasons **Range of Large Trees** *Q. montana* dominates **Shrub Layer** *Kalmia latifolia* forms a continuous shrub layer **Herbaceous Richness** Low **Related Areas** This tract was contiguous with the large, unlogged forest on Montgomery Creek until the ridge-top between the stands was cut in the early 1980's.

ROCKY MOUNTAIN

Site visits: one on 7/11/01. Core samples: two.

Forest Type Dry Oak **Geographic Position** On the steep west facing slopes on Rocky Mountain between 2800' and 3440' elevation **Core samples** *Quercus alba* 70 years (i), 70cm dbh; *Q. alba* 256 years, 58cm dbh **Signs of Human Disturbance** None seen **Range of Large Trees** *Q. alba* forms the canopy in the upper part of the area while *Q. montana* and *Q. rubra* are more common lower down along the rocky drainages **Shrub Layer** Deciduous *Rhododendron* sp. are common in the upper part of the stand, and *Toxicodendron radicans* is locally abundant in the lower parts of the stand **Herbaceous Richness** Low **Related Areas** The east side of the mountain may support uncut High Elevation Northern Red Oak forest.

SCROGGIN KNOB

Site visits: one on 6/27/02. Core samples: one.

Forest Type Dry Oak **Geographic Position** On top of Scroggin Knob (832m), descending down the north slope to 2560', and descending southwest to 790m. **Core samples** *Quercus montana* 193 years – 71cm dbh **Signs of Human Disturbance** An old road follows the ridge northeast of Scroggin Knob, and terminates on the north end of the knob. Logging does not appear to have occurred near the end of the road. The Benton-MacKeye trail passes over Scroggin Knob. **Signs of Chestnut Blight** Uncut stumps are common at the lower edge of the stand, and sprouts are present throughout the stand. **Range of Large Trees** *Q. montana* (up to 89cm dbh), *Q. alba*, and *Q. velutina* (up to 85cm dbh) are common in the overstory. *Q. rubra*, and *Q. coccinea* are present in parts of the stand. *Pinus virginiana* (up to 62cm dbh) grows around the southern and western edges of the stand. *Oxydendrum arboreum* (up to 49cm dbh)

grows in the midstory, and occasionally reaches the overstory. In addition to species present in other canopy layers, *Sassafras albidum* grows in the understory. **Shrub Layer** Two Ericaceous species are present, but they are not abundant. **Herbaceous Richness** Low: *Cypripedium acaule* is locally abundant. **Animal Sign** A game trail cuts across lower part of stand, and *Ursus americanus* scat is present. **Comments:** the *P. virginiana* in this stand have large reiterations, and appear to be unusually old.

SPRINGER MOUNTAIN

Site visits: two on 6/10/03. Core samples: one + ?. Photographs: two + ?.

Forest Type Dry Oak **Geographic Position** Below the spring by the shelter on Springer Mountain extending down to 3360' **Core samples** *Quercus alba* 213 years (e), 49cm dbh **Signs of Human Disturbance** Some foot trails associated with the spring pass through the upper part of the area **Signs of Chestnut Blight** Some sprouts present **Range of Large Trees** *Q. alba* dominates with some *Q. rubra*, and *Carya glabra* and minor *Magnolia acuminata*, up to 86cm dbh. The forest is stunted throughout the area **Shrub Layer** *Viburnum dentatum*, *Vaccinium* sp., and *Halesia tetraptera* grow in abundance, especially near the drainage **Herbaceous Richness** Low: *Thelypteris noveboracensis*, and *Dennstaedtia punctilobula* are abundant and *Iris cristata* is present.

WHISSENHUNT MOUNTAIN

Site visits: one on 7/9/01. Core samples: two.

Forest Type Dry Oak **Geographic Position** On the north side of the mountain bordered on the south and west by clear cuts that have occurred within the past thirty years. The other edges of the stand are uncertain at this time, but the stand may extend from 1700' to 2000' **Core samples** *Quercus montana* 123 years (i), 67cm dbh **Signs of Human Disturbance** None observed **Signs of Chestnut Blight** sprouts are scarce throughout the stand **Range of Large Trees** *Q. montana*, up to 95cm dbh, form most of the canopy **Shrub Layer** *Kalmia latifolia* forms a dense cover in the western part of the stand, but the eastern part of the stand is largely open **Herbaceous Richness** Low.

ACRONYMS

cm centimeter

dbh Diameter at Breast Height (1.37m)

hct hectare

m meter

NF National Forest

USDA United States Department of Agriculture

USGS United State Geologic Survey

RELAVENT CONVERSION FACTORS

2.54cm = 1"

1m²/hct = 4.356ft²/acre

1m = 39.37"

Scientific Name**Common Name**

<i>Acer leucoderme</i>	Chalk maple
<i>Acer pensylvanicum</i>	Striped maple
<i>Acer rubrum</i>	Red maple
<i>Acer spicatum</i>	Mountain maple
<i>Actea pachypoda</i>	Doll's eyes
<i>Actea racemosa</i>	Black cohosh
<i>Adelges tsugae</i>	Hemlock woolly adelgid
<i>Adiantum pedatum</i>	Maidenhair fern
<i>Aesculus octadra</i>	Yellow buckeye
<i>Agrimonia</i> spp.	Agrimony
<i>Alnus serrulata</i>	Hazel alder
<i>Amelanchier laevis</i>	Alleghany serviceberry
<i>Amphicarpa bracteata</i>	Hog peanut
<i>Andropogon virginicus</i>	Broomsedge
<i>Aralia nudicaulis</i>	Wild sarsaparilla
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit
<i>Aristolochia durior</i>	Dutchman's pipe
<i>Asclepias</i> spp.	Milkweed
<i>Asimina triloba</i>	Paw paw
<i>Betula alleghaniensis</i>	Yellow birch
<i>Betula lenta</i>	Black birch
<i>Calycanthus floridus</i>	Sweetshrub
<i>Campanula americana</i>	Tall bellflower
<i>Carex</i> spp.	Sedge
<i>Carya cordiformis</i>	Bitternut hickory
<i>Carya glabra</i>	Pignut hickory
<i>Carya pallida</i>	Pale hickory
<i>Carya tomentosa</i>	Mockernut hickory
<i>Castanea dentata</i>	American chestnut
<i>Castanea pumila</i>	Allegheny chinquapin
<i>Cathartes aura</i>	Turkey vulture
<i>Caulophyllum thalictroides</i>	Blue cohosh
<i>Celtis occidentalis</i>	Common hackberry
<i>Chionanthus virginicus</i>	Fringetree
<i>Cladrastis kentukea</i>	Yelloowwood
<i>Clethra acuminata</i>	Cinnamon clethra
<i>Collinsonia canadensis</i>	Horse balm
<i>Convallaria montana</i>	Lily-of-the-valley
<i>Coreopsis</i> spp.	Coreopsis
<i>Cornus alternifolia</i>	Alternate leaf dogwood
<i>Cornus florida</i>	Flowering dogwood
<i>Corydalis semprevirens</i>	Pale corydalis
<i>Cretegeus</i> spp.	Hawthorn
<i>Cypripedium acaule</i>	Pink lady's slipper

<i>Cypripedium calceolus</i>	Yellow lady's slipper
<i>Dennstaedtia punctilobula</i>	Hay-scented fern
<i>Desmodium nudiflorum</i>	Naked-flowered tick treefoil
<i>Diervilla sessilifolia</i>	Bush honeysuckle
<i>Disporum lanuginosum</i>	Yellow mandarin
<i>Eupatorium rugosum</i>	White snakeroot
<i>Fraxinus americana</i>	White ash
<i>Galax rotundifolia</i>	Galax
<i>Gaylussacia</i> spp.	Huckleberry
<i>Glaucomyz volans</i>	Southern flying squirrel
<i>Goodyera pubescens</i>	Rattlesnake plantain
<i>Halesia tetraptera</i>	Carolina silverbell
<i>Hamamelis virginiana</i>	Witch hazel
<i>Heuchera americana</i>	Common alumroot
<i>Hieracium venosum</i>	Rattlesnake weed
<i>Houstonia purpurea</i>	Large bluet
<i>Hydrangea arborescens</i>	Wild hydrangea
<i>Hypericum</i> spp.	St. Johns wort
<i>Ilex montana</i>	Mountain winterberry
<i>Ilex opaca</i>	American holly
<i>Impatiens capensis</i>	Spotted jewelweed
<i>Impatiens pallida</i>	Pale jewelweed
<i>Iris cristata</i>	Dwarf crested iris
<i>Juglans nigra</i>	Black walnut
<i>Juniperus virginiana</i>	Eastern redcedar
<i>Kalmia latifolia</i>	Mountain laurel
<i>Laportea canadensis</i>	Stinging nettle
<i>Liastris</i> spp.	Blazing star
<i>Lilium superbum</i>	Turk's-cap lily
<i>Lindera benzoin</i>	Spicebush
<i>Liriodendron tulipifera</i>	Tuliptree
<i>Listera smallii</i>	Appalachian twayblade
<i>Lobelia inflata</i>	Indian tobacco
<i>Lysimachia quadrifolia</i>	Whorled loosestrife
<i>Magnolia acuminata</i>	Cucumbertree magnolia
<i>Magnolia fraserii</i>	Fraser magnolia
<i>Malus angustifolia</i>	Southern crab apple
<i>Medeola virginiana</i>	Indian cucumber
<i>Monotropa uniflora</i>	Indian pipe
<i>Nyssa sylvatica</i>	Black tupelo
<i>Osmunda cinnamomia</i>	Cinnamon fern
<i>Oxalis</i> spp.	Wood sorrel
<i>Oxydendrum arboreum</i>	Sourwood
<i>Parnassia asarifolia</i>	Kidney-leaf grass-of-parnassus
<i>Parthenocissus quinquefolia</i>	Virginia creeper
<i>Phacelia bipinnatifida</i>	Purple phacelia

<i>Philadelphus</i> spp.	Mock orange
<i>Phlox</i> spp.	Phlox
<i>Physocarpus opulifolius</i>	Ninebark
<i>Phytolacca americana</i>	Pokeweed
<i>Pinus echinata</i>	Shortleaf pine
<i>Pinus pungens</i>	Table mountain pine
<i>Pinus rigida</i>	Pitch pine
<i>Pinus strobus</i>	Eastern white pine
<i>Pinus virginiana</i>	Virginia pine
Poaceae	Grass
<i>Polygonatum biflorum</i>	Solomon's seal
<i>Polystichum acrostichoides</i>	Christmas fern
<i>Prunus serotina</i>	Black cherry
<i>Ptelea trifoliata</i>	Hoptree
<i>Pteridium aquilinum</i>	Braken fern
<i>Pyrularia pubera</i>	Buffalo nut
<i>Quercus alba</i>	White oak
<i>Quercus coccinea</i>	Scarlet oak
<i>Quercus falcata</i>	Southern red oak
<i>Quercus montana</i>	Chestnut oak
<i>Quercus marilandica</i>	Blackjack oak
<i>Quercus rubra</i>	Northern red oak
<i>Quercus stellata</i>	Post oak
<i>Quercus velutina</i>	Black oak
<i>Rhododendron calendulaceum</i>	Flame azalea
<i>Rhododendron catawbiense</i>	Catawba rhododendron
<i>Rhododendron maximum</i>	Rosebay rhododendron
<i>Rhododendron minus</i>	Dwarf rhododendron
<i>Rhododendron viscosum</i>	Swamp azalea
<i>Ribes</i> spp.	Gooseberry
<i>Robinia psuedoacacia</i>	Black locust
<i>Rubus</i> spp.	Blackberry
<i>Sanguinaria canadensis</i>	Bloodroot
<i>Sassafras albidum</i>	Sassafras
<i>Saxifraga michauxii</i>	Mountain saxifrage
<i>Saxifraga micranthidifolia</i>	Brook lettuce
<i>Scutallaria</i> spp.	Skullcap
<i>Silene stellata</i>	Starry campion
<i>Smilax</i> spp.	Greenbriar
<i>Spigelia marilandica</i>	Indian Pink
<i>Stewartia ovata</i>	Mountain Camellia
<i>Symplocos tinctoria</i>	Sweetleaf
<i>Thalictrum</i> sp	Meadow rue
<i>Thlypteris hexagonoptera</i>	Broad beech-fern
<i>Thelypteris noveboracensis</i>	New york fern
<i>Tiarella cordifolia</i>	Foamflower

Tilia heterophylla
Toxicodendron radicans
Tradescantia virginiana
Trillium spp.
Tsuga canadensis
Tsuga caroliniana
Ulmus rubra
Ursus americanus
Vaccinium arboreum
Vaccinium pallidum
Veratrum parviflorum
Veratrum viride
Viburnum dentatum
Viola rotundifolia
Vitis spp.

White basswood
Poison Ivy
Spiderwort
Trillium
Eastern hemlock
Carolina hemlock
Slippery elm
Black bear
Sparkleberry
Low bush blueberry
Small-flowered false hellebore
False hellebore
Arrowwood
Round-leaved violet
Grape

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