

# WATERSHED ASSESSMENT NOTTELY LAKE WATERSHED

Nottely Lake (HUC #060200020806) and Ivylog Creek Drainage (HUC # 060200020808)

This watershed assessment is a Plan to Project analysis which means the process of applying the Forest Plan to a site specific project location. This assessment will become a key reference source for NEPA compliance in the future. This is not a decision document. No projects are decided within this document, only opportunities to bring specific locations into plan compliance. All will require site specific analysis and further on the ground inventories.

## EXISTING CONDITION

### Identification of 5<sup>th</sup> level Hydrologic Unit (HU)

The two 6<sup>th</sup>-level HUCs evaluated in this assessment are part of the Nottely River/Nottely Lake 5<sup>th</sup>-level HUC (#0602000208). The Nottely River/Nottely Lake 5<sup>th</sup>-level HUC includes the lands from the Blue Ridge divide at Neels Gap to Hogpen Gap to Jacks Knob, north into North Carolina. The watershed is shared with the Nantahala NF in North Carolina and includes the headwaters of Nottely Lake reservoir (Tennessee Valley Authority). The watershed encompasses 137,125 acres, approximately 49,115 acres (36%) of which are National Forest lands. There are approximately 150 miles of perennial streams within the HU. There are eight 6<sup>th</sup>-level HUC's within the Nottely River/Nottely Lake 5<sup>th</sup>-level HUC (Table 1).

**Table 1. Total acres and NF acres for each 6<sup>th</sup>-level HUC in the Nottely Lake/Nottely River 5<sup>th</sup>-level HUC (0602000208).**

6 <sup>th</sup> level HUCs	Major Stream	Total acres	NF acres	% NF Acres
060200020801	Nottely R. (headwaters)	17,707	11,785	67%
060200020802	Town/Ball Ck.	11,330	7,918	70%
060200020803	Arkaquah/Wolf Ck.	21,244	8,546	40%
060200020804	Butternut Ck.	11,457	2,690	23%
060200020805	Coosa Ck.	14,364	6,399	45%
060200020806	Nottely R.	27,546	3,803	14%
060200020807	Youngcane Ck.	20,717	4,206	20%
060200020808	Ivylog Ck.	12,754	3,762	29%
		<b>137,125</b>	<b>49,115</b>	<b>36%</b>

### **Condition of 5<sup>th</sup> Level HU**

The following description of the condition of the Nottely River/Nottely Lake HU is taken from the FEIS for the Land and Resource Management Plan for the Chattahoochee-Oconee NFs (2004).

- Approximately 36 % of the watershed is in National Forest ownership with the remaining 64 % in private or other governmental ownership (State, County, TVA).
- Georgia Environmental Protection Agency (EPD) lists 2 streams in the HU as sediment impaired under Section 303(d) of the Clean Water Act. These streams are Butternut Creek and Lower Young Cane Creek. Neither of these impaired stream segments occurs on National Forest lands.
- The city of Blairsville operates a Community Public Water System within the HU, with a permitted withdrawal of 1.0 MGD from the Nottely River.
- The FEIS predicted a 2.32 percent increase in sediment for period 1 (first decade) in the HU due to FS management activities for the selected plan alternative.
- The Watershed Condition Rank (WCR) is a measure that characterizes the condition of 5<sup>th</sup> level HUCs with respect to current and future sediment load increases. The weighted average WCR for the Nottely River/Nottely Lake HU fell within the average range, indicating that the potential to adversely affect beneficial uses is moderate.

### **Priority of 6<sup>th</sup> Level HU**

The two 6<sup>th</sup> level HUCs included in this assessment are Nottely Lake (HUC #060200020806, referred to as HUC 06) and Ivylog Creek Drainage (HUC # 060200020808, referred to as HUC 08). There are no known T& E aquatic species within these watersheds. As discussed above, there also are no EDP listed impaired stream segments on National Forest lands in these watersheds. These watersheds were chosen for the assessment based on the opportunities to address to varying degrees all of the Chief's 4 threats including 1) fire and fuels, 2) invasive species, 3) loss of open space, and 4) unmanaged recreation. The area around Lake Nottely is rapidly developing, putting increased pressure on the fragmented NF ownership in the area. Fuels build-up in the wildland-urban interface (WUI), spread of invasive species, and illegal OHV use all are issues in these watersheds.

### **Management Direction**

The acres by Management Prescription (MRx) for these 2 watersheds are shown in Table 2. Approximately 53% of the National Forest lands are in MRx 7.E.1 Dispersed

Recreation Areas. This includes all the lands adjoining Lake Nottely and the Rocky Top area. This MRx has an emphasis of providing the public with a variety of recreational opportunities in a setting that provides quality scenery, numerous trails, and limited facilities. The remaining lands are in MRx 8.A.2 Forest Interior, Mid-to-Late Successional Forest Habitats. This includes the NF lands in the Ivylog Creek headwaters. This MRx has an emphasis on providing optimal to suitable habitat for a variety of plant and animal populations associated with mid-to-late successional deciduous forest habitats, while maintaining habitat for forest interior species.

**Table 2. Acres by Management Prescription for the Nottely Lake and Ivylog Creek 6<sup>th</sup> level HUCs**

Prescription	Prescription Name	Nottely Lake (HUC 06)	Ivylog Creek (HUC 08)	Total
7.E.1	Dispersed Recreation Areas	3,166	807	3,973
8.A.2	Forest Interior, Mid to Late Successional	636	2,955	3,592
<b>Total</b>		<b>3,803</b>	<b>3,762</b>	<b>7,565</b>

### **Ecological Unit Descriptions**

LTA's: The acres within each LTA are shown in Table 3. Approximately 75% of the National Forest land contained by the Nottely Lake HUC (060200020806) is in LTA #M221Dc014. Approximately 47% of the National Service land in the Ivylog HUC (060200020808) is in LTA #M221Dc020 and approximately 31% is in LTA #M221Dd408. All LTAs are in the Blue Ridge Mountains Section. LTAs M221Dc014, M221Dc19, and M221Dc020 are in the Southern Blue Ridge subsection. LTAs M221Dd1119 and M221Dd408 are in the Metasedimentary Mountain subsection. Detailed descriptions of the LTA's are included in Appendix A.

**Table 3. Acres by Land Type Association for the Nottely Lake (HUC 06) and Ivylog Creek (HUC 08) 6<sup>th</sup> level HUCs**

LTA#	Subsection	LTA Name	HUC 06		HUC 08		TOTAL
			USFS	Total	USFS	Total	
M221Dc014	Southern Blue Ridge	Nottely Lake	2,843.3	22,940.6	511.2	1,538.2	24,478.8
M221Dc019	Southern Blue Ridge	Nottely River	5.2	202.6	0	0	202.6
M221Dc020	Southern Blue Ridge	Ivylog	631.2	2,114.3	1,793.5	1,949.0	4,063.3
M221Dd1119 <sup>a</sup>	Metasedimentary Mountains	Murphy Basin?	323.1	1,021.0	295.9	1,288.8	2,309.8
M221Dd408 <sup>b</sup>	Metasedimentary Mountains	Gumlog?	0	1,268.0	1,161.7	7,978.5	2,066.5
<b>TOTAL</b>			<b>3,802.8</b>	<b>27,546.5</b>	<b>3,762.3</b>	<b>12,754.5</b>	<b>40,301.0</b>

<sup>a</sup> – appears to correspond to M221Dd13 (Murphy Basin) in LTA narratives.

<sup>b</sup> – no corresponding description in LTA Narrative. Per R. Stephens, this may correspond to LTA M221Dd042 (Gumlog). No narrative has been written.

Geology: Nottely and Ivylog watersheds are comprised of approximately 48% aluminous schist (Table 4). Approximately 30% of the watersheds are comprised of mica schist/gneiss.

**Table 4. Acres by Rock Type for the Nottely Lake (HUC 06) and Ivylog Creek(HUC 08) 6<sup>th</sup> level HUCs.**

Rock Type	HUC 06	HUC 08	TOTAL
Aluminous Schist	18,288.6	1,118.9	<b>19,407.5</b>
Biotite Gneiss	392.4	3,789.1	<b>4,181.5</b>
Cross-Biotite Schist	884.7	712.7	<b>1,597.4</b>
Mica Schist/Gneiss	5,015.9	6,873.7	<b>11,889.6</b>
Water	2,965.0	260.1	<b>3225.1</b>
<b>TOTAL</b>	<b>27,546.5</b>	<b>12,754.5</b>	<b>40,301.0</b>

Soils: Both Nottely and Ivylog watersheds (USFS land and private combined) contain 46% CIE (Clifton-Evard complex) (Table 5). According to the USDA/NRCS soil survey (1996), the soil erosion factor (K-factor) for CIE is 0.17. This value is indicative of more resistant, less erosive soil. The next most prominent soil type is CxF (Cowee-Evard complex). It comprises approximately 17% of the soils in Nottely watershed and approximately 29% of the soils in Ivylog watershed. The K-factor for CxF is 0.24 and this value is also indicative of resistant, less erosive soils.

**Table 5. Total Acres by Soil Type for the Nottely Lake 6<sup>th</sup> level HUC.**

Map Unit Symbol	Acres	%
Aa	595.8	2.16
BrC	164.0	0.60
BrE	150.1	0.54
Ca	106.4	0.39
ChG	187.1	0.68
ClC	2493.6	9.05
CIE	12892.8	46.8
Cr	31.6	0.11
CxF	4557.1	16.54
CxG	115.9	0.42
DAM	0.6	<0.01
DaB	271.8	0.99
Fr	393.4	1.42
HaC	371.0	1.35
HaE	100.0	0.36
HaF	11.3	0.04
JtC	17.0	0.06
JtE	52.9	0.19
JtF	41.1	0.15
JtG	6.8	0.02
PsF	32.3	0.12
PsG	83.3	0.30
SaE	144.4	0.52
SnF	163.9	0.59
SpG	30.9	0.11
Su	130.1	0.47
ThB	25.3	0.09

ThC	1083.4	3.93
ThE	8.8	0.03
Tt	47.2	0.17
UeE	60.7	0.22
W	3176.1	11.53
<b>Totals</b>	<b>27,546.70</b>	

**Table 6. NF Acres by Soil Type for the Nottely Lake 6<sup>th</sup> level HUC.**

Map Unit Symbol	Acres	%
Aa	36.1	0.95
BrC	5.2	0.14
BrE	36.6	0.96

ChG	165.2	4.34
CIC	103.0	2.71
CIE	1754.2	46.12
CxF	1096.1	28.82
CxG	15.7	0.41
DaB	4.7	0.12
Fr	6.2	0.16
HaC	26.4	0.70
HaE	13.1	0.34
JtF	1.9	0.05
PsF	8.3	0.22
PsG	0.9	0.02
SaE	35.2	0.93
SnF	125.6	3.30
Su	1.9	0.05
ThB	14.0	0.37
ThC	309.6	8.14
Tt	12.2	0.32
W	30.9	0.81
<b>Total</b>	<b>3,803.0</b>	

**Table 7. Total Acres by Soil Type for the Ivylog Creek 6<sup>th</sup> level HUC.**

Map Unit Symbol	Acres	%
BrC	2.9	0.08
BrE	8.2	0.22
CeE	62.1	1.65
ChF	560.4	14.90
ChG	577.7	15.36
CIC	54.7	1.6
CIE	654.7	17.40
Cr	0.7	0.02
CxE	3.8	0.10
CxF	1131.4	30.08
CxG	8.5	0.23
DaB	37.8	1.01
Fr	12.5	0.33
HaE	2.8	0.07
PsF	164.1	4.36
PsG	146.7	3.90
SaE	200.2	5.32
SnF	48.1	1.30
SpG	7.6	0.20
ThC	73.2	1.95
W	2.8	0.07
<b>Total</b>	<b>3760.9</b>	

**Table 8. NF Acres by Soil Type for the Ivylog Creek 6<sup>th</sup> level HUC.**

Map Unity Symbol	Acres	%
Aa	360.0	2.82
BrC	119.2	0.94
BrE	60.1	0.47
Ca	193.6	1.52
CeE	62.1	0.49
ChF	587.1	4.60
ChG	707.2	5.55
CIC	688.6	5.40
CIE	4657.3	36.52
Cr	37.8	0.30
CxE	3.8	0.03
CxF	2698.8	21.16
CxG	80.9	0.63
DaB	217.5	1.71
Fr	379.3	2.97
HaC	270.2	2.12
HaE	186.6	1.46
PsF	182.9	1.43
PsG	184.1	1.44
SaE	231.3	1.81
SnF	49.0	0.38
SpG	7.6	0.06
Su	72.3	0.57
ThB	88.5	0.69
ThC	407.5	3.20
ThE	81.8	0.64
Tt	2.9	0.02
W	136.1	1.07
<b>Total</b>	<b>12,754.1</b>	

**Table 9. Soil Type Map Unit Descriptions.**

Map unit symbol	Map Unit	Slope Class (%)
Aa	Arkaqua loam	frequently flooded
BrC	Bradson loam	6-10
BrE	Bradson loam	10-25
Ca	Chatuge loam	occasionally flooded
CeE	Chestnut loam	10-25
ChF	Chestnut loam	25-45
ChG	Chestnut loam	45-60
ClC	Clifton-Evard complex	6-10
ClE	Clifton-Evard complex	10-25
Cr	Colvard fine sandy loam	occasionally flooded
CxE	Cowee-Evard complex	10-25
CxF	Cowee-Evard complex	25-45
CxG	Cowee-Evard complex	45-60
DaB	Dillard fine sandy loam	2-6
Fr	French fine sandy loam	Frequently flooded
HaC	Hayesville fine sandy loam	6-10
HaE	Hayesville fine sandy loam	10-25
HaF	Hayesville fine sandy loam	25-45
JtC	Junaluska-Tsali complex	6-10
JtE	Junaluska-Tsali complex	10-25
JtF	Junaluska-Tsali complex	25-45
JtG	Junaluska-Tsali complex	45-90
PsF	Porters loam	25-45, stony
PsG	Porters loam	45-60, stony
SaE	Saunook-Evard complex	10-25
SnF	Saunook-Evard complex	25-45, stony
SpG	Saunook-Porters complex	45-60, stony
Su	Suches loam	0-2, occasionally flooded
ThB	Thurmont fine sandy loam	2-6
ThC	Thurmont fine sandy loam	6-12
ThE	Thurmont fine sandy loam	12-25
Tt	Transylvania-Toxaway complex	Occasionally flooded
UeE	Urban land-Evard-Clifton complex	10-35
W	Water	

### **Major Forest Communities/Forest Cover**

Table 10 lists the Forest Type distribution based on the GIS stands layer. Significant disparity exists between the District CISC data and the GIS stands layer. In the GIS layer, large blocks of stands around Lake Nottely are listed as FT 53 (White Oak – Red Oak – Hickory). Most are actually yellow pine, and yellow pine-hardwood types and are correctly identified in the CISC data. Therefore these yellow pine types are underrepresented in the table and the acres listed for FT 53 are inflated. However, even with these errors in the data, FT 53 (White Oak – Red Oak – Hickory) is the dominant forest type in these watersheds.

**Table 10. Forest Type Distribution for the Nottely Lake (HUC 06) and Ivylog Creek (HUC 08) 6<sup>th</sup> level HUCs**

FRTY code	Forest type	NOTTELY WS (HUC 06)		IVYLOG WS (HUC 08)		TOTAL ACRES	% OF TOTAL
		acres	# of stands	acres	# of stands		
3	White Pine	562.1	46	128	12	690.1	9.11
9	White Pine – Cove Hardwood	7.2	1	0	0	7.2	0.10
10	White Pine – Upland Hardwood	135.4	6	55.4	3	190.8	2.52
12	Shortleaf Pine – Oak	65.8	4	60.9	4	126.7	1.67
13	Loblolly Pine - Hardwood	31.5	1	0	0	31.5	0.42
16	Virginia Pine – Oak	28.2	4	18.6	2	46.8	0.62
31	Loblolly Pine	53.7	4	0	0	53.7	0.71
32	Shortleaf Pine	289.9	29	149.9	13	439.8	5.81
33	Virginia Pine	60.1	3	11.4	1	71.5	0.94
41	Cove Hdwds – White Pine - Hemlock	14.2	1	55.7	4	69.9	0.92
42	Upland Hdwds – White Pine	0	0	85.1	4	85.1	1.12
44	S. Red Oak – Yellow Pine	48.3	4	56.1	2	104.4	1.38
45	Chestnut/Scarlet Oak – Yellow Pine	39.8	6	22.4	2	62.2	0.82
47	White Oak – Black Oak – Yellow Pine	45.2	6	19.2	2	64.4	0.85
48	N. Red Oak – Hickory – Yellow Pine	114.3	2	31.1	2	145.4	1.92
50	Yellow Poplar	0.3	2	167.8	9	168.1	2.22
52	Chestnut Oak	5.1	1	64.4	3	69.5	0.92
53	White Oak – Red Oak – Hickory	1989.1	108	2128.2	130	4117.3	54.57
56	Yellow Poplar – White Oak – Red Oak	186.4	8	676.7	50	863.1	11.40
59	Scarlet Oak	43.4	2	0	0	43.4	0.57
60	Chestnut/Scarlet Oak	29.7	1	31.4	2	61.1	0.81
99	Non-Forested (incl old farm sites)	62.3	3	0	0	62.3	0.82

**Existing Projects:** Forest restoration needs are already being planned for in the Davenport Mountain Stewardship Project, which is located in the Nottely Lake Watershed. Approximately 324 acres of existing white pine plantations and 40 acres of Virginia pine plantations will be thinned, burned, and interplanted to begin to restore these sites to a mixed shortleaf pine oaks community. Approximately 402 acres of mature oak stands containing scattered remnant shortleaf pines will be thinned and burned to restore oak/pine woodland conditions.

**Rare Communities**

There are no known rare communities within these 2 watersheds. However, several rare communities have the potential to occur within these watersheds. This includes Appalachian Highlands Bogs, Fens, Seeps, and Ponds (specifically Seeps) and Basic Mesic Forests. If present, these communities will be identified at the project-level and appropriate protective or enhancement measures will be implemented.

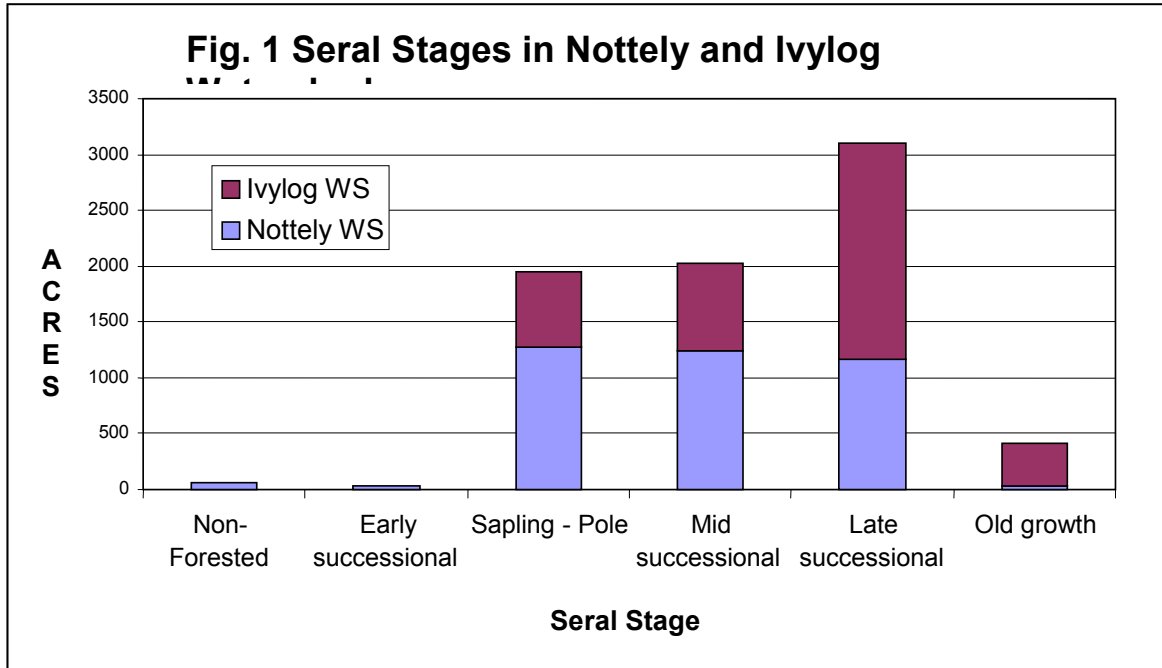
**Successional Stage Habitats**

Table 11 and Figure 1 shows the acres by seral stage for the 2 watersheds. Approximately 68 percent of these watersheds are in mid-to-late successional conditions with an additional 5 percent in stands that meet minimum old-growth age. Less than 1 percent of these watersheds are in early successional conditions.



**Table 11. Summary of Seral Stage Distribution for the Nottely Lake (HUC 06) and Ivylog Creek (HUC 08) 6<sup>th</sup> level HUCs.**

Seral Code	Description	Nottely WS (HUC 06)		Ivylog WS (HUC 08)		Total	
		Acres	%	Acres	%	Acres	%
	Non-Forested	62.3	1.6	0	0	62.3	0.8
E	Early successional	27.8	0.7	0	0	27.8	0.4
S	Sapling - Pole	1271.3	33.3	685.2	18.2	1956.5	25.8
M	Mid successional	1249.4	32.8	772.5	20.5	2021.9	26.7
L	Late successional	1163.2	30.5	1932.7	51.4	3095.8	40.9
O	Old growth	38.0	1.0	371.9	9.9	409.9	5.4



The creation of early successional forest habitat is limited to 4 percent of the forest acres for both MRx 7.E.1 and 8.A.2 that comprise these watersheds. For the watersheds, early successional habitat (ESH) objectives range from 0 to 303 acres, with a mid point of 151 acres (Table 12). There currently is 28 acres of existing ESH in the portion of these watersheds allocated to MRx 7.E.1. Therefore a maximum of 131 acres of additional ESH could be created in this MRx. There currently is no existing ESH in the portion of these watersheds allocated to MRx 8.A.2. Therefore a maximum of 144 acres of additional ESH could be created in this MRx.

**Table 12. Early Successional Habitat (ESH) objectives by Management Rx for Nottely Lake (HUC 06) and Ivylog Creek (HUC 08) 6<sup>th</sup> level HUCs.**

Management Rx	Existing Acres of ESH			Minimum Acres of ESH			Mid Point Acres of ESH			Maximum Acres of ESH		
	HUC 06	HUC 08	Total	HUC 06	HUC 08	Total	HUC 06	HUC 08	Total	HUC 06	HUC 08	Total
7.E.1	28	0	28	0	0	0	63	16	79	127	32	159
8.A.2	0	0	0	0	0	0	13	59	72	25	118	144
<b>Total</b>	<b>28</b>	<b>0</b>	<b>28</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>76</b>	<b>75</b>	<b>151</b>	<b>152</b>	<b>150</b>	<b>303</b>

None of the NF acres in these 2 watersheds are allocated to old-growth compatible MRx (Table 13). As a result, at least 5 percent of each 6<sup>th</sup> level HUC (379 acres total) will be identified as small blocks of future old-growth and will be managed to protect their old-growth characteristics during the Plan cycle (FW-044).

Approximately 410 acres within the 2 watersheds are in stands that meet the minimum old-growth age. Prior to any vegetation management projects that could negatively affect old-growth characteristics, sufficient data will be collected to determine if stands meet the four defining criterion for existing old-growth. If so, then priority will be given to these stands in satisfying the small old-growth block objective (FW-046).

**Table 13. Small Old-Growth Block Requirements by Management Rx for the Nottely Lake (HUC 06) and Ivylog Creek (HUC 08) 6<sup>th</sup> level HUCs.**

Mgt Rx	Total Acres			Acres of Small Old-Growth Blocks Required By Plan (5%)			Acres Allocated to Old-Growth Compatible MRx			Additional Acres to be Designated as Small Old-Growth Blocks		
	HUC 06	HUC 08	Total	HUC 06	HUC 08	Total	HUC 06	HUC 08	Total	HUC 06	HUC 08	Total
7.E.1	3,166	807	3,973	158	40	199	0	0	0	158	40	199
8.A.2	636	2,955	3,592	32	148	180	0	0	0	32	148	180
<b>Total</b>	<b>3,803</b>	<b>3,762</b>	<b>7,565</b>	<b>190</b>	<b>188</b>	<b>379</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>190</b>	<b>188</b>	<b>379</b>

### **Special Habitat Attributes**

The dominant aquatic resource in these watersheds is Lake Nottely, a 4,181-acre reservoir managed by TVA. It contains a variety of game fish including striped bass, hybrid bass, white bass, largemouth bass, spotted bass, smallmouth bass, crappie, and catfish. As with many drawdown reservoirs, cover is limited in much of the lake.

The major streams in these watersheds include Ivylog Creek, Conely Creek, Camp Creek, Low Creek, Brackett Creek, and Kiutuestia Creek. There are approximately 46 miles of trout streams in these watersheds. This includes only those streams large enough to hold trout. The majority of these streams are classified as secondary trout streams (Table 14). These low elevation streams that feed the mountain reservoirs such as Lake Nottely typically are too warm to support self-sustaining trout populations. Fish species present likely include smallmouth bass, sculpin, bluegill, yellow perch, creek chubs, and native lamprey. The only primary trout streams are Conely Creek and the headwaters of Ivylog Creek. There also are a large number of small headwater streams that likely are too small to support trout. Total stream mileage in these 2 watersheds is approximately 188 miles.

**Table 14. Miles of Primary and Secondary Trout Streams and Total Stream Miles for the Nottely Lake (HUC 06) and Ivylog Creek (HUC 08) 6<sup>th</sup> level HUCs.**

Classification	National Forest			Private			Total		
	HUC 06	HUC 08	TOTAL	HUC 06	HUC 08	TOTAL	HUC 06	TUC 08	Total
Primary Trout Stream	0.53	4.57	<b>5.11</b>	3.97	0.04	<b>4.00</b>	4.51	4.61	<b>9.11</b>
Secondary Trout Stream	0.73	1.20	<b>1.92</b>	15.66	19.43	<b>35.10</b>	16.39	20.62	<b>37.02</b>
<b>Total Trout Streams</b>	<b>1.26</b>	<b>5.77</b>	<b>7.03</b>	<b>19.63</b>	<b>19.47</b>	<b>39.10</b>	<b>20.90</b>	<b>25.23</b>	<b>46.13</b>
<b>Total Streams</b>	<b>9.24</b>	<b>15.91</b>	<b>25.14</b>	<b>109.40</b>	<b>53.20</b>	<b>162.70</b>	<b>118.63</b>	<b>69.10</b>	<b>187.74</b>

There are approximately 5071 acres of riparian corridor habitat in these 2 watersheds, including 787 acres on National Forest lands (Table 15). Over ¾ of the riparian corridor habitat on National Forest lands are in mid-to late successional conditions (Table 16). A small percentage is in non-forested conditions. This includes the streams that flow through the old farm fields of the Brown and Davenport tracts. These tracts were actively farmed prior to Forest Service acquisition. Fields were cleared down to the stream edge and as a result, portions of the forested riparian area along this stream are relatively narrow. The Forest Service has worked to reestablish the riparian vegetation by limiting activities near the stream. While portions of the riparian area contain mature trees, some segments still consists of relatively and young trees and brush.

**Table 15. Acres of Riparian Corridor Habitat for the Nottely Lake (HUC 06) and Ivylog Creek (HUC 08) 6<sup>th</sup> level HUCs.**

	Nottely WS (HUC 06)	Ivylog WS (HUC 08)	Total
National Forest	283.7	503.5	787.2
Private	2847.9	1436.3	4284.2
<b>Total</b>	<b>3131.6</b>	<b>1939.8</b>	<b>5071.4</b>

**Table 16. Acres of Riparian Corridor by Seral Stage for the Nottely Lake (HUC 06) and Ivylog Creek (HUC 08) 6<sup>th</sup> level HUCs**

Seral Code	Description	Nottely WS (HUC 06)		Ivylog WS (HUC 08)		Total	
		Acres	%	Acres	%	Acres	%
	Non-Forested	20.7	7.2	0	0	20.7	3.6
E	Early successional	2.4	0.8	0	0	2.4	0.3
S	Sapling - Pole	70.1	24.5	98.5	19.6	168.5	21.4
M	Mid successional	92.7	32.3	93.7	18.6	186.4	23.7
L	Late successional	97.7	34.1	291.9	58.0	389.7	49.5
O	Old growth	0	0	19.4	3.9	19.4	2.5
	<b>TOTAL</b>	<b>283.7</b>		<b>503.5</b>		<b>787.2</b>	

### **PETS and Locally Rare Species**

PETS and Locally Rare species with known occurrences in these 2 watersheds are shown in Table 17.

**Table 17. PETS and Locally Rare Species with known occurrences in the Nottely Lake and Ivylog Creek 6<sup>th</sup> level HUCs.**

Scientific Name	Common Name	Status	Location
<i>Haliaeetus leucocephalus</i>	Bald Eagle	T	NF
<i>Ichthyomyzon greeleyi</i>	Mountain Brook Lamprey	S	NF
<i>Carex platyphylla</i>	Broadleaf Sedge	LR	NF
<i>Carex scabrata</i>	Rough Sedge	LR	NF
<i>Dicentra canadensis</i>	Squirrel-corn	LR	NF
<i>Gentianopsis crinita</i>	Fringed Gentian	LR	Pvt
<i>Lycopodium clavatum</i>	Ground Pine	LR	NF
<i>Lygodium palmatum</i>	Climbing Fern	LR	NF
<i>Dendroica cerulea</i>	Cerulean Warbler	LR	NF
<i>Mustela nivalis</i>	Least Weasel	LR	Pvt

There is a historic record for a possible bald eagle nest on the southern end of Lake Nottely. There currently are no known bald eagle nests on the lake but eagles use the lake for foraging throughout the year. There are no other T & E species likely to be present in these watersheds.

The only known Sensitive species is the Mountain Brook Lamprey, which is known from the Nottely River, Low Creek, Coosa Creek, and likely occurs in other Nottely River tributaries. Other Sensitive species with the potential to occur in these watersheds include Rafineque’s Big-eared Bat (*Corynorhinus rafinesquii*), Diana Fritillary Butterfly (*Speyeria diana*), Margarita River Skimmer (*Macromia margarita*), Appalachian Snaketail (*Ophiogomphus incurvatus*), Edmunds Snaketail (*Ophiogomphus edmundo*), and Georgia Beloneurian Stonefly (*Beloneuria georgiana*).

There are several Locally Rare plants and animals with known occurrences within these watersheds. This includes locations both on National Forest lands and adjacent private lands. The Cerulean Warbler is a Locally Rare species that occurs in the Ivylog Mountain portion of these watersheds. The District is currently implementing a project designed to enhance habitat conditions for this species. A portion of this project (five-10 acre units) occurs within these watersheds. Canopy treatments, including group selection and thinning, will result in stands containing canopy gaps of various sizes.

**Demand Species**

Demand species including white-tailed deer, wild turkey, and gray squirrel are common within these watersheds. Gamebirds such as bobwhite quail and ruffed grouse are less common due to the limited quantity of suitable habitat. Preferred quail habitat includes abandoned fields and brushy areas such as wood margins, hedgerows, thickets, and open woods. Grouse use a variety of forest habitats and successional stages, but early successional forests are a key component that often is limiting. Black bears occur in the

Ivylog Creek headwaters portion of these watersheds but likely are not present in the more fragmented Forest Service ownership adjacent to Lake Nottely.

There are approximately 33 acres of permanent wildlife openings in these watersheds (Table 18). Most are located in the Davenport and Brown Tracts, which consist of 2 old farms that have been managed for wildlife since Forest Service acquisition. These tracts include approximately 27 acres of old fields that currently are managed as permanent openings. Portions of these fields are planted each year to seed-producing crops such as grain sorghum, browntop millet, and sunflowers for quail and other small game under a Challenge-Cost Share Agreement with the Appalachian Pointing Dog Club. The remaining fields are dominated by fescue and annual weed species. These openings are managed by periodic bushhogging and prescribed burning. The fields that are dominated by fescue provide very limited wildlife benefit due to its poor quality and low palatability. Some of the fescue fields have been periodically planted clover following several years of grain sorghum to reduce fescue competition. However, without further treatment (such as herbicides), fescue dominance returns after a few years. The maintenance of existing openings and the creation new permanent openings are permitted for both MRx 7.E.1 and 8.A.2 that comprise these watersheds.

**Table 18. Existing Permanent Wildlife Openings in the Nottely Lake and Ivylog Creek 6<sup>th</sup> level HUCs.**

<b>Area</b>	<b>Acres</b>
Rogers Road	1.5 acres
Caldwell Cove	5.0 acres
Brown Tract	8.5 acres
Davenport Tract	18.0 acres
<b>Total</b>	<b>33.0 acres</b>

### **Migratory Birds**

Since 1992, 17 breeding bird survey points have been established in the watersheds. Most were only surveyed for the initial years of these surveys. The number of survey points was drastically reduced in 1996 when the Forest adopted the Region 8 landbird strategy. There now are only 3 points that are part of the Forests permanent points that are surveyed each year. Year to year trends from these few points are of limited value. However a summary of all birds reported from all points in the watershed is useful in characterizing bird communities in the watersheds.

Table 19 summarizes all available point count data for these watersheds. 695 individuals of 55 species have been recorded in the 14 years of surveys. All avian Forest MIS have been recorded with the exception of Acadian Flycatcher and Swainson’s warbler. The majority of the survey points are located in upland areas. Acadian Flycatchers are associated with riparian habitats and likely is present in these watersheds. Swainson’s warbler is unlikely to be present.

Species associated with early successional conditions such as Prairie Warbler, Chestnut-sided warbler, field sparrow, and blue-winged warbler generally are uncommon in these

watersheds, reflecting the limited availability of early successional habitats. Birds associated with mature forests, forest interiors, and snags generally are more abundant.

One migratory bird known to occur in these watersheds but that was not recorded in the point count surveys is the cerulean warbler. It's early breeding and nesting behavior limit the usefulness of point counts for inventorying this species. Specialized tape playback protocols are used to census this species. Ongoing habitat enhancements for the Cerulean warbler are discussed in the PETS and Locally Rare section above.

**Table 19. Total Count of Birds Recorded from Breeding Bird Point Counts in the Nottely Lake and Ivylog Creek 6<sup>th</sup> level HUCs, 1992-2004.**

<u>Species</u>	<u>Count</u>
American Crow	74
Ovenbird (MIS)	55
Red-eyed Vireo	52
Indigo Bunting	38
Pileated Woodpecker (MIS)	35
Eastern Towhee	32
Eastern Tufted Titmouse	31
Blue Jay	30
Scarlet Tanager (MIS)	30
Yellow-breasted Chat	30
Northern Cardinal	26
Carolina Chickadee	22
Hooded Warbler (MIS)	21
Mourning Dove	20
Great Crested Flycatcher	16
Pine Warbler (MIS)	13
Yellow-billed Cuckoo	12
Wood Thrush (MIS)	11
Carolina Wren	10
Blue-gray Gnatcatcher	9
Prairie Warbler (MIS)	9
Black-and-white Warbler	8
White-breasted Nuthatch	8
Brown Thrasher	7
Red-bellied Woodpecker	7
American Goldfinch	6
Blue-winged Warbler	6
Common Grackle	6

<u>Species</u>	<u>Count</u>
Northern (Yellow-shafted) Flicker	6
Worm-eating Warbler	6
Chestnut-sided Warbler (MIS)	5
Hairy Woodpecker	5
Northern Parula	5
Belted Kingfisher	4
Eastern Bluebird	4
Canada Goose	3
Eastern Kingbird	3
Field Sparrow (MIS)	3
Red-winged Blackbird	3
White-eyed Vireo	3
Chimney Swift	2
Chipping Sparrow	2
Eastern Wood-Pewee	2
Northern Bobwhite	2
Orchard Oriole	2
Wild Turkey	2
Black-throated Green Warbler	1
Downy Woodpecker	1
Gray Catbird	1
Green Heron	1
Red-tailed Hawk	1
Sharp-shinned Hawk	1
Song Sparrow	1
Summer Tanager	1
Yellow-throated Warbler	1
<b>Total</b>	<b>695</b>

## Forest Health

**Table 20. Modeled acres of host type for Southern Pine Beetle, Oak Decline, and Hemlock Woolly Adelgid in the Nottely Lake and Ivylog Creek 6<sup>th</sup> level HUCs**

<b>Southern Pine Beetle (SPB)</b>	<b>Oak Decline</b>	<b>Hemlock Woolly Adelgid (HWA)</b>
641	4997	70

Table 20 above shows the acres of stands in susceptible host types for SPB, Oak Decline, and Hemlock Woolly Adelgid based on the GIS stands layer. As discussed above, errors in this layer result in an under representation of yellow pine types and an over representation of the oak-hickory forest types. The acres listed below were manually derived from the district CISC data.

**Southern Pine Beetle:** The risk of Southern Pine Beetle attacks is high in these two watersheds. There are approximately 1460 acres of host pine types in these watersheds. Some of these stands have damage from the last outbreak of SPB.

**Oak Decline:** There are 4668 acres of oak timber types that are susceptible to oak decline in these watersheds. At this time there does not appear to be a problem with oak decline in these stands.

**Hemlock Woolly Adelgid:** There are 4 stands (70 acres) typed as being susceptible to Hemlock Woolly Adelgid. These stands are Forest Type 41 Cove hardwood-White Pine-Hemlock. There are portions of some stands along the headwaters of Ivylog Creek that have a large component of hemlock. These areas are susceptible to infestations of HWA.

**Existing Projects:** There is one ongoing Forest Health project in these watersheds. The project involved the thinning of an approximately 15-acre loblolly pine plantation on the Rocky Top area to reduce the risk of SPB damage.

## Recreation

**Hunting and Fishing:** Large and small game hunting is probably the primary recreational use of National Forest land in this watershed. Lake Nottely is a popular warm water fishery.

**Developed Recreation Areas:** There are no developed Recreation Areas in this watershed.

**Dispersed Recreation Areas:** Several dispersed campsites are situated around Lake Nottely. Most of these are located near the full pool level of the lake and are usually associated with woods road lake access points. Other dispersed campsites are associated with Forest Service system roads.



**Trails:** One developed trail is located in this watershed. The Davenport Mountain OHV Trail is a five-mile loop suitable for ATV's and motorcycles. A self-service five-dollar fee is charged for each rider using the trail. A fee tube and information board is the only infrastructure associated with this trail. Both are in good condition.

**Public Boat Ramps:** Two paved ramps are located on National Forest land around the lake. One is managed by Union County, and one by the Georgia Department of Natural Resources.

**Horseback Riding:** A special-use permit is in effect for a riding stable, which has a trail on National Forest land.

**Unofficial Recreation Use:** Illegal OHV/ATV use occurs throughout the watershed on National Forest land. This use is usually associated with closed timber haul roads, old woods roads, and user created trails connecting with the Davenport OHV Trail.

**Trail/Riparian Corridor Interface:**

- Total developed trail miles (Davenport OHV Trail)- 5 miles
- Developed trail miles in riparian corridors- one-quarter mile (est.)
- Developed trail stream crossings- 4
- Developed recreation sites- 0

**Infra:** The INFRA database for the Davenport Mountain OHV Trail is limited to primarily the assigned trail number, name, and mileage. No trail management infrastructure is inventoried at this time.

**Scenery**

**Scenery Management Conditions:** NFS lands surrounding Lake Nottley are Scenic Class 1 with a Scenic Integrity Objective of High (Table 21). The other lands in the watershed are predominately SC2 with a SIO of High.

**Table 21. Acres by Scenic Class in the Nottley Lake and Ivylog Creek 6<sup>th</sup> level HUCs**

Scenic Class	Acres
1	2858.8
2	3783.9
3	886.1
<b>Total</b>	<b>7531.5</b>

**Heritage Resources**

After reviewing the current and existing heritage information on file accumulated over the last 29 years, there is a wealth of information on the cultural resources within this watershed. Portions of 16 compartments have had cultural resource surveys.

Approximately 3,767 acres within these 16 compartments have been previously surveyed or reviewed in 28 different reports as listed below (Table 22). The previous surveys have been for past timber sales, roads, land exchanges, SPB salvage, prescribed burning, recreation area improvements, and trails. A total of 59 sites are known to exist in the Nottely Watershed on the National Forest only. Eighteen of these are recommended for protection and avoidance from proposed activities.

**Table 22. Heritage Survey Results for the Nottely Lake and Ivylog Creek 6<sup>th</sup> level HUCs**

<b>Report # or Name</b>	<b>Acres Surveyed</b>	<b>Total # sites</b>	<b>Sites to Protect</b>	<b>Cemeteries</b>	<b>Interpretative Opportunities</b>
78BR413E-1	37	0	0	0	none
1977 Colwell Exchange	69.5	1	0	0	none
1986 Nicholson Br Rd widening letter report	3	1	1	0	none
86GA04E01	35	3	0	0	none
94GA04-01	121	1	1	0	none
93GA04-01	467	2	1	0	none
78GA04-03 w/95 salvage addendum	64	6	3	0	none
97GA04-08	62	0	0	0	
88GA04I02	220	9	1	1	none
97GA04-03	40	2	0	0	none
96GA04-01	3	0	0	0	none
96GA04-28	17	0	0	0	none
96GA04-34	10	0	0	0	none
96GA04-39	15	0	0	0	none
96GA04-13	30	0	0	0	none
96GA04-40	5	0	0	0	none
96GA04-41	66	0	0	0	none
96GA04-47	2	0	0	0	none
99-04-01	.3	0	0	0	none
99-04-04	467	1	1	0	none
99-04-09	16	0	0	0	none
2000-04-06	3	0	0	0	none
2001-04-06	1177 *	2	2	0	none
2001-04-10	2	0	0	0	none
2001-04-11	1	0	0	0	none
2003-04-01	4	0	0	0	none
2003-04-11	60	0	0	0	none
2004-04-02	800	15	2	0	none

\* reviewed for a RX burn block

## **Lands**

There are 12 tracts on Lake Nottley that the Forest Service has been in contact with TVA about returning to TVA ownership. These tracts are currently managed by the Forest Service but are too small to be correctly managed by the Forest Service. These tracts are surrounded by private homes or in some cases along the highway.

In 2004, the Forest acquired (by donation) a 51.5 acre tract southeast of Davenport Mountain.

There are numerous private land developments around Lake Nottely. The tracts are small with a high value. Most of the new home construction is second homes used for seasonal recreation and vacations.

## **Special Uses**

There are 12 existing special uses within these watersheds (Table 23).

**Table 23. Existing Special Uses in the Nottely Lake and Ivylog Creek 6<sup>th</sup> level HUCs**

<b>Number</b>	<b>Permittee</b>	<b>Type Use</b>
1	Union County	Fire Station
2	Georgia Forestry Commission	Fire Station
3	Step Above Stables	Outfitter Guide
4	TVA	Power Line
5	Notla Water Authority	Water Line
6	Appalachian Pointing Dog Club	Outfitter Guide
7	Coosa Water Authority	Water Tank
8	Blue Ridge Mountain EMC	Radio Site
9	Union County	Fire Station
10	Blue Ridge Mountain EMC	Power Line
11	Georgia DNR	Boat Ramp
12	Union County	Boat Ramp

**Fire Management**

Since 1993, 14 areas totaling 2,236 acres have been prescribed burned in these watersheds (Table 24).

**Table 24. Prescribe Burns Completed Since 1993 in the Nottely Lake and Ivylog Creek 6<sup>th</sup> level HUCs.**

NAME	ACRES	YEAR OF BURN
DAVENPORT MOUNTAIN	440	2003
NOTTLEY DAM	137	2002
CASTEEL BRANCH	180	2002
POWERLINE	240	2002
ROSS GAP	30	2002
JUBER KNOB	635	1998
LAKE NOTTLEY 1	75	1999
LAKE NOTTLEY 2	36	1999
LAKE NOTTLEY 3	45	1999
LAKE NOTTLEY 4 DAVENPORT	311	1995, 1999
CASTEEL CEMETERY1	20	1999
CASTEEL CEMETERY2	19	1999
BROWN TRACT	38	1993,1994,1995,1997,1999,2001,2004
DAVENPORT TRACT	30	1993,1994,1997,1999,2001,2004

Since 1999, there have been 6 fires totaling 20 acres in these watersheds.

With the amount of new houses being built in these watersheds, about 80 percent of FS property line that adjoin private has homes build on them. There is approximately 30 miles of property lines in this watershed. All acres are in fire regime 3 and condition class 3. This is a result of limited prescribe fire and timber management activity in these watersheds.

## Roads

The following roads are located within the Nottley Watershed. Each road has a number assigned to it, and can be found on a map made a part of this roads assessment. Potential road projects identified by the Engineering Tech are in bold lettering.

1. Road is non-system in need of repair. I expect that at one time could have been considered a public road. The section of road leading into this track of land would need to be repaired before we could do any work to our road. The section on F.S. is approximately ¼ mile in length.
2. Road is non-system, and is now blocked with trees. No problem. Length is approximately 100 yards
3. Davenport Mountain Branch A (FDR #143-A) - Road is system and also part of the Davenport Mountain ATV Trail. The road/trail was reworked last year, and is in good condition. It is approximately 0.7 miles.
4. Davenport Mountain Road (FDR #143) - Road is system and is access to the Davenport Mountain ATV Trail. The road is in fair condition and is 2.1 miles long.
5. This is a non-system road used for lake access. The road is in poor condition. It is approximately ¼ mile long.
6. Road is non-system and in poor condition, approximately 0.6 mile.
7. **Casteel Cemetery Road - This is a non-system road used by fishermen, and is access to a cemetery. This road is in very poor condition and in bad need of repair. This road should be at the top of our list for improving to prevent erosion and provide access for fishermen, and to the cemetery. Approximately 1 mile in length.**
8. This is a non-system road used for lake access. The road needs improving. Approximately 0.5 mile long.
9. This is a non-system road blocked 200 feet from the highway. I didn't notice any problem with this closed road.
10. **Mauney Road (FDR #116). This is a system road with the first 0.4 mile being a R/W, and now paved by the county. The section on F.S. is in very poor condition and in bad need of repair. Length 1.10 mile.**
11. **Stillhouse Branch - The county considers this road to be a public road, or at least they did years ago. The road is in very poor condition. Section on government is approximately 0.5 mile. Work would need to be done on the private section in order to get to the Gov't section.**

12. The first section of this road is R/W, and in fair condition. The section on government is a non-system road. Since this section is closed to traffic, it is in fair condition. Length is approximately 1 mile.
13. Road is non-system, and used for lake access. Needs some repair like gravel and blading. Approximately 200 yards long.
14. Tony Daniels Road (FDR #843) -Road is system and R/W. I found no problem with this road. Approximate length 0.2 mile long.
15. Rocky Top Road (FDR #819) - This road is system and in fair condition and is 3.2 miles long.
16. Road is non-system and in poor condition. Approximate length 0.5 miles.
17. Road is non-system. The section on Government is used as access by power company. The road is in poor condition. Length is approximately 3 miles.
18. Road is on a R/W and system maintained by the county. Length is approximately 4 miles.
19. Low Creek Road (FDR #841) Road is system and county. The section on government is in good condition and is approximately 0.4 miles.
20. Road is system and on a R/W. Good condition and approximately 100 yds. long.
21. Road is non-system maintained by the county and ending at Jacks Creek boat ramp. There is a short road leading off the county section on government that needs repairing. This is a non-system road and approximately 2 miles long.
22. **Honaker Point - These two roads are non-system used for lake access. Both these roads need improvements to them. Heavily used by fishermen and camping. Length is approximately 0.8 mile for both roads.**
23. Rogers Creek Road (FDR #115) - Road is system with a closed gate approximately 100 yards in. Its length is approximately 1 mile. No problems with this road.
24. Ivylog Gap Road (FDR #100) - Road is system and in fair condition. Length is 8.2 miles.
25. This is a non-system road constructed to harvest timber. The road is closed to vehicle traffic. Approximately 1 ¼ mile long.
26. **Ivylog Creek Road (FDR #852) – This system road is in very poor condition and should rank very high in our priority of road work. This road was once**

**considered to be county as well as Forest Service but years ago the county abandon any claim to the road and the property owner on the lower end closed the section crossing his property. Much of this road is located very close to Ivylog Creek and that causes a big problem.**

A GIS analysis of total road miles, miles of roads within the riparian corridor and number of road/stream crossings also was completed (Table 25). Among Forest Service system roads, the majority of the road miles within the riparian corridor and stream crossings are on the Ivylog Creek road (FS 852). This road is in poor condition and is need of significant work (see #26 above). Non-System roads include US and State Highways, County roads, as well as unimproved old public roads. GIS analysis indicated that there are approximately 0.9 miles of these roads within the riparian corridor and 13 stream crossings. However approximately 0.64 of the 0.93 miles in the riparian corridor and 7 of the 13 stream crossings are on the old Ross Gap road that was closed and obliterated approximately 15 years ago.

The GIS analysis revealed a number of problems with the existing roads coverage. Several system roads are missing or are misidentified and the majority of the non-system roads listed above are missing. There also are several roads (such as the old Ross Gap road) that have been closed and obliterated but are shown as roads on the GIS roads coverage.

**Table 25. Road miles, miles within the riparian corridor and number of stream crossings for the Nottely Lake and Ivylog Creek 6<sup>th</sup> level HUCs.**

<b>Number</b>	<b>NAME</b>	<b>Miles</b>	<b>Miles in Riparian</b>	<b># Stream Crossings</b>
143	DAVENPORT MTN	2.37	0.29	3
143A	DAVENPORT MTN BR. A	0.90	0.00	0
95	GUMLOG GAP	0.11	0.00	0
852	IVYLOG CREEK	1.61	0.72	5
100	IVYLOG GAP	7.04	0.22	1
334	RAVENCLIFF	0.97	0.06	0
819	ROCKY TOP MTN	1.83	0.00	0
289	THOMAS	0.02	0.00	0
843	TONY DANIELS	0.43	0.12	0
	<b>Total System Roads</b>	<b>15.29</b>	<b>1.42</b>	<b>9</b>
	<b>Total Non-System</b>	<b>10.61</b>	<b>0.93</b>	<b>13</b>
	<b>Total on NF</b>	<b>25.90</b>	<b>2.35</b>	<b>22</b>
	<b>Total on Private</b>	<b>113.80</b>	<b>13.41</b>	<b>155</b>
	<b>Total for Watershed</b>	<b>139.70</b>	<b>15.76</b>	<b>177</b>



## **Change on Private Lands**

There are a lot of changes occurring private land. New subdivision and single-family dwellings are going up everywhere. This will likely result in a number of impacts to adjoining National Forest lands including, increased wildfire potential, trespass, illegal ATV use, and introduction of additional non-native species.

## **OPPORTUNITIES/NEEDS**

### **Management Direction**

- No need for change identified

### **Major Forest Communities/Forest Cover**

**Table 26. Restoration Opportunities in Nottely Lake and Ivylog Creek 6<sup>th</sup> level HUCs**

<b>FOREST PLAN OBJECTIVE/GOAL</b>	<b>DESCRIPTION</b>	<b>ACRES</b>
7.1	Restoration - Canopy gaps	4203.3
3.6	Restoration - Oak / Oak-pine	373.7
3.1	Restoration - Shortleaf pine	68.0
3.4	Restoration - Woodland/grassland/savannah	51.5
8.1	Maintenance – Shortleaf pine	167
3.7	Maintenance – Oak / Oak-pine	446.7

Table 26 above lists the estimated acreage of stands within these watersheds with the potential to satisfy specific Forest Plan vegetation objectives for restoration and maintenance. Specific opportunities are discussed below.

- **Canopy Gap Treatments:** According to the data used in compiling the canopy gap restoration needs there are 4203 acres that meet this need. Knowing that this data is incorrect there still is an opportunity for canopy gap treatments on 633 acres. Most of these acres are in the Ivylog Creek Watershed. At the present time there is an on going canopy gap project in this watershed that is treating 50 acres for Cerulean Warbler Habitat. The results of this treatment will have a bearing on future projects in this watershed.
- **Restoration -Oak/Oak Pine:** There are approximately 374 acres of pine plantations that qualify for restoration to oak/oak-pine forest types. Most these acres in these watersheds are already being planned for restoration in the Davenport Mountain Stewardship Project.

- Restoration -Shortleaf Pine: Available data shows 68 acres that are in need of restoring to shortleaf pine. There are more like 150 acres that need restoring due to the last outbreak of the Southern Pine Beetle.
- Woodland/grassland/savannah: GIS analysis indicated that approximately 52 acres meet the criteria for restoration of this community. However in the Davenport Mountain Project there are plans to create about 230 acres of oak woodland stand types.
- Maintenance- Shortleaf Pine: There are 167 acres of shortleaf pine stands that need thinning in the two watersheds.
- Maintenance- Oak/Oak-pine: There are 448 acres of oak and oak-pine types that need thinning in the two watersheds.
- Off Site Species: There are about 377 acres of white pine forest types that are off-site in the two watersheds. The Davenport Mountain Stewardship Project will treat 324 acres of these stands. This leaves 53 acres that need to be converted back to shortleaf pine or shortleaf pine- oak timber types.
- CISC Data: As discussed above, the number one need for these watersheds is to have the stand forest types and stand condition classes updated in the GIS stands layer. The data for a lot of the stands in these compartments is incorrect.

### **Rare Communities**

- Rare Community Identification - There are no known rare communities within these 2 watersheds. However any rare communities present will be identified at the project-level and appropriate protective or enhancement measures will be implemented.

### **Successional Stage Habitats**

- Creation of Early Successional Habitat – To meet Forest Plan Objectives for Early Successional Habitat, create approximately 50-130 acres of ESH in the portion of these watersheds allocated to MRx 7.E.1 and approximately 70-140 acres in the portion of these watersheds allocated to MRx 8.E.2, for a total of 120-270 acres.
- Designation of Small Old Growth Blocks– To meet Forest Plan requirements for old-growth, designate approximately 190 acres in the Nottely Lake Watershed (HUC 06) and 188 acres in the Ivylog Creek watershed (HUC 08) as small old-growth blocks. Give priority to those stands that current met minimum old-growth age.

### **Special Habitat Attributes**

- Cove Fish Attractors/Cover Structures - Cover is very limited in winter drawdown reservoirs such as Lake Nottely and the placement of trees and brush in selective coves will provide escape cover and feeding for young fish as well as adults. The fish attractors will be constructed of donated Christmas Trees, brush resulting from the timber sale and non-commercial thinning, and felling of shoreline trees. The construction of fish attractors/cover in Lake Nottely will enhance habitat conditions for the lake fish community. These structures also are effective in concentrating fish and increasing angling success.
- Watershed Restoration Needs – Develop watershed restoration projects to address needs identified for closure and revegetation of old roads, illegal ATV trails, dispersed campsites and other problem areas. See roads and recreation section for specific details.

### **PETS and Locally Rare Species**

- Project-Level Inventories- Prior to any ground disturbing activities, project-level inventories for PETS species will be conducted based on the direction in Forest Service Manual Supplement R-8-2600-2. Effects on federally listed species will be avoided. For Sensitive species, mitigating measures will be implemented to maintain habitat for these species on the Forest, and to prevent future listing under the Endangered Species Act. These strategies will assist in avoiding cumulative effects on PETS species and their habitats.
- Bald Eagle Nest Survey - Continue to Cooperate with Georgia DNR’s Annual Late Winter Bald Eagle Nest Surveys to identify the presence of nesting bald eagles on Lake Nottely.
- Cerulean Warbler Habitat Enhancement – Evaluate the effectiveness of the ongoing Cerulean Warbler Habitat Enhancement project in the Ivylog area. If results are successful in improving habitat conditions for this species, develop additional Cerulean Warbler Habitat Enhancement projects based on results of current project. There are approximately 633 acres of mature, closed canopy hardwood stands that could be considered for potential canopy gap treatments.

### **Demand Species**

- Renovation of existing permanent openings – Many of the fields that are dominated by fescue provide very limited wildlife benefit due to its poor quality and low palatability. The wildlife opening renovation treatments would include selective herbicide application to the control of fescue and poor quality species

and allow for the establishment of clover and other desirable cool season species and native warm season grasses. This action is included in the Davenport Mountain Stewardship project.

- 

### **Migratory Birds**

- The habitat improvement needs for migratory birds; especially MIS species are addressed in the vegetation management/restoration projects listed above (Major Forest Communities/Forest Cover, Successional Stage Habitats). The creation of early successional habitats will improve conditions for species such as prairie warbler and chestnut-sided warblers. Thinning and other canopy gap treatments in oak and mesic hardwood forests will benefit species such as hooded warblers and scarlet tanagers. The development of woodland conditions will provide additional habitat for species such as the field sparrow. Shortleaf pine restoration treatments will enhance conditions for species such as the pine warbler. Designation of old-growth blocks and the application of forest-wide standards will ensure continued habitat availability for interior forest species such as the ovenbird and wood thrush, riparian associated species such as the Acadian flycatcher, and snag-dependent species such as the pileated woodpecker.

### **Forest Health**

- Southern Pine Beetle Prevention: There are approximately 216 acres of yellow pine plantations in the two watersheds that need thinning for SPB prevention. Some of these stands may not be of commercial size at the present time. All stands should be of commercial size within 5 years.

### **Recreation**

- An updated INFRA database is needed for the Davenport OHV Trail.
- An accurate GIS mapping of dispersed campsites is needed for the watershed.
- The Davenport Mountain OHV Trail has a segment, which runs concurrently with a Forest Service system road. Relocation of this segment or reclassifying the system road would eliminate management conflicts. This action is included in the Davenport Mountain Stewardship project.
- A proposal to expand the parking area at one of the boat ramps would enhance public use of the ramp.
- There are no planned recreation development projects in this watershed. The ongoing Trails Assessment could identify opportunities for horse/bike/OHV trail development.

## **Scenery**

- At this time there are no inventoried areas that require restoration work to achieve the Scenery Management Objectives. Scattered high-elevation vistas along system road travel routes on Ivylog Mountain and Ross Ridge could be maintained as visually attractive attributes of the routes without compromising the desired landscape character.

## **Heritage Resources**

- Site Protection Needs - Of the 59 sites found in the watershed, 18 are identified as needing protection. These will be identified and addressed when projects are proposed in those locations. One known cemetery is within the watershed. Thirty sites are recommended as not eligible for the National Register, and there are 11 sites where the eligibility is unknown. There are 16 sites not listed above that have been identified but have not been officially recorded or included into a report.
- Inventory Needs and Interpretative Opportunities - None of these known sites are conducive to interpretation at this time. Additional testing is needed on many of these to determine National Register eligibility. The eleven sites that have not been fully recorded and assessed will be completed in the future when projects are proposed in those areas.
- GIS - The GIS survey data needs to be updated to the current year this project is funded. The Atlas maps were updated during this assessment and all current data was added to those maps. All new site locations also need to be updated into GIS.

## **Lands**

- At the present time there are no trespass cases known. However, there are potential conflicts and encroachments from the rapidly developing private lands adjoining the Forest. (Also see Fire Management/WUI section)

## **Special Uses**

- The special uses that are permitted in this watershed are those types associated with development of homes. There are no major policy changes that need to be made at this time.

## **Fire Management**

- Need the Forest as whole to look at fire regime and condition class, so we can start the process as a Forest instead as a District project.

- Need to go out and identify areas for future burning. There is a possibility to pick up another 200 or 300 acres that have not been burned before.
- Set up a burning rotation for the watershed. Burning rotation should be set up on an 8-year interval. Where there are invasive species it should be on a 3-year rotation.
- With the burning target being only around 1,000 acres a year, need to set up a priority list for the District.
- Use timber management practices to reduce the condition class.
- Need to look for areas where mechanical fuel treatment can reduce threat of fire in the urban interface. There probably are around 20 acres not counting what is covered in the Davenport Stewardship Project. This can be done by timber harvest or by the District personal or contract.
- Need to survey the area to locate homes and new subdivisions.
- Come up with an urban interface plan with the GFC for this area.
- FS employees and GFC and county resources need to be able to identify FS property lines. Need to look at the landline maintains atlas to see if certain area needs to be re-painted or do a ground survey to find out this information.
- Need to coordinate with the Union County mapping division and get updated maps of the county. See if we can download the county data onto our computer database.
- Set up public seminars to educate the community on danger of wildfires.

## **Roads**

### **Recommended Road Improvement Projects**

- Ivylog Creek Road, FDR #852 (#26 on map) - Road is in very poor condition and should rank very high in our priority of road work. This road was once considered to be county as well as Forest Service but years ago the county abandoned any claim to the road and the property owner on the lower end closed the section crossing his property. Much of this road is located very close to Ivylog Creek and that causes a big problem.
- Casteel Cemetery Road (#7 on map) - This is a non-system road used by fishermen, and is access to a cemetery. This road is in very poor condition and in bad need of repair. This road should be at the top of our list for improving to

prevent erosion and provide access for fishermen, and to the cemetery.  
Approximately 1 mile in length.

- Mauney Road, FDR #116 (#10 on map) This is a system road with the first .4 mile being a R/W, and now paved by the county. The section on F.S. is in very poor condition and in bad need of repair. Length 1.10 mile.
- Stillhouse Branch (# 11 on Map) - The county considers this road to be a public road, or at least they did years ago. The road is in very poor condition. Section on government is approximately 0.5 mile. Work would need to be done on the private section in order to get to the Gov't section.
- Honaker Point (#22 on Map)- These two roads are non-system used for lake access. Both these roads need improvements to them. Heavily used by fishermen and camping. Length is approximately .8 mile for both roads.

## **PRIORITIZED LIST OF PROJECTS**

### **Recreation**

- GIS mapping of dispersed recreation sites (campsites). \$3,000
- Update of INFRA trails data (may be part of a INFRA target) \$1,000
- Horse/bike/OHV trail additions, depending on Trails Analysis determination. No cost estimate; dependant on type, mileage, use of existing travelways, etc.
- Vista maintenance at selected sites along high-elevation system roads. Could be in conjunction with early-successional projects. \$5,000 initially, less in subsequent years depending on the rotation length.

### **Vegetation Management**

- Timber stand exams would be a high priority project. Costs would be around \$10,000.
- Restoration of 150 acres of shortleaf pine stands that have been killed by SPB. Costs for NEPA, layout, site prep. and planting = \$39,000
- Maintenance of forest types. Commercial thinning of 167 acres of shortleaf pine. Costs for NEPA, layout , marking and selling = \$15,000. Commercial thinning of 150 acres of oak-pine stands. Costs for NEPA, layout, marking and selling = \$13,500.
- Early Successional Habitat Project– Develop and implement a project to create approximately 120-270 acres of Early Successional Habitat. \$50,000
- Cove Fish Attractors/Cover Structures Project – Develop and implement a project to place trees and brush in selective coves in Lake Nottely to provide escape cover. \$10,000

### **Heritage Resources**

- Get GIS archeology survey areas and site data updated through the current year. \$10,000



## **Fire Management/WUI**

- Mechanical fuel treatment for about 20 acres in urban interface area. The cost will be around \$5,000. This will cover NEPA work and completing the work with forest account or contract.
- Look at painting all property line in this watershed (37 mile). The cost should be around \$13,000.
- Be able to convert the Union County information on to our network to make better maps for GFC and us for fire response. Unknown about the cost of this.
- Set up a fire wise program or seminar for this area. \$ 3,000

## **Roads**

- Complete a watershed scale RAP to determine access needs for the watershed. Determine which of the non-system roads need to be added to the system and improved, and which ones need to be closed to prevent further resource damage. \$10,000

### **Recommended Road improvement Projects**

- Ivylog Creek Road, FDR #852 (#26 on map) - Road is in very poor condition and should rank very high in our priority of road work. This road was once considered to be county as well as Forest Service but years ago the county abandon any claim to the road and the property owner on the lower end closed the section crossing his property. Much of this road is located very close to Ivylog Creek and that causes a big problem. To reconstruct the road in the present location would cost approximately \$30,000.
- Casteel Cemetery Road (#7 on map) - This is a non-system road used by fishermen, and is access to a cemetery. This road is in very poor condition and in bad need of repair. This road should be at the top of our list for improving to prevent erosion and provide access for fishermen, and to the cemetery. Approximately 1 mile in length. The cost for reconstruction of the road would be around \$20,000.
- Mauney Road, FDR #116 (#10 on map) This is a system road with the first .4 mile being a R/W, and now paved by the county. The section on F.S. is in very poor condition and in bad need of repair. Length 1.10 mile. The cost for doing the needed maintenance on this road should be around \$10,000.
- Stillhouse Branch (# 11 on Map) - The county considers this road to be a public road, or at least they did years ago. The road is in very poor condition. Section on government is approximately 0.5 mile. Work would need to be done on the

private section in order to get to the Gov't section. Cost to repair the road on F.S would run about \$8,000.

- Honaker Point (#22 on Map)- These two roads are non-system used for lake access. Both these roads need improvements to them. Heavily used by fishermen and camping. Length is approximately 0.8 mile for both roads. Cost for repair to get the roads to system road standard should run around \$10,000.

## APPENDIX A. LTA DESCRIPTIONS

Land Type Association Description for Map Unit:

### M221Dc014 – Nottely Lake

**General Description/Location:** Brasstown Rd, between Blue Ridge and Blairsville, N of GA 5. LTA includes very nearly all of Nottely Lake and low hills surrounding it.

**Hierarchy:** 200 Humid Temperate Domain; 220 Hot Continental Division; M221 Central Appalachian Broadleaf-Coniferous Forest Meadow Province; M221D Blue Ridge Mountains Section; M221Dc Southern Blue Ridge Mountains Subsection.

**Distinguishing Features:** Large man-made lake with scattered low mountains surrounding it; has more relief than adjacent LTAs.

## I. PRIMARY DESIGN CRITERIA

### Geology

- a. **Geologic rock types:** Primarily aluminous schist with lesser area of mica schist included; the geologic groups are Aluminous Schist and Mica Schist.
- b. **Geomorphic process:** High-grade metamorphosis of sedimentary rocks followed by faulting, uplift, and erosion.
- c. **Surficial geology:** sse – quartz-rich saprolite

### Topography

- a. **Landforms:** Low mountains with broad side ridges descending by gentle grades into broad, flat valley bottoms.
- b. **Slope gradient:** Estimated to range from 5 to 40-percent with most land area being in the 15 to 30 percent range.
- c. **Elevation (feet, range of elevation or relief):** 1750 to 2400 feet; total relief app. 650 feet between topographic extremes with average relief approximately 450 feet.

### Local Climate

- a. **Average annual precipitation (in):** Approximately 56 inches, based on Sweetgum, Hemptown Gap, Antioch, and Blairsville stations. In the ‘rain shadow’ of the Blue Ridge crest to the south which partially blocks rain from warm, moist Gulf air masses.
- b. **Seasonality of precipitation:** Greatest rainfall typically occurs in late winter or early spring. Lowest rainfall occurs in two periods; late spring and early fall.
- c. **Winter/summer mean temperatures:** The average annual temperature is about 61 degrees Fahrenheit, based on the Blairsville reporting station.

- d. **Growing season length (days):** Approximately 195 to 200 days (Blairsville station #195).

## II. ASSOCIATED CRITERIA

### **Soil series or associations**

Clifton, Evard, Cowee, and Bradson with Arkaqua in stream bottoms.

### Vegetation associations

- a. **Potential:** Appalachian oak forest (Kuckler);
- b. **Historic:** oak-chestnut-pine-hickory (Plummer); oak-chestnut (Braun); following death of chestnut, the type has become oak-hickory.
- c. **Existing:** oak-pine with proportion of pine increased by reversion of old fields and pastures since the 1940's.

### Aquatic Resources

- a. **Aquatic systems and types:** Riverine and man-made lacustrine; major streams are Youngcane Creek and Hemptown Creek with Lake Nottely as a large (4,181 surface acres) man-made lake.
- b. **Channel conditions/characteristics:** Although some streams, entrenched, with low sinuosity and have a step/pool flow pattern, most are moderate in gradient, entrenchment, and sinuosity with a flow dominated by riffles with infrequent pools.
- c. **Flow/runoff characteristics:** Streams respond to rainfall with increased flow only slowly or moderately rapidly, i.e. are not 'flashy.' Highest flow months are January through April. Lowest flow months are July through October.
- d. **Drainage density patterns:** Density of all stream types is 10mi/mi<sup>2</sup> in a dendritic pattern.
- e. **Water chemistry and quality:** Percent of major stream miles not fully supporting state-designated beneficial uses ranges from low (6-10%) to moderate (11-20%).

### Cultural Influences

Toeslopes and valley bottoms cleared for fields, initially by Cherokee and later expanded by whites. Ridges and mountains burned and grazed until late 1800's when they were logged. Stock exclusion and fire protection established in 1930's with creation of the Chattahoochee N.F. and the Lake Nottely impoundment. Mineral activity has included mining or quarrying for kyanite, gravel or related rocks, and gold.

### Fauna

Representative mammals are white-tailed deer, raccoon, gray squirrel, fox squirrel and cottontail rabbit. Black bear probably forage into the area but remote denning habitat is lacking. The ruffed grouse, bobwhite quail, wild turkey and mourning dove are game birds found. Representative neotropical migratory and resident land birds include summer tanager, cardinal, tufted titmouse, wood thrush, red-eyed vireo, Carolina wren, blue-gray gnatcatcher, Carolina chickadee, northern junco, red-tailed hawk the yellow rumped warbler and the Canada warbler. The

herptofauna includes eastern box turtle, common garter snake, timber rattlesnake, the Blue Ridge two-lined salamander and the wood frog. The streams within this LTA are too small for a fishery but Lake Nottely has an excellent fishery for smallmouth and striped bass. The lake is also a good fishery for walleye, spotted bass and largemouth bass.

#### [Relationship to other LTAs](#)

This LTA is similar in landform to adjacent LTAs but was delineated primarily because of the aluminous schist bedrock geology and also the presence of Lake Nottely.

#### **Natural Processes**

Between 1953 and 1980 no tornados were reported in Union County (Hodler & Schretter 1986). However, damaging winds associated with thunderstorms and hurricanes do occur. Frost, snow, and ice damage as well as periodic drought are other climatic events. Before the lake was impounded, flooding from runoff occurred. Because of low gradient stream segments, historically beaver flooding was a natural process.

#### **Comments**

Located only in GA and has little National Forest land.

Land Type Association Description for Map Unit:

### **M221Dc019 – Nottely River - Ivylog**

**General Description/Location:** Nottely River Valley upstream from Nottely Lake but not including high elevation headwaters, East of Vogel State Park.

**Hierarchy:** 200 Humid Temperate Domain; 220 Hot Continental Division; M221 Central Appalachian Broadleaf-Coniferous Forest Meadow Province; M221D Blue Ridge Mountains Section; M221Dc Southern Blue Ridge Mountains Subsection.

**Distinguishing Features:** Almost all private ownership, gentle slopes, wide stream floodplains and terraces, land uses of residential, pasture, row crop, and urban.

## **I. PRIMARY DESIGN CRITERIA**

### Geology

- a. **Geologic rock types:** Biotite gneiss
- b. **Geomorphic process:** Massive erosion of surrounding mountains following uplift.
- c. **Surficial geology:** ssa - silty to clayey sandy saprolite, rock tors, and joint block boulders.

### Topography

- a. **Landforms:** Broad valley bottom and gently-sloping toeslopes of surrounding ridges.
- b. **Slope gradient:** Estimated to range between 5 and 40-percent but most land area would probably be in the 15 to 30-percent range.
- c. **Elevation (feet, range of elevation or relief):** 1789' at headwaters of Lake Nottely to 2500 at crest of ridges; total relief approximately 700 feet but average relief about 250 to 300 feet.

### Local Climate

- a. **Average annual precipitation (in):** Approximately 60" based on Blairsville and Choestoe stations.
- b. **Seasonality of precipitation:** Months of highest rainfall are December through February or early March. A brief period of dry weather - the 'spring fire season' - typically occurs in March and April. Lowest rainfall months are the 'fall fire season', usually October and November.
- c. **Winter/summer mean temperatures:** The average annual temperature is approximately 60°, based on Blairsville reporting an annual average of 61 degrees.
- d. **Growing season length (days):** There are an estimated 196 days between the last killing frost in spring and the first killing frost in the fall as measured at the Georgia Mountain Experiment Station just outside of Blairsville.

## II. ASSOCIATED CRITERIA

### **Soil series or associations**

Clifton, Evard, and Bradson on uplands; Suches and Arkaqua on stream terraces along the Nottley River.

### Vegetation associations

- a. **Potential:** Although regionally classed as oak-hickory, could be expected to include box elder, ash, river birch, and sycamore near the river.
- b. **Historic:** Estimated to have been oak-chestnut-hickory forest with open grassy and herbaceous areas and cane breaks along the larger streams created and maintained primarily by burning.
- c. **Existing:** Estimated as oak-pine with pine representation mostly the result of human disturbance within the last one hundred years.

### Aquatic Resources

- a. **Aquatic systems and types:** Riverine - the principal stream is Nottley River but other main streams are Town Creek and Arkaqua Creek.
- b. **Channel conditions/characteristics:** Channels of moderate gradient, entrenchment, and sinuosity with riffle-dominated flows and infrequent pools.
- c. **Flow/runoff characteristics:** Response of streams to rainfall is a slow or only moderately rapid rise and a corresponding decline. Months of highest flow are January through April with lowest flows July through October.
- d. **Drainage density patterns:** Density of all stream types is 10mi/mi<sup>2</sup> in a dendritic pattern.
- e. **Water chemistry and quality:** Water tends to be neutral in pH and have a moderate to high acid neutralizing capacity. It also has more inorganic nutrients than higher elevations streams. Percent of major stream miles not fully supporting State-designated beneficial uses is low (6-10%).

### Cultural Influences

None of the Cherokee 'Middle Towns' were noted as having been in the Nottley Valley and it is not shown as having cleared land in 1835 census of the Cherokee (Wilms, 19??). White settlers probably cleared and farmed much of this land very soon after Cherokee removal. By the time of the industrial logging era much of this land was probably already cut over for local use or cleared for farm or pasture. The short period of river drive logging around the turn of the century may have seen some timber removal. Now mostly in cleared land used as truck farms, pasture, or residential lots.

### Fauna

Representative mammals are white-tailed deer, black bear, raccoon, gray squirrel, fox squirrel and cottontail rabbit. The ruffed grouse, bobwhite quail, wild turkey and mourning dove are the game birds found. Representative neotropical migratory and resident landbirds include summer tanager, cardinal, tufted titmouse, wood thrush,

red-eyed vireo, Carolina wren, blue-gray gnatcatcher, Carolina chickadee, northern junco, red-tailed hawk, the yellow-rumped warbler and the Canada warbler. The herptofauna includes eastern box turtle, common garter snake, timber rattlesnake, green anole, the Blue Ridge two-lined salamander, and the wood frog.

#### [Relationship to other LTAs](#)

Unlike any adjacent LTA; different in landform from surrounding mountainous units and different in bedrock geology from the Lake Nottely LTA. Most similar to the Lake Chatuge LTA.

#### **Natural Processes**

The blizzard of March 13, 1993 with heavy wet snows combined with high winds snapped off or uprooted trees in this LTA.

#### **Comments**

Brasstown Ranger District



Land Type Association Description for Map Unit:

### **M221Dc020 - Ivylog**

**General Description/Location:** Northeast of Blairsville, GA; east of US129 and west of Young Harris. A mountainous block completely surrounded by lower lying land of less rugged landform.

**Hierarchy:** 200 Humid Temperate Domain; 220 Hot Continental Division; M221 Central Appalachian Broadleaf-Coniferous Forest Meadow Province; M221D Blue Ridge Mountains Section; M221Dc Southern Blue Ridge Mountains Subsection.

**Distinguishing Features:** Relatively small area of mountainous terrain surrounded on three sides by major river valleys, principal topographic feature is Ivylog Mountain.

## **I. PRIMARY DESIGN CRITERIA**

### Geology

- a. **Geologic rock types:** Primarily biotite gneiss with some mica schist/gneiss on northern end.
- b. **Geomorphic process:** High-grade metamorphism of various rocks followed by massive uplift and subsequent erosion which is estimated to have been as much as 5-6 miles.
- c. **Surficial geology:** cba – bouldery colluvium

### Topography

- d. **Landforms:** Mountain peaks and crests of moderate relief (as compared to relief in GA portion of Blue Ridge) above surrounding valleys.
- e. **Slope gradient:** Vary widely from rather gentle to very steep, but on average of moderate (25-45%) slope.
- f. **Elevation (feet, range of elevation or relief):** 1750 feet at lowest point to 3400 feet at highest or total relief of 1650 feet with mean elevation of approximately 2200 feet and typical relief of 800 to 1000 feet.

### Local Climate

- e. **Average annual precipitation (in):** Approximately 57 inches, based on Blairsville, Antioch, and Young Harris stations.
- f. **Seasonality of precipitation:** Months of highest rainfall are December through March and lowest rainfall in October and November. A brief dry spell usually occurs about the time of spring greenup. Summer months are intermediate in rainfall which usually comes as afternoon thunderstorms.
- g. **Winter/summer mean temperature:** Average annual temperature is 60 degrees Fahrenheit, based on the Blairsville reporting an annual average of 61 degrees.

- h. **Growing season length (days):** There are an estimated 190 days between the last killing frost in spring and the first killing frost in the fall based on Blairsville reporting 196 days.

## II. ASSOCIATED CRITERIA

### **Soil series or associations**

Clifton, Evard, Cowee and Bradson.

#### Vegetation associations

- d. **Potential:** Oak-hickory (since the death of chestnut) or Appalachian oak forest.
- e. **Historic:** Estimated as oak-chestnut-pine hickory forest.
- f. **Existing:** Primarily oak but including minor acreages of white pine, hemlock and cove hardwoods.

#### Aquatic Resources

- f. **Aquatic systems and types:** Riverine systems of perennial streams with perennial streams with principle streams including Ivylog and Butternut Creek.
- g. **Channel conditions/characteristics:** Primarily steep gradient streams with entrenched channels, low sinuosity, and step/pool type flows.
- h. **Flow/runoff characteristics:** Streams respond to rainfall by increased flows only slowly or moderately rapidly. Months of highest flow are January through April and months of lowest flow are July through October.
- i. **Drainage density patterns:** Density of all stream types is 10mi/mi<sup>2</sup> in a dendritic pattern.
- j. **Water chemistry and quality:** Water chemistry is slightly acidic with low inorganic nutrients but moderate to high neutralizing capacity. Percent of major stream miles not fully supporting state-designated beneficial uses is low (6-10%).

#### Cultural Influences

Woods burning and grazing were the most extensive cultural influences following white settlement. 'Culling' of trees for specific uses; such as log building construction, furniture, firewood, cross-ties, and rail fencing was another persistent influence. When purchasing agents for timber companies first arrived they bought individual trees of high quality and of species in demand for specific uses and the forest was 'culled' (take the best and leave the rest) again. A second wave of commercial logging generally took what remained that was merchantable and fires in the logging slash burned hotter than they had in the yearly leaf litter accumulation. Scarcely had the forest been given a chance to recover through stock exclusion and fire control when the chestnut blight arrived and removed what was most likely the single most valuable wildlife food tree. The Ivylog area was also mined or quarried at various times for corundum, gold, kyanite, and silimanite.

## Fauna

Representative mammals are white-tailed deer, black bear, raccoon, gray squirrel, opossum, and skunk. High-quality rabbit habitat is limited to the fringes of the LTA. The ruffed grouse and wild turkey are the principal game birds found in this LTA. Quail and dove, if they occur, are limited by lack of habitat. Representative neotropical migratory and resident landbirds include summer tanager, cardinal, tufted titmouse, wood thrush, red-eyed vireo, Carolina wren, blue-gray gnatcatcher, Carolina chickadee, northern junco, red-tailed hawk, the yellow-rumped warbler and the Canada warbler. The herptofauna includes eastern box turtle, common garter snake, timber rattlesnake, the Blue Ridge two-lined salamander, and the wood frog. Types of fish are limited by the small streams.

## Relationship to other LTAs

Very different from adjacent LTAs in landform, geology, or both.

## **Natural Processes**

Periodic moderate and severe droughts, ice glaze damage, snow storm damage, localized areas of high wind damage, lightning mortality of small groups of trees, and lightning-ignited wildfire in severe drought years are all climatic processes important in ecological function. Forest succession is the major, and much more subtle, process as the forest responds to past events and current conditions.

## **Comments**

Brasstown Ranger District

Land Type Association Description for Map Unit:

**M221Dd13 – Murphy Basin \*closely corresponds to M221Dd1119\***

**General Description/Location:** Toccoa RD northeast of Blue Ridge, Brasstown RD north of Blairsville, North Carolina in Murphy, NC vicinity.

**Hierarchy:** 200 Humid Temperate Domain; 220 Hot Continental Division; M221 Central Appalachian Broadleaf-Coniferous Forest Meadow Province; M221D Blue Ridge Mountains Section; M221Dd Metasedimentary Mountains Subsection.

**Distinguishing Features:** Low to moderate relief ridges generally aligned on a northeast-southwest axis with broad valleys, wide stream terraces, and gentle slopes.

## **I. PRIMARY DESIGN CRITERIA**

### Geology

- d. **Geologic rock types:** Cross-biotite schist, grouped into mica schist; marble is known to occur in a belt which passes underneath Murphy, NC.
- e. **Geomorphic process:** High-grade metamorphosis of sedimentary rocks, followed by cleavage along the Hayesville Fault, uplift and then erosion; for example limestone metamorphoses to marble.
- f. **Surficial geology:** cba - granitic or arkosic metasedimentary colluvium

### Topography

- g. **Landforms:** Low to moderate relief hills and ridges aligned on a northeast-southwest axis and separated by broad valleys with relatively wide floodplains and terraces.
- h. **Slope gradient:** Estimated to generally range between 5 to 40 percent with greatest area in the 10-25-percent range.
- i. **Elevation (feet, range of elevation or relief):** 2200 to 3075 feet or total relief of 725 feet.

### Local Climate

- i. **Average annual precipitation (in):** Approximately 56 inches, based on Sweetgum, Hemptown Gap, Antioch, and Young Harris stations.
- j. **Seasonality of precipitation:** Highest rainfall in late winter and early spring. Lowest rainfall in autumn.
- k. **Winter/summer mean temperature:** The average annual temperature is approximately 61 degrees Fahrenheit based on the Blairsville station.
- l. **Growing season length (days):** Approximately 200, based on the Blairsville station.

## II. ASSOCIATED CRITERIA

### **Soil series or associations**

Clifton, Evard, Chestnut, Saunook, and Porters.

#### Vegetation associations

- g. Potential:** Appalachian oak forest (Kuchler).
- h. Historic:** Overstory estimated as oak-pine; ‘canebrakes’ on the stream terraces of larger streams was very likely an historic vegetation type now largely absent. Native American fields and - in the Colonial period - horse pasture was also an historic vegetation community type. Marshy areas of willow and alder created by beaver flooding was also a probable community type before about 1750.
- i. Existing:** Oak-hickory and oak-pine forest (Frye, and CISC data); grass pasture and some row crop are human-created vegetation types.

#### Aquatic Resources

- k. Aquatic systems and types:** Riverine with major streams being Dockery Branch, Conley Creek, and Brasstown creek in NC.
- l. Channel conditions/characteristics:** Streams are moderate in entrenchment, gradient, and sinuosity with riffle-dominated channels and infrequently-spaced pools.
- m. Flow/runoff characteristics:** Streams respond to rainfall with increased flows either slowly or only moderately rapidly; that is they are not very ‘flashy’. Highest flows are in the months of January through April. Lowest flow months are July through October.
- n. Drainage density patterns:** Density of all stream types is 10mi/mi<sup>2</sup> in a modified rectangular pattern.
- o. Water chemistry and quality:** Percent of major stream segments not fully supporting State-designated beneficial uses ranges from low (6 - 10%) to moderate (11-20%). Inorganic nutrient status is expected to be better than mountain streams, as is buffering capacity.

#### Cultural Influences

This LTA includes the sites of the Cherokee “Middle” or “Valley Towns” of the Valley and Hiawassee River valleys. These towns depended on agriculture supplemented by hunting and could have as much as two-hundred acres under cultivation per town per year. Firewood gathering, food plant tending, wildlife habitat management (principally burning), horse pasturing, and (in later years) hog foraging affected additional areas as did fallowing of fields which is reported to have been about every seven years. White settlement increased the acres affected and added cattle grazing but basically followed the Cherokee pattern. Woods grazing and burning was common practice between about 1838 and 1933. Extensively logged in late 1800-early 1900's. Lakes impounded in 1940's and 1950's.

#### Fauna

Representative mammals are white-tailed deer, black bear, raccoon, gray squirrel, fox squirrel, cottontail rabbit, and woodchuck. The ruffed grouse, bobwhite quail, wild turkey and mourning dove are game birds found in this LTA. Representative

neotropical migratory and resident landbirds include summer tanager, cardinal, tufted titmouse, wood thrush, red-eyed vireo, Carolina wren, blue-gray gnatcatcher, Carolina chickadee, northern junco, red-tailed hawk, the yellow-rumped warbler and the Canada warbler. The herptofauna includes eastern box turtle, common garter snake, timber rattlesnake, the Blue Ridge two-lined salamander, and the wood frog.

#### [Relationship to other LTAs](#)

Similar to the Cherylog Ridges LTA to the south but differs in having a different local climate due to both latitude and elevation. Shares some features with the “Lake Burton” LTA within the Chattahoochee and Soque River Fault Zone northeast of Batesville, Georgia.

#### **Natural Processes**

Microbursts, beaver flooding, lightening fires, and flooding.

#### **Comments**

LTA is shared by Cherokee, Nantahala, and Chattahoochee National Forests but has no National Forest land.