

**Inventory of Large Wood in the Upper Chattooga River Watershed,
2007-2013**



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Introduction

Wood of all sizes is an important feature of streams flowing through forested areas. In particular, large wood (LW) and other obstructions such as boulders slow flow, trap sediments, and damp and delay flood peaks (Montgomery et al. 2003). Tree boles are major pool forming elements and wood contributes to aquatic habitat in diverse ways such as providing cover from predators, refuge from high velocity flow, and substrate and organic matter for macroinvertebrates (Benke and Wallace 2003, Dolloff and Warren 2003). Large wood is considered so beneficial that riparian forests today are managed for LW inputs (Boyer et al. 2003, Jacobs 2004) and where recruitment or loading is judged insufficient; LW is intentionally added to stream channels (Reich et al. 2003).

Wood naturally enters stream channels by various avenues including bank undermining or blowdown of individual trees or groups of trees and transport en masse in debris flows or landslides from upstream channels or adjacent riparian areas (Swanson 2003). Although logging was one of the more dramatic causes of large wood loading and subsequent decline, other human influences such as roads and trails and land clearing for any reason have influenced both the rate and amount of large wood entering streams (Nakamura and Swanson 2003). Other more insidious events also can lead to variation in the rate of LW recruitment. Since the beginning of the previous century a fungus, inadvertently brought to North America on nursery stock from Asia, has killed nearly all American chestnut trees. American chestnut was a dominant tree throughout much of the eastern US where, except for areas of salvage, its demise resulted in higher than expected rates of large wood and large wood recruitment to streams and riparian areas. Today hemlock woolly adelgid (HWA), an aphid-like insect from Japan threatens another keystone species of eastern forests, eastern hemlock, with a similar fate. Eastern hemlock trees in the watershed were infested by the hemlock woolly adelgid beginning in 2001 (USDA Forest Service 2014) resulting in a rapid decline of hemlock trees, a major component of streamside vegetation. As dead hemlock trees began falling into nearby streams and rivers land managers raised questions of their potential impacts of large quantities of hemlock stems and debris on stream habitat, watershed condition, and recreation. However, LW also presents a potential impediment to whitewater paddlers, who may target “problem” pieces for removal from the stream channel (Colburn 2001).

In the fall of 2007, the Center for Aquatic Technology (CATT) in partnership with the Francis Marion-Sumter (FMSNF), Chattahoochee-Oconee (CONF), and Nantahala National Forests (NNF) developed and implemented a LW inventory within the mainstem of the Chattooga River and several large tributaries. Our primary objective was to provide information on LW loading within the Chattooga River watershed while noting potential effects of hemlock mortality and recreational activities. We completed LW inventories in 51.5 km of streams in the mainstem of the Chattooga River, West Fork Chattooga River, Holcomb Creek, and Overflow Creek (Roghair et al. 2008, Dolloff et al. 2008).

Loading of LW was variable within and among streams and we noted several fresh cut pieces of LW within or near the stream channel, as well as a large number of standing dead hemlocks near the streams. In summer 2008, we returned to complete LW inventories in upstream reaches of Holcomb Creek and Overflow Creek, as well as the East and West Forks of Overflow Creek. During these inventories we also recorded the portion of LW we could identify as hemlock. The 2007-2008 results provided a baseline for comparison with future LW inventories in the Chattooga River watershed.

By 2012 most hemlocks within the watershed were in an advanced state of decline and new reaches of the upper Chattooga River had been opened for boating for the first time since 1976. Forest managers requested a new LW inventory to examine the impact of hemlock mortality and recreational activity on LW loading within Chattooga River watershed streams. The FMSNF, CONF, and NNF once again partnered with the CATT to complete LW inventories in 2012 and 2013. This report summarizes our results and provides comparisons of the 2007-2008 and the 2012-2013 LW inventories.

Methods

Study Area

The Chattooga River originates in North Carolina and flows south, forming part of the border between South Carolina and Georgia. Its watershed contains portions of the Francis Marion-Sumter (FMSNF), Chattahoochee-Oconee (CONF), and Nantahala National Forests (NNF), as well as the Ellicott Rock Wilderness Area. Like much of the eastern US, the Chattooga River watershed experienced extensive logging in the early 1900's. In 1974, Congress designated 57 miles of the upper Chattooga River and a major tributary, the West Fork Chattooga River as 'Wild and Scenic' to preserve their outstanding natural and cultural resources. The watershed receives heavy recreational pressure from several nearby population centers (Jacobs 2004) and eastern hemlock, the dominant softwood tree species in the watershed, has been exposed to HWA since 2001 (USDA Forest Service 2014) and are in a rapid state of decline.

Inventory Sections

The FMSNF requested an inventory of LW on 32.8 km of the mainstem Chattooga River from its confluence with West Fork Chattooga River to the Forest boundary near the confluence with Green Creek (Figure 1, Table 1). The majority of lands in the Wild and Scenic corridor between Green Creek and road 1107 near Grimshawes are in private ownership, precluding extension of the inventory upstream of Green Creek. The CONF requested an inventory on 9.7 km of the West Fork Chattooga River from its confluence with the Chattooga River to Three Forks (confluence of Holcomb Creek, Overflow Creek, and Big Creek). We also inventoried 8.8 km of Holcomb Creek, 7.1 km of Overflow Creek, 2.7 km of West

Fork Overflow Creek, and 3.7 km of East fork Overflow Creek. We divided each stream into 0.5 km reaches prior to the inventories, as described below.

Reach Delineation

We acquired high resolution (1:24,000) National Hydrography Dataset stream data for the Chattooga River watershed and used Arcmap editing tools to place points every 0.5 km along the length of each inventory reach, starting at the upstream end of the reach (Figure 1). When the furthest downstream reach was 300 m long or less we joined that reach with the reach immediately upstream. When the furthest downstream reach was greater than 300 m long we allowed the reach to remain separate. As a result, of the 102 total reaches we delineated, 98 were exactly 0.5 km, 3 were longer, and 1 was shorter. We converted the point shapefile output to a series of waypoints using a second Arcmap extension (Minnesota Department of Natural Resources 2001) and loaded the waypoints onto Garmin Oregon GPS¹ units.

¹*use does not imply endorsement*

Field Work

Prior to each inventory we observed stream discharge and stage on the USGS real time flow website for gauge #021770000 Chattooga River gage near Clayton, GA (Figure 2). When flows were adequately low we deployed inventory crews to the streams. Inventory crews consisted of 2-3 people, depending on stream size; three-person crews were used within the mainstem of the Chattooga River, two-person crews on the remaining streams. Crew members waded through each 0.5 km reach, tallying all pieces of LW that partially or wholly lay within the bankfull channel and all hemlocks visually estimated to be standing within 30 m of the stream (hereafter riparian). In the mainstem Chattooga river two crew members counted LW by size class (Table 2), LW rootwads, LW obstructions, hemlock LW (2008 inventories onward), and cut LW (2008 inventories onward); the third crew member counted all standing hemlocks in the riparian (2012 inventories onward). In all other streams one crew member recorded LW attributes while the other counted standing hemlocks in the riparian. In addition, we photographed stream features and recorded relevant comments (e.g. unstable banks).

Rootwads were counted separately from attached pieces of LW. For example, if we encountered a size 4 piece of LW with a rootwad attached we tallied 1 piece of size 4 and 1 rootwad. We defined obstructions as single pieces or accumulations of LW that spanned at least half of the bankfull channel. Wood jams consisting of multiple pieces of LW counted as a single obstruction. Hemlock LW counts followed the same methods as LW, but only included pieces clearly identifiable as hemlock. Cut LW counts followed the same methods as LW, but only included pieces with at least one end cut by a saw.

Hemlock LW and cut LW were also included in the total LW counts. The riparian hemlock count is a tally of standing live or dead hemlock trees with a visually estimated diameter at breast height >10 cm within 30 m of the water's edge.

Results

The discharge levels in all streams were low enough during our inventories to wade the majority of the stream channel (Figure 2). Numerous flood events occurred between our 2007/2008 and 2012/2013 inventories; the two largest events occurred on 8/26/2008 (8,070 cfs) and 9/20/2009 (17,400 cfs) (Figure 2). We inventoried 64.8 km of stream (Table 1) and recorded 11,144 and 10,152 total pieces of LW in 2007/2008 and 2012/2013, respectively (Table 3 and Figure 3). Total LW per km ranged from 119 to 324 pieces across all streams and years (Table 4 and Figure 4). Examination of individual 0.5 km reaches showed the highest LW loads in the upper reaches of the Chattooga River, lower reaches of West Fork Chattooga, and throughout Holcomb Creek (Figures 5A, 6, and 7). Lower LW loads were recorded in Overflow Creek and West Fork Overflow Creek (Figures 8 and 9). The lowest loads were in the middle reaches of the Chattooga River, upper reaches of West Fork Chattooga River, and upper reaches of East Fork Overflow Creek (Figures 5A-5D, 6, and 10). In all the inventoried streams, the percentage of LW by size class was dominated by size class 1 and 3 (Table 2); in many cases it was nearly equally split between these two small diameter size classes (Table 5). The larger diameter size classes (sizes 2 and 4) were rare overall (Table 5 and Figures 3 and 5-10).

We found noticeable changes in LW per kilometer (LW/Km) from 2007/2008 to 2012/2013, primarily for LW size class 1 and 3 (Figure 11). There was a loss of LW size class 3 in all streams except East Fork Overflow Creek, which had only a small increase (+5). Holcomb Creek had the largest size class 3 decline (-53) followed by Overflow Creek (-25) and West Fork Chattooga River (-21) (Figure 11). Streams highest in the watershed, West and East Fork Overflow Creeks, had declines of LW size class 1, -141 and -17 respectively (Figure 11). Downstream, Overflow Creek and West Fork Chattooga River had increases in LW size class 1, +21 and +59 respectively (Figure 11). The amount of LW/Km in the Chattooga River remained almost constant between 2007/2008 and 2012/2013 with change ranging from +2 to -6 (Figure 11).

We tallied up to 7 rootwads per kilometer and 17 LW obstructions per kilometer (Table 6). Rootwads per kilometer decreased in West Fork Overflow Creek (-6), increased in East Fork Overflow Creek (+4), and remained almost constant in the other inventoried streams (-1 or +1) (Table 6). Streams that had an increase in obstructions per kilometer between our inventories were Holcomb Creek (+8), West Fork Overflow Creek (+2), and East Fork Overflow Creek (+9) (Table 6).

We recorded a total of 11,998 standing hemlock trees within the riparian during our 2012/2013 inventories (Table 7). The riparian hemlock count ranged from 96 per kilometer on the West Fork Chattooga River to 234 per kilometer on the Chattooga River (Table 8). We recorded a total of 544 pieces of hemlock LW within the bankfull channel, which ranged from 2 to 18 pieces per kilometer (Tables 7 and 8). Hemlock LW was comprised mostly of size class 3 (Tables 2, 7, and 8; Figures 12 and 13). For the 2012/2013 inventories, the streams with the greatest percentage of total LW identified as hemlock were the Chattooga River and East Fork Overflow Creek (Figure 14). The highest hemlock LW counts were generally associated with high riparian hemlock counts, though there was considerable variability in this relationship (Figure 15). In 2007/2008 we only collected hemlock LW data on West Fork Overflow and East Fork Overflow. In 2012/2013 we found an increase in hemlock LW in West Fork Overflow Creek from 8 (3 LW/km) to 25 (9 LW/km) (Table E2). In East Fork Overflow we found an increase in total hemlock LW counts from 51 (14 LW/km) to 66 (18 LW/km) (Table F2). We also noted that hemlocks had varying states of hemlock wooly adelgid damage on all streams, with the majority of hemlocks in an advanced state of decline.

We recorded a total of 177 pieces of cut LW within the bankfull channel, ranging from 1 to 12 pieces per kilometer (Tables 7 and 8). Cut LW was predominantly size 1 in Holcomb creek and size 3 in the Chattooga River and Overflow Creek (Tables 2, 7, and 8; Figures 16 and 17). The cuts ranged from fresh or recent cuts, particularly near camping areas to decayed on old logging remnants (e.g. in Holcomb Creek).

We also included results from 1989 and 1993 LW inventories conducted in Holcomb Creek, Overflow Creek, West fork Overflow Creek, and East Fork Overflow Creek (Appendix G). These data were collected as part of a larger study of fish habitat and production conducted during the late 80's - early 90's. In contrast to the 2007-2013 inventories where we counted all wood in the bankfull channel, LW in 1989 and 1993 were tallied within the wetted channel only, limiting our ability to examine for changes in the amount of LW between 1989-1993 and 2007-2013. However, we were able to compare LW loads between streams within each year. From 1989 to 2013, Holcomb Creek had approximately 1.5 to 3 times (depending on year) more total LW per kilometer than Overflow Creek (Tables 4 and G2). In 2007, West Fork Overflow Creek had over 2 times more total LW per kilometer than East Fork Overflow Creek; whereas amounts for all other years were very similar between these 2 streams (Tables 4 and G2).

Discussion

We found a 9% loss in total LW in the Chattooga River watershed between our 2007/2008 and 2012/2013 inventories. The losses varied among LW size classes and streams. Size 3 LW showed the greatest decrease overall. The amount of LW in the mainstem of the Chattooga River remained nearly

constant between inventories, while some tributaries lost and others gained LW. Taken in total, the changes are not cause for immediate concern, but do warrant additional monitoring. The amount of LW in a river system can vary greatly over time due to floods, disease, exotic species (e.g. hemlock wooly adelgid), and manipulations to the landscape. Our two inventories provide a snapshot of LW condition at two points in time, but only begin to describe the longer-term trends and variability that are driving LW loading in the watershed over time. Additional inventories will provide valuable insight into the overall long-term LW trend within the Chattooga River watershed.

Although overall LW decreased in many of the tributaries, we did see increases in the number of pieces of LW identified as recent hemlock additions. While these additions were not enough to counter the loss of other pieces of LW, there is clearly a ready supply of LW in the riparian area. The hemlock wooly adelgid continues to ravage riparian hemlocks and most hemlocks are now dead or in an advanced state of decline. The loss of the hemlocks presents many management challenges and will have unknown ecological repercussions (Vose et al. 2013). However, it also presents an opportunity to increase the amount of LW in Chattooga River watershed streams to levels not seen since prior to extensive logging and splash dam operation in the early 1900's, which removed the majority of wood from the landscape. Even if only 10 percent of riparian hemlocks enter streams as LW, it would still result in increases of approximately 10-20 pieces of LW/Km, many in larger size classes with lower mobility (Warren and Kraft 2008) that could persist for decades. This pulse of LW will be the last until the next generation of riparian trees grow to sizes that will allow for recruitment of new LW, though the regeneration of trees in areas with a rhododendron understory may be limited (Vose et al. 2013).

In the interim, it is important to minimize unnecessary losses of LW from the stream channel. Forest management activities and recreational activities have the potential to remove LW from stream channels. We did not find an increase in the number of pieces of cut LW during our most recent inventory. Most of the cut LW we did observe was near campsites presumably for firewood, or in the case of Holcomb Creek were historical logging remnants. We did find several pieces of cut LW in Overflow Creek during our first inventory, but did not observe any new cuts during our most recent inventory. We also did not find any evidence of cut LW in the newly opened paddling reach in the upper Chattooga River mainstem. Additional monitoring for cut LW is advised, particularly in the vicinity of campsites on streambanks and in stream reaches known to be used by boaters.

The FMSNF, CONF, and NNF all manage streams and riparian areas to maintain, enhance, and recruit LW (USDA 1994, 2004a, and 2004b). Furthermore, the FMSNF and NNF specify that the desired LW condition is 322 LW/Km and 161 LW/Km, respectively (USDA 1994 and 2004b). Though the LW load in many of the inventoried streams falls short of desired conditions, hard targets may not be realistic given the dynamic nature of LW loading. The amount of large wood in streams fluctuates over time and

is controlled by a number of short and long term processes (Gregory et al. 2003). Preserving those processes is the key to managing for large wood in the long term. Land management practices such as wholesale logging in the watershed in the early 1900's are still impacting the number and size of trees available, as well as the frequency and timing of large wood recruitment. Historical logging set the stage for contemporary forest conditions and while LW persists nearly a century after the logging and use of splash dams ended, remnant and recent LW loads likely total a fraction of the pre-disturbance levels. Clearly, decisions made by today's land managers will impact large wood recruitment and retention for decades to come. Careful consideration and continued monitoring will be required to preserve the processes that provide for adequate LW recruitment and retention now and into the future.

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Table 1. Length, dates, and location of LW inventories, 2007-2013.

Stream	Length (km)	Dates	Start	End
Chattooga River	32.8	11/07, 8/12	West Fork Chattooga	Forest boundary near road 1108
West Fork Chattooga River	9.7	11/07, 11/13	mainstem Chattooga	Three Forks
Holcomb Creek	8.8	11/07, 8/08, 11/13	Three Forks	3 km upstream of Hale Ridge Rd. bridge over Holcomb
Overflow Creek	7.1	11/07, 8/08, 11/13	Three Forks	confluence with East Fork Overflow Cr.
West Fork Overflow Creek	2.7	8/08, 11/13	confluence with East Fork Overflow Cr.	Road 79 crossing
East Fork Overflow Creek	3.7	8/08, 11/13	confluence with West Fork Overflow	hiking trail bridge over creek
Total	64.8			

Table 2. Size classes used for LW inventories in the Chattooga River watershed.

Size Class	Length (m)	Diameter (cm)
1	1 - 5	10 - 55
2	1 - 5	> 55
3	> 5	10 - 55
4	>5	> 55

Table 3. Counts of LW in each of four size classes (see Table 2).

Stream	2007/2008					2012/2013				
	LW 1	LW 2	LW 3	LW 4	Total	LW 1	LW 2	LW 3	LW 4	Total
Chattooga River	1,973	22	2,115	61	4,171	1,785	24	1,953	140	3,902
West Fork Chattooga River	954	23	1,142	35	2,154	1,523	51	934	21	2,529
Holcomb Creek	1,061	9	1,266	31	2,367	966	7	797	20	1,790
Overflow Creek	303	4	700	16	1,023	451	5	525	19	1,000
West Fork Overflow Creek	623	5	210	36	874	243	0	184	13	440
East Fork Overflow Creek	314	2	206	33	555	250	6	223	12	491
Total	5,228	65	5,639	212	11,144	5,218	93	4,616	225	10,152

Table 4. LW per kilometer in each of four size classes (see Table 2).

Stream	2007/2008					2012/2013				
	LW	LW	LW	LW	LW	LW	LW	LW	LW	LW
	1	2	3	4	Total	1	2	3	4	Total
Chattooga River	60	1	64	2	127	54	1	60	4	119
West Fork Chattooga River	98	2	118	4	222	157	5	96	2	261
Holcomb Creek	121	1	144	4	269	110	1	91	2	203
Overflow Creek	43	1	99	2	144	64	1	74	3	141
West Fork Overflow Creek	231	2	78	13	324	90	0	68	5	163
East Fork Overflow Creek	85	1	56	9	150	68	2	60	3	133
Average	106	1	93	6	206	90	2	75	3	170

Table 5. Percentage of LW in each of four size classes (see Table 2).

Stream	2007/2008				2012/2013			
	LW	LW	LW	LW	LW	LW	LW	LW
	1	2	3	4	1	2	3	4
Chattooga River	47%	1%	51%	1%	46%	1%	50%	4%
West Fork Chattooga River	44%	1%	53%	2%	60%	2%	37%	1%
Holcomb Creek	45%	0%	53%	1%	54%	0%	45%	1%
Overflow Creek	30%	0%	68%	2%	45%	1%	53%	2%
West Fork Overflow Creek	71%	1%	24%	4%	55%	0%	42%	3%
East Fork Overflow Creek	57%	0%	37%	6%	51%	1%	45%	2%

Table 6. Rootwads and LW obstructions encountered.

Stream	2007/2008				2012/2013			
	Rootwads		Obstructions		Rootwads		Obstructions	
	n	per km	n	per km	n	per km	n	per km
Chattooga River	143	4	26	1	173	5	47	1
West Fork Chattooga River	37	4	10	1	49	5	5	1
Holcomb Creek	50	6	76	9	41	5	153	17
Overflow Creek	10	1	19	3	16	2	17	2
West Fork Overflow Creek	19	7	28	10	3	1	33	12
East Fork Overflow Creek	8	2	26	7	22	6	59	16

Table 7. Counts of riparian hemlock, hemlock LW, and cut LW counts.

Stream	2012/2013										
	Riparian Hemlock	Hemlock LW					Cut LW				
		LW	LW	LW	LW	LW	LW	LW	LW	LW	LW
	1	2	3	4	Total	1	2	3	4	Total	
Chattooga River	7,689	71	4	271	22	368	8	3	26	2	39
West Fork Chattooga River	932	1	0	21	1	23	1	0	4	1	6
Holcomb Creek	1,353	8	0	32	2	42	85	0	22	0	107
Overflow Creek	1,073	3	0	14	3	20	0	1	11	0	12
West Fork Overflow Creek	552	11	0	11	3	25	5	0	3	0	8
East Fork Overflow Creek	399	22	2	35	7	66	2	2	1	0	5
Total	11,998	116	6	384	38	544	101	6	67	3	177

Table 8. Riparian hemlock, hemlock LW, and cut LW counts per kilometer.

Stream	2012/2013										
	Riparian Hemlock	Hemlock LW					Cut LW				
		LW	LW	LW	LW	LW	LW	LW	LW	LW	LW
	1	2	3	4	Total	1	2	3	4	Total	
Chattooga River	234	2	0	8	1	11	0	0	1	0	1
West Fork Chattooga River	96	0	0	2	0	2	0	0	0	0	1
Holcomb Creek	154	1	0	4	0	5	10	0	3	0	12
Overflow Creek	151	0	0	2	0	3	0	0	2	0	2
West Fork Overflow Creek	204	4	0	4	1	9	2	0	1	0	3
East Fork Overflow Creek	108	6	1	9	2	18	1	1	0	0	1

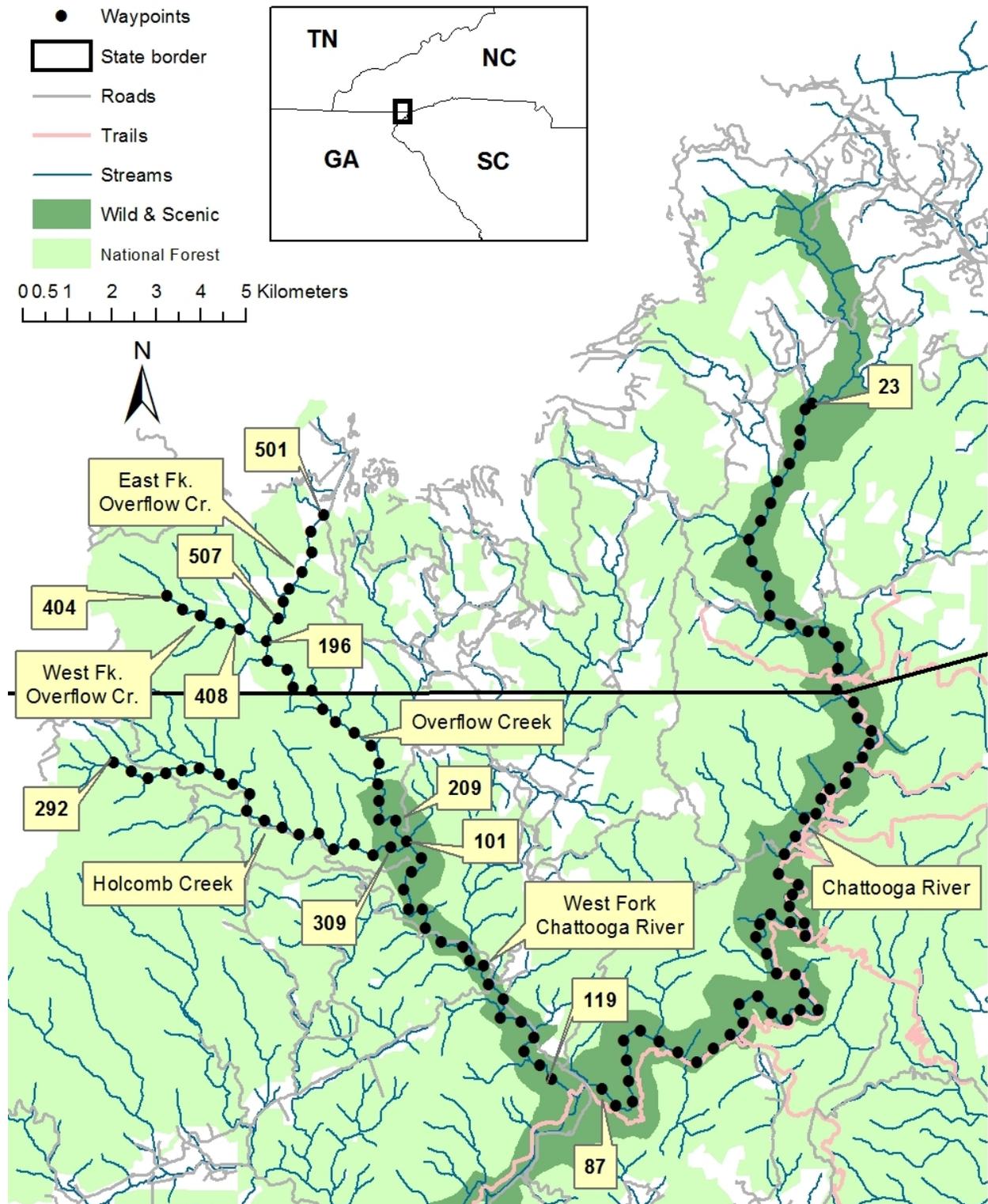


Figure 1. Waypoints marking upstream extent of corresponding inventoried reaches. Waypoint reach-ID numbers increase consecutively by 1 in a downstream direction. See appendices for corresponding river kilometers.

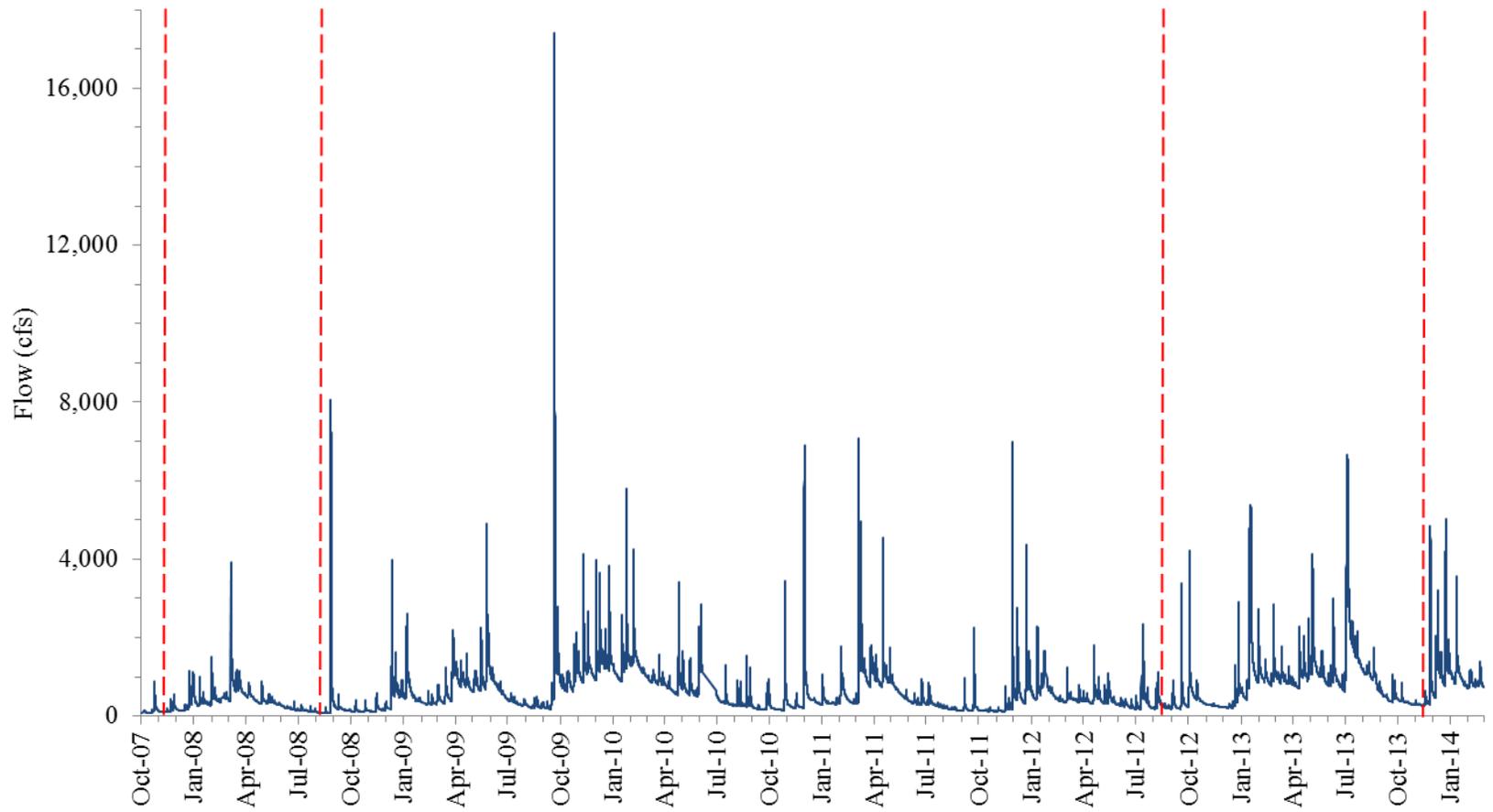


Figure 2. Flow (solid blue line, cubic feet per second, cfs) recorded at USGS gage 2177000 on the Chattooga River near Clayton, GA from October 2007 through February 2014. The CATT's large wood inventory dates are marked with dashed vertical red lines. Large flood events occurred on 8/26/2008 (8,070 cfs) and 9/20/2009 (17,400 cfs).

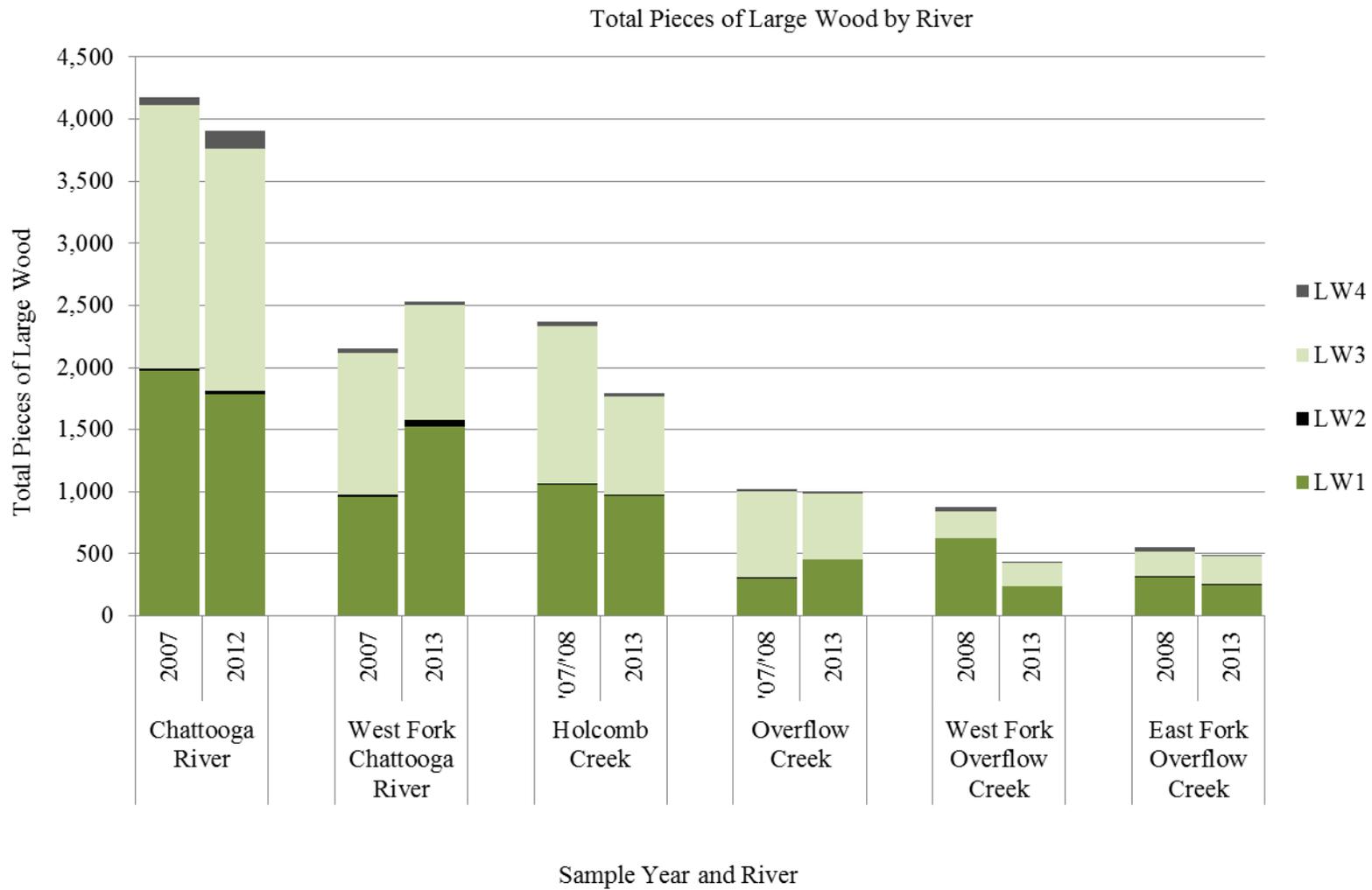


Figure 3. Total LW counts by sample year and river (see table 2 for LW size categories).

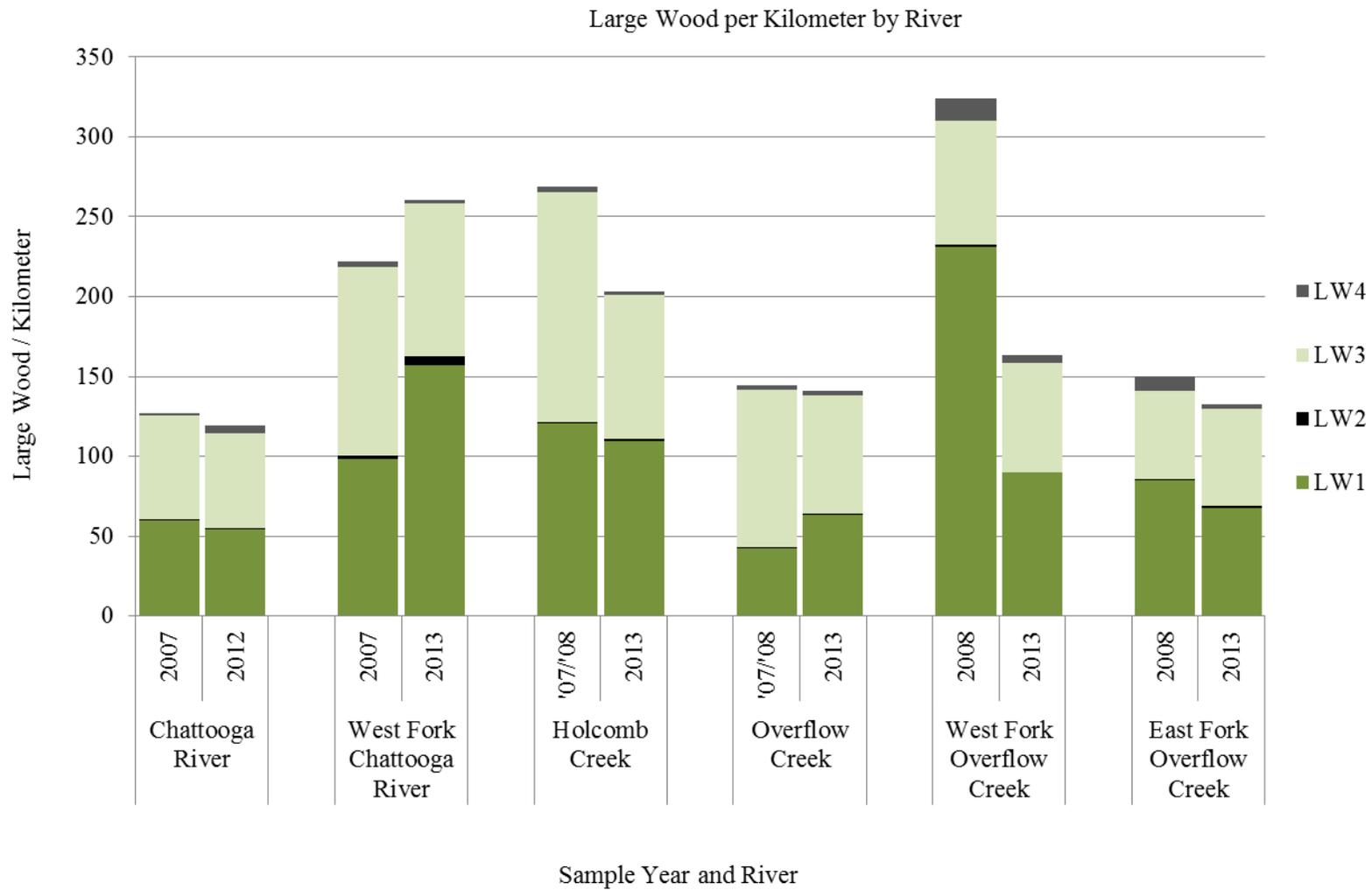


Figure 4. LW per kilometer by sample year and river (see table 2 for LW size categories).

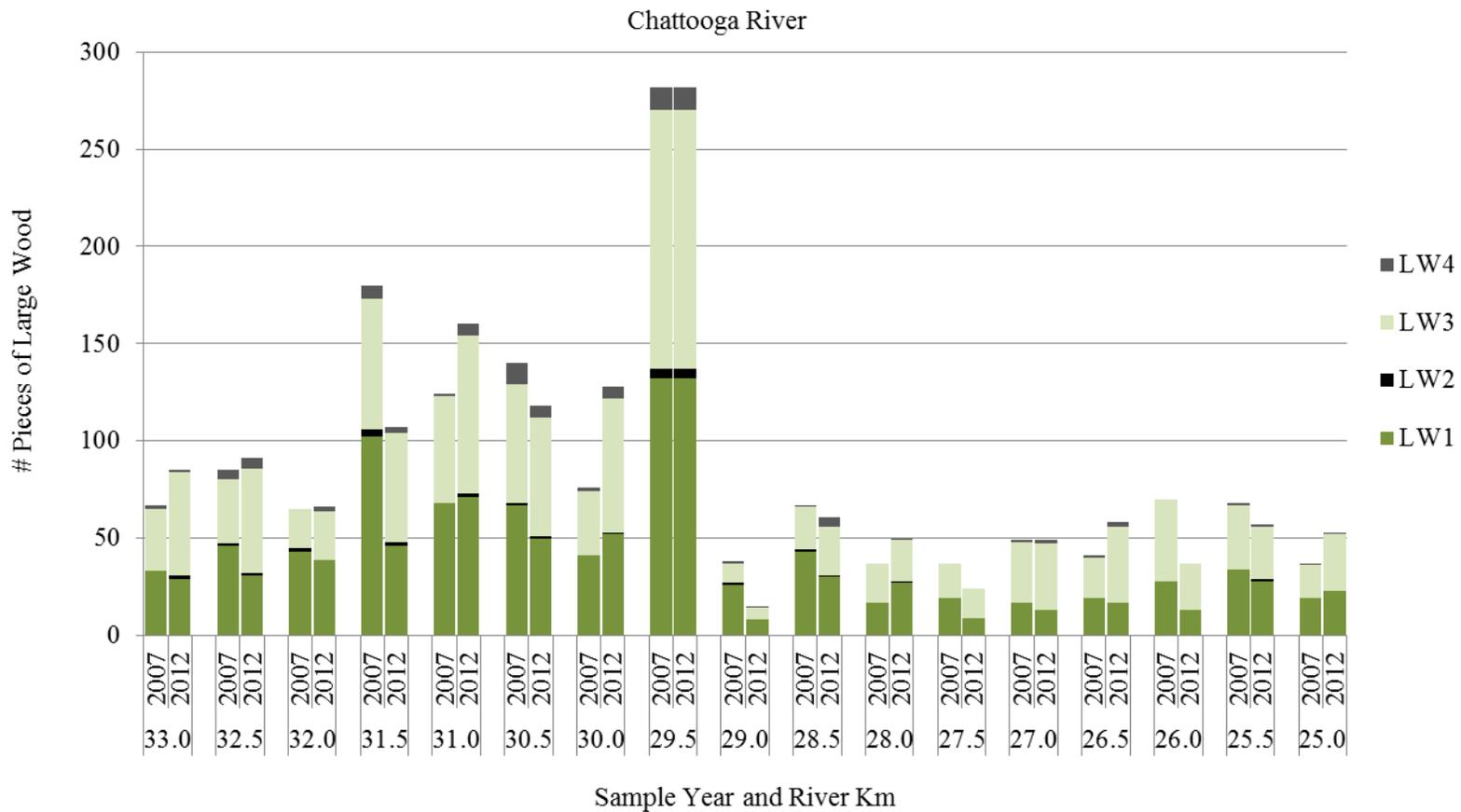


Figure 5A. LW counts (see table 2 for LW size categories) in 0.5 km reaches (33 rkm, downstream to 25 rkm) in Chattooga River in 2007 and 2012 (for 29.5 river km; in 2012 a large logjam was not counted, thus 2007 LW counts for this reach were used for 2012).

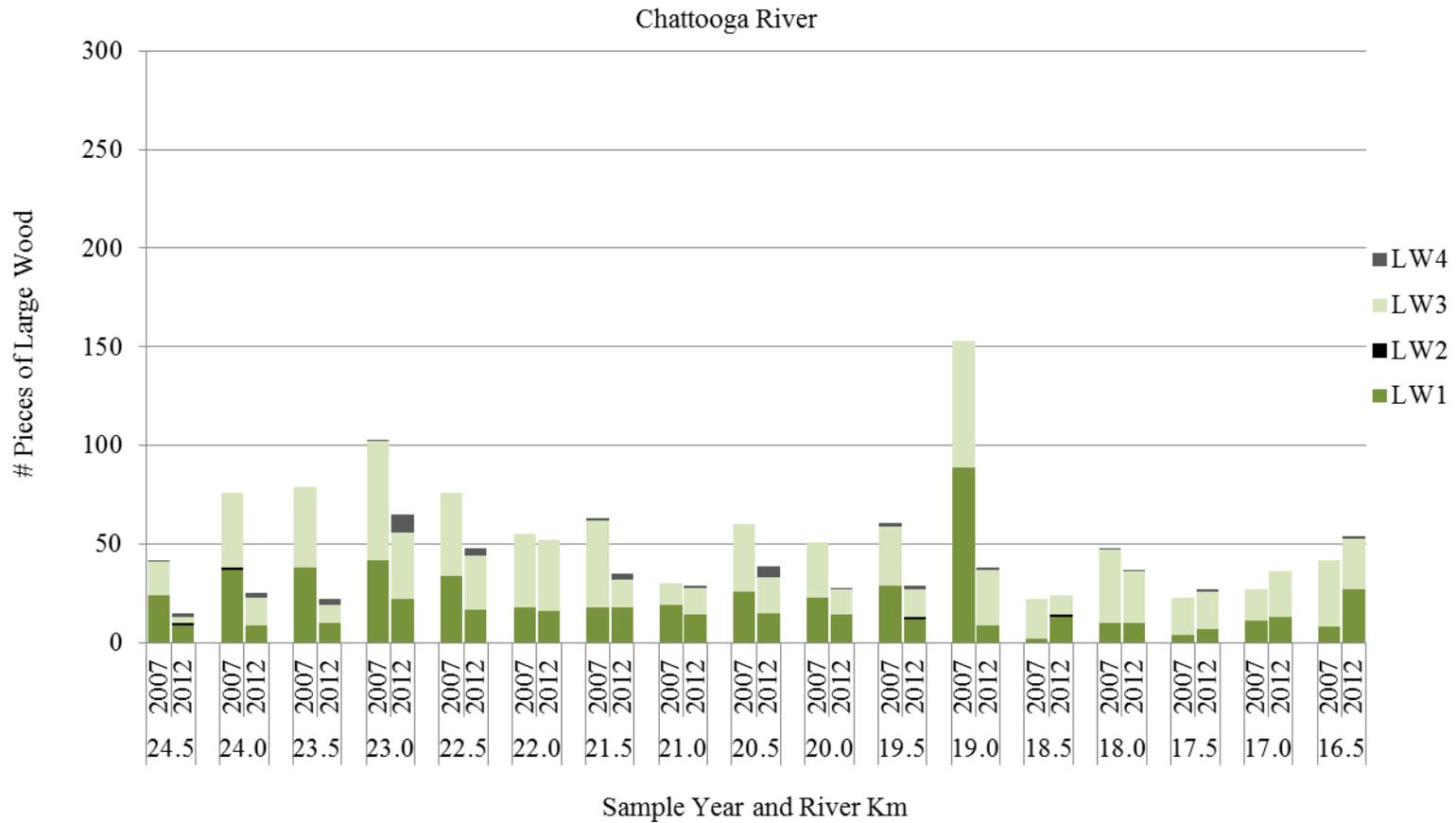


Figure 5B. LW counts (see table 2 for LW size categories) in 0.5 km reaches (24.5 rkm, downstream to 16.5 rkm) in Chattooga River in 2007 and 2012.

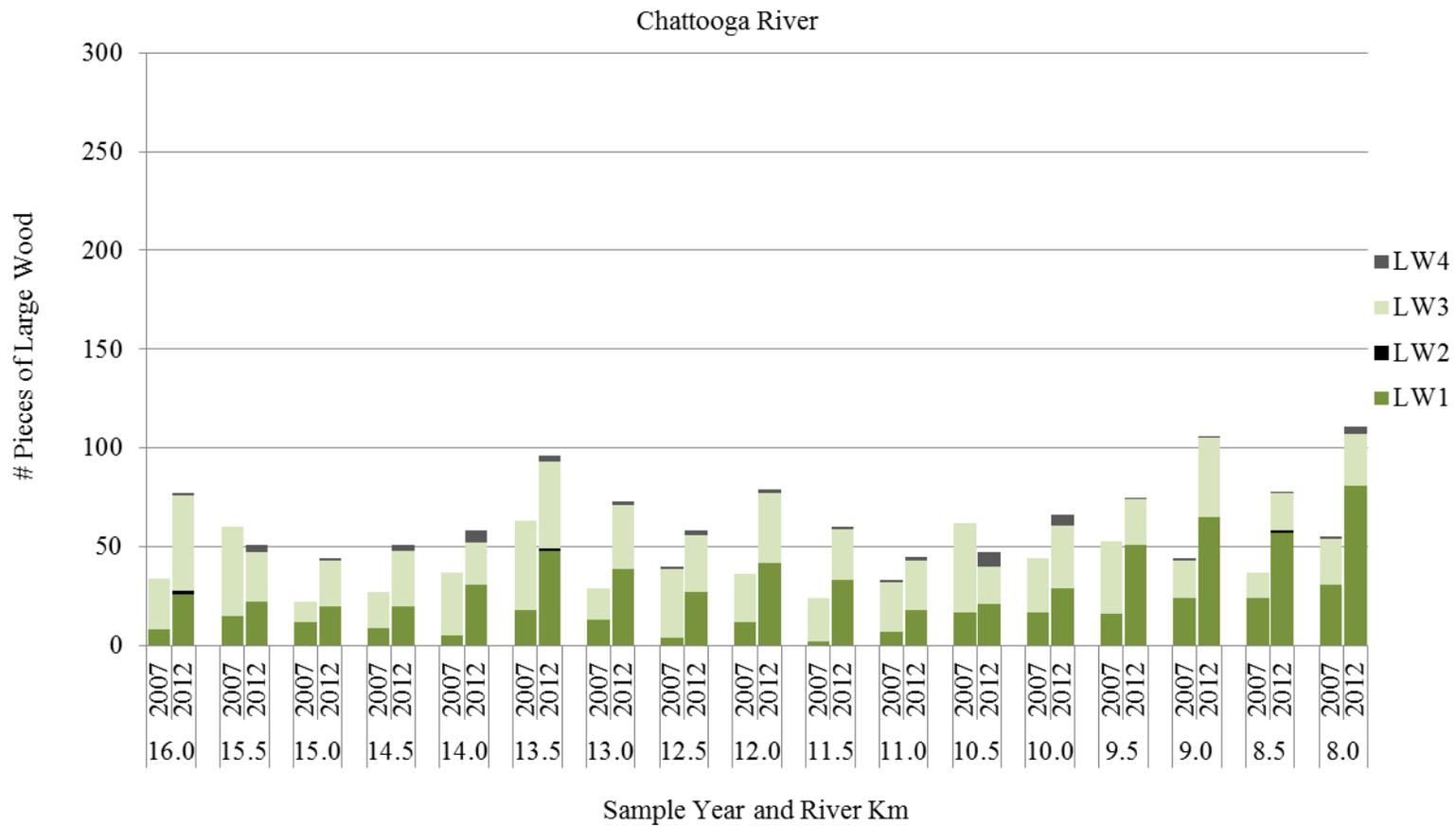


Figure 5C. LW counts (see table 2 for LW size categories) in 0.5 km reaches (16 rkm, downstream to 8 rkm) in Chattooga River in 2007 and 2012.

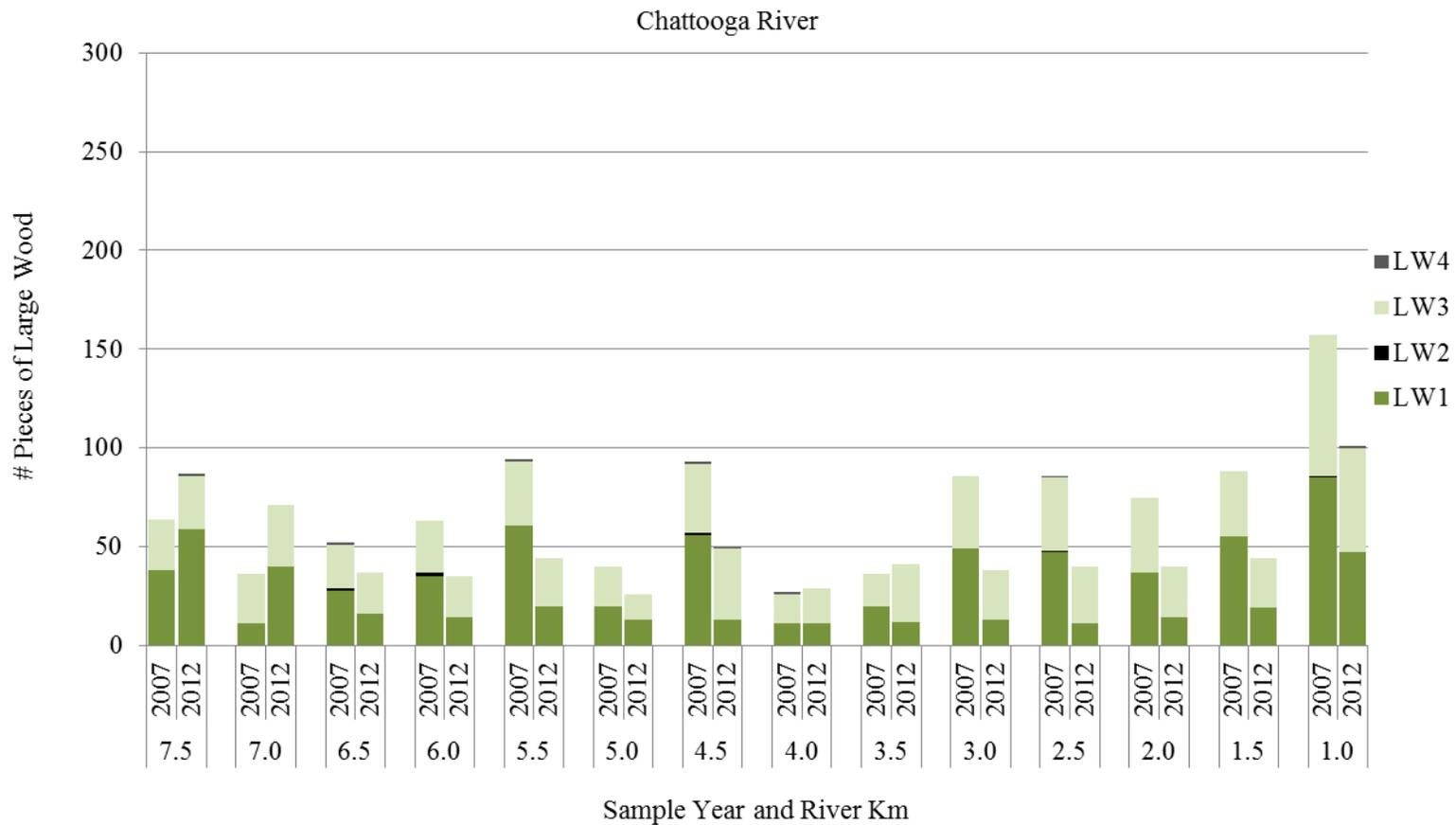


Figure 5D. LW counts (see table 2 for LW size categories) in 0.5 km reaches (7.5 rkm, downstream to 1 rkm) in Chattooga River in 2007 and 2012.

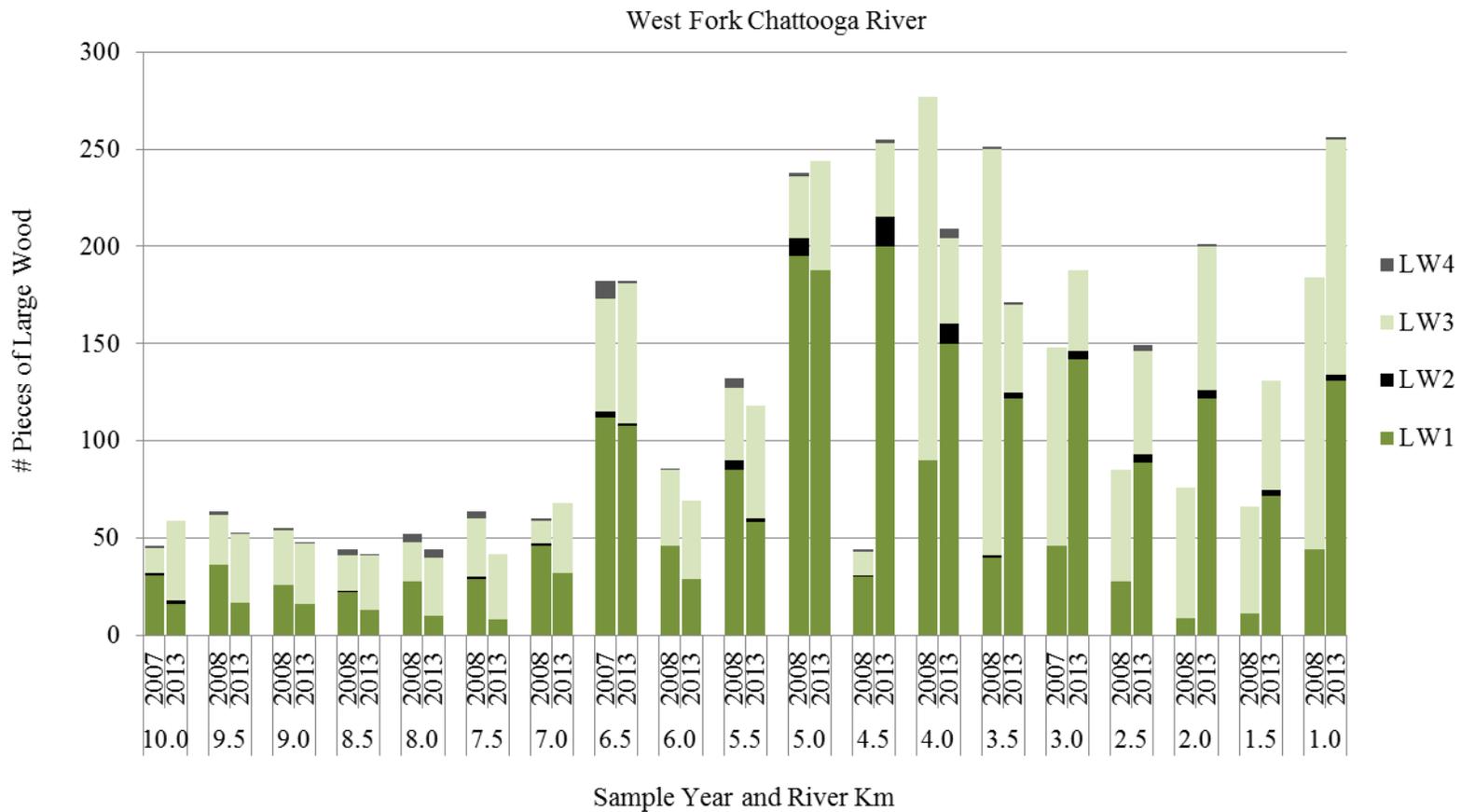


Figure 6. LW counts (see table 2 for LW size categories) in 0.5 km reaches (10 rkm, downstream to 1 rkm) in West Fork Chattooga River in 2008 and 2013.

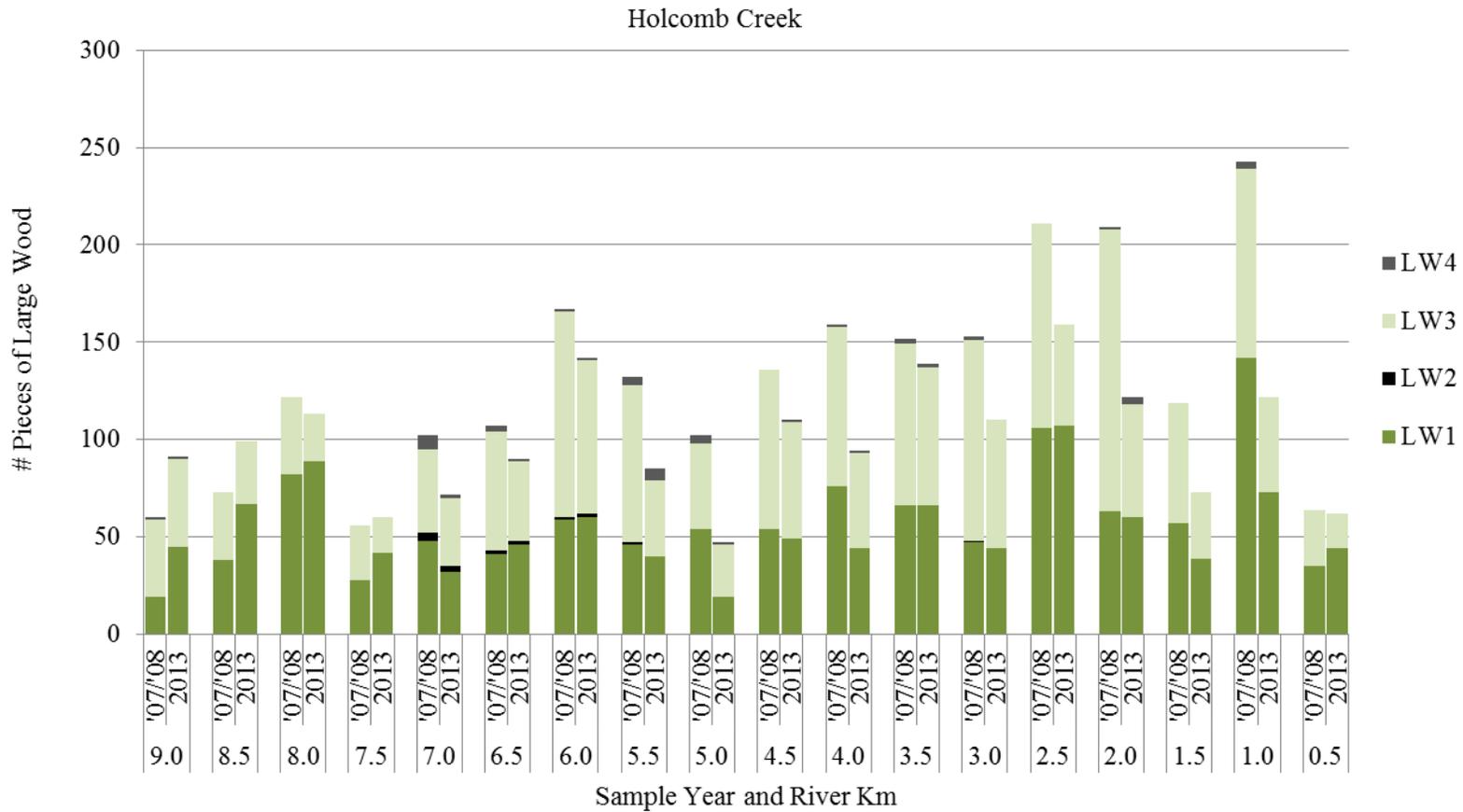


Figure 7. LW counts (see table 2 for LW size categories) in 0.5 km reaches (9 rkm, downstream to 0.5 rkm) in Holcomb Creek in 2007/2008 and 2013.

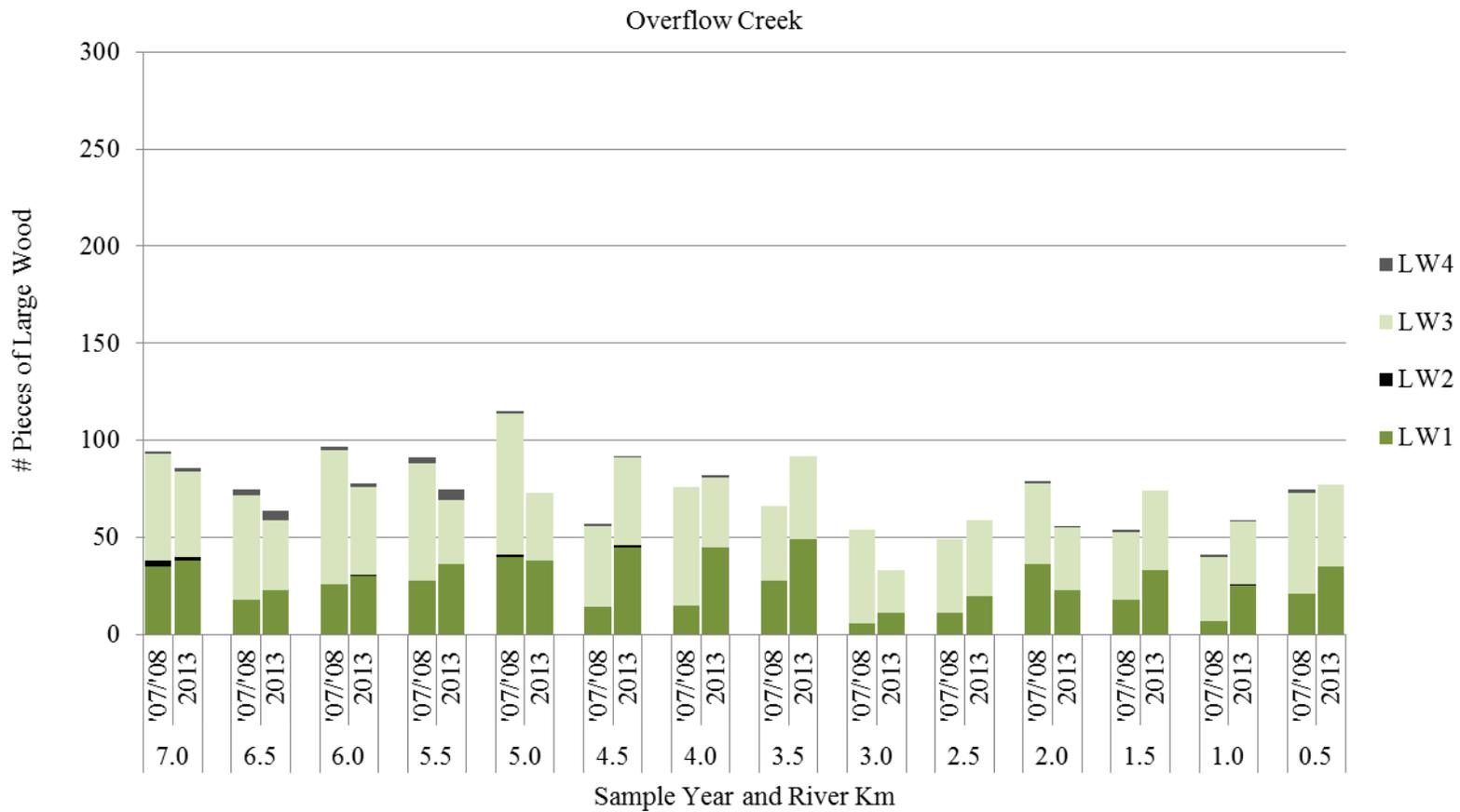


Figure 8. LW counts (see table 2 for LW size categories) in 0.5 km reaches (7 rkm, downstream to 0.5 rkm) in Overflow Creek in 2007/2008 and 2013.

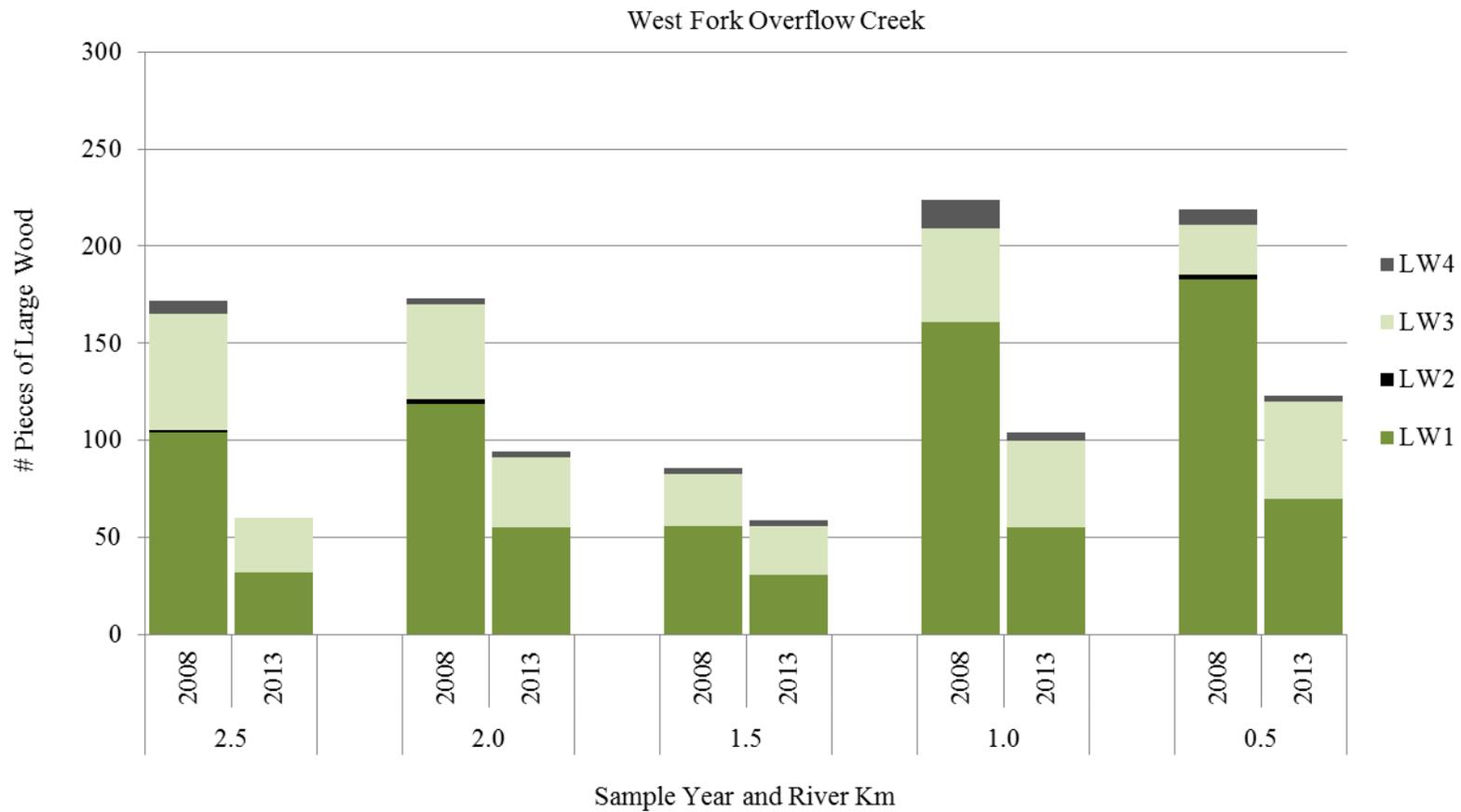


Figure 9. LW counts (see table 2 for LW size categories) in 0.5 km reaches (2.5 rkm, downstream to 0.5 rkm) in West Fork Overflow Creek in 2008 and 2013.

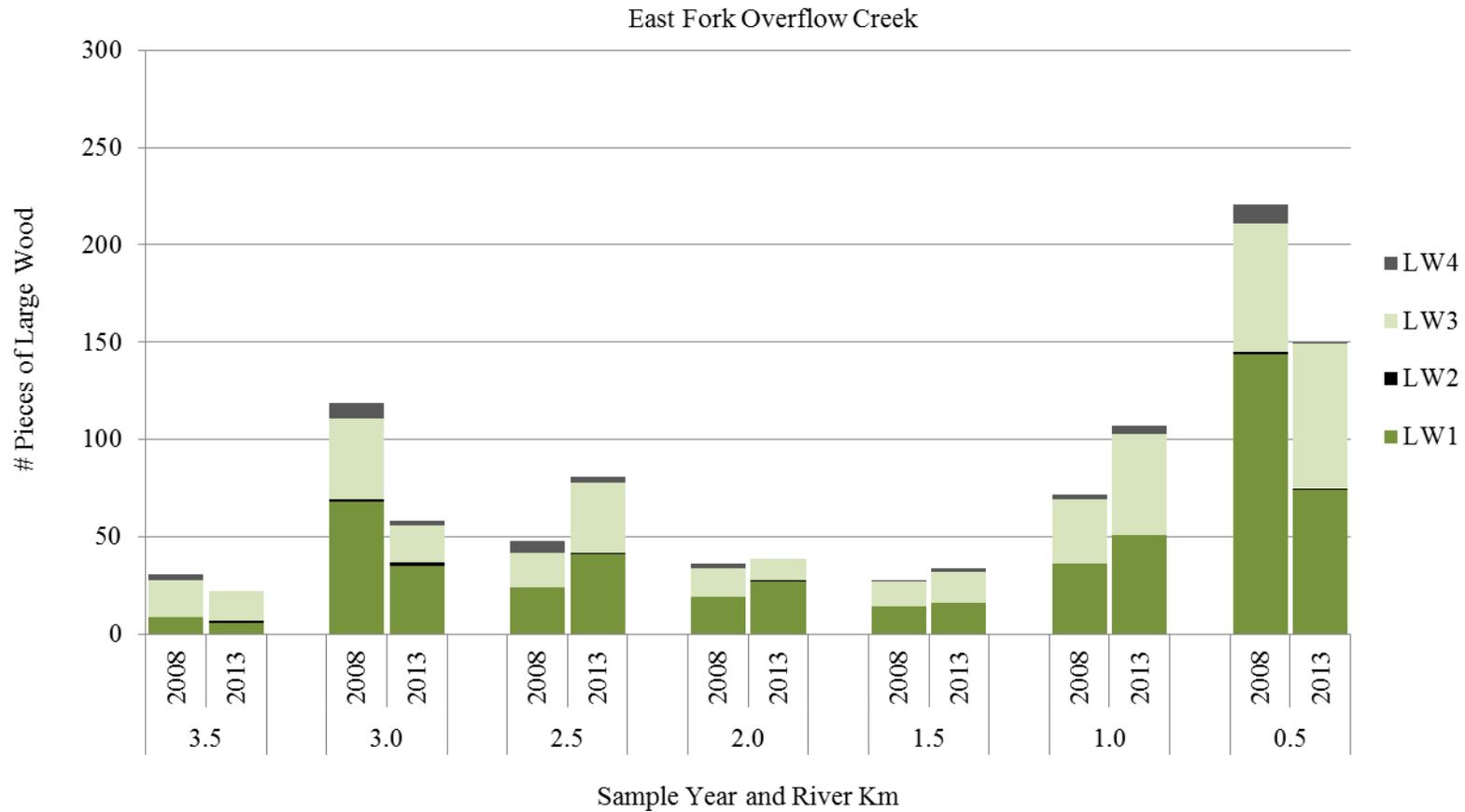


Figure 10. LW counts (see table 2 for LW size categories) in 0.5 km reaches (3.5 rkm, downstream to 0.5 rkm) in East Fork Overflow Creek in 2008 and 2013.

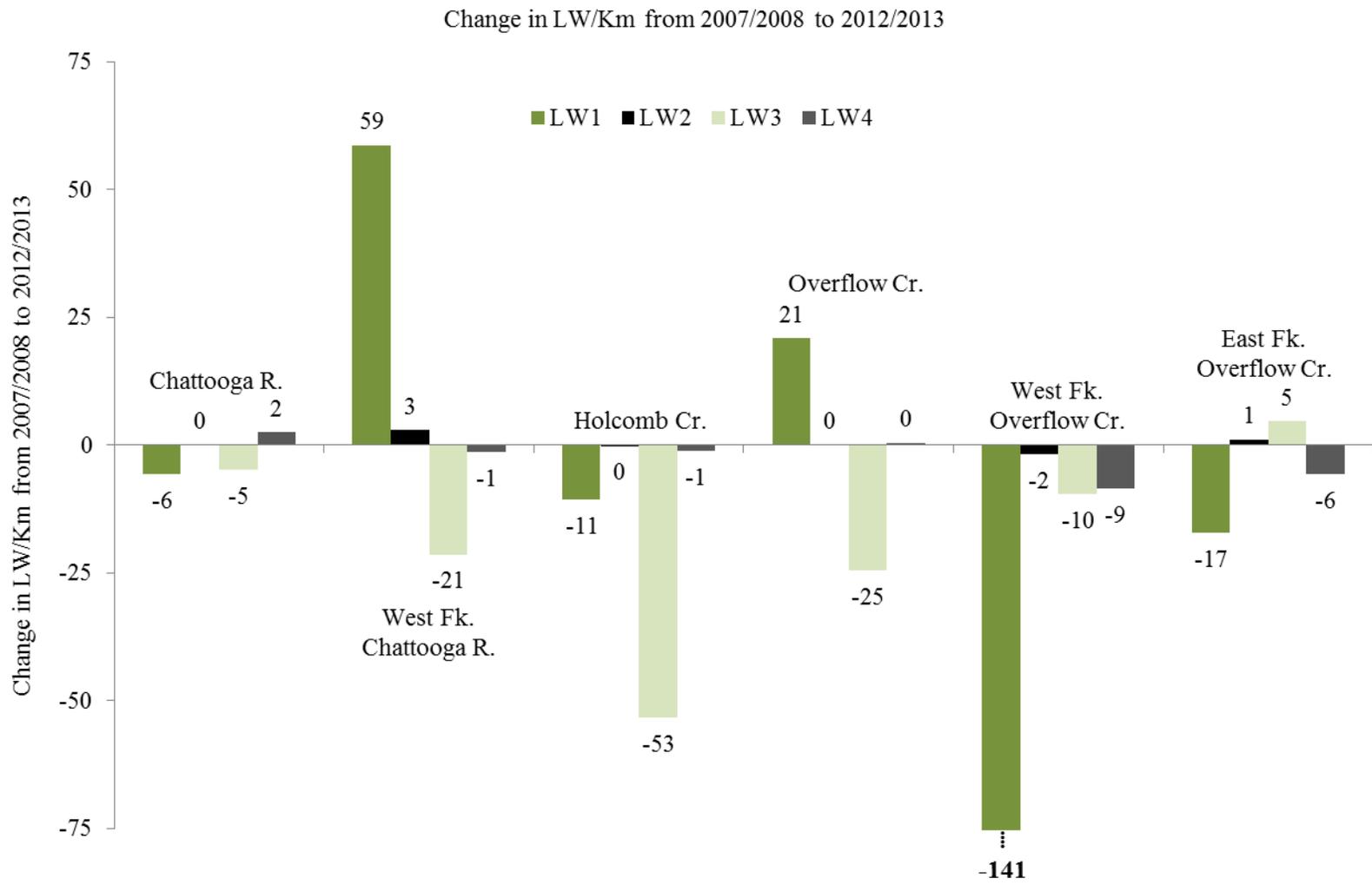


Figure 11. Change in LW per kilometer from 2007/2008 to 2012/2013 for inventoried rivers (see table 2 for LW size classes).

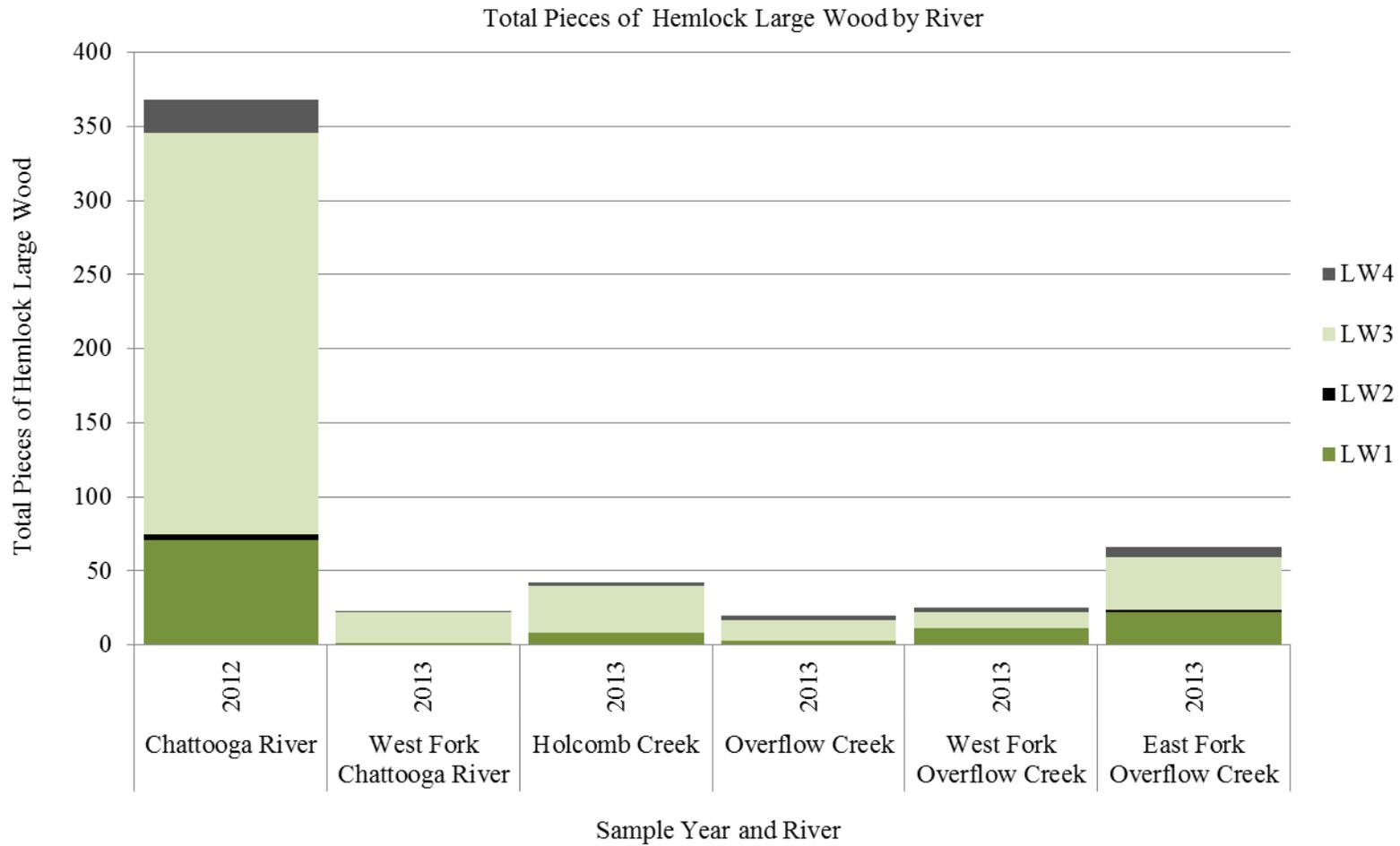


Figure 12. Total hemlock LW counts by sample year and river (see table 2 for LW size categories).

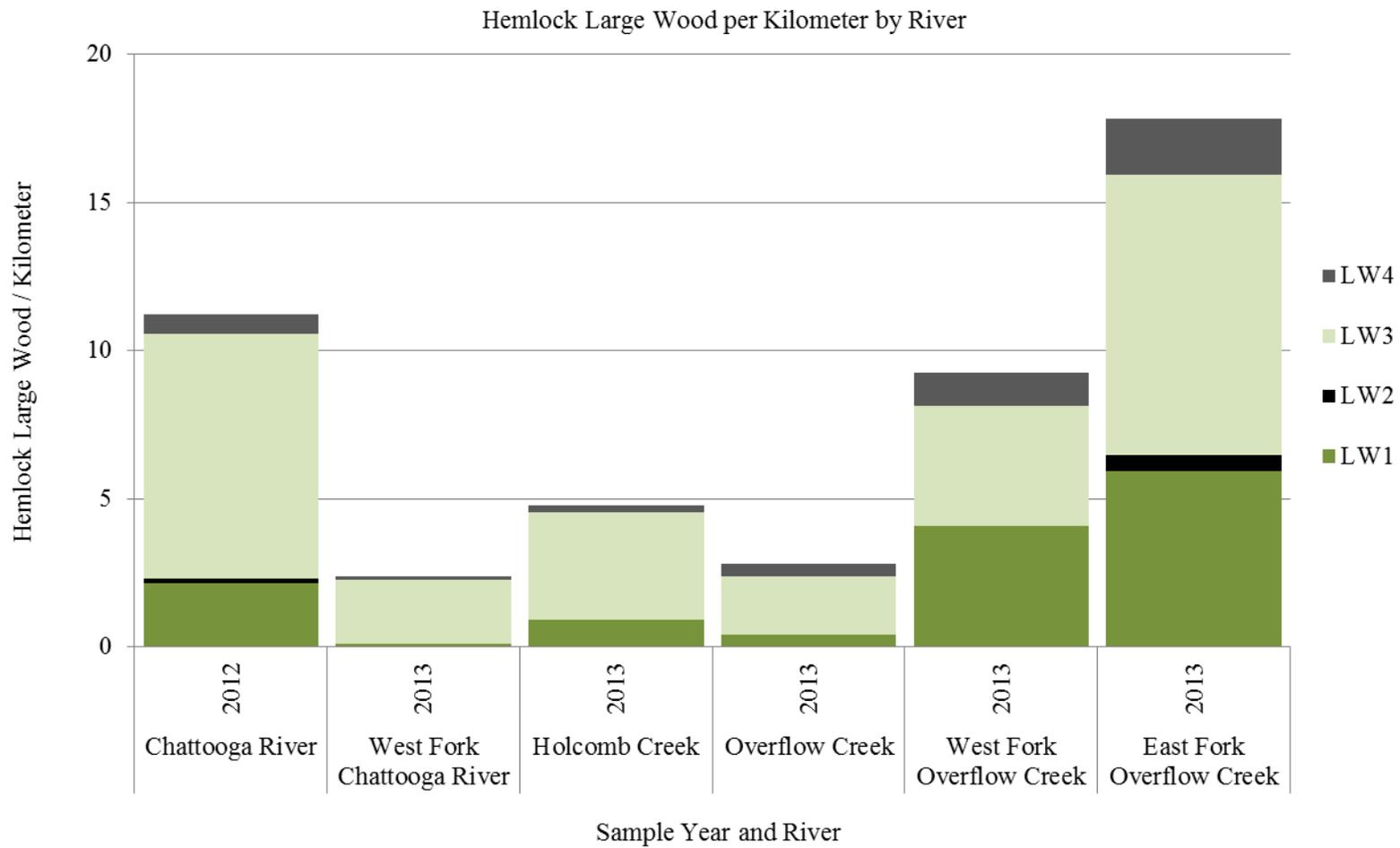


Figure 13. Hemlock LW per kilometer by sample year and river (see table 2 for LW size categories).

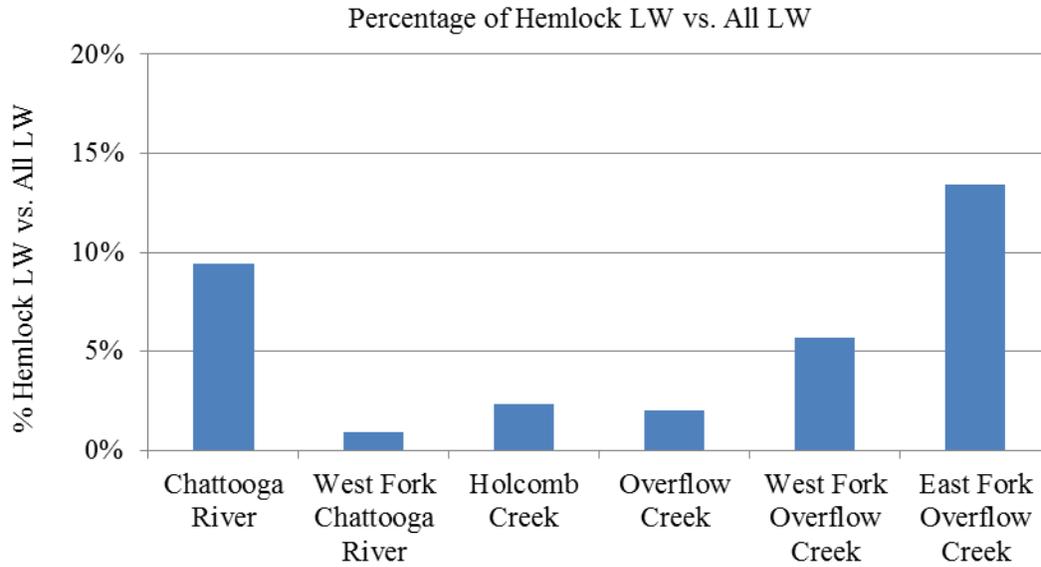


Figure 14. Percentage of total LW identified as hemlock for the 2012/2013 inventories.

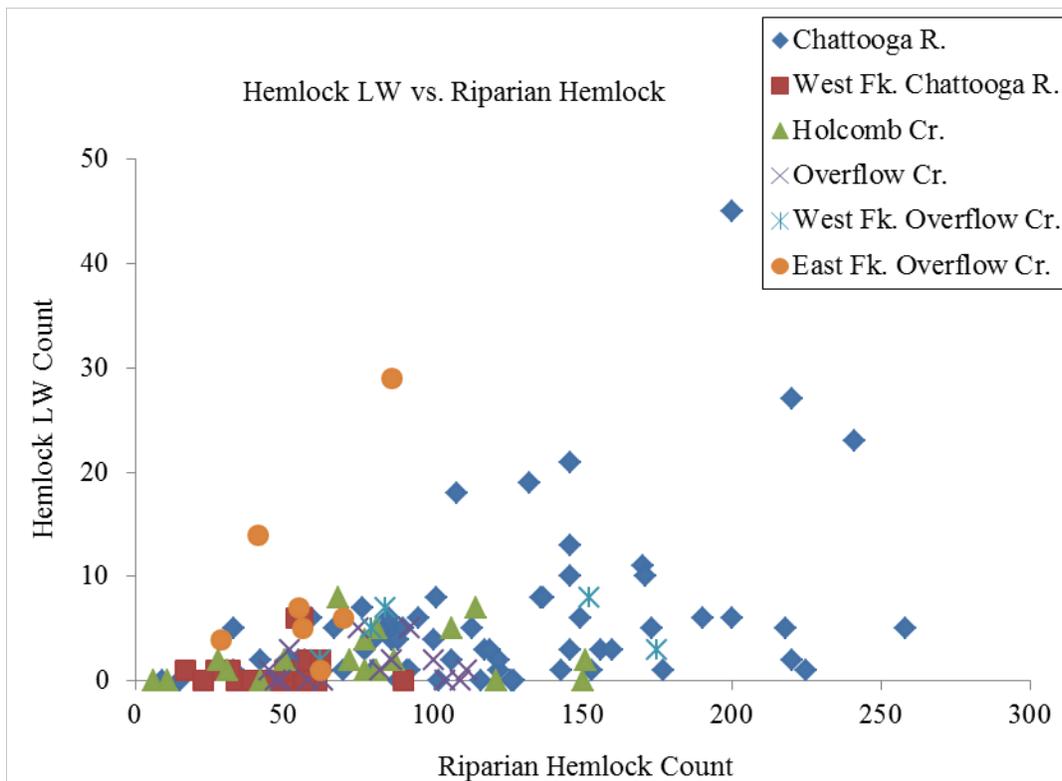


Figure 15. Hemlock LW versus riparian hemlock counts in 0.5 km reaches for the 2012/2013 inventories.

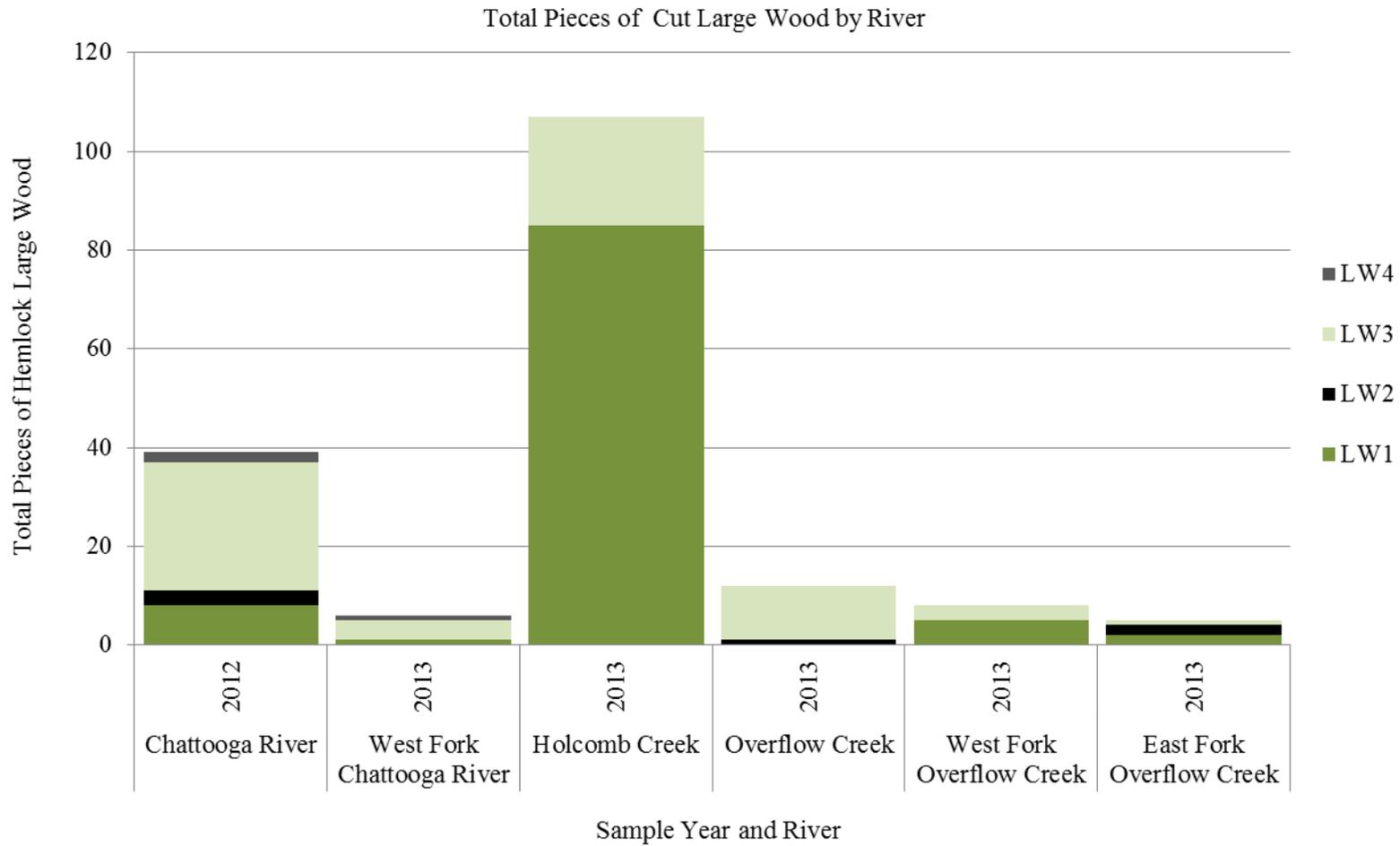


Figure 16. Total cut LW counts by sample year and river (see table 2 for LW size categories).

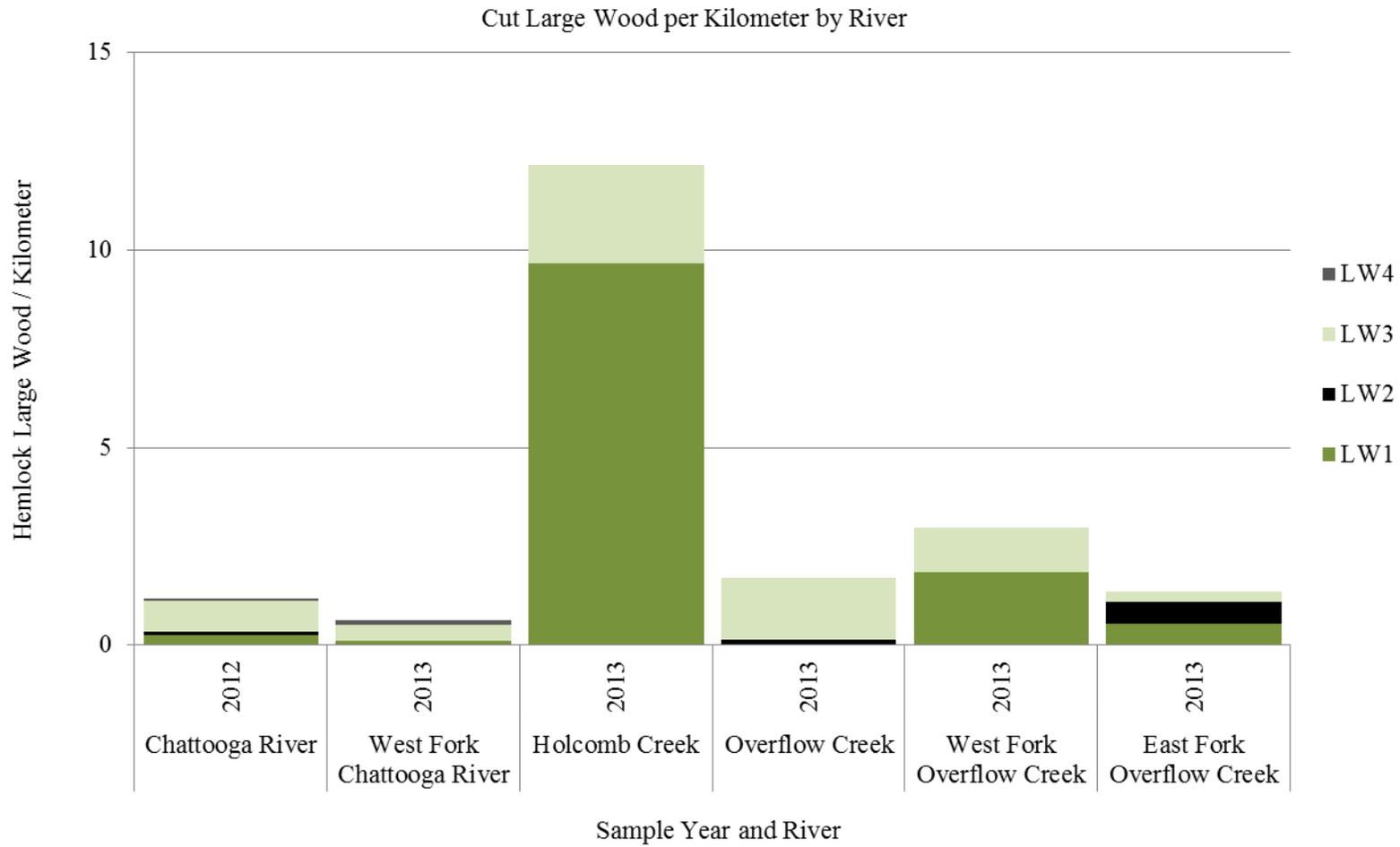


Figure 17. Cut LW per kilometer by sample year and river (see table 2 for LW size categories).

Appendix A: Chattooga River Data

Table A1. Large wood (LW) counts in the Chattooga River, 2007 and 2012. River km 0.0 is at the confluence with West Fork Chattooga. See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	Chattooga River - 2007							Chattooga River - 2012						
			Large Wood Size Classes					Root-wads	Obstruc-tions	Large Wood Size Classes					Root-wads	Obstruc-tions
			LW 1	LW 2	LW 3	LW 4	LW Total			LW 1	LW 2	LW 3	LW 4	LW Total		
23	33	0.5	33	0	32	2	67	7	0	29	2	53	1	85	5	6
24	32.5	0.5	46	1	33	5	85	3	1	31	1	54	5	91	6	2
25	32	0.5	43	2	20	0	65	4	2	39	0	25	2	66	4	0
26	31.5	0.5	102	4	67	7	180	6	6	46	2	56	3	107	5	4
27	31	0.5	68	0	55	1	124	2	1	71	2	81	6	160	11	4
28	30.5	0.5	67	1	61	11	140	3	2	50	1	61	6	118	10	5
29	30	0.5	41	0	33	2	76	2	2	52	1	69	6	128	10	2
30	29.5	0.5	132	5	133	12	282	2	0	132	5	133	12	282	4	4
31	29	0.5	26	1	10	1	38	1	1	8	0	6	1	15	1	0
32	28.5	0.5	43	1	22	1	67	1	0	30	1	25	5	61	2	1
33	28	0.5	17	0	20	0	37	0	0	27	1	21	1	50	2	0
34	27.5	0.5	19	0	18	0	37	0	0	9	0	15	0	24	0	0
35	27	0.5	17	0	31	1	49	2	1	13	0	34	2	49	2	2
36	26.5	0.5	19	0	21	1	41	0	1	17	0	39	2	58	2	0
37	26	0.5	28	0	42	0	70	1	1	13	0	24	0	37	0	0
38	25.5	0.5	34	0	33	1	68	1	2	28	1	27	1	57	0	1
39	25	0.5	19	0	17	1	37	0	0	23	0	29	1	53	0	1
40	24.5	0.5	24	0	17	1	42	2	0	9	1	3	2	15	1	1
41	24	0.5	37	1	38	0	76	2	0	9	0	14	2	25	2	1
42	23.5	0.5	38	0	41	0	79	4	0	10	0	9	3	22	3	0
43	23	0.5	42	0	60	1	103	1	1	22	0	34	9	65	3	2
44	22.5	0.5	34	0	42	0	76	0	0	17	0	27	4	48	4	3
45	22	0.5	18	0	37	0	55	2	1	16	0	36	0	52	1	3

Table A1 (continued).

Reach ID	River km	Length (km)	Chattooga River - 2007							Chattooga River - 2012						
			Large Wood Size Classes							Large Wood Size Classes						
			LW 1	LW 2	LW 3	LW 4	LW Total	Root-wads	Obstructions	LW 1	LW 2	LW 3	LW 4	LW Total	Root-wads	Obstructions
46	21.5	0.5	18	0	44	1	63	3	1	18	0	14	3	35	0	0
47	21	0.5	19	0	11	0	30	3	0	14	0	14	1	29	6	0
48	20.5	0.5	26	0	34	0	60	4	1	15	0	18	6	39	4	0
49	20	0.5	23	0	28	0	51	2	0	14	0	13	1	28	2	0
50	19.5	0.5	29	0	30	2	61	6	0	12	1	14	2	29	5	0
51	19	0.5	89	0	64	0	153	7	0	9	0	28	1	38	1	0
52	18.5	0.5	2	0	20	0	22	4	0	13	1	10	0	24	3	0
53	18	0.5	10	0	37	1	48	3	0	10	0	26	1	37	1	0
54	17.5	0.5	4	0	19	0	23	1	1	7	0	19	1	27	2	1
55	17	0.5	11	0	16	0	27	2	0	13	0	23	0	36	3	0
56	16.5	0.5	8	0	34	0	42	0	0	27	0	26	1	54	1	0
57	16	0.5	8	0	26	0	34	0	0	26	2	48	1	77	2	0
58	15.5	0.5	15	0	45	0	60	0	0	22	0	25	4	51	2	0
59	15	0.5	12	0	10	0	22	1	0	20	0	23	1	44	1	0
60	14.5	0.5	9	0	18	0	27	0	0	20	0	28	3	51	2	0
61	14	0.5	5	0	32	0	37	0	0	31	0	21	6	58	3	0
62	13.5	0.5	18	0	45	0	63	2	0	48	1	44	3	96	3	0
63	13	0.5	13	0	16	0	29	0	0	39	0	32	2	73	3	0
64	12.5	0.5	4	0	35	1	40	3	0	27	0	29	2	58	3	0
65	12	0.5	12	0	24	0	36	0	0	42	0	35	2	79	4	0
66	11.5	0.5	2	0	22	0	24	0	0	33	0	26	1	60	0	0
67	11	0.5	7	0	25	1	33	0	0	18	0	25	2	45	1	0
68	10.5	0.5	17	0	45	0	62	1	0	21	0	19	7	47	3	2
69	10	0.5	17	0	27	0	44	0	0	29	0	32	5	66	2	0

Table A1 (continued).

Reach ID	River km	Length (km)	Chattooga River - 2007							Chattooga River - 2012						
			Large Wood Size Classes							Large Wood Size Classes						
			LW 1	LW 2	LW 3	LW 4	LW Total	Root-wads	Obstruc-tions	LW 1	LW 2	LW 3	LW 4	LW Total	Root-wads	Obstruc-tions
70	9.5	0.5	16	0	37	0	53	1	0	51	0	23	1	75	2	0
71	9	0.5	24	0	19	1	44	1	1	65	0	40	1	106	3	1
72	8.5	0.5	24	0	13	0	37	0	0	57	1	19	1	78	5	0
73	8	0.5	31	0	23	1	55	0	0	81	0	26	4	111	1	0
74	7.5	0.5	38	0	26	0	64	2	0	59	0	27	1	87	3	0
75	7	0.5	11	0	25	0	36	2	0	40	0	31	0	71	8	0
76	6.5	0.5	28	1	22	1	52	4	0	16	0	21	0	37	0	0
77	6	0.5	35	2	26	0	63	4	0	14	0	21	0	35	0	0
78	5.5	0.5	61	0	32	1	94	3	0	20	0	24	0	44	1	0
79	5	0.5	20	0	20	0	40	6	0	13	0	13	0	26	0	0
80	4.5	0.5	56	1	35	1	93	7	0	13	0	36	1	50	3	0
81	4	0.5	11	0	15	1	27	1	0	11	0	18	0	29	0	1
82	3.5	0.5	20	0	16	0	36	0	0	12	0	29	0	41	4	0
83	3	0.5	49	0	37	0	86	0	0	13	0	25	0	38	1	0
84	2.5	0.5	47	1	37	1	86	5	0	11	0	29	0	40	1	0
85	2	0.5	37	0	38	0	75	7	0	14	0	26	0	40	1	0
86	1.5	0.5	55	0	33	0	88	4	0	19	0	25	0	44	0	0
87	1	0.8	85	1	71	0	157	8	0	47	0	53	1	101	5	0
<i>Total</i>		<i>32.8</i>	<i>1,973</i>	<i>22</i>	<i>2,115</i>	<i>61</i>	<i>4,171</i>	<i>143</i>	<i>26</i>	<i>1,785</i>	<i>24</i>	<i>1,953</i>	<i>140</i>	<i>3,902</i>	<i>173</i>	<i>47</i>
<i>Total per km</i>		<i>--</i>	<i>60</i>	<i>1</i>	<i>64</i>	<i>2</i>	<i>127</i>	<i>4</i>	<i>1</i>	<i>54</i>	<i>1</i>	<i>60</i>	<i>4</i>	<i>119</i>	<i>5</i>	<i>1</i>

Table A2. Hemlock large wood (LW) counts in the Chattooga River, 2007 and 2012. River km 0.0 is at the confluence with West Fork Chattooga. See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	Chattooga River - 2007								Chattooga River - 2012							
			Hemlock Size Classes					Root-wads	Obstructions	Riparian Hemlock	Hemlock Size Classes					Root-wads	Obstructions	Riparian Hemlock
			LW 1	LW 2	LW 3	LW 4	LW Total				LW 1	LW 2	LW 3	LW 4	LW Total			
23	33	0.5	--	--	--	--	--	--	--	--	13	0	32	0	45	4	2	200
24	32.5	0.5	--	--	--	--	--	--	--	--	3	0	22	2	27	5	1	220
25	32	0.5	--	--	--	--	--	--	--	--	2	0	11	0	13	0	0	146
26	31.5	0.5	--	--	--	--	--	--	--	--	6	0	15	0	21	1	0	146
27	31	0.5	--	--	--	--	--	--	--	--	3	0	19	1	23	3	1	241
28	30.5	0.5	--	--	--	--	--	--	--	--	4	0	7	0	11	0	0	170
29	30	0.5	--	--	--	--	--	--	--	--	0	0	8	0	8	2	1	136
30	29.5	0.5	--	--	--	--	--	--	--	--	0	1	4	1	6	3	1	95
31	29	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	50
32	28.5	0.5	--	--	--	--	--	--	--	--	4	0	4	2	10	3	0	171
33	28	0.5	--	--	--	--	--	--	--	--	3	0	2	0	5	1	0	173
34	27.5	0.5	--	--	--	--	--	--	--	--	0	0	3	0	3	0	0	156
35	27	0.5	--	--	--	--	--	--	--	--	3	0	13	2	18	0	0	108
36	26.5	0.5	--	--	--	--	--	--	--	--	4	0	13	2	19	0	0	132
37	26	0.5	--	--	--	--	--	--	--	--	2	0	8	0	10	0	0	146
38	25.5	0.5	--	--	--	--	--	--	--	--	0	0	7	1	8	0	0	137
39	25	0.5	--	--	--	--	--	--	--	--	0	0	2	0	2	0	0	220
40	24.5	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	116
41	24	0.5	--	--	--	--	--	--	--	--	0	0	1	0	1	0	0	143
42	23.5	0.5	--	--	--	--	--	--	--	--	0	0	4	1	5	1	0	84
43	23	0.5	--	--	--	--	--	--	--	--	0	0	5	0	5	0	0	87
44	22.5	0.5	--	--	--	--	--	--	--	--	0	0	7	0	7	0	2	76
45	22	0.5	--	--	--	--	--	--	--	--	1	0	1	0	2	0	0	42

Table A2 (continued).

Reach ID	River km	Length (km)	Chattooga River - 2007								Chattooga River - 2012							
			Hemlock Size Classes					Root-wads	Obstruc-tions	Riparian Hemlock	Hemlock Size Classes					Root-wads	Obstruc-tions	Riparian Hemlock
			LW 1	LW 2	LW 3	LW 4	LW Total				LW 1	LW 2	LW 3	LW 4	LW Total			
46	21.5	0.5	--	--	--	--	--	--	--	--	1	0	2	2	5	0	0	33
47	21	0.5	--	--	--	--	--	--	--	--	1	0	5	0	6	1	0	59
48	20.5	0.5	--	--	--	--	--	--	--	--	0	0	1	1	2	0	0	57
49	20	0.5	--	--	--	--	--	--	--	--	0	0	4	0	4	1	0	100
50	19.5	0.5	--	--	--	--	--	--	--	--	0	0	1	0	1	0	0	80
51	19	0.5	--	--	--	--	--	--	--	--	0	0	4	0	4	0	0	80
52	18.5	0.5	--	--	--	--	--	--	--	--	1	0	1	0	2	2	0	55
53	18	0.5	--	--	--	--	--	--	--	--	0	0	1	0	1	0	0	57
54	17.5	0.5	--	--	--	--	--	--	--	--	0	0	1	0	1	1	0	91
55	17	0.5	--	--	--	--	--	--	--	--	0	0	2	0	2	0	0	51
56	16.5	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	88
57	16	0.5	--	--	--	--	--	--	--	--	1	0	3	0	4	2	0	86
58	15.5	0.5	--	--	--	--	--	--	--	--	3	0	3	0	6	0	0	85
59	15	0.5	--	--	--	--	--	--	--	--	1	0	3	1	5	0	0	67
60	14.5	0.5	--	--	--	--	--	--	--	--	0	0	3	0	3	0	0	77
61	14	0.5	--	--	--	--	--	--	--	--	0	0	3	0	3	2	0	117
62	13.5	0.5	--	--	--	--	--	--	--	--	0	1	3	1	5	1	0	90
63	13	0.5	--	--	--	--	--	--	--	--	2	0	5	1	8	1	0	101
64	12.5	0.5	--	--	--	--	--	--	--	--	0	0	3	0	3	0	0	119
65	12	0.5	--	--	--	--	--	--	--	--	2	0	4	0	6	1	0	149
66	11.5	0.5	--	--	--	--	--	--	--	--	0	0	0	1	1	0	0	92
67	11	0.5	--	--	--	--	--	--	--	--	0	0	0	1	1	0	0	122
68	10.5	0.5	--	--	--	--	--	--	--	--	2	0	1	2	5	1	1	113
69	10	0.5	--	--	--	--	--	--	--	--	1	0	1	0	2	0	0	122

Table A2 (continued).

Reach ID	River km	Length (km)	Chattooga River - 2007								Chattooga River - 2012							
			Hemlock Size Classes					Root-wads	Obstruc-tions	Riparian Hemlock	Hemlock Size Classes					Root-wads	Obstruc-tions	Riparian Hemlock
			LW 1	LW 2	LW 3	LW 4	LW Total				LW 1	LW 2	LW 3	LW 4	LW Total			
70	9.5	0.5	--	--	--	--	--	--	--	--	1	0	2	0	3	0	0	146
71	9	0.5	--	--	--	--	--	--	--	--	0	2	4	0	6	3	0	190
72	8.5	0.5	--	--	--	--	--	--	--	--	2	0	4	0	6	0	0	200
73	8	0.5	--	--	--	--	--	--	--	--	0	0	1	0	1	0	0	225
74	7.5	0.5	--	--	--	--	--	--	--	--	2	0	3	0	5	1	0	258
75	7	0.5	--	--	--	--	--	--	--	--	0	0	3	0	3	0	0	160
76	6.5	0.5	--	--	--	--	--	--	--	--	2	0	3	0	5	0	0	218
77	6	0.5	--	--	--	--	--	--	--	--	0	0	2	0	2	0	0	106
78	5.5	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	127
79	5	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	102
80	4.5	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	15
81	4	0.5	--	--	--	--	--	--	--	--	1	0	3	0	4	0	0	88
82	3.5	0.5	--	--	--	--	--	--	--	--	0	0	1	0	1	0	0	70
83	3	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	126
84	2.5	0.5	--	--	--	--	--	--	--	--	0	0	1	0	1	0	0	177
85	2	0.5	--	--	--	--	--	--	--	--	0	0	1	0	1	0	0	153
86	1.5	0.5	--	--	--	--	--	--	--	--	0	0	1	0	1	0	0	33
87	1	0.8	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	9
	<i>Total</i>	<i>32.8</i>	--	--	--	--	--	--	--	--	<i>71</i>	<i>4</i>	<i>271</i>	<i>22</i>	<i>368</i>	<i>40</i>	<i>9</i>	<i>7,689</i>
	<i>Total per km</i>	--	--	--	--	--	--	--	--	--	<i>2</i>	<i>0</i>	<i>8</i>	<i>1</i>	<i>11</i>	<i>1</i>	<i>0</i>	<i>234</i>

Table A3. Cut large wood (LW) counts in the Chattooga River, 2007 and 2012. River km 0.0 is at the confluence with West Fork Chattooga. See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	Chattooga River - 2007 Cut Wood Size Classes					Chattooga River - 2012 Cut Wood Size Classes				
			LW 1	LW 2	LW 3	LW 4	LW Total	LW 1	LW 2	LW 3	LW 4	LW Total
23	33	0.5	--	--	--	--	--	2	2	5	0	9
24	32.5	0.5	--	--	--	--	--	0	0	0	0	0
25	32	0.5	--	--	--	--	--	0	0	0	1	1
26	31.5	0.5	--	--	--	--	--	0	0	3	0	3
27	31	0.5	--	--	--	--	--	2	1	2	0	5
28	30.5	0.5	--	--	--	--	--	0	0	0	0	0
29	30	0.5	--	--	--	--	--	1	0	2	0	3
30	29.5	0.5	--	--	--	--	--	0	0	0	0	0
31	29	0.5	--	--	--	--	--	0	0	0	0	0
32	28.5	0.5	--	--	--	--	--	0	0	1	0	1
33	28	0.5	--	--	--	--	--	0	0	0	0	0
34	27.5	0.5	--	--	--	--	--	0	0	0	0	0
35	27	0.5	--	--	--	--	--	0	0	0	0	0
36	26.5	0.5	--	--	--	--	--	0	0	0	0	0
37	26	0.5	--	--	--	--	--	0	0	0	0	0
38	25.5	0.5	--	--	--	--	--	0	0	0	0	0
39	25	0.5	--	--	--	--	--	0	0	0	0	0
40	24.5	0.5	--	--	--	--	--	0	0	1	0	1
41	24	0.5	--	--	--	--	--	0	0	0	0	0
42	23.5	0.5	--	--	--	--	--	0	0	0	0	0
43	23	0.5	--	--	--	--	--	0	0	0	0	0
44	22.5	0.5	--	--	--	--	--	0	0	0	0	0
45	22	0.5	--	--	--	--	--	0	0	1	0	1

Table A3 (continued).

Reach ID	River km	Length (km)	Chattooga River - 2007 Cut Wood Size Classes					Chattooga River - 2012 Cut Wood Size Classes				
			LW	LW	LW	LW	LW	LW	LW	LW	LW	LW
			1	2	3	4	Total	1	2	3	4	Total
46	21.5	0.5	--	--	--	--	--	0	0	0	0	0
47	21	0.5	--	--	--	--	--	0	0	1	0	1
48	20.5	0.5	--	--	--	--	--	0	0	2	0	2
49	20	0.5	--	--	--	--	--	0	0	1	0	1
50	19.5	0.5	--	--	--	--	--	0	0	1	0	1
51	19	0.5	--	--	--	--	--	0	0	1	0	1
52	18.5	0.5	--	--	--	--	--	0	0	0	0	0
53	18	0.5	--	--	--	--	--	0	0	0	0	0
54	17.5	0.5	--	--	--	--	--	0	0	0	0	0
55	17	0.5	--	--	--	--	--	0	0	0	0	0
56	16.5	0.5	--	--	--	--	--	0	0	0	0	0
57	16	0.5	--	--	--	--	--	0	0	0	0	0
58	15.5	0.5	--	--	--	--	--	0	0	0	0	0
59	15	0.5	--	--	--	--	--	0	0	0	0	0
60	14.5	0.5	--	--	--	--	--	0	0	0	0	0
61	14	0.5	--	--	--	--	--	0	0	0	0	0
62	13.5	0.5	--	--	--	--	--	0	0	0	0	0
63	13	0.5	--	--	--	--	--	0	0	0	0	0
64	12.5	0.5	--	--	--	--	--	0	0	0	0	0
65	12	0.5	--	--	--	--	--	0	0	0	0	0
66	11.5	0.5	--	--	--	--	--	0	0	1	0	1
67	11	0.5	--	--	--	--	--	0	0	0	0	0
68	10.5	0.5	--	--	--	--	--	0	0	2	0	2
69	10	0.5	--	--	--	--	--	1	0	2	0	3

Table A3 (continued).

Reach ID	River km	Length (km)	Chattooga River - 2007 Cut Wood Size Classes					Chattooga River - 2012 Cut Wood Size Classes				
			LW	LW	LW	LW	LW	LW	LW	LW	LW	LW
			1	2	3	4	Total	1	2	3	4	Total
70	9.5	0.5	--	--	--	--	--	1	0	0	1	2
71	9	0.5	--	--	--	--	--	0	0	0	0	0
72	8.5	0.5	--	--	--	--	--	1	0	0	0	1
73	8	0.5	--	--	--	--	--	0	0	0	0	0
74	7.5	0.5	--	--	--	--	--	0	0	0	0	0
75	7	0.5	--	--	--	--	--	0	0	0	0	0
76	6.5	0.5	--	--	--	--	--	0	0	0	0	0
77	6	0.5	--	--	--	--	--	0	0	0	0	0
78	5.5	0.5	--	--	--	--	--	0	0	0	0	0
79	5	0.5	--	--	--	--	--	0	0	0	0	0
80	4.5	0.5	--	--	--	--	--	0	0	0	0	0
81	4	0.5	--	--	--	--	--	0	0	0	0	0
82	3.5	0.5	--	--	--	--	--	0	0	0	0	0
83	3	0.5	--	--	--	--	--	0	0	0	0	0
84	2.5	0.5	--	--	--	--	--	0	0	0	0	0
85	2	0.5	--	--	--	--	--	0	0	0	0	0
86	1.5	0.5	--	--	--	--	--	0	0	0	0	0
87	1	0.8	--	--	--	--	--	0	0	0	0	0
	<i>Total</i>	<i>32.8</i>	--	--	--	--	--	<i>8</i>	<i>3</i>	<i>26</i>	<i>2</i>	<i>39</i>
	<i>Total per km</i>	--	--	--	--	--	--	<i>0</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>1</i>

Table A4. Date, crew members, and comments recorded for large wood (LW) inventories in Chattooga River, 2007 and 2012. Section notes were prepared prior to field work.

Reach ID	Date		Crew		Section Notes	Comments 2007 / 2012
	2007	2012	2007	2012		
23	11/13/07	8/28/12	Colin Krause, Andy Dolloff	Andy Dolloff, Ben Saunders, James Hudson	trib west = Green Creek; access = Greens Creek Cemetery Rd 1108; Upstream most point on federal lands	'Start' waypoint at waterfall upstream of fs boundary (at green cr confluence) which is 135m downstream waypoint 23 / Start 50m above Green Creek and pvt/usfs boundary. photo 523 obs underwater at end of 23 520-
24	11/13/07	8/28/12	Colin Krause, Andy Dolloff	Andy Dolloff, Ben Saunders, James Hudson		Major hemlock overstory, rodo understory / Sz 4old several rounds w/2 cut ends hmlk obs 200m deep pool 400m lotof hmk near trail bridge recruitment
25	11/13/07	8/28/12	Colin Krause, Andy Dolloff	Andy Dolloff, Ben Saunders, James Hudson		Cabin on left bank facing downstream /
26	11/13/07	8/28/12	Colin Krause, Andy Dolloff	Andy Dolloff, Ben Saunders, James Hudson		Log weir submerged. Overshot wypt 27 by 80m / Log with rebar dam. deep pool
27	11/13/07	8/28/12	Colin Krause, Andy Dolloff	Andy Dolloff, Ben Saunders, James Hudson	road west = Garnet Hill Lane 1109 is thru private land	Saw 3 trout /
28	11/13/07	8/28/12	Colin Krause, Andy Dolloff	Andy Dolloff, Ben Saunders, James Hudson	trib west = Norton Mill Creek	
29	11/13/07	8/28/12	Colin Krause, Andy Dolloff	Andy Dolloff, Ben Saunders, James Hudson		

Table A4 (continued).

Reach ID	Date		Crew		Section Notes	Comments 2007 / 2012
	2007	2012	2007	2012		
30	11/13/07	8/28/12	Colin Krause, Andy Dolloff	Andy Dolloff, Ben Saunders, James Hudson	trib west = Cane Creek	Large log jam, wypt 'logjam' 2 trout redds / Logjam DID NOT COUNT (LW #s replaced with 2007 data; counts collected in 2012 were LW1=19, LW2=3, LW3=21, LW4=3, RW=4, Obs=4); lots of size 4, some cut ends deep gorge Gorge with near vert rock face / Fts
31	11/13/07	8/28/12	Colin Krause, Andy Dolloff	Andy Dolloff, Ben Saunders, James Hudson		
32	11/13/07	8/28/12	Colin Krause, Andy Dolloff	Andy Dolloff, Ben Saunders, James Hudson		2 trout on redd /
33	11/13/07	8/28/12	Colin Krause, Andy Dolloff	Andy Dolloff, Ben Saunders, James Hudson		
34	11/13/07	8/30/12	Colin Krause, Andy Dolloff	Colin Krause, Craig Roghair, Dan Nuckols	trib west = Ammons Branch; access = Bullpen Rd. 1603 near waypoint 35	/ Bridge w/in reach. Hemlock w/ rootwad just above break, did andy record? Smaller Hemlocks had 30% needles left
35	11/13/07	8/30/12	Craig Roghair, Jason Steele	Colin Krause, Craig Roghair, Dan Nuckols		Low gradient /
36	11/13/07	8/30/12	Craig Roghair, Jason Steele	Colin Krause, Craig Roghair, Dan Nuckols	trib west = Glade Creek	

Table A4 (continued).

Reach ID	Date		Crew		Section Notes	Comments 2007 / 2012
	2007	2012	2007	2012		
37	11/13/07	8/30/12	Craig Roghair, Jason Steele	Colin Krause, Craig Roghair, Dan Nuckols	trib east = Scotsman Creek	/ steep cascade
38	11/13/07	8/30/12	Craig Roghair, Jason Steele	Colin Krause, Craig Roghair, Dan Nuckols		Gradient increasing /
39	11/13/07	8/30/12	Craig Roghair, Jason Steele	Colin Krause, Craig Roghair, Dan Nuckols	trib west = unnamed	284 out of bankfull channel / photo 31 of obstruction
40	11/13/07	8/28/12	Craig Roghair, Jason Steele	Matt Winn, Jacoby Lipscomb, Rachel Goodpaster	trib east = Fowler Creek; first reach entirely in NC	deep pool, stay right here, left is a bad climb / 0024-obs-gps-obs9, 0025-cut
41	11/13/07	8/28/12	Craig Roghair, Jason Steele	Matt Winn, Jacoby Lipscomb, Rachel Goodpaster	trib west = unnamed; NC/SC border; trail east = Fork Mtn to SC107; trail west = Ellicot Rock to Bull Pen Rd 1603; both several km hikes	Photo at waypoint 42; / 0023-obs-gps-obs8
42	11/13/07	8/28/12	Craig Roghair, Jason Steele	Matt Winn, Jacoby Lipscomb, Rachel Goodpaster		

Table A4 (continued).

Reach ID	Date		Crew		Section Notes	Comments 2007 / 2012
	2007	2012	2007	2012		
43	11/13/07	8/28/12	Craig Roghair, Jason Steele	Matt Winn, Jacoby Lipscomb, Rachel Goodpaster		Channel splits just upstream of waypt 44; gps=split start,end split; obstruction only in right channel; side clear; lunch 12:15 / 0020-obs-gps- obs6, 0021-obs-gps-obs7, 0022-campsite-gps- camp7
44	11/13/07	8/28/12	Craig Roghair, Jason Steele	Matt Winn, Jacoby Lipscomb, Rachel Goodpaster	trib east = Bad Creek	/ 0017-obstruction-gps-obs4, 0018 campsite- gps-camp6, 0019-obstruction-gps-obs5
45	11/13/07	8/28/12	Craig Roghair, Jason Steele	Matt Winn, Jacoby Lipscomb, Rachel Goodpaster		Obstruction has beaver chew on branches but natural felling; photo 077 at waypoint 045 / 0013-obstruction-gps-obs1, gps-camp5, 0014- obstruction-gps-obs2, 0015-cut, 0016- obstruction-gps-obs3
46	11/13/07	8/28/12	Craig Roghair, Jason Steele	Matt Winn, Jacoby Lipscomb, Rachel Goodpaster	trib east = East Fork Chattooga River	Wide channel; obstruction at east fork pitch pine-photos /
47	11/13/07	8/28/12	Craig Roghair, Jason Steele	Matt Winn, Jacoby Lipscomb, Rachel Goodpaster		Trail immediate right at start; fire rings; lots of cut lwd and live trees / 0011-campsite-gps- camp4, 0012-cut

Table A4 (continued).

Reach ID	Date		Crew		Section Notes	Comments 2007 / 2012
	2007	2012	2007	2012		
48	11/13/07	8/28/12	Craig Roghair, Jason Steele	Matt Winn, Jacoby Lipscomb, Rachel Goodpaster		1st obstruction is hemlock killed by adelgids; causing wood jam; more cut wood here / 0008- cut, 0009,0010-cut,
49	11/13/07	8/28/12	Craig Roghair, Jason Steele	Matt Winn, Jacoby Lipscomb, Rachel Goodpaster	trib west = unnamed	2 cut wood here; landslide west side; fire rings east side / 0005-cut, 0006-campsite-gps-camp2, 0007-class 4 lw-no obstruction
50	11/13/07	8/28/12	Craig Roghair, Jason Steele	Matt Winn, Jacoby Lipscomb, Rachel Goodpaster	trib east = unnamed - Spoon Auger Falls	1 piece cut near flat camp area; hemlocks dead; wood at edges of stream / 0002, 0003- cut, 0004-campsite-gps-camp1
51	11/13/07	8/28/12	Craig Roghair, Jason Steele	Matt Winn, Jacoby Lipscomb, Rachel Goodpaster	trib west = Harden Creek; entering Ellicot Rock Wilderness	Waypoint 52 is bridge; hemlocks dead or dying; all wood at edge of bankfull / 0001-cut
52	11/14/07	8/28/12	Craig Roghair, Jason Steele	Matt Winn, Jacoby Lipscomb, Rachel Goodpaster	trib east = unnamed	Last reach today; end at 708 bridge = waypoint 52 /

Table A4 (continued).

Reach ID	Date		Crew		Section Notes	Comments 2007 / 2012
	2007	2012	2007	2012		
53	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon	trib east = King Creek; access = Burrels Ford Rd. 708	/ Lots of fs camps; this breach too long for 1 day; msplit and access via trail
54	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon	trib west = unnamed; access = Burrels Ford Rd.	/ Trail on left now-camper trail
55	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon		/ Trail back! Mostly from trail
56	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon		Split channel just downstream waypoint 056 / Heavy rain
57	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon		/ Trail gone at end
58	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon		Flat and straight; trail on immediate right / Did mostly from trail on sc side
59	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon	trib east = unnamed; access Chattooga Trail to Big Bend Trail	Lower gradient and wide / 307 campga03
60	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon	Big Bend Falls are near waypoint 61	/ Go around falls on left; movie of falls

Table A4 (continued).

Reach ID	Date		Crew		Section Notes	Comments 2007 / 2012
	2007	2012	2007	2012		
61	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon	Big Bend Falls are near waypoint 61	Lunch 12:15 at Big Bend Falls; waypoint 061 at bottom of falls / Pics bigbend falls
62	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon	trib west = unnamed	/ Crew craig roghair, dan nuckols, neil muldoon(coweeta); terrible gnats this year
63	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon		
64	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon		
65	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon		Can walk on trail / Rain 1515
66	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon	trib west = unnamed and almost at waypoint 66	/ Trail immediate right; almost all wood today against banks
67	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon	trib east = unnamed	Some hemlocks with most needles / Big campsite starts in previuis sectiin, trail on right; falls here many pics
68	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon		Elliptio relic 100 m upstream waypoint 069; some hemlocks down here; campsites east- cutting lwd in stream / Pic286-7 cut wood at gps campsc02

Table A4 (continued).

Reach ID	Date		Crew		Section Notes	Comments 2007 / 2012
	2007	2012	2007	2012		
69	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon		More rock gorge in this reach; ends 300m into reach / 278 obstruction, cut log; 13:20 rain;
70	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon		More gradient here; bedrock and cliffs big boulders for about half; sign of beaver upstream / Beaver activity since start; lunch hrr / Several pics of jam/obstruction; huge cliff near end -rapids; 75% hemlocks dead
71	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon		
72	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon		Straight, shallow; can see whole reach at once / 262 cut lw pic; very straight reach
73	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon		Deep pools / Rapids and deep pool just before end
74	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon		Hemlocks 30-50 percent of needles; yesterday was less than 30 percent / Neil counted while walking riparian here - count may be elevated; msticking to stream channel from now on -nriparian count too long
75	11/14/07	8/28/12	Craig Roghair, Jason Steele	Craig Roghair, Dan Nuckols, Neil Muldoon	trib east = Lick Log/Pig Pen; access = Chattooga-Foothills trail to Nicholson Ford Rd. 50	Hemlocks with more needles here than upstream of King creek / Start 0940; pic 250 dead hemlock at point 075; 1 gps camp on sc side; hemlock mostly dead; at least 50 percent needle loss

Table A4 (continued).

Reach ID	Date		Crew		Section Notes	Comments 2007 / 2012
	2007	2012	2007	2012		
76	11/14/07	8/28/12	Colin Krause, Metzger	Colin Krause, Jeanne Riley, Melena Ripken		Lots of trout / Camp5 campsite on right, camp6 on right, camp7 on right
77	11/14/07	8/28/12	Colin Krause, Metzger	Colin Krause, Jeanne Riley, Melena Ripken		
78	11/14/07	8/28/12	Colin Krause, Metzger	Colin Krause, Jeanne Riley, Melena Ripken	trib west = unnamed; trib east = Ira Branch	
79	11/14/07	8/28/12	Colin Krause, Metzger	Colin Krause, Jeanne Riley, Melena Ripken		Trout on redds / Camp4 on right
80	11/14/07	8/28/12	Colin Krause, Metzger	Colin Krause, Jeanne Riley, Melena Ripken	trib west = Reed Creek	Trout on redds /
81	11/14/07	8/28/12	Colin Krause, Metzger	Colin Krause, Jeanne Riley, Melena Ripken		/ Campsite camp3, obstruction 30m dwnstrm of campsite
82	11/14/07	8/28/12	Colin Krause, Metzger	Colin Krause, Jeanne Riley, Melena Ripken		/ Wpt camp2, campsite on right
83	11/14/07	8/28/12	Colin Krause, Metzger	Colin Krause, Jeanne Riley, Melena Ripken		1 mussle shell, redd with trout, overshot end by 89m (waypoint passed end) /

Table A4 (continued).

Reach ID	Date		Crew		Section Notes	Comments 2007 / 2012
	2007	2012	2007	2012		
84	11/14/07	8/28/12	Colin Krause, Metzger	Colin Krause, Jeanne Riley, Melena Ripken		
85	11/14/07	8/28/12	Colin Krause, Metzger	Colin Krause, Jeanne Riley, Melena Ripken		/ Campsite on right wpt camp1, phot 294
86	11/14/07	8/28/12	Colin Krause, Metzger	Colin Krause, Jeanne Riley, Melena Ripken		
87	11/14/07	8/28/12	Colin Krause, Metzger	Colin Krause, Jeanne Riley, Melena Ripken	start reach at confluence with West Fork Chattooga; trib west = Mose Branch; hwy 28 crosses; Chattooga trail crosses	Started at confluence with West Fork / Melena ripken, jeanne riley (counting hemlocks), colin krause

Appendix B: West Fork Chattooga River Data

Table B1. Large wood (LW) counts in the West Fork Chattooga River, 2007 and 2013. River km 0.0 is at the confluence with Chattooga River. See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	West Fork Chattooga River - 2007							West Fork Chattooga River - 2013						
			Large Wood Size Classes					Root-wads	Obstruc-tions	Large Wood Size Classes					Root-wads	Obstruc-tions
			LW 1	LW 2	LW 3	LW 4	LW Total			LW 1	LW 2	LW 3	LW 4	LW Total		
101	10	0.5	31	1	13	1	46	0	0	16	2	41	0	59	1	0
103	9.5	0.5	36	0	26	2	64	0	1	17	0	35	1	53	0	1
104	9	0.5	26	0	28	1	55	0	0	16	0	31	1	48	0	0
105	8.5	0.5	22	1	18	3	44	3	0	13	0	28	1	42	2	0
106	8	0.5	28	0	20	4	52	1	0	10	0	30	4	44	1	1
107	7.5	0.5	29	1	30	4	64	3	2	8	0	34	0	42	2	0
108	7	0.5	46	1	12	1	60	0	1	32	0	36	0	68	2	0
109	6.5	0.5	112	3	58	9	182	4	1	108	1	72	1	182	2	0
110	5.5	0.5	46	0	39	1	86	1	0	29	0	40	0	69	3	0
111	5.5	0.5	85	5	37	5	132	2	1	58	2	58	0	118	5	0
112	5	0.5	195	9	32	2	238	5	0	188	0	56	0	244	5	0
102	4.5	0.5	30	1	12	1	44	0	1	200	15	38	2	255	5	0
113	4	0.5	90	0	187	0	277	0	0	150	10	44	5	209	0	0
114	3.5	0.5	40	1	209	1	251	4	0	122	3	45	1	171	3	1
115	3	0.5	46	0	102	0	148	2	0	142	4	42	0	188	1	0
116	2.5	0.5	28	0	57	0	85	1	0	89	4	53	3	149	4	1
117	2	0.5	9	0	67	0	76	1	1	122	4	74	1	201	5	0
118	1.5	0.5	11	0	55	0	66	3	1	72	3	56	0	131	3	0
119	1	0.7	44	0	140	0	184	7	1	131	3	121	1	256	5	1
<i>Total</i>		<i>9.7</i>	<i>954</i>	<i>23</i>	<i>1,142</i>	<i>35</i>	<i>2,154</i>	<i>37</i>	<i>10</i>	<i>1,523</i>	<i>51</i>	<i>934</i>	<i>21</i>	<i>2,529</i>	<i>49</i>	<i>5</i>
<i>Total per km</i>		<i>--</i>	<i>98</i>	<i>2</i>	<i>118</i>	<i>4</i>	<i>222</i>	<i>4</i>	<i>1</i>	<i>157</i>	<i>5</i>	<i>96</i>	<i>2</i>	<i>261</i>	<i>5</i>	<i>1</i>

Table B2. Hemlock large wood (LW) counts in the West Fork Chattooga River, 2007 and 2013. River km 0.0 is at the confluence with Chattooga River. See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	West Fork Chattooga River - 2007								West Fork Chattooga River - 2013								
			Hemlock Size Classes					Root-wads	Obstruc-tions	Riparian Hemlock	Hemlock Size Classes					Root-wads	Obstruc-tions	Riparian Hemlock	
			LW 1	LW 2	LW 3	LW 4	LW Total				LW 1	LW 2	LW 3	LW 4	LW Total				
101	10	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	0	51
103	9.5	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	0	34
104	9	0.5	--	--	--	--	--	--	--	--	0	0	1	0	1	0	0	0	50
105	8.5	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	0	44
106	8	0.5	--	--	--	--	--	--	--	--	0	0	0	1	1	0	0	0	59
107	7.5	0.5	--	--	--	--	--	--	--	--	0	0	2	0	2	0	0	0	58
108	7	0.5	--	--	--	--	--	--	--	--	0	0	6	0	6	0	0	0	54
109	6.5	0.5	--	--	--	--	--	--	--	--	0	0	2	0	2	0	0	0	62
110	5.5	0.5	--	--	--	--	--	--	--	--	0	0	2	0	2	0	0	0	62
111	5.5	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	0	90
112	5	0.5	--	--	--	--	--	--	--	--	0	0	6	0	6	0	0	0	56
102	4.5	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	0	39
113	4	0.5	--	--	--	--	--	--	--	--	0	0	1	0	1	0	0	0	17
114	3.5	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	0	61
115	3	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	0	56
116	2.5	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	0	57
117	2	0.5	--	--	--	--	--	--	--	--	0	0	1	0	1	0	0	0	27
118	1.5	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	0	23
119	1	0.7	--	--	--	--	--	--	--	--	1	0	0	0	1	0	0	0	32
<i>Total</i>		<i>9.7</i>	--	--	--	--	--	--	--	--	<i>1</i>	<i>0</i>	<i>21</i>	<i>1</i>	<i>23</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>932</i>
<i>Total per km</i>		--	--	--	--	--	--	--	--	--	<i>0</i>	<i>0</i>	<i>2</i>	<i>0</i>	<i>2</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>96</i>

Table B3. Cut large wood (LW) counts in the West Fork Chattooga River, 2007 and 2013. River km 0.0 is at the confluence with Chattooga River. See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	West Fork Chattooga River - 2007 Cut Wood Size Classes					West Fork Chattooga River - 2013 Cut Wood Size Classes				
			LW 1	LW 2	LW 3	LW 4	LW Total	LW 1	LW 2	LW 3	LW 4	LW Total
101	10	0.5	--	--	--	--	--	0	0	0	0	0
103	9.5	0.5	--	--	--	--	--	0	0	0	0	0
104	9	0.5	--	--	--	--	--	0	0	0	0	0
105	8.5	0.5	--	--	--	--	--	0	0	0	0	0
106	8	0.5	--	--	--	--	--	0	0	0	0	0
107	7.5	0.5	--	--	--	--	--	0	0	0	0	0
108	7	0.5	--	--	--	--	--	0	0	0	0	0
109	6.5	0.5	--	--	--	--	--	0	0	0	0	0
110	5.5	0.5	--	--	--	--	--	0	0	0	0	0
111	5.5	0.5	--	--	--	--	--	0	0	0	0	0
112	5	0.5	--	--	--	--	--	0	0	0	0	0
102	4.5	0.5	--	--	--	--	--	0	0	0	0	0
113	4	0.5	--	--	--	--	--	0	0	0	0	0
114	3.5	0.5	--	--	--	--	--	0	0	1	0	1
115	3	0.5	--	--	--	--	--	0	0	0	0	0
116	2.5	0.5	--	--	--	--	--	0	0	1	1	2
117	2	0.5	--	--	--	--	--	0	0	0	0	0
118	1.5	0.5	--	--	--	--	--	1	0	2	0	3
119	1	0.7	--	--	--	--	--	0	0	0	0	0
<i>Total</i>		<i>9.7</i>	--	--	--	--	--	<i>1</i>	<i>0</i>	<i>4</i>	<i>1</i>	<i>6</i>
<i>Total per km</i>		--	--	--	--	--	--	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1</i>

Table B4. Date, crew members, and comments recorded for large wood (LW) inventories in West Fork Chattooga River, 2007 and 2013. Section notes were prepared prior to field work.

Reach ID	Date		Crew		Section Notes	Comments 2007 / 2013
	2007	2013	2007	2013		
101	11/13/07	11/21/13	Andy Dolloff, Mitzi Cole	Colin Krause, Caleb Hairfield	access south = 3 Forks Trail; upstream extent of West Fork inventory; confluence of Holcomb, Overflow, Big Creeks	10 pieces cut hemlock from new obstruction. Sawdust on exposed rock and sand bars. Found quart container of oil; black with red cap. Large hardwood also cut. / Working downstream. Lots of deep pools and serious rapids.
102	11/13/07	11/21/13	Andy Dolloff, Mitzi Cole	Colin Krause, Caleb Hairfield		missed this waypoint during fieldwork; split data from totals for section 101 in lab /
103	11/14/07	11/21/13	Andy Dolloff, Mitzi Cole	Colin Krause, Caleb Hairfield		/ Saw huge trout
104	11/14/07	11/21/13	Andy Dolloff, Mitzi Cole	Colin Krause, Caleb Hairfield		
105	11/14/07	11/21/13	Andy Dolloff, Mitzi Cole	Colin Krause, Caleb Hairfield	trib south = Tottery Pole Creek	
106	11/14/07	11/21/13	Andy Dolloff, Mitzi Cole	Colin Krause, Caleb Hairfield	trib north = unnamed	
107	11/14/07	11/21/13	Andy Dolloff, Mitzi Cole	Colin Krause, Caleb Hairfield	trib south = unnamed; access = Overflow Creek Rd crossing	
108	11/14/07	11/21/13	Andy Dolloff, Mitzi Cole	Colin Krause, Caleb Hairfield		Debris pile left bank face upstream on gravel bar. Bridge, down oak spans channel 20 m above bridge. /
109	11/14/07	11/21/13	Andy Dolloff, Mitzi Cole	Colin Krause, Caleb Hairfield	trib north = Reed Mill Creek	
110	11/14/07	11/21/13	Andy Dolloff, Mitzi Cole	Colin Krause, Caleb Hairfield	trib south = unnamed	/ Lrg unstable bank

Table B4 (continued).

Reach ID	Date		Crew		Section Notes	Comments
	2007	2013	2007	2013		
111	11/14/07	11/21/13	Andy Dolloff, Mitzi Cole	Colin Krause, Caleb Hairfield	mostly private ownership	/ Finished at bridge
112	11/14/07	11/21/13	Andy Dolloff, Mitzi Cole	Craig Roghair, Matt Winn	trib north = Laurel Creek; trib north = Law Ground Creek nearly at waypoint 112; access = Warwoman Rd.	/ Ends near bridge; banks lined in size 1 saw logs here
113	11/15/07	11/21/13	Jason Steele, Jeanne Riley	Craig Roghair, Matt Winn	private ownership for over half of reach; trib south = Page Branch	/ Many size1 are 8ftlong, 10-12 inch diameter-likely old saw logs flat on both ends-got pic
114	11/15/07	11/21/13	Jason Steele, Jeanne Riley	Craig Roghair, Matt Winn	private ownership	Lots underwater. Get on bank, water is deep! / Start of reach still in splash dam with lots of wood
115	11/15/07	11/21/13	Jason Steele, Jeanne Riley	Craig Roghair, Matt Winn	private ownership; trib north = Camp Branch	Continue on bank / Splash dam with 150m to go; pool upstream loaded with wood
116	11/15/07	11/21/13	Jason Steele, Jeanne Riley	Craig Roghair, Matt Winn	private ownership	Deep pools thick brush, total hell / Cold and rainy
117	11/15/07	11/21/13	Jason Steele, Jeanne Riley	Craig Roghair, Matt Winn	private ownership; trib south = Pigpen Branch	Follow old road bed unwadeable / Reach119 was over 700 long-first reach today; metal structure at end of this reach
118	11/15/07	11/21/13	Jason Steele, Jeanne Riley	Craig Roghair, Matt Winn	private land starts half way thru this reach; goes to waypoint 113	/ Many of size 1 is larger diameter broken - maybe cut? But very old cuts if so; cuts we counted are newer and obvious
119	11/15/07	11/21/13	Jason Steele, Jeanne Riley	Craig Roghair, Matt Winn	start reach at confluence with mainstem Chattooga; Chattooga River trail crosses	/ Access via bartram trail; most lw against banks

Appendix C. Holcomb Creek Data

Table C1. Large wood (LW) counts in Holcomb Creek, 2007/2008 and 2013. River km 0.0 is at the confluence with West Fork (Three Forks). See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	Holcomb Creek - 2007/2008							Holcomb Creek - 2013						
			Large Wood Size Classes							Large Wood Size Classes						
			LW 1	LW 2	LW 3	LW 4	LW Total	Root-wads	Obstructions	LW 1	LW 2	LW 3	LW 4	LW Total	Root-wads	Obstructions
292	9	0.5	19	0	40	1	60	3	4	45	0	45	1	91	5	23
293	8.5	0.5	38	0	35	0	73	0	4	67	0	32	0	99	2	16
294	8	0.5	82	0	40	0	122	4	8	89	0	24	0	113	3	13
295	7.5	0.5	28	0	28	0	56	1	6	42	0	18	0	60	0	6
296	7	0.5	48	4	43	7	102	1	8	32	3	35	2	72	2	8
297	6.5	0.5	41	2	61	3	107	3	8	46	2	41	1	90	3	13
298	6	0.5	59	1	106	1	167	3	8	60	2	79	1	142	7	15
299	5.5	0.5	46	1	81	4	132	5	4	40	0	39	6	85	3	4
300	5	0.4	54	0	44	4	102	2	2	19	0	27	1	47	1	5
301	4.5	0.5	54	0	82	0	136	3	4	49	0	60	1	110	0	8
302	4	0.5	76	0	82	1	159	8	4	44	0	49	1	94	1	7
303	3.5	0.5	66	0	83	3	152	3	3	66	0	71	2	139	3	5
304	3	0.5	47	1	103	2	153	3	3	44	0	66	0	110	2	11
305	2.5	0.5	106	0	105	0	211	0	0	107	0	52	0	159	5	3
306	2	0.5	63	0	145	1	209	2	5	60	0	58	4	122	3	4
307	1.5	0.5	57	0	62	0	119	3	3	39	0	34	0	73	0	4
308	1	0.5	142	0	97	4	243	5	2	73	0	49	0	122	1	4
309	0.5	0.4	35	0	29	0	64	1	0	44	0	18	0	62	0	4
<i>Total</i>		<i>8.8</i>	<i>1,061</i>	<i>9</i>	<i>1,266</i>	<i>31</i>	<i>2,367</i>	<i>50</i>	<i>76</i>	<i>966</i>	<i>7</i>	<i>797</i>	<i>20</i>	<i>1,790</i>	<i>41</i>	<i>153</i>
<i>Total per km</i>		<i>--</i>	<i>121</i>	<i>1</i>	<i>144</i>	<i>4</i>	<i>269</i>	<i>6</i>	<i>9</i>	<i>110</i>	<i>1</i>	<i>91</i>	<i>2</i>	<i>203</i>	<i>5</i>	<i>17</i>

Table C2. Hemlock large wood (LW) counts in Holcomb Creek, 2007/2008 and 2013. River km 0.0 is at the confluence with West Fork (Three Forks). See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	Holcomb Creek - 2007/2008								Holcomb Creek - 2013							
			Hemlock Size Classes								Hemlock Size Classes							
			LW 1	LW 2	LW 3	LW 4	LW Total	Root-wads	Obstruc-tions	Riparian Hemlock	LW 1	LW 2	LW 3	LW 4	LW Total	Root-wads	Obstruc-tions	Riparian Hemlock
292	9	0.5	0	0	0	0	0	0	0	--	0	0	0	0	0	0	0	42
293	8.5	0.5	0	0	0	0	0	0	0	--	0	0	0	0	0	0	0	11
294	8	0.5	0	0	1	0	1	0	0	--	0	0	1	0	1	0	1	31
295	7.5	0.5	0	0	0	0	0	0	0	--	0	0	0	0	0	0	0	6
296	7	0.5	0	0	1	0	1	0	0	--	2	0	0	0	2	0	0	50
297	6.5	0.5	0	0	1	0	1	0	0	--	0	0	5	0	5	0	3	81
298	6	0.5	0	0	3	0	3	1	1	--	1	0	5	1	7	1	4	114
299	5.5	0.5	0	0	3	1	4	1	1	--	1	0	3	1	5	0	0	106
300	5	0.4	0	0	0	0	0	0	0	--	3	0	5	0	8	0	0	68
301	4.5	0.5	--	--	--	--	--	--	--	--	0	0	2	0	2	0	0	151
302	4	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	150
303	3.5	0.5	--	--	--	--	--	--	--	--	0	0	2	0	2	0	0	87
304	3	0.5	--	--	--	--	--	--	--	--	0	0	2	0	2	0	1	72
305	2.5	0.5	--	--	--	--	--	--	--	--	0	0	1	0	1	0	0	81
306	2	0.5	--	--	--	--	--	--	--	--	0	0	4	0	4	0	1	77
307	1.5	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	121
308	1	0.5	--	--	--	--	--	--	--	--	0	0	1	0	1	0	0	77
309	0.5	0.4	--	--	--	--	--	--	--	--	1	0	1	0	2	0	1	28
<i>Total</i>		8.8	--	--	--	--	--	--	--	--	8	0	32	2	42	1	11	1,353
<i>Total per km</i>		--	--	--	--	--	--	--	--	--	1	0	4	0	5	0	1	154

Table C3. Cut large wood (LW) counts in Holcomb Creek, 2007/2008 and 2013. River km 0.0 is at the confluence with West Fork (Three Forks). See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	Holcomb Creek - 2007/2008					Holcomb Creek - 2013				
			Cut Wood Size Classes					Cut Wood Size Classes				
			LW 1	LW 2	LW 3	LW 4	LW Total	LW 1	LW 2	LW 3	LW 4	LW Total
292	9	0.5	0	0	0	0	0	10	0	5	0	15
293	8.5	0.5	0	0	0	0	0	0	0	0	0	0
294	8	0.5	0	0	0	0	0	0	0	0	0	0
295	7.5	0.5	0	0	1	0	1	12	0	0	0	12
296	7	0.5	0	0	1	0	1	0	0	0	0	0
297	6.5	0.5	1	0	2	0	3	0	0	0	0	0
298	6	0.5	0	0	2	0	2	0	0	0	0	0
299	5.5	0.5	0	0	2	0	2	0	0	0	0	0
300	5	0.4	0	0	2	0	2	0	0	1	0	1
301	4.5	0.5	--	--	--	--	--	0	0	1	0	1
302	4	0.5	--	--	--	--	--	0	0	1	0	1
303	3.5	0.5	--	--	--	--	--	2	0	6	0	8
304	3	0.5	--	--	--	--	--	0	0	3	0	3
305	2.5	0.5	--	--	--	--	--	50	0	0	0	50
306	2	0.5	--	--	--	--	--	7	0	5	0	12
307	1.5	0.5	--	--	--	--	--	4	0	0	0	4
308	1	0.5	--	--	--	--	--	0	0	0	0	0
309	0.5	0.4	--	--	--	--	--	0	0	0	0	0
<i>Total</i>		8.8	--	--	--	--	--	85	0	22	0	107
<i>Total per km</i>		--	--	--	--	--	--	10	0	3	0	12

Table C4. Date, crew members, and comments recorded for large wood (LW) inventories in Holcomb Creek, 2007/2008 and 2013. Section notes were prepared prior to field work.

Reach ID	Date		Crew		Section Notes	Comments 2007,2008 / 2013
	'07,'08	2013	2007,2008	2013		
292	8/19/08	11/19/13	Colin Krause, Brandon Copeland	Colin Krause, Matt Winn		Section begins above large beaver dam & has deep large backwatered pool. 2nd dam in this section waypoint BD2. Skipped 1st 150m b/c of pool. Dense rhodo last 1/2 of section. Stopping at waypoint 292 / Large bvr dam breached and big pool has drained. Cut wood from old habitat structures.
293	8/19/08	11/19/13	Colin Krause, Brandon Copeland	Colin Krause, Matt Winn	trib north = unnamed; very near waypoint 292	5 Beaver dams, one large (waypoint beaverdam). Skipped 130m of stream b/c of beaver pool / Brook trout seen. Numerous small beaver dams.
294	8/19/08	11/19/13	Colin Krause, Brandon Copeland	Colin Krause, Matt Winn	trib south = unnamed	Photo 503 beaver dam, no longer functioning / 1 small beaver dam
295	8/19/08	11/19/13	Colin Krause, Brandon Copeland	Colin Krause, Matt Winn	access = road 86 then road 7b very near waypoint 295	Many steep cascades. Then approx 150m to end section leveled out with many glides & sandy bottom / Stream levels out
296	8/19/08	11/19/13	Colin Krause, Brandon Copeland	Colin Krause, Matt Winn	Holcomb Creek Trail crossing near waypoint 297	Wood bridge holcomb cr trail xing, some cut logs out of bankfull could be source of very short cut pieces dwnstrm, cut logs likely from trail maintenance. Holcomb cr falls just upstrm of trail bridge / Trail bridge and holcomb cr falls. Take trail to right then left on hal ridge rd trail up around falls. Drop down off trail to stream. Dense rhodo made hemlock count hard. Lots of cascades above falls.

Table C4 (continued).

Reach ID	Date		Crew		Section Notes	Comments 2007,2008 / 2013
	'07,'08	2013	2007,2008	2013		
297	8/19/08	11/19/13	Colin Krause, Brandon Copeland	Colin Krause, Matt Winn	trib north = Emory Branch; just upstream waypoint 298; trib north = unnamed near waypoint 297; Holcomb Creek Trail crossing near waypoint 297	Many dense rhodo sections. Stream narrower, approx 5-7m / Go left at river split, trib to right
298	8/19/08	11/19/13	Colin Krause, Brandon Copeland	Colin Krause, Matt Winn		/ 1 overhanging/unstable bank
299	8/19/08	11/19/13	Colin Krause, Brandon Copeland	Colin Krause, Matt Winn	trib north = unnamed	452-454 of lw4obs hemlock. Old cuts on very short pieces that have floated dwnstrm. Photo 456 of dwnstrm view of log jam & 2 lwobs / Trout seen
300	8/19/08	11/19/13	Colin Krause, Brandon Copeland	Colin Krause, Matt Winn	first section for fall 2008 on Holcomb	/ Colin & matt. Started at confluence with trib
301	11/15/07	11/20/13	Colin Krause, Metzger	Colin Krause, Matt Winn	trib south = Addie Branch/Bailey Branch; access = road 86 just upstream on Addie/Bailey	/ Finished at 1pm. Colin and matt.
302	11/15/07	11/20/13	Colin Krause, Metzger	Colin Krause, Matt Winn	trib south = unnamed	/ Trout seen
303	11/15/07	11/20/13	Colin Krause, Metzger	Colin Krause, Matt Winn	trib north = unnamed	/ Cut wood from logging
304	11/15/07	11/20/13	Colin Krause, Metzger	Colin Krause, Matt Winn	trib north = Billingsly Creek; trib south = unnamed; trib north = unnamed	/ Cut wood from logging.

Table C4 (continued).

Reach ID	Date		Crew		Section Notes	Comments
	'07,'08	2013	2007,2008	2013		
305	11/15/07	11/20/13	Krause, Metzger	Colin Krause, Matt Winn		Many old cut logs / All cut wood from historical logging. Majority of size 1 from logging.
306	11/15/07	11/20/13	Krause, Metzger	Colin Krause, Matt Winn	trib north = Burrell Branch	Old splash dam now becoming log jam / Splash dam. Levels out above dam, lots of steep sections below.
307	11/15/07	11/20/13	Krause, Metzger	Colin Krause, Matt Winn		/ Some deep unwadeable pools. Cut wood is from historical logging
308	11/15/07	11/20/13	Krause, Metzger	Colin Krause, Matt Winn		/ Minnow trap tied to tree out of water.
309	11/15/07	11/20/13	Krause, Metzger	Colin Krause, Matt Winn	start Holcomb at 3 Forks; confluence with Overflow, Big Creek	Gorge at lower end of 500m section near confluence / Started at top of gorge 250m above confluence. 3frks trail goes all the way to gorge.

Appendix D. Overflow Creek Data

Table D1. Large wood (LW) counts in Overflow Creek, 2007/2008 and 2013. River km 0.0 is at the confluence with West Fork (Three Forks). See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	Overflow Creek - 2007/2008							Overflow Creek - 2013						
			Large Wood Size Classes					Root-wads	Obstruc-tions	Large Wood Size Classes					Root-wads	Obstruc-tions
			LW 1	LW 2	LW 3	LW 4	LW Total			LW 1	LW 2	LW 3	LW 4	LW Total		
196	7	0.5	35	3	55	1	94	2	0	38	2	44	2	86	0	1
197	6.5	0.5	18	0	54	3	75	0	1	23	0	36	5	64	2	3
198	6	0.5	26	0	69	2	97	0	2	30	1	45	2	78	1	2
199	5.5	0.5	28	0	60	3	91	1	1	36	0	33	6	75	3	0
200	5	0.5	40	1	73	1	115	2	3	38	0	35	0	73	0	0
201	4.5	0.5	14	0	42	1	57	1	1	45	1	45	1	92	3	5
202	4	0.5	15	0	61	0	76	1	1	45	0	36	1	82	0	0
203	3.5	0.5	28	0	38	0	66	0	3	49	0	43	0	92	2	2
204	3	0.5	6	0	48	0	54	0	2	11	0	22	0	33	0	2
205	2.5	0.5	11	0	38	0	49	0	3	20	0	39	0	59	2	0
206	2	0.5	36	0	42	1	79	1	1	23	0	32	1	56	0	1
207	1.5	0.5	18	0	35	1	54	0	0	33	0	41	0	74	0	1
208	1	0.5	7	0	33	1	41	1	0	25	1	32	1	59	1	0
209	0.5	0.6	21	0	52	2	75	1	1	35	0	42	0	77	2	0
<i>Total</i>		<i>7.1</i>	<i>303</i>	<i>4</i>	<i>700</i>	<i>16</i>	<i>1,023</i>	<i>10</i>	<i>19</i>	<i>451</i>	<i>5</i>	<i>525</i>	<i>19</i>	<i>1,000</i>	<i>16</i>	<i>17</i>
<i>Total per km</i>		<i>--</i>	<i>43</i>	<i>1</i>	<i>99</i>	<i>2</i>	<i>144</i>	<i>1</i>	<i>3</i>	<i>64</i>	<i>1</i>	<i>74</i>	<i>3</i>	<i>141</i>	<i>2</i>	<i>2</i>

Table D2. Hemlock large wood (LW) counts in Overflow Creek, 2007/2008 and 2013. River km 0.0 is at the confluence with West Fork (Three Forks). See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	Overflow Creek - 2007/2008								Overflow Creek - 2013							
			Hemlock Size Classes					Hemlock Size Classes					Hemlock Size Classes					
			LW 1	LW 2	LW 3	LW 4	LW Total	Root-wads	Obstruc-tions	Riparian Hemlock	LW 1	LW 2	LW 3	LW 4	LW Total	Root-wads	Obstruc-tions	Riparian Hemlock
196	7	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	109
197	6.5	0.5	0	0	0	1	1	0	0	0	0	2	3	5	0	2	75	
198	6	0.5	1	0	0	1	2	0	1	0	2	0	0	2	0	0	100	
199	5.5	0.5	0	0	2	0	2	1	0	0	0	0	0	0	0	0	63	
200	5	0.5	0	0	0	0	0	0	0	0	1	0	0	1	0	0	82	
201	4.5	0.5	--	--	--	--	--	--	--	--	0	0	5	0	5	1	4	92
202	4	0.5	--	--	--	--	--	--	--	--	0	0	1	0	1	0	0	111
203	3.5	0.5	--	--	--	--	--	--	--	--	0	0	1	0	1	1	0	45
204	3	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	49
205	2.5	0.5	--	--	--	--	--	--	--	--	0	0	2	0	2	1	0	86
206	2	0.5	--	--	--	--	--	--	--	--	0	0	3	0	3	0	0	52
207	1.5	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	47
208	1	0.5	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	58
209	0.5	0.6	--	--	--	--	--	--	--	--	0	0	0	0	0	0	0	104
<i>Total</i>		<i>7.1</i>	--	--	--	--	--	--	--	--	<i>3</i>	<i>0</i>	<i>14</i>	<i>3</i>	<i>20</i>	<i>3</i>	<i>6</i>	<i>1,073</i>
<i>Total per km</i>		--	--	--	--	--	--	--	--	--	<i>0</i>	<i>0</i>	<i>2</i>	<i>0</i>	<i>3</i>	<i>0</i>	<i>1</i>	<i>151</i>

Table D3. Cut large wood (LW) counts in Overflow Creek, 2007/2008 and 2013. River km 0.0 is at the confluence with West Fork (Three Forks). See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	Overflow Creek - 2007/2008 Cut Wood Size Classes					Overflow Creek - 2013 Cut Wood Size Classes				
			LW 1	LW 2	LW 3	LW 4	LW Total	LW 1	LW 2	LW 3	LW 4	LW Total
196	7	0.5	0	0	0	1	1	0	1	2	0	3
197	6.5	0.5	0	0	1	0	1	0	0	0	0	0
198	6	0.5	0	0	0	0	0	0	0	0	0	0
199	5.5	0.5	0	0	2	0	2	0	0	0	0	0
200	5	0.5	0	0	0	0	0	0	0	0	0	0
201	4.5	0.5	--	--	--	--	--	0	0	1	0	1
202	4	0.5	--	--	--	--	--	0	0	5	0	5
203	3.5	0.5	--	--	--	--	--	0	0	0	0	0
204	3	0.5	--	--	--	--	--	0	0	0	0	0
205	2.5	0.5	--	--	--	--	--	0	0	0	0	0
206	2	0.5	--	--	--	--	--	0	0	0	0	0
207	1.5	0.5	--	--	--	--	--	0	0	2	0	2
208	1	0.5	--	--	--	--	--	0	0	1	0	1
209	0.5	0.6	--	--	--	--	--	0	0	0	0	0
<i>Total</i>		<i>7.1</i>	--	--	--	--	--	<i>0</i>	<i>1</i>	<i>11</i>	<i>0</i>	<i>12</i>
<i>Total per km</i>		--	--	--	--	--	--	<i>0</i>	<i>0</i>	<i>2</i>	<i>0</i>	<i>2</i>

Table D4. Date, crew members, and comments recorded for large wood (LW) inventories in Overflow Creek, 2007/2008 and 2013. Section notes were prepared prior to field work.

Reach ID	Date		Crew		Section Notes	Comments
	'07,'08	2013	2007,2008	2013		
196	8/19/08	11/19/13	Craig Roghair, Mike O'Melia	Craig Roghair, Caleb Hairfield	trib west = unnamed near waypoint 197; reach ends at confluence of East and West forks of Overflow; stop here fall 2008	Old beaver chews throughou all reaches today; flat since gorge area; done 13:00 / Saw 1 fish; flat with a few small cascades
197	8/19/08	11/19/13	Craig Roghair, Mike O'Melia	Craig Roghair, Caleb Hairfield		Hemlock 4 is broken top / 1 big boulder cascade mid reach; have not seen a single fish all day!
198	8/19/08	11/19/13	Craig Roghair, Mike O'Melia	Craig Roghair, Caleb Hairfield		Hemlocks starting to fall here / Flat reach, couple of deep pools
199	8/19/08	11/19/13	Craig Roghair, Mike O'Melia	Craig Roghair, Caleb Hairfield	trib east = unnamed; very near waypoint 200	Lots of gorge cascades in this section / At gps=nearly impassable there is gorge with no way thru deep pool except swim or shimmy up a fotunately placed size4 lw=pic092-093
200	8/19/08	11/19/13	Craig Roghair, Mike O'Melia	Craig Roghair, Caleb Hairfield	first section for fall 2008 on Overflow; access = 86b	Omelia and roghair; hemlock have 40% needles; arch not quite as wide as bankfull; most wood on banks / Big falls near start of reach-just before culvert, go around to right in woodsif possible; big culvert for 86b here
201	11/15/07	11/19/13	Roghair, Cole	Craig Roghair, Caleb Hairfield	trib west = unnamed; access = road 86b just upstream of end	Done 16:45 / Caleb and craig today; no big cascades this reach
202	11/15/07	11/19/13	Roghair, Cole	Craig Roghair, Caleb Hairfield	trib east (north) = unnamed	Snow at 16:15 / Several cuts, one within 1 year, beaver sign, couple of small cascades; hemlocks in riparian very dead; no needles, losing bark, limbs, moss covered; access via trail to gps waypoint and track

Table D4 (continued).

Reach ID	Date		Crew		Section Notes	Comments
	'07,'08	2013	2007,2008	2013		
203	11/15/07	11/20/13	Roghair, Cole	Craig Roghair, Caleb Hairfield		/ Done for day3; flat reach
204	11/15/07	11/20/13	Roghair, Cole	Craig Roghair, Caleb Hairfield	trib east = clear creek	Lots of dead hemlocks and pines / Sparse wood; pretty flat
205	11/15/07	11/20/13	Roghair, Cole	Craig Roghair, Caleb Hairfield	trib west = unnamed; trib east = unnamed	Several beaver signs / Pretty flat
206	11/15/07	11/20/13	Roghair, Cole	Craig Roghair, Caleb Hairfield		Hemlocks 30 percent or less needles / Pretty flat throughout
207	11/15/07	11/20/13	Roghair, Cole	Craig Roghair, Caleb Hairfield		one hemlock size 4 down / Pretty flat with deep pools most of way; small gorge with difficult pass at end; we made it thru the falls this year
208	11/15/07	11/20/13	Roghair, Cole	Craig Roghair, Caleb Hairfield		Can't get in stream first part of section, bedrock gorge; Old log cut in cascade; trail with cut logs to top of falls on right; lots of falls cascades / 3 falls in this reach; able to work around each
209	11/15/07	11/20/13	Roghair, Cole	Craig Roghair, Caleb Hairfield	start Overflow at 3 Forks; confluence with Holcomb, Big Creek	Left 3 forks trail-head at 10:30; took trail to top of holcomb falls then hiker made footpath along crazy holcomb gorge; dangerous path; at 3 forks by 11:30; can't survey first 400m of holcomb from channel-too steep, all bedrock cascade / Access by 3forks trail to sharp left onto user trail that crosses holcomb on user trial on north side of holcomb to 3 forks

Appendix E. West Fork Overflow Creek Data

Table E1. Large wood (LW) counts in West Fork Overflow Creek, 2008 and 2013. River km 0.0 is at the confluence with East Fork Overflow Creek. See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	West Fork Overflow Creek - 2008							West Fork Overflow Creek - 2013						
			Large Wood Size Classes					Root-wads	Obstruc-tions	Large Wood Size Classes					Root-wads	Obstruc-tions
			LW 1	LW 2	LW 3	LW 4	LW Total			LW 1	LW 2	LW 3	LW 4	LW Total		
404	2.5	0.5	104	1	60	7	172	4	5	32	0	28	0	60	1	7
405	2.0	0.5	119	2	49	3	173	4	8	55	0	36	3	94	0	6
406	1.5	0.5	56	0	27	3	86	5	5	31	0	25	3	59	1	7
407	1.0	0.5	161	0	48	15	224	4	6	55	0	45	4	104	1	7
408	0.5	0.7	183	2	26	8	219	2	4	70	0	50	3	123	0	6
<i>Total</i>		2.7	623	5	210	36	874	19	28	243	0	184	13	440	3	33
<i>Total per km</i>		--	231	2	78	13	324	7	10	90	0	68	5	163	1	12

Table E2. Hemlock large wood (LW) counts in West Fork Overflow Creek, 2008 and 2013. River km 0.0 is at the confluence with East Fork Overflow Creek. See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	West Fork Overflow Creek - 2008								West Fork Overflow Creek - 2013								
			Hemlock Size Classes					Root-wads	Obstruc-tions	Riparian Hemlock	Hemlock Size Classes					Root-wads	Obstruc-tions	Riparian Hemlock	
			LW 1	LW 2	LW 3	LW 4	LW Total				LW 1	LW 2	LW 3	LW 4	LW Total				
404	2.5	0.5	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	62	
405	2.0	0.5	0	0	0	0	0	0	0	0	0	5	0	2	0	7	1	1	84
406	1.5	0.5	0	0	0	0	0	0	0	0	0	2	0	2	1	5	0	2	79
407	1.0	0.5	3	0	2	2	7	0	0	0	0	3	0	3	2	8	1	3	152
408	0.5	0.7	1	0	0	0	1	0	0	0	0	1	0	2	0	3	0	0	175
<i>Total</i>		<i>2.7</i>	<i>4</i>	<i>0</i>	<i>2</i>	<i>2</i>	<i>8</i>	<i>0</i>	<i>0</i>	<i>--</i>	<i>11</i>	<i>0</i>	<i>11</i>	<i>3</i>	<i>25</i>	<i>2</i>	<i>6</i>	<i>552</i>	
<i>Total per km</i>		<i>--</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>3</i>	<i>0</i>	<i>0</i>	<i>--</i>	<i>4</i>	<i>0</i>	<i>4</i>	<i>1</i>	<i>9</i>	<i>1</i>	<i>2</i>	<i>204</i>	

Table E3. Cut large wood (LW) counts in West Fork Overflow Creek, 2008 and 2013. River km 0.0 is at the confluence with East Fork Overflow Creek. See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	West Fork Overflow Creek - 2008 Cut Wood Size Classes					West Fork Overflow Creek - 2013 Cut Wood Size Classes				
			LW 1	LW 2	LW 3	LW 4	LW Total	LW 1	LW 2	LW 3	LW 4	LW Total
404	2.5	0.5	0	0	0	0	0	0	0	0	0	0
405	2.0	0.5	0	1	1	1	3	0	0	0	0	0
406	1.5	0.5	1	0	1	0	2	0	0	0	0	0
407	1.0	0.5	0	0	3	0	3	0	0	0	0	0
408	0.5	0.7	4	0	3	0	7	5	0	3	0	8
<i>Total</i>		<i>2.7</i>	<i>5</i>	<i>1</i>	<i>8</i>	<i>1</i>	<i>15</i>	<i>5</i>	<i>0</i>	<i>3</i>	<i>0</i>	<i>8</i>
<i>Total per km</i>		<i>--</i>	<i>2</i>	<i>0</i>	<i>3</i>	<i>0</i>	<i>6</i>	<i>2</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>3</i>

Table E4. Date, crew members, and comments recorded for large wood (LW) inventories in West Fork Overflow Creek, 2008 and 2013. Section notes were prepared prior to field work.

Reach ID	Date		Crew		Section Notes	Comments 2008 / 2013
	2008	2013	2008	2013		
404	8/19/08	11/18/13	Jonothan Wrenn, Ross Andrew	Craig Roghair, Matt Winn	access = road 79; crosses just downstream of waypoint 404; end 2008 survey at this waypoint	Lots of waterfalls / Had to quit at gps=cascade2; too gorge and deep to wade; need to do this in july, not november; skipped last half of reach
405	8/19/08	11/18/13	Jonothan Wrenn, Ross Andrew	Craig Roghair, Matt Winn		Overgrown, lots of small waterfalls / First 200m all cascade with deep pools in gorge, could'nt stay in stream. 100m from end channel splits, gps took us left, then to dry channel?
406	8/19/08	11/18/13	Jonothan Wrenn, Ross Andrew	Craig Roghair, Matt Winn	trib north = unnamed	Very overgrown with rhodo, no logjams / Getting thick with rhodo-hard to count riparian; trib off to right in middle, also a split at end
407	8/19/08	11/18/13	Jonothan Wrenn, Ross Andrew	Craig Roghair, Matt Winn	trib south = Webb Branch; very near waypoint 407	Two log jams 823-825. Covered in rhodo / Some big hemlocks have become lw here; plenty more in riparian
408	8/19/08	11/18/13	Jonothan Wrenn, Ross Andrew	Craig Roghair, Matt Winn	first section on West Fork; start at confluence with East Fork; trib north = Abes Creek	/ Gps 2 gorges, ford, trib; hemlocks mostly dead, few with 10% needles; not falling yet, a few branches and tops but mostly too small to count

Appendix F. East Fork Overflow Creek Data

Table F1. Large wood (LW) counts in East Fork Overflow Creek, 2008 and 2013. River km 0.0 is at the confluence with West Fork Overflow Creek. See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	East Fork Overflow Creek - 2008							East Fork Overflow Creek - 2013						
			Large Wood Size Classes					Root-wads	Obstruc-tions	Large Wood Size Classes					Root-wads	Obstruc-tions
			LW 1	LW 2	LW 3	LW 4	LW Total			LW 1	LW 2	LW 3	LW 4	LW Total		
501	3.5	0.5	9	0	19	3	31	1	3	6	1	15	0	22	1	3
502	3.0	0.5	68	1	42	8	119	0	4	35	2	19	2	58	2	4
503	2.5	0.5	24	0	18	6	48	3	3	41	1	36	3	81	2	7
504	2.0	0.5	19	0	15	2	36	0	2	27	1	11	0	39	1	5
505	1.5	0.5	14	0	13	1	28	0	2	16	0	16	2	34	1	5
506	1.0	0.5	36	0	33	3	72	0	2	51	0	52	4	107	7	13
507	0.5	0.7	144	1	66	10	221	4	10	74	1	74	1	150	8	22
<i>Total</i>		<i>3.7</i>	<i>314</i>	<i>2</i>	<i>206</i>	<i>33</i>	<i>555</i>	<i>8</i>	<i>26</i>	<i>250</i>	<i>6</i>	<i>223</i>	<i>12</i>	<i>491</i>	<i>22</i>	<i>59</i>
<i>Total per km</i>		<i>--</i>	<i>85</i>	<i>1</i>	<i>56</i>	<i>9</i>	<i>150</i>	<i>2</i>	<i>7</i>	<i>68</i>	<i>2</i>	<i>60</i>	<i>3</i>	<i>133</i>	<i>6</i>	<i>16</i>

Table F2. Hemlock large wood (LW) counts in East Fork Overflow Creek, 2008 and 2013. River km 0.0 is at the confluence with West Fork Overflow Creek. See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	East Fork Overflow Creek - 2008								East Fork Overflow Creek - 2013							
			Hemlock Size Classes								Hemlock Size Classes							
			LW 1	LW 2	LW 3	LW 4	LW Total	Root-wads	Obstructions	Riparian Hemlock	LW 1	LW 2	LW 3	LW 4	LW Total	Root-wads	Obstructions	Riparian Hemlock
501	3.5	0.5	0	0	2	3	5	0	0	--	3	1	10	0	14	0	3	41
502	3.0	0.5	0	1	5	8	14	0	0	--	3	0	3	1	7	0	1	55
503	2.5	0.5	0	0	0	4	4	0	1	--	13	0	13	3	29	0	0	86
504	2.0	0.5	0	0	1	2	3	0	0	--	1	1	3	0	5	0	2	56
505	1.5	0.5	0	0	4	1	5	0	1	--	2	0	1	1	4	0	1	29
506	1.0	0.5	0	0	4	2	6	0	0	--	0	0	4	2	6	1	0	70
507	0.5	0.7	1	1	7	5	14	0	0	--	0	0	1	0	1	0	1	62
<i>Total</i>		<i>3.7</i>	<i>1</i>	<i>2</i>	<i>23</i>	<i>25</i>	<i>51</i>	<i>0</i>	<i>2</i>	<i>--</i>	<i>22</i>	<i>2</i>	<i>35</i>	<i>7</i>	<i>66</i>	<i>1</i>	<i>8</i>	<i>399</i>
<i>Total per km</i>		<i>--</i>	<i>0</i>	<i>1</i>	<i>6</i>	<i>7</i>	<i>14</i>	<i>0</i>	<i>1</i>	<i>--</i>	<i>6</i>	<i>1</i>	<i>9</i>	<i>2</i>	<i>18</i>	<i>0</i>	<i>2</i>	<i>108</i>

Table F3. Cut large wood (LW) counts in East Fork Overflow Creek, 2008 and 2013. River km 0.0 is at the confluence with West Fork Overflow Creek. See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	East Fork Overflow Creek - 2008					East Fork Overflow Creek - 2013				
			Cut Wood Size Classes					Cut Wood Size Classes				
			LW 1	LW 2	LW 3	LW 4	LW Total	LW 1	LW 2	LW 3	LW 4	LW Total
501	3.5	0.5	0	0	2	0	2	0	1	0	0	1
502	3.0	0.5	2	0	0	0	2	0	0	0	0	0
503	2.5	0.5	0	0	0	1	1	0	0	0	0	0
504	2.0	0.5	1	0	1	0	2	0	1	0	0	1
505	1.5	0.5	0	0	6	0	6	2	0	1	0	3
506	1.0	0.5	0	0	1	0	1	0	0	0	0	0
507	0.5	0.7	0	1	9	7	17	0	0	0	0	0
<i>Total</i>		<i>3.7</i>	<i>3</i>	<i>1</i>	<i>19</i>	<i>8</i>	<i>31</i>	<i>2</i>	<i>2</i>	<i>1</i>	<i>0</i>	<i>5</i>
<i>Total per km</i>		<i>--</i>	<i>1</i>	<i>0</i>	<i>5</i>	<i>2</i>	<i>8</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>1</i>

Table F4. Date, crew members, and comments recorded for large wood (LW) inventories in East Fork Overflow Creek, 2008 and 2013. Section notes were prepared prior to field work.

Reach ID	Date		Crew		Section Notes	Comments 2008 / 2013
	2008	2013	2008	2013		
501	8/19/08	11/18/13	Zak Slagle, unknown	Colin Krause, Caleb Hairfield	access = road 1613 or trail 003 near waypoint 501; HAZARD = Glen Falls in this section; do not attempt to climb; end 2008 survey at this waypoint	many large waterfalls / 501. End at trail bridge xing stream. Hike trail to right to go to pickup spot.
502	8/19/08	11/18/13	Zak Slagle, unknown	Colin Krause, Caleb Hairfield	access = road 79c from west or trail 008 from east; very near waypoint 503; HAZARD = Murphy Falls just upstream; do not attempt to climb	lots of waterfalls / 502. Bypassed approx 100m for waterfall. Join stream again at switch back in trail. Not much if any lw in waterfall sections.
503	8/19/08	11/18/13	Zak Slagle, unknown	Colin Krause, Caleb Hairfield		/ Intermitent Dense rhodo. 1 cut rhodo out of bankfull. Reach ends at trail xing.
504	8/19/08	11/18/13	Zak Slagle, unknown	Colin Krause, Caleb Hairfield	trib east = unnamed	/ 504. Small 5m length of unstable right bank.
505	8/19/08	11/18/13	Zak Slagle, unknown	Colin Krause, Caleb Hairfield	access = road 79; trib west = unnamed	several campsites along stream / 505. Campsites. Cut wood probably from campers due to cut locations.
506	8/19/08	11/18/13	Zak Slagle, unknown	Colin Krause, Caleb Hairfield		/ 506. No photos. Went about 100m into next reach before noticing on gps.
507	8/19/08	11/18/13	Zak Slagle, unknown	Colin Krause, Caleb Hairfield	first section on East Fork; start at confluence with West Fork	splash dam, pictures 663-667. beaver dam 671-672. all cut logs are old hemlocks / Colin & caleb. Reach 507. 1large waterfall. Logjam/splashdam? Beaver activity. Live hemlocks had 40-50% needles

**Appendix G. 1989 and 1993 Large Wood Data in Holcomb Creek, Overflow Creek,
West Fork Overflow Creek, and East Fork Overflow Creek**

Table G1. Counts of LW in each of four size classes (see Table 2).

Stream	1989					1993				
	LW 1	LW 2	LW 3	LW 4	LW Total	LW 1	LW 2	LW 3	LW 4	LW Total
Chattooga River	--	--	--	--	--	--	--	--	--	--
West Fork Chattooga River	--	--	--	--	--	--	--	--	--	--
Holcomb Creek	424	44	183	55	706	652	26	738	71	1,487
Overflow Creek	135	6	44	5	190	205	28	244	44	521
West Fork Overflow Creek	120	23	37	18	198	156	57	113	32	358
East Fork Overflow Creek	211	16	36	11	274	397	58	137	41	633

Table G2. LW per km in each of four size classes (see Table 2).

Stream	1989					1993				
	LW 1	LW 2	LW 3	LW 4	LW Total	LW 1	LW 2	LW 3	LW 4	LW Total
Chattooga River	--	--	--	--	--	--	--	--	--	--
West Fork Chattooga River	--	--	--	--	--	--	--	--	--	--
Holcomb Creek	50	5	22	7	84	78	3	88	8	177
Overflow Creek	19	1	6	1	27	29	4	34	6	73
West Fork Overflow Creek	44	9	14	7	73	58	21	42	12	133
East Fork Overflow Creek	57	4	10	3	74	107	16	37	11	171

Table G3. Percentage of LW in each of four size classes (see Table 2).

Stream	1989				1993			
	LW 1	LW 2	LW 3	LW 4	LW 1	LW 2	LW 3	LW 4
Chattooga River	--	--	--	--	--	--	--	--
West Fork Chattooga River	--	--	--	--	--	--	--	--
Holcomb Creek	60%	6%	26%	8%	44%	2%	50%	5%
Overflow Creek	71%	3%	23%	3%	39%	5%	47%	8%
West Fork Overflow Creek	61%	12%	19%	9%	44%	16%	32%	9%
East Fork Overflow Creek	77%	6%	13%	4%	63%	9%	22%	6%

Table G4. Rootwads and LW obstructions encountered.

Stream	1989				1993			
	Rootwads		Obstructions		Rootwads		Obstructions	
	n	per km	n	per km	n	per km	n	per km
Chattooga River	--	--	--	--	--	--	--	--
West Fork Chattooga River	--	--	--	--	--	--	--	--
Holcomb Creek	22	3	--	--	59	7	--	--
Overflow Creek	2	0	--	--	13	2	--	--
West Fork Overflow Creek	13	5	--	--	0	0	--	--
East Fork Overflow Creek	13	4	--	--	6	2	--	--

Table G5. Large wood (LW) counts in Holcomb Creek, 1989 and 1993. River km 0.0 is at the confluence with West Fork (Three Forks). See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	Holcomb Creek - 1989							Holcomb Creek - 1993						
			Large Wood Size Classes							Large Wood Size Classes						
			LW 1	LW 2	LW 3	LW 4	LW Total	Root-wads	Obstruc-tions	LW 1	LW 2	LW 3	LW 4	LW Total	Root-wads	Obstruc-tions
292	9	0.5	28	1	5	0	34	0	--	82	1	67	2	152	5	--
293	8.5	0.5	46	0	3	0	49	0	--	84	0	73	3	160	7	--
294	8	0.5	70	1	6	0	77	6	--	84	0	52	1	137	2	--
295	7.5	0.5	43	1	3	0	47	0	--	33	0	27	1	61	0	--
296	7	0.5	33	7	24	9	73	1	--	40	0	40	8	88	1	--
297	6.5	0.5	18	8	12	9	47	3	--	61	2	47	4	114	11	--
298	6	0.5	6	2	15	3	26	0	--	70	6	64	7	147	5	--
299	5.5	0.5	8	3	11	7	29	0	--	27	1	39	3	70	3	--
300	5	0.4	8	2	12	6	28	0	--	18	1	29	0	48	1	--
301	4.5	0.5	18	6	20	0	44	1	--	17	3	66	8	94	5	--
302	4	0.5	17	2	17	3	39	3	--	10	1	37	7	55	1	--
303	3.5	0.5	28	4	41	11	84	6	--	18	2	47	8	75	2	--
304	3	0.5	22	3	14	5	44	1	--	4	0	17	3	24	3	--
305	2.5	0.5	35	1	0	0	36	1	--	33	4	39	2	78	1	--
306	2	0.5	8	0	0	0	8	0	--	13	1	15	9	38	2	--
307	1.5	0.5	13	0	0	2	15	0	--	29	1	42	3	75	7	--
308	1	0.5	23	3	0	0	26	0	--	29	3	37	2	71	3	--
309	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<i>Total</i>		8.4	424	44	183	55	706	22	--	652	26	738	71	1,487	59	--
<i>Total per km</i>		--	50	5	22	7	84	3	--	78	3	88	8	177	7	--

Table G6. Large wood (LW) counts in Overflow Creek, 1989 and 1993. River km 0.0 is at the confluence with West Fork (Three Forks). See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	Overflow Creek - 1989							Overflow Creek - 1993						
			Large Wood Size Classes					Root-wads	Obstruc-tions	Large Wood Size Classes					Root-wads	Obstruc-tions
			LW 1	LW 2	LW 3	LW 4	LW Total			LW 1	LW 2	LW 3	LW 4	LW Total		
196	7	0.5	7	1	2	1	11	0	--	17	9	11	7	44	0	--
197	6.5	0.5	13	0	4	0	17	0	--	25	11	13	10	59	1	--
198	6	0.5	15	1	5	0	21	0	--	10	2	7	7	26	0	--
199	5.5	0.5	5	0	9	1	15	0	--	11	4	13	12	40	0	--
200	5	0.5	19	2	5	0	26	1	--	22	1	32	0	55	2	--
201	4.5	0.5	1	0	0	2	3	0	--	22	1	32	0	55	2	--
202	4	0.5	1	0	0	0	1	0	--	13	0	40	1	54	2	--
203	3.5	0.5	10	1	0	0	11	0	--	25	0	22	1	48	0	--
204	3	0.5	1	0	1	0	2	0	--	7	0	4	0	11	0	--
205	2.5	0.5	12	1	0	0	13	0	--	7	0	21	0	28	1	--
206	2	0.5	18	0	1	1	20	0	--	14	0	19	0	33	0	--
207	1.5	0.5	19	0	7	0	26	0	--	9	0	9	1	19	1	--
208	1	0.5	3	0	4	0	7	0	--	9	0	10	3	22	1	--
209	0.5	0.6	11	0	6	0	17	1	--	14	0	11	2	27	3	--
<i>Total</i>		<i>7.1</i>	<i>135</i>	<i>6</i>	<i>44</i>	<i>5</i>	<i>190</i>	<i>2</i>	<i>--</i>	<i>205</i>	<i>28</i>	<i>244</i>	<i>44</i>	<i>521</i>	<i>13</i>	<i>--</i>
<i>Total per km</i>		<i>--</i>	<i>19</i>	<i>1</i>	<i>6</i>	<i>1</i>	<i>27</i>	<i>0</i>	<i>--</i>	<i>29</i>	<i>4</i>	<i>34</i>	<i>6</i>	<i>73</i>	<i>2</i>	<i>--</i>

Table G7. Large wood (LW) counts in West Fork Overflow Creek, 1989 and 1993. River km 0.0 is at the confluence with East Fork Overflow Creek. See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	West Fork Overflow Creek - 1989							West Fork Overflow Creek - 1993						
			Large Wood Size Classes					Root-wads	Obstruc-tions	Large Wood Size Classes					Root-wads	Obstruc-tions
			LW 1	LW 2	LW 3	LW 4	LW Total			LW 1	LW 2	LW 3	LW 4	LW Total		
404	2.5	0.5	5	1	1	0	7	0	--	19	8	9	3	39	0	--
405	2.0	0.5	24	0	1	6	31	3	--	22	3	5	0	30	0	--
406	1.5	0.5	22	3	11	0	36	5	--	21	4	25	4	54	0	--
407	1.0	0.5	22	5	15	2	44	3	--	26	5	11	4	46	0	--
408	0.5	0.7	47	14	9	10	80	2	--	68	37	63	21	189	0	--
<i>Total</i>		2.7	120	23	37	18	198	13	--	156	57	113	32	358	0	--
<i>Total per km</i>		--	44	9	14	7	73	5	--	58	21	42	12	133	0	--

Table G8. Large wood (LW) counts in East Fork Overflow Creek, 1989 and 1993. River km 0.0 is at the confluence with West Fork Overflow Creek. See table 2 for LW size categories. LW total is sum of sizes 1 – 4.

Reach ID	River km	Length (km)	East Fork Overflow Creek - 1989							East Fork Overflow Creek - 1993						
			Large Wood Size Classes					Root-wads	Obstruc-tions	Large Wood Size Classes					Root-wads	Obstruc-tions
			LW 1	LW 2	LW 3	LW 4	LW Total			LW 1	LW 2	LW 3	LW 4	LW Total		
501	3.5	0.5	16	1	2	1	20	0	--	34	0	23	3	60	1	--
502	3.0	0.5	36	5	5	4	50	0	--	36	3	14	12	65	0	--
503	2.5	0.5	27	2	4	1	34	2	--	35	11	9	2	57	0	--
504	2.0	0.5	19	5	5	0	29	1	--	46	3	5	4	58	0	--
505	1.5	0.5	29	0	6	1	36	1	--	44	4	4	3	55	1	--
506	1.0	0.5	23	0	4	0	27	0	--	107	3	21	3	134	0	--
507	0.5	0.7	61	3	10	4	78	9	--	95	34	61	14	204	4	--
<i>Total</i>		<i>3.7</i>	<i>211</i>	<i>16</i>	<i>36</i>	<i>11</i>	<i>274</i>	<i>13</i>	<i>--</i>	<i>397</i>	<i>58</i>	<i>137</i>	<i>41</i>	<i>633</i>	<i>6</i>	<i>--</i>
<i>Total per km</i>		<i>--</i>	<i>57</i>	<i>4</i>	<i>10</i>	<i>3</i>	<i>74</i>	<i>4</i>	<i>--</i>	<i>107</i>	<i>16</i>	<i>37</i>	<i>11</i>	<i>171</i>	<i>2</i>	<i>--</i>