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RE: Chattooga Wood Inventory

March 25, 2008

Dear Mr. Cleeves,

American Whitewater noticed the Inventory of Large Wood in the Upper Chattooga River Watershed (Inventory) on the Sumter National Forest's website on February 29th, 2008. This inventory is apparently related to the ongoing User Capacity Analysis, yet we were not notified of the Inventory's preparation or existence. Our staff has significant experience with studying wood in rivers and would have welcomed the chance to participate in this Inventory's development.

The Inventory is just one more of many unilaterally created documents that were issued as a final document without any opportunity for comment by stakeholders. Like other documents developed as part of this process, it contains errors and omissions. The Forest's practice of releasing final documents without opportunity for review and comment runs counter to the Record of Decision for our appeal of the Sumter's Forest Plan, which clearly required involvement with interested parties.

While we disagree with the process that lead to the release of the Inventory, and some of the discussion within the Inventory, the data (with one exception) appear to have been collected and reported properly. Based on the results, we now know that:

- The Upper Chattooga (where wood has never been managed by paddlers) has 4,171 pieces of wood and only 2 wood-related portages. Therefore only 0.02% of wood is potentially a recreational issue.
- Overflow Creek where boating has been popular for decades has essentially the same average amount of wood as the Upper Chattooga (where no boating has occurred).
- Recreationist's (on streams with and without boating) only managed "several" pieces of wood out of 8,322 total pieces. Ecologically, and in the context other accepted recreational impacts, this miniscule effect is not significant.

While no comment opportunity was provided, we are providing our comments on the Inventory to the Forest and the authors. Thank you for considering these comments.

Sincerely,

A handwritten signature in black ink, appearing to read "K. Colburn", written over a white background.

Kevin Colburn
National Stewardship Director, American Whitewater

American Whitewater's Comments on the "Inventory of Large Wood in the Upper Chattooga River Watershed", Including the "Executive Summary"

March 25th, 2008

The Inventory of Large Wood in the Upper Chattooga River Watershed (Inventory) reveals several relationships between historical logging, current ecological conditions, and recreational enjoyment in the watershed. The methodologies appear correct and the results appear robust. The discussion of this collection of data however, including the Executive Summary, contains several subtle errors and omissions that could lead to confusion among managers or the public.

As a general statement we find it confusing and inappropriate that the Executive Summary contains photos and information not included in the Inventory itself. It would be helpful if all figures and information in the Executive Summary were also in the Inventory itself. In addition, the Inventory is deficient in that it failed to survey the uppermost 2-3 miles of the Wild and Scenic Chattooga River. Lastly, the Inventory opines about recreational management but fails to quantify recreational impacts to wood.

We offer the following specific comments on the Inventory with the hope that it can be revised to incorporate our comments.

1. Holcomb Creek is not an acceptable reference stream for Overflow Creek:

In several places, the Inventory indicates that Holcomb Creek may be an acceptable reference stream for Overflow Creek. This is not appropriate. Holcomb Creek 1) contains many saw-length pieces left behind by loggers¹, 2) was and is the site of at least one splash dam², 3) has human placed wood structures not mentioned in the report (see photo in Appendix 1), and 4) is smaller and likely has a lower transport capacity than larger streams like Overflow³. Overflow does not share any of these characteristics. In essence, Holcomb Creek's high number of logs can be directly traced

¹ "Much of the relatively larger LW load in the West Fork Chattooga appears to be derived from past logging in the West Fork drainage. Many if not most of the LW pieces were logs as evidenced by two saw-cut ends and typical saw-log lengths. These logs tended to form major portions of the banks along the midlower West Fork channel. Although many of the LW pieces found in Holcomb Creek were likely also residual from logging as evidenced by saw-cut ends, none of the cuts were recent." Executive Summary, pdf page 4.

² "At least some of the pieces in the lower half of Holcomb Creek probably had broken loose from an old splash dam, located about 0.5 km downstream of the bridge on FS road 86b." Executive Summary, pdf page 4.

³ The study reach on Holcomb Creek is 25% smaller than the study reach on Overflow at the upstream ends of the sites, and 44% smaller at the downstream ends. The study reach on Overflow Creek is 23% steeper than the study reach on Holcomb Creek. Combined, these two factors show that Overflow has a much higher transport capacity for wood.

to morphological differences and historical logging impacts, and therefore Holcomb Creek is not a viable reference stream for Overflow Creek.

As an example of this problem with the report, the Inventory subjectively describes Overflow Creek as having a “dramatically lower LW load” without any comparison of data. Overflow Creek does not have a “dramatically lower LW load” compared to any appropriate reference stream. Overflow’s LW load is only dramatically lower than the very different and impacted Holcomb Creek.

2. Wood distribution and movement is not adequately addressed in the Inventory

Transport of wood varies with the size, discharge, and channel characteristics of the stream, as well as the size and shape of the wood piece. Typically, as channel width increases, the amount of wood present decreases (Bilby and Ward 1991⁴). Low gradient reaches also tend to collect and retain wood, whereas higher gradient reaches tend to transport wood. One glance at the maps depicting wood piece abundance per reach reveals this anticipated effect. The smallest reaches at the top of the Inventoried streams are more likely to retain wood simply because of their size relative to the size of wood pieces. With this said, the large accumulation in the uppermost reaches of the Chattooga indicate sufficient stream capacity to transport and organize wood into accumulations. Steep sections of moderate size like Overflow Creek, and much of the Upper Chattooga and the Upper West Fork have the capacity to move logs through those areas during periods of high flow. These logs are deposited when stream gradient decreases as is the case with the lower West Fork and the lowermost reach of the Upper Chattooga. Also in these downstream low gradient reaches, wood pieces entering the stream from the riparian area are less likely to be transported downstream. Stream size and gradient can explain many of the patterns in wood location, yet is largely overlooked by the Inventory. Wood retention and distribution is a complex and dynamic phenomenon and deserves some discussion in the Inventory.

3. The Inventory reveals that wood may be managed by a variety of recreationists

According to the report, minimal recreational management of wood has occurred on Overflow Creek, the West Fork, and the Upper Chattooga. This alteration of “several” pieces of wood out of over 8000 happened on streams both with and without whitewater paddling. Recreational management of wood may be related to swimming, angling, aesthetics, tubing, paddling, or firewood gathering. The Inventory alluded to this result and we would like to reiterate it here.

⁴ Bilby, R.E., and J.W. Ward. 1991. Characteristics and Function of Large Woody Debris in streams draining old-growth, clear-cut, and second-growth forests in southwestern Washington. *Canadian Journal of Fisheries and Aquatic sciences* 48: 2499-2508.

4. Recreational impacts were not ecologically significant

The inventory found a total of 8,322 pieces of wood in the Upper Chattooga Watershed and only “several” that were apparently cut by recreationists. While it is unclear from the Inventory exactly how many “several” pieces are, one must assume that at a watershed scale, it is insignificant. Even if “several” is 80 pieces of wood (which is unlikely); that is still under 1% of the wood in the streams. We ask that the authors provide the exact number of logs cut by recreationists. Assuming that “several” is a relatively small number, one clear result of this Inventory is that recreation has an *insignificant* impact on wood in the Chattooga Watershed, yet that clear conclusion is never stated. In fact the Inventory vaguely seems to indicate that recreation is potential threat to wood.

The extremely small amount of wood that is moved or removed by paddlers is typically above the water line in high quality rapids – where wood has little ecological value in providing complexity, cover, refugia, or sediment retention. Thus, it should not be assumed that recreational wood management is random or especially damaging. It should also be noted that recreational management that lowers a wood piece from above the water to below the water, and/or moves it from a bedrock reach to a reach of finer substrate, may actually improve the immediate ecological functionality of the wood piece. The Regardless, simply prohibiting the removal of wood from the river would mitigate any potential impacts from any recreationist, although the Inventory shows such a prohibition is not justified.

The Inventory states that several wood pieces in Overflow and the West Fork “had been cut into small, easily moved pieces. Some pieces had been placed outside of the bankfull channel. Pieces that are removed from the channel can not function as LW and will not soon be replaced, an unintended consequence that will span generations (Inventory 8-9).” It is clear that the wood pieces and the main bole featured in Figures 6-9 were not in fact removed from the bankfull channel. Photos taken at a modest (lower than bankfull) flow reveal that the main bole and pieces in Figures 6 and 7 are in fact submerged or nearly so even at that flow (see photo in Appendix 1). We feel that the inventory misrepresents the fate of these few pieces of wood.

On a similar note, the Inventory makes the general statement that “Several of the targeted pieces were channel spanners that provide measurable benefit to streams in the form of sediment and organic debris retention (Ex Summary pdf page 8).” We would like to point out that while spanning logs have been shown to have measurable benefits to streams in some situations, that is not true in all locations. Only spanning logs that are in contact with the substrate can trap sediment, and it is extremely unlikely that paddlers would remove logs that they could simply paddle over. The Inventory does not state the elevation above the streambed of the spanning logs. In addition, the Inventory fails to address the different roles that wood plays in various types of stream channels. In steep streams with bedrock channels like the inventoried streams, wood plays a much smaller role in stream function than in lower gradient streams with less stable alluvial channels

(Murphy and Koski 1989⁵, Bilby and Wasserman 1989⁶) Figures 6-9 in the Executive Summary clearly show a bedrock and boulder substrate, which is common in these high gradient streams.

All recreational use of Forest Service lands carries some impact. Just as every piece of wood has some ecological value, so too does every inch of land converted to trails and campsites, every animal harvested by hunters and anglers, and every piece of wood burned for campfires – not to mention every tree harvested. These other impacts are vastly larger than any foreseeable impact on wood in the Chattooga Watershed's rivers, are acceptable on a multiple use landscape, and are all managed in a manner that limits the impacts to within an acceptable threshold.

5. The Inventory proves paddling can be allowed on the Upper Chattooga River with no significant impact on wood.

The Inventory revealed that the Upper Chattooga has 4,171 pieces of wood with an average of 205 pieces per mile. This wood has never been managed or manipulated by paddlers to support navigation. In January of 2007, paddlers navigated this entire section with only two wood-related portages. Thus, the maximum potential impact of allowing paddling to occur on existing wood resources would be the removal of 2 pieces out of 4,171. In reality, one of these obstructions is a large accumulation of wood that could not and would not ever be removed by hand. The other piece is in Big Bend Falls and is 1) likely to move on its own, and 2) not ecologically functional in its current location. Thus, the total impact of allowing paddlers access to the river – and not limiting the removal of wood in any way – would be the possibility that one piece of non-functioning wood gets moved. That amounts to 0.02% of the total wood in the river. This is a large sample size, and one of the few data sets of its kind. We can now say with a high degree of certainty that only 1 piece of wood out of every 2,085 pieces on the Upper Chattooga River creates a boating impediment. The Inventory fails to state this extremely important conclusion.

In addition, Overflow Creek and the Upper West Fork, where boating has been popular for decades, have on average essentially the same amount of wood as the Upper Chattooga (where no boating has occurred).

As the Inventory noted at length, impending hemlock deaths may significantly increase the amount of large wood pieces over the next several hundred years. Some percentage of these pieces may be of recreational concern, presumably 0.02% of pieces. Even if the Sumter National Forest makes no effort to curtail recreational management of

⁵ Murphy, M.L., and K.V. Koski. 1989. Input and depletion in Alaska streams and implications for streamside management. *North American Journal of Fisheries Management* 9: 427-436.

⁶ Bilby, R.E., and L.J. Wasserman. 1989. Changes in characteristics and function of woody debris with increasing size of streams in western Washington. *Transactions of the American Fisheries Society* 118: 368-378.

those few problematic pieces, the death of the hemlocks will lead to significant increases of wood in the Chattooga watershed and only miniscule recreational issues.

We should also note that paddlers have a specific tolerance for portaging on creeks. This tolerance is not zero, and therefore it can be assumed that paddlers will accept a certain number of portages per reach prior to even considering managing a piece of wood.

Conclusions:

The Inventory of Large Wood in the Upper Chattooga River Watershed contains a wealth of data on wood in the system. It paints a vivid picture of the lasting impacts of large scale logging on Holcomb Creek and the lower West Fork. It offers a textbook lesson on how flashy mountain streams transport and deposit wood along their lengths. It reveals that Upper Chattooga River and Overflow Creek have similar amounts of wood, regardless of unique past differences in recreational management. It reveals that recreationists have an *extremely* small effect on wood in the watershed. In concert with the recreational boating study, it proves that paddlers can navigate past, around, under, or over 4,169 logs on the Upper Chattooga, and only have to portage two. In short, it shows that there is no significant conflict between recreational use and protection of wood anywhere in the watershed.

Somehow though, these obvious conclusions are not explicitly stated in the Inventory. The Inventory works well as an ecological analysis. In its selective treatment of recreation, however, it misses several key points. We recommend either fully including a robust discussion of recreation, based on the issues brought forward in these comments, or removing the few vague references to recreation in the Inventory. In addition, we ask that the specific number, characteristics, and location of logs cut by recreationists be shared in the Inventory.

Thank You for considering these comments.

Sincerely,



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Appendix 1. Photos



1. Human placed log v-weir on Holcomb Creek.



2. Logs featured in Inventory photos. Small pieces are submerged or absent, sub-bole is in the water column, and main bole is nearly in the water column at a flow that is significantly below bankfull.