

**Wood Supply Working Group Meeting
Analysis of Small-Diameter Wood Supply in Northern Arizona**

**November 16, 2007
9:00 a.m. – 4:15 p.m.**

**Large Pod Conference room, Applied Research and Development (AR&D) Building
Northern Arizona University, Flagstaff, AZ**

Introductions and Agenda Review

Rosemary Romero, meeting facilitator, introduced herself and welcomed Working Group Members to the second to the last official meeting. Group members introduced themselves.

Working group members present at meeting:

- 1) Keith Pajkos, Timber Staff for the Arizona State lands Department Forestry Division
- 2) Bill Greenwood, City Manager for the Town of Eagar
- 3) Herb Hopper, Community-based forest and wood products advocate, Little Colorado Plateau Resource Conservation & Development
- 4) Steve Gatewood, Consultant, Wildwood Consulting Inc., representing the Greater Flagstaff Forests Partnership
- 5) Pascal Berlioux, President and Chief Executive Officer of Arizona Forest Restoration Products, Inc.
- 6) Lisa McNeilly, Northern Arizona Program Director of The Nature Conservancy
- 7) Jerry Drury, Timber Staff Officer for Kaibab National Forest
- 8) Rob Davis, President/Owner of Forest Energy Corporation/Future Forests
- 9) Todd Shulke, Forest Programs Director for Center of Biological Diversity
- 10) Diane Vosick, Associate Director of the Ecological Restoration Institute
- 11) Elaine Zieroth, Forest Supervisor for Apache-Sitgreaves National Forest
- 12) Shaula Hedwall, representative of the U.S. Fish and Wildlife Service, Ecological Services
- 13) Molly Pitts, Executive Director of the Northern Arizona Wood Products Association
- 14) Larry Stephenson, Executive Director of the Eastern Arizona Counties Organization
- 15) Ethan Aumack, Director of Restoration Programs for Grand Canyon Trust
- 16) Kim Newbauer, Timber Sales Contracting Officer for Coconino National Forest

Working group members not present at meeting:

- 1) Sarah Lantz, Urban Wildlife Planner for Arizona Game and Fish Department (Region II Flagstaff Office)
- 2) Scott Higginson, Executive Vice President of NZ Legacy/Snowflake White Mountain Power, Renergy
- 3) Robert LaCapa, Forest Manager, DOI BIA Fort Apache Agency Branch of Forestry
- 4) Mary Steuver, Acting Tribal Forester, Forestry Department, White Mountains Apache Tribe
- 5) Chuck Peone, Fort Apache Timber Co.

Project Team Present at Meeting:

- 1) Rosemary Romero, Meeting Facilitator, Romero Consulting
- 2) Jill Rundall, GIS Specialist, ForestERA

- 3) Tom Sisk, Professor, Center for Environmental Sciences and Education at Northern Arizona University (NAU)
- 4) Haydee Hampton, Research Associate, Center for Environmental Sciences and Education at NAU; Project Director, ForestERA Wood Supply Analysis
- 5) Steve Sesnie, Post-Doctoral Research Associate, Center for Environmental Sciences and Education at NAU; Remote Sensing Specialist, ForestERA
- 6) Gary Snider, Forest Economist and Doctoral student in the School of Forestry at Northern Arizona University
- 7) Jada Ach, English Instructor, NAU; scribe

Experts and Observers:

- 1) Wally Covington, Director, ERI (supplied expert input)
- 2) Pete Fulé, Faculty, NAU Forestry and ERI (supplied expert input)
- 3) Taylor McKinnon, Center for Biological Diversity

Haydee Hampton: Overview of Agenda

Hampton presented an overview of the meeting's agenda commented that at this meeting the two major parallel tracks of the project, collaboration and wood volume estimation, will merge. She referred to the first working group meeting which took place in Holbrook, AZ on June 4, 2007, remarking on the progress that the group has thus far made in terms of reviewing and developing a scenario. During this particular meeting, Hampton noted, the focus should be on revising the final scenario, reviewing wood volume estimates, and agreeing on methods for wood supply estimation. The final working group meeting will take place on November 29 in the ARD building on NAU campus in Flagstaff, AZ.

Hampton informed the group of the timeline for finalizing the project report: report will be submitted to working group and Region 3 by Dec. 17, 2007; comments from working group should be submitted to ForestERA by January 18, 2008; and a final report will be ready to distribute by Jan. 31, 2008. Representatives from ForestERA will be presenting analysis results at a meeting hosted by the Association for Fire Ecology in Tucson, AZ Jan. 28-31, 2008.

Hampton then summarized the working group's email discussion two weeks prior regarding the shift in the upper diameter threshold from 12 in. DBH to 16 in. DBH resulting in the following three classes: <5in. DBH, 5-16 in. DBH, and >16 in. DBH. She explained that the main reason given by working group members for requesting this shift was that the classes should be comprehensive enough to encompass as much of the useable material on which there has been a general agreement. She stated that some working group members had commented that a 16 in. threshold is less informative for some types of industry than a 12 in. threshold, and some members requested an 18 in. threshold to match the top end of VSS4, as used in Goshawk Guidelines.

After reviewing the agenda and the shift in diameter class ranges, Hampton provided the members with updated information regarding their restoration treatment scenario. Jill Rundall displayed maps portraying areas with Mexican spotted owl protected activity centers (MSO PACs), Specially Designated Areas such as Wilderness areas, steep slopes, goshawk nesting areas, completed treatments, streamside management zones, soils with limits on mechanized

equipment, and other areas deemed otherwise unavailable as a source of wood supply by the working group in the total 2.4 million acre project area. Once these areas are taken into consideration, the resulting acreage in the analysis area is 1.8 million acres (see details in table below).

Areas Not Considered Sources of Wood Supply

	<u>Acres</u>
1. Mexican Spotted Owl PACs	182,000
2. Specially Designated Areas	177,000
3. Steep slopes (>40%)	147,000
4. Contracted and completed treatments	113,000
5. Goshawk nest areas	63,000
6. Soil restricted from mechanized treatment	126,000
7. Streamside management zones	<u>52,000</u>
Total Acres (including overlap)	860,000
Overlap among all layers	<u>-222,000</u>
Total Acres (excluding overlap)	638,000
Ponderosa-pine lands in study area	2,413,000
Ponderosa-pine lands remaining	1,775,000

Hampton then reviewed information gathered by Gary Snider regarding 8 environmental assessments (EAs) conducted under NEPA in both Coconino National Forest and Apache-Sitgreaves National Forest. She provided draft estimates of the percentage of areas not thinned on the project-level analysis (22% on average for CNF); for ASNF, the average of areas not thinned was 27%. The group had expressed interest in possibly adjusting the number of areas not considered a source of wood supply in their treatment scenario based on the EA assessment as a greater number of factors, such as archeological or historical sites and wildlife movement corridors, are considered at the project level. One participant commented that these project level values validate the amount of area the group has already decided would not significantly contribute to wood supply. Participant: 26% from the landscape level analysis seems on the lower side given that Designated Roadless/Wilderness are not included. Another participant stated that this is an issue the Grand Canyon Trust has been looking at over the last couple of weeks, and agreement on the issue demands a hard look at what's happening realistically across the landscape. We have reviewed 30 EAs – and have found higher percentages of areas have not been thinned. Here are our averages: mean percentage of thinned on ASNF is 51%, on Kaibab the mean is 47%, Coconino is 37%, with a mean of 45% for all projects thinned.

Hampton then stated that the project analyses completed by Snider excluded meadows and to the extent possible focused on ponderosa pine dominated areas to make them comparable with the landscape-scale analysis of the group's treatment scenario and asked if the analyses used by Grand Canyon Trust did the same. In the CocNF, 83% of the areas included by GCT were dominated by PIPO; the remaining areas did include meadows. Another participant noted that the difference of percentages between these two groups might reveal other methodological differences. It might be important, she said, for the two groups to sit down and make sure they

are comparing apples to apples. Hampton agreed and suggested they meet during a break that day and again before the next meeting. One participant recommended that the calculations be based on each project area and not the larger analysis areas. Participant: Urban interface projects are an issue we need to talk about when discussing this percentage as well. We need to consider land classifications, because a lot of the wood supply analysis area is wildlands, not urban interface where thinning has been favored vs. burning; this may be what is reflected in this difference. Group members decided to hold the current conversation until later in the meeting. Hampton then continued with the scenario analysis.

Hampton reviewed the restoration treatment zones included in the final scenario (see table below).

Restoration Treatment Zones

	Acres	Full Area	Source Area
1. Not considered source of wood supply	638,000	26%	
2. Community protection	355,000	15%	20%
3. Mexican spotted owl restricted habitat	237,000	10%	13%
4. Municipal watersheds	60,000	2%	3%
5. Aquatic species watersheds	313,000	13%	18%
6. Wildlands	<u>809,000</u>	<u>34%</u>	<u>46%</u>
PIPO lands in full study area	2,413,000	100%	
PIPO lands available as wood source	1,775,000		100%

Remaining WM Stewardship Contract Areas* 416,000 (in full area)

Remaining WM Stewardship Contract Areas 343,000 (in source area)

 PIPO lands available for new contracts 1,432,000

* Areas remaining to be treated within NEPA Planning Areas between 2008 and 2013

 Areas over ¼ mi. from existing roads 241,000 10% 14%

The remaining areas available for new contracts comes to 1,432,000 acres. However, the group is still contemplating if more areas should be removed based on the EA study, which is still in progress. White Mountain Stewardship contract NEPA analysis areas amount to 416,000 acres across the full 2.4 million acres ponderosa-pine dominated area. A participant commented that once NEPA has been completed for these areas then the exact project areas within these greater analysis areas will be known. There is no upper limit in the contract. 150,000 acres in the contract is the goal. Participant response: An excess of acreage could go to any contract. Those acres should not be taken out of the wood supply analysis since they are not part of any contract right now. After further discussion the group agreed that the 120,000 acres remaining as part of the initial 150,000 Stewardship contract acres should be used in the report as an estimate of what has already been allocated for the White Mountain Stewardship contracts and thus is not available for new contracts.

Hampton then directed the group members to reconsider the issue of roads as it pertains to the scenario, an issue upon which the members focused much of their attention during the last meeting. After areas of overlap with areas not considered a source of wood supply are not considered, 241,000 acres of land in the project area is further from a quarter mile from existing

roads in ponderosa pines areas (10% of full area, 14% of source area). This might be valuable information for the Forest Service to use since areas greater than that distance (quarter of a mile) are difficult to access with today's chip trucks and other equipment. Hampton inquired what the group's feelings were regarding this proposal from the scenario attributes committee. Participant: My question is this: what would be the best way to present these numbers? The base amount we are confident about? Have an adder, perhaps? Participant response: A quarter mile is the basic skid distance. Participant: This is a conservative number. We have to keep in mind that we are dealing with existing equipment, say nothing of the current condition of the roads. It is probably beyond this group's ability to analyze the accessibility. But the number is there, nonetheless, even if we are unable to get all of these roads in the rest of the area up to the standard for such an endeavor. Another participant mentioned that the group should look 10-20 years from now and consider the machinery that may be available to access zones further than a quarter mile from the roads. He stated that more advanced machinery may then be available, allowing greater access to areas past the quarter-mile mark. Commenting on the language to be used in the report, another participant noted that the roads evaluated in the project area are accessible, and that it is just a question of whether to utilize them or not. They should not be left out of the project because of questions of accessibility; they may just be more expensive to use. Romero paused the discussion, asking the group members to consider the language used to discuss this issue of roads in the report. She questioned how such an issue should be phrased to encompass everything the group had discussed up to this point. Hampton further clarified Romero's question, stating that wood harvesting technology may shift over the next 20 years, allowing people to access more than .25 miles. She asked the group how this issue should be portrayed in the scenario. A participant responded to this question by stating that it is unlikely that there will be mechanical treatment in those harder-to-access areas. The narrative of the report, he stated, should characterize the issue in that way. He suggested that we should give the current available/accessible landscape a value – albeit, a conservative value. In addition, the narrative should discuss the road network; the working group does not have the ability to judge what is and is not usable. The narrative should therefore state that with existing technology, it is unlikely that there will be mechanical treatment in these areas. Participant response: Why are these areas still included in the total number, then, but left out? Mechanical treatment may be unlikely today, but should still be considered when discussing future supply. Some participants stated that different scenarios should be described in the report, one of them discussing the issue of future technology. One participant stated that grants are currently being written for such advancements in technology, making this more of an economic issue than a technological one. The group chose to go with a suggestion by one member on the use of confidence intervals in the report, outlining that supply may be derived in the future from additional acres with moderate or low confidence. When more acres become possible in the future, these items of lower confidence may then be realized.

Hampton then outlined the scenario attribute subcommittee's proposed strategy for defining post-treatment forest structural conditions in each landscape zone using recommended basal area ranges (i.e., in community protection areas the subcommittee recommended a range between 30 and 60 ft²/acre with a mode, or most common value, of 40; in municipal and aquatic species watersheds 40 to 120 with mode of 60; in MSO Target pine-oak habitat 60 to 120 with mode of 100; in MSO other restricted pine-oak habitat 45 to 120 with mode of 70; and in remaining areas or "wildlands" 40 to 160 with a mode of 80 ft²/acre). The subcommittee also provided ranges of

desired post-treatment conditions for canopy cover and tree density as guidelines. She noted that ForestERA has not determined that it is possible to model treatments across the landscape in this way since the methodology differs from what ForestERA has used in the past and given time limits on the project, but they have been working towards getting as close to this as possible and will at a minimum include a description of the group's desired future conditions in the report even if they need to use a more simplified approach. One working group member was concerned that using a mode of 80 ft²/ac in the wildlands would leave the forest too dense to reduce the threat of high severity wildfires. Another member stated that the subcommittee chose a range of basal areas in order to increase the post-treatment heterogeneity of the landscape. He also noted that there were no numbers on the y-axis of the chart as ForestERA has not yet derived curves representing 100% of the basal areas in each zone [i.e., probability density functions] from these curves hand drawn by the scenario attribute committee. They will need to determine the y values for each curve in a subsequent step. Subcommittee participant: The tails of the curves could shift a bit. There is nothing prescribing what those numbers should be. We are trying to push towards a heterogeneous landscape. In the narrative we need to explain why we came up with the numbers for the tails that we did. Hampton asked the group if they agreed to include the distributions in their scenario as they were currently presented; Romero tallied the group and established that consensus had been reached on this issue. Members then discussed what would be an appropriate patch size within which each basal area distribution would apply, however did not come to a conclusion. Hampton commented that this would add greater complexity to the modeling which ForestERA may not be able to include in the analysis given time and resource constraints, but understood that this was of interest to the group even though no specific patch size was decided upon. At any rate, this issue of patch size will be included in the narrative.

Steve Gatewood: Fire Subgroup

Gatewood presented information discussed by the fire subgroup since the last full group meeting, stating that the group has focused heavily on where fire-only should be used on the landscape as a restoration treatment. This is relevant to this process as it could impact the quantity of restoration by-products from mechanical treatments (followed by prescribed burning). On the other hand, where is wildfire such a great threat that we need to use mechanical thinning, he asked? Can we define conditions where prescribed burns would be the preferred treatment? Among the factors the group needs to consider when assessing the preferred treatment are weather conditions and structural characteristics. To seek information regarding these questions, the fire group asked, Pete Fulé, Associate Professor of Forestry at NAU and ERI faculty member for his expert opinion. This information was sought to enlighten the working group on issues regarding burn only treatments as they relate to forest restoration and wood supply. In response to a question regarding appropriate treatment strategies under various weather conditions, Fulé responded by saying that under the right conditions, any forest can be burned. In other words, the right weather conditions, when combined with the right fire, will result in a successful treatment. Fulé had been asked whether there was a set of forest structural parameters that one could apply across the landscape to assess where prescribed fire may be the best first-entry tool. Fulé responded that a good rule of thumb would be to consider areas with less than 100sq ft/acre and less than 100 trees per acre, however went on to say that these are complicated questions, and the weather question asked is the only one with a real answer. The forest structure question has more to do with people's interests and opinions. Nothing is set in stone, he then said, and other opinions are valid as well, when discussing these issues.

Gatewood then commented on the percentage of the landscape that falls below 109 ft²/acre BA and 160 trees per acre, which cover between 6 and 10% of the landscape as calculated by ForestERA based on 2006 forest conditions. These are very thick, dense forests. How can we look at those numbers/ranges/percentage sets – where and how much do we want to draw on this analysis? Two parameters affect how the landscape is shown. Hampton then provided maps revealing three different basal area thresholds (below 100 ft²/acre BA, 70BA, and 50BA). Below 50BA (10% of landscape), below 70BA (22% of landscape), below 100BA (40%). Gatewood reiterated that different treatment plans for these three ranges would need to be discussed. Maps revealing trees per acre are not yet available, she said, but will be developed in the next several days. A participant voiced her concern by stating that the fire issue was a NEPA decision, and she was not sure why it should be debated in the context of the working group. NEPA decides what the best tool is and how much smoke we can put into the environment. Proximity to communities is taken into account. This group member said that she does support tagging some acres for group consideration, but while fire might sometimes be suitable for a given area, it may not always be practical. Fulé followed up on the issue of practicality as it relates to prescribed burns. In reference to the checker-boarded zones on the basal area maps displayed, he said that one cannot manage fire in zones this small (say, one or two 90m pixels) – fire managers cannot differentiate between pixels on the land and burn that way, so using a larger minimum patch size for burn-only treatments would be a better way to model these treatments.

A participant encouraged the group to be soft with language in the narrative in regards to fire treatment issue. For the report to appeal to a broader audience, he proposed a “status quo” approach to the burn-only issue. This approach, according to the participant, would assume that the same proportion of the landscape should be burn-only (~30%) as it has been specified in NEPA documents to burn over the last 10 years. Stay with the current Forest Service burn numbers, he urged. Another participant challenged the assumption that burning was always a restorative treatment. While the Gila NF had been earlier referenced as a good example of an area with many successful burns, the member stated that what he has found in his research is that it doesn't always restore forest structure. Participant response: The issue of using fire as a restorative tool is debated across the political spectrum, and if we want to come to some wood supply numbers, we should go with the interpretation of status quo. Some participants voiced their disagreement with this opinion, stating that current FS policy, as it relates to fire treatment, may not be the best way of arriving at the ultimate goal of forest restoration. Also, just because an area is marked for burn-only in an EA doesn't mean it will be burned. Another member proposed a range of burn-only treatments to include in the report's narrative, using 65% as the high-end percentage. He used the example of fire treatments in the Gila NF as a means of demonstrating to the group that fire is already being used as an effective restorative tool. (Many were concerned with the use of Gila as a model for the rest of the project area, as appropriate treatment depends on individual characteristics of each landscape-unit, proximity to communities, and tree density.) Gatewood stressed the need to agree on structural parameters to include in the report. He stated that the report should be able to inform its readers where, exactly, the fire should go on the landscape and this would allow for a more exact determination of wood supply.

Hampton stated that the reasons lands were designated as burn-only in the NEPA reviewed by Snider were due to steep slopes, road inaccessibility, soils restricted from treatments, and MSO PACs. A participant responded by saying that many of these conditions were noted in previous maps, and those zones (soil, no roads, steep slopes, etc.) were already taken out of the available supply area. We now need to look at risk factors in the remaining areas (smoke, urban interface, etc.), she argued, to make our final decision. A participant added that wildlife movement corridors and old growth were additional reasons “NEPA”ed areas were designated burn only and that the group had already determined that these cannot be accurately portrayed in the landscape analysis. Romero asked the group if there were any alternatives to propose besides the “status quo” proposal. Sisk then reiterated Romero, encouraging those participants who did not agree with the “status quo” proposal to voice an alternative proposal. He stated that the group needed to come to some sort of agreement on one proposal if the process is to move forward. After much debate in regards to appropriate treatment, the outlining of spatial parameters, and the purpose of this project (whether the report should propose directives for the Forest Service or not), the group came up with the following three ways of approaching fire treatment strategies in their scenario:

General info:

- NEPA burn-only areas amount to approximately 28% of all ponderosa-pine dominated areas in the analysis area. These burn only areas occur on:
 - Steep slopes, PACs, areas inaccessible from existing roads, old growth areas and wildlife movement corridors
 - Some of these burn-only areas were in PJ
- The Wood Supply scenario’s Areas Not Available for Wood Supply (PACs, steep slopes, soils, SDA, streamside mgmt zone, goshawk nests) cover 26% of the study area.
- Burning may not be the best treatment for steep slopes and PACs

Alternatives:

- 1.) Recent project-level burning levels: Use percent of areas planned via NEPA for burn-only treatments. Most of these areas are included in Areas Not Available, however some are not (e.g., old growth and wildlife movement corridors). The area (acres) of the remaining features will be assumed as the differential between the landscape assessment Areas Not Available and the NEPA burn-only areas and will be indicated in narrative as high confidence as unavailable for wood supply and estimated in terms of average volume per acre. Need to remove Wilderness and Roadless Areas at front end as these are not included in NEPA planning areas. Develop best guess estimate today.
- 2.) Low risk of wildfire: Use forest structure parameters (basal area and tree density) to define areas where prescribed burning may be the preferred restoration treatment due to low risk of escaped fire or wildfire spread through tree canopies. Develop map showing areas with the following combinations of basal area and tree density: 1) 100 ft²/ac and 100 trees/acre, and 2) 80 ft²/ac and 160 trees/acre.
- 3.) Wildlands focus: Apply more aggressive burning percentage outside of WUI and possibly municipal watersheds. 65% of area burned to reflect current burning in some wildland settings.

Below is general discussion of the three approaches to fire-only treatments to include in the scenario:

One participant said that she was uncomfortable with all of the alternatives. She worries about what characteristics would be left were such aggressive strategies to be instituted. There is not enough data, she said, to assess to what degree fire would be a necessary treatment in the project area. We want to say that those areas could be available for treatment and supply in the future, she said, but we have yet to replace the placement habitats of those species. She went on to say that she is not going to recommend the available areas all be burned without additional analysis, as burning may not be the best treatment for many zones in the project area, such as MSO PACs. The member to propose the third alternative recommended that the narrative deal with one of these plans clearly and robustly in the narrative. Unlike stating a specific recommended percentage for fire treatment, he instead wishes the report to offer a range (for example, 10-65%). Such a range should be mentioned in the actual scenario, not lost in a paragraph of the document. A member responded by saying that she worries about the implications of discussing the issue in such a way. The number currently being debated deals with fire treatment, not restoration. How do you get back, she asked, to the best restoration of the landscape's structure and function? The goal of restoration, she reiterated, should be the focus of this discussion. She went on to say that she does not think that 65% of the landscape can safely receive fire. Another participant agreed with this statement, saying that to burn 65% of the forest would be irresponsible. The Apache-Sitgreaves Forest, she said, is a fairly urban forest, and there would be no way to burn that high of a percentage. Oftentimes fire is the default treatment due to lack of mechanization. We are trying, however, to restore these acres, she said, and if we go through and thin first, then in the future we can get close to burning 65% of the landscape. Today, however, the number will be much lower – close to 10%. We will not be able, she said, to pull off more than that. After a group member asked Hampton what the consequences would be if they did not arrive at a decision during today's meeting, Hampton said that the information would then not be available to present back to the group in their final meeting on Nov. 29. She stressed that ForestERA would need a set of criteria today if the group wanted them to conduct a spatial analysis before the next meeting. Sisk told the group that their ability to shape where they go is now. One participant suggested that due to the high mortality rate that would result in instituting the third alternative at present, the group should highly consider the first alternative. Another member stressed the empirical strength of the second option. He reiterated the need to rethink the basal area and trees per acre, however. If we look at both, he said, we are at 10% of the study area. The group asked if ForestERA could come back with an analyses of 1, 2 and 3 for the next meeting, although alternative #1 received the most support from the group.

The rest of the discussion regarding the issue focused mainly on the range suggested in alternative #3. While some members agreed conceptually on the third alternative, they felt as though 65% was unsafe and unrealistic. Others feared that if wide-scale fire was introduced in wildlands areas, old growth would be at risk. Some members disagreed with option 3 on the grounds of how such wide-scale burning could affect the available wood supply. Some members in support of alternative 3 claimed that as forest conditions change, and depending on various other factors that may change in the future, 65% may not be as unrealistic as it currently seems. Romero asked the group whether these three alternatives should merely be described in the narrative, or if the group should make a specific preference. Hampton said that ForestERA would be able to do a spatial analysis of 2 and 3 fairly easily, although they would have to make some assumptions on patch sizes and other details that the group did not specify. For alternative #1,

she said that ForestERA and the Grand Canyon Trust could meet to bring their project level analyses together. Sisk said that while figures for all three alternatives could be developed, the working group had always tried to resist the temptation to split into multiple scenarios. Including all three alternatives into the report, he said, will not take the group to their final objective. We can look at all three alternatives and present them at the next meeting – all three will come out with a number of supply – but the group should consider coming to an agreement on one (or a combination) of the plans. Rosemary summarized the group’s final decision on this item for the current meeting, re-emphasizing Sisk’s words of honing in on a zone of agreement. If one alternative cannot be agreed upon, the two options may be possible. Information on all three alternatives will be analyzed by ForestERA and presented to the group at the next meeting for the final alternative to be decided on.

Wood Volume Estimates (Steve Sesnie)

Sesnie provided the working group with information on how ForestERA had arrived at their current estimates of wood volume. Information entered into the analyses includes Forest Inventory Analysis ground data and Landsat TM 2006 remote sensing imagery and digital elevation models. After outlining the data used to predict forest structural elements and estimated volume, Sesnie explained the accuracy of such imputations. Between the observed and imputed data, Sesnie stated he had achieved an r-value of 76% for total wood volume. Some of the final data is currently being re-run to ensure the accuracy of the derived amounts. Sesnie stated that the accuracy for smaller basal areas is not as high since it is more difficult to measure differences below the canopy. Also, where there are high density levels of saturation, volume is more difficult to predict.

Sesnie stated that the total wood supply volume in cubic feet in the pine type was 4.6 billion in the 2.4 million acre project area. With 1.3 billion cubic feet (CF) of this volume being set aside in the working group scenario, the total available volume reaches 3.3 billion CF (see table below for additional details):

Volume category	Total Cu. Ft. (billion)	Vol.%	Acres (million)	Acres %
Total volume	4.6	100	2.4	100
Tot. vol. removed	1.3	28	0.6	28
Tot. vol. remaining	3.3	72	1.8	72
				% of available
Community protection	0.6	20	0.36	20
MSO restricted habitat	0.5	15	0.24	13
Municipal watersheds	0.1	4	0.06	3
Aquatic species watersheds	0.6	19	0.31	18
Wildlands	1.4	42	0.81	46

Sesnie stated that he will be able to calculate the percentage of volume in each diameter class (5 in., 5-16, 16+) after running the grids before the next meeting. To ensure that these estimates

reach the highest level of accuracy possible, Sesnie plans to compare the totals from these categories to total volume.

Hampton then shifted the discussion to wood supply. Hampton reviewed a proposal developed by the Steering Committee and reviewed with the scenario attribute subcommittee for assuming that restoration by-products will largely come from <5 in. DBH and 5-16 in. DBH classes. The report will highlight areas where it is not possible to meet desired post-treatment conditions by removing wood solely from these classes. However, near communities, removals in the > 16 in. DBH class may be realized if necessary. A participant proposed 10% of each of these lower DBH classes should not be removed. The group agreed with this suggested and the plan developed by the Steering Committee. One member suggested including a growth model into the equation as the supply is stretched over the years. Sesnie then stated that growth averages 30 CF/acre a year.

One participant noted that the maps of the project area do not take into consideration the White Mountain Apache Tribe where much wood volume is available on the ground. In past meetings, he said, we mentioned the desire to work with the tribe, and now that we are close to the end of our study we need to act on it. Hampton mentioned that she and Sesnie had traveled to White River on the White Mountain Apache lands on Oct. 18 and met with the Paul DeClay, the Tribal Forester on this issue. A participant announced that sadly, he had passed away several weeks ago and that it would be unlikely for the tribe to provide reservation-wide volume estimates of small-diameter wood for this project. Hampton said she had been in contact with the acting tribal forester, Mary Steuver, who had attended two of the working group meetings, and at the appropriate time, would revisit this issue with her.

In addition to the narrative, Hampton presented a map created by Rundall, that identified treatments recommended in previous CWPPs. Rundall described the types of treatments and intensity of treatments for the areas of Flagstaff, Rim Country, and Apache-Sitgreaves National Forest which are the only CWPPs where specific information on treatments was available. Hampton explained that the idea is to create what we have spatially for CWPPs, not calculated as volume, but just as one scenario. A member questioned how this information would be used, as she was worried that the report may speak against such community-derived treatment plans. Participant response: In the report we plan on discussing why our recommended treatments may or may not match community-approved treatments. We plan on addressing that difference in the report. The member responded by saying the WUIs in her area (Apache-Sitgreaves) were defined by the community, and that the report should not arbitrarily second guess what the community wants. She went on to say that the report has to show why the group is deviating from the CWPP; we may be able to deviate when we prove with science that we need to deviate. Hampton then asked the group if they were ready to decide between the two scenarios for the report: stick with the Wood Supply Analysis community protection zones currently in their scenario, or offer the alternative treatment zones defined by CWPPs. A member stressed that whatever the group decided to do, they must make sure to be consistent in the entire project area. He suggested running it the same everywhere (using the Wood Supply Analysis community protection zones), and then run the CWPP. In other words, he preferred taking a standardized approach, following that standard approach by deviating according to each community's specific wants and needs as outlined in the CWPPs. The group decided to run a consistent application of

treatment zones before consideration of the CWPP. Results would be calculated on a location-by-location basis. In the report he stressed that much care should be taken in deciding how to present this information.

A group member requested that the report should, in some way, address climate issues over the next 20 years in the context of forest restoration and available supply. In the same vein, estimated fire risk, disease, and insect threat should also be placed into consideration. In sum, one member stated that these issues could be handled in a section addressing/estimating future tree mortality. She explained that such an issue should not be handled as a spatial analysis issue, but as a discussion which arrives at a percentage lost in volume. Sisk said that while ForestERA would be able to look at the current trends and project those trends out, such projections always result in there being no forests left. We are left with only uncertainties, he stated, and must therefore rely on adaptive management. The narrative can address these uncertainties, but, it is not possible to provide firm figures on how these risks may affect wood supply or overall forest health. In terms of the final report, several group members have volunteered to supply text for certain sections of the report by Tuesday Nov. 27: Steve Gatewood on CWPPs, Shaula Hedwall on wildlife/restoration treatment issues, Ethan Aumack on burn only treatments, and Lisa McNeilly on impacts of climate change and natural disturbances on future wood supply. Vosick sculpted the narrative for the issue of old growth management and submitted copies to the entire working group during the meeting. Hampton encouraged the group to read through this portion of the narrative carefully and email Vosick comments by Tuesday Nov. 27. These sections will be discussed and finalized at the Nov. 29 meeting.

Gary Snider provided the group with additional information on the 4 EAs from Coconino NF and 4 EAs from Apache-Sitgreaves NF discussed earlier. Taking into account ownership and landscape features, Snider said that, across the board, ~75-80% of these project sites had been set aside for thinning treatments and ~20% had burn-only treatments. The implications of these projects is not yet easy to determine, Snider noted, but he will provide the group with that information once it becomes available. Snider also presented the following updated table for the White Mountain Area (Apache Sitgreaves NF) on Harvesting Contractors for year 2006:

<u>Harvesting Contractors</u>	<u>Green Tons</u> <u>(old)</u>	<u>Green Tons</u> <u>(new)</u>	<u>CCF</u> <u>(new)</u>	<u>% of Total</u> <u>CCF</u>
	(thousand)	(thousand)	(thousand)	
<i>Walker Brothers</i>	110.8	129.3	36.9	63.8
<i>Tri Star Logging</i>	44.6	52.0	14.6	25.3
<i>Nutrioso Logging</i>	12.3	14.4	4.1	7.1
<i>Renegy</i>	6.5	7.6	2.2	3.8
Total	174.2	203.3	57.8	100.0

The numbers obtained by Snider indicate that green tons have become heavier – 3-3.5 tons. This shift does not affect CCF, however.

The final wood supply working group meeting will be held on Thursday, November 29, 2007, from 9am-4:15pm at the same location as this meeting (Large Pod Conference room, Applied Research and Development Building, Northern Arizona University, Flagstaff).