Meeting Summary
Wood Supply Working Group Meeting #2
Analysis of Small-Diameter Wood Supply in Northern Arizona
July 18, 2007, AZ Game and Fish Dept., Pinetop Regional Office, Pinetop, Arizona

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Introduction and Agenda Review

Rosemary Romero: *Welcome*
Romero (Meeting Facilitator) welcomed back the working group members and observers to the second of eight scheduled meetings (2 meetings may be cancelled if sufficient progress is made). She made several brief announcements concerning the meeting and had the working group and audience members introduce themselves.

***Working Group members present at meeting (in order of presentation)*:**
1) Scott Higginson, Executive Vice President of NZ Legacy/Snowflake White Mountain Power, Renergy
2) Shaula Hedwall, representative of the U.S. Fish and Wildlife Service, Ecological Services
3) Sarah Lantz, Urban Wildlife Planner for Arizona Game and Fish Department (Region II Flagstaff Office)
4) Molly Pitts, advocate for Northern Arizona Wood Products Association
5) Elaine Zieroth, Forest Supervisor for Apache-Sitgreaves National Forests
6) Lisa McNeilly, Director of the Northern Arizona Program for The Nature Conservancy
7) Bill Greenwood, City Manager for the Town of Eagar
8) Pascal Berlioux, President and Chief Executive Officer of Arizona Forest Restoration Products, Inc.
9) Rob Davis, President/Owner of Forest Energy Corporation/Future Forests
10) Jerry Drury, Timber Staff Officer for Kaibab National Forest
11) Herb Hopper, Advocate for Little Colorado Plateau Resource Conservation & Development
12) Diane Vosick, Associate Director of the Ecological Restoration Institute
13) Todd Schulke, Forest Programs Director for the Center of Biological Diversity
14) Chuck Peone, Fort Apache Timber Co.
15) Keith Pajkos, Timber Staff for the Arizona State Lands Department Forestry Division
16) Mary Stuever, Forestry Department, White Mountain Apache Tribe (alternate for Paul DeClay, Tribal Forester)

***Working Group members not present at meeting*:**
1) Robert LaCapa, Forest Manager, DOI BIA Fort Apache Agency Branch of Forestry
2) Steve Gatewood, Director of the Greater Flagstaff Forests Partnership
3) Larry Stephenson, Executive Director of the Eastern Arizona Counties Organization (ECO)/Economic Environmental Counties Organization (EECO)
4) Kim Newbauer, Representative of Coconino National Forest
5) Ethan Aumack, Director of Restoration Programs for Grand Canyon Trust

Meeting observers:
1) Penny Pew, Representative for Congressman Renzi
2) Bob Baltes, BDA
3) Greg Morion, USDA - FS
4) Scott Lockhard, USDA - FS
5) Stacey Hamburg, Sierra Club
6) Ed Martin, SFP
7) Sue Sitko, TNC
8) Dwayne Walker, Future Forest

Romero then turned the floor over to Haydee Hampton (Research Associate, Center for Environmental Sciences and Education at Northern Arizona University (NAU)), the Forest Ecosystem Restoration Analysis (ForestERA) Project Manager leading this collaborative effort.

Haydee Hampton: W*ood Supply Team Introductions and Agenda*
Hampton began by introducing new members of ForestERA's Project Team since the last Working Group meeting: Tony Becker, Scribe (PhD student in Linguistics at NAU) and Steve Sesnie, Remote Sensing Specialist (Post-doctoral Research Associate). Sesnie will begin attending Working Group meetings in August.

Hampton provided an overview of the agenda and briefly discussed the highlights for the day's meeting, including three points related to treatment scenario development. Furthermore, Hampton included an overview of the scheduled individual presentations about different treatment scenarios conducted in the past. She encouraged working group members to thoughtfully consider the treatment options presented and provide contributions to the treatment scenarios. Once the agenda was covered, "clickers" were distributed to working group members and Hampton provided a brief PowerPoint presentation to inform members on how to use the clickers, as well as a description of their function. Hampton explained that, if agreed upon, the clickers would be used by the working group to gauge agreement on decisions requiring consensus. The clicker technology will primarily be utilized for group members to indicate their level of agreement on certain issues covered throughout future meetings.

Rosemary Romero: *Group Decision-Making Process*
Romero reviewed a slide ("What leaders can do") that covered some characteristics of leadership and she explained how she envisioned the session would proceed. She encouraged participation from working group members, and explained that the use of clickers would enable rather quiet individuals to participate along-side those who are outspoken. Romero continued by explaining that the clickers were "an anonymous tool to gauge the level of agreement", and should prove effective to promote additional discussion.

In terms of the proposed group decision-making process, Romero commented that the ForestERA group is bringing data and analyses to inform group members, and she encouraged group members to propose ideas and add to the discussion until agreement is reached. She also encouraged group members to work towards an understanding on the issues related to treatment options, rather than simply stating disagreement. She explained that there is never 100 percent

agreement, but she hoped that this process would promote bargaining and eventually lead to language resulting in agreement among working group members.

Afterwards, several statements were presented to the working group members via PowerPoint presentation, in which they were asked to use the clickers to vote. Statement #1 – "The wood supply working group should use the consensus-based decision process described." The results were that five working group members strongly agreed, while five others agreed. At this point, one group member interjected and asked about formatting the voting process – "Can we have time to discuss the matters before we go straight to using the clickers?" Romero responded that this was a baseline question, used to familiarize group members with the technology and voting format. She and Hampton added that dialogue could either follow or precede the actual voting, so that people could express their concerns.

Then, statement #2 was presented – "The wood supply working group should use an online discussion forum." The results were not compiled via the clicker program, but instead were discussed as a group. A discussion of the online forum revealed that some members were opposed to the online forum, since they preferred small or large group discussions compared to the online forum. Another member was concerned that not everyone could participate online because of various reasons, such as time availability and access issues. Another member commented that the online system did not reflect the *fish bowl* process of discussion because it promotes debates that are not in the public forum. He felt that it was rather isolated.

Romero informed the group that the email discussions could work, especially to facilitate small group work. Large group discussions should be reserved for face-to-face meetings, where ideas could be more effectively discussed. The group came to an agreement that informal email discussions, and not a more organized on-line discussion forum, would be maintained as a tool for sharing ideas, but the majority of larger issues would be reserved for large-group meetings.

Lastly, statement #3 was presented – "The June 4th meeting summary is an adequate record of the meeting." The results were that most members strongly agreed or agreed, but several members did not vote, since they had not read the summary. At that time, Romero explained the nature of the summary as "a neutral document that enables people to recall what happened, as well as to reflect on the matters discussed." Afterwards, members voted on the "clicker" technology and it was unanimously approved for future use in facilitating decisions.

Treatment Scenario Development –

Review - Presentation by Haydee Hampton

First, Hampton briefly outlined the information covered from the last meeting, related to layer analysis, wildlife issues, treatment scenarios, spatial data, and guidelines. Then, she provided a working group meeting timetable for members: 6/4, 7/18, 8/17 meetings would be used for developing a draft of the treatment scenario(s) to be included in the 9/7 progress report; 9/17 would reflect the revised treatment scenario(s) and a discussion of the results of the forest growth review; 10/15 would include the finalized treatment scenario(s), a review of wood volume layer,

treatment definitions, and information regarding the wood user database; 11/16 would include a discussion of the wood supply results and the potential economic impact; 12/1 will focus on the final deliverables of the proposal.

Hampton then segued into the PowerPoint presentation about the treatment scenario development. She began by discussing the "Western Mogollon Plateau and White Mountains Landscape Assessments" – supported by NAU, covering approximately two million acres each. She encouraged members to evaluate the Work Book contents with information about the treatment scenarios developed during these landscape assessments. Furthermore, Hampton asked working group members, "Did you attend the Western Mogollon Plateau adaptive landscape assessment or the White Mountains landscape assessment?" Ten group members indicated that they did attend the meeting, while one group member responded that they did not.

Hampton then provided a slide of a wood supply analysis map that provided boundaries of the assessment for the current study. She also provided information about previous landscape assessments – (about 50 stakeholders attended the landscape assessment workshops in Pinetop and Flagstaff); Hampton discussed the conceptual approach for landscape prioritization and provided another map that showed the prioritized areas in need of management attention. She described how previous researchers identified and prioritized the landscape values and risks, as well as the spatial layers represented in the research (they applied weighting factors according to priority level). Hampton indicated that the spatial layers that receive priority ranks were considered, in terms of how they are identified, weighted and overlaid to construct a composite map.

Next, Hampton covered the findings from the research of the highest priority values and risks from the previous assessments in the analysis areas. She clarified that "values" included human communities and infrastructure, water features, biodiversity, and key forest indicator species, while "risks" included fire hazard and behavior, fire risk, post-fire erosion and sedimentation potential, and tree density. She provided three spatial layer maps that revealed the priority layer development process; there were three maps included to demonstrate how this process was done in the past. The development process was explained as a three-fold process:

- Define management objectives (e.g., reduce the risk of uncharacteristic wildfire)
- Select areas in need of management (e.g., areas predicted to experience crown fires in dry years)
- Recommend management action for those areas (e.g., plan intermediate intensity thinning followed by prescribed burning in areas predicted to possibly crown)

Following this, Hampton presented several examples of objectives from previous assessments in the analysis areas:

- Protect communities and important infrastructure
- Maintain water quality in municipal watersheds
- Protect and enhance habitat for endangered species and minimize treatment impacts
- Restore grasslands

- Protect and maintain the biological integrity of riparian and aquatic habitats
- Increase the quality and extent of special habitats, such as aspen stands and pine-oak woodlands.

In addition, a spatial layer of the management objectives for crown fire and interest in minimizing fire plus a thinning map were combined to equal treatment areas across the landscape. Hampton added that the team could take the high priority areas and move forward with them. At that point, she asked the working group members how they could use the previous assessments for the wood supply analysis. Working group members were encouraged to choose either, "Not use them at all", "Consider, select, and build on relevant components from previous scenarios", or "Use prioritization and/or management action layers from previous assessments". One comment from a working group member was to wait to use these previous assessments until data were collected for the current project. Two other members added that considering, selecting, and building on relevant components from previous scenarios would be relevant and useful for the future interests and progress of this group.

Then, Hampton encouraged a discussion into ways to evaluate potential sustainability over certain time periods while considering the following:

- Identify acres available and appropriate for restoration (e.g., thinning and prescribed fire treatments)
- Identify the restoration objectives for those acres
- Build agreement on the size and location of treatments necessary to reach the restoration objectives
- Estimate the volume of supply following recommended thinning treatments.

One group member emphasized the need to look at "what's off the table" in terms of acreage available. Another group member commented that he was not familiar with the prioritization process, adding that it may or may not be useful for issues the group is discussing. He thought this process could facilitate some decisions made about topics – "We need to start from scratch and move forward and see how the assessments unfold." In addition, a group member commented that, "other factors need to be considered in the decisions made about which areas to include or exclude."

Hampton continued her segment by acknowledging that three tribal representatives are on the wood supply working group. She mentioned that in discussions with these representatives she learned that the White Mountain Apache Tribe might consider providing reservation-wide wood volume figures to the wood supply analysis if prompted. At that point, one group member indicated that he doesn't usually deal with the small diameter class and thinning programs, as his logging company usually deals with larger diameter classes. Therefore, he felt he could not comment very much on this topic.

Hampton went on to indicate that she spoke with Susan Johnson of Region 2 Forest Service and found our from a working group member that there was a tribal land resolution that would allow Johnson to conduct her study (funded by the Ford Foundation) on their lands.

However, Hampton inquired about the wood supply analysis being conducted on tribal lands too; evidently, the tribes were not necessarily interested at this time.

Treatment Characterizations and Strategically Placed Treatments – Presentation by Brett Dickson

Brett opened his presentation with coverage of the treatment characterizations (Ponderosa Pine-dominated strands). He explained that he was going to cover the various treatment alternatives and how they are developed and quantified. The treatment alternatives included 1) high-density thin (i.e., light burn); 2) intermediate intensity thin + light burn; 3) low-intensity thin + light burn; 4) heavy burn only; and 5) light burn only. He indicated that all the treatments were further explained in Tab 9 of the workbook.

Next, Dickson discussed the tools that were utilized in building a management action scenario, which covers the treatment alternatives of the landscape. He also reviewed the treatment effects on forest structure, to include before basal-area treatment and after basal-area treatment. He presented spatial data on the treatment effects on fire hazard (before) and heavy burn (after). Lastly, he included another option, within the FlamMap fire behavior program (in cooperation with USFS RMRS Missoula Fire Lab). This option included key LANDFIRE-derived input maps for:

- Crown bulk density
- Crown base height
- Canopy cover
- Canopy height
- Elevation
- Slope
- Aspect
- Fuel model (includes 21 different models)

Dickson also provided several additional slides, which included information about the predicted heat output if a fire occurred (fire hazard), crown fire behavior (when a fire transitions from a ground fire to passive to active crown fire), and the Treatment Optimization Model (TOM). He explained that TOM is a FlamMap-implemented algorithm used to optimize the placement of treatment units that limit and interrupt the movement of large fires, given user defined ignition points. He followed this with data related to current fuel conditions and potential fuel conditions after treatment. He explained that the data from the TOM model identifies major fire travel routes and their intersection with user-identified areas for treatment.

Dickson reviewed a “straw man” process that the group might use to develop their treatment scenario, using FlamMap’s TOM. This process consisted of several steps:

- Develop layer of priority areas across analysis area
- Develop layer showing potential treatments
- Run TOM to select optimal areas (e.g., 10 or 20% of total area) for treatment
- Use prioritization process to provide preferred sequencing within TOM areas

Q: How can you convert percent reduction in forest structure metrics to actual values such as a basal area goal?
A: Dickson responded that other programs are available to convert these values, but they were not used for the purposes of this study.
Q: Is there information about what we end up with (target objectives) instead of the percent reduction values?
A: Dickson indicated that the literature was constrained and therefore the best metric was percent reduction instead of looking at target objectives.
Q: How is the use of the FlamMap model with and without TOM related?
A: Dickson explained that TOM is an alternative to using the fire hazard and behavior FlamMap outputs and he just wanted to make it apparent to the members; TOM is geared to minimizing fire spread.
Q: Is there a program that would allow members to look at what the existing conditions are and what they desire for that acre?
A: Dickson indicated that it wouldn't be a difficult exercise, as long as the parameters are explicit.
At that time, one member indicated that she agreed that it is a challenge to think about percent reductions in stem density, basal area and other metrics, but instead would rather consider the desired conditions – easier to consider for foresters. Dickson added that he has 10-12 relevant citations that he can point people towards.
Romero presented an idea to provide a list of citations that will be available for group members, either on the website or in a handout.
Q: Is this going to be an effective tool for us to look at areas from the SW?
A: Dickson alluded to the fact that there is existing data that dates back to the 1970's that includes tribal information, for fuel characteristics and fire structure – federal data exists about fire risk too.

Dickson continued the presentation by relating the information provided at the June 4 Wood Supply Working Group meeting by Sarah Lantz and Shaula Hedwall and in some follow up meetings indicating that there are certain areas where not to target treatments that he has worked on modeling spatially:

- Canyon rims
- Steep slopes
- Seeps and springs
- Known nest sites

He reviewed how canyon features were discriminated using a method that entails partitioning the landscape into the following elements: canyon bottoms, ridgelines, and areas of gentle and steep slopes. He showed a map dividing the analysis area into locations with <40% slope and >40% slope; the members of the wildlife small group indicated that steep slopes are associated with greater diversity of wildlife and are thus relevant to the current research. One group member commented that steep areas should not be excluded, but included as potential future sources of small diameter wood. Another group member commented that very rarely do treatments occur in areas with over 40% slopes.

Dickson also included a map outlining the springs and seeps in the area of focus, as well as database results of raptor nest locations throughout the area. He explained that the wildlife team was working with people to acquire more data on the nest locations – "it is an ongoing process".

Guidelines Regarding Wildlife and Wildland Urban Interface (WUI) – Presentation by Brett Dickson

Dickson indicated that they would like to form a small group to help come up with ideas to quantify information on WUI areas. At that time, the team did not have complete information about the CWPP priority areas (e.g., Williams and Blue Ridge); Dickson suggested that further discussion about this issue needed to come from the working group members. He went on further to say that the two WUI definitions could be used to form a complete WUI layer across the analysis area: CWPP priority areas and where CWPP have not been completed 0.5 and 1.5 mile buffers around private lands, but that requires more consideration too. A map of the USFS R3 15-year WUI areas was also presented.

Tom Sisk told members that the team wasn't sure how these models fit into the wood supply analysis quite yet, but he acknowledged that this is where the working group fits in – to help find ways in which this information can be used. One working group member then noted that the group needs to discuss "what is acceptable/not acceptable" for treatment, and to find ways to address this. Dickson then told members that he can use the data to provide applicable findings to inform the group about making decisions, although he made it clear that he was not trying to trump the group member's decision-making process. Rather, the support team wanted to respond to what was indicated last meeting and make sure they could find ways to incorporate as much as possible into the wood supply analysis. Another working group member indicated concern that the same things should not be done in every situation.

Guidelines Regarding Streams, Soils, Access, and Mechanized Equipment – Presentation by Haydee Hampton

Here, Hampton wanted to focus on a discussion of the treatment guidelines for soils and steep areas. More specifically, she highlighted two major points provided by ASNF staff:

- Avoid treatments on highly erodible soils (datile and cinder soils in this area)
- Mechanical treatment on slopes >40% requires specialized equipment – for example a TIMCO can go up to 60% slope.

A working group member explained that the cost and lack of availability of the specialized equipment restricts mechanical treatments' use in steep slopes. Another member added that the economics determine what treatment options are available and are used.

Next, Hampton commented on streamside management zones (Tab 9 in the workbook) delineated by ASNF staff to protect stream water quality. She explained that ASNF recommend avoiding mechanical treatment within "filter strips" 75 to 300 feet of certain streams depending on several factors. Hampton showed GIS layers that could be used to define variable width streamside management zones according to slopes and stream types, and the presence of native

fish species in the area. She is working on obtaining information from other Forests and jurisdictions. The State lands working group member indicated they used guidelines provided by the Coconino and Kaibab NFs.

Hampton moved on to describing the access options available to treatment areas, but relayed that working group members have indicated that roads are widespread, but it is their condition that can limit access. Also, she explained that the BioSum roads layer was built from Forest Service roads (core and CFF) and ALRIS TIGER street files. One working group member noted that areas where there aren't any roads should also be considered in the analyses. Another member added that the reservations have considered the 40% slope, but the costs are not feasible to include this factor. Finally, another group member commented that the working group should maintain whether the issue is economic or environmental – these issues/considerations should be kept separate from each other, and if it's an economic issue, it needs to be dealt with differently.

Vegetation Types, Wilderness Areas and Other Primary Factors – Presentation by Jill Rundall

Rundall wanted to address the study area (5.5 million acres), including the four relevant forests and two Native American areas as well.

Q: Why was the Young area (Pleasant Valley Ranger District, Tonto NF) not included in the ponderosa pines area?
A: Hampton answered that there wasn't really an effort to exclude it -- the ad-hoc committee didn't recommend it be included in the study.
At that time, a working group member commented that it was likely just an oversight. Another member commented that the Clifton district could likely be excluded because it didn't garner a large ponderosa pine inclusion. Hampton suggested that the Clifton District will be essentially removed as this process in focused mainly on ponderosa pine.

Rundall continued with her presentation by examining the different vegetation types in the analysis area. Rundall showed a layer of the dominant vegetation. She stated that there was approximately 2.2 million acres of ponderosa pine dominated areas found in the designated research area. Other group members considered removing Special Designated Areas (e.g., primitive areas, Wilderness areas, and Inventoried Roadless Areas), but Rundall explained that these areas would likely fall under the category of not being able to be treated mechanically. Furthermore, she added that if Specially Designated Areas were removed from the group's treatment scenario that 1.87 million acres of ponderosa area remained of the initial 2.2 acres. A series of map layers illustrated the ponderosa pine areas remaining after these various considerations were removed.

Rundall then explained that she is collecting many different types of information, including planned and historical treatment types and treatment dates, for use by the group to determine if another treatment is/was needed. She explained that the treatment layer for the ASNF was not up to date at that moment, and as a result contains 2001-2004 data for its most current information. She is in the process of requesting more recent data from the Forests and other jurisdictions in the analysis area. Other layers available to the group for use in their scenario include estimates of burn severity, which is related to vegetation death, following a particular fire. She also explained

that the USDA provides insect and drought related tree mortality estimates throughout the area; these layers may help to narrow down the available areas to which we can apply treatment. Rundall encouraged members to provide any additional GIS information that would help with this process, and she noted that there are still many layers that the team is in the process of acquiring information (e.g., fuel treatments/Stewardship contracts; tree mortality 2006+, ADEQ impaired waters from A-S; Coconino, Kaibab, Tonto, and others). Two group members commented that Flagstaff City and the AZ state government could provide a fair amount of this information. Randall included that she was researching a system in which she could avoid pursuing 2 different sources and could instead find one combined source for this information.

Rundall also indicated that she is in the process of acquiring information concerning wildland fire use (WFU), fire history, riparian areas, stand exam, and roads. At this point, she has only received information from the Coconino NF for WFU. Also, Rundall tried to get information from the Forests concerning streams and relevant to northern goshawk/Mexican spotted owl and other raptor nest locations; N. Goshawk PFA's/MSO PACs; Wildlife corridors; CWPP (Williams, Blue Ridge, ACWPP, and SCWPP). Hampton made it known to the group that the current information indicated those layers that the team is in the process of acquiring, but they do have lots of other layers already available.

Q: What is your estimate of how many acres of ponderosa pine would be left after all the layers you presented are included in the treatment scenario?
A: Rundall explained that she couldn't guess because it would depend on how each layer would be used in the group's scenario.
Q: How much might the group decide?
A: Sisk explained that it's pretty hard to guess on such a matter. He added that the answer might be to decide which areas the group is less willing to treat. He reiterated that the information about those layers hasn't been acquired by the team just yet.
Two group members informed the others that there has been very little treatment in Tonto, Coconino, and Kaibab NFs. They explained that there is likely to be very little change. Romero suggested that group members contact Rundall in the future to help located up-to-date information and to uncover the "gaps" in the acquisition process.

Brainstorming Session – Facilitated by Rosemary Romero

At that time, Romero opened the floor to the group members to provide information that would pertain to Rundall's presentation. Hampton suggested Working Group members look for information about layers available to them in the White Mountains Landscape Assessment data atlas available in the workbook as 80 to 90 percent of the layers we've discussed are in that document.

Romero suggested a bulleted list of additional factors to consider for the analysis:

- Mining claims – has no bearing on this analysis
- Grazing leases – has no bearing on this analysis
- Existing contracted timber sales
- Stewardship contracts
- Culturally significant sites

- Private wells/tanks
- Municipal watersheds

The group members decided that the mining claims and grazing leases have no bearing on the analysis, while Hampton also added that the team already had some data available on the municipal watersheds.

A group member then asked about the steps that are needed to go through to get all of these things accomplished. This group member acknowledged that the spatial data was comprehensive, but felt that a road map on how to proceed needed to be reached by consensus. The group member commented that they didn't feel that the group knew where it was going. Romero clarified that the actual approach "road map" was not yet decided. She reiterated that the team provided the data and located the gaps, and it was the responsibility of the working group to decide which approaches to follow. Hampton added that the team had data from what other groups had done and one possibility was to follow what other groups had done or NOT do what those groups did. Similarly, another group member commented that the group needed to prioritize these areas and come up with categories that will help the group to decide the treatments and the products that the treatments will generate. At that time, both Hampton and Romero suggested going through the layers and thinking about which layers can be eliminated or kept.

Q: Should we eliminate Wilderness Areas from the group's treatment scenario?
Group discussion: One group member felt that Wilderness areas did need restoration, but that the group didn't need to go there first. Instead, the member suggested a two-tier approach for prioritization. Another group member indicated that they disagreed with a 1-2-3 prioritization approach, and the group should try another approach instead.
Q: What do we mean about treatment (mechanical or something else)?
Group discussion: One group member responded to this question by commenting that the group needed to think about the treatment in relation to the wood supply production, since that was the whole basis for the working group formation. Another group member agreed that the objective of the group is a wood supply analysis. This member added that the group should focus on the wood that could potentially produce a product. A third group member expressed their agreement on this issue and added that the objective is to figure out the tons of wood that can come out of these areas. This member added that the group needed to focus on these areas of treatment that will help production, and that a discussion about treating areas with steep slopes using cables was off the table and a non-starter for the conservation community.

Q: Is there something that the team has that suggests to us that those areas are good candidates for mechanical treatment because they're overstocked?
A: Dickson responded by claiming that the tree density layer could be included in the decision process. He concluded that the ForestERA team could assist with its use.
Q: How do we determine which areas are best treated with prescribed fire? Can we identify these areas where burning is going to be most effective?
A: Tom Sisk answered these questions by explaining that there are two different approaches:

1) identify the areas that are off the table and the areas that are suitable for mechanical treatment, and 2) identify those areas where mechanical treatment is possible, but determine which treatment type is most suitable.

One group member expressed their concern about the accessibility issues. They felt that it was difficult to accomplish the road mapping, but they also felt that it was a key point in determining what is possible. Two group members indicated their desire to discuss what restoration means to the group and what the group's objectives are.
Q: What are we considering "roads"?
A: To this, one group member concluded that road building is a flash point, since temporary roads are being added all the time. This group member expressed their interest in developing some agreed-upon road network, and that experts can be consulted about the road mapping.
Q: How much wood do we have? How much underbrush will be thinned out and how much will replace itself?"
This same group member explained that their organization spends about 40,000/month on roads, and there were problems when working with the Forest Service.
Q: What is the potential availability for forest growth/replacement in the model? Can the model do that? Hampton responded that Gary Snider is researching forest growth assumptions as part of this analysis.

At that time, Romero transitioned to the brainstorming session on restoration objectives for areas available and appropriate for restoration. Romero proposed the idea of having a small group discussion concerning road mapping. To this idea, one group member expressed their opposition to small groups, because they felt that format didn't necessarily mean that group members would come to an agreement as a large group. This group member also expressed that there was a dichotomy with what was mapped and the wooded area in the White Mountain Apache Reservation, because it is part of the regional supply and should be actively engaged in the supply line. In response to this, Hampton turned the discussion over to a representative from a local tribe group. This representative commented that the tribe has some desires to keep their data confidential, but would consider working with the team, if they felt their data could be protected; they just need a clearer idea and then they can take that proposal to the tribal council and see if it can get approval.

The issue of agreement about defining "restoration" was left for the next meeting, since two working group members, who were proponents of defining it, had to leave early.

Wood Estimation Analyses – Presentation by Gary Snider

Snider (Forest Economist and Doctoral Candidate, School of Forestry, NAU) explained that he has provided several resources for group members, including a handout for the current session and some additional materials in the workbook. Included in the materials are sources from Dwayne Walker, which includes how much material will be taken and where it will be delivered. Snider reiterated that he will provide a comprehensive list of what is being extracted, where it's going, who is receiving what, and so on. Snider also indicated that he would include information

related to growth rates. These materials will be sent out to group members at some point. His handout provided information about the primary, secondary, and tertiary wood producers within the realm of the present study.

Wood Volume Layer by Tree-diameter Class – Presentation by Haydee Hampton

Hampton provided information that focused on wood volume layer development, which may incorporate imputation methods that link multiple vegetation layers and plot data to common "vegetative states" (e.g., similar to R1 vegetation mapping project (VMP) methods). This is only one of several methodologies ForestERA is considering. She highlighted the spatial and plot data updates that had been made since the June 4th meeting. The data included a US Forest Service Region 3 image segmentation layer with several attributes including canopy cover and dominant tree size. She explained that there are several additional steps that need to take place:

- Combining and arranging plot information in one database, planning additional plot data acquisition, and testing various diameter class breaks
- The selection of diameter classes will be a combination of what is possible given available data and what is of interest to the working group and the stakeholders
- Stakeholders have expressed interest in the following classes: (<5 or 6 inches DBH, 5-9, 9-12 or 9-16, >12 or >16, 16-24).

Hampton said that they are aiming to get sufficient accuracy for three, possibly four classes, but again this has not been decided. She emphasized that it is not possible to provide detailed information for all class breaks.

Romero and the support team then took a few minutes to develop language with the working group defining a "Road Map" for use in developing treatment scenario(s):

- Identify areas appropriate for restoration treatments that recover wood byproducts (i.e., "What's on the map?")
- Define management objectives (i.e., "target conditions")
- Selection of appropriate treatments.
- Prioritization? (No definitive answer on how to address this emerged.)

In addition:

- Calculate supply produced by applying the appropriate treatments across the map.
- Once forest growth recommendations are available, discuss as group how to use them in this study.

The group and team members also asked if there were any volunteers from the Working Group to serve on small topic groups, which would bring straw man ideas to the larger group for consideration:

- Small group formation (ForestERA is looking for volunteers)
  - Wildlife – Brett (so far includes Shaula and Sarah)
  - WUI information– Brett (Steve Gatewood was recommended to be in this group)

- Roads – Haydee (other members TBD)
  1) What road layers are out there?
  2) What are they used for?
  3) What are the appropriate methods for restoration?

Comments from Observing Public

- Ruling out areas because there are no roads on the Forest Service's roads GIS layer would be wrong as this may or may not mean there are existing roads. Leave all ponderosa areas in the analysis, I guarantee there will be roads there, unless it's really steep, regardless of whether there are current roads there or not.
- Include existing NEPA and treatment plans that have been made. Include the collaborative efforts over the last 10 years of the Greater Flagstaff Forest Partnership for the 180,000 acres surrounding Flagstaff
- The cleanest way to deal with roads is not to exclude any areas due to road access; assume an appropriate method will be found to access any area.
- In one area there are tens of thousands of wood piles sitting in the forest today. What are you going to do with it? If you burn it, it will create smoke and global warming issues.

Note: The next meeting is in Flagstaff, Friday, August 17th. Directions to the facility will be provided. Draft meeting summaries will be sent out to Working Group members and members will be given two weeks instead of one to provide comments at the request of one working group member.