Cherokee National Forest Landscape Restoration Initiative

Steering Committee Meeting Notes

Jonesborough Visitors Center

Thursday, March 17, 2011

Steering Committee Members Attending:

Joe McGuiness, Cherokee National Forest; Steve Henson, Southern Multiple Use Council; Katherine Medlock, The Nature Conservancy; Steve Novak, Wildlaw; Parker Street, Ruffed Grouse Society; Dwight King, Volunteer Logging Company/Sullivan County Commissioner; Catherine Murray, Cherokee Forest Voices; Danny Osborne, Tennessee Division of Forestry; Terry Porter, Tennessee Forestry Association; Mark Shelley, Southern Appalachian Forest Coalition; Dennis Daniel, National Wild Turkey Federation; Geoff Call, U.S. Fish and Wildlife Service, John Gregory, Tennessee Wildlife Resources Agency; Facilitators: Karen Firehock and Melinda Holland, Skeo Solutions; Consultants Greg Low and Steve Simon.

Observers Attending:

Alex Wyss and Trish Johnson, The Nature Conservancy; Mark Healey and Bob Lewis, Cherokee National Forest; Josh Kelley, Wildlaw; Hugh Irwin, Southern Appalachian Forest Coalition.

Welcome:

The meeting began with a review of the agenda from project facilitator Karen Firehock, followed by the introduction of the Cherokee National Forest Landscape Restoration Initiative (CNFLRI) Steering Committee members and observers. Katherine Medlock asked Alex Wyss to give an overview of the activities of the last few months while Katherine was out on maternity leave. Alex noted that the Oak Expert Panel which met in January, 2011 accomplished a lot. The Oak Panel experts each donated a day of their time without compensation and this was very much appreciated. The ongoing technical work since January included improving the accuracy of the data and developing creative, robust ways to improve data quality and address inaccuracies. Cherokee National Forest and George Washington National Forest staff helped gather data, update information, and perform the cross walk. Mr. Wyss also noted that the project's consultants Steve Simon and Greg Low have done a great job.

Session 1 - Refresher of the ECAP Process and Outcomes: **Greg Low & Alex Wyss**

Greg Low gave a presentation entitled “Enhanced Conservation Action Planning (ECAP)” which may be viewed on the Initiative’s web site http://www.communityplan.net/cherokee/minutes.htm. This presentation provided a refresher of the ECAP process which the CNFLRI Steering Committee has agreed to use. Greg reminded the group that the term Biophysical Settings (BPS) is the term used by the National Forest Service (NFS), but for this process we will use the term ecological systems. He asked everyone to remember that these terms refer to same thing, which is considered to be the "pre-euro-american settlement" condition of approximately 150 years ago. He mentioned that, if desired, anyone can download and run the VDDT software which is used in the LANDFIRE reference conditions model.

These are excellent models, and have been reviewed and refined to work for CNF as described in the presentation.

Mr. Low explained that "ecological departure" is a landscape scale metric, not stand level and measures departure from natural conditions or the natural range of variability (NRV). He reminded the group that no judgment is intended by these model results, it does not presume that NRV is the desired result; it shows the degree to which current conditions differ from NRV. The usefulness of the models is to simulate ecosystem outcomes based on various possible management strategies. The model also will simulate cost/benefit for the proposed management strategies.

Mr. Low then reviewed the goals for the next three workshops as shown in the presentation. He reminded the group that we will never have perfect data or models; the goal is to have it be good enough to be of use and to produce results the committee can agree upon. He also reviewed some of the things the model cannot achieve.

Committee Question & Answer Session:

In response to a question about how the model could deal with the fact that the gypsy moth is not a single species pest and has a broader impact, Mr. Low noted that if a pest creates un-characteristic classes, we can do our best to model multiple impacts.

A committee member asked how the ECAP process deals with the loss of the American Chestnut as based on NRV since it was there in 1850 but is not abundant today. He replied that the model assumes no American Chestnut exists and will not plan for restoration of chestnut in the model. Steve Simon noted that if it is possible to restore the chestnut, the model could be modified to accommodate this goal in future years. He noted that there are unresolved questions about re-introduction of the chestnut. Another committee member noted that you don't have to eliminate re-introduction of the Chestnut as a future option, but we will not likely have a chestnut forest in the next 20 to 50 years.

Observer questions: An observer asked if the model can be used to analyze the cost/benefit of dealing with single species pests such as the Hemlock Wooly Adelgid. Yes.

An observer asked if the LANDFIRE model/BPS can be translated into departures and whether there is any information missing. Mr. Low noted the concern and offered to discuss it later.

Session 2 – Ecological Systems/Maps - Steve Simon

Steve Simon gave a presentation on the CNF ecological systems with maps depicting his findings. His presentation may be viewed on the Initiative's web site
http://www.communityplan.net/cherokee/minutes.htm

Mr. Simon also reviewed the process used to map ecological systems through environmental modeling. He reminded the group that his map is at ten meter resolution and LANDFIRE is 30 meter resolution. Steve presented information on 18 Ecological Zones which represent a finer scale of detail and noted that there are only 12 ecological systems for CNF. He asked the committee to remember that we can do a finer scale resolution than the 12 Ecological Systems and referred to his written report for more information. Katherine Medlock offered to share the report with the committee.

Committee Question and Answers:

A committee member asked why soil data were not considered. Mr. Simon explained that soil data are not available in all counties in Tennessee and where data are available; there are discrepancies where county lines cross. He noted that we tend not to have good soil data in areas lacking in agriculture, such as very mountainous counties, which is most of the Cherokee National Forest. He explained that he would have preferred to use soil data as it would have helped with some of the analysis. He did use geologic data to determine what areas are predominantly limestone, shale, etc. as this effects what is most likely to grow in that location.

A committee member asked how he obtained the plots. He explained that he tried to select a diversity of representative areas and that he kept a tally of plots noting various elevation zones. To do a truly random sample would take three years to achieve and we only had three months, so we had to select plots that were likely to represent typical areas. However, this work has increased the model's accuracy from 50 percent to 80 percent, so we now have a much better characterization of the prevalence of various ecological systems in the Cherokee.

In response to a question on plot size, Mr. Simon noted that they were variable. A plot could be a stand, but it needs to be extensive enough to be a landscape system.

Session 3 – Succession Class Maps – Steve Simon

Mr. Simon presented a brief refresher of the succession classes (S-class), reviewed the data used to create the classes, how the data are processed, the uncharacteristic vegetation class, the succession class results and S-class examples in CNF. His presentation may be viewed on the Initiative's web site http://www.communityplan.net/cherokee/minutes.htm

He noted that all information must be in the Geographic Information System (GIS) to be processed. He noted that the Forest Service re-mapped some areas during the last few months; early succession areas were hand mapped by CNF staff based on burn history information and pine beetle kill areas. This information and maps of old growth forest conditions from the Southern Appalachian Forest Coalition were incorporated into the data sources. This information was not officially peer reviewed, but was reviewed by several groups including the USFS. Mr. Simon also checked the data. The USFS has been using some of this old growth area data on case by case basis, when they are able to verify it. However it accounts for a very small percentage of the total forest area and comprises only about 4,000 acres.

A committee member asked whether old growth areas were included in Mr. Simon's plots. He replied, yes, he used a laptop computer with GIS in the field and had the CISC data to refer to so he knew where some old growth areas were likely to be located. He explained that old growth is more than just tree age and he used NFS Region 8 old growth guidance as the criteria for determining if the forest stand constituted "old growth." A committee member asked if this was checked by USFS Cherokee staff. A CNF representative stated that a CNF staffer goes into the field and checks as they receive the old growth information. They may or may not agree with the interpretation of an area as old growth.

A committee member mentioned his concern about adoption of this data into the model without peer review or an accuracy check. Mr. Simon replied that the Steering Committee is welcome to review the data in the field before they decide. An observer noted that he believes it is acceptable if this data are not included in model, as that would show less old growth as present and would demonstrate the need for more old growth areas. Another committee member explained why they looked for old growth areas – it is a shortfall of the CISC data, which under represents both old and early succession classes. They

noted that if we leave this information out of the model, it will say we have less of both classes than there likely is. If we challenge the old growth data, we also need to challenge the early succession data, or leave both out.

Another committee member noted that the CISC data has not been peer reviewed and is not "scientific" data either. The succession class area data also has not been peer-reviewed. Mr. Simon noted that most of the data used in the model is not at that level of rigor and that it would cost $500,000 to get this high level of scientific accuracy and we cannot afford to do that for this project. A member suggested that the group needs to decide if all can live with the data used before we move on to the next stage of the work.

Mr. Simon continued his presentation discussing current CNF ecosystems and the cross walk of existing vegetation types versus the modeled ecosystems. He noted that the CISC data and our model are mapped at different resolutions so we see different results. Uncharacteristic vegetation was also mapped separately by Steve Simon. For the canopy data he used satellite imagery at 30 meter resolution and compared it to the 1998 infrared photos; he believes there is good correlation between them. The results show that the majority of the CNF has 94% canopy cover, which is a closed canopy condition. The committee agreed with this conclusion.

Mr. Simon explained that the 80 – 90 year age class is the largest age class in CNF, this fact matches the timing of the end of wide scale harvesting in the Appalachians, including the CNF. Steve explained that uncharacteristic areas are dominated by oaks where there should be pine, and he explained how he determined the uncharacteristic types. Uncharacteristic types comprise approximately 7% of the CNF landscape. A committee member noted that these may be areas where we want to implement restoration.

In response to a question about where tulip poplar fits, Mr. Simon noted that tulip poplar is widespread on the CNF, but that stands with greater than 70% cover of poplar are considered uncharacteristic except in rich coves. Uncharacteristic classes were identified only where uncharacteristic conditions occurred in polygons greater than 3 acres in size.

A committee member asked what showed up for shady valley white pine. He noted that white pine is most likely natural in floodplain and drainage areas, but has no specific data to back this up. However, due to the steep slopes of streams within the Cherokee, floodplains tend to be fairly narrow.

Mr. Simon explained that shrub/brush domination is uncharacteristic except at balds. Pine in oak systems is also uncharacteristic and we see oak dominating in some pine systems also. Information for the spruce/fir system is based on past logging history, fire history, and the resulting impact on the CNF environment where there was a large loss of top soil as a result. If an area should be spruce and is not, it was labeled as uncharacteristic (U class).

On the map there are over 37,000 acres classes as uncharacteristic and over 11,000 acres of oak in uncharacteristic locations [usually where it should be pine]. Considering that the model has an 80% accuracy level and that the modeled area is 343,000 acres in size, more than 60,000 acres may be mapped incorrectly.

Mr. Simon highlighted the expert oak panel's opinion that we do not have enough information on how much fire there has been in oak systems and the impacts of fire. Although fire history data are most limited for oaks, the Smokies in North Carolina and Tennessee has fire good data and oak stand replacement occurs in the Smokies. He also mentioned Virginia has data on burned areas in the 1740 –

1930 time frame. They cut open burned trees to obtain the data and determined that the area wide fire interval happened at a mean of every 17 years. This shows that large scale fire did occur historically. After 1900, Virginia saw little wide spread fire. In response to a question about the cause of these fires, Mr. Simon explained that they do not know the causes, but it is most likely due to lightning. There is similar data in Linville Gorge North Carolina concerning lightning-caused fire. Katherine Medlock told the committee that she will give a presentation about this Initiative at the Fire Learning Network meeting May 24 – 26 in DelRio TN.

Session 4 – Current Ecological Systems Conditions – Greg Low

Mr. Low provided an explanation of the documents provided for this portion of the meeting. Those documents include: "Cherokee Nation Forest Ecological Systems – Acres", "Cherokee National Forest Ecological Systems", and "Description of Ecological Systems' Vegetation Classes for Cherokee National Forest", "Ecological Departure Workbook Calculations", "Natural Range of Variability and Current Vegetation Classes". Greg Low's presentation and the documents related to this topic may be viewed on the Initiative's web site http://www.communityplan.net/cherokee/minutes.htm.

Mr. Low noted that on the overall scorecard there are three systems that are seriously "out of whack": spruce/fir and the two pine systems. The oak and cove systems (which make up over 80% of the landscape) are moderately out of whack. There is little old growth or early succession classes. About seven percent of the forest is uncharacteristic, which is not bad.

A committee member asked about the dynamics, e.g. if there is a component moving toward old growth, and a component moving out of early succession, what is moving into early succession. Mr. Low stated that in the next committee workshop we will simulate these dynamics. In response to a question, Steve Simon explained that they used stand age to drive early succession calculations.

Next, Greg Low reviewed the findings for the current conditions of each of the ecological systems.

COVE

A committee member asked why there is no 'mid-open' in the cove system. Mr. Low explained that in a Cove Forest there is no real mid-open; it closes in. Another member asked why there is white pine in the coves, and whether the Forest Service planted white pine in coves. A CNF representative stated that this was not done in coves. In response to another question, Mr. Low noted that white pine did not occur there naturally, probably the white pine seeded in because it is a very competitive species. Committee members agreed that the information presented about cove forests is close to what they have observed in CNF.

OAK

Oak is showing up as late closed at around 60% for all of the Oaks. In response to a question about why we do not see any open areas in the oak system, Mr. Low stated it may be due to lack of fire. He explained that when you run the model with the assumption of no fire, it tends to produce a result similar to what we see for CNF current conditions. A committee member asked about gypsy moth creating openness. Mr. Low replied that "open" really refers to gaps in the canopy as opposed to a more opened up forest with less cover. He explained that we can model gypsy moth as a future threat if we know its rate of invasion.

In response to another question about whether drought is included in the model as a factor under fire and disease, a committee member stated that drought is affecting scarlet and black oaks more than other species. Mr. Low replied that we have better data about insects and fire, which are both made worse by drought conditions. He agreed that drought would be a factor of disturbance, however, the existing models do a reasonable enough job of considering the impacts of drought within each impact (e.g. gypsy moth outbreaks would possibly cause more damage to trees that are already stressed by drought). A committee member noted that in CNF where the forests are older, the trees are too crowded and are thus more susceptible to drought impacts.

PINE

The results show the early succession class is very low since no (or little) disturbances due to fire. Pine beetle may be a factor. The committee agreed that these results match what they have observed in CNF.

SPRUCE/FIR

Three quarters of what should be the spruce/fir forest is non-spruce, and is mostly northern hardwood. Thus spruce/fir is highly uncharacteristic. A committee member noted that Roan Mountain has a lot of young even-aged spruce. A committee member asked if you could even get spruce to grow on all the acreage that used to be spruce. Mr. Simon noted that many of the stands modeled as spruce that were currently dominated by northern hardwood, had sufficient spruce in the understory to indicate the spruce type.

A committee member asked about removing some hardwood as a remedy in this system and also asked about Red Rock Hills. Mr. Low stated that the Red Rock Hills area lacks adequate soils due to a big fire in the Unaka area that resulted in significant loss of topsoil and that may have affected the spruce's ability to regenerate.

A committee member asked how many threatened or endangered species are associated with Spruce or Spruce/Fir. A USFS representative responded that the North Carolina flying squirrel, several federally listed plant species, and a high level of rare species occur within spruce/fir. The CNF Forest Plan proposes to reintroduce red spruce where it occurred naturally. A USFS representative stated that it would be interesting to know where these areas are located.

NORTHERN HARDWOOD

Many committee members agreed that this information matches what they observe in CNF. Concern was expressed by a committee member about the future condition of northern hardwood forest. A CNF representative noted that the Appalachian Trail protected buffer area has been expanded so the Forest Service cannot manage that area, thus over time the ability to create early successional habitat there will decrease.

A committee member asked what are the limitations on capturing existing early succession areas, and how do we measure success. In the Forest Plan early successional areas are counted starting at two acres. A 30 meter pixel is ¼ acre and this is the level of resolution that the model applies in its analysis. Power line openings are included as early succession, approximately 1300 acres; also patches at Roan Mountain are included. Literature on frequency of gap openings does exist and we can consult that information. It was noted that this could be tracked with satellite imagery, and the model could be run using current data to see how small a gap can be captured. A committee member suggested adding a mid/late open category to hardwood forest.

RIPARIAN

Mr. Low noted that less natural and man-man disturbances are found in riparian zones today. Steve explained that the slopes of less than 10 percent got a 30 foot buffer and were included in the floodplain area calculation for riparian areas.

Mr. Low agreed to take another look at the riparian model regarding how it addresses flooding. He also noted that it would be useful to overlay the Forest Plan onto the modeled results for all ecological systems.

Session 5 – Restoration Objectives and Use in ECAP Process

Alex Wyss introduced this segment of the meeting and reviewed some of the objectives from the Steering Committee's case statement. He explained that Greg and Steve will use the committee's proposed restoration objectives to model various management strategies for consideration. Mr. Wyss recommended that these objective statements start at a general level and become more specific later in the process.

Straw man objectives presented by Alex for committee discussion:

1. Reduce ecological departure for targeted ecological systems.
2. Complement restoration objectives with other multi-use objectives (ex. wildlife management, recreation, local economics, etc.).
3. Reduce and prevent expansion of forest pests and pathogens.
4. Restore ecological fire regimes while protecting human settlements and cultural resources in and around the forest.
5. Help make treatment projects competitive for potential funding resources.
6. Implement restoration activities within a monitoring system to allow for adaptive management over time.

Committee Discussion of Objective #1 – This statement is what comes out of the ECAP process. The committee agreed that this statement is acceptable for now. Katherine Medlock noted that "targeted ecological systems" means we need to target some systems – need to decide which are the most important to the committee in the future. Greg noted that these objective statements are to allow the modeling work to move forward and we will be able to refine which ecological systems to target in the future.

Committee Discussion of Objective #2 – A committee member stated that he wants to see this objective tied into the Forest Plan (FP) and consider how multi use objectives are described in the forest plan. Another member asked if any multi-use objectives are not in FP that the committee also wants to consider, such as restoring native brook trout.

Another member noted that people have many different things which are important to them; some may not be what committee will cover. A member reminded the group that our goal is restoration recommendations – if those also enhance other uses it will provide extra benefit/weight in favor of restoration. The committee should consider these ancillary benefits in cost/benefit analysis.

Steve Simon noted that we would have to find a dollar value for each benefit before the group can do cost/benefit calculation and these may be hard to quantify so the committee may have to estimate the added value qualitatively. Mr. Low stated that they have not been able to quantify

these benefits in other locales, but sometimes other values trump restoration costs, so we can determine whether to apply the recommendation of a more expensive remedy if it will also provide other, highly desirable benefits. A committee member gave an example of current project where trees are being cut to create a predominance of acorn bearing trees for wildlife food; this is also creating lots of ancillary economic and social benefits. Some committee members expressed the desirability of capturing these benefits but expressed uncertainty for how to do so. A committee member noted that the Forest Plan does not allow timbering just to create income, it must have a multi-use benefits. Another committee member stated that the public doesn't understand these issues and have a self centered view of what they want. The committee agreed that they need to work further on how to address these additional benefits before presenting goals to the public.

Committee members accepted the original statement language as long as it also includes reference to the forest plan. There was also support for the statement "Prioritize restoration objectives that also achieve other multi-use benefits."

Committee Discussion of Objective #3 – Committee members noted that single invasive species are a key problem, even if we cannot model them. We do not want to forget them in our overall mission. The committee can still make recommendations regarding invasive species even if they cannot be modeled. Make sure "reduce or prevent" remain in the committees' objectives. A committee member asked if we have experts available to address questions we want information on and can we obtain outside the modeling expertise. Ms. Medlock replied that we could create a panel on forest pests and pathogens, but do not have one currently. We do have willing experts who will donate their time if asked to do so. A committee member noted that the only invasives we can prevent would be plant species, not gypsy moth, which we can only reduce. Prevention of non-native or invasive plants would fit the CNF Forest Plan; so the statement should say reduce impacts of pests/pathogens.

Committee members accepted the revised statement "Reduce impacts of pests and pathogens and non-native or invasive plants."

Committee Discussion of Objective #4 – A committee member noted that we do not have the ability to restore prior natural fire regime in today's world. He stated that we may need to also use other types of management methods like cutting, thinning, and others. Another member noted that the purpose of this objective is one method to help achieve objective #1. A committee member stated that all management strategies need to consider how to protect these things (human settlements and cultural resources in and around the forest). The committee agreed to eliminate #4. Mr. Low stated he would model fire and other strategies as alternatives for restoration.

Committee Discussion of Objective #5 – In response to a comment that CNF doesn't know how it will fund restoration at this point, a committee member stated that if the steering committee reaches consensus on restoration recommendations this agreement will provide more incentive to funders. Also the steering committee could help lobby for restoration funds. Another member noted that in today's budget climate of deficits and budget cuts, funding for restoration will be difficult to obtain. He suggested we need to consider the likelihood of achieving restoration implementation as we develop our recommendations. We may also need to look at private grants.

Another member suggested the need to understand what species/ecosystems will benefit from restoration; this will help support requests for funding, especially for grant funding. Steve Simon suggested not ignoring recommendations that cost too much now – as they may be fundable in 10

years. He urged the group to go ahead and identify the important ones, then prioritize based on the funding environment. Many committee members agreed. Karen Firehock stated that we can develop metrics to help with this prioritization and what factors the group wants to consider. A committee member stated that the term 'treatment' is too narrow and suggested 'restoration projects' instead.

The committee agreed to the statement: "Help make restoration projects competitive for potential funding resources."

Committee Discussion of Objective #6 – The committee agreed to this statement as written.

A CNF representative noted that they want as many restoration objectives as possible and suggested not ignoring small areas like 200 acre projects.

Next Steps

Based on discussions from this meeting, Mr. Low will start developing management option model runs to share at the April workshop.

Karen Firehock noted that the on-line survey raw data are available. She agreed to send the raw data now, and later provide interpretation. This can be discussed at a future committee meeting.

Public Meetings:

The public meeting on April 5th is in Jonesborough at the visitor's center from 6 p.m. – 8p.m. Committee suggestions on what to tell public at this meeting included:

- Use Steve's slide show and maps of biophysical settings; give a high-level explanation of how they were developed, and the data refined.
- Simple overview of current conditions in ecological systems. Education: explain how the forest ended up where it is now, and why out of whack; past activities, management or lack thereof, and impacts from pests. Provide a simple education about types of forest, role of fire and other restoration methods. Explain that we are using high level science – show that ideas are based on new and good information. Explain the Oak expert panel and what suggestions we received from them and why we think it is important to focus on oak.
- We will not be ready to share management strategy options yet they are not yet developed. Explain committee's next steps.
- Think about what we want from the public. Remember their focus is what does this mean to me, how does it impact me?
- Give short overview of why this committee was formed, what it is doing; simple goal statements.

For more information or to suggest corrections to the minutes, contact karenfirehock@gmail.com

Next Committee Workshop: April 12, Jonesborough Visitors Center, 9 a.m. - 5 p.m.

Parking Lot Notes (ideas suggested for further consideration):

- White pine in coves is a low hanging fruit as a restoration option
- Resolve what to do regarding inclusion of old growth and early succession data
- If we harvest white pine in coves wont it just come back and how can we deal with this?
- Use fire as a management strategy for oak.
- Check with the modelers on how drought is considered in the model.
- Spruce/fir – harvest hardwood to allow understory of spruce/fir to mature.
- N. hardwood – see more in the Appalachian trail corridor, so won't be able to manage over time
- Need to measure and monitor the gaps.
- For riparian areas, the Forest Plan impacts what types of management can be done.