

Chip Mill Study Advisory Committee January 1999 Meeting Summary

Held at the McKimmon Center, NCSU, Raleigh

Tuesday, January 26, 1999

Attendance:

Advisory Committee:

Mark Barford	Robert Beason
Ron Bost	Tom Duckwall
Richard Ellis	Lynne Faltraco
Fred Hardin	Lark Hayes
Steve Henson	Camilla Herlevich
Ron Huber	Mary Kerley
Larry McGee	Jim Morton
Jim Parrott	Bob Schaefer
Bob Slocum	Danna Smith
Fred White	Dan Whittle

Technical Consultants:

Owen Anderson
Bradley Bennett
David Brown
Mark A. Cantrell
Daniel Kidd
Richard Lassiter
Bill Flournoy
Bill Noyes
Linda Pearsall

Study Team:

P.B. Aruna, NCSU
Fred Cabbage, NCSU
Dan Richter, Duke
Anthony Snider, NCSU
Rex Schaberg, Duke

Public Participation Team:

Mary Lou Addor, NCSU
Christy Perrin, NCSU
Steve Smutko, NCSU

Agenda

Steve reviewed the agenda for the day, and sent around a sign-up sheet for the February 16 tour to a sawmill, chip mill, and two harvest sites. He asked for any questions or concerns about the agenda.

Discussion: S. Henson requested that issue of study team credentials be added to agenda:

S.Henson: We need to discuss credentials of study team since we have CVs of study team. Any problems or issues should be put on the table to talk about. If there are no issues, it should be put in the minutes that there are no problems with credentials. Since we've had the opportunity to review the credentials, if there are concerns we should discuss it now and if there are none, the minutes should reflect it.

S.Smutko- Anybody interested in weighing in?

D.Smith- Have not had a chance to read CVs. Don't question credibility, but haven't had chance to see if there are any conflicts of interest. Until I have chance to do this I don't feel comfortable closing the issue.

B.Slocum- If there are problems it should be on table now. There are efforts underway to discredit study before it is off ground.

S.Smutko- Can we differentiate between discrediting research and discrediting researchers.

L.Hayes- If there is a discussion Steve Henson would like to schedule, we can schedule a discussion at a later meeting. I would rather not veer from the agenda today. Not the most productive way to begin our first meeting of 1999.

D.Richter- I support doing it next time and having a serious discussion. Its important to the researchers that we have closure on the issue.

S.Smutko- May have to go into March to deal with this issue. Maybe another way to deal with the issue. Any ideas?

ML. Addor- Can't address it next time due to tour.

FC-March is public participation forums.

R.Schaberg- Last thing on agenda for today is open discussion for research opportunities. Are two ways to approach topic of "credentials of study team"- not to be concerned with bias, but rather honest errors of omission.

D.Smith-Until all components are laid out before us, its difficult to deal with issue of objectivity. No question that everybody is credible but until we see the focus of the study, it makes sense to see all the pieces before having that discussion.

January 26 Agenda

10:00-10:45	<i>Intro's, Review of Dec. Minutes</i>
10:45-11:00	<i>Data Confidentiality</i>
11:00-11:20	<i>Regional Economic Impacts of Forest Products and Tourism, P.B. Aruna</i>
11:20-11:50	<i>Status of NC Forests- Fred Cabbage</i>
Lunch	
1:00-1:40	<i>Timber Products Output Analysis- Rex Schaberg</i>
1:40-2:15	<i>Harvest and Mgt Responses by NIPFs- Anthony Snider</i>
2:15-3:00	<i>Study Overview- Dan Richter</i>

S.Henson-Asking for a vote of confidence. I heard you say you have no question of credibility, why not approve of the researchers then?

F.White- (issues are) Character and quality of researchers, character and quality of study, if we look at it this way it might be easy to vote during the tour.

This issue was moved to the end of the agenda for the day.

Note: Since the Committee was unable to fit it in, it will need to be placed on the agenda for future meeting, April 26, 1999.

Discussion on Feb. 16 Tour Schedule

B.Beason- About the tour, to close the circle you need to visit a logwood concentration site.

D.Brown- Can work it in, it may end later, like at 4:30.

SS- Tour will be from 9-5.

D.Smith made a comment on the need for visiting field sites to see harvest results

D.Richter- We have given David recommendations to see field sites.

D.Brown- Tour will include one site where harvest in progress another where it has been closed out one or several years ago.

Approval of 12/17/98 Meeting Summary

Steve asked if anybody had any comments about the December meeting summary before it was approved. Dan Richter had corrections he would like to make. He will pass those on to NRLI. The changes will be incorporated into the summary, which will be sent out again and considered adopted. The Committee reserves the right to discuss the changes.

Data Confidentiality

R.Schaberg- In Dec. the subcommittee discussed this and had different perspectives. Consensus on the listserv posting said there were two options:

1. Restrict to public info.
2. Discretion to researchers with understanding that sensitive data collected would remain confidential.

Subcommittee agreed to remain in place to act as sounding board for hearing concerns. Nobody protested over subcommittee listserv. We concluded that we could put this to rest. Anybody opposed it might want to discuss it. Motion is to move beyond the issue.

L.Hayes- To report and elaborate, the view and preferred way of handling it from my perspective, efficiency is at top of list, but we have data sets come through the committee. We could not reach consensus at lunch, and I felt like option #2 was chosen by default. There is not really consensus to support option #2 but rather no consensus to support other options. We had differing views and came out with default proposal. That's how we proposed to move forward.

R.Schaberg- What Lark said is correct.

S.Smutko- We'll move on if that is acceptable to the Committee.

Research Presentation: Socioeconomic Impacts (P.B. Aruna)

Please see Aruna's handout for context of the following questions and responses related to her presentation.

F.Cabbage- Will only the manufacturing sector be reported (not tourism sector)?

Aruna- Yes.

D.Whittle- Will you take into account geographic factors- if one area was more of a tourism area? McClung's research was in the mtns. of W. VA. Even if you use those numbers in mtns. of NC you would be doing a good job. Hard to come up with own numbers, easier to use published numbers.

Discussion on linkage between timber industry and tourism:

B.Slocum- Does this assume a direct link between timber industry and tourism?

Aruna- I will study them separately and then look for links. BSI- Sounds like there is an assumed link. I don't know of any direct link. How can you show the link?

Aruna- Will show what will happen to the tourism industry. Implan has sectors linked.

B.Slocum- Within Implan there must be assumption about linkages but I would like to know what they are. What are the data assumptions that make the link possible?

Aruna- IMPLAN assumptions I listed are universal for all sectors.

F.Cabbage- We could track it down- how much expenditures are used for logging and for Linville. We would need to find coefficients to link them.

B.Slocum- You would have to assume a trade-off and a limited number (gas example)

Aruna- It is a complicated model, it is hard to specifically list how everything is linked. I can bring a flow model to show it.

B.Slocum- Still unclear on link between timber industry and tourism, but will leave it to you to explain as you go.

Discussion on IMPLAN as a research method:

L.Hayes- I have discomfort with a large part of your outcome being driven by a single model especially one with obvious limitations. There is no specific chip mill employment data, and as Bob mentioned, tourism is not a recognized category. I want to encourage you (given narrowness of IMPLAN) to look at broader factors of why W. NC is a haven for tourism? What are the values? Why are people coming to W. NC? Get into the dynamics of tourism industry beyond IMPLAN. In addition to IMPLAN what are the underpinnings of the continuing growth of tourism? Encourage you to look at other ways to look, not computer based. There is lots of info. about what drives the tourism industry.

Aruna-I will do a detailed literature review for tourism as well as manufacturing industries in the State (W. NC) There are not many studies done in W NC. I will do it to the best of my abilities. Hard to get primary data. Have to rely on secondary data.

LH- We are interested in your qualitative judgements as a researcher. Hope you will report documented values of tourism, even if it can't be cranked through a computer. I'm concerned that it not be focused on IMPLAN.

Aruna- Certainly we will be using the results from other studies in writing the report. Model gives us numbers to answer "what if" scenarios. We can't study Chip Mills in isolation.

F.White - IMPLAN is inadequate for long periods of time. How vast and long of a period of time are we constrained to?

Aruna-Does not consider firm closures. If there is a point where they go out of businesses. Short run, good job, but greater than 5 years, not so good.

F.White- If chip mill numbers were quadrupled, would it tell you what happens then?

Aruna- Yes. The model's results are reported for a \$1 million increase or decrease in output. If the output is greater or lesser than \$1 million, we can use multiples of these numbers.

Discussion on connection to chip mills:

C.Herlevich- It is not enough to show that because two things happen, there is causality. What is the causal factor?

Aruna- Model is interrelated. Not saying that it causes all changes, but it is one part of dynamics. It examines the sector in the presence of all sectors. You can say in general, a change in one sector will have a resulting effect in rest of economy as well. You can study a particular sector, but they are linked to other sectors. Both 1977 and 1993 data consider the rest of economy as well.

F.Cubbage- Changes in harvesting and timber activity, not chip mills per say.

C.Herlevich- Not able to make direct connection to chip mills...

F.Cubbage- No, you can put an increase in timber harvesting through the model. Not a stand-alone facility.

Aruna- If chipmill increased harvesting, then harvesting increase will go into the model, yielding increased output. Hard to hold everything constant, everything is changing at same time.

C.Herlevich-Does it help us?

Aruna- Provides a snapshot of economy in time.

M.Barford- The first question is not how one affects the other but "if". We have found no direct link between sawmills and tourism in a study. It would be nice to know "if" there was a link, and then determine the level of change. Would like to look for a link first.

Aruna- Could examine scenarios in mountains vs piedmont...

M.Barford- In our study we talked to people. May be more subjective. Are people basing a tourism decision based on industry in area? 1977 was a depression year for the

industry, 1993 was a boom year. Those things will come into play.

Aruna- If a bad year for industry, other sectors may also not be doing well.

D.Smith- Comment about linkages between timber and recreation, it might be important to look at national forests in NC that are higher in production than others. Might be good to compare these to establish linkage. Question- was IMPLAN used in S. App. Assessment? (yes) Also, will you look at John Gray's research on Chip Mill exports in AK (FC=yes have it, and other one referred to)...Will you look at overall economic trends-variable increasingly important in strong economies, overall trends and where future jobs lie?

Aruna- Have not thought of looking at that. It is hard to pinpoint and say this sector is doing well because of this.

Don't know how to narrow it down.

D.Smith- Will you look at how employment changes in relation to industry? What is interconnection between all of the economic variables? Trying to look at overall trends. Where does the future lie in terms of a healthy economy.

Important to see the bigger scope of trends.

Aruna- I will look at trends, but don't have data to tell where people live, etc. Will look at trends and projections made of REIS (Regional Economic Information Service), they have made projections, but still I have trouble making causal connection without the data.

L.Hayes- Well informed discussion of why people move to W. NC and coastal NC and the values bringing them there. That is more important to me than using the IMPLAN model. We want more qualitative information in addition to IMPLAN. Quality of life information.

Aruna- I won't be shy, but it is only what is available. I don't know right now what is available so I can't say with confidence I can put in all of what you are asking.

B.Slocum- We need to be careful about getting away from data and moving towards value discussions. Why people move is a value discussion. You can study something to death, we can't resolve values, and science can't answer values questions.

L.Hayes- To clarify, I'm talking about looking at scientifically conducted surveys, where data is collected on a question (why did you move here). Why do people choose to recreate in places or move to places. These are still values the reader should know about, even if they can't be used in a model.

B.Slocum- Ok, so what does it mean if people say they moved there because it is pretty? What does that mean?

What can you infer? Do you say it is a zero-sum game? How do you make a link without making a value decision?

Aruna- If you have any other data source I will be willing to give a try.

D.Smith- Haven't seen anything distinguishing export from domestic market. Any analysis of the difference?

Aruna- It is a component in IMPLAN

B.Slocum- Exports overseas or state-to state context?

A-Certainly between states, have to check on overseas

B.Slocum- May be things that don't fit into IMPLAN, it may be useful to look at output on export models.

BSI- Sensitive issue, if you get into exports you have to explain...

Aruna- At the end, we will be able to know how to explain everything. We will be able to make the connection better when we have results.

L.Faltraco- Employee compensation (wages & other income) Could you explain wages?

A-Wages are the data covered under unemployment insurance program. Hence, the self employment and other income is not reported.

L.Faltraco-Logger who supplies timber to a site is not included?

Aruna-All that comes into a firm is reported. Source gives you total income. We can estimate self-employed but it won't be exact.

The committee moved on to the next presentation. Any other questions for Aruna may be posed to her directly or on the Chip-advice listserv (chip-advice@listserv.ncsu.edu)

Presentation: Status of North Carolina Forests (Fred Cabbage)

Please see Cabbage's handout for context of the following questions and responses related to his presentation.

L.Hayes- Where are the wetlands classified?

F.Cabbage- Usually in the lowlands.

L.Hayes- Are they considered unmanageable?

F.Cabbage- They may be if there are minimal amount of trees.

L.Hayes- Do you want to make observations about in any classes what is actually available?

F.Cabbage- Some of that is in Governor's report on Forest Sustainability (done by Fred White). There are studies on those and we can incorporate them more.

Following exchange regarded NC map of areas where harvest exceeded growth

B.Slocum- When you say impact on our forestry practices, the biggest block (on the displayed map of counties where harvest exceeds growth) is Wake County. When you see impacts from forest practices, are you linking them to development or to forestry?

F.Cabbage- Need to go back to Noel Cost to see conversion data.

B.Slocum- Data makes it look like you're over-harvesting when main issue may be land conversion.

L.Faltraco- How will you compensate for missing years since 1990?

F.Cabbage- That is where the SERTS model comes in. Projections are made for the south and for NC.

B.Apt- There are survey results coming in all the time. We can look at Georgia data and see what kind of trends we want to use in NC.

L.Hayes- What we are and are not looking at is useful, but I'm anticipating that the question doesn't address trends in regards to ecological systems. What are trends in respect to the ecosystems?

F.Cabbage- We need the forestry info, TPO data on how much harvest, SERTS- will be a soft link from SERTS. Timber data is a bookmark to the rest of the study.

R.Huber- What is most recent Forest Service data being used?

F.Cabbage- Most recent for NC is 1990. There may be more coming. We will incorporate it as it comes.

Apt- There is more recent removal data.

D.Smith- Will you be looking at trends/changes in rotation and how that might impact distribution.

F.C.-Yes

D.Smith- I've seen private land ownership broken down more in other studies. It would be useful to know what is industrial and what is other.

FC- Yes there is a table with this broken out in our handouts.

D.Smith- Will there be analysis of stand or forest after clearcut. Will we look at micro level?

FC- Yes

L.Hayes-Geography and urban areas should be examined

MB- How many people have been in the state since 1938? (Double people and doubled trees)

Presentation: Timber Products Output Analysis (Rex Schaberg)

Please see Schaberg's handout for context of the following questions and responses related to his presentation.

D.Whittle-What is difference between roundwood and longwood?

R.Schaberg- Roundwood is harvested off the stand, can be chipped up and not leave the catagory.

D.Brown-Longwood would be a treelength or shorter, longwood would be roundwood.

R.Huber- Will you modify your work to reflect these terms?

R.Schaberg- Yes, but the issue is if trees go out by truck for processing. The terms won't change this issue.

R.Ellis- Hurricane Fran caused the increase in pulpwood harvest in 1997.

L.Hayes -Could you say what results would show if you plot pulpwood harvest vs price?

R.Schaberg- Anecdotally I could say it would go up.

J.Parrott- Does price go up with harvest?

R.Schaberg- Have to look but probably prices go up over same period.

L.Hayes- Ask because of downflow between early 90's to 96, wondered if prices same.

B.Slocum- I think the numbers would show that pulpwood is cheaper here than anywhere in south.

D.Richter- What is to explain the year to year correlation that appears between hardwood and softwood?(roundwood pulp harvest 1980-1997)

B.Slocum-Alot of it is from the same stand.

B.Schaefer- Pulp mill demands are fairly constant...

B.Slocum- Anecdotally, the increase has been made up in increase in residue chips not roundwood

B.Beason- The mix they are using has not changed.

R.Huber- Conversion from cords to tons?

R.Schaberg- 2.8 tons hardwoods; 2.7 for softwoods.

B.Slocum- What are pulp mills- do they include manufactured boards? I can only come up with 5 unless it includes manufactured boards.

R.Schaberg:

R.Ellis- 90 and 91 is Hurricane Hugo.

R.Schaberg- Ok, would it account for continuous increase?

R.Ellis- Yes you have to get it off the ground before it rots.

R.Schaberg- It may be correlative but not causative (Domestic pulpwood exports)

D.Smith- What counties from NC it is coming from?

R.Schaberg- Don't know.

L.Hayes- Are you using same chip mill definition that Gregory's using?

R.Schaberg- Yes, it is my intent. I will cross-reference to check.

D.Brown- Capacity of chip mills in mtns.- a lot of raw materials are from the piedmont.

R.Schaberg- We will have to rely on people in the industry who want to share.

B.Beason- Be careful that the researchers are talking about the same thing (example roundwood and longwood are same thing).

R.Schaberg- Hear you.

R.Ellis- Concerning the map on satellite mills increase since 89, The facility in Spring Hope is not a satellite mill.

R.Schaberg-Ok

L.Hayes- Need to differentiate between 2 classes that have emerged- satellite and co-located. Mills outside the state that may be procuring inside the state, need to get handle on perimeter mills (plot the out of state mills). As you refine the charts that would be helpful.

R.Schaberg- Points well taken. Fine tuning will be challenging. Something as reported in the public data sets it is hard to pull out ...plotting additional mills would be useful. If we've made progress on data confidentiality it should help to refine public data sets.

B.Beason- To use pulpwood as an example, a number of facilities use trees of pulpwood size but don't manufacture pulp.

B.Slocum- Looking at maps, it tracks closely where bulk of development in state is happening. Seems like it is coming from land conversions. A lot is coming as development wood.

R.Schaberg- If it is harvested it is harvested. If it converted it won't be re-harvested.

R.Huber- -Is export data from USDA Forest Service?

R.Schaberg- The offshore data is second hand from Princeton, W.V. through D.Brown.

D.Brown- The 97 data is from state Ports Authority.

L.McGee- What about satellite data for conversion?

R.Schaberg- Conversion is tracked in FIA data. Discussion of using GIS to track landscape change, we are investigating but need funding.

R.Huber- NCSU has a lab- have you looked into?

F.Cabbage- Forest Service has done some but you're talking \$100,000's. A statewide analysis would take more money and labor.

R.Huber- NC Coastal Federation has some data.

F.Cabbage- Provide the information and we will look at it.

D.Smith- Seems useful to get up in the air and take a look at the land use.

D.Richter- How did you place chipmills in regions?

R.Schaberg- By FIA region.

R.Ellis- Could be a market value - capacity and output.

B.Sl.- Dangerous looking at capacity as one to one with production

R.Schaberg-Wouldn't suggest that. Just looking for correlation.

C.Herlevich- Important to recognize what we don't have and do. Appreciate your candor.

R.Huber- Is ecological scale best as regional too?

R.Schaberg- At ecological level it is possible to characterize stand-level impacts.

S.Henson- About hardwood chip harvest from clearcuts, are you using clearcut as a regeneration method?

F.Cabbage- As a final harvest (90% of more was from final harvest)

R.Huber- What do you mean as not stand alone industry?

R.Schaberg- Chips are an integrated part of flow of products of the landscape into pulp and paper sector. Doesn't make sense to look at chips, they are not an end product.

R.Huber- In context of exports, chips that leave state are considered end product?

R.Schaberg- Not in my view.

D.Smith-I have not been able to find a place where they characterize residue as chip mills. They say some chips classified as residue should be classified as roundwood. If it comes to mill as chips it can be classified as residue.

D.Brown- They separate roundwood chips from residue.

R.Schaberg- Its uncertain to me but answers may probably come from people in this room.

B.Slocum- Is this the part where you look at structural changes in the industry related to remote wood yards and looking at chip mills, chip facilities and differences in procurement in industry.

R.Schaberg- yes. Reluctant to ask what procurement preferences are yet.

C.Herlevich- Frustrated that we haven't gotten to ecological impact. When are we going to do that?

Think we need an additional session to discuss ecological inventories. I think it would be more beneficial than a field trip.

D.Richter- Disagree about the field trip. Where do you want more interaction?

Study team- At the last meeting we covered ecological components. Today's presentations are more of a progress report, whereas the ecological study presentations (Hess) were more introductory due to the timing of the presentations and the amount of work completed.

L.Hayes- At the last meeting we didn't get into as much depth as the economics today (in the ecological). Use the field trip to get some feedback

F.Cubbage- yes we haven't got into the details. We have more to present on status,

L.Hayes- Would like longer session where we get into how we will draw ecological conclusions. Don't want to fit it in today. Needs time. Conversation needs to occur in similar depth.

L.McGee (alternate for Todd Miller of Coastal Federation)- Agree, not sure the field trip will really apply to all the types of terrains that will be encountered. Can't generalize to one site.

S.Smutko-Schedule a meeting after the field trip?

Presentation: Sustainable Non-industrial Private Forests, Timber Markets, and Chip Mills, (Anthony Snider)

Please see Snider's handout for context of the following questions and responses related to his presentation.

F.White-Your investigations of reforestation are restricted to planting. What about natural regeneration? If we look only at plantings we will get a warped view of the future.

A.Snider- In FIA data they separate out the differences.

D.Smith- Will you look at the value of timber in terms of age class and diameter and how the value grows over time?

A.Snider- Definitely.

B.Slocum-How will you look at increased demand relative of chip mills rather than in general?

A.Snider- Its hard to separate them out. Harvest is what we will look at

Discussion on Motivations for management:

B.Slocum- Are you looking at impacts from taxation policy?

A.Snider- Literature says it does not have as much of an effect compared to others motivating factors such as technical assistance.

B.Slocum- Taxation policy does have an impact on harvest decisions. Many NIPFs say that mgmt practices are being driven by taxation policies. But this may be isolated to larger landowners.

L.Hayes- Of the various things that effect NIPF behavior, the decision here is to focus on market change on landowner behavior. Addressing other factors or at least what we know specific to NC and how it relates to the market. I question the narrow focus on market studies.

A.Snider- Parts of NIPF behavior is driven by one thing, other behaviors by other factors. Reforestation is affected by incentives -Harvest price is separate from reforestation. These are two totally different sets. They don't link well.

C.Herlevich- There are other factors beginning to matter in NC- Conservation Easement for NC Tax Credit has been increased in past few years and has impact on amount of land available. Trust Funds are nonmarket factors. These tools will also have an affect. I can get you studies from other states on tools like this which will be used in future.

F.Cubbage- We have a study that may address that.

R.Huber-On BMP compliance- will you factor in enforcement effects?

A.Snider- Has not been rejected at this point.

D.Whittle- Motivation is a fundamental issue to study. To what extent are you looking at each bullet. Will it be forthcoming? Precisely what regulations are out there.

A.Snider-Yes, this was a basic overview. Analysis will be Specific to NC and an extensive look at each one.

J.Parrott- Interested to see. You won't get much from Farm Bureaus, you will get more speaking to consultants.

B.Slocum- There is a forestry committee in the Farm Bureaus that would be useful.

Linda Pearsall- County foresters may have more information on forest practices.

Study Overview, (Dan Richter)

Discussion on allocation of study components:

R.Huber- Why is the wildlife research being carried by NCSU?

D.Richter- Accident of development. Although cast originally as ecology research by Duke and economics by NCSU, some of the best ecologists are at NCSU and best economists are at Duke. The two ecologist at Duke who turned down the study (due to limited funding of the study) may regret the loss of opportunity Although G. Hess is at NCSU he did his postdoc at Duke. Also, forest ecology in southern forest is entering a new era. I believe that there are some incredible ecologists at NCSU.

Discussion of non-market values:

D.Smith- Disappointed that non-market values are not substantial component of the economic analysis. We have neglected to place a value on ecological side of the equation. How do we get a full economic assessment without looking at all the non-market values of what is out there. Is there any way to get the funding?

F.Cubbage- I don't disagree. We tried with an EPA grant. We will include it in the generic literature review. Won't be unique to NC.

C.Herlevich- If you don't get funding, it should be acknowledged in the economic analysis that we put forward. Non-market analysis would help meet the issues B.SLocum

raised about subjective values. That is a way to get at the issue of values. Way to quantify the values of forests in an economic way. There is data out there on non-market values.

D.Smith- Its the piece that is always left out.

F.Cabbage- Can't get at nonmarkets until we get to markets. We are building the groundwork to get there. Can't say when.

R.Schaberg- Want to be cautious to characterize the data that is out there. Exceptionally difficult to do, expensive and time-consuming.

L.Hayes- Experiencing long term bias of where state and federal dollars are spent. Not spent to develop databases to track ecological conditions and non-market values, and don't have money to generate new data, what you have is what is available. Not researchers fault, but report to DENR should show that nobody is out there putting data collection methods to address these questions. Money should go to develop ecological data. Many conditions were handed to the study team. Not sure we will get to ecological and non-market sides to the problem given.

D.Richter-FIA data could do much better job, we have the potential to help the Forest Service do this. Some ecological information is in FIA already. As result of this report, we can identify a subset of issues that is something that needs to be worked on together.

D.Smith- As long as piece is missing we won't see whole picture. Frustrated, but not with researchers.

Aruna- Non-market values new to 60's, a lot of work has been done since then, but limited money. Other states have done non-market studies. In NC the number of studies are limited. Consider the time frame.

R.Huber- How are non-market values contingent on market values?

F.Cabbage- Nonmarket stuff will be spun off of market information. Will be shaky if nothing to compare it to.

R.Ellis- Env communities should fund some environmental studies.

Study team encourages the advisory committee to *fax* them *suggestions, comments*. The Chip-advice listserve is also a forum for addressing issues. The researchers will do what they can to respond and incorporate.

Public Participation Forums

The public participation forums will be held on March 22 in King and March 23 in Marion. The format will be determined by the Public Participation Subcommittee and the Study Team

Chip Mill Tour

Tuesday, February 16, 1999

Field Tour Schedule

- 9:30 a.m.** ****Stop # 1:** International Paper Company Wood Yard, 1 mile North of Vass on US Hwy. #1
- 10:00 a.m.** Depart wood yard
- 10:50 a.m.** ****Stop # 2:** Active logging site off Hwy. 24 & 27 between Carthage and Biscoe
- 11:45 a.m.** Depart logging site
- 12:05 p.m.** ****Stop # 3:** Cotton Creek Chip Mill, SR 1002 between Spies and Star
- 12:05-12:30** Lunch on site – Bring your own bag lunch and beverage.
- 1:00 p.m.** Depart chip mill
- 1:20 p.m.** **Stop # 4:** Completed logging site near Biscoe
- 2:20 p.m.** Depart logging site
- 3:10 p.m.** ****Stop # 5:** Jordan Lumber Company, Hwy 109 between Wadeville and Mt. Gilead
- 4:10 p.m.** Wrap-up discussion and adjournment

****Safety Requirements:** All tour participants will be required to wear a hardhat, safety glasses and field boots (or an ankle supporting boot such as a hiking boot) at stops 1,2,3 and 5. Bring this personal protective equipment if you have it. A few extra hardhats and safety glasses will be available for those that do not have them. Also wear an orange safety vest if you have one.