DRAFT Minutes from Spatial Analysis Project - Strategy Team meeting
12/7/2001
Location: Cloquet Forestry Center
10:00 AM to 3:00 PM

Present: Alan Ek (U of MN Dept. Forest Resources), Jerry Niemi (Natural Resoruces Research Institute), Jan Green (Environmental interests), Logan Lee (Chippewa National Forest), Dave Miller (Forest Resources Council Landscape Program), Tim O'Hara (Minnesota Forest Industries), Garrett Ous (Itasca County), Lee Pfannmuller (DNR Ecological Services), Jim Marshall (UPM Kymmene), Jenny Brown (Nature Conservancy), Jim Manolis (Project Manager).

Minutes submitted by Jim Manolis.

Meeting Agenda

1) Brief updates on project components
2) Discuss Landis Scenarios
3) Discuss wildlife effects analysis
4) Review aerial photo analysis

Updates on project components:

Jim Manolis gave brief updates on project components:

a) Aerial photo analysis: The contractor (Scott Robinson) and Bill Befort recently made field and aerial checks of several of the sites. They also discussed issues that came up when Bill reviewed Scott's interpretations. Bill feels that the issues were resolved and he has a clear understanding of Scott's interpretation approach. Scott is nearing completion of the 1990's set of photos, and is beginning to interpret the 1970's photos. Finding all the 1970's and 1930's photos has been a much bigger job than anticipated. This has taken much of Jim's time over the past 2 months, and Jim is still working on finding some of the photos.

b) GLO line notes: Good progress has been made, but start-up work took longer than anticipated (scanning microfilm line-notes, developing an Arcview Extension, training student-workers). The completion date is now April 1 (for digitizing line-notes from 168 townships).

c) LANDIS Modeling: In November, the modeling team had 2 conference calls and the last Technical Team meeting focused on the LANDIS model. The team is working on technical details of implementing scenarios.

d) Harvest Scheduling Model: This will be a focus of the next Technical Team meeting on December 17.

e) Spatial Analysis and Trend Assessment: The analysis team started to analyze satellite data. In addition, Mark White discussed the Line-note data with John Almendinger to get a better understanding of what's coming.

f) Wildlife "Effects Analysis." The MFRC decided to provide an additional $17,500 for this component, bringing the total to approximately $35,000.

As a general comment, Jim noted that most project components are 1-2 months behind our original schedule. Jim will discuss timelines with the contractors and try to find ways to get back on schedule.

LANDIS Modeling Scenarios

Jim Manolis provided two tables (attached) and asked for input from the Strategy Team. Table 1 describes scenarios being considered, and how they relate to Desired Future Conditions (DFC's) being explored by the North East and North Central landscape committees. Jim explained that the Technical Team is trying to reduce the number of scenarios so that the analysis task is more realistic, given our time-frame.

- Alan Ek commented that Scenario 1 ("Current System") may in fact be redundant with Scenario 3 ("Increasing Clearcut Clustering") because clearcuts tend to be clustered at the current time. Jan Green suggested that this varies by ownership and that some landowners disperse clearcuts to the extent possible. The technical team will try to use real data (satellite and common format data) to determine the current degree of clearcut clustering, and will consider whether separate scenarios are needed.
- Jim Marshall asked if Scenarios 3 & 5 were redundant, because both involve clearcut clustering. Potentially, 3 could be dropped because 5 includes clustering along with increased land-owner coordination, and the effect of land-owner coordination is a major interest of the MFRC Landscape program. Jan Green commented that 3 is still useful, because some landowners have an opportunity to increase clustering on their own lands, whether they coordinate with other landowners or not. The technical team will consider this input as it specifies the details of the scenarios.
- Logan Lee asked whether Scenarios 7 and 11 were redundant, because they both involve decreasing rotation age. Alan Ek commented that 11 is the hardest to implement with the type of model we're using. Jim Manolis clarified that "Maximize Harvest" was his interpretation of the Scenario suggested by Minnesota Forest Industries. It may be better interpreted as increasing harvest and productivity, not necessarily "maximizing" harvest. The Technical Team and modeling team will consider whether both 7 & 11 are really needed.
- Logan Lee asked if we need a no-harvest scenario, because it is not realistic politically. Alan Ek thought that we should include it as a reference condition, and of all the scenarios it is one of the easiest to implement in the model. The rest of the team agreed with this view.
- Jim Manolis explained that the Technical team recommends dropping 8 and 9. Eight involves increasing clustering of protected areas and "high productivity areas." There are not many opportunities for increasing clustering of protected areas (SNA's, BWCA, State Parks, Old-Growth), except for some old-growth areas. We currently do not have the data to identify "high-productivity" areas across all ownerships. Tim O'hara wanted to keep the "high-productivity area" concept, but agreed that it could be dropped in this scenario if the basic idea of increasing productivity through investment is maintained in other scenarios (e.g. Scenario 11). The Strategy Team felt that it was fine to drop the Scenario from initial runs, but to keep it on the

back-burner if time or additional resources allow for consideration. Scenerio 9 involves increasing natural disturbance, and thus is not a DFC. In addition, Smita Mehta will include increased disturbance in her Thesis, where she will examine global climate change scenarios. Because of time-constraints, it would be better for her to do this after she runs the model for the Spatial Analysis Project. Jerry Niemi thought that increased natural disturbance was an important scenario to consider, and should be viewed as another one to keep on the back-burner.

Jim Manolis explained Table 2, and that input was most needed on what data to use for "Current system." The team discussed the following points:

- Jim said that so far the Technical Team is using the 1996 Silviculture report[1] as a representation of current practices. Tim O'hara was concerned that this wouldn't reflect current practices because data were collected before the MFRC guidelines were implemented. Jan Green said that those are site-level guidelines, and shouldn't affect landscape-scale considerations such as harvest size or clustering. However, riparian guidelines do have landscape-scale implications, and the Technical team will discuss how to handle riparian buffers in the models.[2] The Strategy Team agreed that it would be fine to use the 1996 statewide data for "current system" values (e.g., amount of harvest per year). The team also felt that it would be unnecessary to use different "current system" values for different ownerships, as long as we make it clear what values are used.
- To specify silviculture prescriptions and proportions of different practices to model, Jim suggested that a small team of silviculturists and others with good knowledge of current and potential silviculture practices get together to work out the details. Team members agreed with this view, and suggested that the small group include Howard Hoganson, representatives from the Forest Service, DNR, at least one county, and industry. Howard already has developed silviculture prescriptions for the harvest scheduling model, and we should use these as a starting point. Jim will work with Dave Miller to set up this meeting in January.
- Tim O'hara asked how the model can simulate coordination across ownerships. Jim Manolis replied that this can be approximated by ignoring ownership boundaries in simulations.

[1] "Status of Timber Harvesting and Silvicultural Practice in 1996" (accessible at http://www.frc.state.mn.us/Info/MFRCdocs/Sil-Har-PDF-1.pdf

[2] This was not discussed by the Strategy Team, but came up in a discussion with Howard Hoganson following the meeting.

Table 1. Draft LANDIS scenarios and potential related desired future conditions (DFC's).

Scenario	Scenario Emphasis	Potential Goals or DFC's
1	Current system	No Change
2	Increase clearcut size	Increase patch size or patch size variability, reduce costs
3	Increase clearcut clustering	Increase patch size or patch size variability, reduce costs
4	Decrease clearcutting, increase thinning/ partial cutting/ selective harvest	Increase vertical structure variability, increase conifers, increase diversity of forest products/economy
5	Increase clearcut size, clustering, and coordination among landowners	Increase patch size or patch size variability, reduce costs
6	Increase clearcut size, clustering, and rotation age	Increase patch size or patch size variability, increase age-class diversity, reduce costs
7	Increase clearcut size, clustering, and decrease rotation age	Increase patch size or patch size variability, increase productivity, reduce costs
8	Increase clustering of protected areas & high productivity areas, increase landowner coordination	Increase patch size or patch size variability, increase productivity, reduce costs
9	Increase natural disturbance	Increase natural disturbance
10	No harvest	Natural disturbance only
11	Maximize harvest	Maximize timber production and minimize costs

Landis Scenario Variables[3]

Variable	Current	Low	Medium	High
Average Clearcut Size	24 acres[4]			120 acres (SFI standard?)
Dispersion Method (Clustered or dispersed)	Approximate current			Maximum practical[5]
Percent forest clearcut per year	Get PST[6] input			
Percent forest thinned per year	Get PST input			
Percent forest in partial cuts & two entry systems per year	Get PST input			
Percent forest in selective harvest per year	Get PST input			
Rotation ages	Get PST input			
Coordination	Current—essentially no coordination	Same as current	Assume no ownership boundaries among public lands	Assume no ownership boundaries
Deer density	Current	Lower		
Fire Frequency & size distribution	?			natural rates
Windthrow	natural rates			
Silvicultural investment plus budcapping, prescribed burning[7], and deer reduction.	?			

[3] Values for all levels are not needed, e.g, only two average clearcut sizes will be modeled (current and high).
[4] Based on MFRC Puettmann et al. report. Cross check with satellite data, and 1990's air photo analysis.
[5] Within constraints of management areas and LTA's
[6] Project Strategy Team.
[7] Prescribed burns to be applied to red & white pine and oak stands. Not sure yet how it will be implemented in the model.

Wildlife Effects Modeling

Jim Manolis reported that the MFRC approved $17,500 additional dollars for this project component. The team reviewed the proposal that Jim presented to the MFRC on Sept. 25 and Nov. 13., and discussed written comments on the proposal provided by Alan Ek and Tim O'hara (all documents attached). Jim said that he started to edit the proposal based on the comments received, but that he decided to hold off on this because a number of issues needed to be discussed.

- Both Alan and Tim thought that a written review of wildlife models was either unnecessary or could be combined with the background paper on species response to spatial patterns. It would be difficult to get someone to do this as a small contract, and there are a number of reviews available in the literature. Jim Manolis suggested that this component could be covered as part of a workshop, and team members agreed.
- Alan Ek provided an update on his effort to re-assemble the GEIS wildlife models and make them accessible over the Web (his handout is attached). A student has put the model variables in a spreadsheet and developed an ACCESS format for the data. Jerry Niemi stressed that the GEIS models are fine for some species groups where we don't have better information (e.g, small mammals), but we now have better information for other groups, particularly birds. The extent to which the GEIS models could be used for our purposes was not resolved, but will be discussed further at future meetings.
- Jerry Niemi stressed that the additional $17,500 will be helpful, but that this is still not enough money to conduct a comprehensive spatial modeling exercise for numerous species. He suggested that we take a "generic" species approach, where we identify a handful of species response types, and model general responses to changes in spatial patterns. The focus would not be on projecting population numbers, but on direction (up, down, stable). Jan Green suggested that if we take this approach, we should tie the "generic" species to real species that people can relate to. Other team members agreed that with the current amount of funding, we can't expect a comprehensive modeling exercise.
- Another idea, discussed in previous meetings, was to use focal species identified by the Forest Service viability assessments and an interagency group that Dave Miller pulled together. The Technical Team will be meeting with Forest Service staff on December 17 to discuss this idea. The Forest Service will convene expert panels for species viability assessments in March, and Logan Lee suggested that we try to combine forces with this effort if possible. We will discuss this idea on the 17th as well.
- The team generally agreed that a workshop approach is a good one to use for our purposes, but we need more clarity on the purpose and outcomes. Our proposal needs to focus more on interpreting results of spatial analyses and implications for wildlife. Other objectives, such as advancing wildlife modeling, are secondary objectives. Jim will continue to work with the technical team and others to develop a more focused proposal.

Aerial Photo Analysis

As requested at the Sept. 7 meeting, Jim provided a list of the forest attributes being interpreted, along the decision rules and examples of interpreted aerial photos. Participants had time to look through the material and ask questions. Team members had no major concerns or issues related to the methods. Logan Lee asked about accuracy assessment. While a formal accuracy

assessment will not be possible, Jim will discuss the issue with the contractor and Bill Befort. They should be able to give us judgments about certainty of interpretations. For example, some types are very easy to delineate (water, conifer vs. hardwood, lowland conifers etc.), and others are more difficult (mixed types).

Next meeting: The next Strategy Team meeting is tentatively scheduled for February 21, 2002, 10:00-3:00 at the Cloquet Forestry Center.