OSU College of Forestry
McDonald-Dunn Research Forest Faculty Planning Committee (FPC) Meeting #17
14 November 2023, noon-2:00pm
315 Peavy Forest Science Center and Zoom

Faculty Planning Committee Members present: Holly Ober (chair), John Bailey, Tiffany Garcia (online), Mark Kerstens, Dave Lewis, Ian Munanura, Laurie Schimleck (online)

Ex Officio Members present: Jenna Baker, Carli Morgan (online)

I. Welcome, Overview of Recent & Upcoming Activities

The group reviewed the meeting agenda and acknowledged that the plan development process is taking longer than originally anticipated, which will result in a later end date than originally predicted. They reviewed the forest planning website which contains materials associated with past and future meetings and events, reviewed a diagram outlining the forest planning process, and discussed a tentative timeline of activities for the next few months. This includes 2 more meetings of the FPC before the end of the calendar year, and likely 1 FPC meeting each month January through March of 2024. Outside of these meetings, FPC members will be asked to contribute to and review written components of the new plan.

II. Metrics to be used to Evaluate Tradeoffs among Forest Values

The group revisited the methodology that will be used to assess some forest characteristics, in an effort to facilitate the evaluation of tradeoffs among land allocation scenarios.

- **Resilience-composition** – John shared that he discussed the development of a metric to reflect this forest value with Dave Shaw and Keith Jayawickrama. They were supportive of the idea of attempting to reflect how close forest stands are to being a monoculture, using either basal area or SDI. The range of this metric would extend from 0 to 5 so that it's similar to that used for other forest values, with low numbers indicating conditions that are nearly entirely Douglas-fir and high numbers indicating greater presence of trees of any species other than Douglas-fir. Thus, lower numbers could suggest lower resilience to various sources of stress.

- **Recreation suitability / scenic beauty** – Jenna shared that she, Ian, and Ashley D'Antonio conferred and decided to craft a brief survey that will entail showing respondents forest stands with different conditions with a request that they rate "acceptability" of each for their primary recreational pursuit, on a scale from 1 to 5. Fitz assembled 14 photos that collectively reflect stand conditions associated with the 5 management strategies, after he and John came to agreement about the number of stages and determined the amount of time stands would be in each stage under each management strategy. Questions and answer options in the survey will be worded similar to previously published research efforts to increase rigor of the survey instrument. Each question will provide the opportunity for respondents to opt out if they prefer not to answer. Data collection will occur primarily through online surveys sent to individuals within known recreation user groups (e.g., bicyclists, runners, equestrians), supplemented with some surveying of forest users at trailheads. It is recognized that this will be a convenience sample rather than random. The survey will be pre-tested with students and FPC members this week. This entire effort will serve as a pilot for a more in-depth graduate student research project launching next term.

III. Process for Assessing Tradeoffs Among Land Allocation Scenarios

The group reviewed the discussion from the last FPC meeting of the challenges associated with interpreting the values that will emerge from the modeling effort. They discussed the possibility of presenting the results in comparison with the baseline, attempting to answer 3 questions for each of the 9 forest values that will be assessed:

1. *What degree of specificity is appropriate for each value when comparing with the baseline?*
2. *Would it be appropriate to set thresholds of acceptability for each value?*
3. *What background information is needed for non-experts to interpret the results associated with each value?*

The group felt that reporting precise % change between a particular scenario and the baseline would be appropriate for the quantitative metrics (carbon, forest products, resilience-density), and +, ++, –, or -- for the more qualitative metrics reported on a 1-5 or 0-5 scale (biodiversity, recreation, resilience-composition). It was not decided which approach would be best for wildfire, as the precise nature of this metric is still TBD. It was suggested that perhaps results be presented in 2 distinct tables: one that describes the quantitative and the other qualitative.

- Carbon: This is a quantitative/continuous variable. It was suggested that when interpreting this, the carbon storage associated with the baseline scenario be put into context by comparing it with other forested areas in the region. It was also suggested that to aid in interpretation, the dynamic capture of carbon storage be noted (i.e., that due to uncertainty surrounding future climatic conditions, it's difficult to predict how carbon storage may change over time).
- Forest products: This is quantitative/continuous. When considering whether this metric is redundant with revenue, it was noted that the group might consider removing it from consideration if results suggest this to be the case. However, this metric may provide more nuanced insight, as the volume of each forest product type created under each scenario (e.g., poles vs lumber vs pulpwood) will influence not only the total revenue generated, but also economic stability (e.g., having a large proportion of production at any point in time devoted to any one product type could lead to reduced economic sustainability of the forest as a whole due to market volatility). Also, reduction in creation of products of a certain type could influence the local economy (e.g., less material for nearby mills to process).
- Resilience-density: This is quantitative/continuous. A higher number is indicative of lower resilience, due to susceptibility to drought and insects. There was discussion about potential insight to be gained from calculating this for the entire forest vs removing from consideration the EOCs.
- Wildfire risk: The name of this metric will be changed to Wildfire resistance so that a higher number generally reflects more desirable conditions. It's not yet clear if it would be wise to have this reflect some % of the landscape above or below a particular threshold or a number 0-10 that reflects an average resistance value across the forest. It may be possible to set a threshold. More will be decided once values emerge from the modeling as this will provide an idea of the best path forward. Future risk analysis research will be needed.
- Biodiversity: This will be represented on a scale from 0 to 5. Higher numbers indicate higher habitat suitability across the taxa that were selected for consideration. Minimum thresholds that could be considered are the midpoint (2.5), or 0.5 below the current (baseline)

conditions. A decision can be made once values emerge from the modeling and more clarity is apparent regarding the range of values across scenarios.

- Recreation: This will be derived through surveys representing the opinion of recreationists using the forest and will be on a scale from 1 to 5. Survey answer choices will be 1=unacceptable, 2=somewhat unacceptable, 3=neutral, 4=somewhat acceptable, 5=acceptable, so a higher average number will indicate greater acceptability of conditions across the entire forest for all forest recreation users.
- Resilience – composition: This will be on a scale from 0 to 5, with lower numbers indicating conditions are nearly single species (Douglas-fir) and higher numbers indicating existence of trees of any species other than Douglas-fir. Higher numbers could suggest greater resilience.
- Culturally important species: The inclusion of a metric to reflect this will need additional discussion. It might be more appropriate to consider these species separate from the land allocation scenarios.

This lengthy discussion made it clear that before sharing modeling results publicly, the FPC will need to create some sort of 'information sheet' to aid interpretation of each metric. Info written into the "worksheet" used during this meeting could serve as a starting point for this (see last page).

IV. Indicators of Performance

The group reviewed the section of the 2005 Plan that defined 7 goals, 1-4 objectives for each goal, and 1-8 indicators for each objective. A group of faculty defined 10 new goals for all Research Forests in 2021 that the FPC will use as a guide. Regular monitoring will be needed to assess whether the forest is meeting these goals, which is especially important because one of the 10 new goals is accountability. The FPC will need to develop objectives and associated indicators to enable assessment of performance over time, keeping in mind that research forest staff time is limited.

It was first proposed that for each new goal the FPC consider objectives, indicators, methodology required for measurement, frequency of measurement, and the party responsible for reporting. Some FPC members volunteered to think through specific objectives and indicators for goals within their area of expertise (e.g., John for *resilient forests*, Jenna and Ian for *recreation* and *community connections*). It was recognized that it would be wise to make use of data generated through regular activities (e.g., regular forest inventory efforts, regular visitor use measurements), and to consider how involving students in data collection associated with monitoring might result in new learning opportunities for them. It was decided that because some metrics may be relevant to several goals, it could be wise to arrange objectives and indicators according to some criteria other than the goals.

V. Next Steps

- Begin crafting a document that will serve as an aid in interpreting each metric used to evaluate tradeoffs among land use allocation scenarios.
- Verify with Carli whether data generated through the regular forest inventory could serve as the basis for repeatedly calculating carbon and forest products over time, for monitoring purposes. Exactly what data are collected?
- Rather than using goals as an organizing framework for the monitoring objectives and indicators, consider an alternative approach for categorizing (e.g., John's Venn diagram).

Interpreting Results from the Modeling of Alternative Land Allocation Scenarios - FPC Worksheet – 14 Nov 2023

Issues to consider for each forest value: What degree of specificity is appropriate for each value, when comparing with the baseline (i.e., current conditions)? Would it be appropriate to set acceptability thresholds, and if so, how would they be derived? What background info would be useful to help non-experts interpret the patterns?

Forest Value	Degree of specificity	Should thresholds be set?	Background information
Carbon	Precise % change	No	Range: 0 to infinity How to interpret what is acceptable/desirable? - Put the baseline value into context by comparing it with other forests in the region. - Explain tradeoffs: although increases are helpful for sequestering atmospheric carbon and may generate revenue if markets emerge, increases could mean additional fuel that increases wildfire risk.
Forest products	Precise % change	No	Range: 0 to infinity How to interpret what is acceptable/desirable? - Higher numbers indicate greater revenue. Total value will be influenced by the amount of each product type created (poles vs lumber vs pulpwood).
Resilience-density	Precise % change	No	Range: not known at this time How to interpret what is acceptable/desirable? - Higher numbers are indicative of greater density, suggesting lower resilience, due to susceptibility to drought and insects.
Wildfire resistance	Precise % change or --, -, +, ++ (TBD)	Maybe How would thresholds be set? - Compare with what's reported in the literature. - Run the model and look at sensitivity.	Range: TBD: it may be 0 to 10 or it may be 0 to 100% How to interpret what is acceptable/desirable? - Lower numbers will indicate lesser resistance to wildfire and higher numbers greater resistance.
Biodiversity	--, -, +, ++	Maybe How would thresholds be set? - Consider midpoint (2.5) or 0.5 below current conditions(baseline) as lower threshold.	Range: 0 to 5 How to interpret what is acceptable/desirable? - Higher numbers indicate higher habitat suitability averaged across taxa.
Recreation	--, -, +, ++	Maybe How would thresholds be set? - Consider setting neutral acceptability (3.0) as lower threshold.	Range: 1 to 5 How to interpret what is acceptable/desirable? - Survey answer choices include: 1=unacceptable, 2=somewhat unacceptable, 3=neutral, 4=somewhat acceptable, 5=acceptable. - A higher overall number reflects greater acceptability across forest recreation users.
Resilience-composition	--, -, +, ++	No	Range: 0 to 5 How to interpret what is acceptable/desirable? - Lower numbers indicate conditions are nearly single species (Douglas-fir) and higher numbers indicate the presence of trees of other species. Higher numbers suggest greater resilience to factors such as stress from pathogens and pests.