

Forest & Climate Working Group

Summary Report on Workshop held July 24, 2007

The prospect of climate change and its potential impacts is a major environmental issue that will not be resolved for many decades. By its very nature it is a complex problem and requires an integrated and interdisciplinary approach to be understood, explained, and addressed in an effective manner. In the last year there have been several efforts to organize OSU faculty so as to more effectively address this topic. This includes a conference on forests, carbon, and climate; and the campus-wide climate change initiative workshop. This report summarizes a workshop held by a subset of the College of Forestry faculty (see attached list of participants).

The main objective of the workshop was to develop a College-wide initiative focused on research, education, and outreach needed to address climate change in the forest sector of Oregon and in the broader PNW region. The majority of time was spent formulating a preliminary mission statement as well as the research and educational aspects of an integrated program on forests and climate change. In addition, the faculty agreed that although there is a great deal of individual and small group effort already addressing climate change-related issues; a coordinated college-wide effort would lead to major benefits in terms of efficiency, effectiveness, and integration. Given the wide range of expertise within the College of Forestry, there is a large untapped potential to develop a climate change program focused on forests and the forest sector-- one that plays a major role in the region but is often overlooked by other programs and initiatives. While there was a recognition that forests need to link to other environmental sectors (human dimensions, agriculture, ocean), organizing within the forest sector would also help these broader efforts and generate visibility and recognition the forest sector deserves in discussions of climate change policies.

An integrated College of Forestry program on climate change would:

- Integrate the full range of related issues concerning forests ranging from impact, response, and adaptation to mitigation (e.g., carbon management)
- Integrate teaching, outreach, research concerning forests in a changing climate
- Examine climate change problems using the full spectrum of approaches from basic to applied
- Lead to meaningful changes in forest management and practices with the goal to minimize negative impacts and take advantage of opportunities associated with climate change
- Primarily focus on forests in Oregon and the PNW, but include a global context and integrate with other sectors (e.g., agriculture, ocean, human dimensions and infrastructure)

The goals of this program would be to:

- Improve awareness of the role of forests in carbon exchange with the atmosphere and potential contributions of forests to reducing carbon emissions
- Lead to effective changes in management and other behaviors regarding forests and climate
- Maintain and create resilient forest systems and their related ecosystem services in the future under changing climate
- Train students and forest managers to manage forests for carbon and climate change adaptation
- Make opportunities versus costs of climate change better understood and known
- Become a recognized source of knowledge on forests and climate change within the PNW for policy makers as well as the public

Major Activities of the Proposed Program

The faculty envisioned two major and related activities for the Forest & Climate Program: integrated assessments and education at all levels. The following describes the major points of each.

Integrated Assessments

College of Forestry faculty currently participate in many basic and applied projects related to climate change and recognized that this work needs to continue. The primary focus of a college-wide program would be integration and application of these efforts. Although global and national assessments of potential climate change effects have been made, many of effects and responses have yet to be fully analyzed at more local level. Until regional and finer scale analyses are conducted the specific implications and effective responses to climate change can not be fully understood or developed. The ultimate goal of these assessments would be to formulate alternative strategies and a portfolio of options for addressing climate change and to develop mechanisms to better inform decision-makers (policy-makers, managers, public, scientists, and consultants).

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Creating an integrated assessment program would:

- Develop knowledge on the potential vulnerabilities and realized regional impacts of climate change and feedbacks within the forest system
- Identify possible adaptation and mitigation options (including synergies, trade-offs, and collateral effects)
- Identify opportunities (e.g. C credits) and costs (e.g., loss of forest area, increased disturbance) associated with climate change
- Assess the climate change implications of management and policy decisions with special focus on the key unresolved issues

Assessing climate change requires team with a diverse range of expertise to synthesize knowledge and fully examine issues. Such teams can explore seemingly contradictory results that depend on the scale and boundary conditions of an analysis. For example, management

decisions to store more carbon in forests to mitigate climate change may result in undesirable collateral effects related to climate change, biodiversity, water balance or other environmental concerns. This integration could be enhanced by developing a formal structure to address long-term and short-term assessment needs. To create a fully functioning assessment team it would be essential to provide incentives to collaborate so benefits to participants outweigh costs. Although additional research funding would be helpful, perhaps the most effective step would be to provide administrative help to coordinate efforts to help:

- Identify funding opportunities and significant knowledge gaps
- Identify expertise inside and outside the College of Forestry team
- Assess information needs of forest owners and other potential users
- Evaluate the costs versus benefits of a new formally organized research and information unit (Institute, Center, or Cooperative)
- Assist in the development of collaborative research proposals
- Serve as a portal for links with other assessments and programs (e.g., OSU's Climate Change Initiative)

Products created by the integrated team would include:

- Fact sheets and white papers related to
 - the impact of climate change on forests ecosystems, their services, and disturbance patterns
 - management options to adapt forests to changing climate
 - integrating carbon with other forest management objectives
 - the role of forests management in a broader set of measures to address climate change
- Periodic comprehensive regional assessments to reflect changing scientific understanding and evolving policies to address climate change
- Predictions of potential impact of climate change and assessment of response strategies for a 50 year window (e.g., to 2050)
- Decision support tools to examine potential effects of management and policy decisions with an emphasis on trade-offs and collateral effects.

Education

The faculty envisioned an integrated education program that covered key concepts and issues related to climate change for K-12, undergraduate, graduate, post-graduate, and public clients. There was a recognition that public clients are quite diverse including policy makers; land, mill, and other natural resource managers; resource users; licensed professionals; teachers; and voters. In addition to traditional mechanisms, the development of a series of “calculators” that would allow clients to explore their carbon footprint and to assess tradeoffs between management strategies was seen as an important and novel educational tool.

Developing an integrated education program on forests and climate change would rely on the results of integrated assessments described above and address the following increasing knowledge needs that are currently not being addressed fully:

- How and where forests will be increasingly impacted by climate change
- How management activities affect future resilience of forests to climate change (including direct impacts and changes in disturbance)
- The options for using forest resources to mitigate climate change (e.g., C storage), including advantages and limitations relative to measures in other sectors
- The options for sustaining forest functions and related ecosystem services in a changing climate
- The economic opportunities and costs related to climate change

Given the range of clients served by the College of Forestry specific sets of activities would be developed for each:

- K-12 needs would primarily be addressed by linking with existing programs (SMILE, PLT, OFEP, Project Wild, Wood Magic, Discovery Forests, OMSI/WFC) to help develop new materials (of all sorts: songs, datasets, models, skits) for teachers and existing curriculum. Faculty would also participate in delivery to teachers and students to a limited degree.
- Undergraduate and graduate needs would be addressed largely through currently existing mechanisms ranging from addition of lectures in existing courses, development of new courses (e.g., Honors College, Electronic campus courses, existing COF degrees), seminars and workshops, internships and special studies, and development of research experiences for undergraduates (site and individual programs). In terms of developing a more integrated curriculum program options and a cross-campus minor in climate change science would be logical mechanisms as would certification programs in climate change and carbon management
- Outreach needs would be addressed by conducting annual in service training for extension agents and hosting recurring public programs on forests and climate change. Other outreach needs could be met by the creation of a rapid response team on policy questions as well as developing and delivering courses and workshops providing professional development credits for professions with these requirements.

Participant List

1. Adams, Darius
2. Bailey, John
3. Bishaw, Badege
4. Bond, Barbara
5. Bondi, Michael
6. Bondi, Michael
7. Hailemariam, Temesgen
8. Harmon, Mark
9. Hibbs, David E.
10. Howe, Glenn Thomas
11. Jayawickrama, Keith J. S.
12. Johnson, Jim
13. Krankina, Olga
14. Law, Beverly Elizabeth
15. Puettmann, Klaus
16. Salwasser, Hal
17. Strauss, Steven
18. Wilson, Jim