**PINEMAP Operating Principles and Guidelines**

First draft (6/14/2011; Tom Fox, Tim Martin, Martha Monroe, Gary Peter)
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The PINEMAP project is a large and diverse team of collaborators working together toward common goals. Whenever people work together, the potential for misunderstandings and conflict exists, even when all involved are well-intentioned. The purpose of this document is to formalize and record group consensus on the principles that we agree to follow in working with each other on this project, and to establish guidelines for dealing with potentially difficult situations before those situations arise. The document will address these areas:



## I. General Principles

As a condition for participation in PINEMAP, we agree to adhere to these core values and principles:

- We will develop and support a culture of mutual respect and trust
- We will adhere to rigorous scientific approaches and principles
- We share a group commitment to building long-term capacity for cross-function work (Research + Extension + Education), which will require us to reach out beyond our disciplinary focus areas
- We will hold ourselves and each other accountable to the goals and outcomes of the project with regard to data delivery, data sharing, and cross-aim collaboration, and will be responsive to requests for information, data, and collaborations
- We will strive for full attribution of credit
- We will be equitable in our dealings with each other
- We will foster an environment conducive to intellectual stimulation and growth for all those involved in the project

## II. Project Governance and General Decisionmaking

The governance structure of the project is described in detail in the project management plan (see Appendix). The Project Director is ultimately accountable to the funding agency for the execution of the project, and so has final decisionmaking authority. The Project Director will be responsible for the day-to-day operation of the project, and will regularly consult with the Integration Leaders and Aim Leaders regarding project progress and direction. The Executive Committee is composed of a cross-section of project collaborators intended to be representative both in terms of professional discipline and institutions. It will be consulted on all matters having project-wide impact.

## III. Decisionmaking on critical topics

On topics which have project-wide impacts, such as changes in scientific direction or emphasis, or changes in budget or distribution of resources, the Project Director will work closely with the Executive Committee (EC) to reach decisions. The EC, as a representative body, will have the responsibility of assuring that decisionmaking is consistent with the project principles listed previously, and that major decisions of the Project Director are supported by group consensus. If good faith efforts cannot achieve consensus, the Project Director will make final decisions based on their interpretation of the project goals and principles.

## IV. Graduate student involvement

*Assumptions:*

1. Graduate students play a key role in the CAP program (preparing future scientists) and serve the interests of each cooperating institution and major advisor.
2. Graduate students may be funded completely or partially by the CAP program, as determined by the major advisor.
3. Stipend amounts, benefits, and workloads will vary across these 11 institutions.
4. Decisions about coursework, program requirements, and scholarly contributions will be decided by the major advisor and advisory committee in keeping with department and institution guidelines, except as specified below.
5. One purpose of graduate student involvement in this project is to prepare future scientists to work in interdisciplinary teams, to conduct research, extension and education, and to make contributions to complex problems.
6. Grievances such as sexual harassment, plagiarism, work load, and personal differences will be addressed at the department or institution level, and not the CAP program.

*As a part of creating this program, we agree that:*

1. All graduate students engaged in PINEMAP are expected to actively participate in
    - program-wide activities, such as annual meetings (when possible), reports, and team activities
    - their aim team (see below)
    - at least one other aim team, preferably Extension or Education (see below)
    - a distance-based course for all graduate students (see below)
    - mentoring an undergraduate student, if one is selected and matched to their research activity (see below)
2. All graduate students will meet during the annual meetings of the CAP program to share their experiences across aims in this integrated research activity. Graduate students and their mentors should also seek out additional opportunities to network with other PINEMAP students, both within their home institutions and in other partner institutions.
3. Graduate students will present research findings at the PINEMAP annual meetings and/or other relevant conferences
4. Graduate students are encouraged to partner across aims to develop new insights, conduct integrative projects, write papers, and present findings.
5. Graduate students are expected to publish results

6. Authorship order of research papers that reflect work in which graduate students have provided the primary conceptual foundation shall be graduate student(s) first, followed by major advisor(s), and appropriate other individuals (see authorship policy).
7. Graduate student contributions on the secondary aim team will be acknowledged and noted, but may not automatically result in authorship.

*Graduate students' role on their Aim Team*

Graduate students will work closely with their advisor on one aim team to design and conduct their research as well as assist with other research as needed by the team. Graduate students are expected to be full members of the team, to offer insights, complete assignments, and assist with reports. Because graduate students will also be instrumental members of a second aim team, they are likely to be key links in the integration of team activities.

*Graduate students' role on the secondary Aim Team*

Graduate students are expected to also work on a second aim team, which is likely to be Extension or Education. In these capacities, they will be expected to write or review outreach materials or teaching activities, assist with the evaluation and revision of materials, make presentations to target audiences, and help with linkages across aims.

*Graduate students' Distance Course*

All graduate students will register for an introductory course offered through regional webinars and web-based discussions. Students will register for independent study or seminar credits in their own institution. The first cohort of graduate students will be expected to improve the course for subsequent cohorts and may take leadership roles. More senior graduate students will also present seminars to other students on their specific research. Students may use the course to begin interdisciplinary investigations and cross-aim linkages. They are likely to develop background web pages for each aim on the project web site and case studies that help inform others about their research topics. The course will be designed by a team of faculty.

*Graduate students' role as mentor of an undergraduate intern*

Graduate students will be able to apply for an undergraduate intern to assist with summer research for Summer 2012, 2013, and 2014. Successful applicants will learn to be mentors, to help build their intern's research skills, to design a component of their project that interns can launch and complete during the summer, assist their intern with data analysis and interpretation, and work closely in developing the intern's public school presentation. The interns will take a distance course in the fall on inquiry education and give presentations in local public school classrooms. Graduate students who host an intern will participate in the fall course and assist with the development of classroom presentations. They will work with interns until they are adequately prepared and performing successfully.

## V. Data sharing

A significant advantage to the PINEMAP team is access to data and existing field trial that enhance ability to accomplish the NIFA required milestones.. The cooperative data made available to the participants of the PINEMAP project represents a 50+ year, multimillion dollar investment by universities, state and federal agencies and the forest industry in the South. The cooperative directors must insure that these data are used appropriately and that the interests of the cooperative members are maintained. Therefore, the following data access and publication policies were established for the PINEMAP project and approved by the PINEMAP executive committee.
All participants in the PINEMAP project, including PI's, research scientists, post-docs and graduate students are required to read and sign the data access and publication policy indicating that they agree to abide by these guidelines. Participants who have questions or encounter situations where the guidelines are unclear should contact the PINEMAP Lead PI, Dr. Tim Martin, for clarification and guidance. The PINEMAP executive committee and industrial advisory board may be consulted if necessary to address specific situations.

*Access to Cooperative Research Sites and Sharing of Cooperative Data*

The research cooperatives participating in the PINEMAP grant have agreed to provide access to field trials and make plot and individual tree data from selected research sites available to participants in the PINEMAP project according to the following policy:

1. To be included in the PINEMAP project, written requests for access to specific research sites and the plot and individual tree data from cooperative research trials must be made to the appropriate Cooperative Director by the PINEMAP Lead PI on behalf of the PINEMAP Executive Committee. Data requests need to be specific and include a proposed use for the data. Individual cooperatives will approve access to the research trials and data requested by the PINEMAP Project following the operating procedures of each cooperative.
2. Requests for Cooperative data by individual investigators will be referred for approval to the appropriate Cooperative director. Cooperative directors will, upon request, be provided with a list of individuals who have downloaded data from their respective Cooperatives.
3. Specific sites, treatments, plots and the associated data provided by the individual cooperatives will be made available to the PINEMAP project. Other cooperative sites or plots at a specific site and the associated data may be excluded from the PINEMAP project and will not be available to the PINEMAP participants.
4. Access to individual sites for collection of additional data must be approved by the organization responsible for each site. No site visits will be made unless approved by the organization responsible for each site. All PINEMAP participants must agree to the rules and regulations established by the organizations that control each site, including use of appropriate personal protective equipment. PINEMAP participants may be required to sign Right of Entry and Liability Waiver Forms by the organizations responsible for each site. No access will be allowed until the appropriate forms are signed.
5. The location of the individual study sites (latitude and longitude) will be provided to allow climate variable and soil types to be determined.
6. Site characterization data, such as soil series, soil chemical and physical properties, will be provided if available.

7. Establishment date, study design, plot size, and original spacing will be provided.
8. Information on silvicultural treatments, including site preparation treatments, fertilization, weed control, thinning and pruning will be provided. Individual cooperatives may elect to provide coded information on specific silvicultural treatments such as fertilizer rate or herbicide treatments applied.
9. Genetic identifiers will be coded by the individual cooperatives except for checklots. Checklot information will be provided so that relative performance of the coded improved genotypes can be compared to unimproved seed sources. The degree of genetic improvement (unimproved, 1st gen OP, 2nd gen OP, CP, Variety, etc ) will be provided. To the degree possible, the expected performance of the genotypes included will be provided using a classification system such as the NC State University Performance Rating System. If it serves to minimize confusion in PINEMAP publications, coding may conform to that used in previous publication(s) describing the particular study site.
10. Individual tree height, dbh, and tree condition code data will be released. Plot summaries will also be provided if available. Other data from the individual trees or the plots that has been collected may be made available if requested.
11. Coop data included in the PINEMAP project is to be used only to address the specific objectives detailed in the proposal approved by NIFA. This includes use in growth and yield models and process models, economic analyses and Life Cycle Assessments conducted by participants in the PINEMAP project. The data may also be used to produce look-up tables, graphical summaries, management recommendations, and other summaries that are used in the education and outreach portions of the project. The data may be used to produce publications, models and Decision Support System tools related to the specific objectives of the PINEMAP project. However, analysis of data based on the experimental design of the original experiments for which the study was installed and any publication of the data is considered outside of PINEMAP and is prohibited.
12. Plot and individual tree data will not be made available to anyone other than the participants in the PINEMAP project who have signed the data access guidelines. PINEMAP participants may not release any cooperative data to anyone not directly affiliated with the PINEMAP project.
13. These data sharing and publication guidelines will remain in effect following the completion of the PINEMAP project.
14. If the PINEMAP project is terminated prior to the five-year term agreed to by NIFA, all data will revert back to the individual coops that provided the data and any sharing of data will be at the discretion of the individual cooperatives based on their individual data sharing guidelines in effect at that time.
15. Assuming that PINEMAP is funded through February 2016, data use and publications resulting from Cooperative data will not occur after August 31, 2018. At that time, all raw and summary Cooperative data, other than that included in existing publications, will be deleted or destroyed. The respective Cooperative directors will be notified when the data have been deleted or destroyed.

*Release of Information Prior to Publication*

The central outcome of PINEMAP is to influence land owner decisions to improve carbon mitigation and the adaptation and resilience of forests for a variety of climate scenarios. Thus, coops are expected to present PINEMAP information to their members as the information is developed, which will often occur before peer review publication. Consequently, all cooperatives providing significant contributions of data or study sites

for a particular project will have similar access to significant results prior to publication and be able to present them to their members. Whenever possible, such presentations should include the principal PINEMAP researchers who have generated the new information.

*Sharing New Data Collected / Generated as Part of the Project*

Because of the integrated nature of the project, timely sharing of data among project participants is critical so that work is not delayed. During the development of Aim work plans, data needs for each Aim group should be identified, so that data sharing and exchange can be planned in advance. To facilitate project progress, newly-collected data should be posted to the TerraC data management system by the end of the quarter in which the data were collected.

Prior to submission to TerraC, all data will undergo quality assessment / quality control by the faculty member responsible for the data collection. This will ensure data quality and integrity consistent with existing scientific standards. All field and lab data created as part of this project will be included in the centralized database management system TerraC and documented with *meta data* (i.e., descriptions of the data) to allow wide sharing of the datasets.

Co-authorship decisions associated with publication of shared data should be made after consultation with the guidelines in the Authorship section.

New data generated as part of the NIFA-funded PINEMAP project will be made available to the broader (non-PINEMAP) community via appropriate community data archives, but not before project participants have had first opportunities for use of the data to meet project objectives. Policies for outside-PINEMAP data sharing will be developed by an *ad hoc* committee and will be inserted into this document at a later date.

*Social science data collection*

PINEMAP projects have the opportunity to collect data from human participants that can and should be shared by PINEMAP researchers. The IRB protocols should be written to allow datasets to be shared with colleagues and students after the individual identifiers have been removed to preserve anonymity and confidentiality. IRB approval should be modified if this was not considered prior to approval. PINEMAP colleagues and students who use data gathered by others should work with the originators to be clear on the assumptions and limitations of the data, to interpret results and comparisons appropriately, and to determine authorship and/or author order on publications.

## VI. Authorship

Authorship of peer reviewed publications is one of the primary benefits derived from scientific collaboration. Discussions and decisions regarding authorship and author order of publications resulting from PINEMAP collaborations should occur early in the collaboration process. When in doubt about whether to offer authorship to a collaborator, participants should err on the side of inclusion. Authorship can always be declined if a participant feels they have not contributed sufficiently to merit authorship.

Because of the large size of the project and the use of shared data, the potential for redundant or similar papers to be developed independently is greater. PINEMAP colleagues and students who use data gathered by others should work with the originators to be clear on the assumptions and limitations of the data, to interpret results and comparisons appropriately, and to determine authorship and/or author order on publications. To avoid duplication of effort and enhance the potential for collaboration, it is critical that anticipated analyses and publications be posted to the PINEMAP "Planned Analyses and Publications" spreadsheet on the PINEMAP Intranet site.

*Authorship Guidelines for Publications Based on Coop Data Included in PINEMAP Project*

1. All PINEMAP participants should recognize the substantial investment of time and resources made by the individual cooperatives and the cooperative directors to create the research sites and data contributed to the PINEMAP project. It is likely that without the cooperatives and the efforts of the cooperative directors, the data made available to participants in the PINEMAP project would not exist. Consequently, when coop data is used for PINEMAP publications the directors of coops contributing data should be given the option of being included as an author. In addition, the source of the data should always be explicitly acknowledged.
2. It is customary when making a request for data from another scientist to offer co-authorship on all publications using the data. Therefore, publications from the PINEMAP project that use substantial amounts of data from a cooperative or multiple cooperatives, should offer authorship to the director(s) of that coop because the publication would not be possible without their efforts. For example, many of the publications from the PINEMAP will be similar to meta-analyses using data from multiple sources. These publications usually have multiple authors because the data used in the meta-analysis comes from multiple sources.
3. Individuals offered authorship on a specific publication can decide whether authorship is appropriate or whether acknowledgment is sufficient.
4. Publications arising from new research conducted on coop sites through the PINEMAP project that do not use substantial amounts of coop data should follow established guidelines of the science community typically followed for determining authorship. This includes many of the graduate student projects that will be conducted through the PINEMAP project.
5. Information on the ownership and organizations responsible for individual study sites will be coded to keep ownership information for individual sites confidential, and no information about the individual owners or organizations responsible for each research sites will be published in any manner other than acknowledgement of the support provided by the cooperative members.
6. It is appropriate to acknowledge the support of the cooperatives that provided access to sites and data in all publications from the PINEMAP project.
7. Standard acknowledgement of NIFA using the approved language is required for all publications arising from the PINEMAP project.

**Appendices**

Management plan and description of roles of key personnel (updated to include full composition of EC and addition of Tom Fox as Mitigation Integration Leader).

**Overview of Organization and Management:** The CAP is organized and will be managed to facilitate communication and collaboration among project scientists across the region, to foster integration across disciplines, to establish accountability, to guarantee deliverables, and to maintain two-way information flow with stakeholders. These structures are in place to meet project goals and milestones in a timely fashion, assure that project direction remains relevant to stakeholders, and allocate resources appropriately. Elements of this plan include scientific leadership associated with aims, integration leaders for mitigation, adaptation, and climate education /extension goals, institutional coordinators for those with multiple investigators, a cooperative-industrial advisory council, a project Executive Committee and an External Advisory Board (Figure 1).

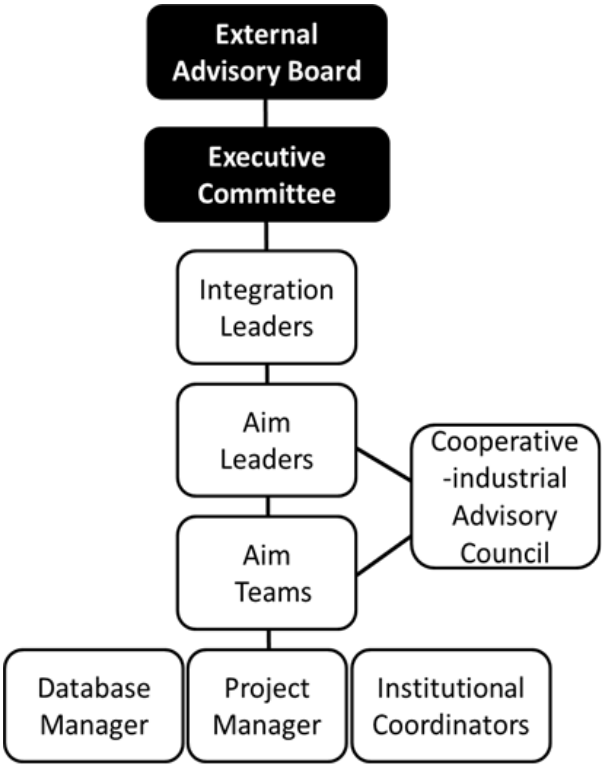


Figure 1. Organizational Chart

**Structure and Integration:** Accomplishing the long-term outcomes, goals and general milestones laid out in the RFA requires a strong team conducting disciplinary and trans-disciplinary research. The nucleus of our team is the eight long-standing university-industry forest research cooperatives, most of which were founded to provide deep disciplinary expertise. However, the applied nature of their research and demands from industry members for integrative knowledge and practical solutions has meant that cooperative scientists have also conducted trans-disciplinary research. The NIFA funds for this CAP provide a strong incentive and focus for strengthening trans-disciplinary research among all cooperative research programs. To best leverage our strong disciplinary expertise and existing cooperative infrastructure, teams of university-industry cooperative and associated scientists are organized around specific aims to meet the general milestones. Aims will be coordinated by two or more leaders distributed across institutions to promote integration among regional cooperatives. Aim leaders have written this proposal and will be responsible for meeting milestones and reporting deadlines. Achieving many of the milestones within aims requires integrative research which will be fostered by resource and data sharing. Working with these aim leaders will be three Integration Leaders who will assure that we achieve the broader goals of adaptation, climate education/extension and mitigation. These leaders will facilitate the flow of information, needs and outcomes among the researchers, education and extension specialists. Refer to the "Key Personnel" document for details regarding leadership.

**Governance:** Project-wide governance involving progress and performance, major changes to budgets or scientific direction will rest with the Project Director, who will chair an Executive Committee consisting of the integration leaders and the Aim team leaders, plus a representative from each university not represented in the integration leader or Aim team leader groups. The Executive Committee will formulate bylaws and operating procedures at the beginning of the project, including guidelines that explicitly indicate how the Executive Committee will provide input to Project Director decision making. The Executive Committee will meet at the Annual Project Meeting, and will have quarterly meetings throughout the year at regional conferences, annual cooperative meetings and by conference or video calls as needed. In addition to project wide governance, each institution with multiple co-project directors will have one person who will coordinate the budgets, paperwork, etc. for their institution.

**External Advisory Board:** The External Advisory Board will provide guidance on program development, implementation, and evaluation from project stakeholders. About fifteen people will be chosen who represent education, extension and research stakeholders. The board will include forest science and climate researchers from industry and government, extension professionals, a Project Learning Tree coordinator, teacher educators, industrial and Non-Industrial Private forest managers and representatives, state climatologists and state agency representatives. The Board will elect chairs who will each serve 2.5 year terms. The External Advisory Board will discuss progress with the project Executive Committee four times a year and meet in person at the annual project meeting.

**Cooperative-Industrial Advisory Council:** The university-industry cooperatives (co-ops) will continue their normal industry-directed research simultaneously with conducting activities within the CAP project if funded. The co-ops are organized with a director or team of co-directors who take advisement from the industrial members often through an industrial advisory committee. Within the co-ops the advisory committee/council is chaired by an industry member who coordinates with all members, where full members of the co-op rotate in this function. The cooperative-industrial advisory board will be composed of the directors or a designee of each cooperative and the current chair of the industry advisory committee/council for each cooperative. The role of this committee is to work with the CAP team to insure that existing and newly collected co-op specific data are made available so as to strengthen the science of the CAP but not undermine the ability of cooperatives to best serve their current and future members. In addition, this board will serve to vet tools and facilitate transfer of knowledge to their organizations.

**KEY PERSONNEL ROLES**

**Project Director:** Tim Martin, Professor of Tree Physiology in the School of Forest Resources and Conservation (SFRC), University of Florida (UF), will be the project director (PD). Dr. Martin co-directs the multidisciplinary Forest Biology Research Cooperative (FBRC) and directs the UF Carbon Sciences Resource Center, a component of the UF and Florida State University's Florida Climate Institute. The PD will coordinate the program to insure that the long-term outcome, goals and milestones are achieved on time while using resources efficiently and effectively. To reflect his commitment he will also serve integration and Aim leadership roles [R – 60%, Ed – 20%, Ex – 20%].

- **Project Coordinator:** The PD will hire a full time project coordinator who will be housed at UF to help coordinate project activities, develop and maintain the website, facilitate communication among participants, and assist with budgets, paperwork, and reports.
- **Database Manager:** This individual will work under the direction of Sabine Grunwald, UF Professor of GIS and Land Resources who created and will maintain the TerraC project databases and facilitate data sharing and analysis among project participants.

**Co-Project Directors:** Co-project directors are organized into Integration Leaders, Aim Leaders and Aim Team members. Each broad goal, Adaptation, Climate Education/Extension, and Mitigation have a single leader, while Aims have two or more leaders distributed across institutions (Table 1).

- **Integration Leaders:** These leaders will facilitate integration across aims to insure delivery of knowledge, information and materials that will help agriculture and forestry achieve adaptation, climate education/extension and mitigation goals.
  - Gary Peter, Professor of Forest Genetics and Genomics, UF, will lead the adaptation goal. Dr. Peter co-directs the FBRC and the Cooperative Forest Genetics Research Program, and is Director of the UF Plant Molecular and Cellular Biology Graduate Program.
  - Martha Monroe, Professor of Environmental Education and Extension, UF, will lead the Education/Extension goals. Dr. Monroe directs Florida Project Learning Tree and was President of the North American Association for Environmental Education.
  - Tom Fox, Professor of Silviculture and Forest Soils, Virginia Tech, will lead the Mitigation goals. Dr. Fox directs the Forest Productivity Cooperative.

- **Aim Leaders:** The Aim leaders are responsible for coordinating the research, education, and extension activities to insure delivery of the information and materials for each Aim. The Aim leaders were selected to facilitate cross university collaborations. Table 1 identifies the leaders of each Aim.

- **Aim Team Members**: The PD, co-directors and collaborators are all members of teams designed to deliver and transfer the information and tools needed to foster increased mitigation, improve forest resilience and train more scientists, educators and extension professionals across the region. Table 1 identifies team members for each Aim.

**Table 1.** Aim Leaders and Team Members

| Aim # | Leaders (University) | Team Members |
|---|---|---|
| 1 | Tom Fox (VT), Mike Kane (UGA) | L. Samuelson (Aub), A. Noormets, J.-C. Domec, J. King, J. Stape (NCSU); R. Will, T. Hennessey, D. Wilson (OSU); J. Vogel (TAMU); R. Teskey, D. Markewitz (UGA);S. Grunwald, E. Jokela, T. Martin (UF), K. Johnsen (USFS); B.Strahm, J. Seiler (VT) |
| 2 | Randy Wynne (VT), Steve McNulty (USFS) | R. Boyles, J. King, S. McKeand (NCSU); T. Byram (TAMU); M. Kane, R. Teskey (UGA); W. Cropper, S. Grunwald, T. Martin (UF); G. Sun (USFS); H. Burkhart (VT) |
| 3 | Ross Whetten (NCSU), Tom Byram (TAMU) | F. Isik, S. McKeand (NCSU); C. Loopstra, K. Krutovsky (TAMU); J. Davis, G. Peter (UF); D. Nelson, K. Johnsen (USFS); J. Holliday (VT) |
| 4 | Jianbang Gan (TAMU), Damian Adams (UF) | R. Abt (NCSU); D. Grebner (MSU); D. Carter, G. Peter (UF); M. Kane (UGA); T. Fox (VT) |
| 5 | Martha Monroe (UF), John Seiler (VT) | S. Sriharan (VSU) |
| 6 | Bill Hubbard (SREF), Eric Taylor (TAMU) | G. Boyd (Alcorn St); J. Idassi (NCAT); R. Boyles, M. Megalos, S. McKeand, J. Stape (NCSU); T. Byram, (TAMU); J. Davis, E. Jokela, J. Jones, M. Monroe, G. Peter, T. Martin (UF); M. Kane (UGA); H. Burkhart, T. Fox (VT) |

**Institutional Coordinators:** M. Kane, UGA; T. Fox, VT; T. Martin, UF; S. McNulty, USFS; R. Whetten, NCSU; R. Will, OSU; J. Vogel, TAMU will coordinate co-PDs at their institutions.

**Senior Advisor:** Jim Jones, Distinguished Professor of Agricultural and Biological Engineering, UF, co-directs the Southeast Climate Consortium and the Florida Climate Institute. He will advise the PD and integration leaders.

**Directors of University-industry Cooperative Research:** Most of the biologists on the project work with the co-op programs, and co-op directors are integrated across the Aims and included on the extension team, because of their role in knowledge transfer to their members.

**Table 2.** University-industry Cooperative Research Directors

| Cooperative | Director(s) |
|---|---|
| Cooperative Forest Genetics Research Program | Matias Kirst (UF), Dudley Huber (UF), Gary Peter (UF), Greg Powell (UF) |
| Cooperative Tree Improvement Program | Steve McKeand (NCSU) |
| Forest Biology Research Cooperative | John Davis (UF), Eric Jokela (UF), Tim Martin (UF), Gary Peter (UF) |
| Forest Modeling Research Cooperative | Harold Burkhart (VT) |
| Forest Productivity Cooperative | Tom Fox (VT), Jose Stape (NCSU), Rafael Rubilar (UC, Chile) |
| Plantation Management Research Cooperative | Mike Kane (UGA) |
| Southern Forest Resource Assessment Consortium | Robert Abt (NCSU), Fred Cubbage (NCSU) |
| Western Gulf Forest Tree Improvement Program | Tom Byram (TX Forest Service, TAMU) |