All Team PINEMAP meeting:

upcoming dates and logistics

January 14, 2016

Pine Integrated Network: Education, Mitigation, and Adaptation project (PINEMAP) is a Coordinated Agricultural Project funded by the USDA National Institute of Food and Agriculture, Award #2011-68002-30185

Upcoming dates

- ATP meetings on Thursdays this spring (presenters):
  - 2/18 (bring integration platform/ big paper 2 sentence updates)
  - 3/17 (sapflux and WaSSI)
  - 4/21 (NEP and Tier II)
- Modeling summits (last Tuesdays):
  - 1/26, 2/23, 3/29, 4/21
  - Can we meet at noon instead of 2pm ET?
- Executive committee meeting 2/25 10am ET

Data needs

- Shift focus from data collection to collation and upload
- Uploading data in templates is a critical step for assembling region-wide datasets and creating value-added products
- Areas of especially high need:
  - Soil respiration (Rh:Rs)
  - Sapflow
  - Meteorological data (air temp, humidity, ppt, radiation)
  - Soil moisture (wireless & wired probes, and TDR)
  - Litter
  - LAI

Final meeting

- Scheduled for May 24-26, 2016 at UGa
- Warnell School is providing meeting space
  - thank you!
- We have a hotel room block at the UGa conference center
- Full days on 5/24 and 25, likely ½ day on 5/26

Final meeting planning

- Plenary presentations of the 1st level integrative papers
  - should be far enough along to submit in 1st cohort of final report articles this June
- Workshop sessions to develop the 2nd level integrative papers
  - Will include in the 2nd cohort of final report articles in September
- Final poster presentation opportunity
- Suggestions?
  - Please send ideas to Grace!

Education Aim (5) Integrated Paper Updates

All Team PINEMAP

January 14, 2016

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Roadmap

- Overview of Education programs and updates
- Research papers: published and planned
- Integrative papers
  - Education programs
    - Concepts and take home messages
    - Journal outlets
    - Discussion
  - Education recommendations
    - Recommendations for integrating education
    - Science's Education Forum

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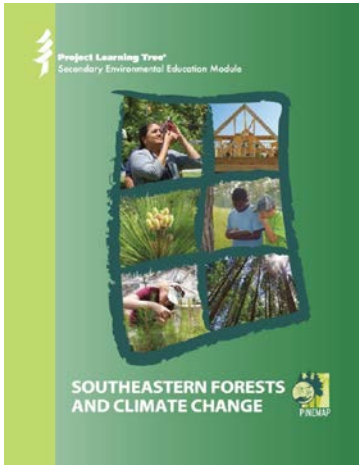
Glance at PLT Module Numbers



- More than 5,000 books distributed
  - 10 states outside SE ordered 2nd edition
- 440 website registrants
- Evaluation (summative and formative)
  - 76 teachers
    - Positive feedback and suggestions for improvement
  - Data from 2,073 students
    - Increased knowledge and hopefulness
- $24,000 in mini-grants
  - 11 states in Southeast
  - So far: 34 workshops/presentations and 650 participants

All events

- **57 workshops/presentations and 1140 participants**

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Graduate Class

- Seminar style, 2 credit online course
- Initial and revised iterations based on evaluations
- Two goals
  - Engage students in exploring climate change mitigation and adaptation issues
  - Build capacity for integration among disciplines and between research and Extension
- Outcomes
  - 41 students and 37 course evaluations
  - Evaluations suggest:
    - Valuable format
    - Better understanding of other disciplines and integration
    - Increased capacity to engage stakeholders

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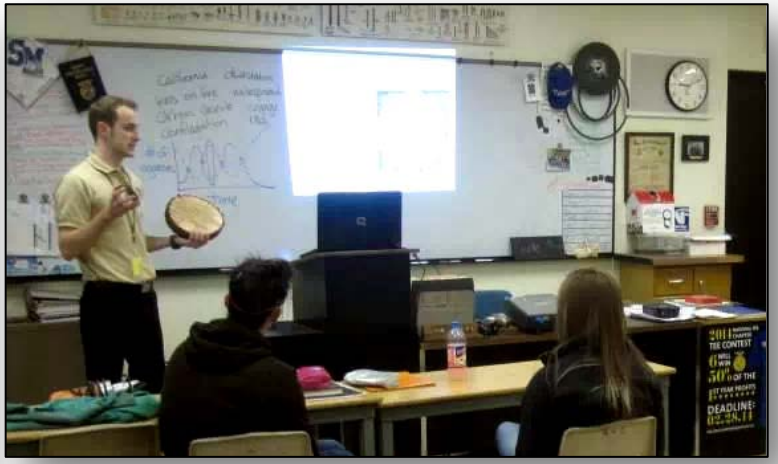
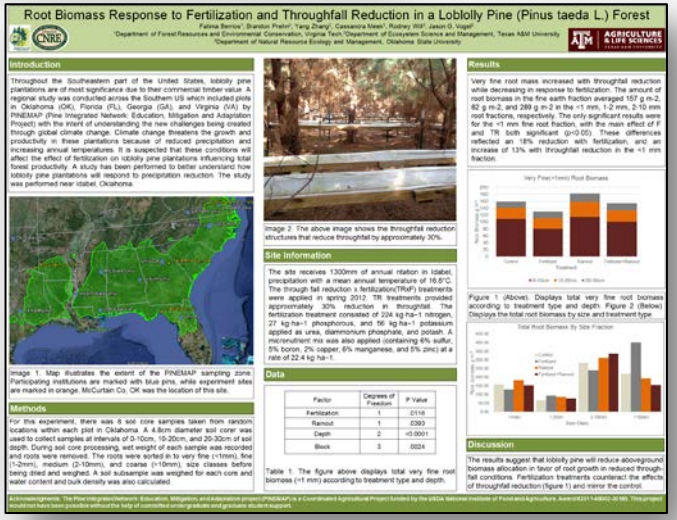
Fellowship Program





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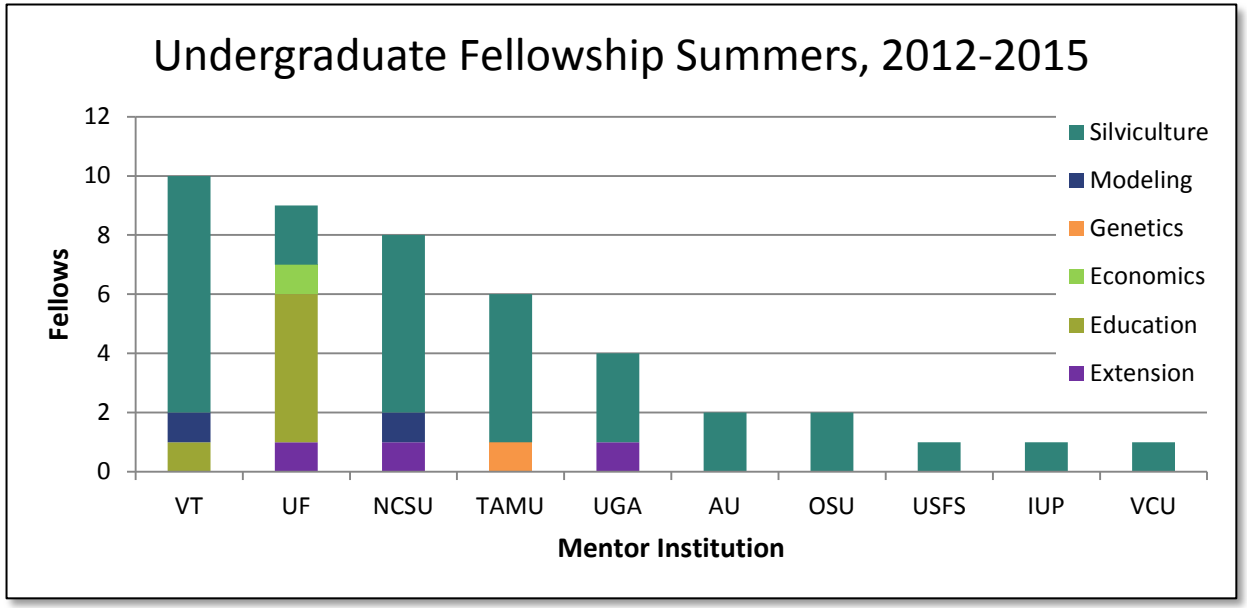
Fellowship Outcomes



Undergraduate Fellowship Fall Course, 2012-2015

	2012	2013	2014	2015*	2012-2015
Fellowships	5 (6)	12	10 (12)	4 (14)	29 (44)
Presentations	54	107	81	39	281**
Schools	14	25	24	11	64**
Teachers	29	40	32	13	91**
Students	1060	2629	1518	783	5990

Completed (Enrolled)
*denotes incomplete data
**denotes unique numbers

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Specific Research Papers

AIM 5 from UF and VT

1. **Teacher needs assessment from PLT module (in AEEC)**
2. **Testing climate and carbon activities (Hall thesis)**
3. **Online graduate course integrates R,E,Ex (Monroe, Ireland, Martin)**
4. Teachers and cultural cognition (Kunkle thesis) (and maybe more)
5. Factors influencing climate change hope (Li dissertation)
6. Measuring climate change hope (Li dissertation)
7. Changing climate change hope with curriculum (Li dissertation)
8. Measuring systems thinking (Ritchie dissertation)
9. Teaching systems (Ritchie)
10. Teacher efficacy – workshops and online (Li and Monroe)
11. Review of existing natural resources REU programs (Kidd dissertation)
12. NR REU program and participant outcomes (Kidd dissertation)
13. Case studies of REU programs in NR (Kidd dissertation
14. Undergraduate course on communicating about natural resources (Kidd, Seiler)
15. Developing and running fellowship program (Kidd, Seiler)

AIM 6 from UF

1. **Message in a bottleneck (Wojcik et al.)**
2. **Homophily (Monroe et al.)**
3. **Finding common ground (Bowers et al.)**
4. **Forest landowner perceptions (Krantz et al.)**
5. **Framing video for forest landowners (Krantz)**
6. Extension agents perceptions (Sommers thesis)
7. SRECA evaluation (Clifford thesis)
8. Agent barriers to climate programming (Clifford thesis)

Bold items are published or accepted.

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Integrated Education Initiatives Papers

- Justification
  - Assumption that most grant-funded education is done through workshops for select educators
  - We have good projects to talk about!
  - We have reasonable recommendations for others.

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Integrated Education Initiatives

- Take home messages
  - PINEMAP has capacity for integrating education at all levels and is a model for adoption/ adaptation
  - Common threads across education projects
    - Projects are research-based
    - Making science relevant through multiple methods
    - Multidisciplinary and interdisciplinary activities
    - Integration with stakeholders in development or in contact with audience
    - Implementing standards / expected learning objectives
    - Building learner capacity / preparation for the future
    - Iterative process of program development

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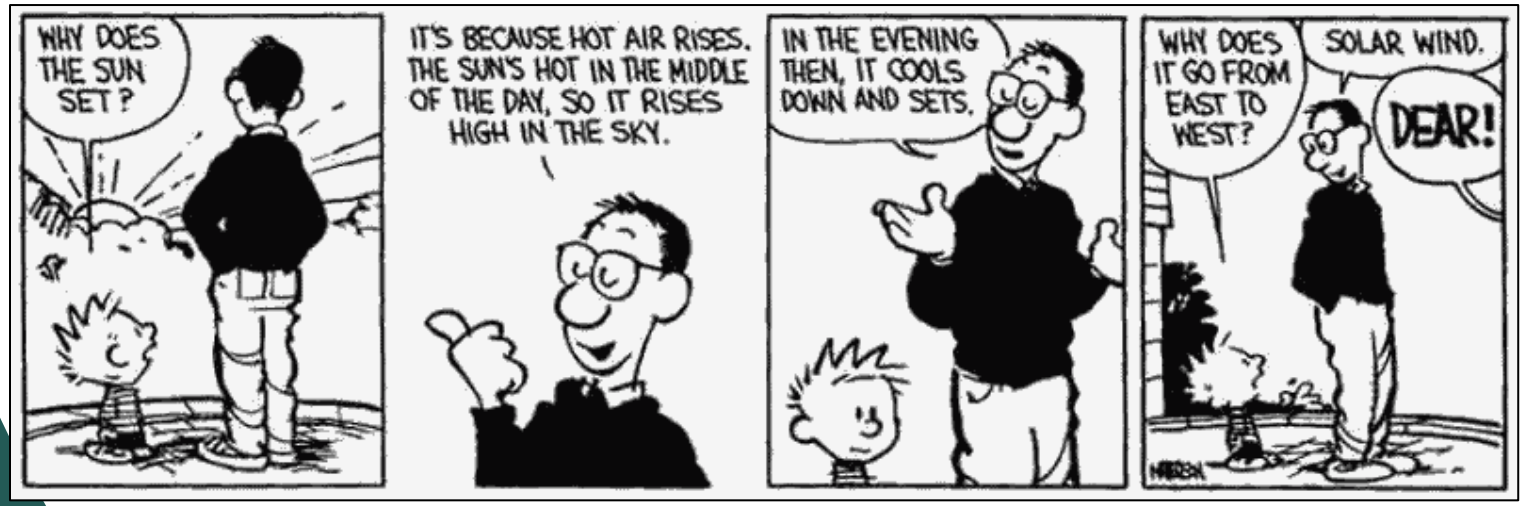
Integrated Education Initiatives

- Broad impacts
  - Education integration yields:
    - Broader awareness of the project
    - Capacity building (internal and external) for future collaboration
    - Greater communication and teaching skills
    - Greater science literacy



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Integrated Education Initiatives

- Potential Journal outlets
  - J. of Forestry
  - J. STEM Education: Innovations and Research
  - Natural Sciences Education

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Integrated Education Initiatives Paper

- Estimated timeline

	January				February				March				April				May			
ATP meeting																				
Outlining																				
Develop draft document																				
AIM 5 review																				
Revise draft document																				
Share with all Aims																				
Annual meeting																				

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And a second paper idea…

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Synthesizing what we've learned

- We think our experience is worth sharing
- Of interest to those writing proposals for federal funding that requires education to be integrated with research
- *Science* Education Forum articles are 2000 words and **not** research reports
- Planning to synthesize recommendations based on literature and experience
- You can help!

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What made Aim 5 projects successful?

1. Integrating education at the beginning
   - Expectation and norm
   - Respect and collaboration
   - Communication
2. Basing educational product on research framework
   - But not waiting for findings, using foundation and process
   - This allows the product development to occur over the entire grant period
   - Enables needs assessment and evaluation
3. Creating activities that integrate, engage, build capacity
4. Engaging experts, learners and stakeholders in design and improvement of products
5. Maximize efforts with partnerships
   - Advisors, Pilot testers, Marketing, Dissemination

What else?

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Specific recommendations

For proposal and project design

- Put education leaders on the proposal design/writing team
- Support research that advances education
- Set expectations, provide incentives for collaboration between researchers and educators

For education coordinators

- Use research framework as the core
- Build understanding across disciplines
- Promote problem solving skills for societal issues
- Develop training programs to advance skills & understanding
- Provide for interaction between researchers and educators and students

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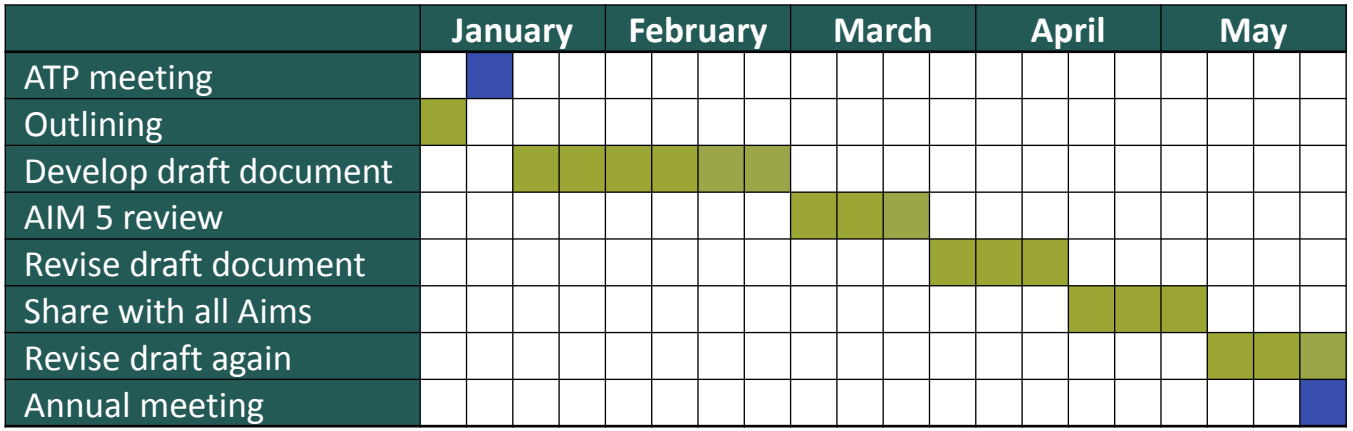
Education Recommendations Paper

- Estimated timeline



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Other Ideas?

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PINE RESILIENCE RECIPES

NEW

GOALS FOR PINEMAP

- Minimize risk
- Sequester carbon
- Reduce nitrogen fertilizers and water usage

✓Goal: Resilient forests grow *and* sequester more carbon

STRAIGHT AND NARROW PINES

RECIPE WILL PROVIDE ENOUGH TREES FOR ONE SAWMILL OR TWO BOUTIQUE WOODWORKING FACILITIES, ADDITIONAL TREE LIMBS OR FIRST THINNINGS MAY BE USED FOR BIOENERGY

Ingredients:

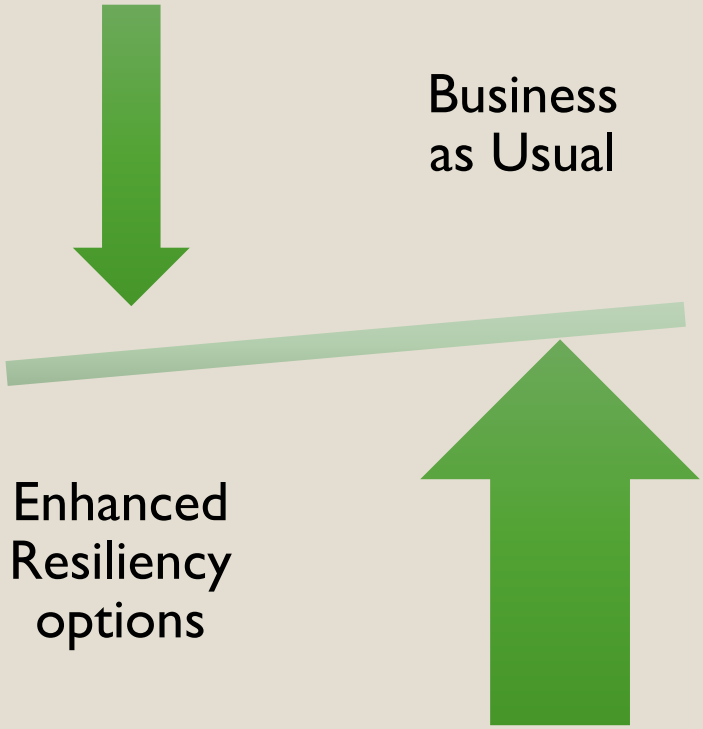
- 435 improved seedlings per acre
- Specially prepared site
- Favorable planting season
- Fertilizer

Steps

1. Prepare your site.
2. Select your seedlings based on your location and your goals.
3. Plant seedlings at the right density for disease and drought, but sufficient to survive any calamities.
4. Grow the seedlings for 15-35 years, consider thinning at opportune times. We recommend 240-300 trees per acre.
5. Harvest and repeat.

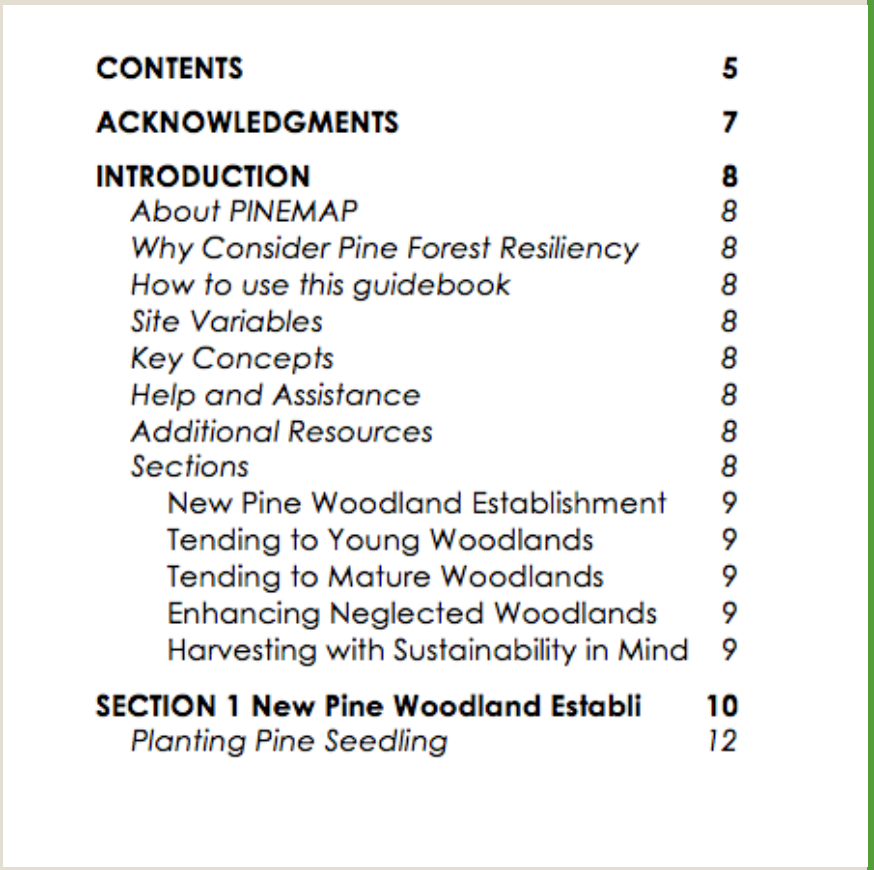
SOUTHERN PINE FOREST RESILIENCE MANAGEMENT GUIDEBOOK

- Summarize good forestry management *and* PINEMAP results
- Make useable for foresters/layman
- Link to the DSS
- Provide Enhanced Resiliency options
- Provide specifics



SOUTHERN PINE FOREST RESILIENCE MANAGEMENT GUIDEBOOK

- Three (or 2) regional versions
  - Western Gulf
  - Piedmont
  - Coastal Plain
- Four Key Sections
  - Pine Woodland Establishment
  - Young Woodlands
  - Mature Woodlands
  - Enhancing Neglected Woodlands
  - Harvesting Sustainably



RECIPE CARD

- Overview
- Time consideration
- Preparation (shopping list)
  - Related activities
- Materials (ingredients)
- Prescription (directions) – for Business as Usual process
- Prescription for Enhanced Resiliency Variation
  - Definition of Terms / concepts (side boxes)
  - Additional Resources
  - References

PINE ESTABLISHMENT

- **Introduction- Recipe cards contained in this section with brief description**
- **Site Preparation**
  - Disposal of logging debris
  - Controlling unwanted competition
  - Controlling regeneration pests
  - Improving Site and Soil conditions and Nutrition
  - Protection measures: fire, erosion, theft, trespass
- **Planting Pine Seedlings**
  - Genetics
  - Stock type: Plugs, Bare roots
  - Stocking Levels
  - Planting season
- **Improving species composition**
- **Wildlife**

SECTION 1: ESTABLISHMENT
PLANTING PINE SEEDLINGS

- Overview and Objectives

Standard Recipe

Preparation

- Explore future climate opportunities/Risks at Pine Explorer DSS
- Determine number of seedlings needed
- Order seedlings
- Set up planting contractors
- Monitor weather patterns and conditions
  –Submit application for EQIP payment

SECTION 1: ESTABLISHMENT
PLANTING PINE SEEDLINGS

Ingredients

- 600-700 bare root seedlings per acre

Directions

- Winter planting
- Spacing
- Weather conditions at time of planting
- What to avoid

SECTION 1: ESTABLISHMENT
PLANTING PINE SEEDLINGS

Added Resiliency Variation on Recipe

- ***Preparation***
- ***Ingredients***
  - 430 - 530 containerized seedling/acre, suitable family
  - treated for regeneration pests and tip moth
- ***Directions***
  - Fall planting
  - Weather and soil moisture conditions
  - What to avoid
- **Modify / Personalize the Recipe**
  - 430 – 530 bare root seedling planted early winter


SO TELL ME WHAT YOU REALLY THINK OF OUR IDEA
NO REALLY, I INSIST
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NEED YOUR HELP!!!

Need a **contact person from each Integration area!**

NEED YOUR HELP!!!

- Need research "nuggets"
- Need your recommendations

NEED YOUR HELP!!!

- Help us flesh out the "working" draft of this guidebook
- Top five points that this guidebook needs from your research!

WHAT SHOULD YOU EXPECT

- Co-authorship (hoo-yeah!)
- Warm, fuzzy feelings
- Bi-monthly or periodic online meetings
- Emails with requests for review or input

To review the guidebook!

(a few somebodies)


NOW, WHO'S WITH ME!
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GRADUATE STUDENTS AND
POST-DOCS ARE INVITED TO HELP!
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