The PINEMAP Intern Program:
Integrating undergraduates into forest resource and climate change research, and education

John B Kidd¹, John R Seiler¹, Martha C Monroe², Shobha Sriharan³

¹Virginia Tech, Dept. Forest Resources and Environmental Conservation;
²University of Florida, School of Forest Resources and Conservation;
³Virginia State University, Dept. of Agriculture and Human Ecology
About PINEMAP

- Pine Integrated Network: Education, Mitigation, and Adaptation Project
- Coordinated Agricultural Project (CAP)
- Six research areas
Justification

Outreach

Pls

Mentors

Interns

Secondary Students

Integration
Program Goals

1. Engage undergraduate interns in research and teaching
2. Develop and deliver inquiry-based science lessons
3. Convey value and relevance of southern forests and climate change
Marketing

• Two separate postings
  – Internship announcement
  – Call for proposals

• Eligibility Criteria
  – Undergraduates
  – Graduate students

• Distribution
  – Listservs, internal contacts, job boards
  – PINEMAP PI email
Application Process

- Applying
  - Online only
  - Fillable form PDF
- Application Data
  - Standard Resume Data
  - Interest Area
  - Personalized Data
    - Essay for interns
    - Proposal for mentors
Selection Process

- 2012 year = 6 interns*
  - 6 internships
  - 6 micro-grants
- Selection committee
  - Education Aim leaders
  - Program coordinator
  - PINEMAP PIs from other Aims

*Increases to 12, then 18 total in subsequent years
Program Awards

• Undergraduate Interns
  – $4,800 stipend over 12 wks
  – $2,200 housing and subsistence

• Graduate Mentors
  – Micro-grant
  – Intern assistant
Internship Logistics
Summer Internship

- Field work
- Lab work
- Attend lab meetings, etc.
- Journaling
- Intern program meetings
Internship Logistics
Distance Course

• Distance-based Class
  – 3 Credits, Fall 2012
  – Independent study
  – Synchronously delivered
  – Twice per week in evenings
  – 3 units
Distance Course

• Communication Skills
• Education
  – SOLs
  – Inquiry-based learning
  – Science ed. pedagogy
• Journaling continued

Courtesy: John R. Seiler
Distance Course

- Developing Presentations
  - Learning experience for secondary students
  - Focus on internship project
  - Hands-on component

- Preparation!
  - Mentors will help
  - Practice runs during class

Courtesy: Lindsey McConnell
**Distance Course**

- Presentation Deployment
  - Area public secondary schools
  - VT staff helps identify
  - Target Biology, Environmental Science
  - Multiple presentations
  - Presentation evaluations
  - Supervising teachers evaluate
  - Self evaluations

Courtesy: John R. Seiler
Expected Outcomes

• Interns
  – Increased understanding of scientific research
  – Enhanced skills
    – Research
    – Communication & Education
  – Service learning experience

• Mentors
  – Supervisory experience
  – Promote importance of research
  – Better prepared for post-doc, etc.
Initial Response

- Underwhelming
- 6/25 graduate students applied
- UG Responses
  - 1 undergraduate application as of 1/27
  - 2 as of 2/06
  - 7 applicants total
Program Evaluation

• Potential problems
  – Under marketing
  – 1<sup>st</sup> year grad students
  – Broken application process

• Improvements
  – Open up micro-grants to non-PINEMAP conifer research
  – Allow seniors to apply
  – Clarity on announcements
  – Increase recruitment in areas other than Aim 1
Conclusions

• Internship program for education/outreach
• Recruit interns into graduate studies
• Two components
  – Internship; focus on research
  – Distance class; focus on education
• Low number of applicants in year 1
• Evaluation to increase attractiveness and prospects
Questions
I. About PINEMAP

II. Intern Program
   A. Justification
   B. Goals
   C. Application Process
   D. Program Components
      1. Summer Internship
      2. Fall Distance Course

III. Initial Responses

IV. Expected Outcomes

V. Conclusions
PINEMAP Goals

Create, synthesize and disseminate knowledge enabling southern forest landowners to:

1. Harness productivity to mitigate CO₂
2. More efficiently utilize fertilizer inputs
3. Adapt management practices to increase resilience

Education and Extension teams transfer research to stakeholders
Selection Criteria

• Undergraduates
  – Application strength
  – Academic standing
  – Aim interest essay
  – Reference letters

• Graduate proposals
  – Thoroughness
  – Clarity
  – Consideration for interns
  – Indication of future involvement