Synthesis of Everglades Restoration and Ecosystem Services (SERES)

Critical Ecosystems Studies Initiative

Paul R. Wetzel
With contributions from SERES Team
Knowledge transfer from Scientists to Policymakers & Society:
Leave Knowledge at the Loading Dock

Managers, Policymakers, Society

SCIENCE - Knowledge

Policymakers & Society must put SCIENCE into a social context, pull out relevant information &
Key Tenet of Sustainability Science Co-Production of Knowledge

Achieved with a process that is:

1. *Credible* - through quality control of the research process

2. *Legitimate* - through inclusiveness and fairness

3. *Salient* - through common ownership of products and solutions
Project Objectives

Synthesize existing freshwater Everglades science relevant to management questions.

Perform options analysis on a range of restoration scenarios.

Summarize and convey scientific knowledge for use by policy and decision makers.
How will we achieve co-production?

- Contribute insight and experience
- Contribute to direction vision—managers, policymakers
- Responsible for direction, cohesion, and product final products
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<tr>
<th>Name</th>
<th>Institution</th>
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<tbody>
<tr>
<td>Daniel Childers</td>
<td>Arizona State University</td>
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<tr>
<td>Rena Borkhataria</td>
<td>University of Florida</td>
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<tr>
<td>Stephen Davis</td>
<td>Everglades Foundation</td>
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<tr>
<td>Victor Engel</td>
<td>Everglades National Park</td>
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<td>Evelyn Gaiser</td>
<td>Florida International University</td>
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<tr>
<td>Judson Harvey</td>
<td>U.S. Geological Survey</td>
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<tr>
<td>Thomas Lodge</td>
<td>Thomas E. Lodge Ecological Advisors</td>
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<tr>
<td>Fernando Miralles-Wilhelm</td>
<td>Florida International University</td>
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<td>Melodie Naja</td>
<td>Everglades Foundation</td>
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<td>Todd Osborne</td>
<td>University of Florida</td>
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<td>Rosanna Rivero</td>
<td>Everglades Foundation</td>
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<td>Michael Ross</td>
<td>Florida International University</td>
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<td>Joel Trexler</td>
<td>Florida International University</td>
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<td>Thomas Van Lent</td>
<td>Everglades Foundation</td>
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<tr>
<td>Paul Wetzel</td>
<td>Smith College</td>
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Project Approach

Define Key Questions
- Engage managers on key question selection
  - Must be credible, salient, and legitimate
  - Must be addressable

Gather Information
- Literature reviews
- Assembling data, models
- Contacting other scientists

Analysis & Synthesis
- Identify tools and metrics
- Perform option analyses
- Get review and input from Everglades Community
- Develop products

Presentation of Findings
- Peer review
- Development & review of products throughout process
- Findings in a useful form
EES team met with Managers in March to develop key questions with individual Policy-makers on-going.
Development of Key Questions

Managers - Decision Makers focus on questions of hydrology related to project and economics.

Scientists focused on function and relationships in the Everglades.

Science Managers ask questions in all areas; especially about trade-offs and prioritizing decisions.
Hydrologic Restoration

- Invasive Species
- Water Quality
- Landscape Patterns
- Soils
- Food Webs, Community Dynamics
Invasive Species
Hydrologic Scans
Soils
Water Quality
Invasive Species
Hydrologic Restoration
Restoration
Food Webs, Community Dynamics
System Services & Benefits

Centerpiece of project

Basis and boundary conditions for other questions

How much storage needed to maintain target hydroperiodic depths, and flows restored Everglades
Investigate trade-offs between water quality and quantity of water.

Better to have more dirty water, even if it’s cleaner but less water flowing through the Everglades.
Will hydrologic restoration make the problem with invasive species better or worse?
What will happen to tree islands, ridges, and sloughs if the hydrology in the Everglades is restored?

Can marl prairies and hydrologic restoration coexist?
What will be the effect of hydrology and water flow on carbon balance, peat accretion, and subsider?

Will the Everglades be a carbon source or sink as climate changes?
Will hydrologic restoration recover the upper trophic levels?
Key questions answered in context of—

Ecosystem Services and N...
Please give us your input

We seek:

• Feedback on key science management questions from your agency to guide our synthesis effort

• Input on process and products that are most useful

• Suggestions for external advisor of this project
Summary of Key Questions

Water storage needed?

Better to have more water of poor quality or less water that is cleaner?

Effect of restoration on tree islands, ridge & sloughs, and wet prairies.

Effect of hydrologic restoration on upper trophic levels?

Effect of hydrology on carbon balance and peat elevation?

What economic benefits & ecosystem services result from restoration?

Effect of climate change and exotic species on Everglades restoration?