Guidebook for Federal Agencies: Ecosystem Services in Natural Resource Planning, Management and Policy

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• National Ecosystem Services Partnership

Current Focus: Enhance credibility and consistency of ecosystem services approaches across federal agencies through enhanced communication and collaboration and engagement of external experts and practitioners.
Inaugural Policy Forum: Advancing Ecosystem Services in Federal Resource Management Decisions
Hosted by the National Ecosystem Services Partnership and A Community on Ecosystem Services
at Resources for the Future, Washington, D.C.
May 8th, 2012
Potential Benefits

1. Provide a more integrated examination of management actions
   - Makes trade-offs in management choices explicit
2. Bring attention to the extent of benefits generated on public lands
3. Better community engagement and support
Why Focus on Federal Lands?

Federal Land as a Percentage of Total State Land Area

The United States government has direct ownership of almost 650 million acres of land (2.63 million square kilometers) — nearly 30% of its total territory.

Objectives

1) Enhance understanding of how ES fit within the context of planning processes and legal authorities.

2) Improve capacity to consistently identify, assess and incorporate ecosystem services trade-offs and benefits of management plans.

3) Improve capacity to communicate the ecosystem services tradeoffs and benefits to communities and beneficiaries.

4) Reduce organizational resistance once methods are clear and proven (normalized) through case studies, guidance, and easily accessible tools.

5) Improve cross-agency communication and engagement with external expertise through a community of practice for continued shared learning and development of ecosystem services methods and tools for federal resource planning and management processes.
Products

Community of Practice

Tool box

Ecosystem Services Guidebook

On line guidebook

Training
### Ecosystem Services Management Effects Matrix

#### Ecosystem Services

<table>
<thead>
<tr>
<th>Cultural</th>
<th>Provisioning</th>
<th>Supporting</th>
<th>Regulating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solitude, Spiritual, Self-Discovery</td>
<td>Access</td>
<td>Matsutake Harvest</td>
<td>Clean, Cool Water</td>
</tr>
</tbody>
</table>

#### Management

<table>
<thead>
<tr>
<th>Action</th>
<th>Cultural Impact</th>
<th>Provisioning Impact</th>
<th>Supporting Impact</th>
<th>Regulating Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road maintenance</td>
<td>↑</td>
<td>↑</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td>Information &amp; Outreach - Education</td>
<td>↑</td>
<td>↑</td>
<td>→</td>
<td>→</td>
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<tr>
<td>Lodgepole encroachment thinning</td>
<td>↑</td>
<td>↑</td>
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<tr>
<td>Removal of Reed Canary Grass</td>
<td>→</td>
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<td>→</td>
<td>→</td>
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<tr>
<td>Hardwood Restoration</td>
<td>↑</td>
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</tbody>
</table>
Natural science challenge - to develop consistent metrics to quantify the production and flow of ecological services and, especially, the joint production of multiple services

Social science challenge – to identify the relative values of services and the differential flow of benefits to stakeholders

The working groups are designed to run in parallel – with the same test sites and significant but not complete overlap in participants
Human Well-being - Ecological Condition

Change in Resource Use

Ecological Change

Ecosystem Service Production

Ecological Condition

Decisions & Management

Drivers of Change (Governance, Climate)

Management Plans

Management Objectives

Technical Working Groups

Expert Knowledge

Local community and user priorities

Agency Mandate

Ecological Production Function
Human Well-being

Ecological Condition

Ecosystem Service Production

Change in Resource Use

Ecological Change

Decisions & Management

Drivers of Change (Governance, Climate)

Management Plans

Management Objectives

Using values to inform trade-offs and choices

Overlaying social and economic data to evaluate equity

Exploring economic valuation tools and how best to use them
Technical Working Groups
Common Methods and Tools and Pilot Testing

**NCEAS** – Ecosystem Services (joint) production functions

**SESYNC** – Stakeholder and economic value; socio-economic overlay
Products from working groups

- Ecological production maps (ES supply)
- Stakeholder values maps (ES demand)
- Trade-off assessments
- Management scenarios
- Social vs ecological outcomes (equity)
- Economic valuation guidance
- Examples from specific agency pilot tests
Early 2013 - Initiate
1) Agency community of practice
2) Agency pilots
3) Technical working groups

2013 thru 2014 –
1) Agency example reports
2) Community of practice activities
3) Technical working group methods testing
4) Agency working group to pull together shared ideas on methods and approaches

End 2014
1) Synthesis of methods and approaches
2) Case studies/pilot reports
3) Recommended approach(es)
4) Guidebook
5) Training materials

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Thank you

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Favor hydrological connectivity

Favor patch biodiversity

Example from NC mountains by John Fay
Management objectives

Service (water)
- criterion
- indicator

Service (biodiversity)
- criterion
- indicator
- indicator

Stakeholder surveys (values + map locations)

Regression

Ecological production (maps)

Supply versus Demand/Value (maps)

Stakeholder values (interpolated maps)

Census overlay

Map providers and users of services

Ecological versus Social Goals