Evaluating ecosystem goods and services in National Forest planning: balancing rigor and efficacy

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Forest Service management paradigms, World War II to present

- Dominant use (1940-1960)
- Multiple use (1960-1992)
- Ecosystem management (1992-2012)
- Ecosystem services (2012-2022)
2012 Planning Rule

• 36 CFR 219.1 Purpose and applicability

“(c) ... plans will guide management of NFS lands so that they ... have the capacity to provide people and communities with ecosystem services and multiple uses that provide a range of social, economic, and ecological benefits for the present and into the future ...”
National Forest work

(1) Initial assessments to identify key ecosystem services;

(2) Incorporation of ecosystem services into forest plans and NEPA analyses;

(3) Monitoring of ecosystem services outcomes resulting from plans.
Some basic realities

1. Lack of adequate ecological information (production functions)
2. Lack of adequate economics expertise among Agency staff
3. Production targets and staffing structure impede integrative approach.
4. National Forest autonomy
Goals

1. Consistency with economic principles
2. Ease of implementation
3. Transparency, accessibility to the public
Example: Recreational Fishers – Fish Populations

Wetlands, vegetation, riparian conditions

Stream access; parking; special use permits

Guides; hotels

Game fish populations

Benefits

Recreational anglers; guides

Local lifestyles; local jobs
Assessment Steps

1. Develop common understanding of how people benefit from forests and grasslands
2. Identify the beneficiaries that are influenced by forest goods and services of the plan area
3. Refine list to focus on “key” forest goods and services and beneficiaries
4. Identify available information
5. Draft assessment section(s)
Step 1. Develop common understanding of how people benefit

- Why is your resource area important to the public?
  - Who cares about your resource area?
  - Who interacts with your resource?
Step 2. Identify beneficiaries

• Focus on pairs of services and beneficiaries.

• From what resources, features, or characteristics do they benefit?

• Who interacts with or experiences these benefits?
Step 3. Which are “key” goods, services, or beneficiaries?

• Importance beyond plan area

and

• Likely to be affected by the plan
Step 4. Identify available information

- Document known sources of data.
- Identify level of good or service Forest currently is providing.
- Identify data and indicators that can be used to quantify changes in availability or demand?
Step 5. Draft assessment

• Individual specialists draft portions relevant to their resource areas.

• Discretion on how the assessment (for ES) is organized
  – Stand-alone chapter
  – Integrated throughout
  – Mixed approach
## Step 2 - Beneficiaries, goods, and services [See "Starter list" tab for help]

<table>
<thead>
<tr>
<th>Beneficiaries (People)</th>
<th>Forest Goods and Services</th>
<th>Infrastructures, operations and other services</th>
<th>Ecosystem Processes, Functions, Structure, or Conditions</th>
<th>Importance of Forest Good or Service to Beneficiary</th>
<th>Step 3 - Key?</th>
<th>Step 4 - Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who interacts with or experiences and therefore benefits from the forest good or service?</td>
<td>What forest resource, characteristic, or feature (e.g., provisioning or cultural service) do they benefit from?</td>
<td>What infrastructure, operations, and services provided or permitted by the agency enable benefits?</td>
<td>How do the ecosystem processes and functions provide a foundation for the forest good or service?</td>
<td>Why do the beneficiaries care about the forest good or service?</td>
<td>Is it (1) important outside the plan area and (2) likely to be influenced by management plan? [see process instructions for details]</td>
<td>What indicators and measures describe use or desire among beneficiaries for the forest good or service? Provide data source or &quot;unknown&quot; for each indicator.</td>
</tr>
<tr>
<td>Cultural/spiritual/religious/sense-of-place participants and groups</td>
<td>forest features</td>
<td>roads</td>
<td>Natural/geologic sites on the forest maintain traditions and spiritual awareness</td>
<td>Yes</td>
<td>Tribal population trends; number of pristine or undamaged sites trends</td>
<td></td>
</tr>
<tr>
<td>Other resource-dependent businesses and customers (e.g., marinas/resorts)</td>
<td>Non-timber products</td>
<td>access, permits</td>
<td>wildfire, forest health/insect and disease regulation</td>
<td>income and revenue for local residents</td>
<td>No</td>
<td>Number of pristine or undamaged sites trends</td>
</tr>
<tr>
<td>Recreational hunters</td>
<td>Big game</td>
<td>roads, trailheads</td>
<td>habitat connectivity</td>
<td>Local and non-local visitors benefit from hunting quality and access</td>
<td>Yes</td>
<td>Number of hunter visits per year</td>
</tr>
<tr>
<td>Recreational gatherers/pickers</td>
<td>berries, mushrooms</td>
<td>trails, permits, parking</td>
<td>regulation of invasives</td>
<td>Maintains traditional lifestyle benefits for local and non-local residents</td>
<td>Uncertain</td>
<td>Number of visitors; number of guides trends</td>
</tr>
</tbody>
</table>

## Step 3 - Key?

- **Key Forest Good or Service Identification**
- What indicators and measures describe use or desire among beneficiaries for the forest good or service? Provide data source or "unknown" for each indicator.
- What indicators and measures describe the availability of the forest good or service? Provide data source or "unknown" for each indicator.
Moving forward

1. Develop reasonable expectations about what information is necessary;

2. Seek to develop information that is sufficient, if not necessarily perfect;

3. Consider qualitative approaches when quantitative approaches may be infeasible;

4. Involve the relevant public who benefits.
Typology specificity spectrum based on intended uses

Advocate ecosystem protection
Establish compensation mechanisms
Evaluate management consequences
Establish ecosystem services markets
Cost-benefit analysis
Green GDP

Increasing need for typology specificity