National Indicators & Desired Conditions for Wildlife

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Sierra National Forest (1.3 million acres)

Dinkey Restoration Project Area

- 154,000 acres
- 24,000 ac. private land
- Vegetation types:
  - conifer forest (>60%)
  - foothill oak & chaparral
  - montane meadows & riparian forest
Management & Conservation Challenges

1. 16 wildlife species of conservation concern
2. 41,000 acres of WUI
3. 110,880 acres of forest with $\geq 2$ missed fire return intervals
4. Climate change projecting less precipitation and higher temperatures
   - Longer fire seasons = forests at increased risk for unnaturally large, intense fires
   - Increased drought stress on important legacy (large) trees
How did the collaborative select its national reporting indicators from the suite of monitoring indicators?

- Dinkey Monitoring Work Group developed a comprehensive set of questions and indicators
- Key members of Monitoring Work Group selected initial set of National Indicators from comprehensive list based on:
  - Protection of at-risk wildlife species
  - Practical to measure
  - Affordable to measure (overlap with existing USFS activities)
  - Simple and intuitive
- Sierra National Forest Resource Specialists and Monitoring Work Group assisted in refining list for use as National Indicators
Process the collaborative used to develop desired conditions:

1. Dinkey LRP Strategy Prioritized Focal Wildlife Species
   - US Fish & Wildlife Service - Threatened & Endangered Species
   - US Fish & Wildlife Service - Candidate species for T & E status
   - California State Endangered Species
   - US Forest Service – Species of Conservation Concern (previously “Sensitive Species”)

2. Consulted with USFS District Resources Specialists & Collaborative Members on Initial Set of Desired Conditions
   - Keep it simple - use language everyone will understand

3. Conducted open Workshops with Subject Area Experts to Refine the Desired Conditions

4. Incorporated metrics at BOTH landscape & project level scales
Old growth forests

1. High canopy cover (≥50%)
2. Abundant large trees & snags (≥32” dbh)
3. Structural heterogeneity
   • multiple canopy layers
   • variable tree/snag ages & sizes
   • large coarse woody debris
   • variable shrub & understory cover
Relationship Between the National Reporting Indicator and Desired Condition

• If managers can restore/maintain ecological resiliency in the habitat, the habitat can persist.

• Theoretically, if the habitat quality is high, the wildlife utilizing that habitat will reproduce and persist.

• In order for this to hold true, it is essential to use indicators that directly relate to HIGH habitat quality for the particular focal wildlife species. For example:
  1. High canopy cover
  2. Retain large trees
  3. Identify nest/den structures and mark them for saving (not cutting)
  4. Remove trees encroaching in meadow to reduce drying
<table>
<thead>
<tr>
<th>Ecological Outcome Measure</th>
<th>Indicator</th>
<th>Desired Condition</th>
<th>Spatial Scale</th>
<th>Temporal Scale</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wildlife Habitat Condition</td>
<td>Canopy cover &amp; Vertical canopy layer complexity</td>
<td>1. Canopy cover &gt; 50%, on average, across all treated areas.</td>
<td>Landscape &amp; Project area</td>
<td>Every 5 yrs</td>
<td>1. Landscape Scale = LiDAR data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Canopy layering &gt; 2 distinct layers</td>
<td></td>
<td></td>
<td>2. Project Scale = Stand Exam data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3. Interaction of both</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cross-section multi-story canopy LiDAR data</td>
</tr>
</tbody>
</table>

• We used a table to initially organize the variety of information that needs to be reported
**Using the Indicator to Measure Progress Toward the Desired Condition**

<table>
<thead>
<tr>
<th>Treatment Type</th>
<th>Ecological Outcome Measure</th>
<th>Proposed Treatment Area (acres)</th>
<th>Percentage of Landscape</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical</td>
<td>Fire Regime Restoration/ Wildlife Habitat Condition</td>
<td>34,490</td>
<td>22</td>
</tr>
<tr>
<td>Prescribed Burning</td>
<td>Fire Regime Restoration/ Wildlife Habitat Condition</td>
<td>19,100</td>
<td>12</td>
</tr>
</tbody>
</table>

**For Example, National Scoring for Mechanical Treatments (these are estimates, we aren’t here yet):**

**Good** = At year 5, ≥ 25% of target (8,622.5 acres) has been restored or enhanced.
At year 7, ≥ 50% of target (17,245 acres)
At year 10, 100% of target (34,490 acres)

**Fair** = At year 5, ≥ 15% of target (5,173.5 acres) has been restored or enhanced.
At year 7, ≥ 40% of target (13,796 acres)
At year 10, ≥ 80% of target (27,592 acres)

**Poor** = At year 5, ≥ 10% of target (3,449 acres) has been restored or enhanced.
At year 7, ≥ 30% of target (10,347 acres)
At year 10, ≥ 60% of target (20,694 acres)
Challenges & Lessons Learned:

1. Develop a shared understanding of “Desired Conditions” for everyone – USFS staff and collaborative - at the beginning of the process.
   • Maintain a focus towards obtaining measureable objectives

2. High level of uncertainty associated with impacts of treatments – science is evolving.
   • Maintained library of current research
   • Consulted subject area experts
   • Conducted workshops with subject area experts
     ➢ Often unforeseen complexity occurs great to have experts help provide detailed explanations

3. Use 3rd party facilitator to help settle disputes when there is known scientific uncertainty surrounding a particular Indicator or Desired Condition.
   • In Workshops AND throughout the development process