National Indicators & Desired Conditions for Wildlife

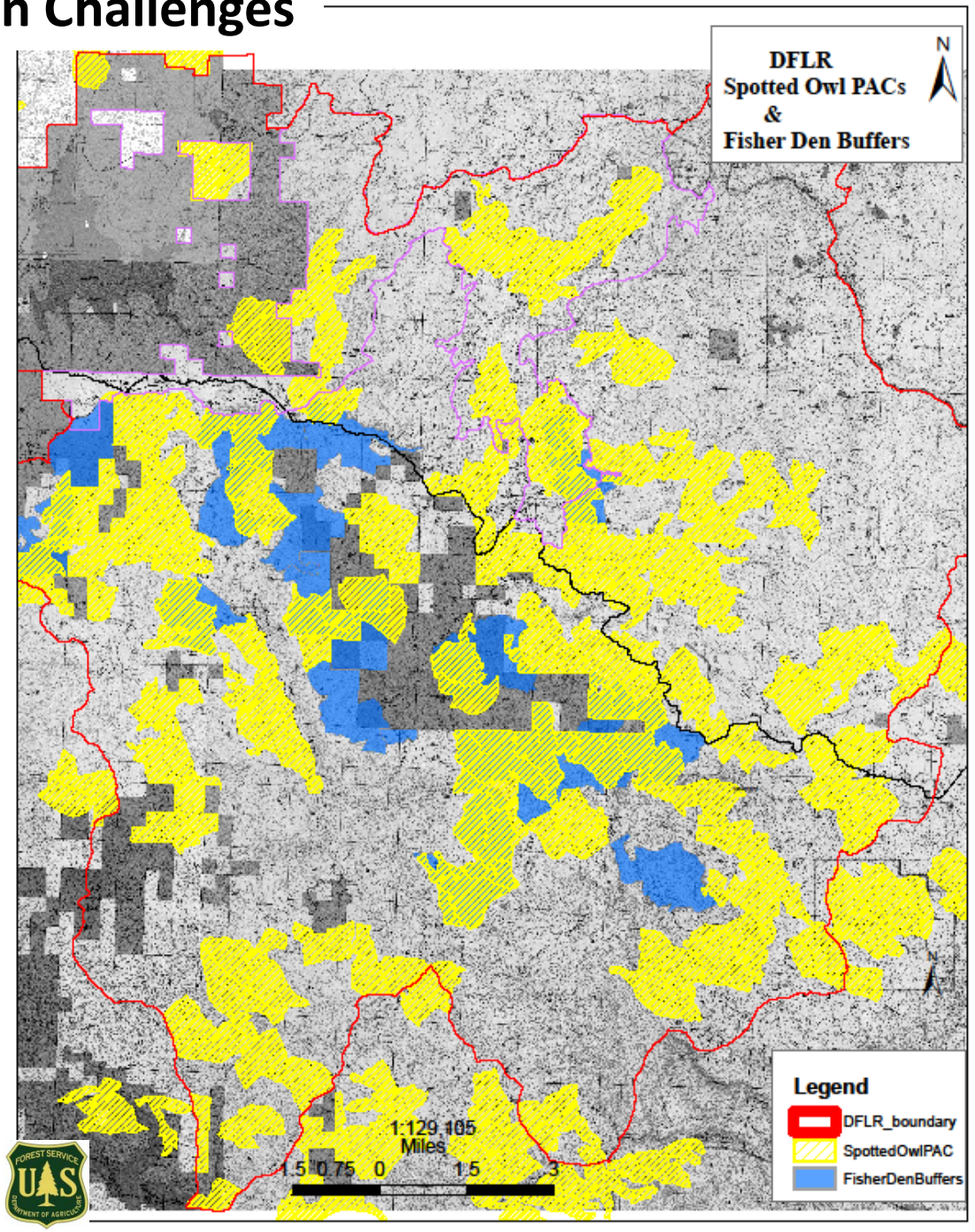
Susan Roberts, Monitoring Coordinator, Dinkey Landscape Restoration Project

Stan Van Velsor, Dinkey Landscape Restoration Project/ Wilderness Society


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 ≥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


world wide web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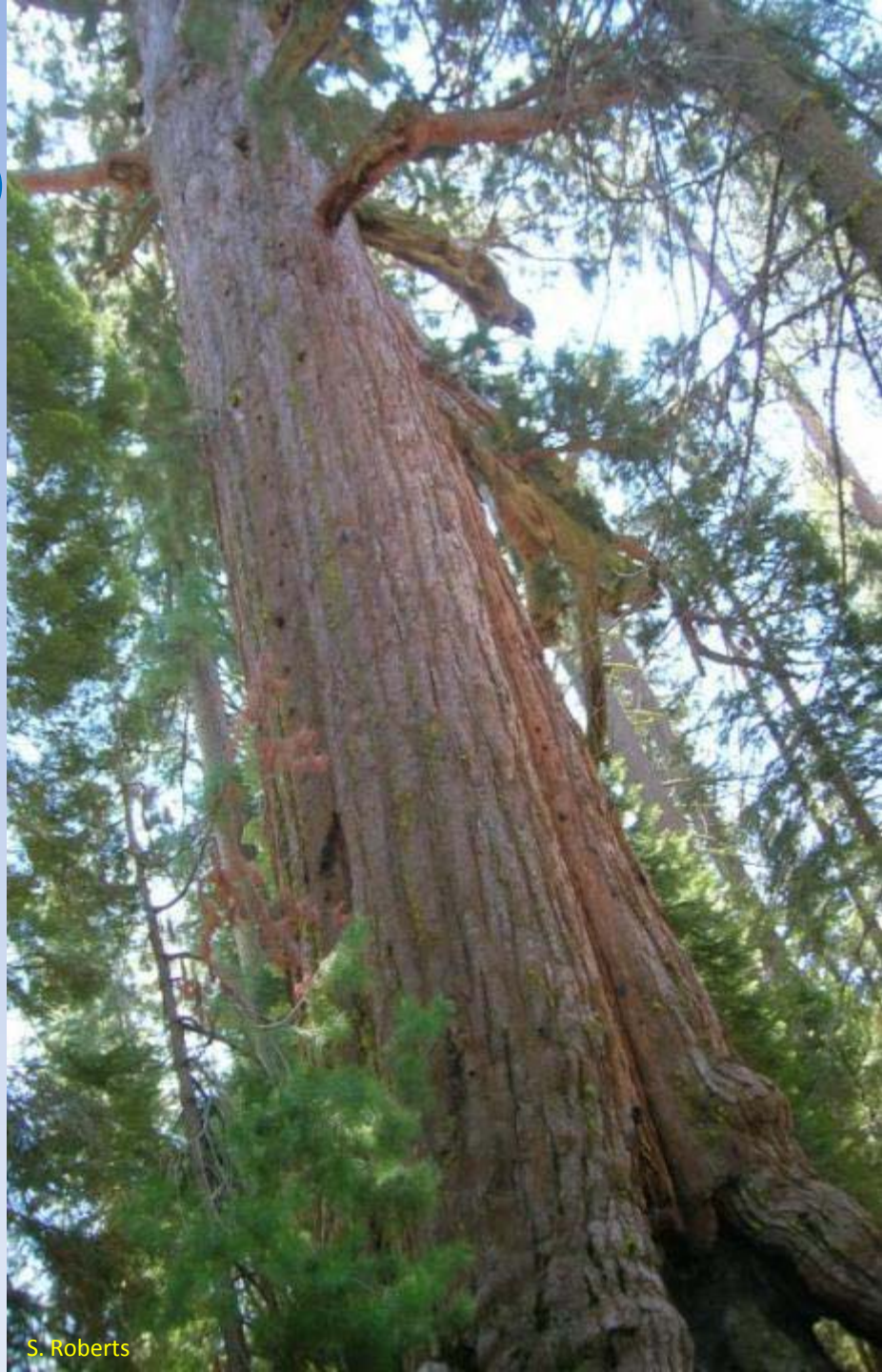
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Relationship Between the National Reporting Indicator and Desired Condition

- 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

Relationship Between the National Reporting Indicator and Desired Condition

- We used a table to initially organize the variety of information that needs to be reported

Ecological Outcome Measure	Indicator	Desired Condition	Spatial Scale	Temporal Scale	Data Source
Wildlife Habitat Condition	Canopy cover & Vertical canopy layer complexity	1. Canopy cover > 50%, on average, across all treated areas. 2. Canopy layering > 2 distinct layers	Landscape & Project area	Every 5 yrs	1. Landscape Scale = LiDAR data 2. Project Scale = Stand Exam data 3. Interaction of both

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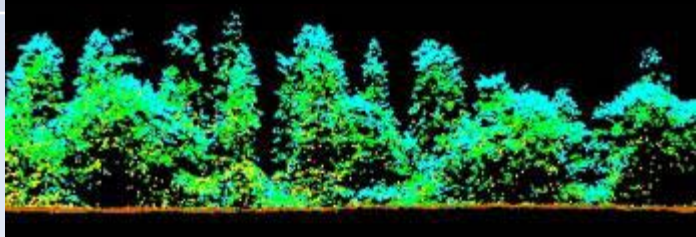
Cross-section multi-story canopy LiDAR data



Using the Indicator to Measure Progress Toward the Desired Condition

Treatment Type	Ecological Outcome Measure	Proposed Treatment Area (acres)	Percentage of Landscape
Mechanical	Fire Regime Restoration/ Wildlife Habitat Condition	34,490	22
Prescribed Burning	Fire Regime Restoration/ Wildlife Habitat Condition	19,100	12

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