Reforestation Decision Support Tool for Tree Mortality Landscapes

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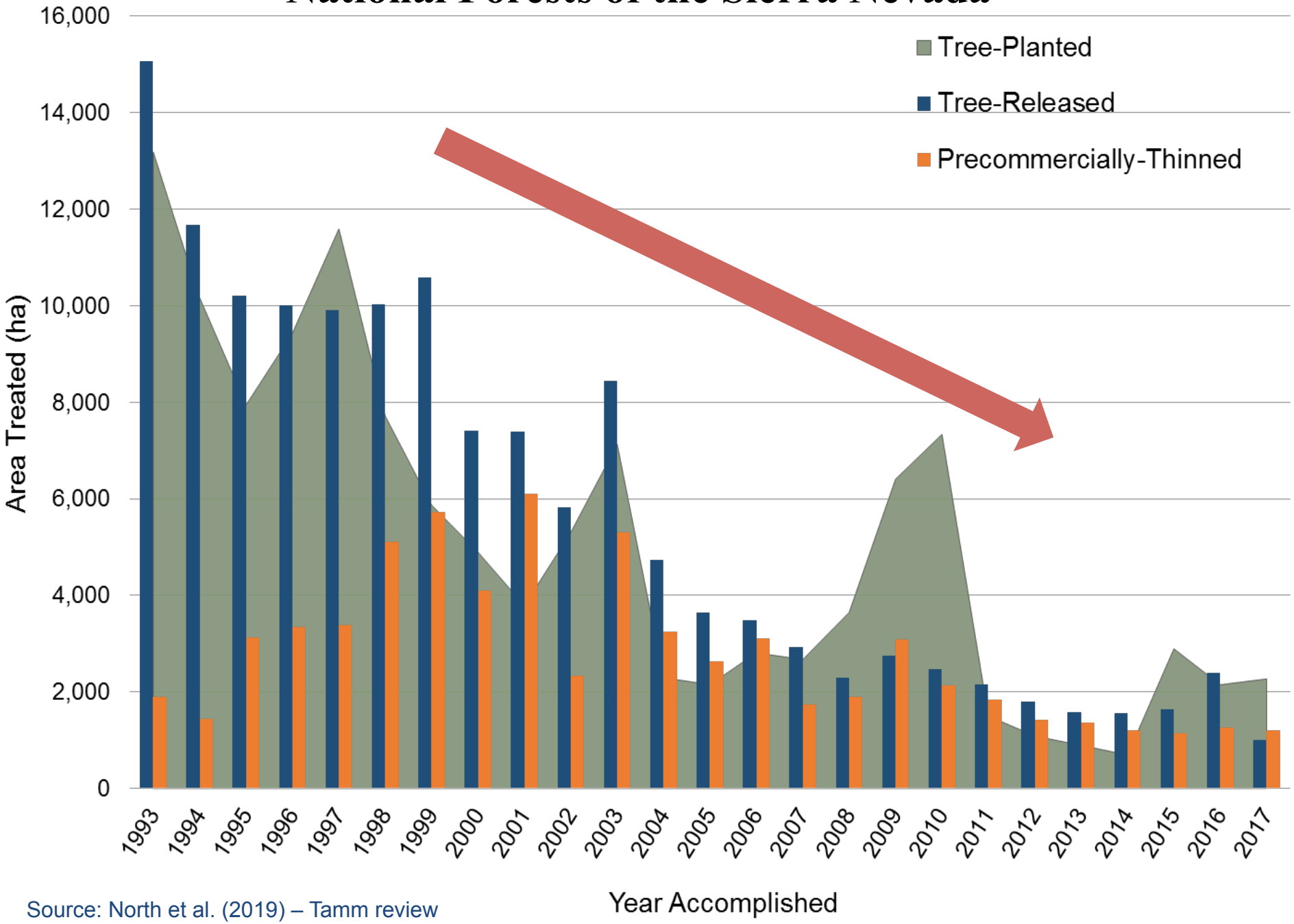
Background

- Over 129 million trees died in CA since 2010
  - Covers ~9 million acres
- Anticipate additional tree mortality from
  - Droughts
  - Bark beetles
  - Wildfires
  - Climate change

Constraints & Considerations

- Declining budgets
- Limited agency capacity
- Engaged public
- Litigation risk
- Accessibility
- Wildlife habitat
- Long-term integrity

National Forests of the Sierra Nevada



Source: North et al. (2019) – Tamm review

Questions

- How do you:
  1. Prioritize areas for reforestation?
  2. Ensure long-term success of reforestation activities?

DS Tool Components

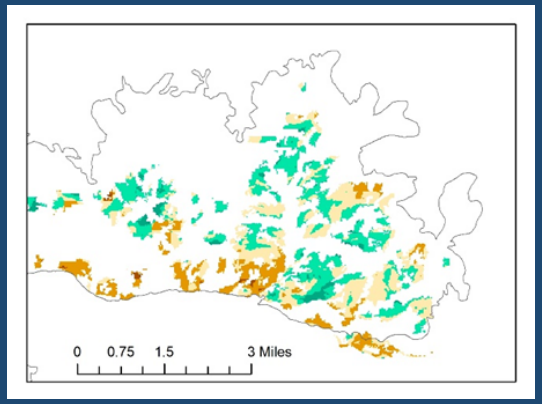
1. Spatial prioritization tool
2. Post-drought stand conditions
3. Reforestation Best Management Practices

Spatial Prioritization Tool - Steps

1. Area of Interest (national forest)
2. Pre-selected variables
   - Ex: tree mortality, topography
3. Optional variables
   - Ex: WUI, climate, forest type

Tool Outputs

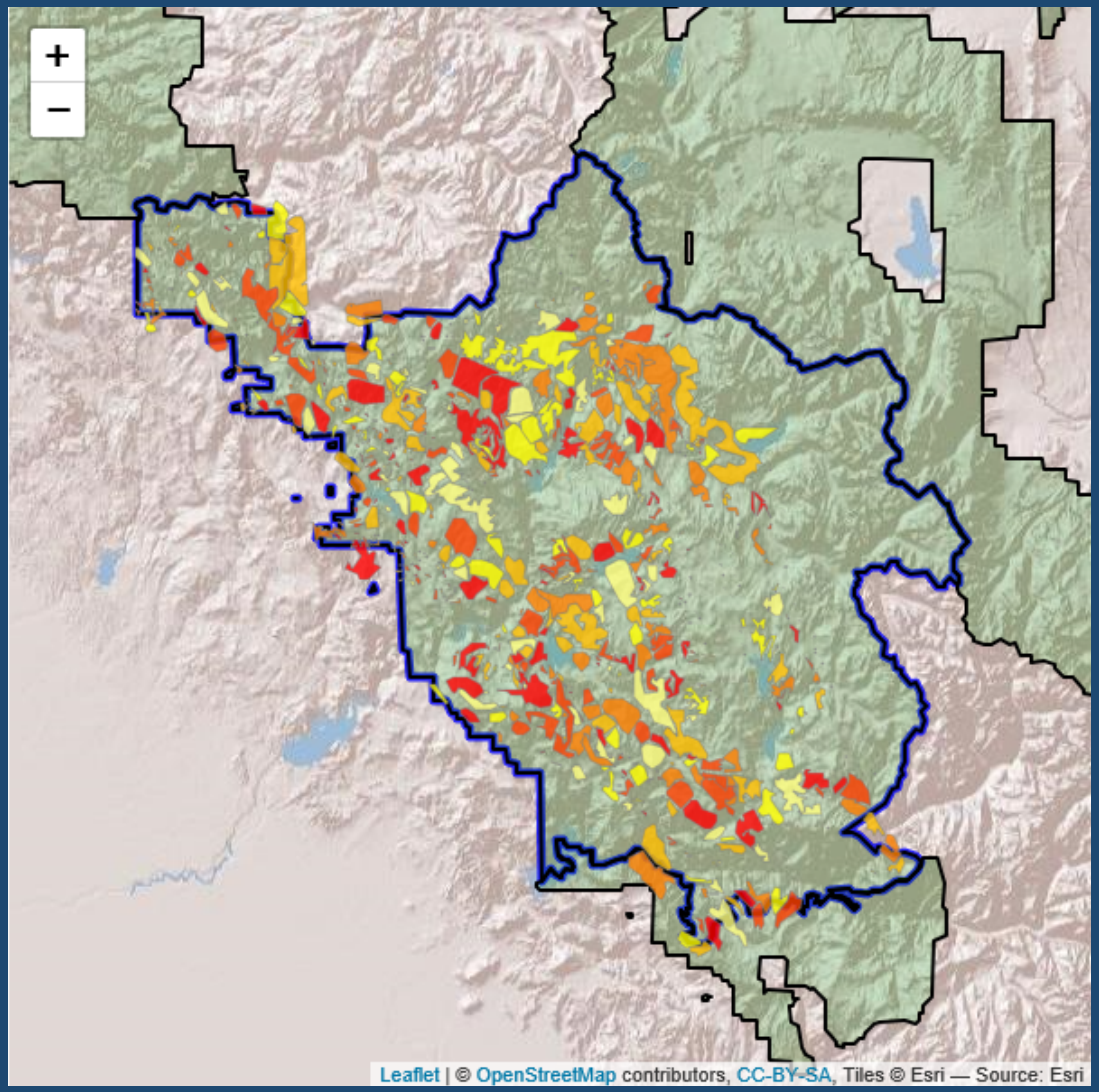
1. Spatial map of 3 zones (web)
   – Low, moderate, & high priority
2. Summary data
   – Area (acres) in each zone
   – High priority area by grouping variable (forest type)
3. Maps downloaded as pdf or shapefiles



Products and Funding

- Products
  1. Web-based DS tool
  2. User guide and video
  3. Science publication & brief
- Funding provided by USDA Climate Hub
  - Additional support from Region 5 Forest Service

Spatial Prioritization Tool: Demo



Question 1

- What information (e.g., data sources) do you use to set your reforestation priorities?
  - Where to plant?
  - Ex: Veg burn severity, ADS data, veg data

Zone Schematic:

Z1: Within seed dispersal distance of green trees

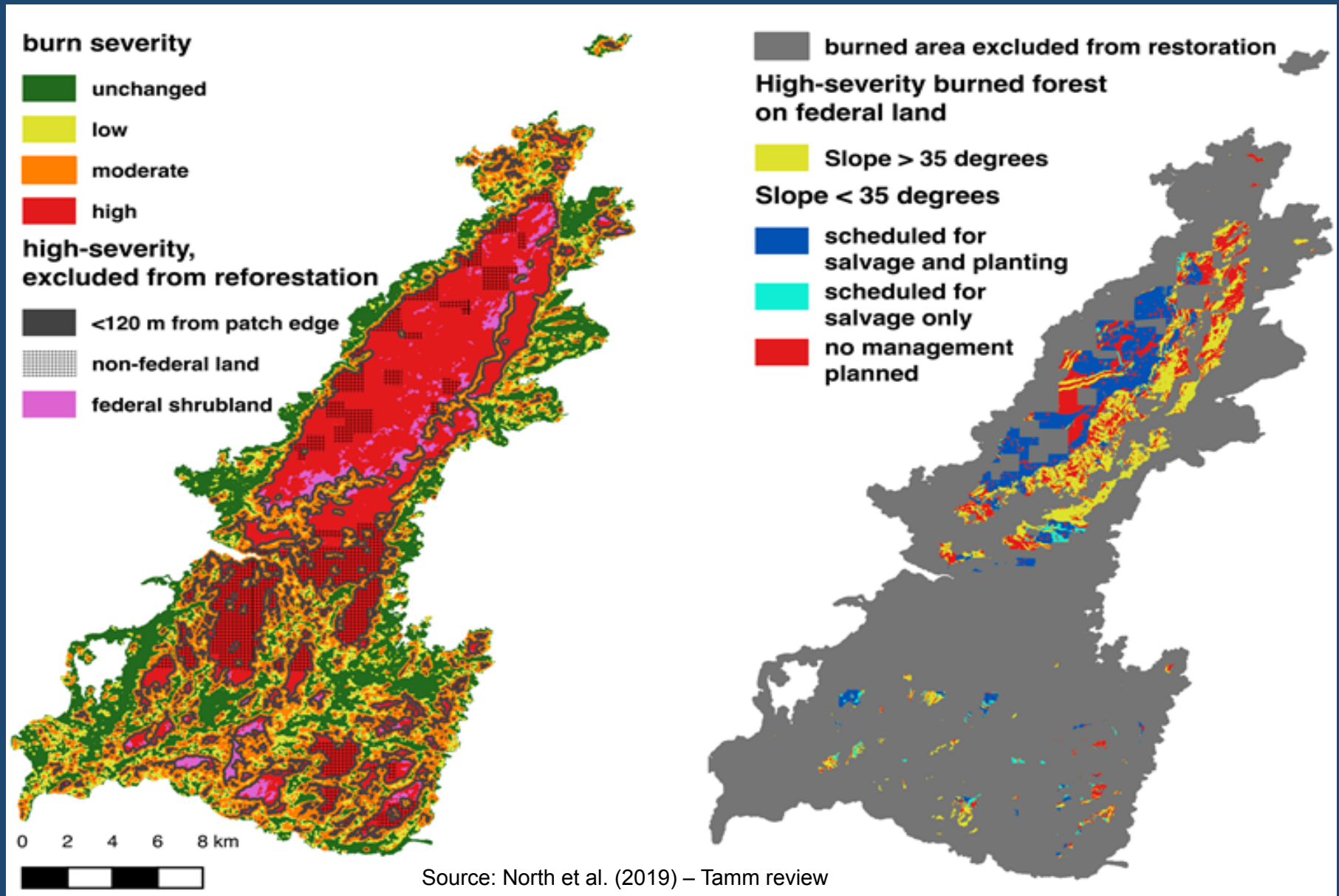
Z2: Accessible (for salvage and planting) areas beyond seed dispersal

- A – gentler topography
- B – steeper slopes: higher fire and drought severity

Z3: Remote, inaccessible, potentially unplanted due to cost and safety

Source: North et al. (2019) – Tamm review

2014 King Fire Example



Source: North et al. (2019) – Tamm review

Question 2

- What information is lacking for you to make effective planting decisions (where or how)?
  - Ex: Natural regen, climate projections

Question 3

- What currently constrains where you can reforest?
  - Ex: Salvaged areas, mechanical access, time since disturbance