

# Taylor Park Vegetation Management EA



# Outline

- Welcome & Introductions
- Purpose & Need for Project
  - Dwarf Mistletoe: What is it and potential management
  
- Proposed Action
  - Timber & Forest Health Treatments
  - Fuels & WUI Treatments
  
- Question and Answer Session

# Purpose and Need for Project

## Primary

- **Goal: Help the forest become more resilient to:**
- Climate Change
- Drought
- Insect Attack
  - Mountain Pine Beetle
- Disease
  - Dwarf Mistletoe

While also promoting safety and reducing fuel loading

## Secondary

**Goal: Provide wood products for the local and regional economy**

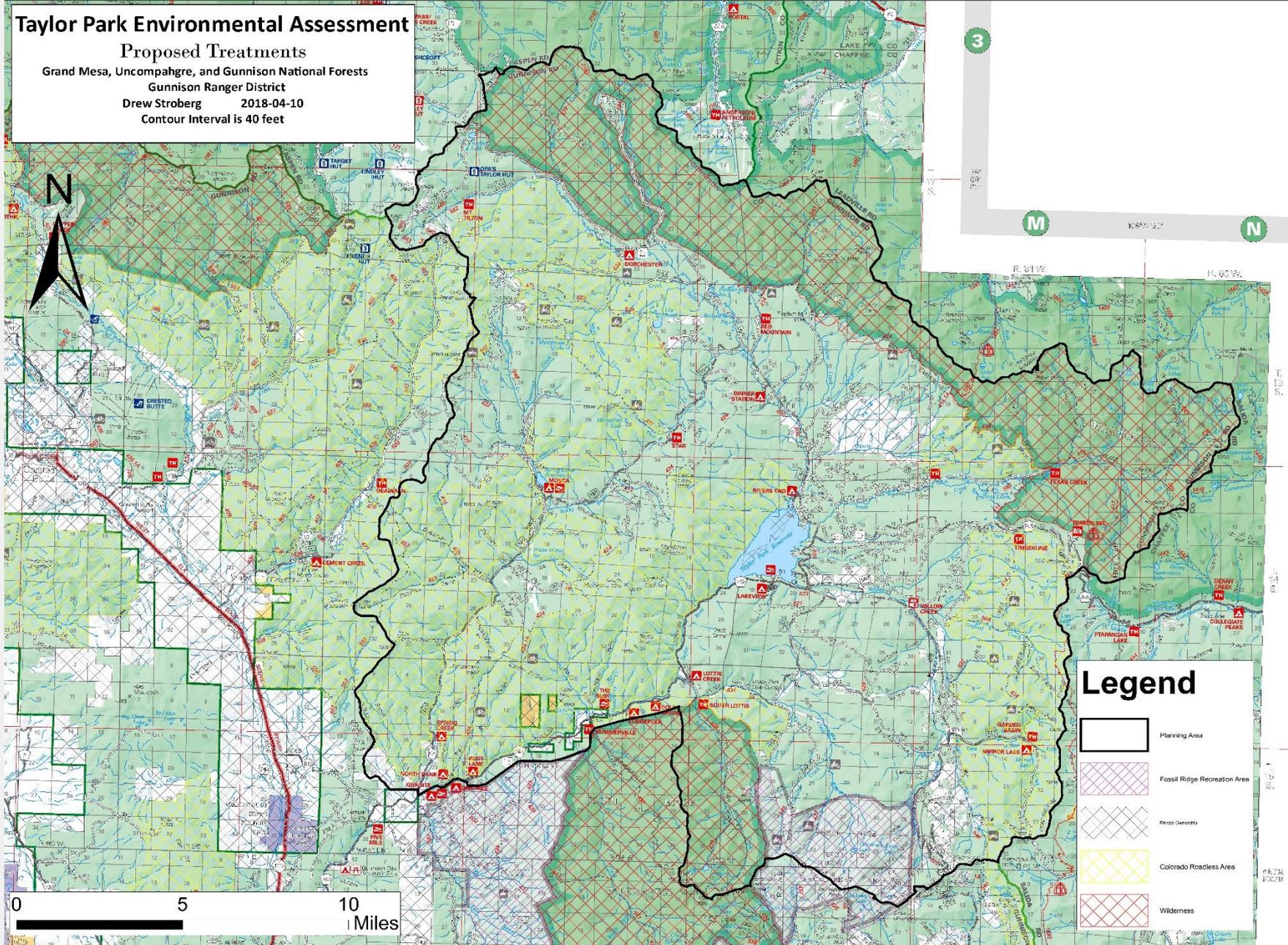


# Planning Area

## Taylor Park Environmental Assessment

### Proposed Treatments

Grand Mesa, Uncompahgre, and Gunnison National Forests  
Gunnison Ranger District  
Drew Stroberg 2018-04-10  
Contour Interval is 40 feet

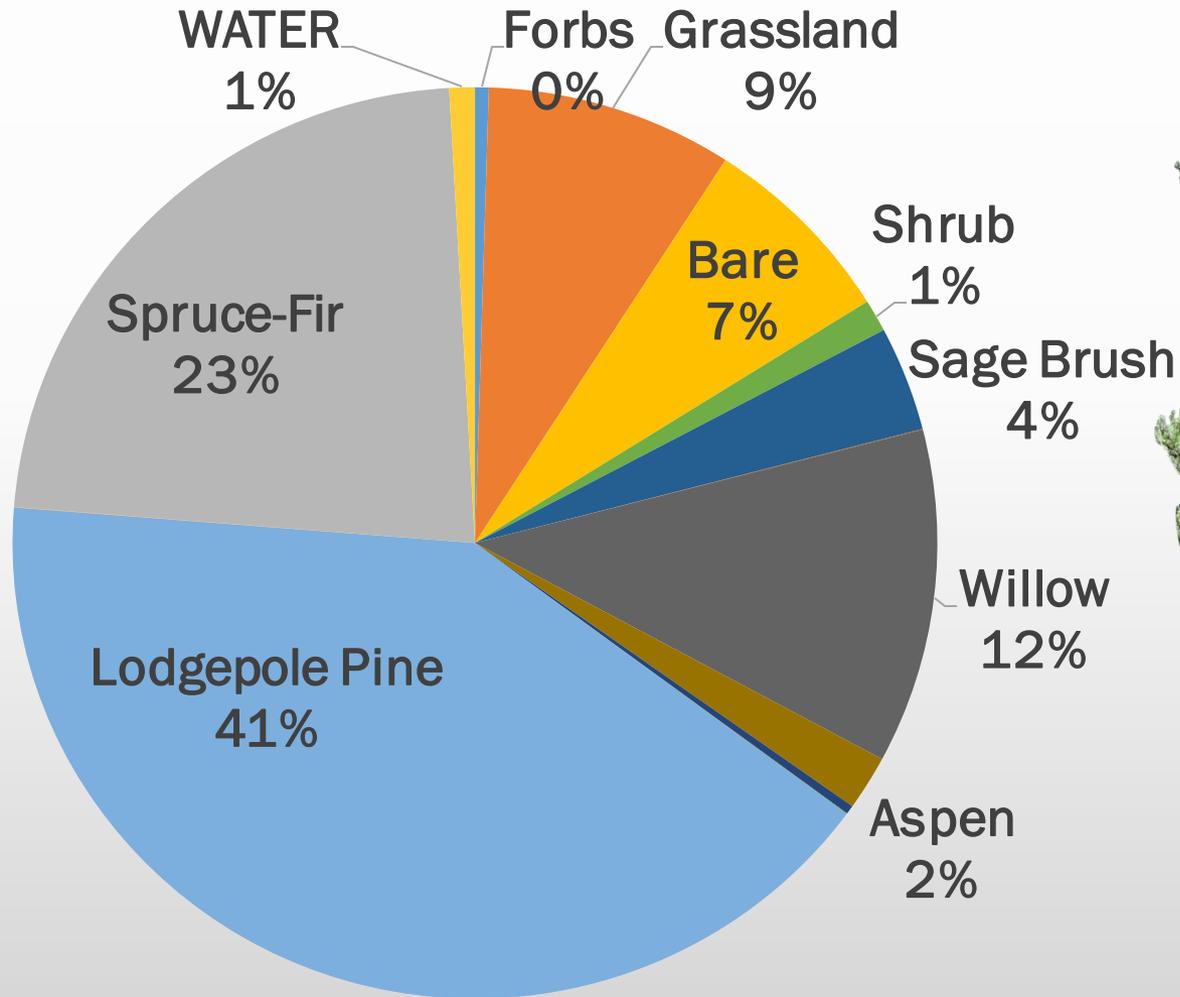


## Legend

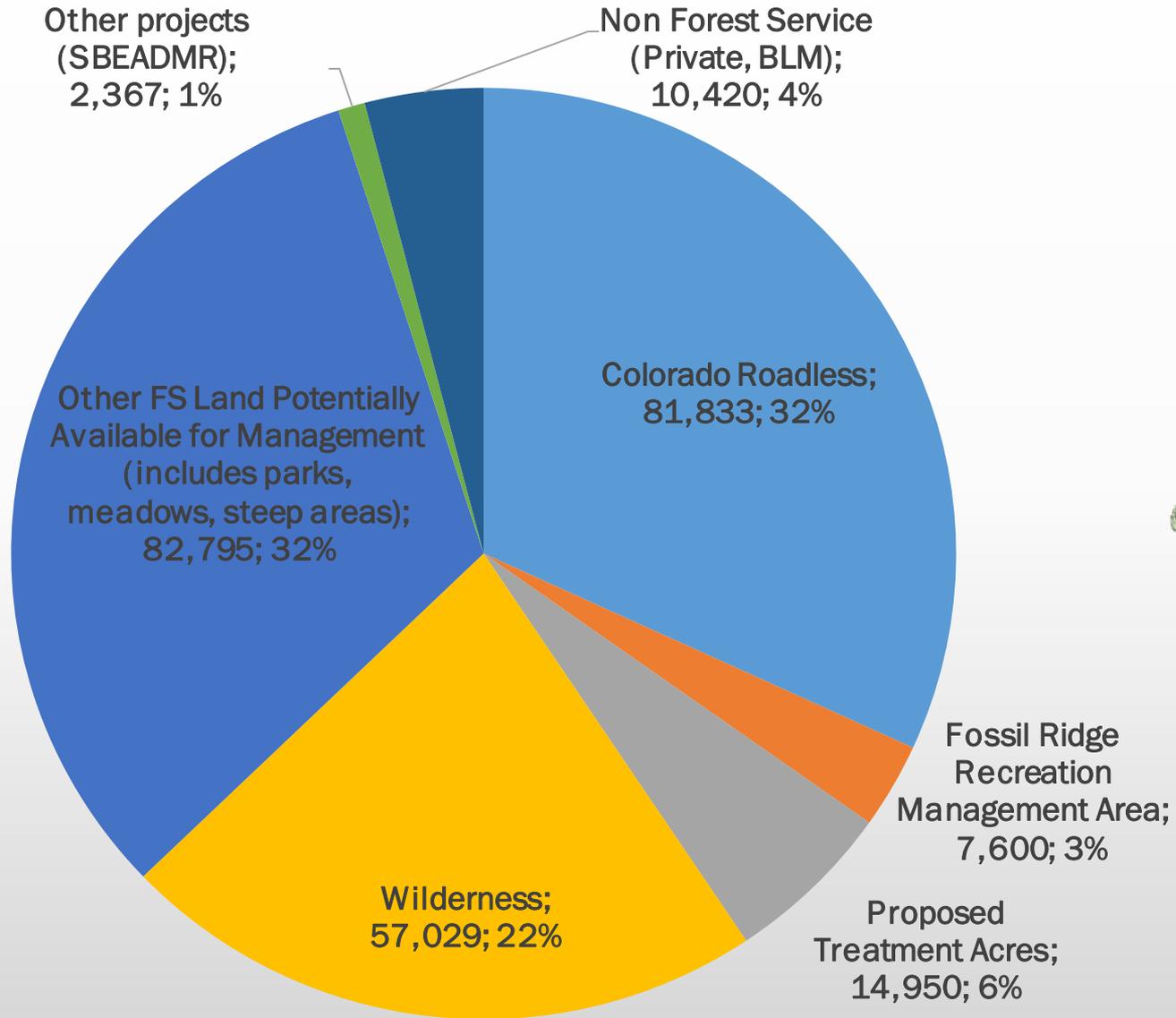
-  Planning Area
-  Fossil Ridge Recreation Area
-  Fossil Overlap
-  Colorado Roadless Area
-  Wilderness

# Planning Area

- 256,000 Acres



# Planning Area



# Lodgepole Pine and Dwarf Mistletoe

in Taylor Park EA



# Lodgepole Pine 101

- *Pinus contorta* subsp. *latifolia*
- Tolerant of dry sites, short growing seasons, frost
- Intolerant of shade, grows quickly in the open
- Sexually mature at young age
- Prolific seed producer



# Lodgepole Pine 101

- Cone serotiny – fire adaptation
  - Large quantity of seed released by heating, after fire or cutting
  - Slash heats on the ground, many years of seed crops are released
  - Regenerates after cutting or fire
  - Problem is often too many seedlings (precommercial thinning)



# Natural disturbance regime

- LPP thrives under influence of fire:
  - Fires vary in frequency and intensity
    - Taylor Pk. return intervals 8 – 140+ yr
  - Mostly a fire-maintained seral type
    - Stand-replacing fire, LPP regenerates
    - Results in extensive pure stands
- Mountain pine beetle
  - Extensive, severe epidemics in landscapes with mature stands
  - Younger trees and stands not attacked



# Red Hand of Death

2006 northern CO

Red: unmanaged,  
mature stands killed  
by mountain pine  
beetle.

Green: healthy,  
young, vigorous  
stands clearcut in  
experiments in the  
1960s.

Regenerated stands  
the only green forest.



# Dwarf Mistletoe 101

Slow but steady parasite



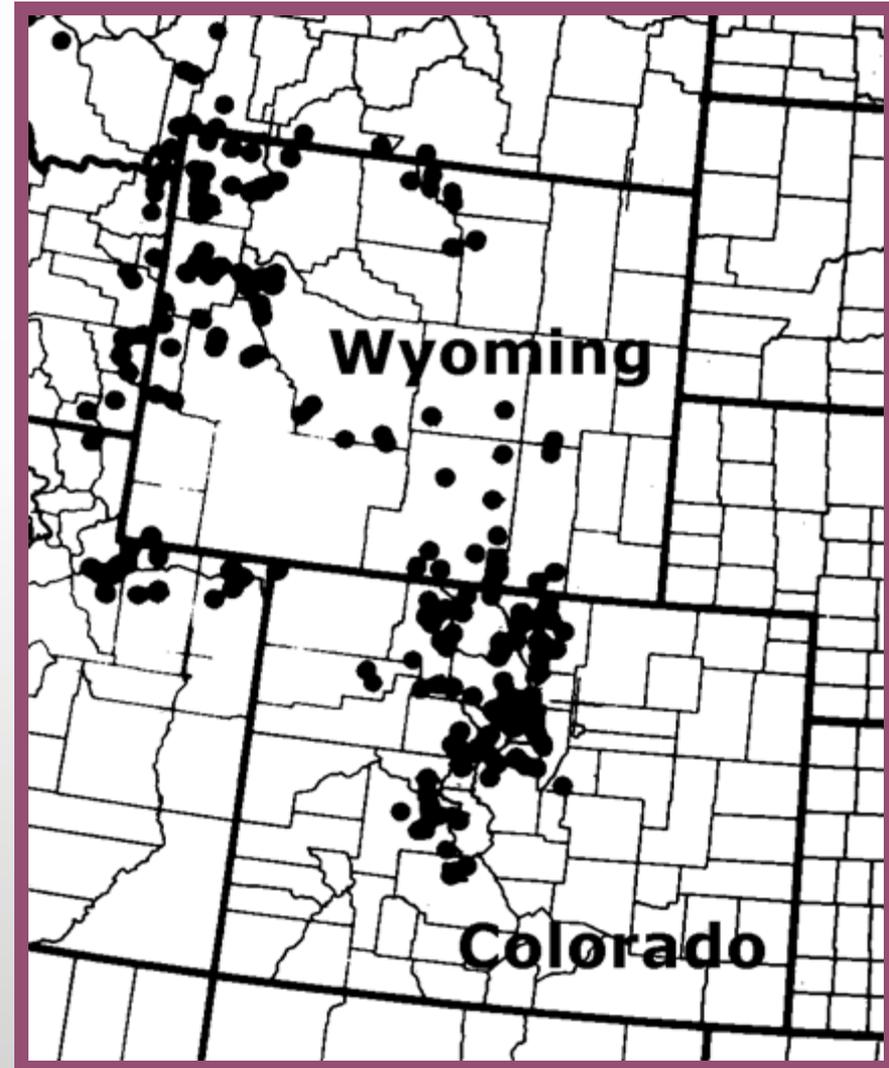
# Lodgepole pine dwarf mistletoe

- Flowering plant, *Arceuthobium americanum*
- Life cycle takes ~ 6 years
- Ballistic seeds → up to 60 feet (60 mph!)
- Host specific



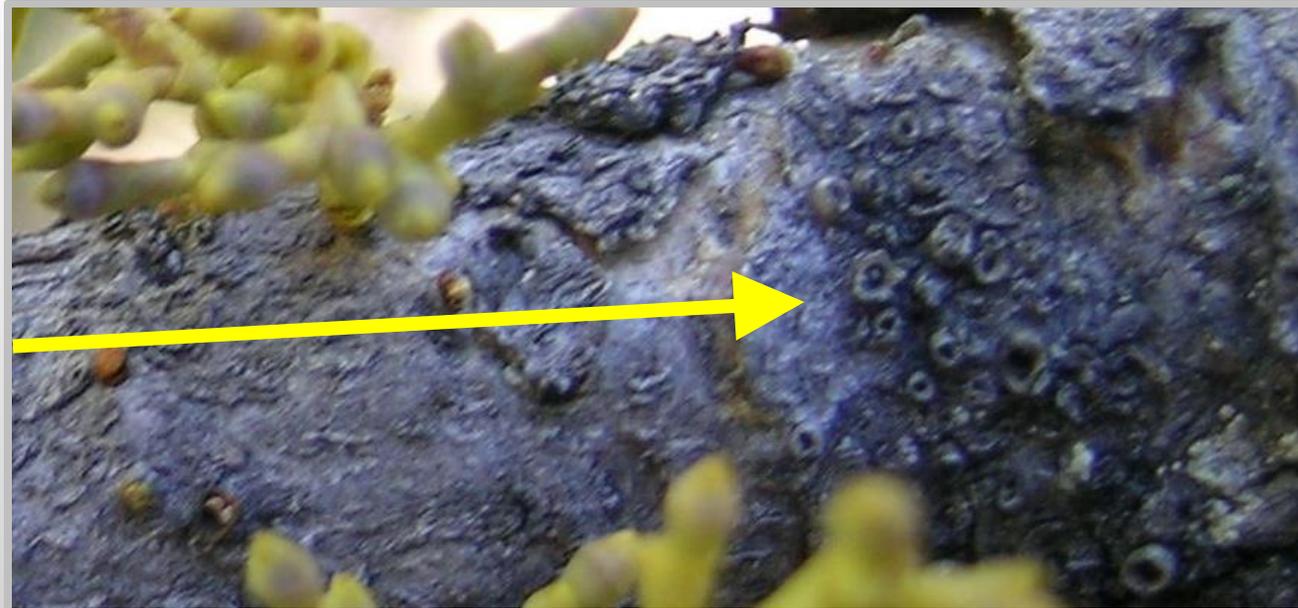
# Lodgepole Pine DM

- Generally follows distribution of host



# Symptoms and signs

- Swelling
- Witches' brooms
- Thinning, dieback, topkill, mortality
- Mistletoe shoots
- Basal cups



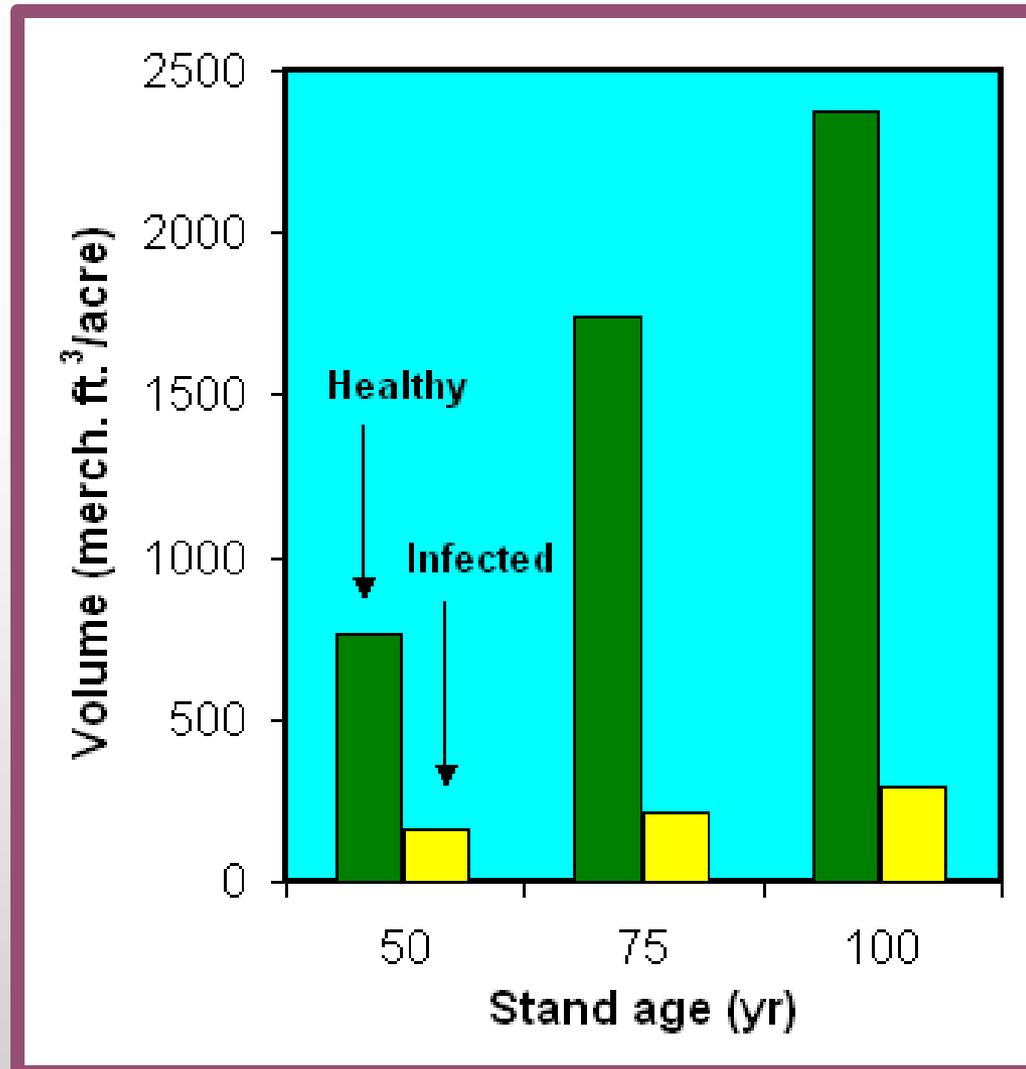
# Impacts

- Trees and stands – Reduced:
  - Growth
  - Seed production and viability
  - Longevity
- Ecological
  - Fire regime and behavior
  - Forest disturbance and succession



# Tree growth and longevity

- Lodgepole pine infected when young
- Trees in heavily infested, 100-year stand 13% of healthy



# Fire

- Fire is the most important natural regulator of dwarf mistletoes
- Dwarf mistletoes increase surface and ladder fuels
  - Large brooms, resin, dead needles, snags





# Fire – DM – LPP cycle

- Stand matures, dwarf mistletoe intensifies
- Fuels, especially ladder fuels, increase
- Stand-replacing fire
- New stand establishes, (largely) free of dwarf mistletoe



# Clearcut instead of fire

- Clearcuts can mimic this ecological function, esp. where large, stand-replacing fire is undesired.
- In a large clearcut or replacement fire, most trees will mature before DM can reach them.
- Shelterwood can also work if done carefully and followed through.
- Partial cuts stimulate DM development, don't mimic natural disturbance regime.

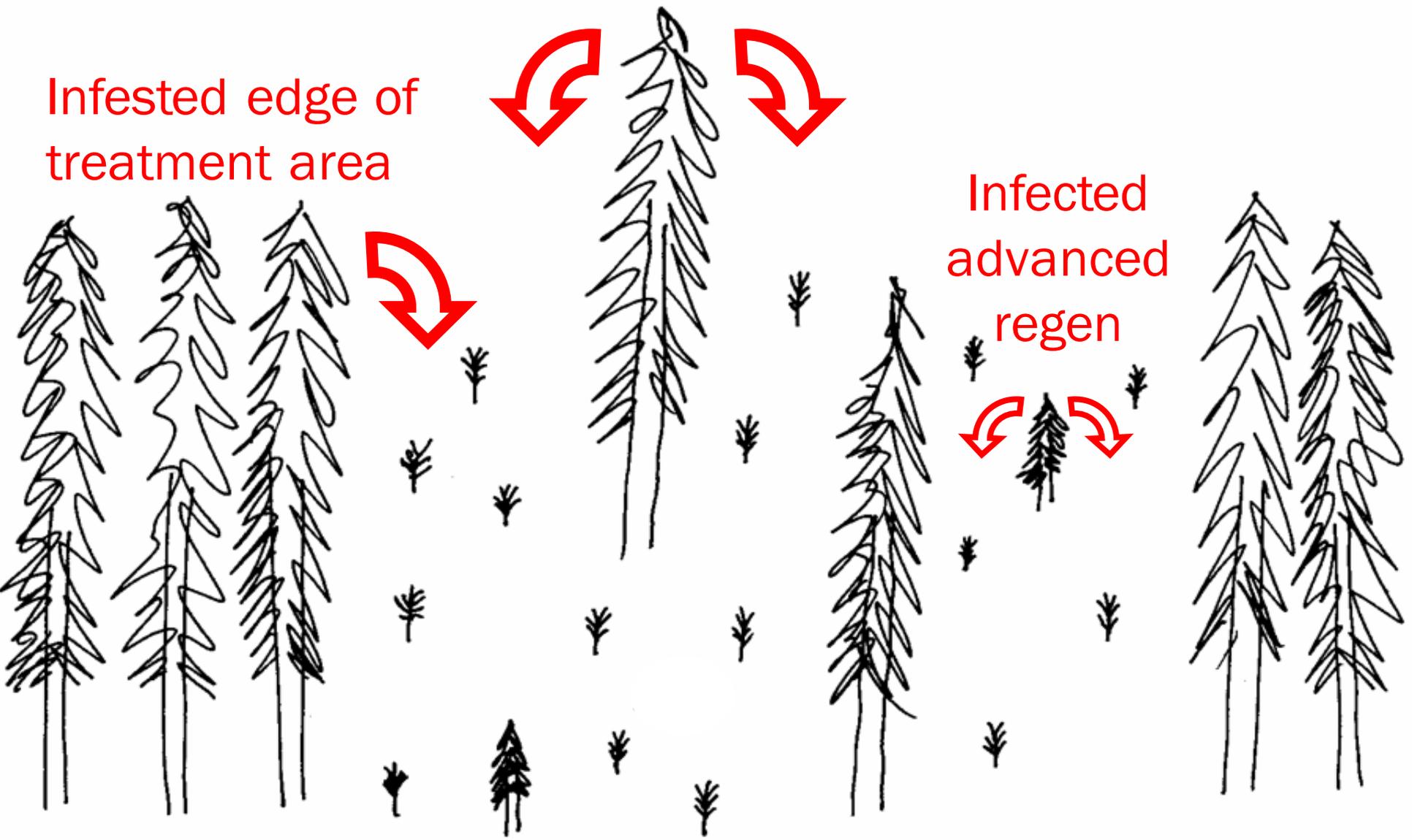


# Uneven structure favors mistletoe

Infected leave trees

Infested edge of treatment area

Infected advanced regen



# Successful Treatment



# Why manage dwarf mistletoe?

- In timber management areas, we have responsibility to manage the resource
- DM substantially reduces productivity
- Increased severe fire behavior, risk to firefighters, communities
- DM westwide more severe and widespread than presettlement
- More age diversity → resilience to MPB



# Management of dwarf mistletoe – tips from the ‘toe doctor

- In concept, dwarf mistletoes are easily managed because:
  - Obligate parasites
  - Life cycle is long, spread is slow and distance is limited
  - Host specificity
  - Relatively easy to detect



# Management

- Place treatment edges in uninfested areas
- Clearcut patches at least 20 acres
- Favor nonhosts
- Sanitation
- Seedlings under infected trees safe until 10 years or 3 feet (shelterwood)



# Make a Donut

- Smaller patch cut (e.g. for wildlife) initiates young stand in infested matrix.
- In 10 yr, cut a clean strip,  $\geq 60$  ft wide, around young stand to protect it from surrounding infested stands
- Trees regenerating in strip may be infected, but trees in original patch will be too big by then to be impacted.

Donut cut  $\leq 10$  yr later



Fresh donuts



# LPP DM and Taylor Park EA

- 286,616 acres of lodgepole pine forest type on the Gunnison Ranger District
- 52% of it is infested
  - likely higher in Taylor Park



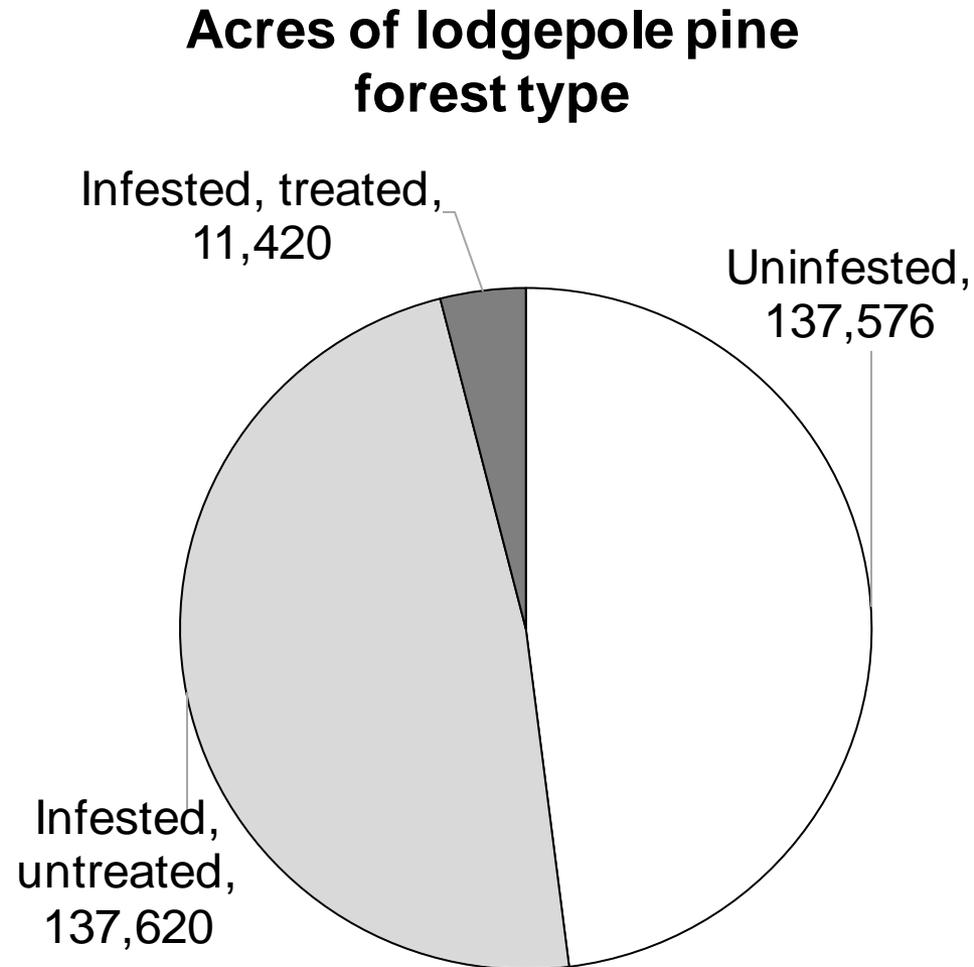
# LPP DM and Taylor Park EA

- 7.7% of infested LPP type proposed for DM treatment, including:
  - 2.4% DM strip or clearcut
  - 1.0% overstory removal/shelterwood
  - 4.3% young stands could be thinned/sanitized



# LPP DM and Taylor Park EA

- 4.0% of all LPP type proposed for DM treatment



# Proposed Action

## Treatment Prescriptions

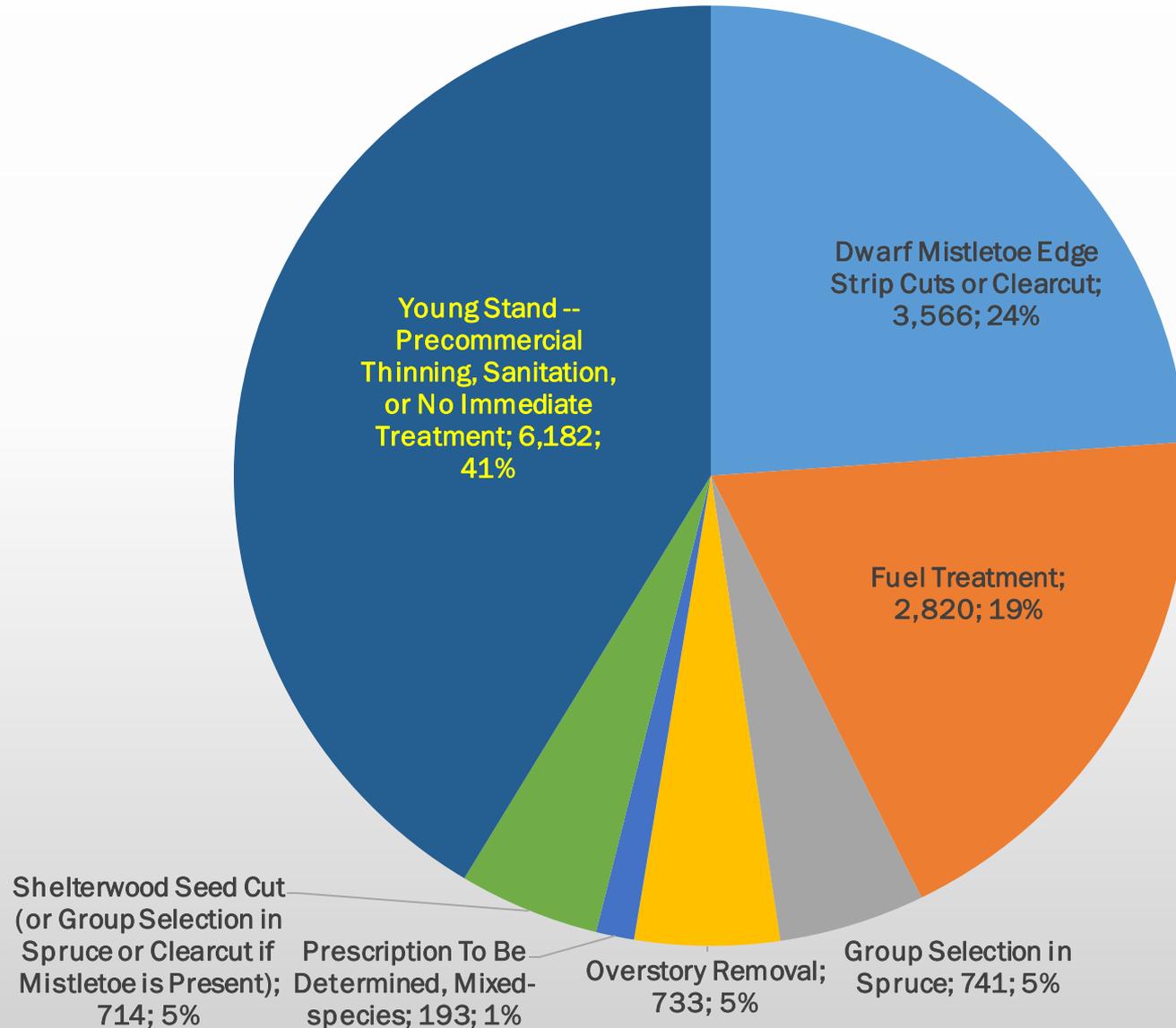
- Dwarf Mistletoe Edge Strip Cuts
- Group Selection
- Shelterwood Seed Cut
- Overstory Removal
- Fuels Reduction
- Young-Stand: Pre-commercial Thinning

*There will be **no new permanent roads** constructed under this project.*

- Existing roads may be re-constructed to handle logging traffic
- Up to 106 miles of temporary roads
  - Existing road beds will be used to the maximum extent practicable
  - Some temporary roads will be retained for up to 5 years after sale closure for post-sale activities (weed spraying, site preparation, planting, etc.). *These roads will be barricaded closed.*
  - All temporary roads will be closed and obliterated within 5 years of sale closure



# Proposed Action



# Dwarf Mistletoe Strip Cut or Clearcut

Up to 3,566 acres or 24% of the proposed acreage

## Current Stand Condition

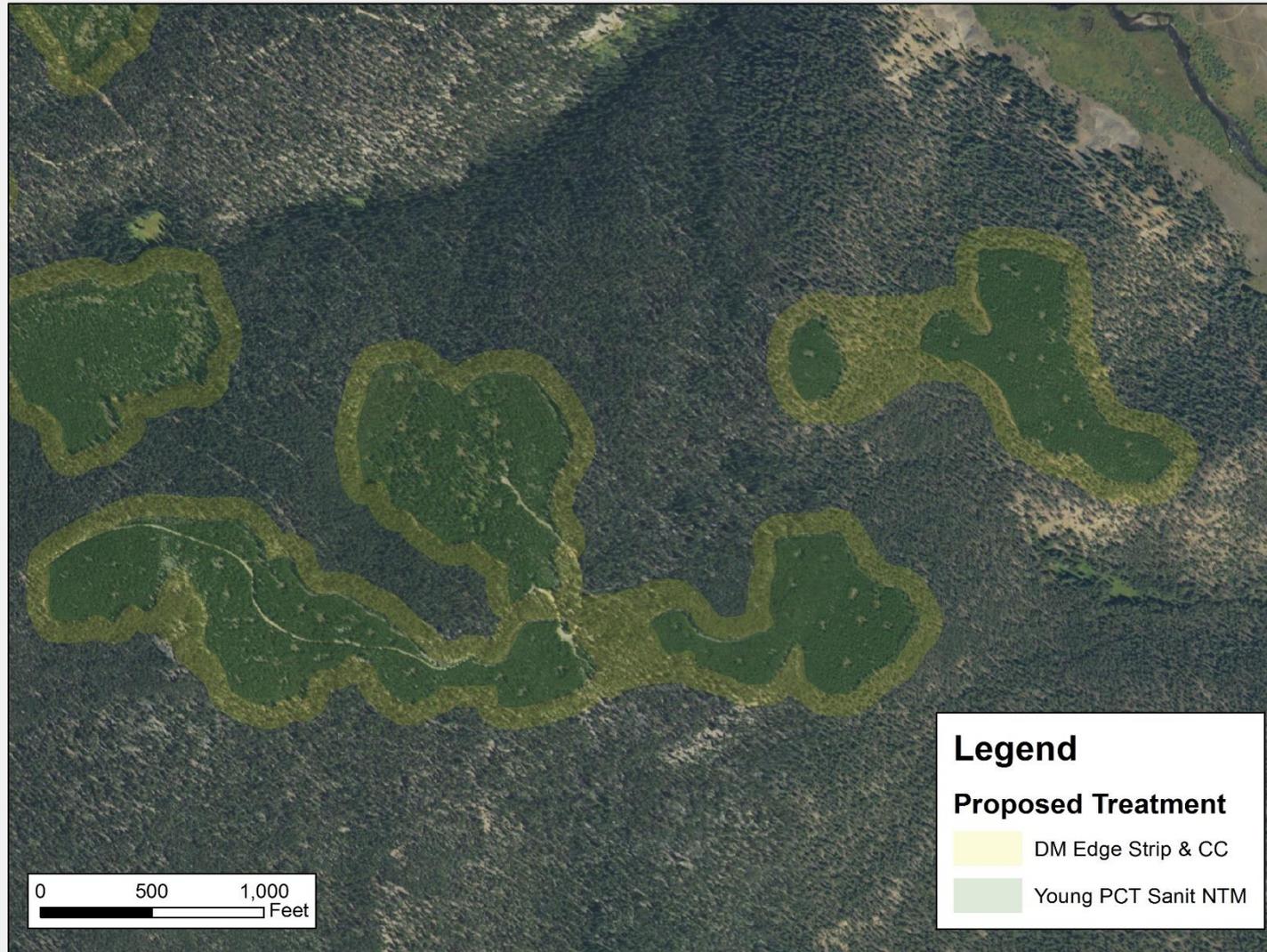
- Mostly single-storied mature Lodgepole Pine
  - Very few other species present
  - Dwarf mistletoe

## Objectives

- Create forest age class and species diversity across the landscape
- Protect forests from disease
- Prevent dwarf mistletoe spread
- Regenerate a fully stocked stand after harvest



# Dwarf Mistletoe Strip Cut or Clearcut



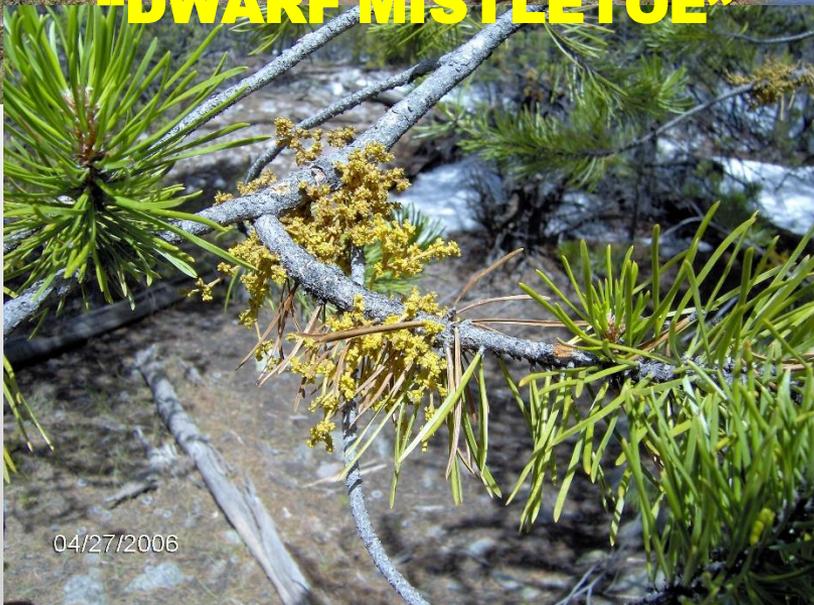
# Dwarf Mistletoe Strip Cut or Clearcut



**“DWARF MISTLETOE”**



**“DONUT CUT”**



04/27/2006



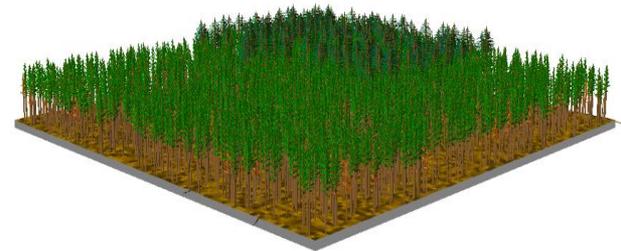
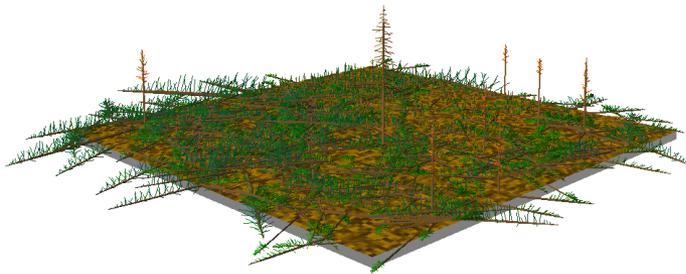
**“SEROTINOUS CONES”**

# Dwarf Mistletoe Strip Cut or Clearcut

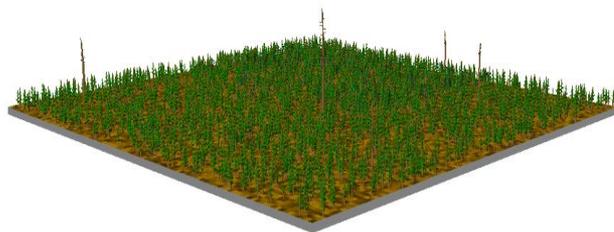
Stand=0205079506010019 Year=2018 Post cutting



Stand=0205079506010019 Year=2068 End of projection



Stand=0205079506010019 Year=2028 Beginning of cycle



# Group Selection (spruce)

Up to 741 acres or 5% of the proposed acreage

## Current Stand Condition

- Mostly single-storied mature mid-age Engelmann Spruce, with a few other species present
  - Advanced regen will be protected to the maximum extent possible

## Objectives

- Generate and maintain multiple age classes across the landscape
  - Treat approximately 25% of a stand in a given entry
  - 40 year rotation interval
- Maintain shade-tolerant species



# Group Selection (spruce)



# Group Selection (spruce)



# Shelterwood Seed Cut

Up to 714 acres or 5% of the proposed acreage

## Current Stand Condition

- Lodgepole pine stands that with no previous treatment;
  - Little to no dwarf mistletoe present

## Objectives

- Create forest age class and species diversity across the landscape
- Reduce understory competition and promote understory growth
- Regenerate a fully stocked stand after harvest



# Shelterwood Seed Cut



# Overstory Removal

Up to 733 acres or 5% of the proposed acreage

## Current Stand Condition

- Lodgepole pine stands that were previously treated with a shelterwood prescription
  - Minimum of 600 seedlings or saplings present

## Objectives

- Create forest age class and species diversity across the landscape
- Reduce understory competition and promote understory growth
- Regenerate a fully stocked stand after harvest



# Overstory Removal



# Young Stand: Pre-Commercial Thinning

Up to 6,182 acres or 41% of the proposed acreage

## Objectives

- Ensure replacement of the stand with adequate regeneration
- Control stocking and species composition
- Control the spread of disease (dwarf mistletoe)



# Young Stand: Pre-Commercial Thinning



# Fuels Treatment

Up to 2,820 acres or 19% of the proposed acreage

## Objectives

- Reduce potential for crown fire by reducing canopy continuity
- Decrease potential surface fire intensity via reduced surface fuels
- Improve tree health and vigor by reducing competition



# Fuels Treatment



# Condition Based NEPA – An Adaptive Management Approach



# Adaptive Implementation

- Adaptive Implementation involves an action being framed on a conditional “if/then” basis (e.g. presence of mistletoe versus no mistletoe).
- Application of appropriate design features to minimize effects or achieve a desired outcome.
- Checking to determine if the action worked (Implementation and effectiveness monitoring).
- Apply what is learned to future management.



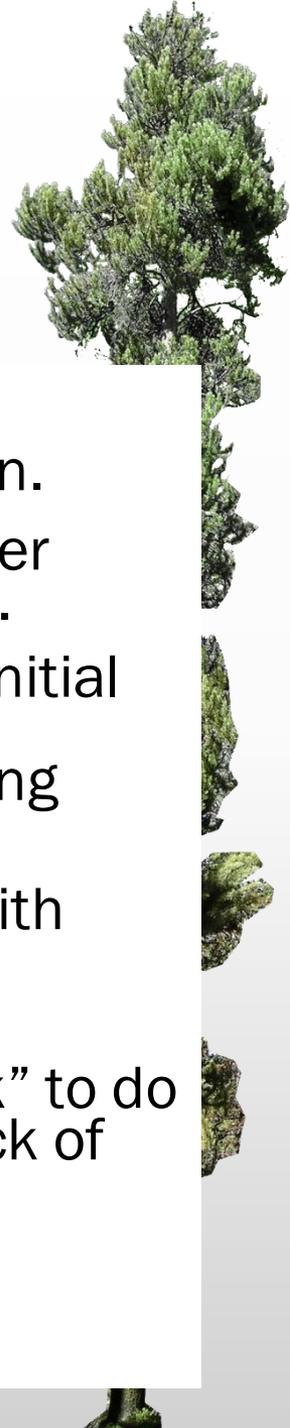
# La Garita Project

- Initial Planning occurred in 2012/13 – stand green
- Spruce Beetle trees 1-2 years later – Change Condition
- New prescription – salvage and sanitation
- Effects analysis updated



# Concerns About Adaptive Implementation

- Level of site specific data not adequate to inform decision.
- If a disturbance results in the desired condition, no further action is needed. Focus on critical areas of public safety.
- Continuation of implementation without a check on the initial decision is a red flag. Confidence building measures are needed to reduce fear amongst the public about the rolling implementation concept.
- Use of Best Available Science – how do you keep pace with changing science if the project takes multiple years to implement.
- View that the Forest Service simply wants a “blank check” to do what they want without on-going public involvement. Lack of trust!



# Spruce Beetle Epidemic and Sudden Aspen Decline Management Response (SBEADMR) Project



- Decision signed in 2016
- Authorizes Commercial and non-commercial treatment on 120,000 acres from a pool of priority treatment areas totaling 207,000 acres.
- Objectives:
  - Mortality of Engelmann spruce from beetles – public safety and economic value of the wood.
  - Improved resiliency of spruce stands not currently affected by spruce beetle.
  - Aspen decline and the need to regenerate where possible.



# Resource Issues

- Canada Lynx and wildlife in general
- Impacts to soils and advanced regeneration
- New road construction
- Impacts to Recreation



# SBEADMR Components

- Landscape-level triggers
- Prescription Matrix
- Design Features
- Treatment Design Checklist
- On-going Public Involvement – at-large and AMG
- Implementation Monitoring
- Effectiveness Monitoring
- Forest Leadership Team Involvement – Annual Management Review



- Mid-winter Meeting
- Annual Public Field Trip
- 30-day Public Comment Period

# Plan

- SBEADMR FEIS
- Treatment Planning

# Do

- Implement Treatment
- Applicable Design Features applied

- Adaptive Management Group
- Science Team

# Check

- Treatment Inspection
- Implementation Monitoring
- Effectiveness Monitoring
- Annual Report of Findings

# Act

- Forest Leadership Reviews Recommendations from Findings Report
- Actions to Improve Environmental Outcome or Administrative Processes

## SBEADMR Adaptive Process



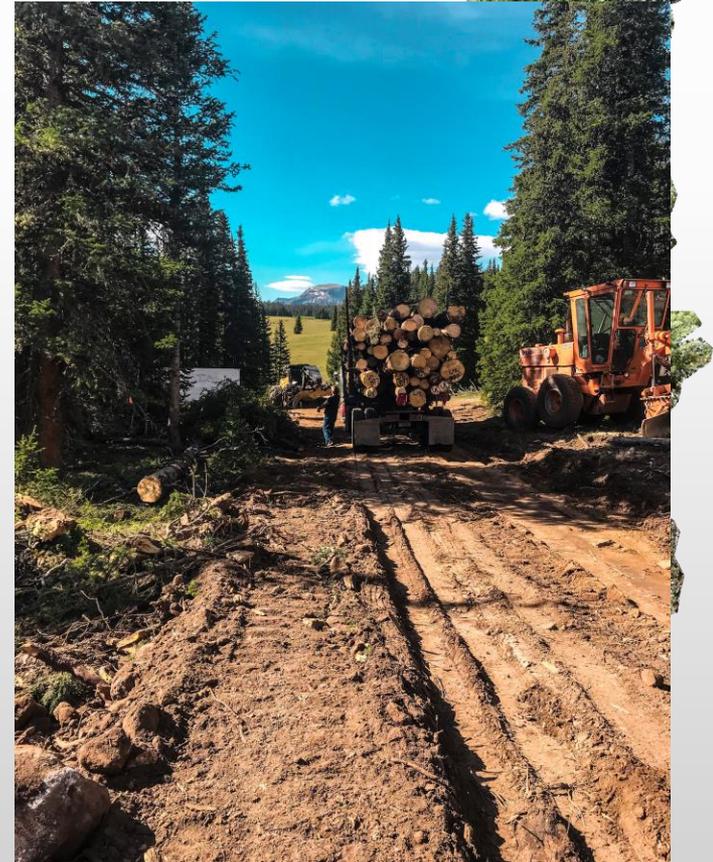
# Science Team Members

- Science Team
  - Dr. Jason Sibold - Landscape Ecologist, Colorado State University
  - Dr. Mike Battaglia – Research Silviculturist, Rocky Mountain Research Station
  - Dr. Tony Chen, Colorado Forest Restoration Institute, CSU
  - Dr. Jim Worrall, Forest Health, USDA Forest Service
  - Dr. Jake Ivan, Mammal Research Biologist, Colorado Parks and Wildlife



# Adaptive Management Group

- County Commissioners
- Environmental/Conservation Groups
- Forest Processors
- Forest Loggers
- Community at large
- Water Users
- Recreation User Groups
- Wildlife and Fish
- Education
- Colorado State Forest Service



# Benefits

- More time in the woods planning and executing treatments.
- On-going involvement of scientists providing information in “real time”
- Feedback to Forest Managers to create a culture of learning and true adaptive management.
- On-going engagement with the public.
- Accountability to the public.



# Questions??

