Forest Ecosystem Health & Aspen Restoration

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- What needs to be addressed for resilience in the Basin?
  - Fuels Loading – Resilience to wildfire
  - Tree density – Resilience to insect outbreaks
  - Forest Structural Stages – Forest Sustainability
  - Drought – Resilience to warming climate
  - Diversity – Resilience to climate, fire, insects & diseases
- What are some implementation strategies?
  - Stewardship Fireshed Assessment
  - Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy
  - Aspen Community Restoration
- What are some of the multiple resource benefits
  - Fire Behavior, Aspen, Wildlife Habitats, Water, Air, Scenic, Carbon

Historic Land Uses & Practices

- Comstock-era logging (1860-1920),
- Cattle and sheep grazing (1850's-1950's),
- Rapid human development (1960-1980), and
- Fire suppression (1901-present)

Resulted in: Increases in the primary risk factors to aspen stands and to the deteriorated existing condition of aspen stands at moderate or greater risk of loss from the Lake Tahoe Basin.

Slaughterhouse Canyon

1873

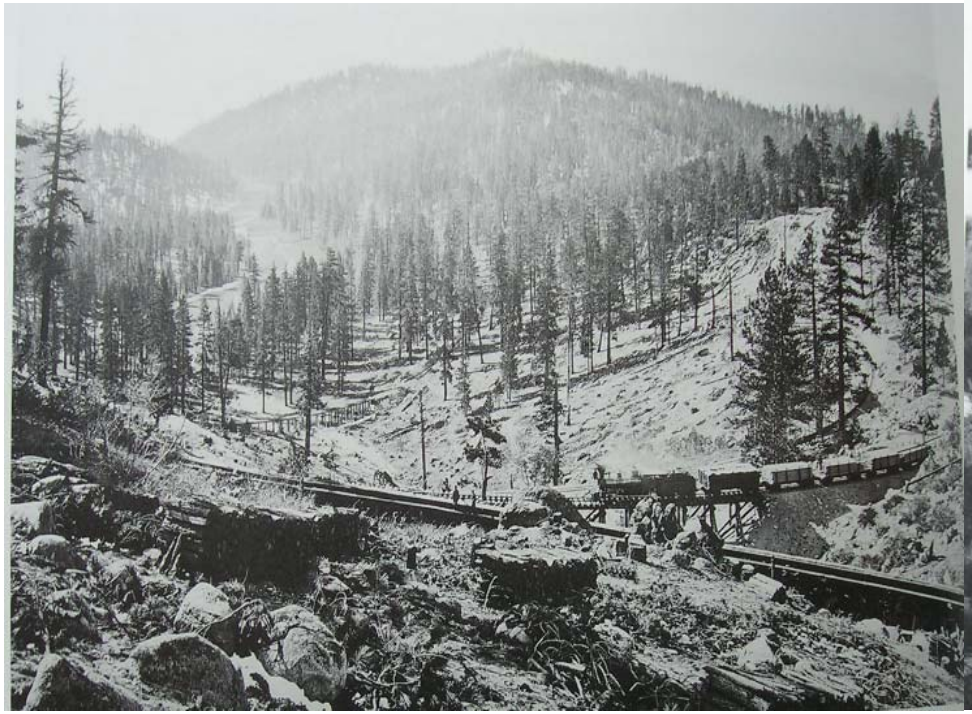


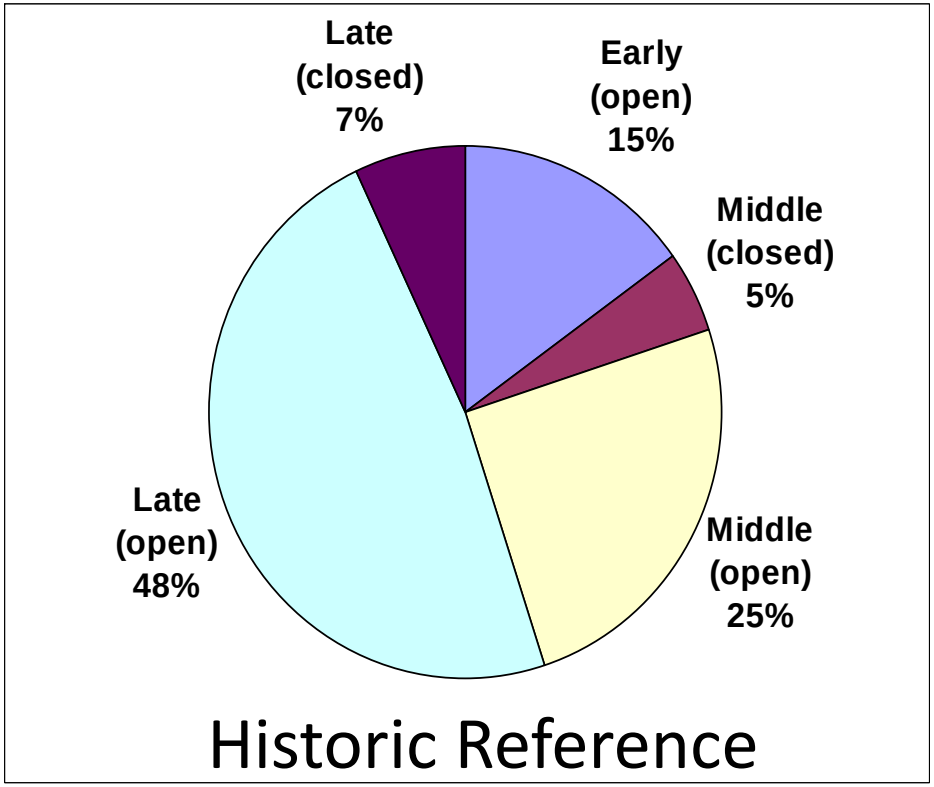
Photo by C.E. Watkins

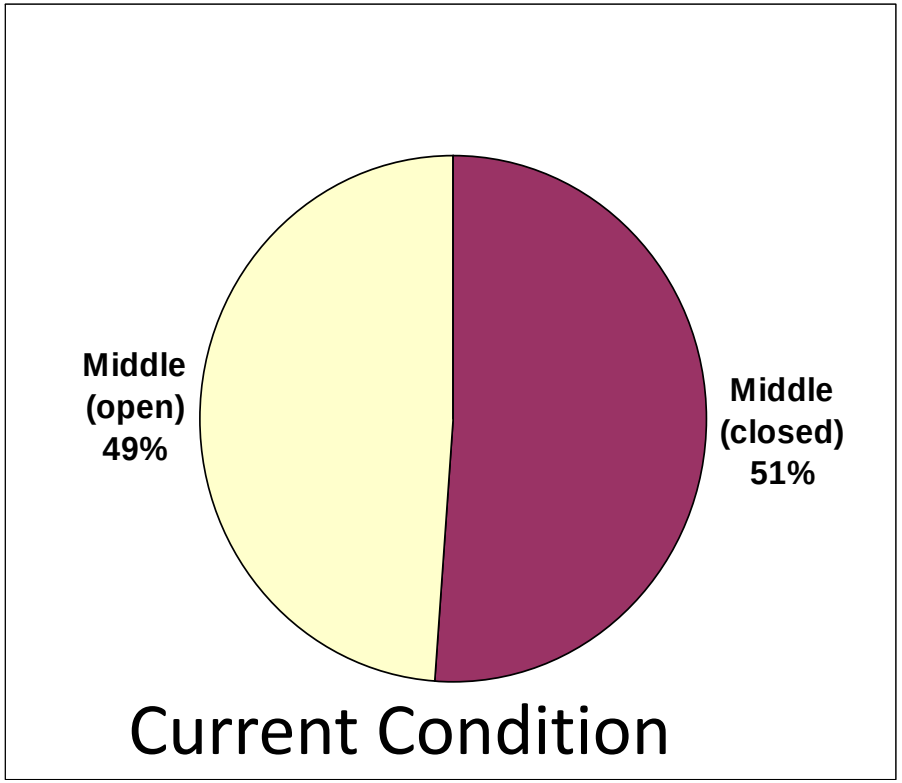
1993

Photo by G.E. Gruell

Healthy Vegetation

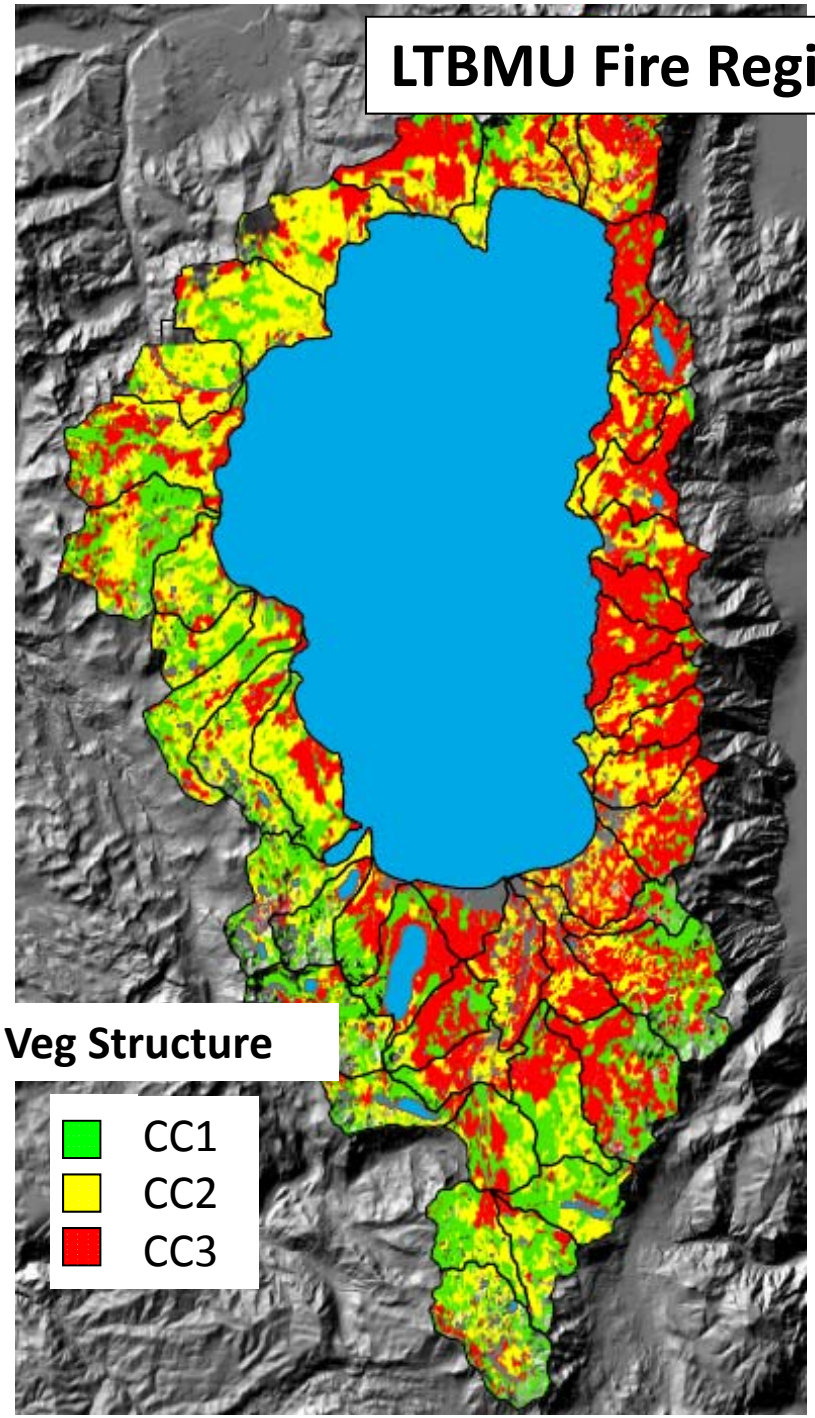
FRCC Departure from historic stand structure

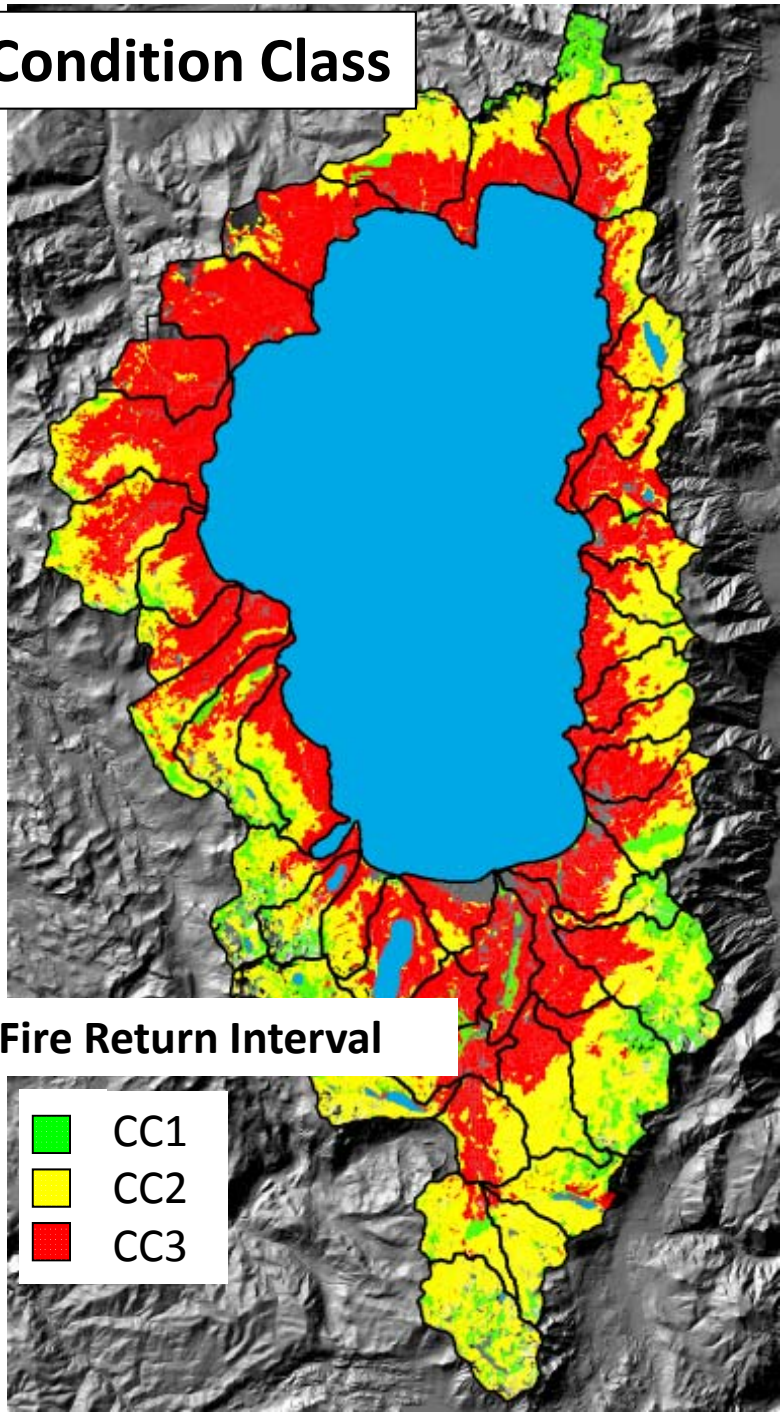




Example from Slaughterhouse Canyon Watershed

LTBMU Fire Regime Condition Class

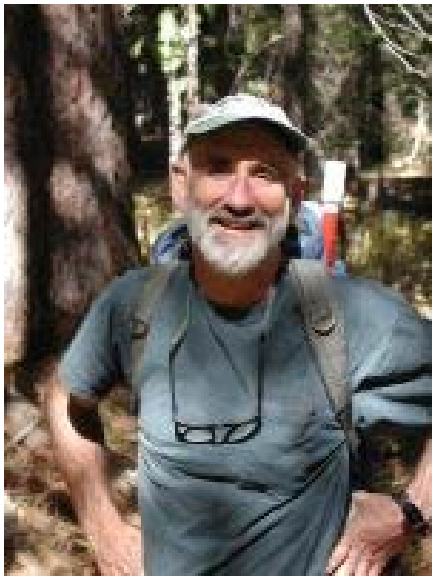




So we got what we got.

Now What?

Background to Aspen Restoration
Thank you Dave Burton!



- The Lake Tahoe Watershed Assessment (USDA 2000)
- Dave Burton & The **Aspen Delineation Project** raised the bar & awareness for Aspen (2002)
- GTR-178 Ecology, Biodiversity, Management & Restoration of Aspen in the Sierra Nevada (2006). W. Sheppard etal.
- The Aspen Mapping and Condition Assessment Project (2002-2007)
- Aspen Community Restoration Project (2009)

Policy on Aspen Program
Focus on Forest Health

- Lake Tahoe Restoration Act (2000)
- Sierra Nevada Forest Plan Amendment (2004)
- Southern Nevada Public Lands Management Act (amended 2007)
- LTBMU Forest Plan Revision (2015)
  - Vegetation treatments designed to restore aspen should focus on restoring dominance of aspen in the canopy, regenerating and expanding aspen stands, reducing the risk of loss of aspen stands from the landscape, and developing vigorous under-story deciduous tree, shrub, and herbaceous associations and habitats.
  - Consider aspen restoration or clone stimulation for each project planning area when aspen occur within vegetation management projects.

TRPA Vegetation Goals

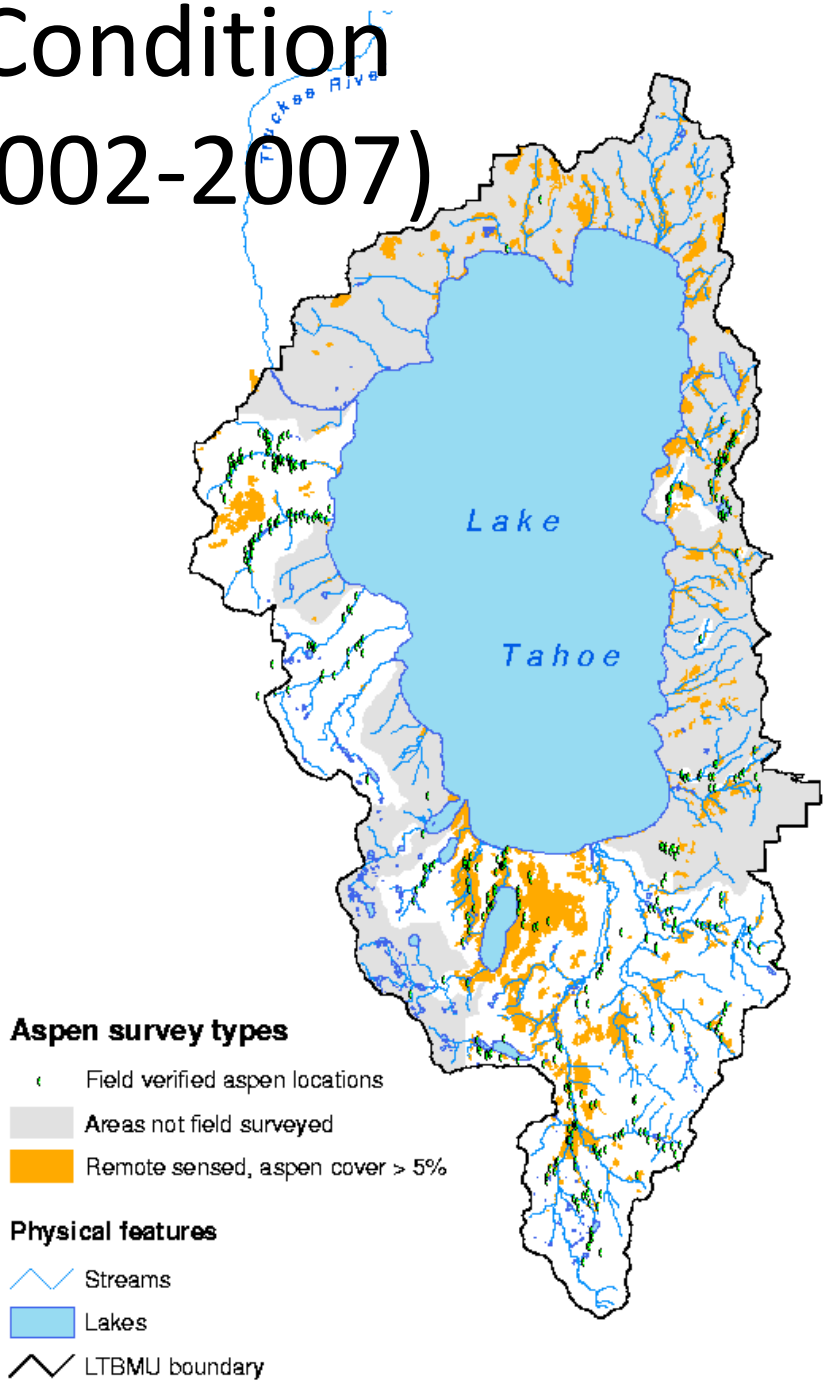
- Provide a Diversity of Plant Communities
- **Provide for the Maintenance and Restoration of such Unique Ecosystems as Wetlands, Meadows, and other Riparian Vegetation**
- Conserve Threatened, Endangered and Sensitive Plant Species and Uncommon Plant Communities
- Provide for and Increase the Amount of Late Seral/Old Growth Stands
- The Appropriate Stocking Level and Distribution of Snags and Coarse Woody Debris Shall be Retained in the Regions Forests

USFS Goals

- **Healthy Diverse Forests**
- Preserve natural characteristics of uncommon plant communities
- Conserve or enhance threatened, endangered, proposed, and sensitive plants and their habitats
- Old forest emphasis areas resemble pre-settlement conditions
- Wildland Urban Interface
- Prevent noxious weeds
- Reduce pest related damage
- Spotted Owl & Northern Goshawk habitat protection
- **Riparian conservation areas**

Aspen Mapping and Condition Assessment Project (2002-2007)

- The Aspen Mapping & Condition Assessment Project identified approximately 65% (1,600 out of 2,500 acres) of aspen stands were at moderate, high, or highest risk of loss.



End of this portion of show.

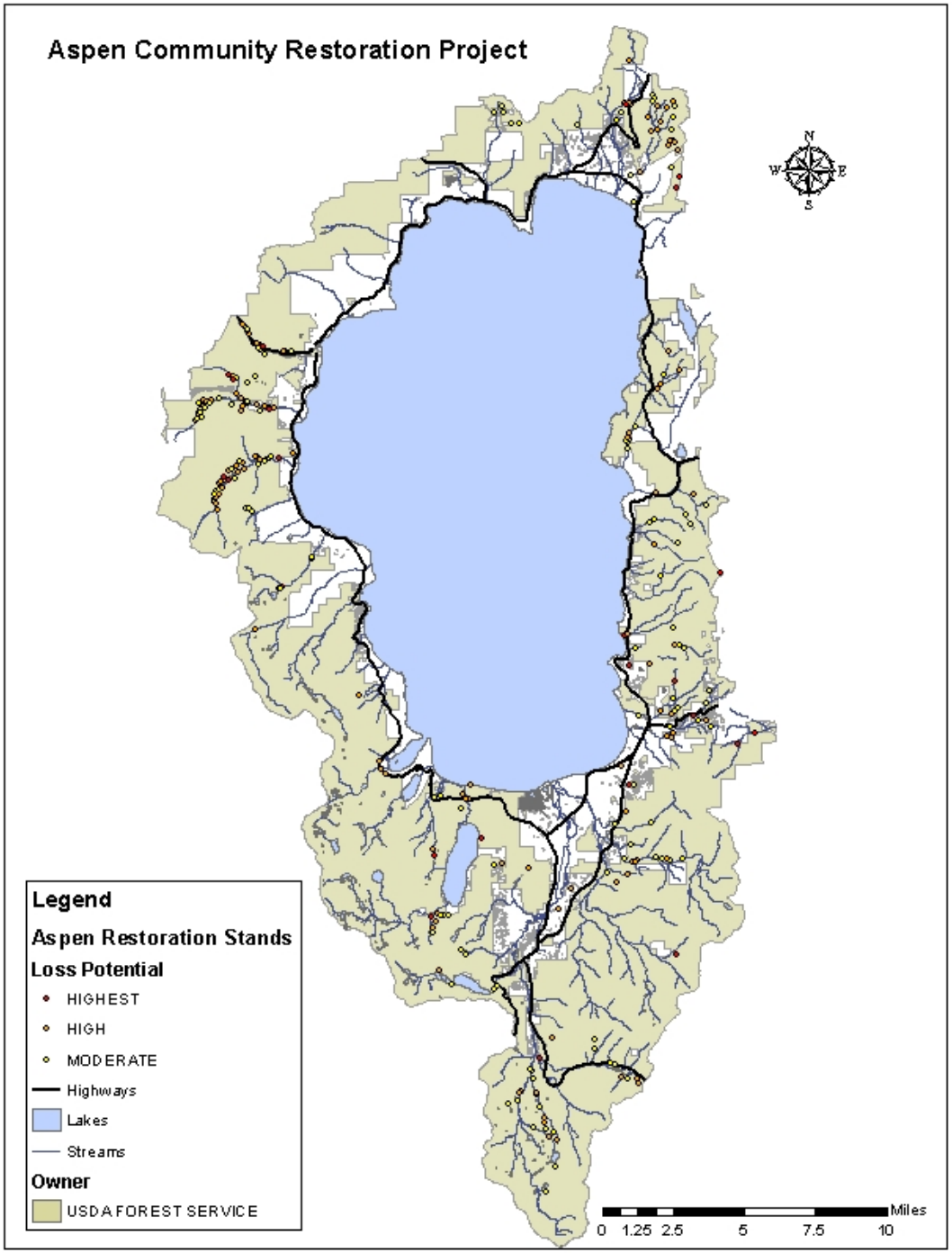
Aspen Community Restoration Project Decision Memo: 2009

Aspen Community Restoration Project: Objectives

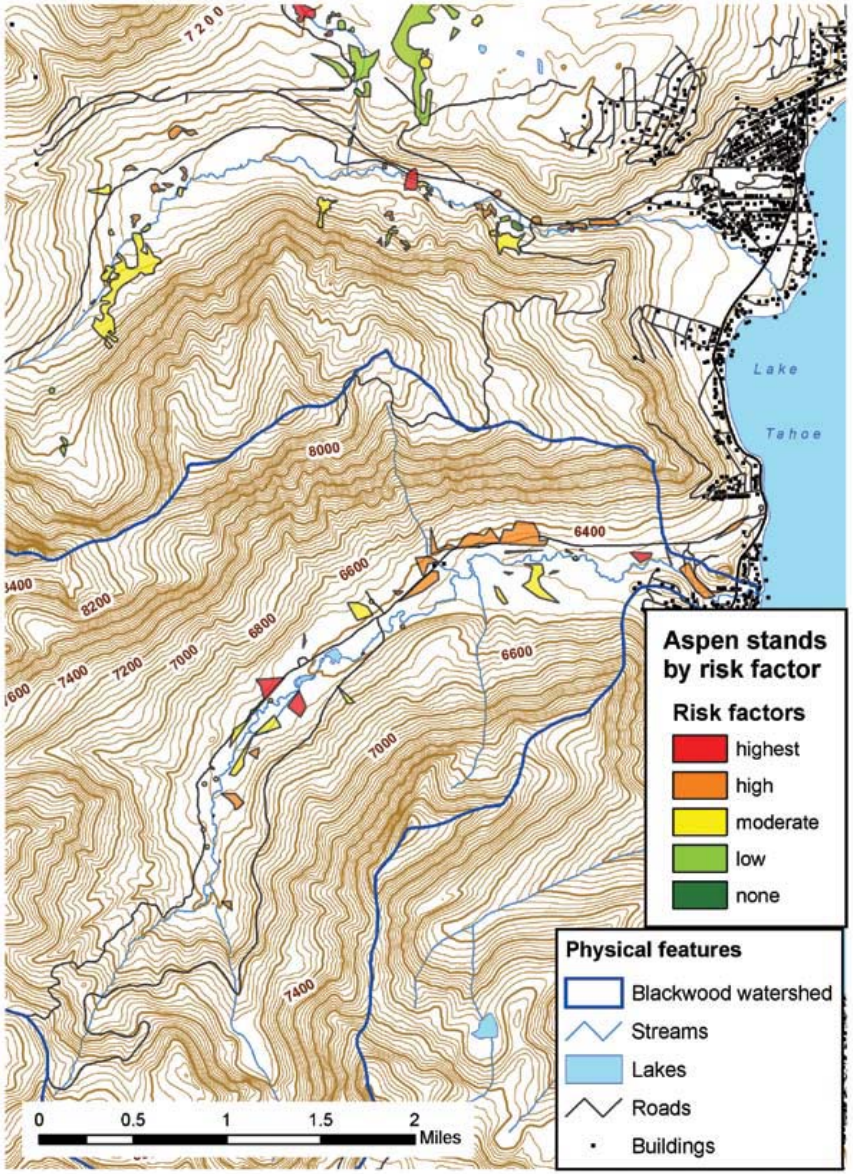
- Aspen dominate the upper canopy for the next 15 years;
- Conifers comprise less than 25% of the canopy for the next 15 years;
- Aspen regeneration is vigorous (i.e., ≥ 500 stems/acre) within three years;
- Aspen stand expansion is initiated within three years;
- Aspen stands regenerate and mature toward a low or negligible risk of loss during the 15 years following treatment; and
- Aspen and associated deciduous tree, shrub, and herbaceous habitats are improved and benefit the biological diversity and ecological condition of the forest.

Secondary Benefits of Aspen Restoration

- Aspen stand resilience to wildfire will be improved and wildfire behavior within and adjacent to treated stands will be moderated through conifer removal.
  - Wildland fire burn severity and duration within treated aspen stands will be reduced;
  - Risks to heritage resources and visual resources from wildland fire will be reduced; and
  - Aspen stands in the desired condition will act as natural fire-breaks on the landscape.
- Aspen community health and vigor will be improved as sunlight and subsurface water become more readily available to aspen and associated understory plant communities (i.e., mountain pennyroyal and California corn lily).
  - Greater availability of subsurface water will improve the ability of aspen to repel insects and diseases, especially during periods of drought;
  - Resistance to conifer invasion will be improved in treated stands where reduced transpiration rates lead to increased subsurface water, as conifers generally prefer drier soils than aspen do; and
  - Infiltration and hydrologic function will improve in treated stands with healthy aspen understory plant communities.
- The composition, species richness, and function of forested areas and associated wildlife and plant communities will be improved.
- Visual resources will be improved as treated aspen stands regenerate and mature.

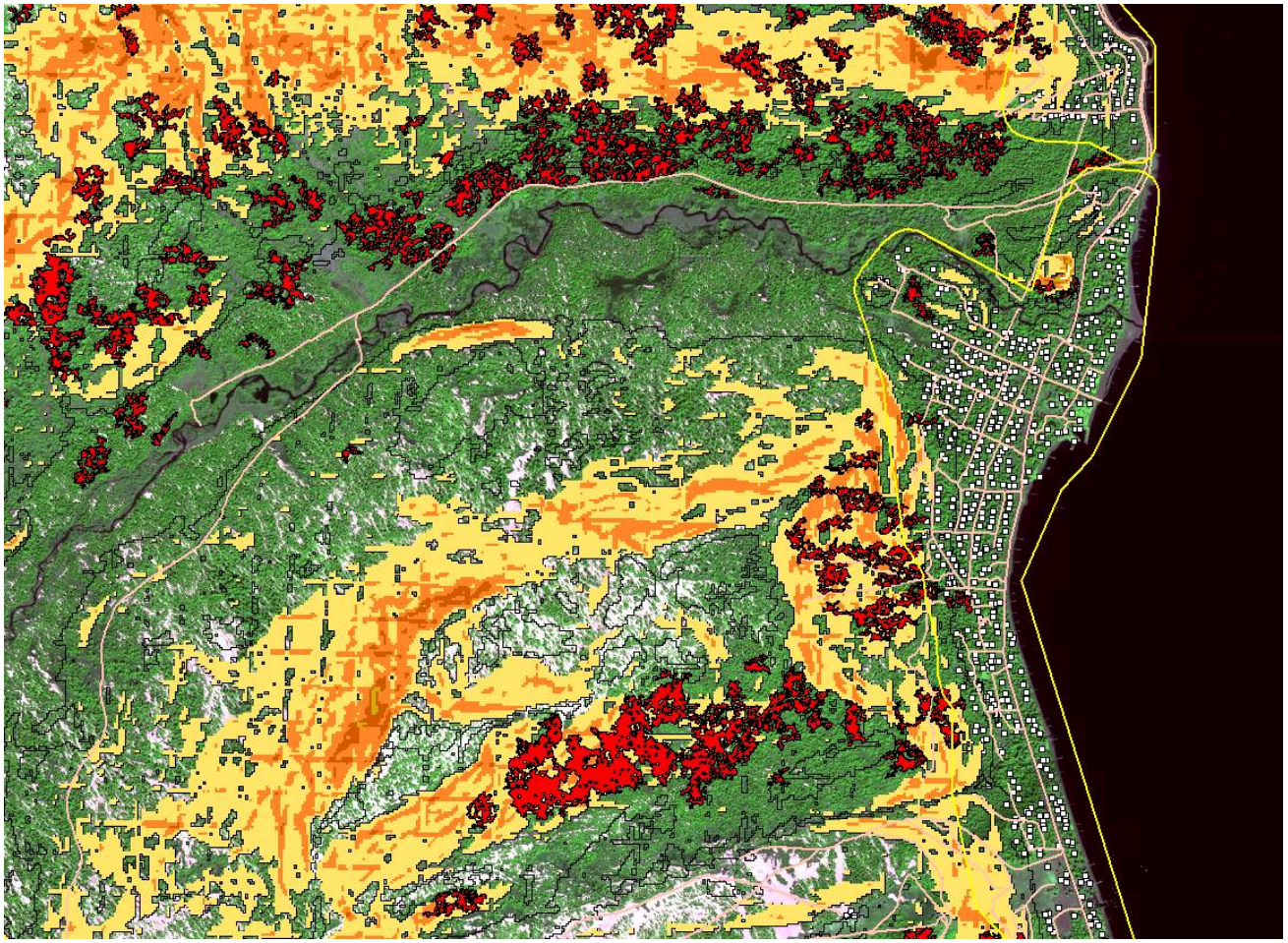

Aspen Community Restoration Project
N
W
E
S
Legend
Aspen Restoration Stands
Loss Potential
HIGHEST
HIGH
MODERATE
Highways
Lakes
Streams
Owner
USDA FOREST SERVICE
Miles
0 1.25 2.5 5 7.5 10

Aspen in Blackwood Canyon and Ward Creek
(map developed by LTBMU from 2002 and 2003 data).



Blackwood: Forest Image Analysis

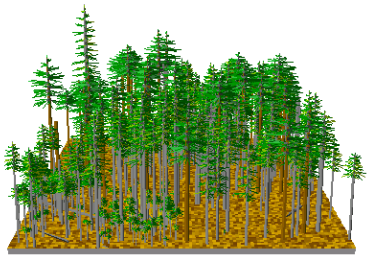
Red = Highest Density
= Conifer on Aspen



Simulated Wildfire: No Treatment

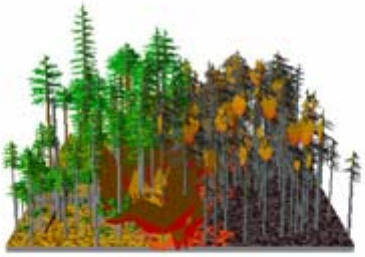
Stand=0010003 Year=2005 Beginning of cycle

Current Condition



Stand=0010003 Year=2005 Beginning of fire (01/03)

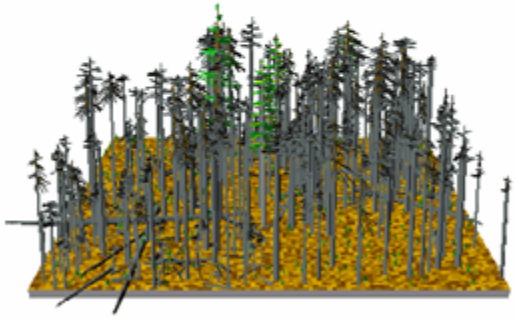
No Thin Condition



Blackwood Canyon

Stand=0010003 Year=2010 Beginning of cycle

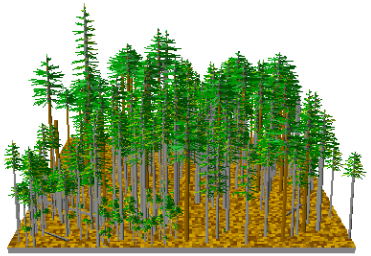
Post-Fire Condition



Simulated Wildfire: Thinned

Stand=0010003 Year=2005 Beginning of cycle

Current Condition



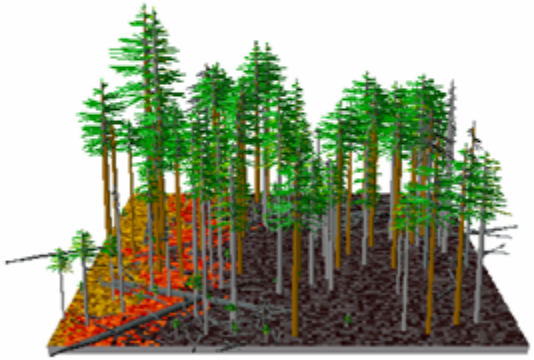
Stand=0010003 Year=2010 Beginning of cycle

Thinned Condition

Blackwood Canyon

Stand=0010003 Year=2010 During the fire (02/03)

Post-Fire Condition



Treatment of Aspen Stands

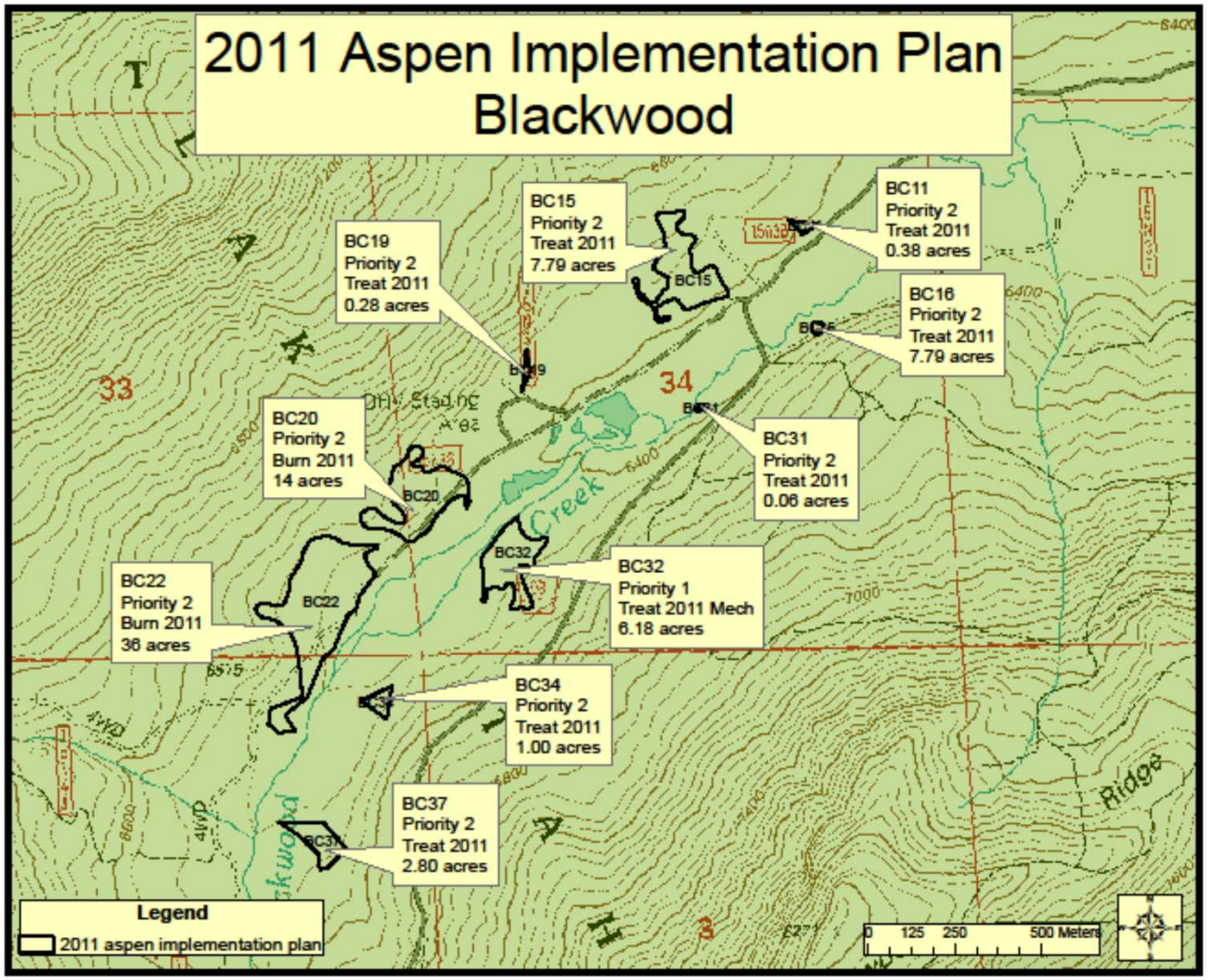


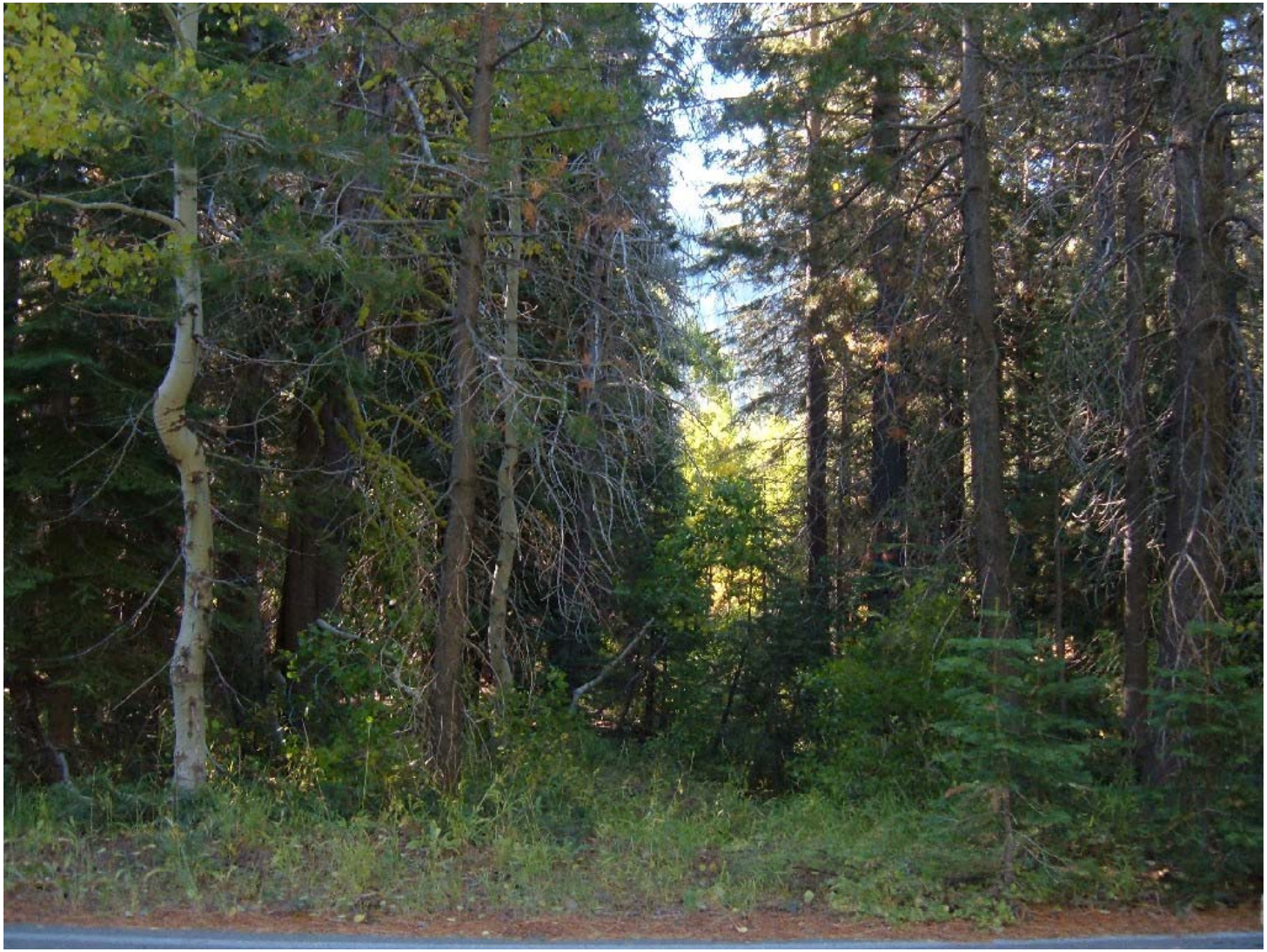
Figure 4.1-6: (File: Fig416_encroachment.JPG) This small aspen stand at the edge of a meadow in Blackwood Canyon is being actively invaded by white fir (*Abies concolor*). Ample light under mature aspen is encouraging some regeneration of aspen, but little regeneration is occurring under the heavily shaded fir portion of this stand.

Treatment Methods

- Hand Thin/Pile/Burn & Mechanical Thin
  - Thinning Understory/Fuel Ladder & Overstory
  - Reducing Surface Fuels
- Matching treatment to landscape features
  - Mechanical Equipment on Slopes <30%, LOPs, dry ground

An aspen stand at high risk of loss from the landscape before treatment in Blackwood Canyon

(note white aspen tree bole on left side of the photo)



An aspen stand formerly at high risk of loss from the landscape shown immediately after hand thinning treatment in Blackwood Canyon

(note white aspen tree bole on left side of the photo)

An aspen stand at formerly high risk of loss from the landscape three years after treatment in Blackwood Canyon

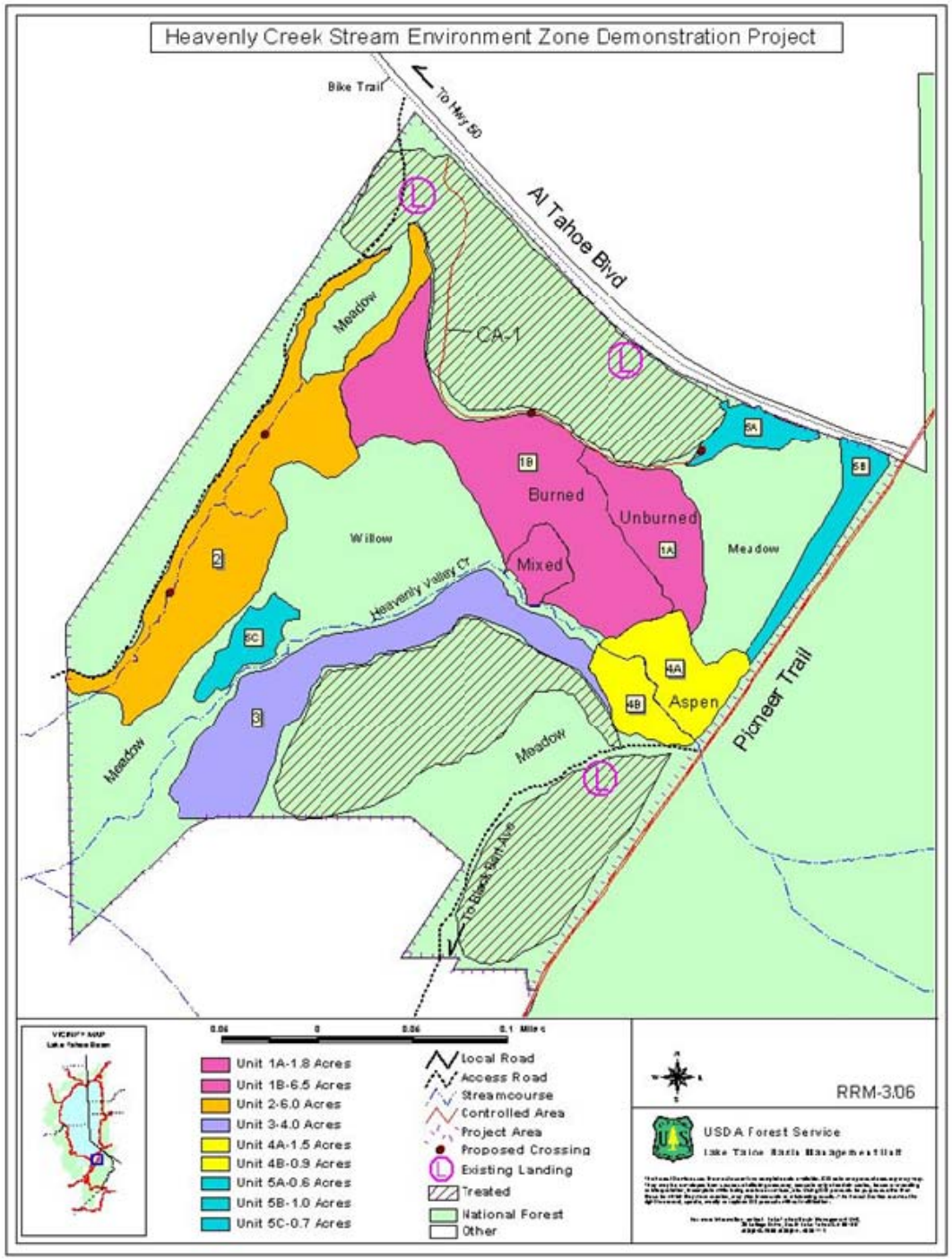
(note white aspen tree bole on left side of the photo)

High Risk of Loss

Following Mechanized Treatment

Heavenly Valley Creek: SEZ Project

- Dense lodgepole pine stand within this area of Heavenly Valley Creek
- Bark beetle related mortality occurred in the mid 1990s'
- Wildfire occurred in December 2002 from tree hitting a power line during windstorm
- Wildfire burned at high intensity within the stream zone


Heavenly Creek Stream Environment Zone Demonstration Project
Bike Trail
To Hwy 50
Al Tahoe Blvd
CA-1
Meadow
Willow
Heavenly Valley Ct
Burned
Unburned
Mixed
Aspen
Meadow
Meadow
Meadow
Pioneer Trail
To Black Bart Ave
1A
1B
2
3
4A
4B
5A
5B
5C
Unit 1A-1.8 Acres
Unit 1B-6.5 Acres
Unit 2-6.0 Acres
Unit 3-4.0 Acres
Unit 4A-1.5 Acres
Unit 4B-0.9 Acres
Unit 5A-0.6 Acres
Unit 5B-1.0 Acres
Unit 5C-0.7 Acres
Local Road
Access Road
Streamcourse
Controlled Area
Project Area
Proposed Crossing
Existing Landing
Treated
National Forest
Other
RRM-3.06
USDA Forest Service

Stream Environment Zone : Vegetation & Fuel

Buffer Zon

Pioneer Fire

Stream Environment Zone


High Density Encroachment
w/ Fuel Ladders


Immediately
Post-Treatment


Four Years Later
07/14/2011 14:58

Mechanical Treatments

Whole Tree Harvesting

How is Work Accomplished?

Hand Thinning

Prescribed Fire: Pile Burning

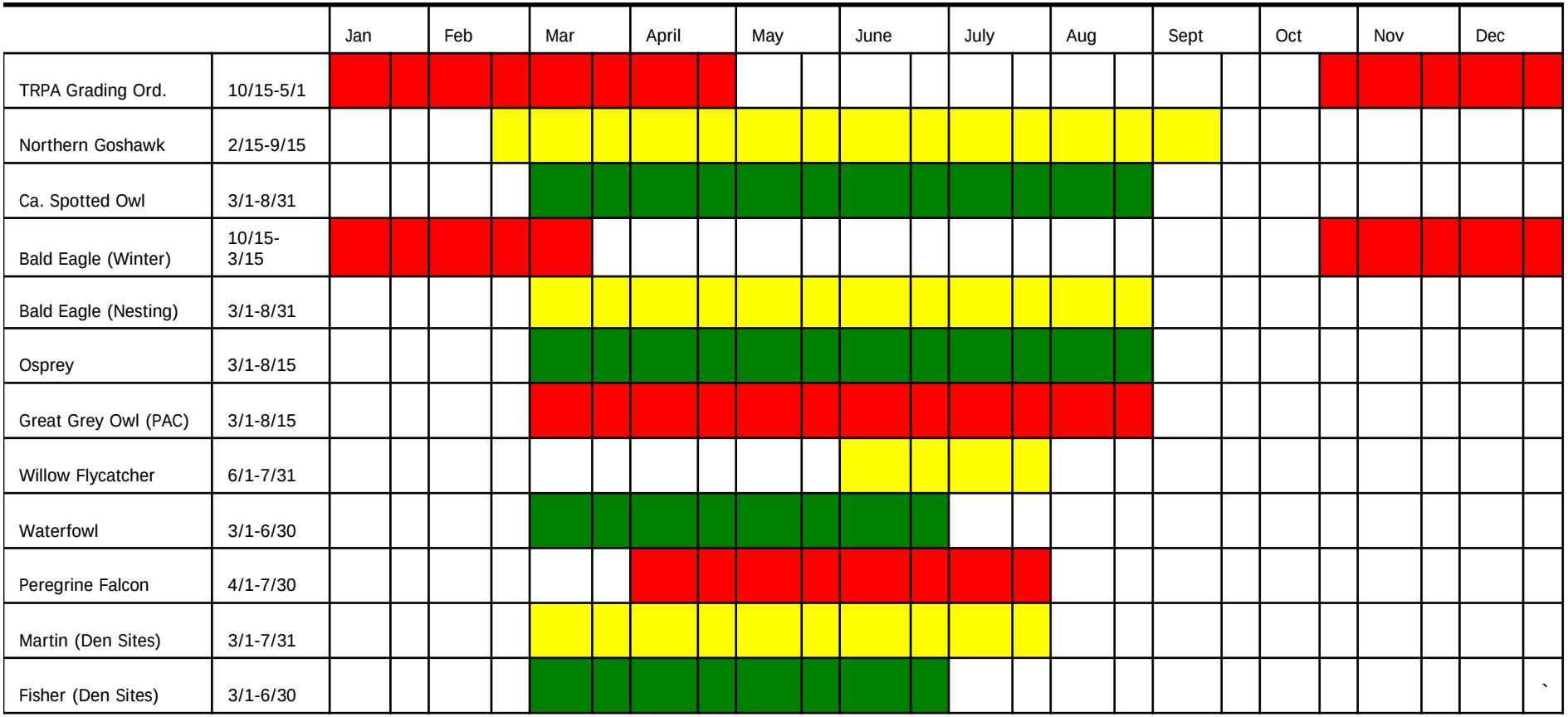
That’s one big aspen tree!

Influences on Treatment Decisions
Costs, Access, & Markets

- Limited Operating Periods
- Method of operation – Type & Set of Equipment
- Accessibility, Developments, Site Features (SEZ, Boulders)
- Product/Processing, Transportation
- Lack of markets for products, Mill Closures
- Low product values

Limited Operating Periods

Lake Tahoe Basin Management Unit - Seasonal Work Restrictions (LOP)



Accessibility

NFS Lands:

21,277 acres

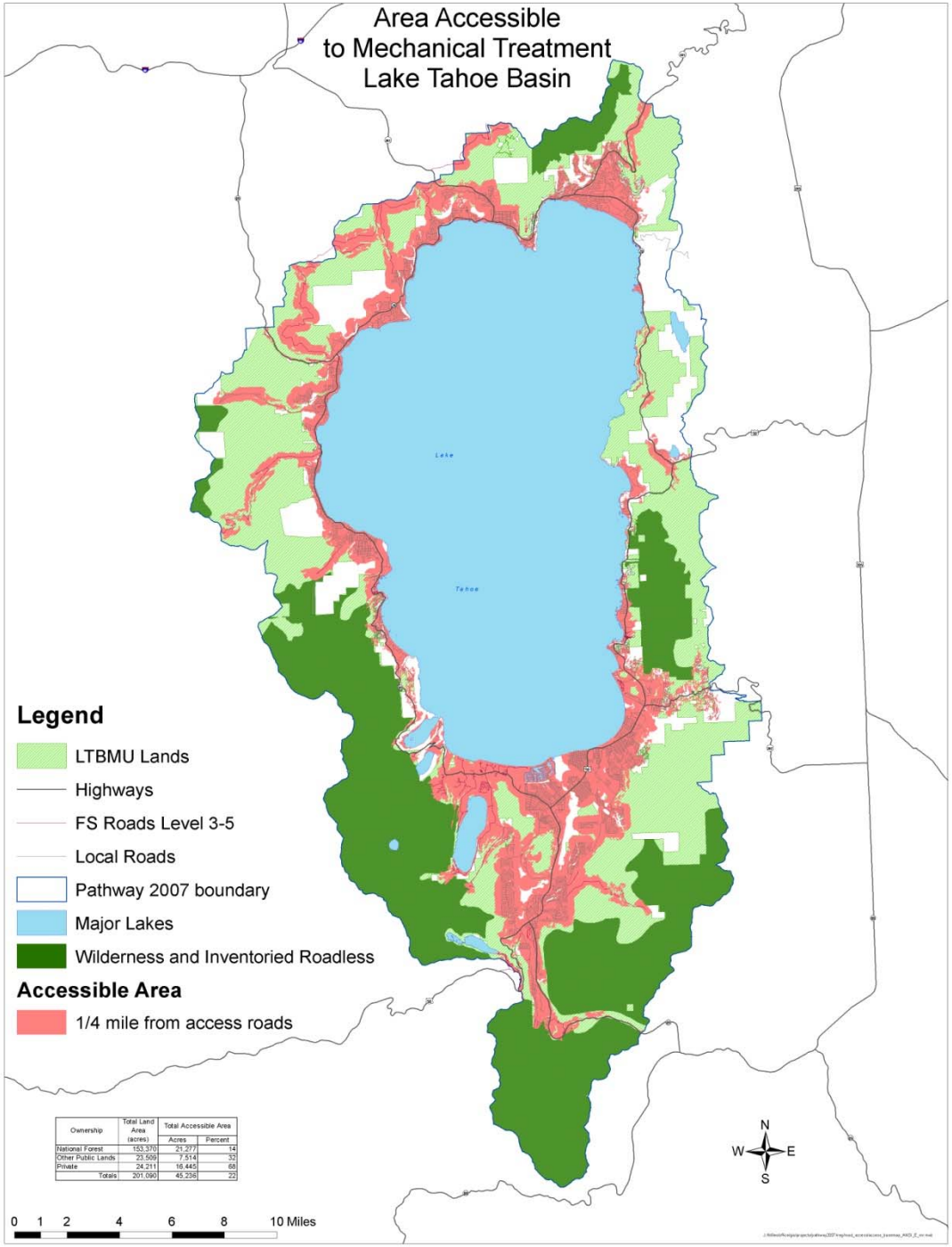
14%

All Lands:

45,236 acres

22%

- Due to other site factors, e.g., rockiness, practical access may be less.
- Most accessibility in Urban areas and within WUI



Measures to Implement the Program

- Utilize Omnibus CE, HFI and HFRA Authorities
- Strategize & plan landscape-scale projects
- Use more conventional types of ground-based mechanical equipment
- Use more cable systems & end-lining
- Look for opportunities to expand biomass utilization
- Continue “up front” collaboration & partnering

Measures to Implement the Program

- Take advantage of opportunities to work outside the normal operating season
- Continue to work with regulatory agencies to streamline processes
- Continue to adapt and learn from lessons, e.g., Heavenly SEZ Mechanical Demonstration project

Questions?
More Info

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