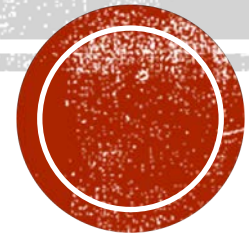


# KPERP — KAIBAB PLATEAU ECOLOGICAL RESTORATION PROJECT

Climate Workshop

February 11-13 Flagstaff, Arizona



# KPERP - CONCEPT

- Name - restoration, resiliency
- Move trajectory of landscape back towards what we might expect the current trajectory would be had fire regimes not been disrupted, while managing for the uncertainty of the future
- Take what we have learned from 4FRI, capitalize on successes
- Use mechanical non-commercial treatments to support the implementation of Rx fire, targeting the frequent fire regimes
- Use Rx fire on an average interval of 15 years
- Approach plan from an implementation stand point
- An approach that will give us the best chance to be successful at implementing Rx fire to the majority of the frequent fire regimes on the Plateau



# PROJECT EXPANDED

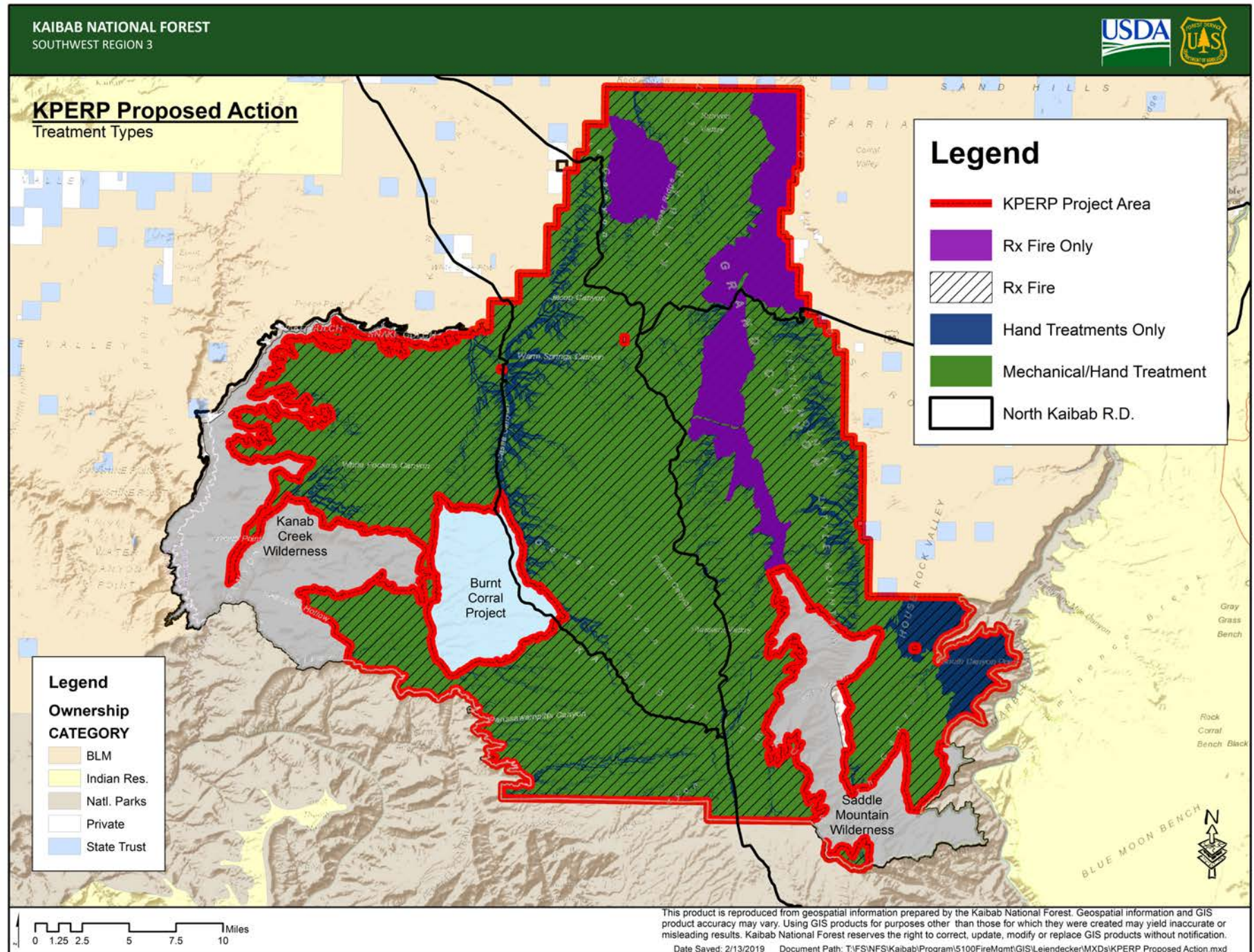
- Fire played/plays a role in almost ecosystems on and around the Kaibab Plateau
- Frequency/severity vary but fire has a role
- Almost all ecosystems have seen a departure from historical conditions due to past management practices
- Partner interest outside of pine and mixed conifer
- Big planning effort
- Expand to include entire district minus Wilderness and recommended Wilderness and the current Burnt Coral Project
- Exception Grassy Canyon and Quaking Aspen recommended Wilderness





# PROJECT AREA

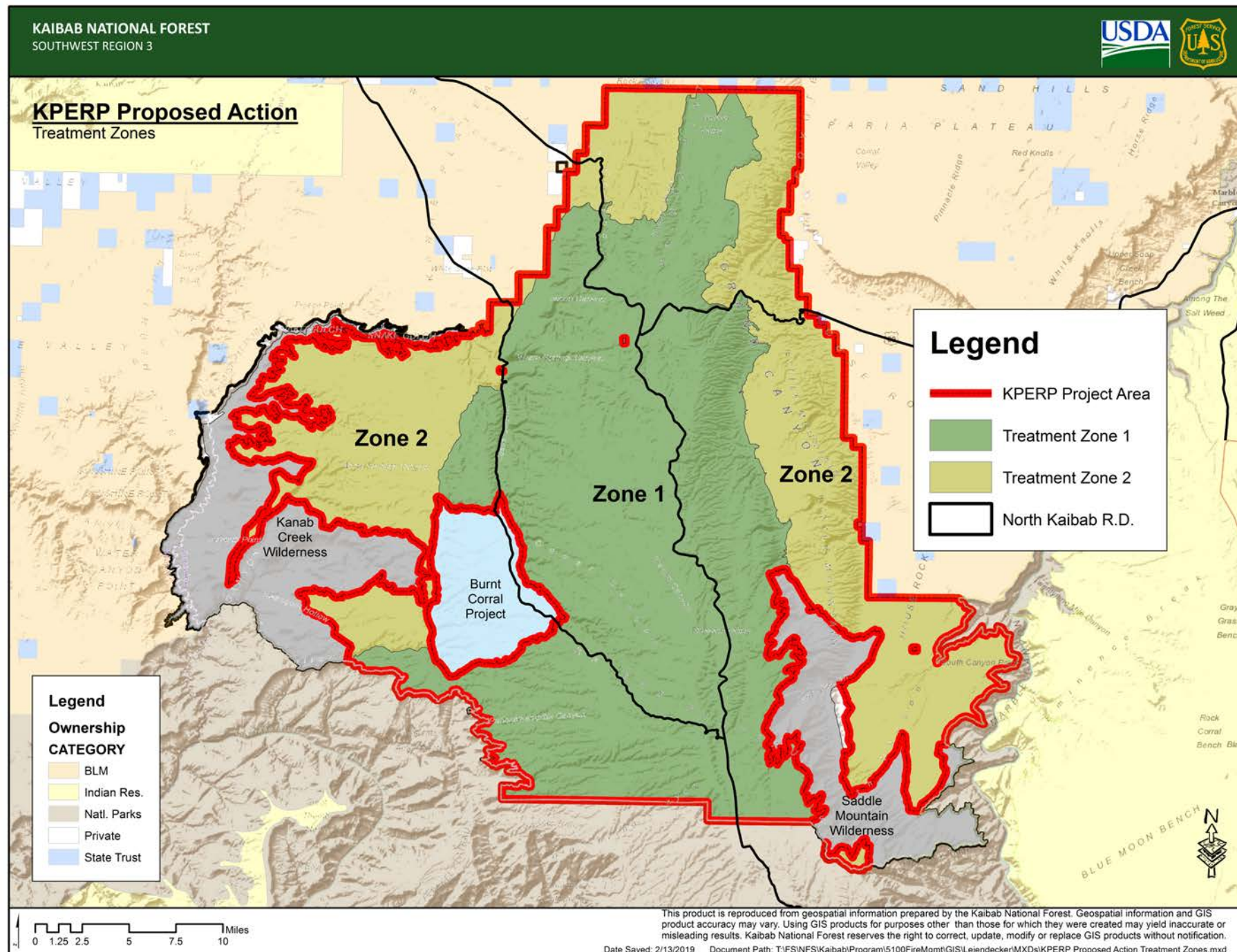
518,207





# PROJECT ZONES

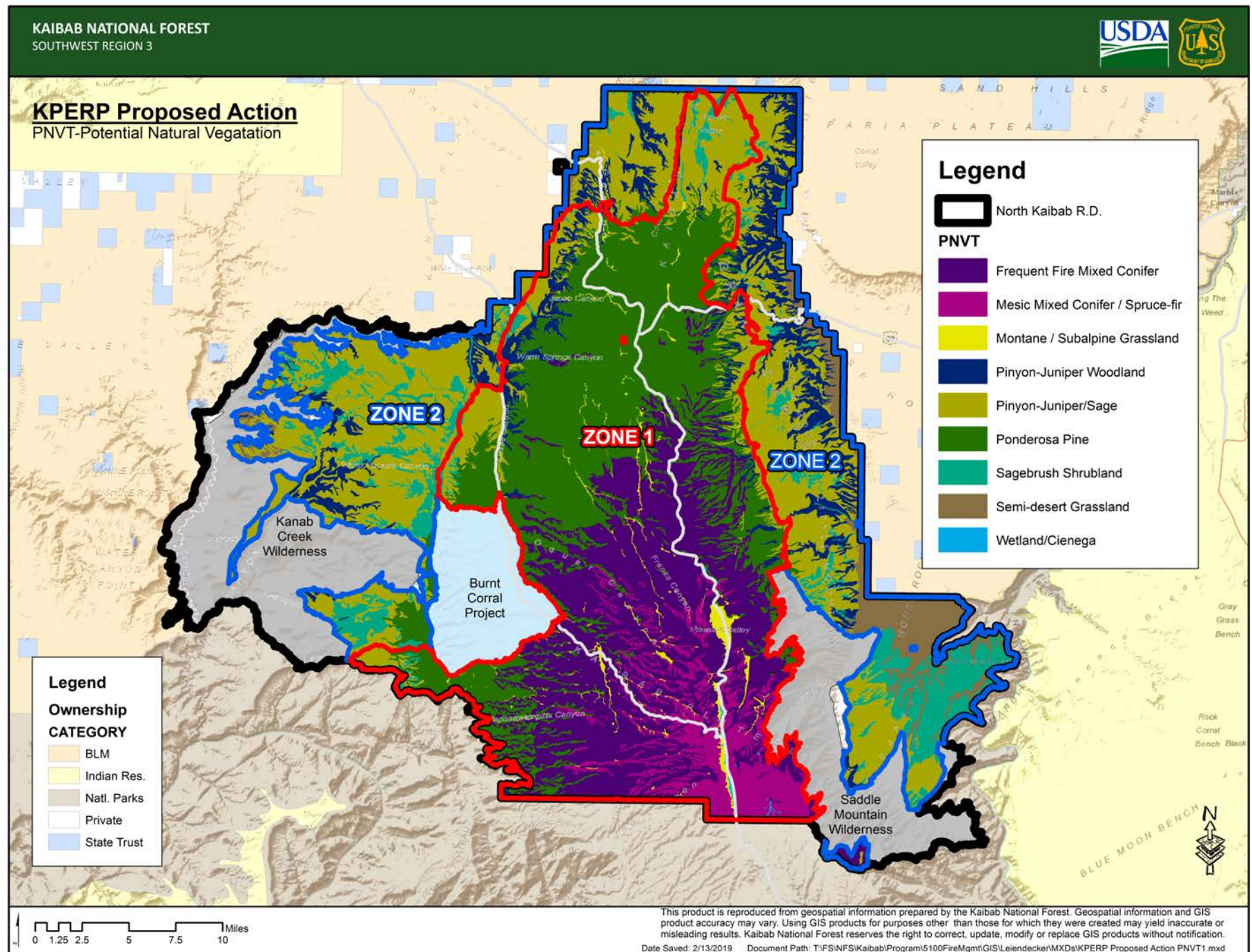
ZONE 1  
302,232





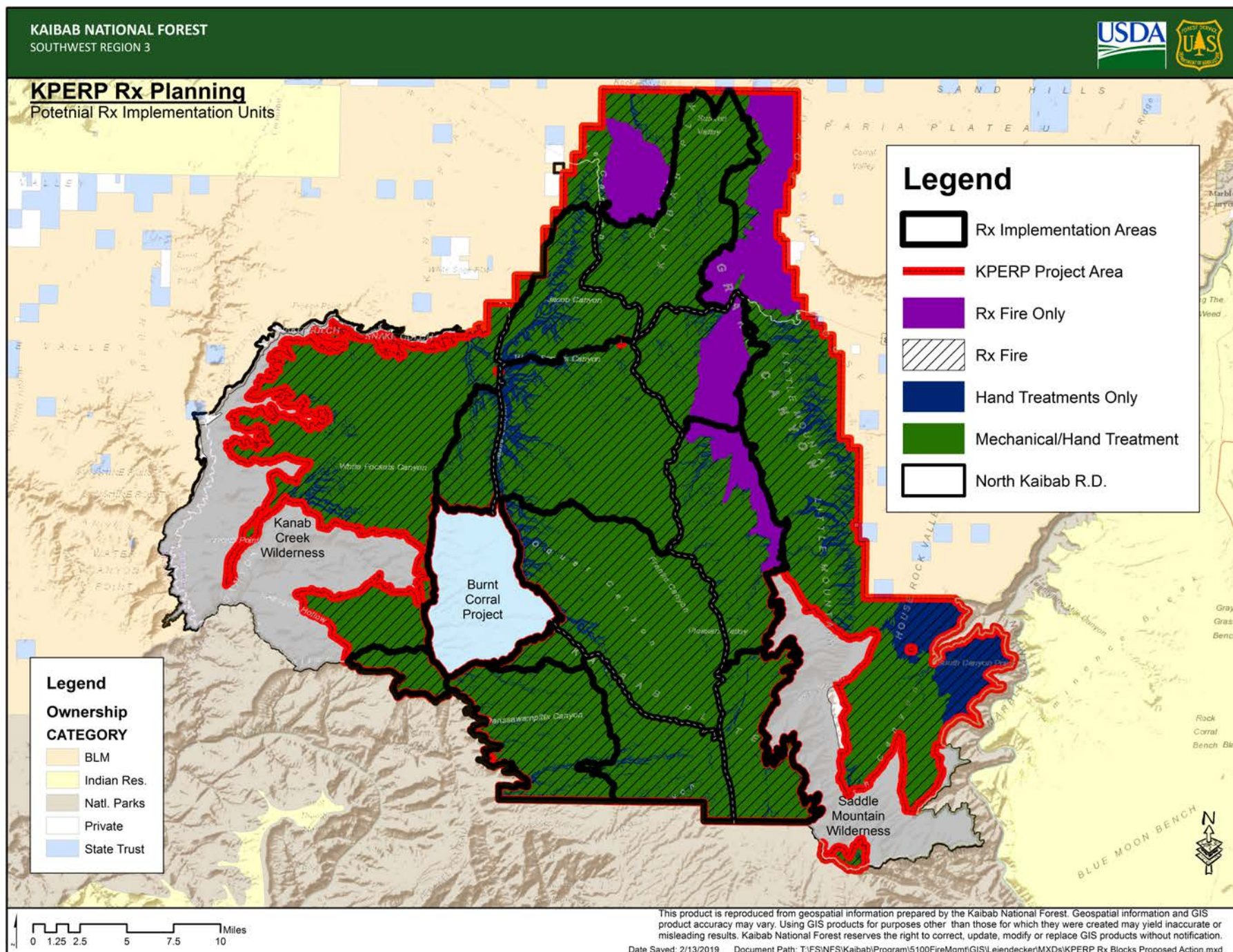
# PROJECT PNVT'S

9 PNVTs  
8 PNVTs  
IN  
ZONE 1



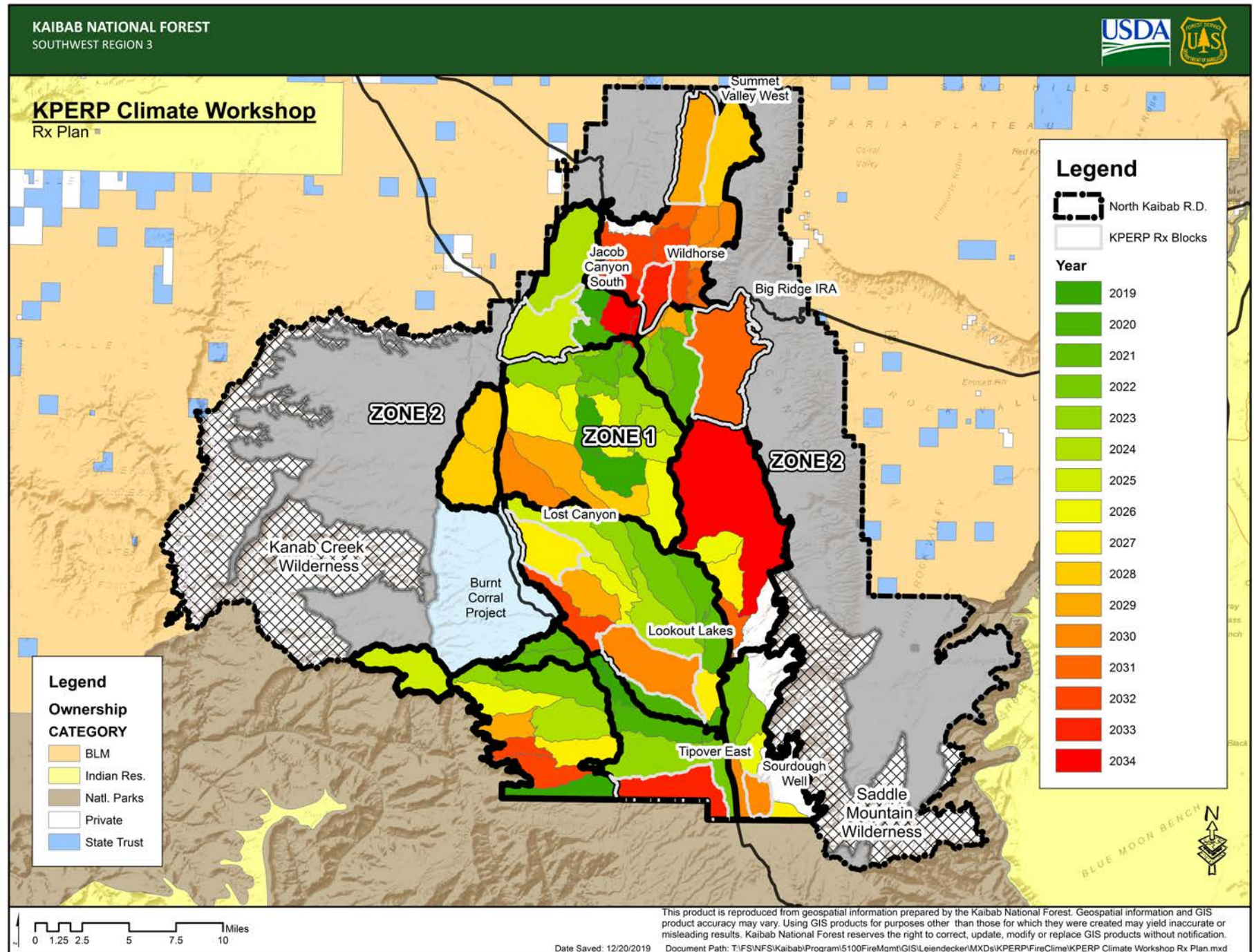


# RX PLAN



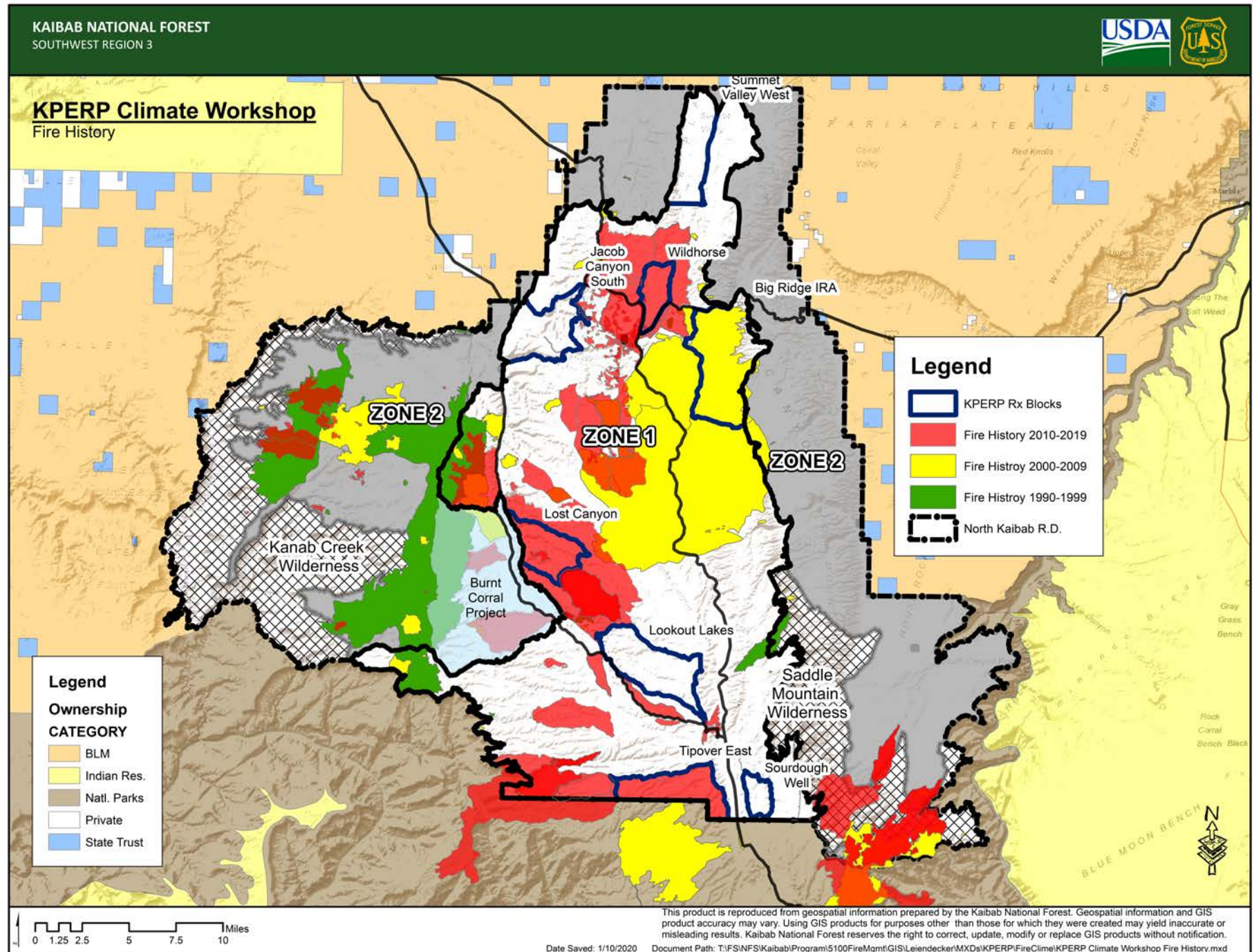


# RX PLAN NEXT 15 YEARS



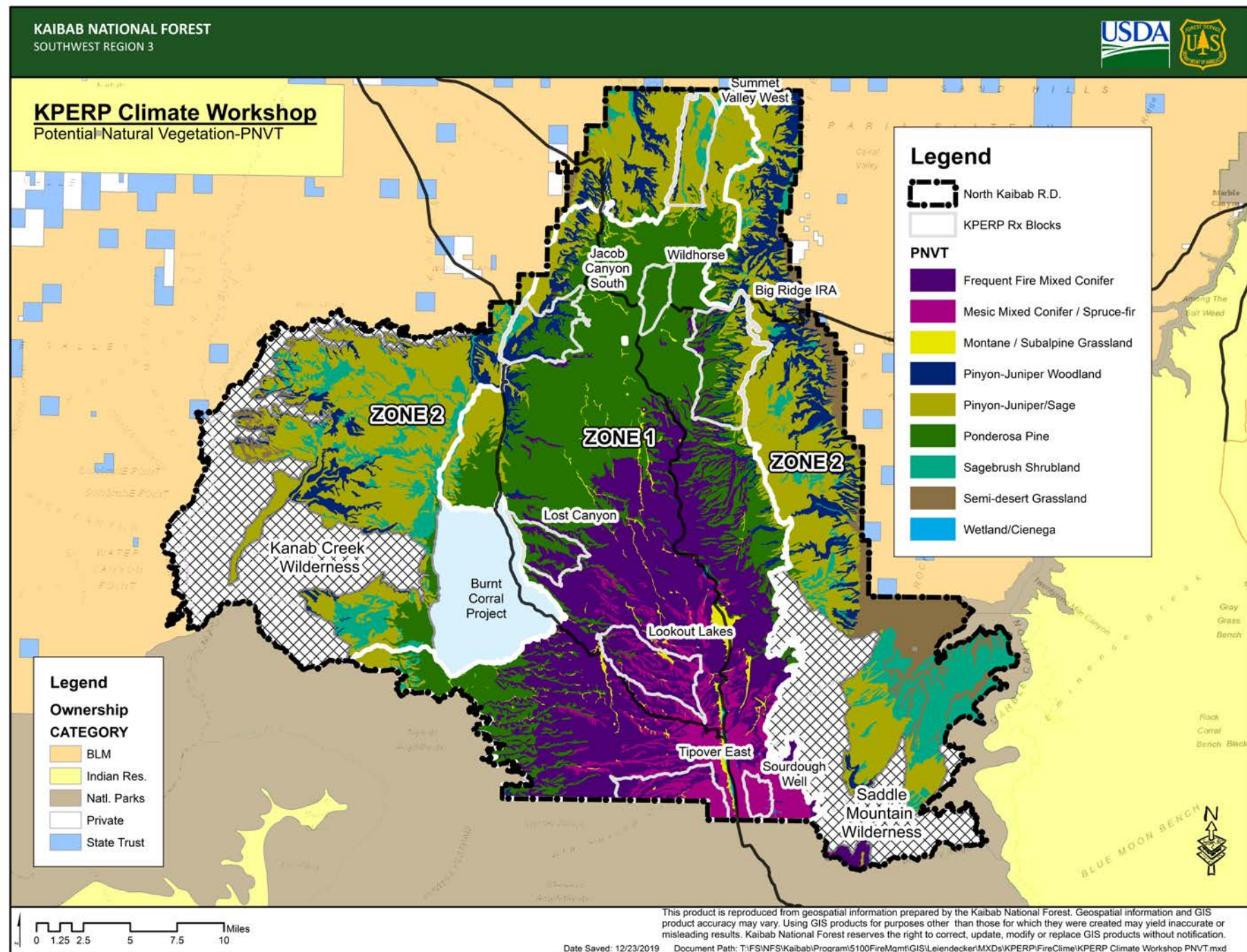


# FIRE HISTORY 1990-2019



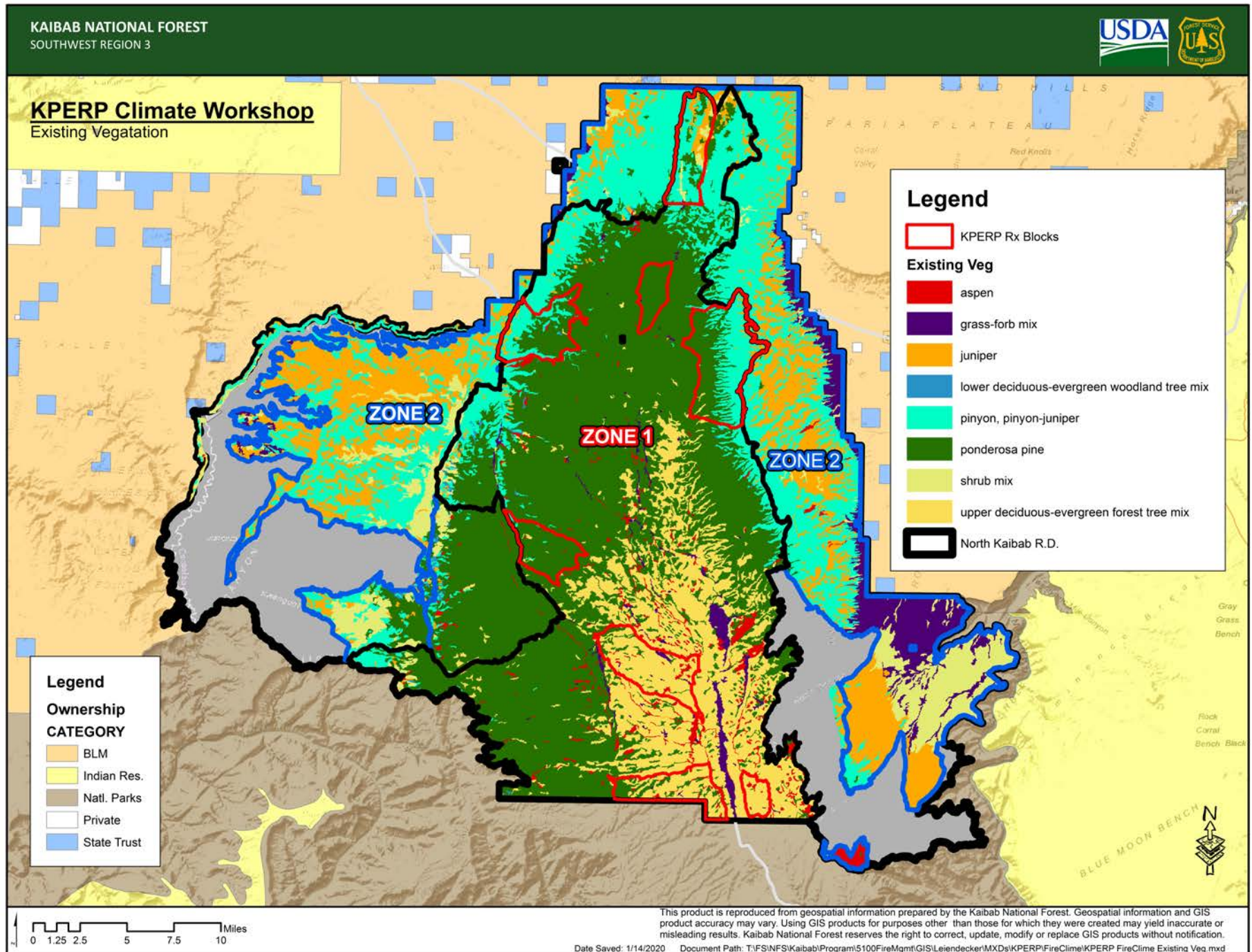


# RX UNITS AND PNVTs





# RX UNITS AND EXISTING VEG



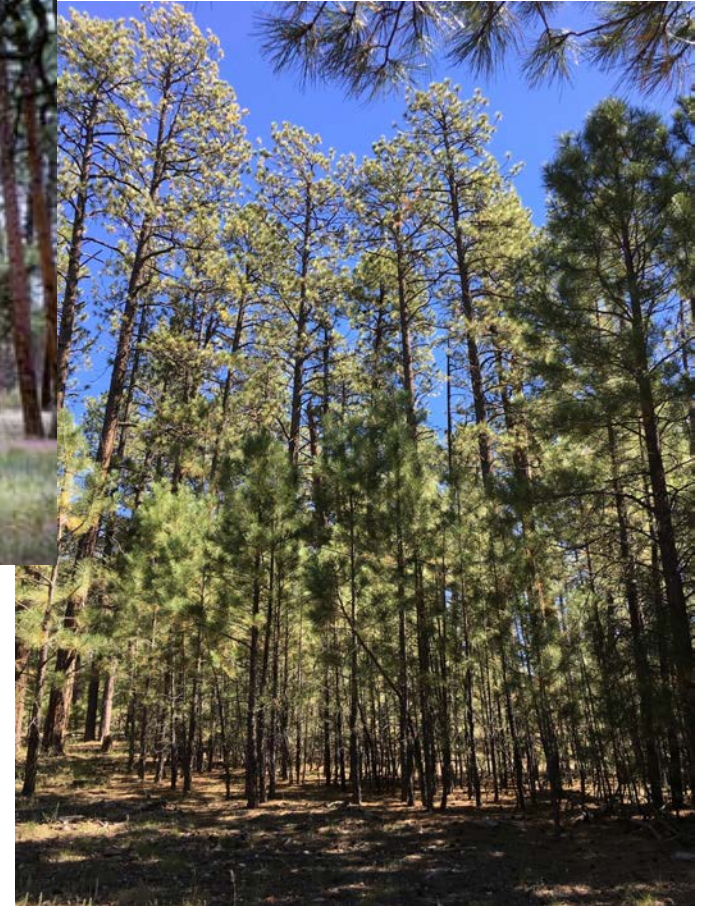
# PNVT'S IN ZONE 1

	Zone 1	Project	Forest
▪ Ponderosa Pine – 120,970 acres	(40%)	(95.2%)	(22.3%)
▪ Frequent Fire Mixed Conifer – 104,265 acres	(34.5%)	(99.8%)	(81.6%)
▪ Pinyon-Juniper/Sage – 28,808 acres	(9.5%)	(19.9%)	(15.6%)
▪ Mesic Mixed Conifer/ Spruce-fir – 27,441 acres	(9.1%)	(99.9%)	(93.8%)
▪ Pinyon-Juniper Woodland – 9,897 acres	(3.3%)	(23.2%)	(15.6%)
▪ Montane/Subalpine Grassland – 6,194 acres	(2.0%)	(98.8%)	(15.2%)
▪ Sagebrush Shrubland – 4,062 acres	(1.3%)	(9.5%)	(4.6%)
▪ Wetland/Cienega – 612 acres	(0.2%)	(100%)	(41.3%)
▪ Total 302,249 acres/15 years = 20,150 acres			
▪ Pine/Freq Mix: 225,235 acres/15 years = 15,015 acres			





# PONDEROSA PINE — 120,970 ACRES (40%)





### **Current**

- Mosaic of conditions – ranging from only slightly departed to highly departed
- Portions at risk of uncharacteristic, high intensity wildfire
- Portion of even-aged structure

### **Historically**

- Frequent, Low-severity fire regime (Fire regime I, 0-35 years)
- Uneven-aged structure
- The majority of past Rx has been done in ponderosa pine

### **Management strategy**

- Target for Rx Fire
- Treat with fire 2,900-12,000 acres/annually; mechanically 2,400-4,200 acres/annually



# FREQUENT FIRE MIXED CONIFER — 104,265 ACRES (34.5%)





## **Current**

- Encroached by less fire resistant conifers and build up of dead and down fuels
- Structure shift from being dominated by ponderosa and Douglas fir to include White fir and spruce
- Large portions at risk of uncharacteristic high intensity wildfire

## **Historically**

- Structure more open and tree composition dominated by Ponderosa Pine and Douglas-fir
- Frequent, Low Severity Fire Regime (Fire Regime 1, 0-35 years)
- Some past Rx and timber activity

## **Management Strategy**

- Target for Rx Fire
- Treat with fire 800-10,600 acres/annually; Mechanically 1,000-1,700 acres/annually





# PINYON-JUNIPER/SAGE — 28,808 ACRES

(9.5%)





# PINYON- JUNIPER/SAGE — 28,808 ACRES

## **Current**

- Juniper encroaching into sage
- Loss of or weakening Pinyon pops
- At risk of cheatgrass invasion

## **Historically**

- Fire Regime Mixed (Fire Regime III, 35-200)
- Mix of trees and shrubs
- Even and uneven-aged
- Mix of juniper sizes

## **Management Strategy**

- Non-targeted fuel type within Zone 1, direct ignition will be avoided in most instances
- Fire allowed to spread into if fuels are receptive
- Used as a barrier fuel under most Rx prescriptions below 70% weather





# MESIC MIXED CONIFER/SPRUCE-FIR — 27,441 ACRES (9.1%)



# MESIC MIXED CONIFER/SPRUCE-FIR — 27,441 ACRES (9.1%)

## **Current**

- Likely not highly departed
- Dominated by less fire tolerant species
- Harder to identify due to encroachment of less fire tolerant species in to the frequent fire mixed conifer
- Intermixed within the frequent fire, mixed conifer likely associated with drainage bottoms and north slopes
- Small contiguous patches at the highest elevations

## **Historically**

- Fire Regime Replacement (Fire Regime IV & V, 35-200+)

## **Management Strategy**

- Not a target fuel type with Rx fire
- Target ridge tops and south slopes with fire which were likely frequent fire mixed conifer
- Allow to stand replace at some point in the future once surround frequent fire mixed conifer wont want to replace to keep replacement patch size closer to historical extents and mostly within the mesic mixed conifer





# PINYON-JUNIPER WOODLAND — 9,897 ACRES (3.3%)



# PINYON-JUNIPER WOODLAND — 9,897 ACRES (3.3%)

## **Current**

- P-J on 40% plus sloped
- Thin soils
- Little to no understory/surface fuels

## **Historically**

- Mixed to High severity fire regime (200+ years)
- Likely not highly departed

## **Management Strategy**

- Not a targeted fuel type for Rx fire
- Used as a barrier fuel type between ponderosa and transition to lower fuels types
- If occurring along holding features may be prepped and fired should the holding line need to be used to secure the perimeter
- 





# MONTANE/SUBALPINE GRASSLAND — 6,194 ACRES (2.0%)





# MONTANE/SUBALPINE GRASSLAND — 6,194 ACRES (2.0%)

## **Current**

- Encroached by conifers

## **Historically**

- Likely experienced some fire on driest years, likely burned in a mosaic

## **Management Strategy**

- Not a target fuel type for Rx fire
- Hand and or mechanical thinning to remove encroaching conifers
- Rx fire will be allowed to spread into from surrounding ponderosa pine or mixed conifer if fuels are available



# SAGEBRUSH SHRUBLAND — 4,062 ACRES (1.3%)





# SAGEBRUSH SHRUBLAND — 4,062 ACRES (1.3%)

## **Current**

- Encroached by Juniper
- Aging/decadent sage
- At risk of cheat grass invasion

## **Historically**

- Mixed to high severity fire regime
- (2/3 mixed ~ 120 years, 1/3 Stand replacement ~ 240 years)

## **Management Strategy**

- Not a targeted fuel type for Rx
- Allowed to spread into
- Only actively targeted with Rx if it occurs along a holding feature and requiring securing



# WETLAND CIENEGA — 612 ACRES (0.2%)





# WETLAND CIENEGA — 612 ACRES (0.2%)

## **Currently**

- Reduced water table and flow/encroached by woody vegetation in some instances due to dryer conditions

## **Historically**

- Higher water table/flow due to less surrounding vegetation
- Fire likely did not play much of a direct role as fuels were likely not available

## **Management Strategy**

- Not a target for Rx
- Will be generally avoided/lack available fuels to carry fire



# MOVING FORWARD — KEYS TO SUCCESS

- Monitoring
  - Developing a monitoring program
  - Hired a fire ecologist
  - Fire severity mapping
  - Acquired QLi Lidar
- Engaging partners
  - Annual meeting with partners to discuss results
  - Events such as this workshop
- Adjust based on findings/increased knowledge

