BLM Landscape Context- Lisa Meredith

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Ongoing Event

- Tree mortality not limited to a single event
- Widespread mortality
- Varies by location
- Varying stages of mortality within a forested stand

Indicators and high-risk locations

- Visual indicators on trees: branch die back, stress crop, pitch jewels, shaved-off bark, thin/lighter foliage
- Indicators at the landscape scale: location (ridges, valley bottoms, transition from forest to non-forest, harsher aspects)
- Remote sensing tools (low vigor, mortality) and high Climatic Water Deficit

How does this mortality impact BLM Inventory?

- Forest Operations Inventory Vegetation (FOI)
- Forest type conversions
  - Forest Conifer
  - Forest Hardwoods
  - Forest Mixed
  - Non-forest - Brush
- Species group changes
- Timber Production Capability Classification (TPCC)
  - Commercial forest land
  - Non-forest (non-commercial species, brush, etc.)
  - Low productivity site

How do we prioritize?

Proactive vs. Reactive

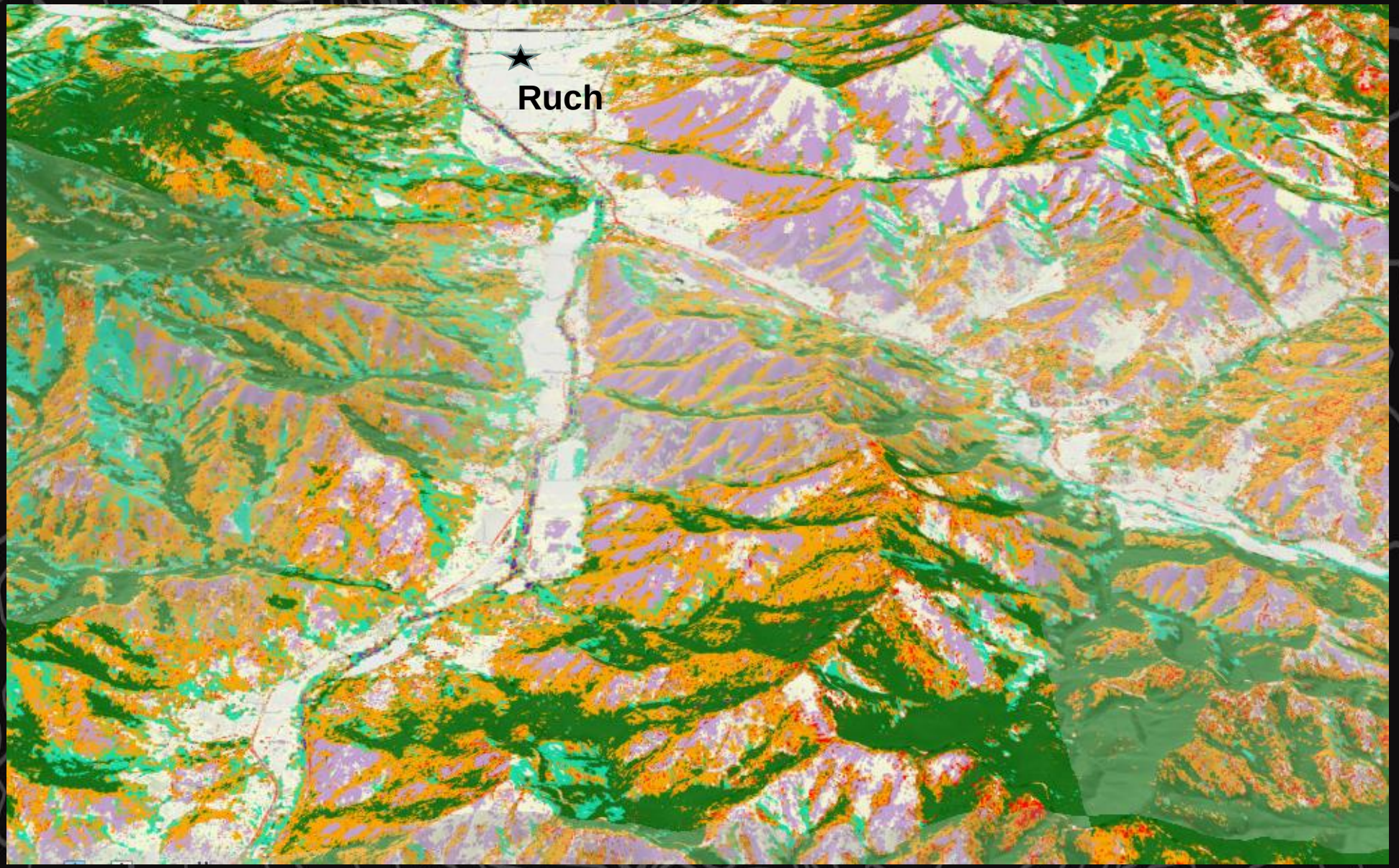
- What is surviving?
- How can we manage to have an intact forest?
- Is it higher priority to deal with the current dead/dying or anticipated areas of die off?

Solutions for forest and woodlands-Goals

- Use of CX authorities to facilitate rapid response to conifer mortality
- Programmatic Tools- NEPA, contracts
- Investigate imagery/research to support dead/dying assessment
- Incorporate climate/fire-smart planning, and proactive green tree management in dry forest projects
- Increase capacity to utilize Stewardship to treat more acres
- Collaborate with partners on All-lands resiliency projects
- Pursue funding sources- Bipartisan Infrastructure Law & Inflation Reduction Act
- Education and Outreach- internally and externally
- Research- assisted migration, etc.

Vegetation Classification – Plant Imagery – BLM NOC

Applied science pilot to assess the use of Planet Scope satellite imagery (copyright Planet Labs PBC 2022) to quantify vegetation cover and conifer mortality on BLM-administered lands and adjacent federal lands (June 2022 data)

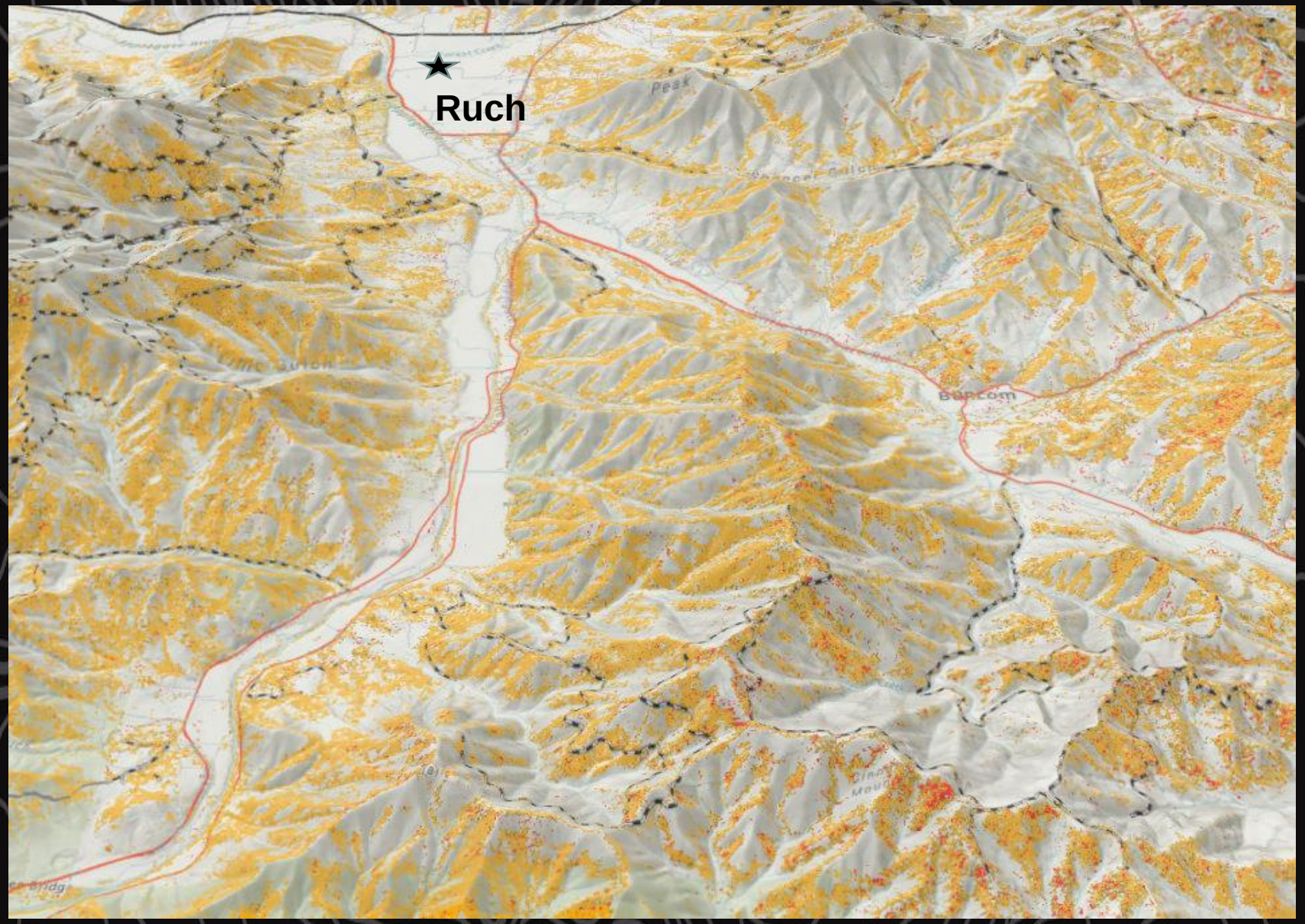


Conifer Mortality – Plant Imagery – BLM NOC

Conifer Mortality Gray Stage
Conifer Mortality Red Stage

Future Refinements:
Enhanced separation of confusion of spectral signals

- Coniferous with deciduous forest;
- Gray stage mortality with oak/shrub;
- Calibrate with more current LiDAR

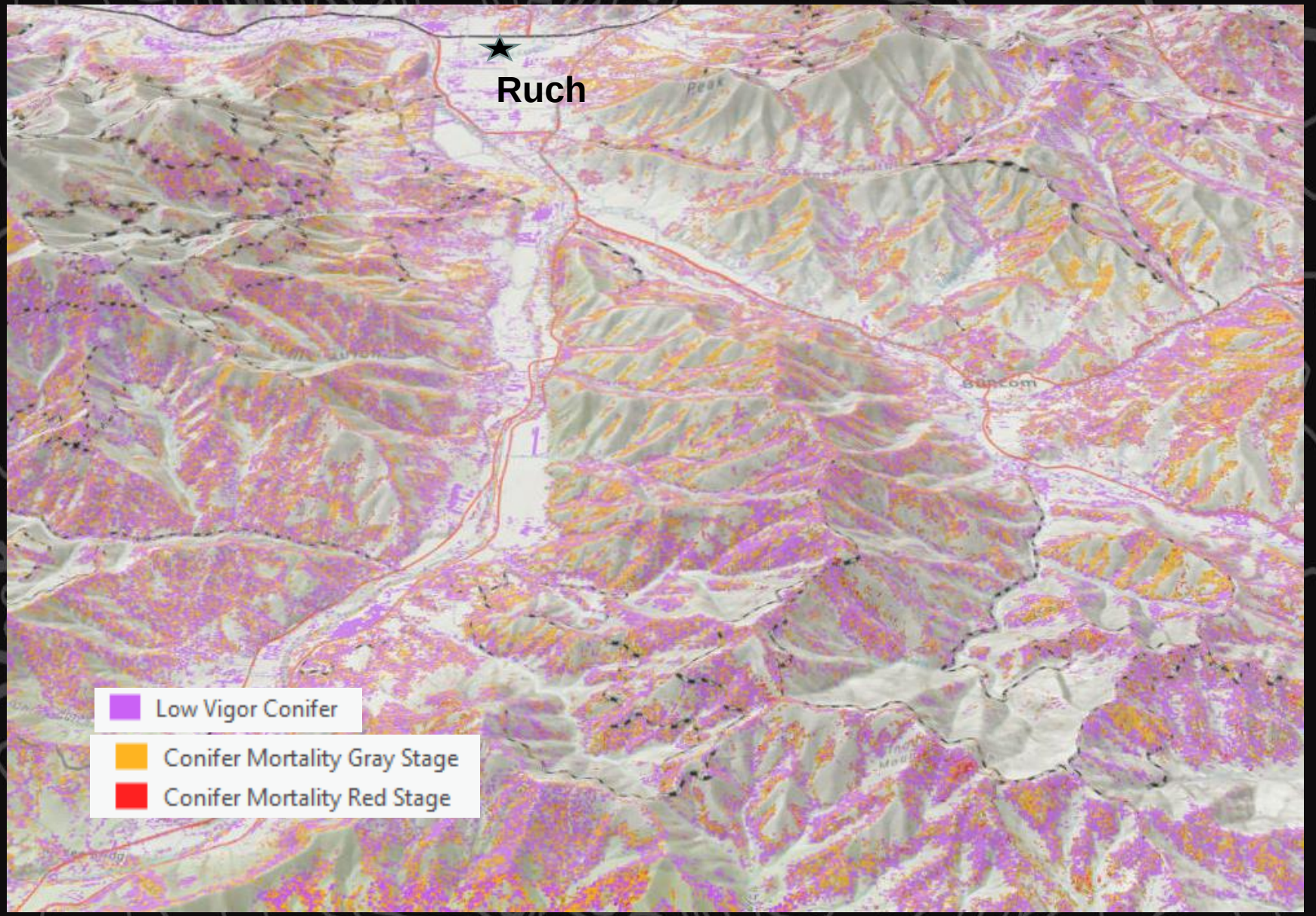


Low Vigor Conifers – Sentinel2 Imagery – BLM MED

Derived from a combination of three Sentinel 2 remotely sensed data products

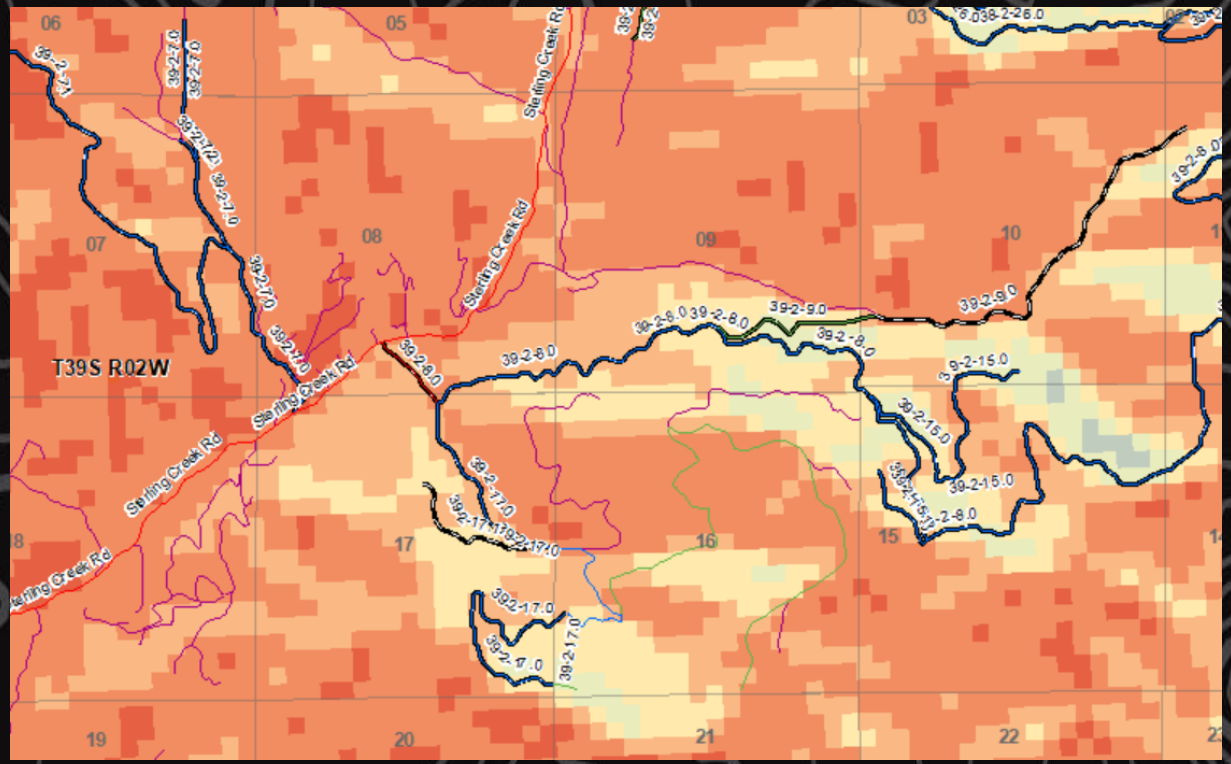
- Normalized Difference Vegetation Index (NDVI) low photosynthetic activity
- Green-Red Vegetation Index (GRVI) to remove shrublands
- Moisture Stress Index to identify low water content foliage

Data is on Rogue Basin All-Lands Explorer

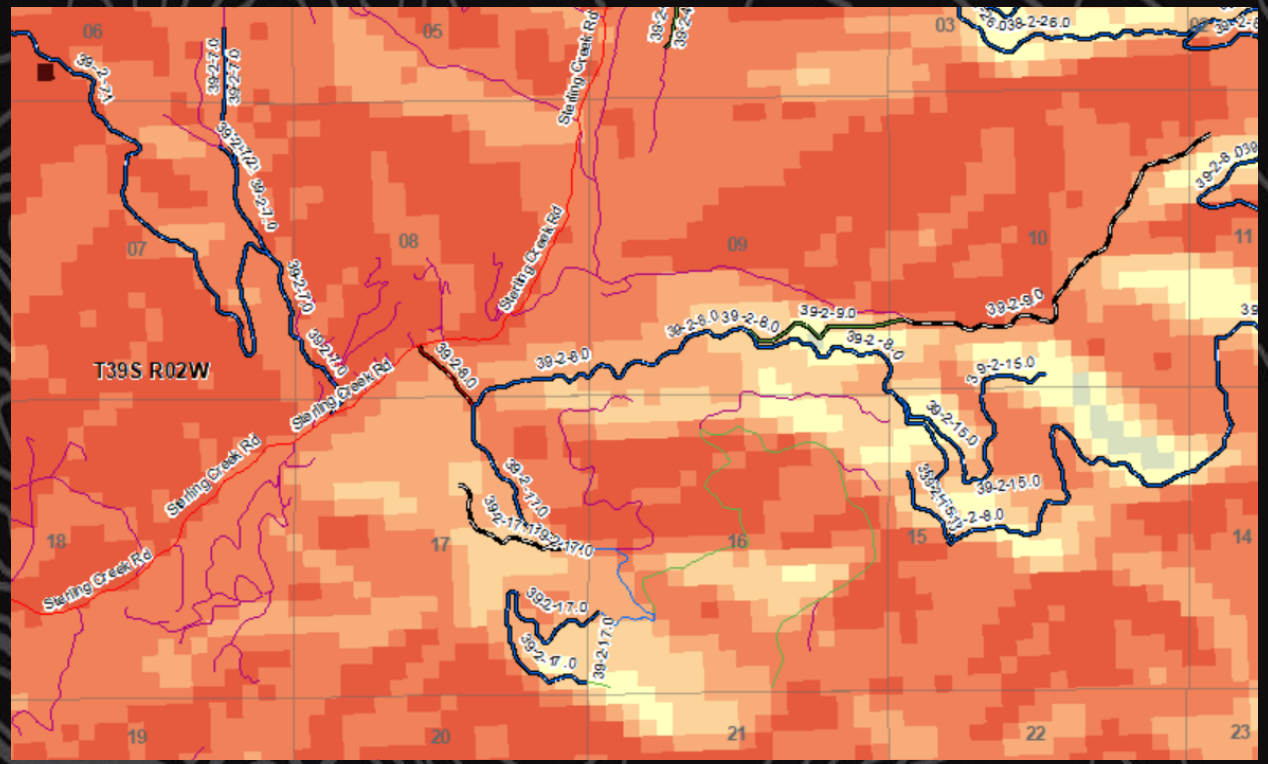


Climatic Water Deficit

1981-2010



Projected 2041-2070



Implementation Tools

- Integrated Vegetation Management for Resilient Lands EA
- Timber Sales
- Service contracts, agreements, BPAs: hazard tree removal, hazardous fuels reduction and precommercial thinning
- Stewardship: agreements and service contract
- Ideas to incorporate reactive and proactive management:
  - Can NEPA and contracts combine green and dead together?
- Work with partners to increase pace and scale of restoration

Still a lot of questions and unknowns…

- What is the future of sustained yield in these locations?
- How will reforestation and species composition change?
- How can we utilize the Resist Accept Direct (RAD) concept?

Thank you! lmeredit@blm.gov