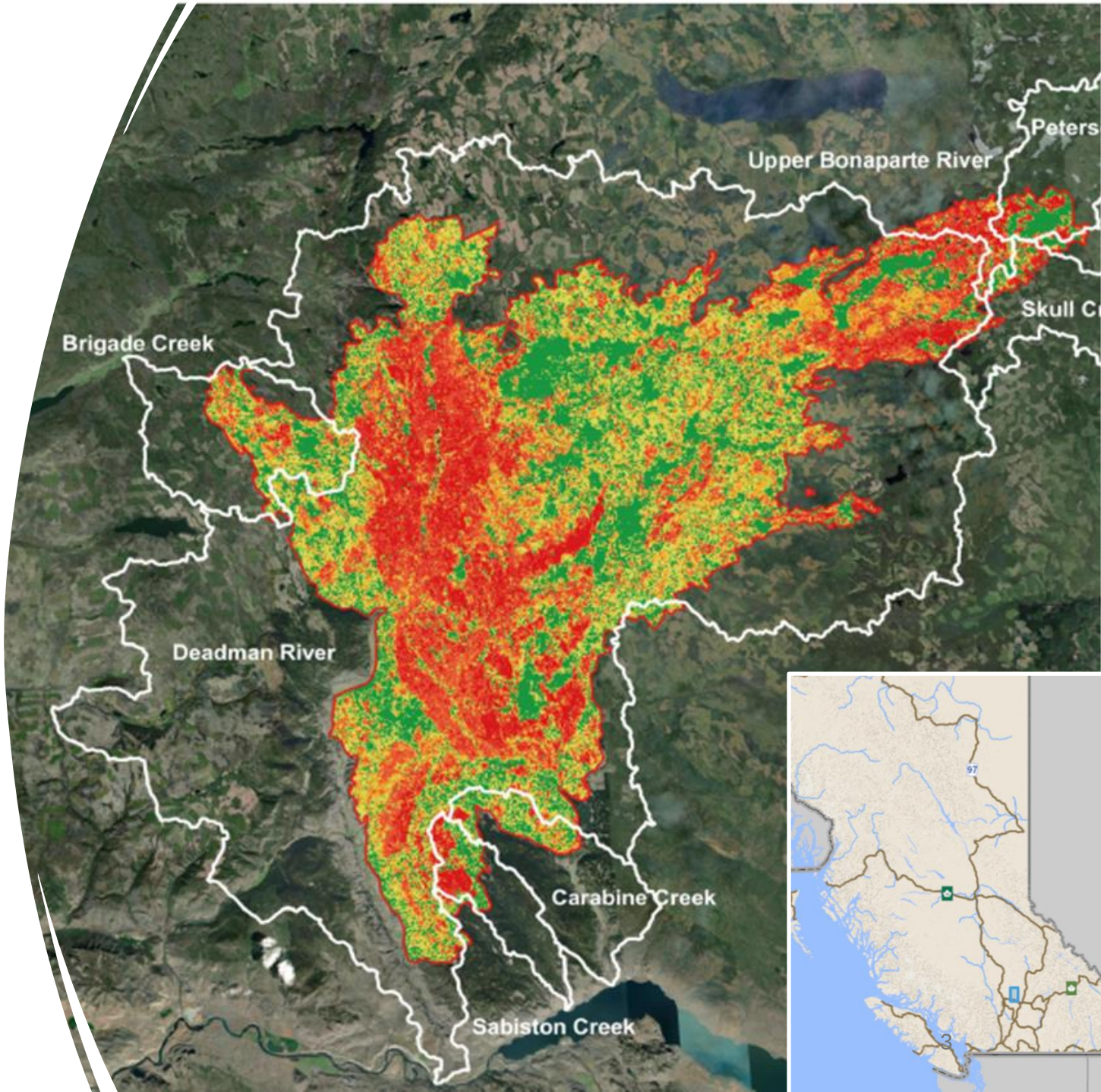

Tsecmenúl̓ecwem-kt
(We Repair the Land)
Deadman Watershed Recovery &
Resiliency Initiative

Overview

- Background Information
- Restoration Activities
- Hillslope Treatments
- Reforestation
- Evaluating Effectiveness
- RIPAIRE

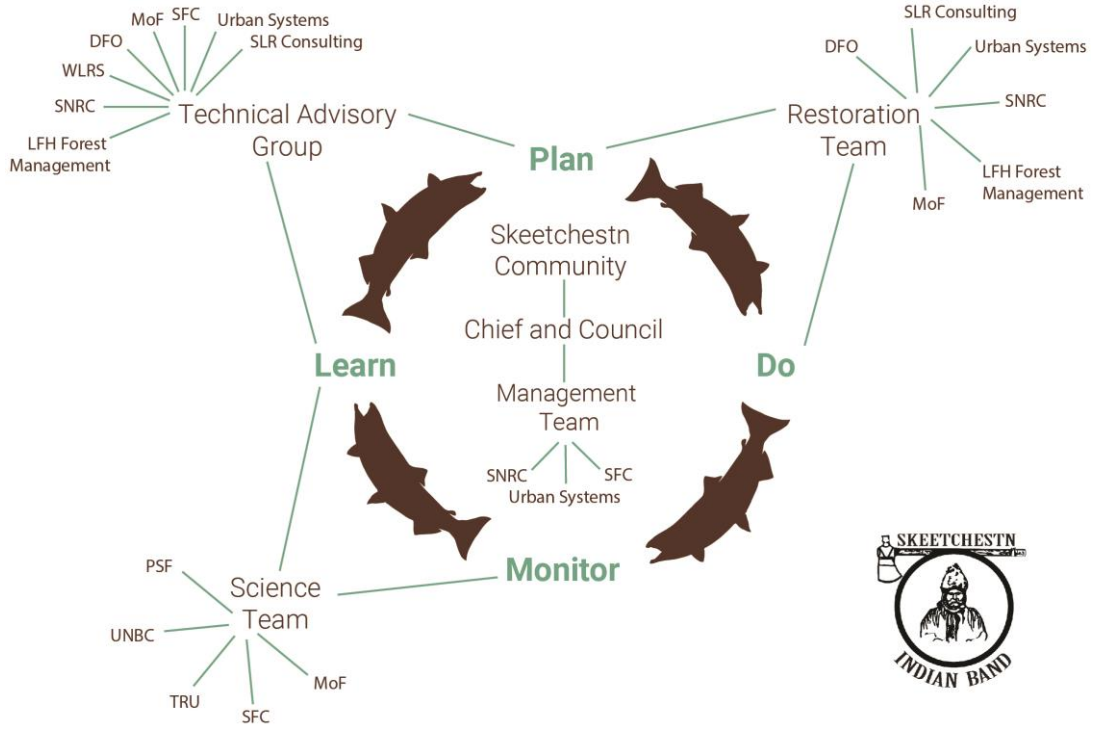
Background

- In 2021, The Sparks Lake Wildfire Burned 89,627 Ha
- 36% of this was moderate or high severity fire
- A total of approximately 60% of the watershed has been affected by wildfire since 2017



Restoration Planning

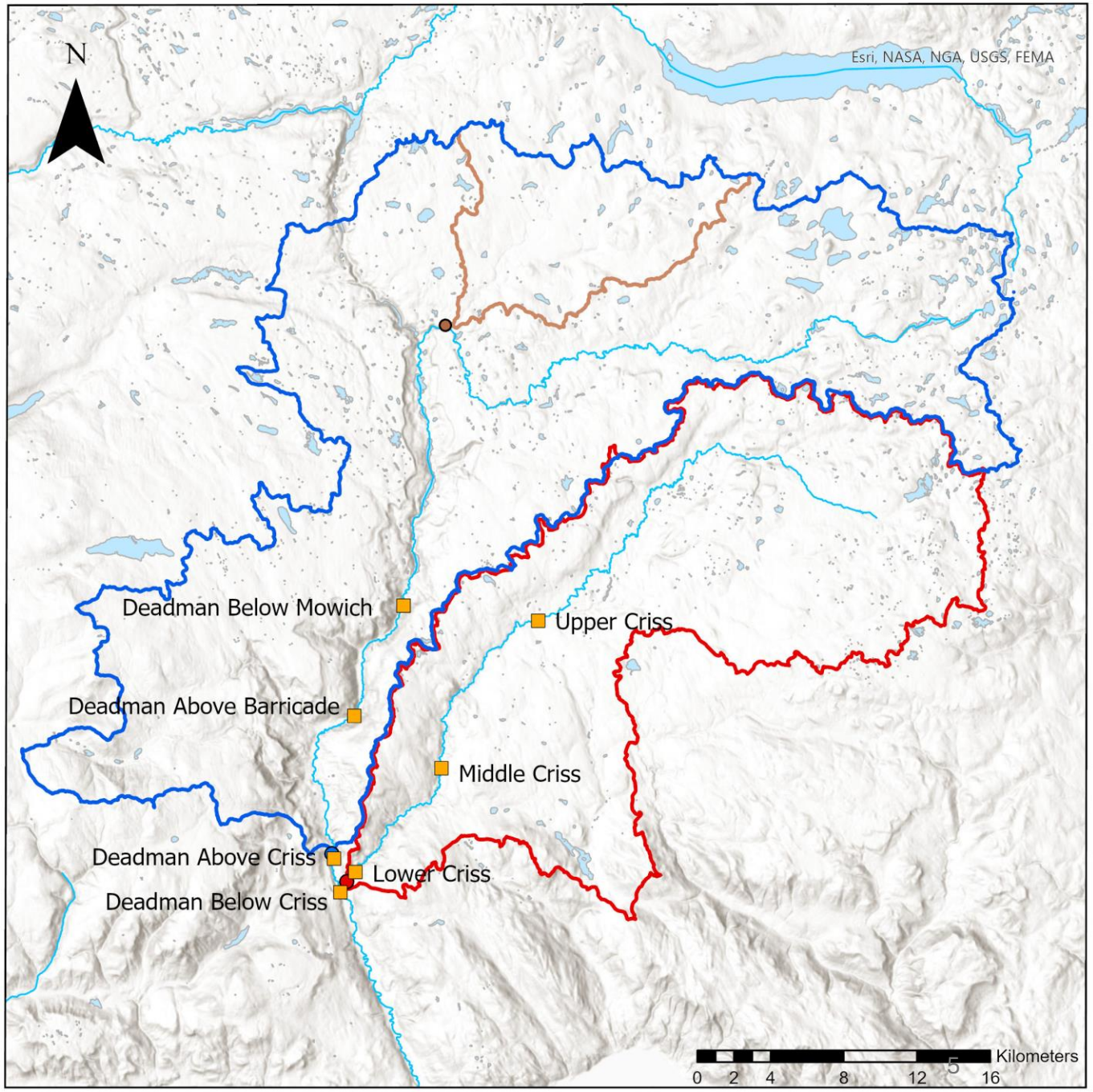
- Identify and Prioritize Risks
  - Assessments
  - Collaborate
- Plan Treatments
  - In-stream
  - Riparian
  - Terrestrial
- Monitor Effectiveness
  - Form Monitoring and Mitigation Adaptive Management Plan (MMAM)



Restoration Planning Results

Ongoing activities include:

- Wildfire salvage
- Reforestation (2 Billion Tree Program)
- Hillslope erosion mitigation
- Benthic invertebrate study
- Sediment sourcing/tracing
- Stream metabolism
- Riparian planting
- Hydrologic regime monitoring
- In-stream works
- Beaver translocation
- Baseflow requirements
- Infrastructure upgrades
- Road deactivation
- Invasive species suppression



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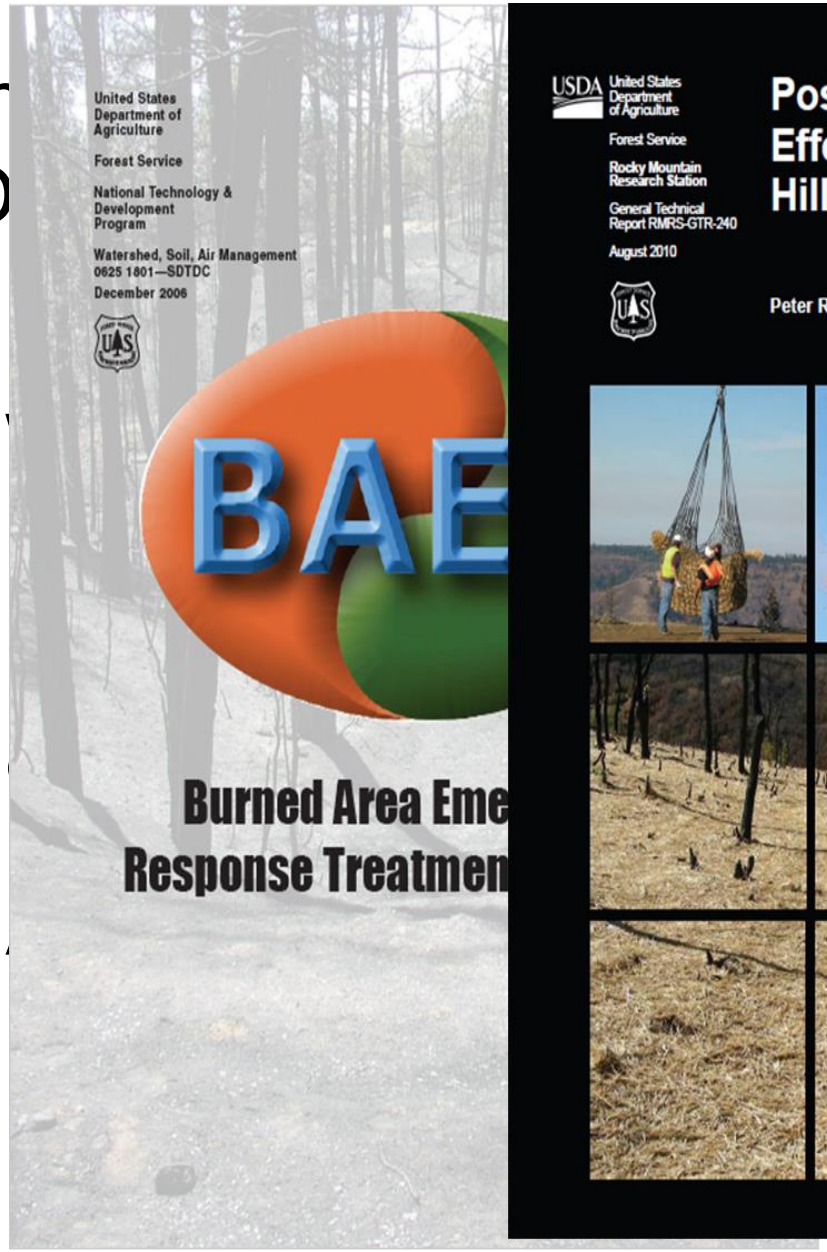

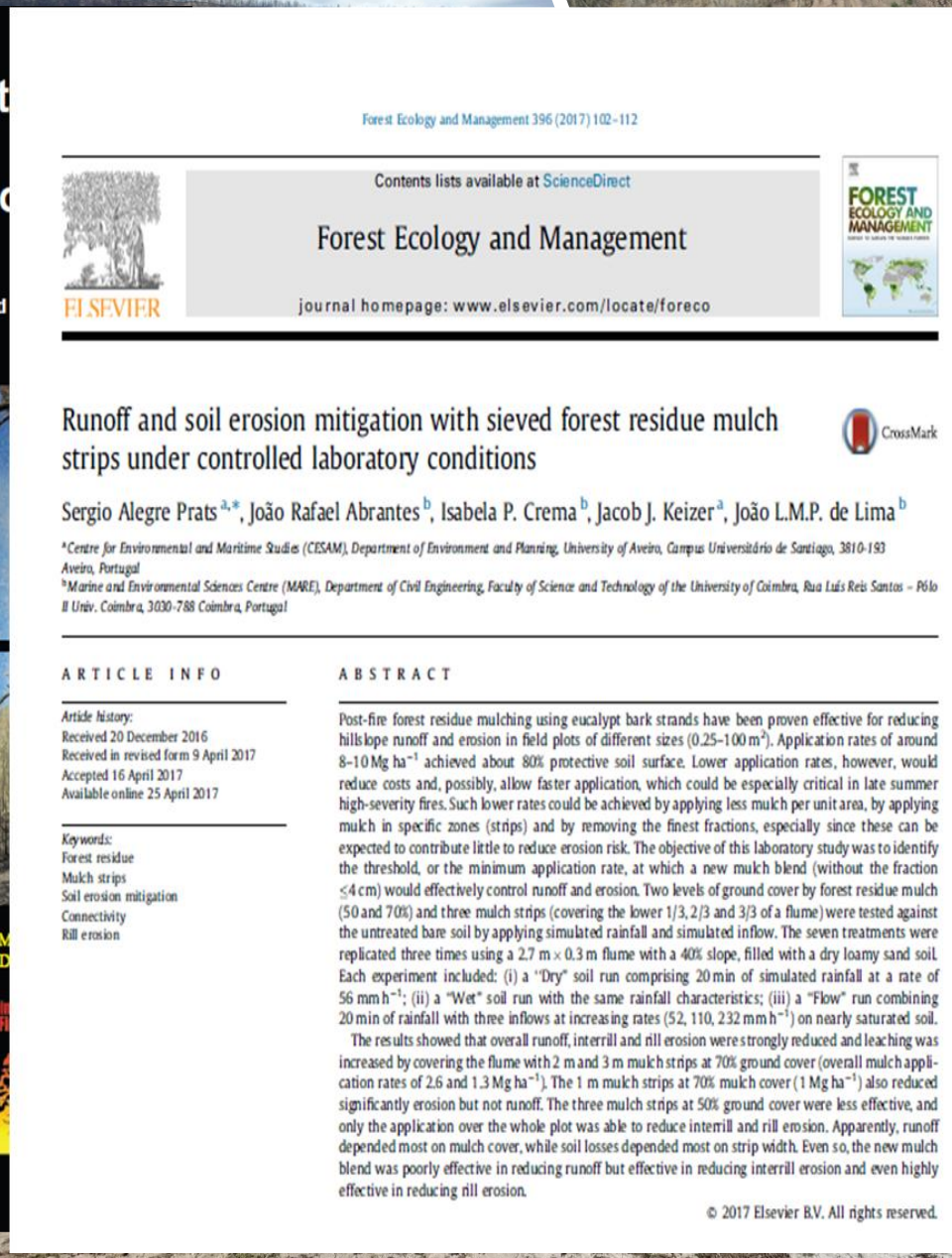

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Runoff and soil erosion mitigation with sieved forest residue mulch strips under controlled laboratory conditions

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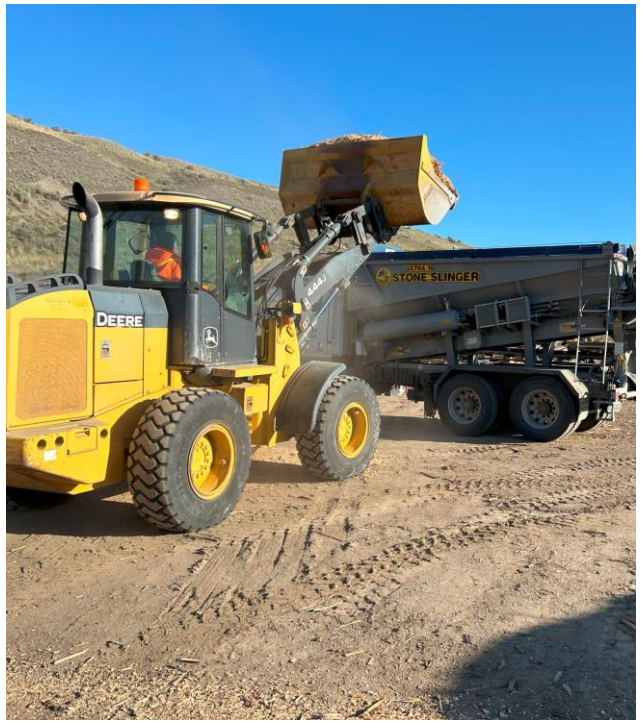
ABSTRACT

Post-fire forest residue mulching using eucalypt bark strands have been proven effective for reducing hillslope runoff and erosion in field plots of different sizes (0.25–100 m^2). Application rates of around 8–10 Mg ha^{-1} achieved about 80% protective soil surface. Lower application rates, however, would reduce costs and, possibly, allow faster application, which could be especially critical in late summer high-severity fires. Such lower rates could be achieved by applying less mulch per unit area, by applying mulch in specific zones (strips) and by removing the finest fractions, especially since these can be expected to contribute little to reduce erosion risk. The objective of this laboratory study was to identify the threshold, or the minimum application rate, at which a new mulch blend (without the fraction ≤4 cm) would effectively control runoff and erosion. Two levels of ground cover by forest residue mulch (50 and 70%) and three mulch strips (covering the lower 1/3, 2/3 and 3/3 of a flume) were tested against the untreated bare soil by applying simulated rainfall and simulated inflow. The seven treatments were replicated three times using a 2.7 m × 0.3 m flume with a 40% slope, filled with a dry loamy sand soil. Each experiment included: (i) a "Dry" soil run comprising 20 min of simulated rainfall at a rate of 56 mm h^{-1}; (ii) a "Wet" soil run with the same rainfall characteristics; (iii) a "Flow" run combining 20 min of rainfall with three inflows at increasing rates (52, 110, 232 mm h^{-1}) on nearly saturated soil.

The results showed that overall runoff, interrill and rill erosion were strongly reduced and leaching was increased by covering the flume with 2 m and 3 m mulch strips at 70% ground cover (overall mulch application rates of 2.6 and 1.3 Mg ha^{-1}). The 1 m mulch strips at 70% mulch cover (1 Mg ha^{-1}) also reduced significantly erosion but not runoff. The three mulch strips at 50% ground cover were less effective, and only the application over the whole plot was able to reduce interrill and rill erosion. Apparently, runoff depended most on mulch cover, while soil losses depended most on strip width. Even so, the new mulch blend was poorly effective in reducing runoff but effective in reducing interrill erosion and even highly effective in reducing rill erosion.

Mulch Strip Application

- 400-meter stretch treated along Criss Creek FSR (5400 Rd)
- Target coverage >70% and a minimum 3-meter width



Trials

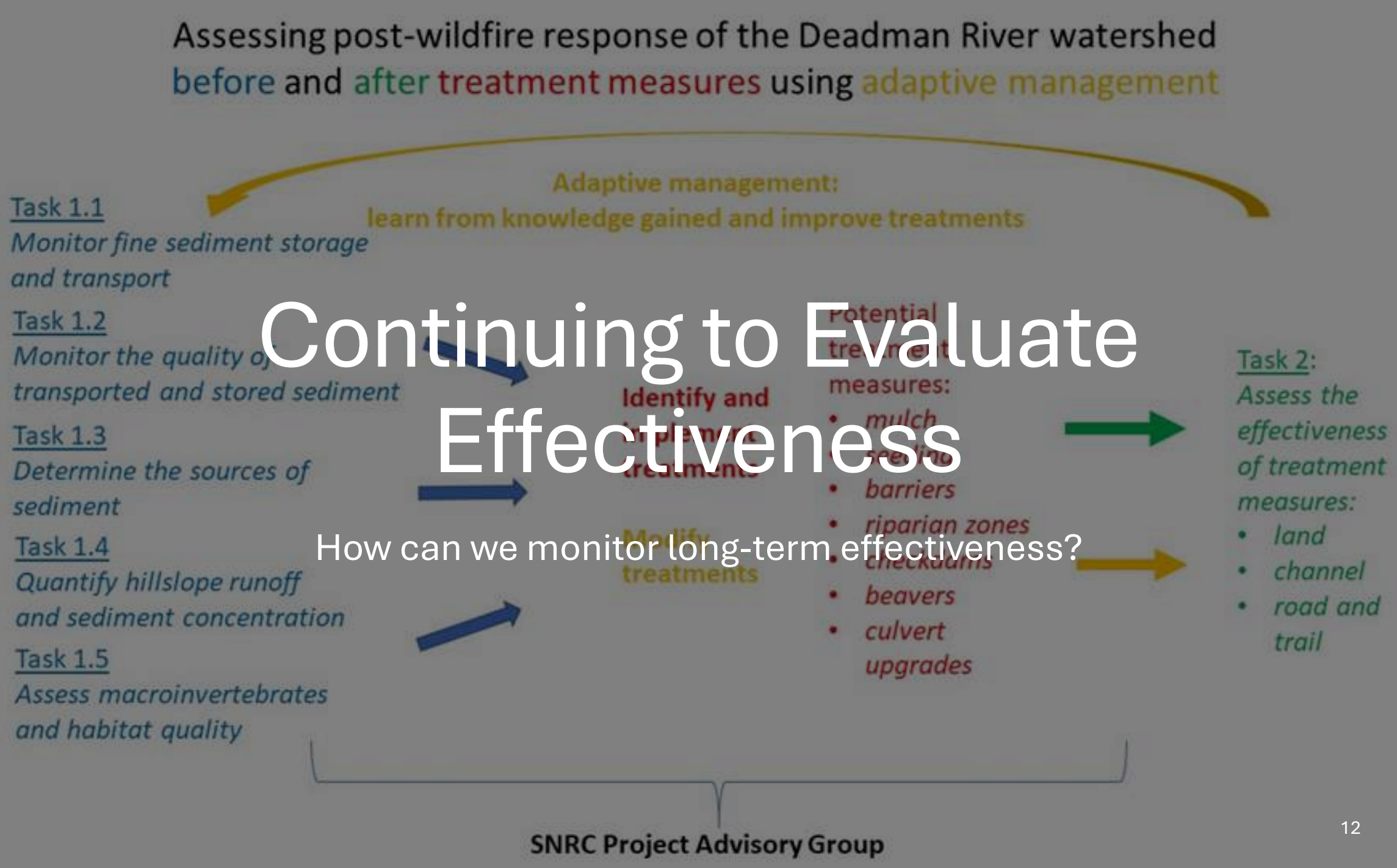
Troubles...

Reforestation

- 10.5 Million trees planted by 2031 through 2 Billion Tree Program
- Underplanting in areas of high burn severity
  - Using burnt trees as obstacles
  - Fertilizer bags
- 1.85 Million planted so far, 2.9 Million sown for next spring

Salvage Harvesting

- Prescriptions follow Skeetchestn developed Wildfire Salvage Guidelines
- Combination of obstacle planting and traditional site prep methods
- Distribution patterns
- Fibre Utilization



Continuing to Evaluate Effectiveness

How can we monitor long-term effectiveness?

Thank You!

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