MAC Project Monitoring Strategy & Funding Plan Development

ACCG General Meeting
Jan. 21st, 2026

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Implementation

Socio-Economic: Cultural

Socio-Economic: Jobs & Forest Products

Effectiveness

Presentation overview

Background & Goals of presentation

Monitoring Strategy Development

Monitoring Questions Overview

Questions & Example Indicators

Key Dates & Next Steps

Q&A

Background

- UMRWA's SNC RFFCP grant deliverable- development of MAC Monitoring Strategy and Funding Plan (due December 2026).

- UMRWA & FS working closely with ACCG Monitoring WG.

- Monitoring questions, indicators and other descriptors under development.

TODAY'S GOAL

ACCG opportunity to engage, and provide input on, draft MAC monitoring questions.

MAC Monitoring Strategy Development

MAC PURPOSE & NEED

1.1 Reduce Safety Hazards Across Public Lands

1.2 Restore Ecosystem Health and Resilience

1.3 Promote a Fire-Resilient Landscape

1.4 Maintain and Support Local Communities
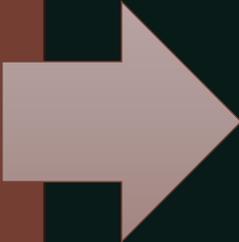
MAC MONITORING STRATEGY

Monitoring questions developed to address MAC Project Purpose & Need.

MAC Purpose & Need

1.1 Reduce Safety Hazards Across Public Lands

- The MAC Project is necessary to reduce the risk of wildfire to communities and their assets within and adjacent to USDA Forest Service–managed lands.

1.2 Restore Ecosystem Health and Resilience

- The MAC Project is necessary to increase forest resilience to natural disturbances and stressors, including large-scale wildfires, insect and disease, drought, and anticipated fluctuations in temperature and precipitation.
- The MAC Project is necessary to improve and protect plant and wildlife habitat and biodiversity, including but not limited to conserving special-status species.
- The MAC Project is necessary to improve and protect watershed integrity, water yield, and water resources, including water supply and water quality

1.3 Promote a Fire-Resilient Landscape

- The MAC Project is necessary to reestablish fire processes and support the safe and effective use of fire management strategies.

1.4 Maintain and Support Local Communities

- The MAC Project is necessary to provide jobs and forest products from management activities.
- The MAC Project is necessary to protect or enhance ecosystem services.

MAC Monitoring Questions Types, Themes & Sub-themes

Implementation

- Wildfire risk reduction
- Safe Ingress/Egress Routes
- Habitat & Biodiversity
- Watershed Integrity
- Fire Process Reestablishment

Socio-Economic:
Cultural, TEK

Socio-Economic:
Jobs & Forest Products

Effectiveness

- Forest Resilience/Resistance
- Wildfire risk reduction
- Safe Ingress/Egress Routes
- Habitat & Biodiversity
- Invasive Species
- Watershed Integrity

MAC Monitoring Questions

Theme, sub-themes	P&N	# of Questions
Implementation: • Wildfire risk reduction • Safe Ingress/Egress Routes • Habitat & Biodiversity • Watershed Integrity • Fire Process Reestablishment	1.1, 1.2, 1.3	5
Socio-economic: Cultural/ TEK	1.1, 1.2, 1.3, 1.4	2+
Socio-economic: Jobs & Forest Products	1.4	2
Effectiveness: • Forest Resilience/Resistance • Wildfire risk reduction • Safe Ingress/Egress Routes • Habitat & Biodiversity • Invasive Species • Watershed Integrity	1.1, 1.2, 1.3	14

Theme: Implementation

#	Sub-theme	MAC Purpose & Need	Question
1	Wildfire Risk Reduction	Reduce risk of wildfire to communities and their assets.	What percentage of the WUI surrounding at-risk communities have received wildfire mitigation treatments?
2	Safe Ingress/ Egress Routes	Reduce risk of wildfire to communities and their assets.	How many miles of ingress/egress routes have been maintained or improved?
3	Habitat & Biodiversity	Improve and protect plant and wildlife habitat.	Are project design features and mitigations effective in protection of target species?
4	Watershed Integrity	Improve and protect watershed integrity.	Are project Best Management Practices (BMPs) [designed to protect beneficial uses of water] being implemented as planned?
5	Fire Process Reestablishment	Reestablish fire processes.	What acreage has been treated with prescribed fire or allowed to burn under managed conditions within the past 5, 10 years?

Theme: Implementation

MAC Purpose & Need: Reduce risk of wildfire to communities and their assets.

Strategy Q. #1:

What percentage of MAC proposed treatments surrounding at-risk communities adjacent to FS lands have received wildfire mitigation treatments?

INDICATORS

- Wildland Urban Interface (WUI)

- FACTS

- Percentage of acres treated

Theme: Socio-Economic

#	Sub-theme	MAC Purpose & Need	Question
6	Cultural, Traditional Ecological Knowledge (TEK)	Improve and protect plant and wildlife habitat and biodiversity. Protect or enhance ecosystem services.	How many management activities have incorporated Traditional Ecological Knowledge in the planning or execution phases in the past year?
7	Cultural, Traditional Ecological Knowledge (TEK)	Improve and protect plant and wildlife habitat and biodiversity. Protect or enhance ecosystem services.	Have California Native American Tribes participated in at least 3 planning or monitoring meetings annually?
XX	Cultural, Traditional Ecological Knowledge (TEK)	Improve and protect plant and wildlife habitat and biodiversity. Protect or enhance ecosystem services.	How many California Native American Tribes participated in the implementation of acreage treatment? How many Acres per each Tribe?
XX	Cultural, Traditional Ecological Knowledge (TEK)	Improve and protect plant and wildlife habitat and biodiversity. Protect or enhance ecosystem services.	How many acres of Rx fire was listed as including cultural objectives directly proposed from Tribes, or was informed prior to implementation by Tribal Consultation, how do the long-term effects of a cultural burn differ from those of a prescribed fire?

Theme: Socio-Economic
Cultural, Traditional Ecological Knowledge

- Cultural objectives for all questions.

- Questions still under development.

- Working with UMRWA's Tribal Liaison.

- Discussion on creation of Tribal Monitoring Committee to inform process and implementation of monitoring.

Theme: Socio-Economic, Cultural/TEK

MAC Purpose & Need: Improve and protect plant and wildlife habitat and biodiversity. Protect or enhance ecosystem services.

Strategy Q. #XX:

How many California Native American Tribes participated in the implementation of acreage treatment? How many Acres per each Tribe?

INDICATORS

- Number of CA Native American Tribes.

- Acres by treatment type by Tribe.

Theme: Socio-Economic

#	Sub-theme	MAC Purpose & Need	Question
8	Jobs and Forest Products	Provide jobs and forest products.	How many local (Amador, Calaveras, Alpine, Tuolumne, El Dorado Counties) jobs and contracts have been created or maintained through restoration and management activities over the past year?
9	Jobs and Forest Products	Provide jobs and forest products.	What volume of forest products (e.g., timber, biomass) have been harvested by treatment type in the project area?

Theme: Socio-Economic

MAC Purpose & Need: Provide jobs and forest products.

Strategy Q. #9:

What volume of forest products (e.g., timber, biomass) has been sustainably harvested from restoration areas in the last 12 months?

INDICATORS

- Estimated / actual volume (biomass, sawlog- tons per acre)

- TREAT model

Theme: Effectiveness (example questions)

#	Sub-theme	MAC Purpose & Need	Question
12	Wildfire Risk Reduction	Increase forest resilience to natural disturbances and stressors. Reestablish fire processes.	Did all fuel treatments in the MAC landscape reduce fire risk across the general forest and in the long term?
14	Forest Resilience/ Resistance	Increase forest resilience to natural disturbances and stressors. Reestablish fire processes.	Has the density, composition and structure of forest vegetation been maintained or improved to increase resilience to human and natural disturbances (e.g., wildfire, drought)?
17	Habitat & Biodiversity	Improve and protect plant and wildlife habitat and biodiversity.	How do treatments affect occurrence or habitat quality for California Spotted Owls?
18	Habitat & Biodiversity	Improve and protect plant and wildlife habitat and biodiversity.	How do treatments (fuel breaks, thinning, Rx fire) affect occurrence or habitat quality indicators for target plant species in treated areas?
22	Invasive Species	Improve and protect plant and wildlife habitat and biodiversity	Are we making progress removing priority infestations from the project area after 5 years, 10 years?
23	Watershed integrity	Improve and protect watershed integrity.	Are implemented BMPs effective in protecting beneficial uses of water?

Theme: Effectiveness, Wildfire Risk Reduction

MAC Purpose & Need: Increase forest resilience to natural disturbances and stressors. Reestablish fire processes.

INDICATORS

Strategy Q. #12:
Did all fuel treatments in the MAC landscape reduce fire risk across the general forest and in the long term?

- Probability of Moderate and High Severity Fire

- Conditional burn probability

Theme: Effectiveness, Forest Resilience/Resistance

MAC Purpose & Need: Increase forest resilience to natural disturbances and stressors. Reestablish fire processes.

INDICATORS

Composition

Vegetation types

Density

Trees per unit area by quadratic mean diameter, vegetation type and status

Stand Density Index by vegetation type

Structure

- Seral stage by vegetation type
- Canopy cover
- Horizontal/vertical heterogeneity
- Forest patches & openings
- Fine scale heterogeneity

Strategy Q. #14:

Has the density, composition and structure of forest vegetation been maintained or improved to increase resilience to human and natural disturbances (e.g., wildfire, drought)?

Theme: Effectiveness, Forest Resilience/Resistance

MAC Purpose & Need: Increase forest resilience to natural disturbances and stressors. Reestablish fire processes.

Strategy Q. #15:
Have treated areas experienced fewer large-scale disturbances (e.g., wildfire, insect outbreaks) compared to untreated areas over the project implementation period?

INDICATORS

- Mean condition class (mean fire return interval departure condition class)

- **Area burned by fire vegetation severity and min, mean, and max patch size by high severity**

- Trends in tree mortality

Theme: Effectiveness, Habitat & Biodiversity

MAC Purpose & Need: Improve and protect plant and wildlife habitat and biodiversity.

Strategy Q. #17:
How do treatments affect occurrence or habitat quality for California Spotted Owls?

INDICATORS

- Occupancy: population monitoring

- Habitat: CWHR Stage (combination of canopy cover and QMD size class and vegetation type) – late seral habitat

- Canopy height

- Horizontal/vertical heterogeneity

Theme: Effectiveness, Habitat & Biodiversity

MAC Purpose & Need: Improve and protect plant and wildlife habitat and biodiversity.

Strategy Q. #18:
How do treatments (fuel breaks, thinning, Rx fire) affect occurrence or habitat quality indicators for target plant species in treated areas?

INDICATORS

- Rare Plant Population Trends

Theme: Effectiveness, Invasive Species

MAC Purpose & Need: Improve and protect plant and wildlife habitat and biodiversity.

Strategy Q. #22:
Are we making progress removing priority infestations from the project area after 5 years, 10 years?

INDICATORS

- Percentage of priority acres annually treated

- Percentage of priority acres successfully restored after 5 years,

Example of Indicator Methodology Using Remote Sensing – Evaluating Disturbance Metrics – Fire Return Interval Departure
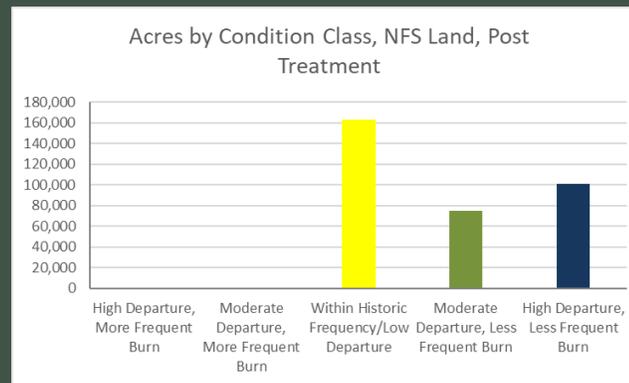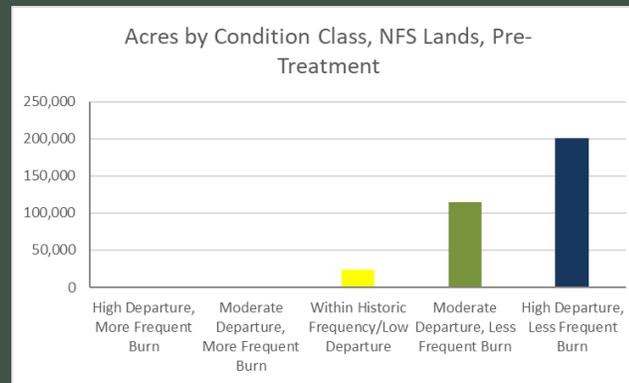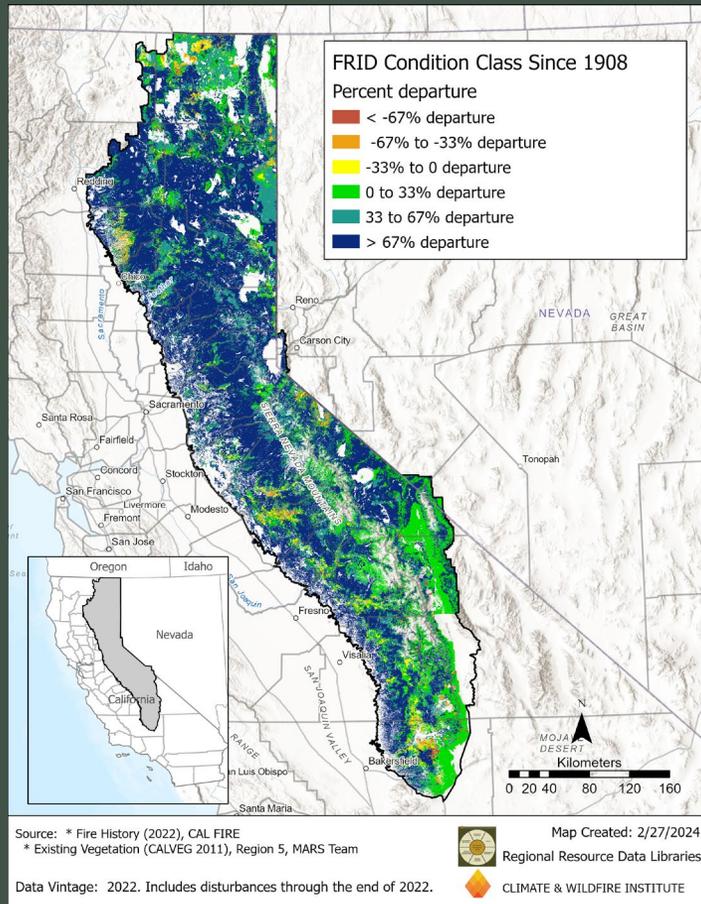
- Disturbance can be evaluated spatially or in tables

- Condition class is compared over time to show whether we are shifting acres from CC3 (high departure) to CC1 (within historic disturbance regimes)
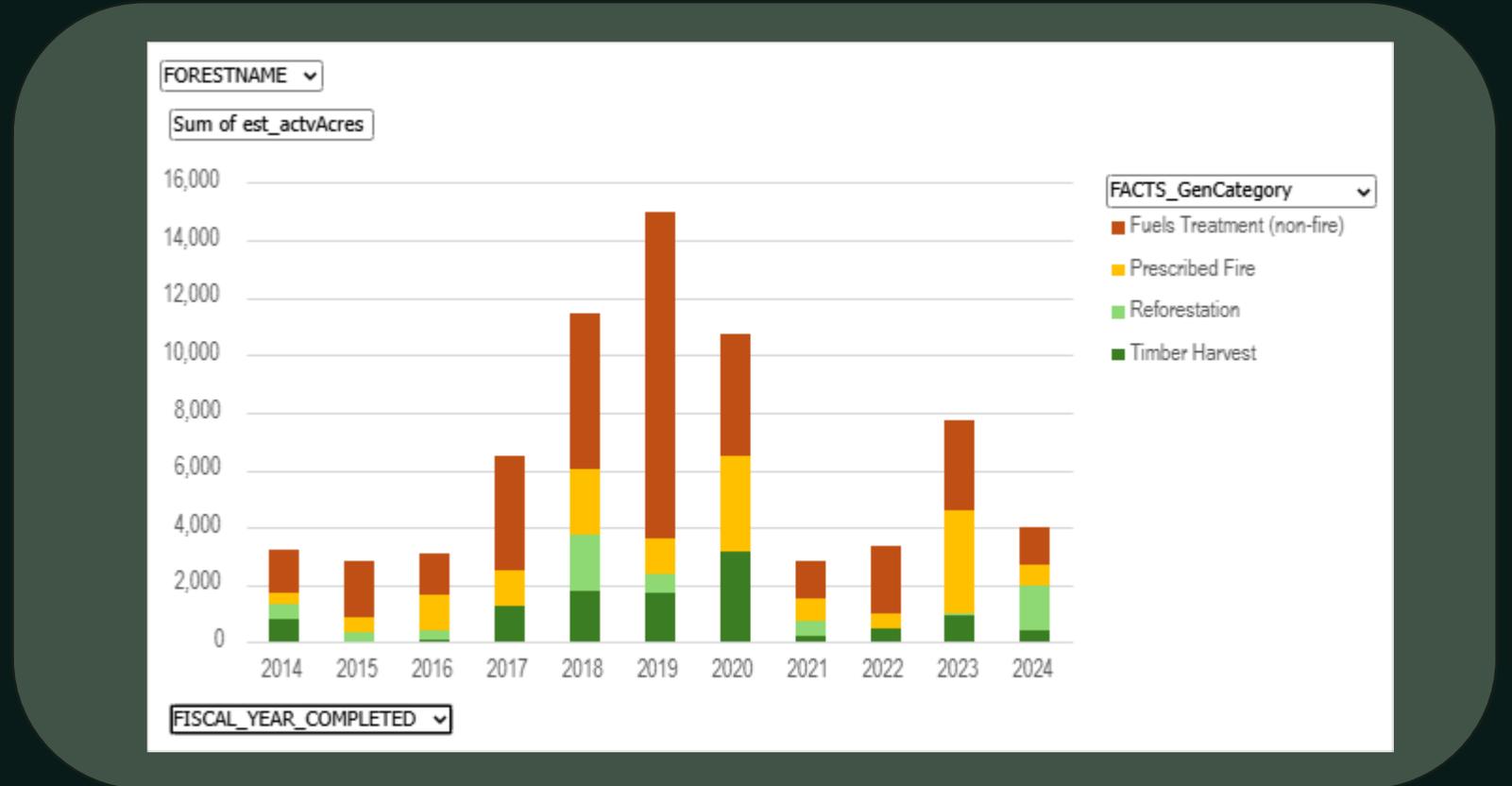
Example of Indicator Methodology Using LiDAR– Evaluating Overstory Vegetation Metrics – Forest Patches & Openings

- Utilizing LiDAR forest patches and openings can be identified

- The patches can be summarized by size class and compared to desired conditions
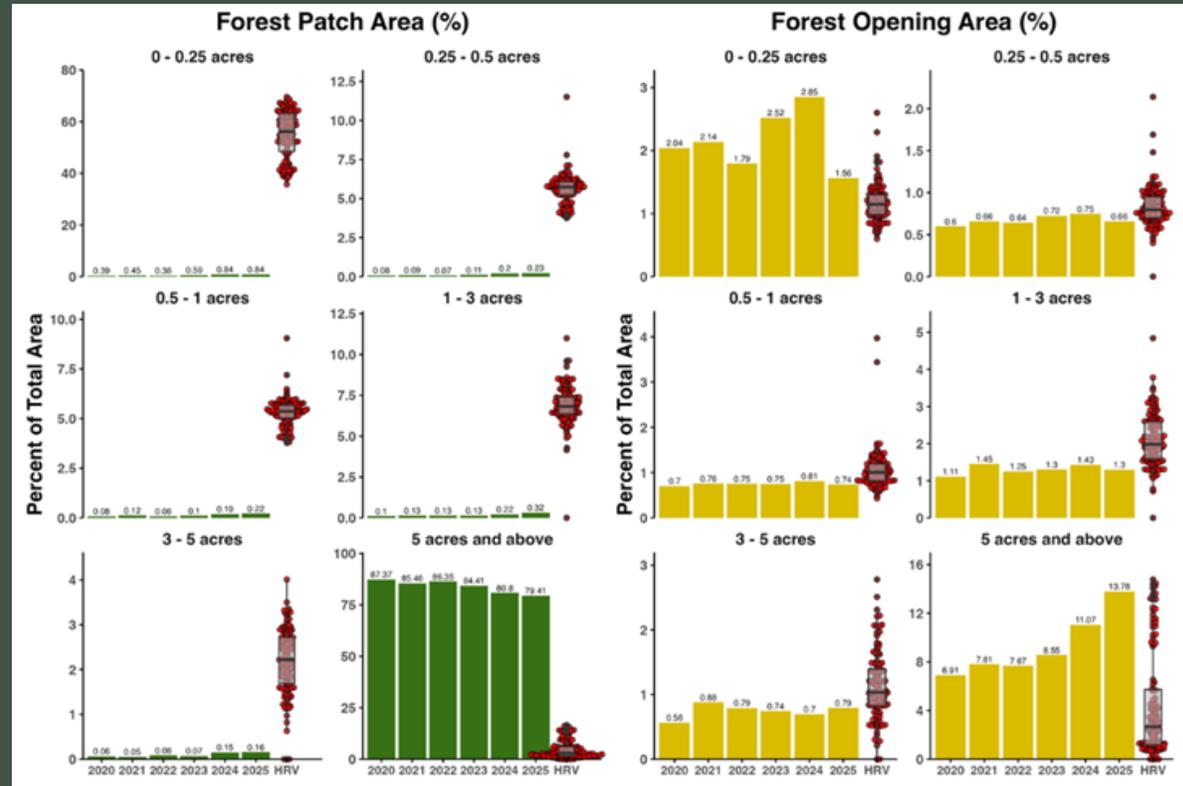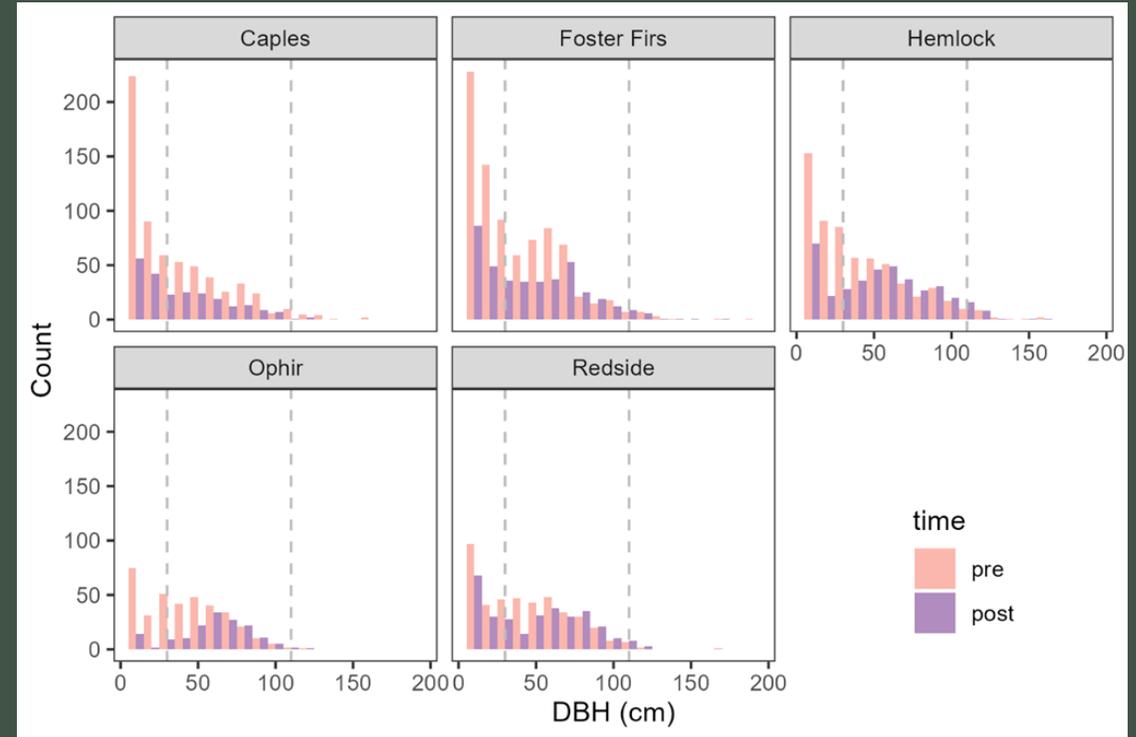
Example of Indicator Methodology Using Existing Data– Evaluating Implementation– Forest Activities

- Forest activities are summarized annually using FACTS supplemented with a new Implementation AGOL Interface

Example of Indicator Methodology Using Field Data– Evaluating Overstory Vegetation– Trees Per Unit Area
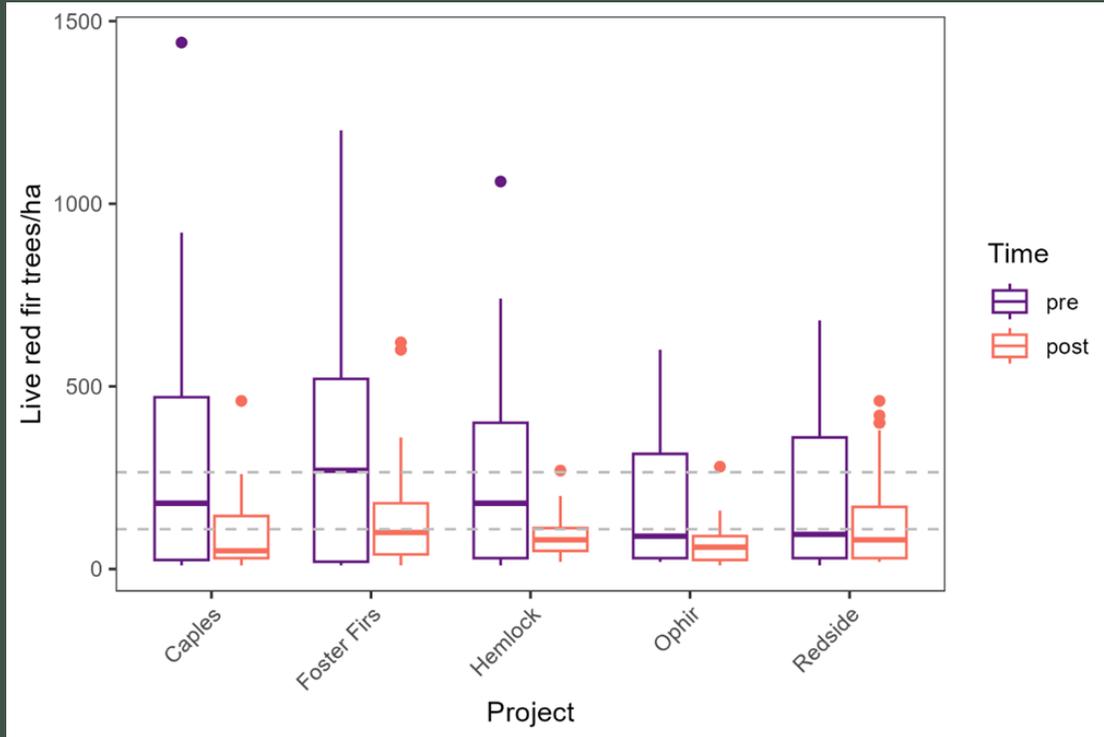
- Significant reductions in tree density to below Desired Conditions (e.g., Natural Range of Variability)
- Size class distributions shifted towards larger diameter trees
- Field data like remote sensing data can be summarized at multiple scales

Target dates

Continue refining strategy: questions, indicators, methodology.

Monitoring Strategy: finalize draft and present to ACCG Monitoring Work Group (WG).

Strategy Mapping (AGOL) Platform: Finalize and present to ACCG Monitoring WG.

ACCG General Meeting: seek consensus support of MAC Monitoring Strategy & Funding Plan.

April 2026   July 9th, 2026   Sept. 9th, 2026   Dec. 1st, 2026

Jan.-April 2026   May 13th, 2026   Aug. 12th, 2026   Oct. 21st, 2026

Receive MAC IDT feedback on Strategy.

Monitoring Funding Plan: finalize draft and present to ACCG Monitoring WG.

ACCG Monitoring WG final review of draft strategy, funding plan and AGOL platform.

MAC Monitoring Strategy and Funding Plan due to SNC (UMRWA's RFFCP grant deliverable).

Thank you!

Questions?