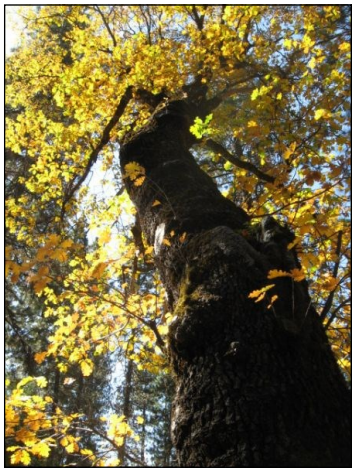
USDA Forest Service
Pacific Southwest Region
Ecology Program

FY 2024 Annual Report

REP Organization

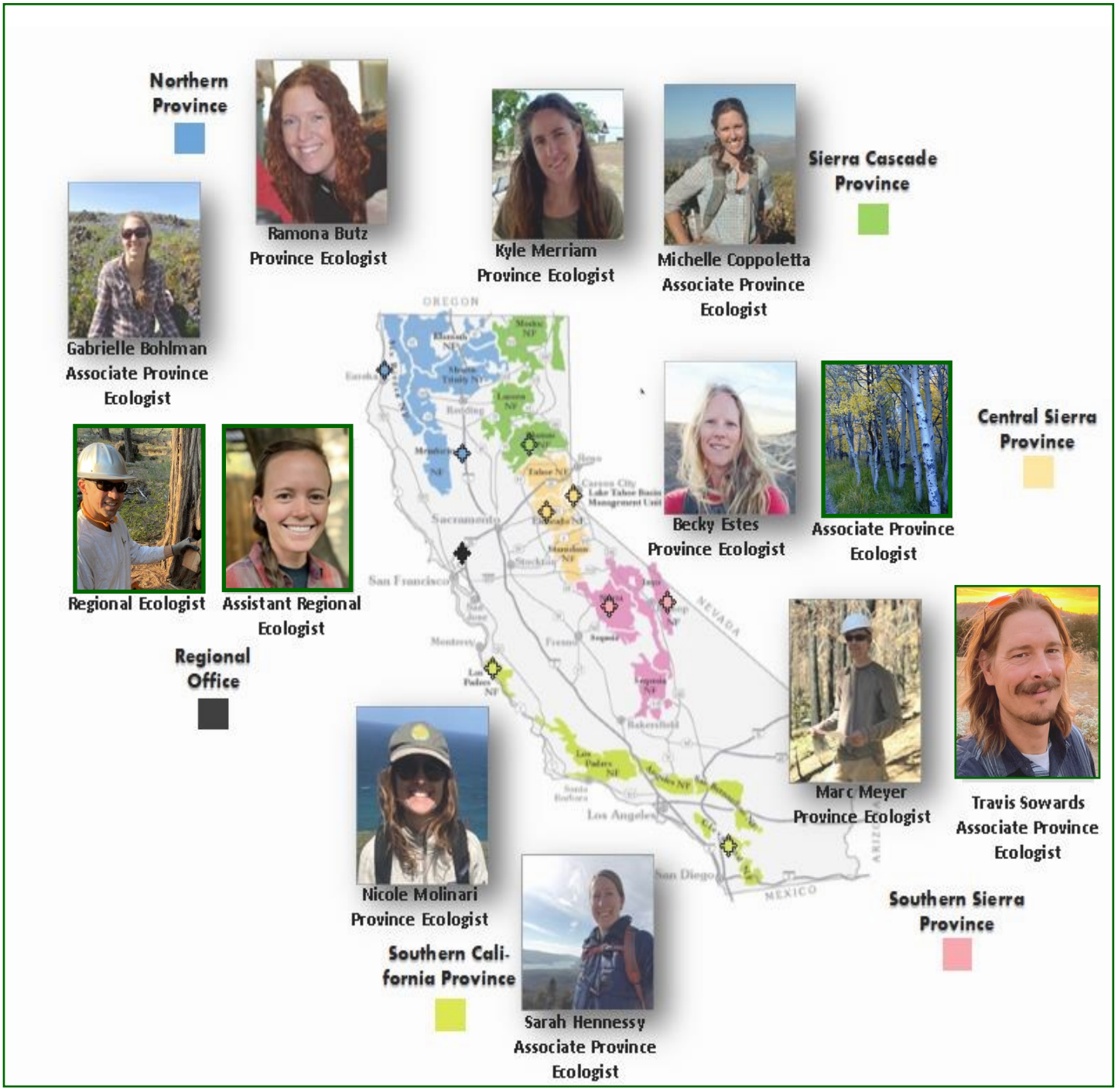
The Region 5 Ecology Program (REP) is a boundary-spanning organization that provides expertise fundamental to sustainable, science-based, multiple-use land management in the Pacific Southwest Region. REP staff work closely with other ecologists, resource specialists, and managers across the region and country. The REP is divided into five Provinces. Each Province has two ecologists, a Province Ecologist and an Associate Province Ecologist. Additionally, the Regional Ecologist and Assistant Regional Ecologist are based out of the Regional Office. Province Ecologists work across Forest Service Zones to help us meet our goals.



REP Mission Statement

⇒ To provide leadership and program direction that incorporates the best available ecological science to managing natural resources for sustainability and diverse human needs.

⇒ To facilitate understanding, development, and appropriate use of ecological science in Agency activities such as landscape analysis and assessment, land management planning, inventory and monitoring, and project implementation.



VISIT US ONLINE

Scan the QR code to visit our website at

https://www.fs.usda.gov/detail/r5/plants-animals/?cid=stelprdb5427254

Find resources such as monitoring reports, climate change summaries and contributions from each province across the forests.

PROGRAM PRIORITIES

Ecological Restoration

- The REP supports Forests in the interpretation and implementation of the R5 Ecological Restoration initiative.
- We collaborate with staff to address the Regional Forester's Priorities: "Wildfire Crisis Strategy / Shared Stewardship Agreement (Fuels Reduction and Forest Resiliency)" and "Post-Fire Recovery and Disaster Relief," including providing guidance on reforestation and on the implementation of GTR-270, a postfire restoration framework for National Forests in California.
- Other products include the development of peer-reviewed Natural Range of Variation (NRV) assessments that provide baseline information on ecosystem conditions that can be compared to current conditions to determine the level of departure in altered ecosystems. These assessments have been completed for a range of vegetation types across the Region and have been used for forest planning, development of restoration projects, and as a communication tool.

Climate Change Adaptation

- The REP addresses USDA and USFS priorities (e.g. USDA 1.1 Use Climate-Smart Management and Sound Science; USDA 1.3 Restore, Protect, and Conserve Watersheds; USFS Priority 2: Tackling Climate Change) by providing climate change science interpretation and support to help forest managers plan for, and where possible, mitigate climate related ecosystem vulnerabilities.
- We provide Climate Change Trend Summaries for all of the National Forests in Region 5. These summaries highlight the most current climate science for past, current, and projected future climate change trends by resource area and disturbance type.

Inventory and Monitoring

- The REP works closely with managers to identify, implement, and analyze key inventory and monitoring questions to meet a variety of program goals and address key management concerns. Inventory and monitoring support includes topics such as treatment effectiveness monitoring, status and trend monitoring for key issues across the region (e.g., whitebark pine status and trends, collaborative monitoring, forest health monitoring), and post-disturbance monitoring.

REGIONAL OFFICE

Regional Office Team

- Brandon Collins, Regional Ecologist
- Lacey Hankin, Asst. Regional Ecologist

Brandon and Lacey recently celebrated their first year with the program!

Accomplishments

Ecological Restoration

- As part of the Region 5 Reforestation Team, developed the "Reforestation Guidance for the Pacific Southwest Region Talking Points."
- Contributed to development of "Pacific Southwest Region Reforestation Implementation Plan."
- In collaboration with province ecologists, submitted two funding proposals to support implementation and monitoring of ecological reforestation projects.

Outcomes from different reforestation approaches following the 2007 Moonlight Fire. Effects of the 2021 Dixie Fire are shown in the background; fire suppression efforts were successful at keeping the fire out of the foreground.

Forest and Regional staff meet with partners in Sequoia National Forest to discuss stewardship of old growth forests.

- Developed fire management recommendations for managed wildfire in whitebark pine forests.

Inventory & Monitoring

- Reviewed and contributed to decisions on use of Research Natural Areas throughout the Region.
- In collaboration with Yosemite National Park and UC Berkeley, installed over 70 monitoring field plots to investigate effects of long-term managed wildfire on forest resilience.
- In collaboration with Ecosystem Planning, contributed to whitebark pine Broader-scale Monitoring Dashboard.
- Contributed to post-fire monitoring in whitebark pine forests & meadow

monitoring on the Lake Tahoe Basin Management Unit.

- Engaged in core team to develop a Mature & Old Growth Adaptive Management Strategy and associated resources.

Climate Change Adaptation

- Contributing author on California's Fifth Climate Change Assessment.
- Invited contributor to the USDA Climate Hub, Climate Informed Reforestation Workshop.
- Contributed to SW Climate Adaptation Science Center 5-year Science Agenda shaping climate change funding opportunities.
- Engaged in oak woodland climate change workshop with academic and Tribal partners.

Collaboration & Partnership

- Participated in Action Plan update for California Wildfire and Forest Resilience Task Force.
- Served on Advisory Board to the California Fire Science Consortium.
- Part of the core team to develop the CA Aspen Working Group (CAWG) to facilitate information sharing, best practices in management and restoration, and organize around shared interests for funding proposals. Organized in-person CAWG meeting with research presentations and field trip.
- Participated in public & forest leadership field meetings related to the Mature & Old Growth Amendment.

USFS range program staff train regional and local ecologists and botanists in meadow monitoring techniques.

- Served on SW Climate Adaptation Science Center Advisory Committee & regional contact for Cooperative Ecosystem Studies Unit, fostering collaboration between universities, federal agencies, and nonprofits
- Fostered ongoing and new collaborations with Ecosystem Planning, Fire & Aviation Management, Pacific Southwest Research Station, Region 6 & Region 4 staff, and numerous nonprofits, state and local governments.

Addressing 2025 Priorities

- Increase pace and scale of fuel reduction and reforestation projects through CA Wildfire & Forest Resilience Task Force and Cross-Province Efforts
- Address critical knowledge gaps for management and recovery of functioning ecosystems – from oak-woodlands to meadows to subalpine forests and the wildlife species therein

NORTHERN CALIFORNIA PROVINCE

KLAMATH, MENDOCINO, SHASTA-TRINITY, AND SIX RIVERS NATIONAL FORESTS

Province Team

- Ramona Butz, Province Ecologist
- Gabrielle Bohlman, Associate Province Ecologist

Accomplishments

Ecological Restoration

- Delivered final "Postfire Restoration Strategy for Conifer Forest, Late Seral Habitat, and Oak Woodland Across the Mendocino National Forest" and developed associated story map for internal and external engagement.
- NWFP Amendment DEIS and National Old Growth Amendment EIS
    - Provided data support and participated as an expert panel member
    - Helped develop and review state and transition models
    - Provided development support to the 30-year monitoring report
- Provided technical support to the Klamath and Shasta-Trinity National Forests Prescribed Fire Project.
- Helped identify Reforestation for Resilience pilot projects for FY25 and beyond.
- Presented on Northern California ecology to the California Reforestation Pipeline Partnership "Cone Camp" on the Shasta-Trinity National Forest.
- Provided support for projects in Research Natural Areas (RNAs) and Experimental Forests including SRF Trinity Summit.

Inventory & Monitoring

- Co-developed meadow inventory protocol to aid in the mapping and prioritization of meadows throughout northern California.
- Inventoried over 200 potential meadow sites across 12 watersheds on the Klamath, Mendocino, Shasta-Trinity, and Six Rivers National Forests.
- Provided support for two in-person meadow inventory trainings and one meadow restoration training.

Meadow inventory and process-based restoration training co-hosted by the Scott River Watershed Council and the Klamath Meadows Partnership.

- Developed monitoring protocol for a baseline condition assessment of the Cabin Meadows/Rock Fence Creek Project.

Climate Change Adaptation

- Worked with Ecosystem Planning staff to build and update a regional climate change monitoring dashboard.
- Participated in a workshop led by the CA Climate Hub to develop Climate-informed Reforestation Guidance for Region 5.

Collaboration

- Coordinated with PSW/PNW researchers, the Mendocino NF, FireScape Mendocino, and the CA Climate Hub to develop a series of public engagements related to the Mendocino NF Restoration Strategy.

Field visit on the Mendocino NF to discuss potential sites to include in the Reforestation for Resilience pilot project effort.

- Core team member of the Klamath Meadows Partnership (KMP) - a diverse network of over 30 agencies, non-profits, and scientists committed to the health and resilience of meadows in northern CA. Co-lead for the Compliance and Permitting Technical Advisory Committee.
- Collaborated with the CA Dept. of Fish and Wildlife, California Native Plant Society, and Cal Poly Humboldt to further develop ecology plot card database.
- Worked with Northern Rangelands Trust in Kenya to refine monitoring protocols and data management for tracking effectiveness of Opuntia management across community conservancy lands.

Addressing 2025 Priorities

- Continued support for Wildfire Crisis Strategy Landscape Planning (Trinity and Klamath NFs).
- Continued assistance with Northwest Forest Planning and National Old Growth Amendment efforts.
- Support for implementation and monitoring of ecological reforestation efforts.
- Support ongoing meadow restoration planning and implementation for projects across the Northern Province.
- Contribute to development of a comprehensive meadow map across northwestern California via an updated Lost Meadows Model and related mapping efforts.

SIERRA CASCADE PROVINCE

LASSEN, MODOC, AND PLUMAS NATIONAL FORESTS

Province Team

- Kyle Merriam, Province Ecologist
- Michelle Coppoletta, Associate Province Ecologist

Accomplishments

Ecological Restoration

- Implemented $500,000 process based restoration project on the PNF in collaboration with PSW. Restored 609 acres of meadows and 8.5 miles of streams in FY 24. Hosted 2 PBR workshops with multiple partners across the Region.
- Developed Reforestation for Resilience pilot project and identified sites for implementation in FY 25.
- Completed the proposed action and Minimum Requirements Analysis Framework workbook for the proposed 37,000-acre Ishi Wilderness Fire Restoration Project on the Lassen National Forest. Secured $642,000 grant to complete NEPA planning.
- Developed risk thresholds for ecological function and dominant vegetation types as part of the Lassen Quantitative Wildfire Risk Assessment (QWRA).
- Planned 300 acre reforestation effort to reintroduce Baker cypress population extirpated by the Dixie Fire in collaboration with Cal Poly Humboldt.

Inventory & Monitoring

- Secured $130,000 grant for the California Native Plant Society to conduct a conservation assessment, seed collection, and genetic study of MacNab cypress across the Region.
- Evaluated the effects of successive fires on aspen regeneration after three overlapping fires.
- Published a paper investigating historical fire frequency, seasonality, and spatial patterning along a distinct gradient in soil productivity on the Plumas National Forest.

Process based restoration workshop on the Plumas National Forest.

- Completed analysis of pre- and post-treatment field data to assess the effects of thinning in old-growth forest in the Valley Creek Special Interest Area (SIA).

Climate Change Adaptation

- Completed climate vulnerability analysis for the Wildfire Crisis Strategy Landscape (Protect) and other projects across the Province to help identify priority areas for reforestation and fuel treatment projects given current and future climatic stress.
- Completed a climate-wise reforestation assessment for the North Fork Forest Recovery Project on the Plumas National Forest.

Collaboration

- Co-led regionally based working groups as part of Climate-Hub led effort to develop climate-informed reforestation guidance.
- In collaboration with the Tehama RCD, co-led the Ishi tribal partnership working group to integrate cultural burning objectives into a largescale prescribed fire project.
- Worked with the US Fish and Wildlife Service, Regional Office and Forest Health Protection to facilitate use of Programmatic Biological Opinion for Whitebark Pine restoration on the Modoc National Forest.
- Collaborated with US Fish and Wildlife Service and other state and federal agencies to address conservation and management of vernal pool ecosystems on the Modoc Plateau.

Ishi tribal partnership working group discussion during a field tour of the Ishi Fire Restoration Project. October 2024.

Addressing 2025 Priorities

- Implementation and monitoring of ecological reforestation efforts across the Region.
- Continued assistance with planning, implementation, and monitoring in the Plumas Community Protection Project (WCS Priority Landscape) and other large landscape planning efforts across the Province.
- Planning and implementation of process-based restoration and development of the Lost Meadows Model.

CENTRAL SIERRA PROVINCE

LAKE TAHOE BASIN MANAGEMENT UNIT & TAHOE, ELDORADO & TAHOE NATIONAL FORESTS

Province Team

- Becky Estes, Province Ecologist
- Vacant, Associate Province Ecologist

Accomplishments

Ecological Restoration

- Contributed to a joint project on the Central Sierra forests evaluating different management strategies (prescribed fire and mechanical treatment) in red fir forests to better understand impacts on forest health. The team completed post-treatment monitoring in 2023 and analysis will be completed in 2025;
- Partnered with the California Academy of Sciences (staff botanist and Post-doc) to assist resource managers working in Sierra Nevada forests with better understanding the plant understory community as a critical component of ecosystem health. This project incorporates information on species taxonomy, function, and phylogeny to develop a holistic approach to outline the natural range of variation in understory plant communities and their role in fostering a healthy overstory tree community;
- Contributed to a report with staff on the Lake Tahoe Basin evaluating fuel treatments in California Spotted Owl Protected Activity Centers documenting the status and habitat condition before and after fuel reduction treatments. These treatments will be reevaluated in 2025;

Training with Forest Health and Protection to learn about insects and pathogens that impact red fir.

- Developed Reforestation for Resilience guidance with a dedicated team to implement pilot projects.

Inventory & Monitoring

- Worked with the Lake Tahoe Basin Management Unit to complete long term plant frequency meadow monitoring. This field season, 25 meadows were revisited with plans to complete the remaining meadows in 2025. The meadow analysis will be completed in partnership with the Pacific Southwest Research Station;
- Facilitated/organized Amador-Calaveras Consensus Group (ACCG) monitoring work group;
    - Maintained monitoring database and populated with all current monitoring to identify gaps and to track existing monitoring
    - Completed post treatment monitoring to address questions in the ACCG strategy
- Worked on the development of monitoring strategies with the North Yuba

Partnership on the Tahoe National Forest and the Mokelumne Amador Calaveras (MAC) project on the Eldorado and Stanislaus National Forests.

Climate Change Adaptation

- Participated in a Climate Smart and Culturally Sustaining Co-Stewardship of Aspen workshop in Gothic, CO with a diverse group of participants brought together to develop an aspen management framework;
- Presented on Climate Change in the Sierra Nevada to the Climate Stewards program offered in partnership with American Rivers Conservancy;
- Worked with a team to develop Climate Smart Reforestation Techniques to be implemented in post-fire forests across the Central Sierra.

Collaboration

- Participated on a joint project (MAC) with the ACCG, Upper Mokelumne River Watershed Authority (UMWRA), Stantec and Forest Service. Contributed to decision support tools, developed monitoring guidance and contributed to grant writing to fund a 10-year monitoring plan;
- Participated on the Science Advisory Panel to the CA Wildfire and Forest Resilience Task Force, Western Aspen Alliance steering committee and the California Fire Science Consortium (Sierra Nevada section) steering committee.

The Central Sierra Monitoring Crew gets trained in common meadow plants on the Tahoe National Forest and the Lake Tahoe Basin Management Unit.

Volunteers help to monitor large trees adjacent to Caples Creek on the Eldorado National Forest that reburned in the Caldor Fire.

Addressing 2025 Priorities

- Provide results on long term meadow data, red fir and mixed conifer treatments and aspen restoration;
- Work with Enterprise Team to develop a monitoring plan for SERAL 1.0 and 2.0 on the Stanislaus National Forest;
- Recruit MAC monitoring coordinator and work with team to complete and implement a comprehensive monitoring plan.

SOUTHERN SIERRA PROVINCE

INYO, SEQUOIA, AND SIERRA NATIONAL FORESTS

Province Team

- Marc Meyer, Province Ecologist
- Travis Sowards, Associate Province Ecologist

Accomplishments

Ecological Restoration

- Provided technical support to the Sequoia and Sierra National Forests Prescribed Fire Project
- Served as technical advisor to the Eastern Sierra Climate and Communities Resilience Project, Inyo National Forest
- Provided technical assistance and support to giant sequoia grove restoration projects on the Giant Sequoia National Monument and Sierra National Forest
- Gave forest and fire ecology presentation at the Science on Tap seminar series, Inyo National Forest
- Coordinated tree raking mitigation study at the Teakettle Experimental Forest, in partnership with the Pacific Southwest and Northwest Research Stations

Climate Change Adaptation

- Developed climate-smart ecological reforestation guide for Region 5 national forests in partnership with the Pacific Southwest Research Station
- Participated in film documentary and film premiere panel discussion focused on climate change adaptation, Inyo National Forest
- Published science article on managing fire-prone forests in a time of decreasing carbon carrying capacity and climate change

Inventory and Monitoring

- Assisted with Fire Indicators reporting in the R5 Broader-Scale Monitoring Strategy with R5 Ecosystem Planning
- Helped prepare the Inyo Forest Plan Monitoring Biennial Report with R5 Ecosystem Planning
- Completed the CFLRP annual report for the Dinkey Creek Collaborative

Third year of post-fire monitoring of conifer regeneration and vegetation in giant sequoia groves burned in the 2021 KNP Complex in the Redwood Mountain Grove, Giant Sequoia National Monument and Sequoia & Kings Canyon National Parks.

- Completed post-fire ecological monitoring report of burned giant sequoia groves on the Giant Sequoia National Monument, in partnership with USFS Forest Health Protection and University of California Davis
- Completed post-fire regeneration monitoring report of severely burned giant sequoia groves in Sequoia & Kings Canyon National Parks, in partnership with the U.S. Geological Survey and National Park Service
- Coordinated post-fire monitoring of whitebark pine stands burned in the Walker Fire (Inyo NF) and Caldor Fire (Lake Tahoe Basin Management Unit)
- Completed whitebark pine treatment effectiveness monitoring report for the June Mountain project, Inyo National Forest

Collaboration

- Coordinated post-fire vegetation and fuels monitoring of Redwood Mountain and Freeman Creek groves burned in the KNP Complex and Castle fires in partnership with the University of California Berkeley
- Coordinated ecological monitoring for the Dinkey Collaborative Forest Landscape Restoration Project, Sierra National Forest
- Collaborated with California Forest Soils Consortium to offer a soils field trip to assess post fire soil conditions in Nelder Grove and within meadow restoration projects
- Conducted monitoring of burned plantations on the Inyo National Forest with the Rocky Mountain and Pacific Southwest Research Stations, University of Nevada Reno, and Region 4 Ecology Program

Official signing of the Eastern Sierra Climate and Communities Resilience Project Environmental Assessment, Inyo National Forest.

Addressing 2025 Priorities

- Provide technical assistance to Collaborative Landscape Restoration Projects
- Analyze post-fire monitoring data from burned whitebark pine stands
- Assist with Sierra and Sequoia Forest Plan Monitoring Biennial Reporting

SOUTHERN CALIFORNIA PROVINCE

ANGELES, CLEVELAND, LOS PADRES, AND SAN BERNARDINO NATIONAL FORESTS

Province Team

- Nicole Molinari, Province Ecologist
- Sarah Hennessy, Associate Province Ecologist

Accomplishments

Ecological Restoration

- Released and outreached the Climate-Adapted Conservation Strategy for Southern CA Montane Forests, providing direction to SoCal's WCS Landscape and the product of a 4-year collaboration.
- Contributed to the WCS Ignition Reduction strategy by chairing the Vegetation Management Committee and supporting science needs through the development of an Invasive Species Toolbox in collaboration with Cal-IPC and acquiring NFWF grant funds alongside UC Santa Barbara.
- With American Forests, coordinated the CA Reforestation Pipeline Cooperative's first reforestation kickoff meeting, focused on Southern California sky island forests.
- Conducted cross-boundary gathering of 40 administrators, practitioners and researchers from state and federal agencies, private entities, and NGOs to co-produce prioritization mapping for San Diego County in support of State and Federal planning needs for forest treatments.
- Worked alongside fuels, fire and ecosystem staff to guide science-based restoration efforts, including best practices for establishing chaparral shrubs, seasonality of Rx fire on black oaks, strategic placement for fuels reduction and forest health projects, and mapping of postfire restoration and reforestation opportunities.

Southern CA Reforestation Pipeline field day. A diverse group of partners gathered at Cuyama State Park to discuss reforestation successes within the 2003 Cedar Fire (Aug 2024).

Inventory & Monitoring

- Conducted monitoring through an agreement with UC Santa Barbara to:
  - Measure stand structure & fuels in forest health projects at various stages of implementation

- Revisit plots within the 2024 Lake Fire footprint to evaluate fuel treatment effectiveness
- Evaluate the effectiveness of the BurnBot in reducing flashy fuels and nonnative propagules

- Established a new 3-year monitoring partnership with The Soil Ecology & Restoration Group at San Diego State University.

Collecting vegetation and fuels data in the Lake Fire footprint. Data collected in collaboration with UC Santa Barbara, Santa Barbara City College and USFS (LPF, August 2024)

Climate Change Adaptation

- Provided regional leadership for the development of the CA Climate Hub climate-informed reforestation guidance tailored to SoCal montane forests.
- Created a SoCal-focused menu of climate-adapted management recommendations for montane forests.
- Developed climate refugia mapping and applied to reforestation planning.

Collaboration

- Convened 150 scientists and practitioners for the 4th Chaparral Symposium in collaboration with the California Fire Science Consortium and Cal Poly, SLO
- Acquired grant funding through BIL and Joint Fire Science Program in collaboration with PSW and San Diego State University, to advance implementation of the Southern Montane Forest Conservation Strategy.
- Partnered with USGS and UC Santa Barbara to enhance understanding of chaparral management through hosting two sessions at Ecological Society of America conference
- Served on the science advisory panel for: CA Fire and Forest Resilience Task Force, Santa Barbara Botanic Garden Conservation Committee, UCSB Wildfire Resilience Initiative, and the CA Fire Science Consortium.
- Supported the Los Padres through detailing as the Ecosystem Staff Officer.

Addressing 2025 Priorities

- Outreach and application of the Montane Forest Conservation Strategy with an emphasis on integrating the prioritization framework and climate adaptation into planning and implementation.
- Support monitoring needs for the Wildfire Crisis Strategy and other key projects throughout the Zone, including the development of objective driven monitoring protocols, data collection and summarization.

SCALING UP

CROSS-PROVINCE COLLABORATION

The unique structure of the Region 5 Ecology Program allows us to work across provinces to address high priority needs across Region 5 and to scale up the efficiency and effectiveness of our program. Cross-province collaborations range from helping inform planning and prioritization across large landscapes to increasing the pace and scale of ecological restoration through information sharing and collaboration. Here we highlight three efforts in which multiple provinces within our program have been working together to meet the needs of managers and stakeholders throughout Region 5.

Ecological Reforestation

- Facilitated ecoregional breakout group discussions of reforestation at the Climate-informed Reforestation Workshop organized by USDA California Climate Hub and in partnership with USFS State & Private Forestry
- Developed ecological reforestation guide for Region 5 national forests in partnership with the Pacific Southwest Research Station (PSW)
- Submitted climate-smart reforestation techniques monitoring proposal to the California State Board of Forestry Effectiveness Monitoring Committee in partnership with PSW and Tree People
- Co-presented “Reforestation for resilience: creating fire-adapted forests for the future” at the 2024 California Fire Science Consortium Seminar Series in partnership with PSW

Climate-informed reforestation workshop participants in Folsom, CA. This workshop was organized by the California Climate Hub and facilitated by several ecologists in the Region 5 Ecology Program.

CA Aspen Working Group

- Organized a region-wide aspen working group connecting federal, state, local, Tribal, non-profit, and academic partners to share information and advance best available science and practices for aspen management and restoration.
- Held its first in-person annual meeting to share research presentations and discuss aspen management and restoration.
- Submitted funding proposals in collaboration with academic, non-profit, and Tribal partners to address priority knowledge gaps that emerged from the in-person meeting.

California Aspen Working Group participants visit Big Meadows restoration site near Etna, CA. Photo credit: Scott River Watershed Council

Process-Based Meadow Restoration

Demonstration of instream restoration using low-tech process-based techniques during a training on the Plumas NF.

- Developed proposal for large scale process-based meadow restoration (PBR) NEPA across multiple forests.
- Worked with forests to apply the Lost Meadows Model (LMM) in project planning and implementation.
- Coordinated with the WO Process-Based Steering Committee to share information and collaborate across regions to increase the pace and scale of PBR.
- Helped coordinate two PBR workshops and two meadow inventory trainings across the Region.
- Applied for $1.8 million in grant funding to support PBR and LMM development in collaboration with the WO and PSW.

COMMUNICATING SCIENCE & MANAGEMENT

PUBLICATIONS, REPORTS, & PRESENTATIONS

- **Bohlman, G**., A. White, **R. J. Butz**, and K. Faber. 2024. Postfire restoration strategy for conifer forest, oak woodland, and late seral habitat across the Mendocino National Forest. (Access story map here: Planning and Prioritization after Fire).
- Chamberlain, C.P., G.R. Cova, C.A. Cansler, M. North, **M.D. Meyer**, S.M.A Jeronimo, and V.R. Kane. 2023. Multi-scale and heterogeneous structures consistently emerge across fire-intact reference sites with repeat low- and moderate severity fire effects. Forest Ecology and Management 550: 121478.
- **Collins, B.M.** 2024. Managing mixed-conifer forests in a new era of megafires. Invited lecture. Univ. California, Berkeley Law School.
- **Collins, B.M.** 2024. Current challenges to managing mixed-conifer forests in a new era of megafires. Invited lecture. Univ. California, Berkeley, Dept. Environmental Science, Policy, and Management.
- **Collins, B.M.** 2024. Fuel Treatment Effectiveness Panel. Science to Support Wildfire Crisis Work, Rocky Mountain Research Station. Invited online presentation and panel discussion.
- **Collins, B.M.** 2024. Managing northern California forests in a new era of megafires. Invited presentation to Forestry Institute for Teachers. Blodgett Forest, Georgetown, CA.
- **Collins, B.M.** 2024. Post-fire management interventions. Invited presentation and panel discussion. California Wildfire and Forest Resilience Task Force. Sacramento, CA
- **Coppoletta, M**., E.E. Knapp, **B.M. Collins**, C.S. Abbott, H. Fertel, S.L. Stephens. 2024. Fire history in northern Sierra Nevada mixed conifer forests across a distinct gradient in productivity. Fire Ecology. 20. https://link.springer.com/article/10.1186/s42408-024-00322-7
- Fossum, C.A., **B.M. Collins**, C. W. Stephens, J.M. Lydersen, J. Restaino, T. Katuna, and S.L. Stephens. 2024. Trends in prescribed fire weather windows from 2000-2022 in California. Forest Ecology and Management 562: 121966.
- **Hankin, L.E**. 2024. Reforestation in an era of change. Invited lecture, Univ. of Nevada Reno.
- **Hankin, L.E**., S.A. Crumrine, C.T. Anderson. 2024. Impacts of mega drought in fire-prone montane forests and implications for forest management. Forest Ecology and Management. 564, 122010. https://doi.org/10.1016/j.foreco.2024.122010.
- **Hankin, L.E**., F.H. Barrios-Masias, A.K. Urza, S.M. Bisbing. 2024. Lethal combination for seedlings: extreme heat drives mortality of drought-exposed high-elevation pine seedlings. Annals of Botany, mcae064: https://doi.org/10.1093/aob/mcae064.
- Hurteau, M., M. Goodwin, C. Marsh, H. Zald, **B.M. Collins, M. Meyer**, M. North. 2024. Managing fire-prone forests in a time of decreasing carbon carrying capacity. Frontiers in Ecology and Environment. doi:10.1002/fee.2801.
- **Hennessy, S**., Jennings, M., **Molinari, N**., Magee, C., Pairis, A., & Safford, H. (2024). *Climate-Adapted* Conservation Strategy for Southern California Montane Forests. https://doi.org/10.5281/zenodo.13129913.
- **Hennessy, S.M**. 2024. Ecologists in the federal service have opportunities to advance collaborative ecosystem management. Ecological Society of America. Long Beach, CA.
- **Hennessy, S.M**. 2024. Reforestation in the Conservation Strategy for Southern CA Montane Forests. California Landscape Conservation and Adaptation Partnership.

- **Hennessy, S.M**. 2024 Montane Sky Island Forests of Southern California. American Forests, Cone Camp.
- **Hennessy, S.M**. 2024. Landscape prioritization and monitoring in the Conservation Strategy. Headwaters Resiliency Partnership.
- **Hennessy, S.M**., M. Jennings, N. Molinari, J. Heys, and C. Enquist. 2024. The Southern Montane Forest Project: Building climate adaptation into the management of montane forests across Southern California. Santa Ana River Science and Conservation Symposium.
- Katuna, T.A., **B.M. Collins**, and S.L. Stephens. 2024. Prescribed fires effects on actual and modeled fuel loads and forest structure in southern coast redwood (Sequoia sempervirens) forests. Fire Ecology 20:100.
- **Merriam, K.E**. 2023. Too much or too little: Altered fire regimes threaten MacNab cypress. Poster presentation at the 10th annual International Fire Ecology and Management Congress, Monterey, California, December 4-8. 2023.
- **Merriam, K.E.,** Montrone, A., Saito, L., Weisberg, P.G., Gosejohan, M. And Mejiae, J.F. 2024. Climate change and vernal pools on the Modoc Plateau. Invited speaker at: Northern California Botanists Symposium, Chico, California, January 8, 2024.
- **Meyer, M.D., T. Sowards**, R. Wayman, and B. Bulaon. 2024. Windy Fire post-fire ecological assessment: 2022 field inventory summary. USDA Forest Service, Pacific Southwest Region, Bishop, CA.
- **Meyer, M.D**., D. Soderberg, A. Das, C. Brigham, and R. Wayman. 2023. KNP Complex Post-fire Regeneration Assessment: 2023 Field Inventory Summary and Final Report. USDA Forest Service, Pacific Southwest Region, Bishop, CA.
- **Meyer, M.D.**, and B. Engelhardt. 2023. June Mountain whitebark pine monitoring report. USDA Forest Service, Pacific Southwest Region, Bishop, CA.
- **Meyer, M.D.**, and M.P. North. 2024. Reforestation for resilience: creating fire adapted forests for the future. Presented at the California Fire Science Webinar 2024 Series.
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