CFLRP Collaborative Governance Assessment Report
FOR THE MISSOURI PINE-OAK WOODLAND RESTORATION PROJECT

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SWERI Southwest Ecological Restoration Institutes
Colorado State University : New Mexico Highlands University : Northern Arizona University

COLORADO FOREST RESTORATION INSTITUTE
COLORADO STATE UNIVERSITY

NORTHERN ARIZONA UNIVERSITY
Ecological Restoration Institute

New Mexico Forest and Watershed Restoration Institute

Document Development: In FY21, the U.S. Department of Agriculture (USDA), Forest Service (Forest Service) led a collaborative process to develop a CFLRP Common Monitoring Strategy that will be required for all newly authorized and reauthorized projects under the Collaborative Forest Landscape Restoration Program (CFLRP). The Forest Service Washington Office requested assistance from the Southwest Ecological Restoration Institutes (SWERI) in developing and deploying an assessment tool to track collaborative governance within and across CFLRP projects through time. The collaborative assessment is intended to assess whether CFLRP is encouraging an effective and meaningful collaborative approach, a component within the CFLRP Common Monitoring Strategy. We developed an online, confidential survey that was administered to CFLRP project participants. With support from the Forest Service Forest Management, Range Management, and Vegetation Ecology program, SWERI conducted regional webinars to introduce the assessment and identify project-level points of contact, which were followed by in-depth engagement with key contacts to determine recruitment strategies, administration timing, and project-specific questions. In FY22 and FY23, SWERI will be collecting baseline information for all newly authorized and reauthorized projects. SWERI will continue to engage in assessing collaborative health and performance of CFLRP projects. The Ecological Restoration Institute at Northern Arizona University funded survey administration using state funding (Arizona Board of Regents through the Technology, Research and Innovation Fund), which was used as a match to annual federal appropriations to the SWERI.

Southwest Ecological Restoration Institutes (SWERI)
The Southwest Ecological Restoration Institutes include three university-based restoration institutes: the New Mexico Forest and Watershed Restoration Institute (NMFWRI), the Colorado Forest Restoration Institute (CFRI), and the Ecological Restoration Institute (ERI) in Arizona. These institutes were congressionally appointed in 2004 by the Southwest Forest Health and Wildfire Prevention Act (PL 108-317), and the Institutes work together to develop a program of applied research and service to help create healthy forests, prevent uncharacteristic wildfires, sustain the resiliency of water supplies to wildfires, and create jobs. The SWERI receive funding from five primary sources: 1) federal appropriations; 2) additional federal funding (e.g., the Infrastructure Investment and Jobs Act); 3) state appropriations; 4) in-kind support from host universities; and 5) extramural funding such as grants and agreements. The Southwest Ecological Restoration Institutes receive federal appropriations under the Southwest Forest Health and Wildfire Prevention Act administered through the Forest Service. In accordance with Federal law and USDA policy, these institutions are prohibited from discriminating on the basis of race, color, national origin, sex, age, or disability. To file a complaint of discrimination, write: USDA, Director, Office of Civil Rights Room 326-A, Whitten Building 1400 Independence Avenue, SW Washington, DC, 20250-9410 or call (202) 720-5964 (voice & TDD).

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The Ecological Restoration Institute is nationally recognized for mobilizing the unique assets of a university to help solve the problem of unnaturally severe wildfire and degraded forest health throughout the American West. ERI serves diverse audiences with objective science and implementation strategies that support ecological restoration and climate adaptation on Western-forest landscapes.

Colorado Forest Restoration Institute (CFRI), Colorado State University (CSU)
The Colorado Forest Restoration Institute is a science-based outreach and engagement organization hosted by the Department of Forest and Rangeland Stewardship and the Warner College of Natural Resources at Colorado State University. Colorado State University (CSU) is a land-grant university with a mission to provide teaching, research, public service, and engagement that CFRI strives to uphold. CFRI was established by Congress as part of the Southwest Ecological Restoration Institutes to serve as a bridge between researchers, managers, and stakeholders working to restore and enhance the resilience of forest ecosystems to wildfires in Colorado, the Southern Rocky Mountains, and the Intermountain West. CFRI leads collaborations between researchers, managers, and stakeholders to generate and apply locally relevant, actionable knowledge to inform forest management strategies. CFRI's work informs forest conditions assessments, management goals and objectives, monitoring plans, and adaptive management processes.

NAU Land Acknowledgment: Northern Arizona University sits at the base of the San Francisco Peaks, on homelands sacred to Native Americans. We honor their past, present, and future generations, who have lived here for millennia and will forever call this place home.

CSU Land Acknowledgment: Colorado State University acknowledges, with respect, that the land we are on today is the traditional and ancestral homelands of the Arapaho, Cheyenne, and Ute Nations and peoples. This was also a site of trade, gathering, and healing for numerous other Native tribes. We recognize the Indigenous peoples as original stewards of this land and all the relatives within it. As these words of acknowledgment are spoken and heard, the ties Nations have to their traditional homelands are renewed and reaffirmed. CSU is founded as a land-grant institution, and we accept that our mission must encompass access to education and inclusion. And, significantly, that our founding came at a dire cost to Native Nations and peoples whose land this University was built upon. This acknowledgment is the education and inclusion we must practice in recognizing our institutional history, responsibility, and commitment.

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SWERI Southwest Ecological Restoration Institutes

Colorado State University : New Mexico Highlands University : Northern Arizona University

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Executive Summary

The Southwest Ecological Restoration Institutes (SWERI) developed a collaborative governance assessment as part of the Collaborative Forest Landscape Restoration Program (CFLRP) Common Monitoring Strategy. The collaborative governance assessment was designed to assess the following questions:

1. What are the structural and functional dynamics of the collaborative? Does the collaborative exhibit characteristics generally associated with healthy, well-functioning, and resilient collaboratives?
2. What do participants need or recommend to improve the process?
3. To what extent do participants feel the project is meeting process, socio-economic, and ecological goals?
4. What challenges or disruptions affect collaborative performance and durability?

The SWERI administered an online survey to members of the Missouri Pine-Oak Woodland Restoration Project CFLRP in the spring of 2023.

The majority of respondents agreed the right people who had a stake in the issues and outcomes of the project were involved, and that there were opportunities to develop shared interests and concerns and discuss controversial issues. Most respondents indicated that they agreed about key problems that have impacted their landscape, strategies to solve problems, and the purpose of the Missouri Pine-Oak Woodland Restoration Project. The degree of collaboration between project participants

and Mark Twain National Forest staff met respondents' expectations throughout planning, implementation, and monitoring. Also, respondents overwhelmingly agreed that the process has helped build trust, relationships, and mutual respect of others' positions and interests even when they are different from their own. All respondents agreed that they themselves, other organizations, and the U.S. Department of Agriculture, Forest Service (Forest Service) were all committed to the process. Mutual commitment, especially among those with decision-making authority, is critical for collaborative durability. Survey respondents emphasized there were strong leaders who worked well across organizations and entities, communicated a collaborative vision, and motivated others to work together.

Respondents felt the Missouri Pine-Oak Woodland Restoration Project had adequate facilitation skills, time, and technical expertise to carry out tasks and accomplish their work, and they generally agreed that the Forest Service was responsive to collaborative feedback and was clear about the decisions made on Forest Service-managed lands. A strong majority of respondents also agreed that participants worked together to co-generate knowledge and solve problems. Knowledge and information were reportedly shared equally among participants. Respondents agreed that the Missouri Pine-Oak Woodland Restoration Project was committed to adaptive management, and had flexibility to adapt when forest and collaborative conditions changed.

Survey results indicated that the Missouri Pine-Oak Woodland Restoration Project had made moderate to

Photo Credit: CFRI

substantial progress on a number of process, socio-economic, and ecological goals of the CFLRP. A majority of respondents reported enhanced communication, decision-making, and inclusion of diverse voices, minimized conflict, increased landscape-scale planning, and improved planning across boundaries. A majority of respondents also reported progress on all five of the ecological goals, including: improved or maintained the pace and scale of restoration, restored old growth, reduced fuel hazards, improved fire use, and improved habitat. Finally, a strong majority reported moderate to substantial progress on reducing community wildfire risk, offsetting treatment costs with byproducts, and supporting local employment or training. Respondents reported few disruptions that have impacted their collaborative process and performance. The most commonly reported disruptions were the timing and amount of funding, limited agency capacity, and personnel turnover. The Missouri Pine-Oak Woodland Restoration Project responded to these disruptions by drawing on funds from previous timber sales to fill needed funding gaps and added new hires to increase personnel capacity

However, participants indicated several areas for improvement. Fewer respondents agreed there were adequate mechanisms for accountability between the Forest Service and non-Forest Service partners when compared to responses to other survey items. Similarly, while a strong majority found institutional arrangements appropriate and fair, the percentage of respondents who agreed to strongly agreed to these questions was relatively low compared with responses to other questions in the survey; i.e., 30-40% of respondents were neutral or disagreed. Only a slight majority agreed that participants clearly understood when and what collaborative input was useful to inform Forest Service decisions. Transparent, fair, and equitable institutional arrangements are necessary components of good governance, and being clear and transparent about decision authority and allowable decision space is critical for collaborative durability. Respondents recommended the following to improve the collaborative process and performance: 1) maintain collaborative flexibility and informal formality; and 2) expand collaborative capacity, engagement, and research and monitoring.

The SWERI will continue to engage in assessing collaborative health and performance of CFLRP projects, with the goal of gauging capacities and identifying areas for improvement.

Photo Credit: Andrew Slack, 2023

Introduction

The Forest Landscape Restoration Act (FLRA) was passed in 2009 and established the Collaborative Forest Landscape Restoration Program (CFLRP). The purpose of the CFLRP was to "encourage the collaborative, science-based ecosystem restoration of priority forest landscapes"[1] through a competitive funding program administered by the U.S. Department of Agriculture Forest Service (Forest Service hereafter). In 2021, CFLRP coordinators, Forest Service personnel, and partners led a collaborative process to develop a CFLRP Common Monitoring Strategy consisting of ecological and socio-economic monitoring questions and indicators that will supplement local project multi-party monitoring plans and will be required for all newly authorized and reauthorized projects.[2]

One core component of the CFLRP Common Monitoring Strategy relates to monitoring collaborative governance.[3] While the CFLRP requires projects to collaborate throughout planning, implementation, and monitoring, 'collaboration' was not defined in the FLRA or CFLRP requirements, nor did the CFLRP provide specific guidelines by which collaborative groups convened and engaged in collaborative restoration throughout the life of the CFLRP project. This has resulted in a multitude of collaborative structures, processes, and practices implemented in diverse social and ecological contexts across the country. Also, collaborative groups are nested within and impacted by changes that occur within their group, external changes in social and ecological conditions, and a fluid institutional environment, all of which require groups to adjust and evolve their structures, practices, and processes (Beeton et al., 2022; Ulibarri et al., 2020). Yet, a systematic approach to monitoring and evaluating attributes of collaborative governance and resilience is lacking. Systemic evaluation could lead to better understanding of what factors promote or challenge collaboration across different contexts, help target what kinds of investments are needed, and where to maintain and enhance collaborative capacity.

To address this need, the Forest Service Washington Office requested assistance from the Southwest Ecological Restoration Institutes (SWERI) in developing and deploying an assessment tool to track collaborative governance. During the development of the CFLRP Common Monitoring Strategy, CFLRP coordinators from the Washington Office elicited feedback from CFLRP practitioners, CFLRP coordinators, and subject matter experts to identify monitoring questions, indicators, and available data sources. With respect to collaborative governance, partners wanted to address the question, how well is the CFLRP encouraging an effective and meaningful collaborative approach? CFLRP practitioners, coordinators, and subject-matter experts expressed interest in documenting collaborative health, function, and resilience, as well as performance (perceived outcomes). CFLRP practitioners, coordinators, and subject matter experts also emphasized the need for a tool that is straightforward, not time-consuming, easy to administer, and longitudinal.

We incorporated stakeholder feedback and questions of interest developed while drafting the CFLRP Common Monitoring Strategy to directly inform the components of the collaboration assessment. Our objectives are as follows:

1. Develop a rigorous, systematic, and longitudinal assessment of collaborative governance that is grounded in the science and practice of landscape-scale collaborative forest restoration.
2. Support program-wide evaluation of collaborative progress and performance, and report on findings to Forest Service staff and Congress.
3. Facilitate project-level engagement, reporting, and peer-learning to inform local collaborative work and adaptive management.
4. Contribute to the theory and practice of collaborative governance through the synthesis of findings and lessons learned.

The SWERI administered the collaborative governance assessment—an online survey—to the Missouri Pine-Oak Woodland Restoration Project in the spring of 2023. The Missouri Pine-Oak Woodland Restoration Project was authorized for 10 years in 2012 and re-authorized in 2022 for 5 years. The report herein summarizes findings from the collaborative governance assessment. We briefly highlight the approach, followed by a baseline assessment of findings and document recommendations from respondents to improve the collaborative process.

Approach

We developed an online survey to assess:

1. What are the structural and functional dynamics of the collaborative? Does the collaborative exhibit characteristics generally associated with healthy, well-functioning, and resilient collaboratives?
2. To what extent do participants feel the project is meeting process, socio-economic, and ecological goals?

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[1] PL 111-11 CFLRP Authorizing legislation - https://www.congress.gov/congressional-report/110th-congress/senate-report/370/1
[2] CFLRP National Core Monitoring Strategy - https://www.fs.usda.gov/restoration/documents/cflrp/CMS-Fact-Sheet-final-20221013.pdf
[3] Here, we define governance as "the system of institutions, including rules, laws, regulations, policies, and social norms, and organizations involved in governing environmental resource use and/or protection" (Chaffin et al. 2014).

3. What challenges or disruptions affect collaborative performance and durability?
4. What do participants need or recommend to improve the process?

Framework

The survey was structured using concepts from an integrative collaborative governance framework (Emerson et al., 2012), resilience and adaptability literature (Emerson and Gerlak, 2014; Folke et al., 2005; Gupta et al., 2010), and empirical findings from the first 10 years of the CFLRP (Beeton et al., 2022; Butler and Schultz, 2019; McIntyre and Schultz, 2020; Schultz et al., 2018).

Collaboration dynamics – To assess collaboration dynamics, we operationalized the Integrative Framework for Collaborative Governance (Emerson et al., 2012). The framework incorporates multiple components of collaborative governance that are grounded in collaborative practice, link collaboration dynamics to socio-economic and ecological outcomes, and promote assessment of collaboratives across settings and time. The components include principled engagement, shared motivation, and capacity for joint action (Emerson et al., 2012).

Principled engagement refers to ensuring the right people are involved, i.e., a representative cross-section of people and entities who have a stake in the issue. Principled engagement also emphasizes the principles of open and inclusive communication and negotiation, where individuals with diverse perspectives and knowledge work together to identify shared problems, agree on strategies to solve those problems, and agree on the purpose or scope of the collaborative.

Shared motivation refers to the interpersonal and relational elements of collaborative dynamics. Shared motivation includes the sub-components mutual trust, understanding, and commitment. It is often referred to as social capital, or the "glue" that holds groups together through networks, norms, rules, and trust that promote collective action (Pelling and High, 2005). This glue is crucial for effective collaboration; social capital is built through investments in social relationships and can be expressed through mutual commitment of individuals and groups to common collaborative goals.

Capacity for joint action comprises four sub-components: leadership, knowledge and learning, resources, and institutional arrangements (Emerson and Gerlak, 2014). Leadership is essential for managing collaboratives, and leaders can fill many roles including convener, sponsor, public advocate, facilitator, and others. They are important for: building trust, sensemaking, bringing people together, initiating partnerships, motivating people to work together, compiling, generating, and disseminating knowledge, developing visions of and support for change, and managing conflict (Folke et al., 2005).

In a collaborative setting, participants should work together to co-create and co-develop shared understanding and knowledge through social learning; knowledge and information should be equally accessible to all members of the collaborative; and learning and knowledge should be used to inform flexible, adaptive management (Emerson and Gerlak, 2014). Social learning occurs through repeated interactions and joint problem-solving among participants. It emphasizes testing, monitoring, and reevaluating participants' assumptions and understanding of ecosystem responses and feedbacks to learn and adapt management actions (Folke et al., 2005; Lebel et al., 2010; Sharma-Wallace et al., 2018). Collaboratives often pool and share resources to accomplish tasks and get work done. These can include funding, personnel, science and technical expertise, facilitation, and coordination.

Institutional arrangements are the processes, protocols, and structures needed to manage collaboration over time, i.e., the rules of the game. Collaborative structures, processes, and protocols should be clearly understood, transparent, perceived as fair and equitable, and include mechanisms of accountability (Emerson et al., 2012; Gupta et al., 2010; Stern and Coleman, 2015). Capacity needs change through time, and the relative amount of these four capacity types is contingent upon the local context — e.g., history of conflict, people involved, purpose and objectives of the group, among others (Imperial et al., 2016).

Perceived outcomes – Our assessment focuses both on perceived "process" outcOur assessment focuses both on perceived "process" outcomes (e.g., did the collaborative process reduce conflict, or increase the ability to plan at a landscape scale?) and socio-economic and environmental outcomes. The outcome metrics chosen for evaluation were derived from several sources: the intent of the FLRA of 2009 and the CFLRP, project proposals, and conversations with local, regional, and national CFLRP coordinators while developing the Common Monitoring Strategy.

Challenges or disruptions that affect collaborative performance and durability – Disruptions—i.e., personnel turnover, legal or policy changes, and biophysical disturbances like wildfires or insect outbreaks—can happen at any time. These disruptions may impact collaborative progress and performance, and/

or force groups to adapt. We developed a list of common challenges that CFLRP projects and other landscape-scale forest collaboratives reported in: 1) breakout group discussions and focus group sessions at the 2020 SWERI Cross-boundary landscape restoration workshop (SWERI, 2020) and the 2020 Idaho forest collaborative shared stewardship workshops; 2) the 2020 CFLRP Collaboration Indicator Survey administered by the National Forest Foundation[4]; and 3) a survey administered to Forest Service staff engaged in 2010 and 2012 CFLRP projects (Schultz et al., 2018). Identifying current challenges or disruptions that CFLRP projects are grappling with can support strategic investment toward solutions to maintain collaborative performance and durability.

Needs or recommendations to improve the process – We captured respondents' perspectives on needs and recommendations to improve the collaborative process by including open-ended survey questions.

Data Collection and Analysis

We developed a standardized survey in the online survey tool Qualtrics that consisted of 21, mostly closed-ended statements using a Likert scale. SWERI piloted the assessment with and elicited feedback from the Northern Blues All-Lands Restoration Partnership and Northern Blues CFLRP project participants (n=37), as well as participants of the Colorado Front Range CFLRP (n=3) in FY21 (Beeton et al., 2022).

Missouri Pine-Oak Woodland Restoration Project members Brian Davidson, Bennie Terrell, and Trevor Ozier provided support in recruiting participants and administering the survey through the collaborative partner listserv in April and May 2023. The survey was open for 6 weeks. We received 18 usable responses, representing more than 49% of the population. We used the statistical software program Statistical Software for Social Sciences (SPSS) to document mean responses and variation in responses. Open-ended questions were analyzed using a thematic analysis (Ryan and Bernard, 2003). Small sample sizes prohibited further statistical analyses, though this will be possible when more data has been collected.

Findings

Our results are organized as follows. The first section includes responses related to respondents' affiliations, motivations for being involved in the CFLRP project, level of engagement, and the degree to which respondents felt the project was collaborative. We then provide a description of findings related to collaboration dynamics (i.e., **principled engagement**, **shared motivation**, and **capacity for joint action**). We provide a short description of each collaboration dynamic construct in italics to orient the reader. We follow with findings on perceived outcomes, disruptions that are challenging collaborative progress and performance, and recommendations to improve the process. In Appendix 1, we present results from the appended question set that was developed in coordination with key points of contact affiliated with the Missouri Pine-Oak Woodland Restoration Project CFLRP. For scale items (e.g., strongly disagree to strongly agree, progress scales), figures depict the percentage of survey participants that somewhat agree to strongly agree. This was done for consistency in visualization and ease of interpretation. For clarity, we describe majority or strong majority results as greater than or equal to 60% agreement and slight majority as greater than 50% agreement.

Introductory questions

The majority of participants represented the Forest Service and universities or researchers (Figure 1). The most frequently reported motivations for being involved in the CFLRP project were to restore forest resiliency,
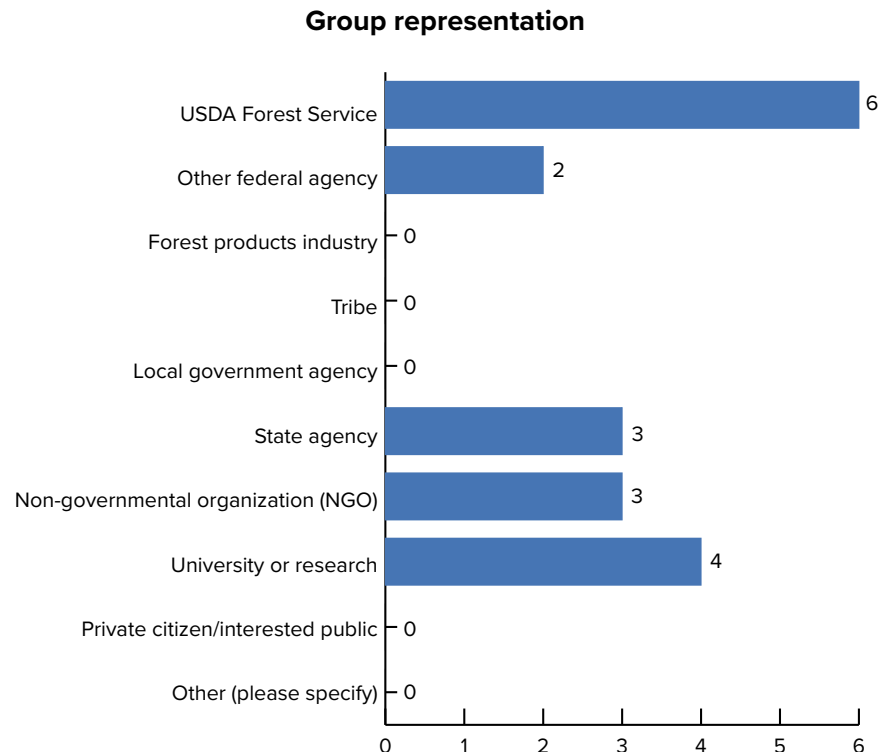
Group representation

Figure 1: Respondents' self-identified representation with associated organizations.

protect/restore fish and wildlife habitat, and to increase the pace and scale of work (Figure 2). The level of engagement in the CFLRP project during the past 12 months varied between participants – 72% reported that they were moderately to highly engaged, while 28% reported low engagement, and 0% reported that they were not engaged (Figure 3).

We asked respondents to reflect on the degree to which they thought the CFLRP project was collaborative (on a scale from not collaborative at all to very collaborative), which we defined in the survey as:

Collaboration occurs when multiple parties come together to address problems that could not be achieved by acting alone. Effective collaboration should typically include: inclusive and diverse stakeholder interaction throughout the process; venues for open communication and negotiation about values, interests, and appropriate management actions; and opportunities for social learning.

A strong majority of respondents (89%) indicated the CFLRP project has been collaborative to very collaborative (Figure 4).

Principled engagement

Principled engagement refers to having the right people involved in iterative and inclusive dialogue to determine shared problems, identify shared strategies to solve problems, and agree to the shared purpose of the project.

All respondents (100%) agreed to strongly agreed that a representative cross-section of individuals who have a stake in
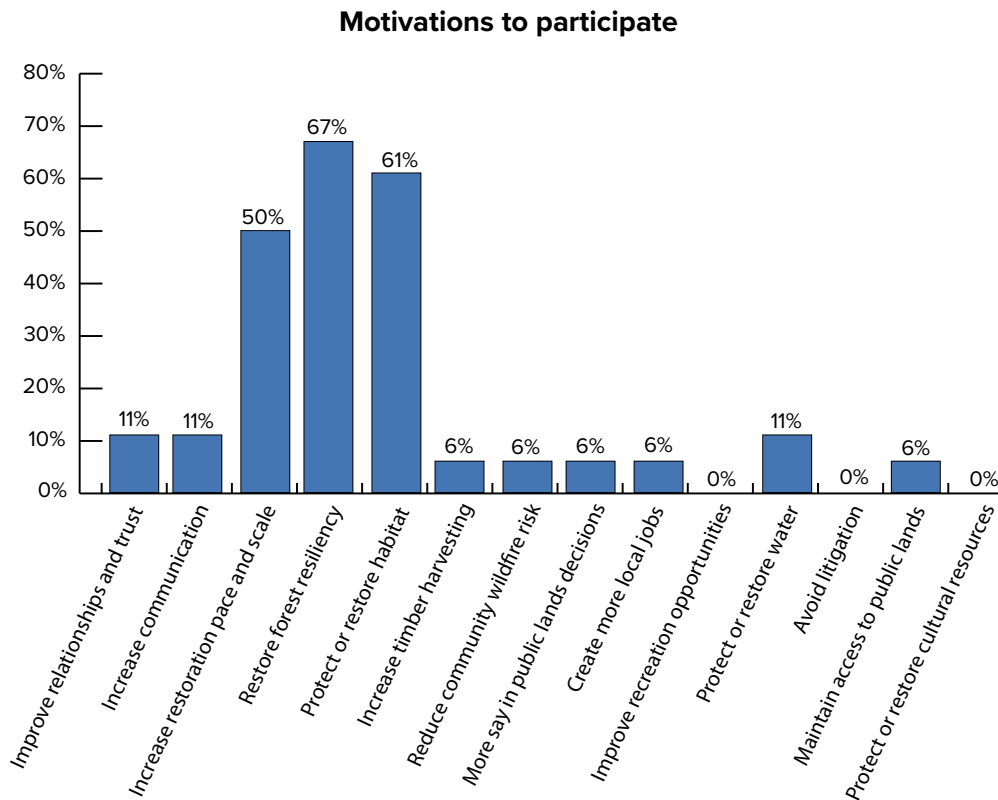

Figure 2: Percentage of respondents who identified the associated motive as reason for their participation in the collaborative. Note – respondents were able to select multiple motives.
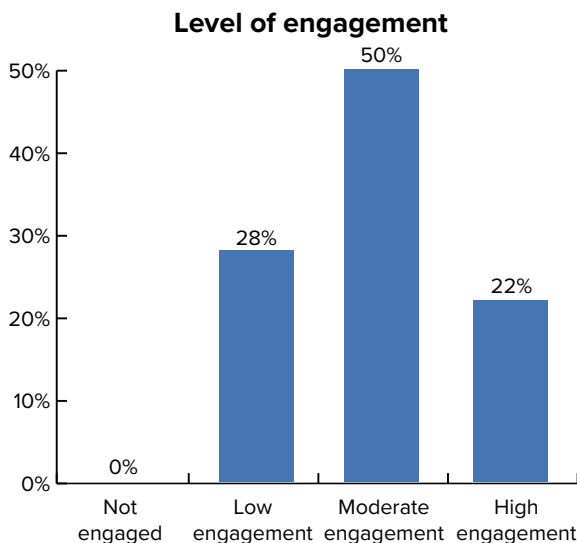

Figure 3: Percent of respondents who rated their involvement in this project as "Not engaged," "Low engagement," "Moderate engagement" or "High engagement."
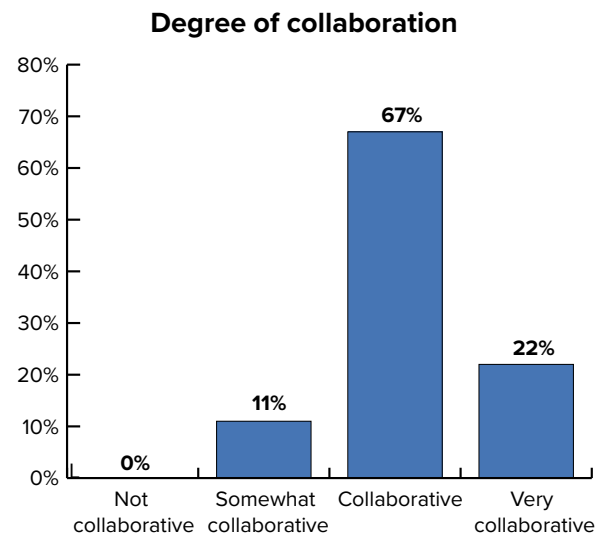

Figure 4: Percentage of respondents who reported this project to be "Not collaborative," "Somewhat collaborative," "Collaborative" or "Very collaborative."

the issues and outcomes of the project are involved and that participants worked together to identify shared interests and concerns (Figure 5). Open-ended responses to the question suggested seeking additional engagement with the National Wild Turkey Federation, National Deer Association, and the United States Fish and Wildlife Service. A strong majority (93%) felt the collaborative process created a neutral space for CFLRP participants to openly discuss controversial issues (Figure 5).

A strong majority of respondents indicated that participants had a shared understanding of the problems that impact their landscape (93%), the strategies to solve those problems (93%), and the purpose of the CFLRP project (94%) (Figure 6).

A strong majority of respondents felt the level of collaboration between CFLRP project members and the Forest Service met their expectations during planning (93%), implementation (100%), and monitoring (94%) (Figure 7).

Shared Motivation

Shared motivation refers to trust, mutual understanding, relationship-building, and commitment to the collaborative process.

A strong majority of participants agreed the collaborative process helped build trust in each other (93%), relationships (94%), and mutual respect of others' positions and interests (94%) (Figure 8). Also, all participants (100%) trusted in the group's ability to achieve desired actions and outcomes (Figure 8). All respondents (100%) indicated that they themselves, the Forest Service unit level staff, and other project participants were committed to the process (Figure 9).

Capacity for Joint Action

Capacity for joint action includes four components: collaborative leadership, knowledge and learning, resources, and institutional arrangements that support fair governance.
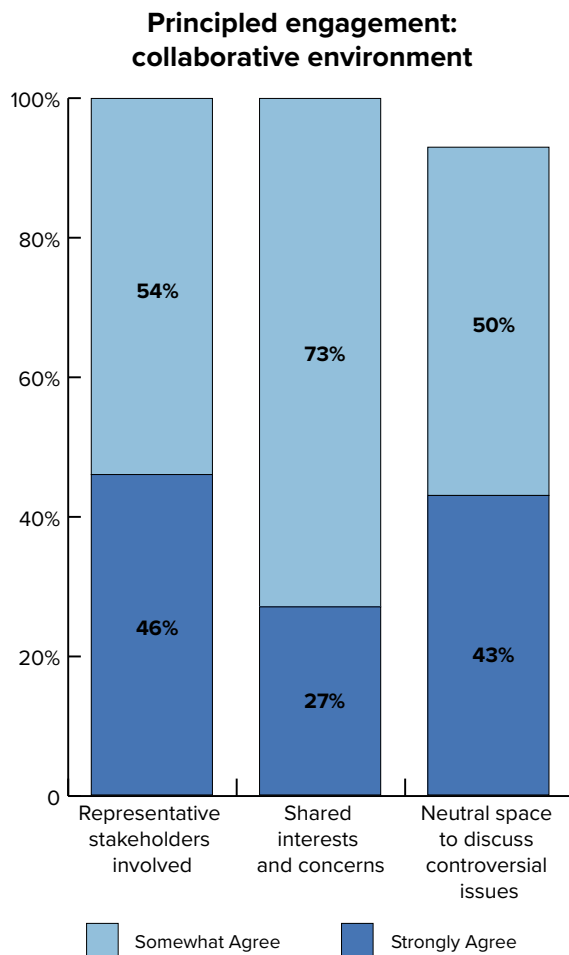

Figure 5: Percentage of respondents who either "Somewhat Agree" or "Strongly Agree" that representative stakeholders are involved, stakeholders have shared interests and concerns, and the collaborative is a neutral space to discuss controversial issues.
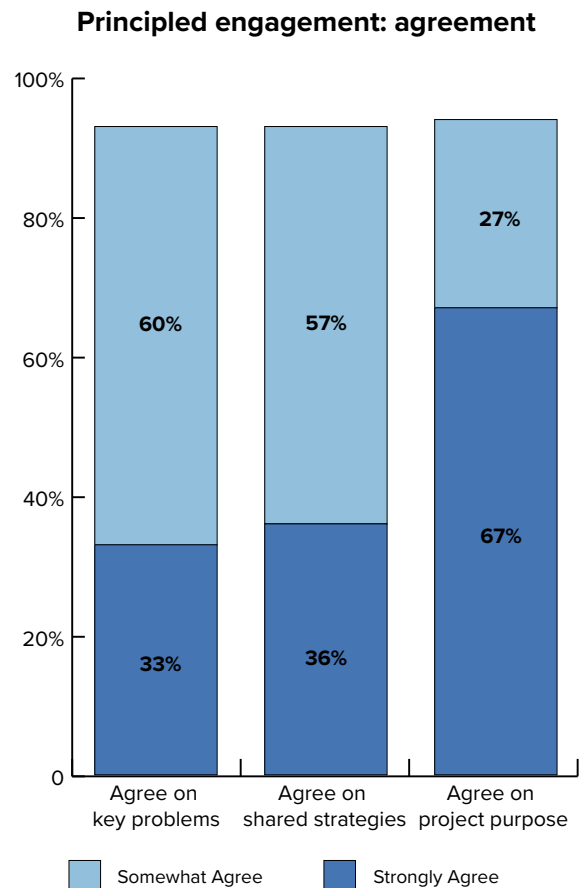

Figure 6: Percentage of respondents who either "Somewhat Agree" or "Strongly Agree" on the key problems that impact the landscape, strategies to solve problems, and purpose of the collaborative.

Leadership

Leadership is a critical component for collaborative governance. Leaders are needed to convene partners, communicate a shared vision, and motivate people to work together.

A strong majority of respondents agreed that the CFLRP project had leaders who work well with other people (100%), maintain and communicate a common vision and direction (94%), and motivate others to work together (100%) (Figure 10).

Knowledge and Learning

Collaboratives should engage in a knowledge generation and social learning process for joint action. Knowledge should be co-produced, equally available to all partners, and be used to implement adaptive management.

For the Missouri Pine-Oak Woodland Restoration Project, a strong majority of respondents somewhat agreed to strongly agreed that the CFLRP process provided opportunities to co-generate knowledge to learn and solve

problems together (87%), that knowledge and information was shared equally among participants (94%), and that participants are committed to informing adjustments to management practices based on learning and feedback (i.e. adaptive management) (86%) (Figure 11). A strong majority felt that participants had the flexibility to alter course when landscape conditions change (e.g., wildfire affects a planning unit; 82%), and when the collaborative changes (e.g., new faces or priorities, 77%) (Figure 11).

Resources

To accomplish tasks and get work done, collaboratives often pool and share resources, including funding, personnel time, technical expertise, and facilitation, which, in turn, can support buy-in.

The strong majority of participants somewhat or strongly agreed that the project had adequate access to funds (77%), although the timing and amount of funding was perceived among some as a moderate to substantial challenge in getting work accomplished (see Figure 18). A majority also agreed they had time to carry out tasks and accomplish their work (72%), technical expertise (94%), and facilitation skills to get work done (94%) (Figure 12).
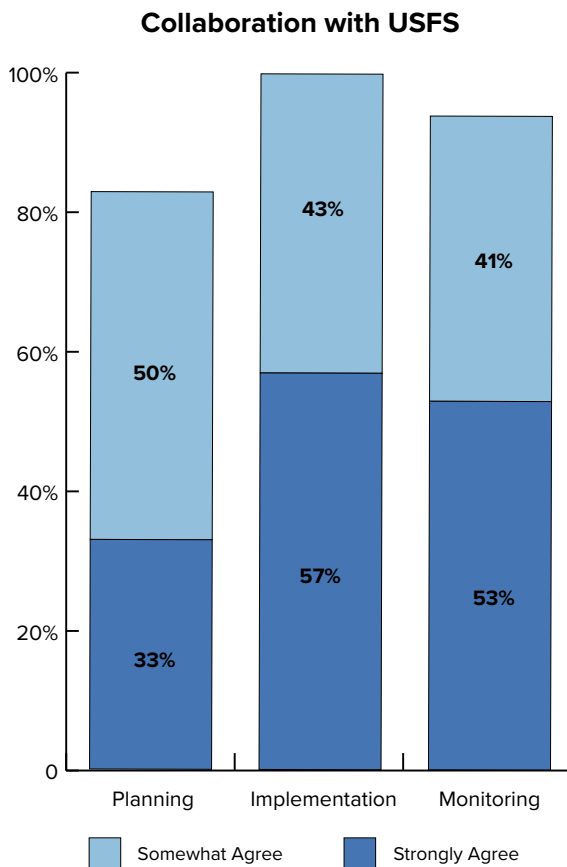

Figure 7: Percent of respondents who either "Somewhat Agree" or "Strongly Agree" that the USFS (Forest Service) collaborates during planning, implementation, and monitoring stages.
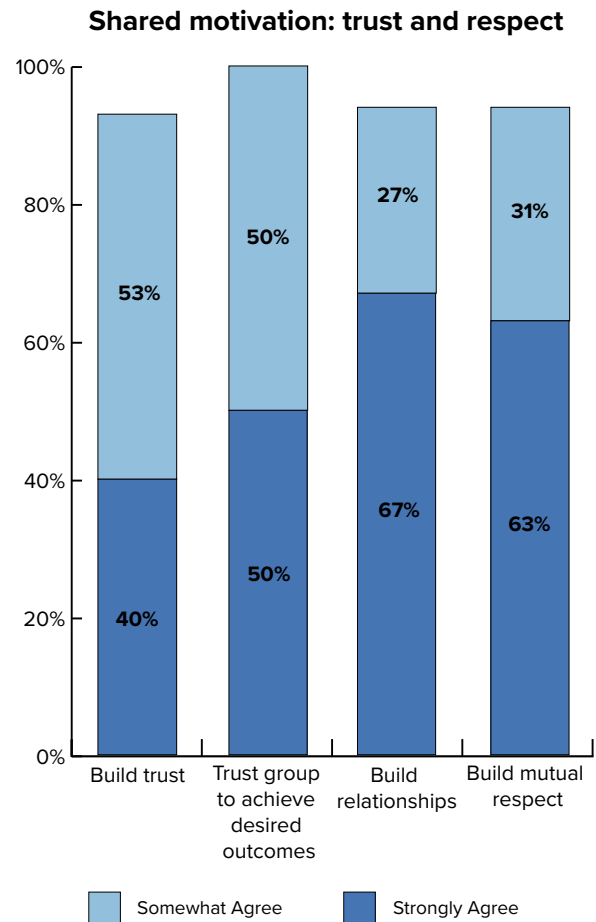

Figure 8: Percentage of respondents who either "Somewhat Agree" or "Strongly Agree" that the collaborative process has helped build trust, relationships, and mutual respect, as well as the extent to which participants trust the group to achieve desired outcomes.

Institutional Arrangements

Institutional arrangements are the rules of the game. They include processes, protocols, and structures needed to manage collaboration over time. They should be clearly understood, perceived as fair and equitable, and include accountability mechanisms within and between entities.

A strong majority of survey respondents somewhat to strongly agreed there were protocols in place that promote accountability among CFLRP participants (63%) and between the Forest Service and CFLRP project participants (e.g., decision rules, charters, memoranda of understanding, 66%) (Figure 13). Similarly, a strong majority agreed those protocols were clearly understood among participants (63%), fair and equitable (63%), and used appropriately (60%) (Figure 13). It is important to note that while a strong majority found institutional arrangements appropriate and fair, the percentage of respondents who agreed to strongly agreed to these questions was relatively low compared with responses to other questions in the survey; i.e., 30-40% of respondents were neutral or disagreed.

A slight majority of respondents (54%) felt that project participants understood when and what collaborative input was useful to inform Forest Service decisions. Further, a strong majority reported the Forest Service was responsive to collaborative input (89%) and that the agency was clear with CFLRP project participants about the decisions they make and why they make them (100%) (Figure 14).

Outcomes

We assessed perceived progress on process, socio-economic, and ecological outcomes for Missouri Pine-Oak Woodland Restoration Project. A strong majority of respondents agreed to strongly agreed that the collaborative process enhanced communication among participants (86%), minimized conflict among participants (77%), enhanced decision-making (i.e., a more transparent, equitable, and fair process, 86%), included diverse perspectives (84%), minimized litigation (67%), enabled landscape-scale planning (93%), and enhanced planning across boundaries (93%) (Figure 15). 80% or more of the respondents reported moderate to substantial progress in
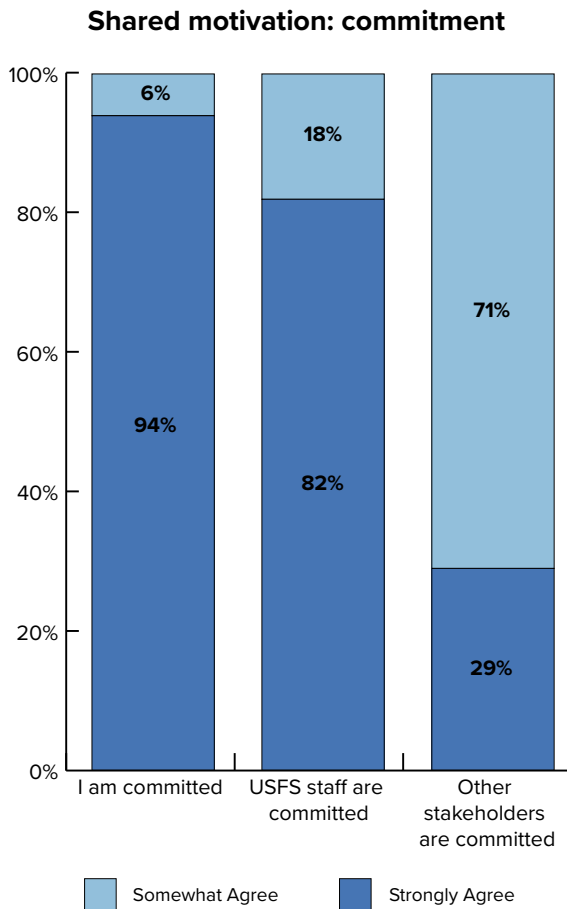
Figure 9: Percentage of respondents who either "Somewhat Agree" or "Strongly Agree" that they, the USFS (Forest Service), and other stakeholders are committed to the process.
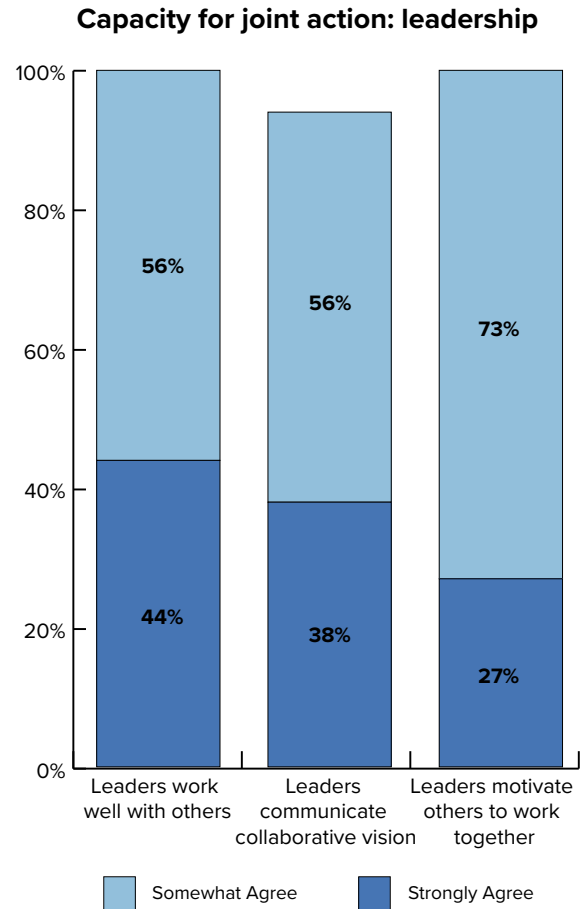
Figure 10: Percent of respondents who either "Somewhat Agree" or "Strongly Agree" that the leaders work well with others, communicate a common vision and direction, and motivate others to work together.

meeting each of the seven ecological goals (Figure 16). A strong majority of respondents reported the project had made moderate to substantial progress on the four socio-economic goals; however, fewer respondents agreed that progress had been made on accomplishing more work on adjacent lands (67%) (Figure 17).

Disruptions

We developed a list of common challenges CFLRP project participants and other landscape-scale forest collaboratives reported in forest collaborative meeting breakout groups and in the literature. Based on that list, funding (63%) and limited agency capacity for collaborative engagement (50%) were the most substantial challenges the Missouri Pine-Oak Woodland Restoration Project faced at the time of this survey (Figure 18). When asked to reflect on additional disruptions that impacted collaborative performance and durability, respondents further clarified that funding can be especially disruptive when the amount and timing of funds are unpredictable. Issues with unpredictable funding can be particularly disruptive for collaboratives across planning and

implementation project stages. Beyond funding-related disruptions, respondents further commented how specific weather and climate-related events, such as tornados, have been particularly disruptive. One respondent discussed how climate change has become disruptive on the collaborative's capacity for implementing on-the-ground work:

Climate change itself has affected implementation of projects with more rain in the prescribed fire season and a shortened dormant season in which to burn. But agencies have adapted well.

A respondent also noted how reporting requirements associated with the CFLRP project added additional workload, which disrupted their ability to accomplish other tasks.

The Missouri Pine-Oak Woodland Restoration Project managed disruptions to collaborative performance and durability by drawing on funds from previous timber sales to fill needed funding gaps, increased personnel capacity through additional hire to support monitoring, and moved on to "ready to implement projects as early as possible in order to be adaptive to unknown elements."
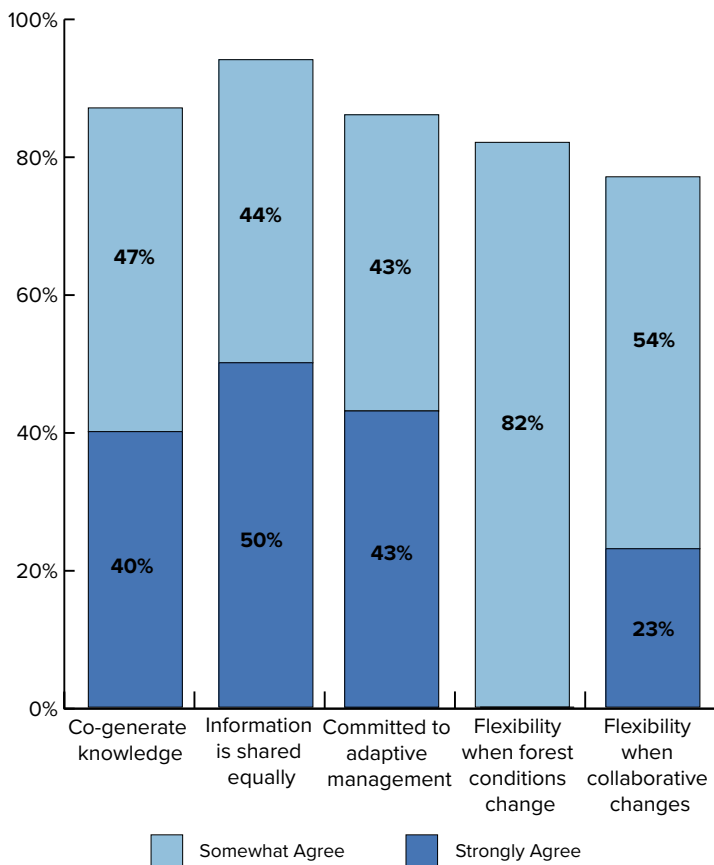

Figure 11: Percent of respondents who either "Somewhat Agree" or "Strongly Agree" that knowledge and information is co-generated by participants, shared equally, and used by participants to adjust management practices.
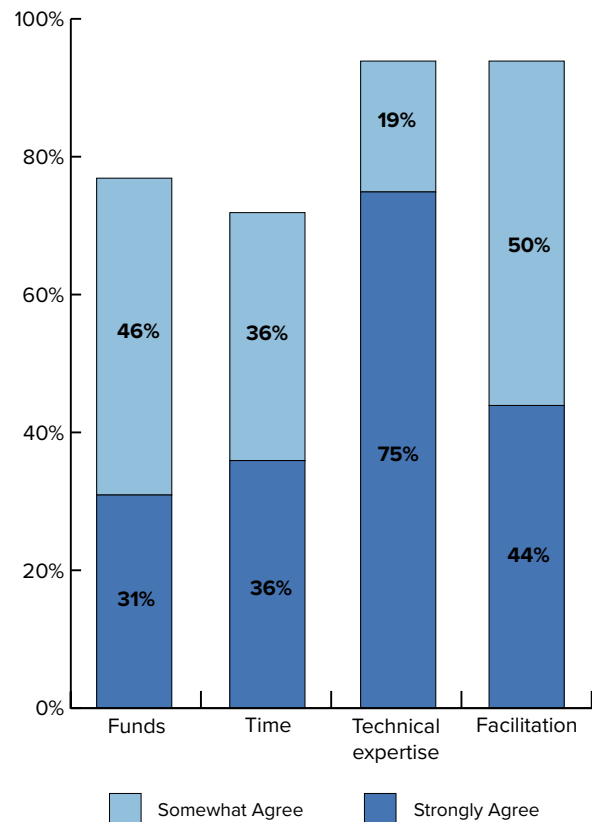

Figure 12: Percent of respondents who either "Somewhat Agree" or "Strongly Agree" that the collaborative has adequate: funds, time, technical expertise, and facilitation skills to accomplish work.

In addition, it was noted that the Forest Service engaged relevant decisions-makers and agency leadership to effectively communicate on-the-ground conditions through fields tours.

Recommendations to Improve the Collaborative Process

We asked participants to suggest recommendations to improve collaborative process, durability, and performance. Based on open-ended responses and the quantitative data reported herein, we identified two themes for improvement: 1) maintain collaborative flexibility and informal structure; 2) expansion of collaborative capacity, engagement, and research and monitoring focus. We only received six responses to this question.

Maintain collaborative flexibility and informal structure

Respondents recommended that the collaborative seek ways to maintain and enhance its flexibility. Specifically,

respondents suggested that flexibility should be a structural commitment, and practiced when addressing project specific goals. One participant suggested the Missouri Pine-Oak Woodland Restoration Project should be afforded independence to grow and adapt organically, stating:

Don't make it rigid. Let the collaborative develop organically. Provide tools for groups to learn to collaborative [sic] more effectively.

Meanwhile, another respondent highlighted the flexibility required for project-specific work, stating:

I think the level of collaboration needed is dependent on the specific project and the activities associated with it. Here there did not seem to be disagreement about getting something done it was more about finding the resources to accomplish the work.

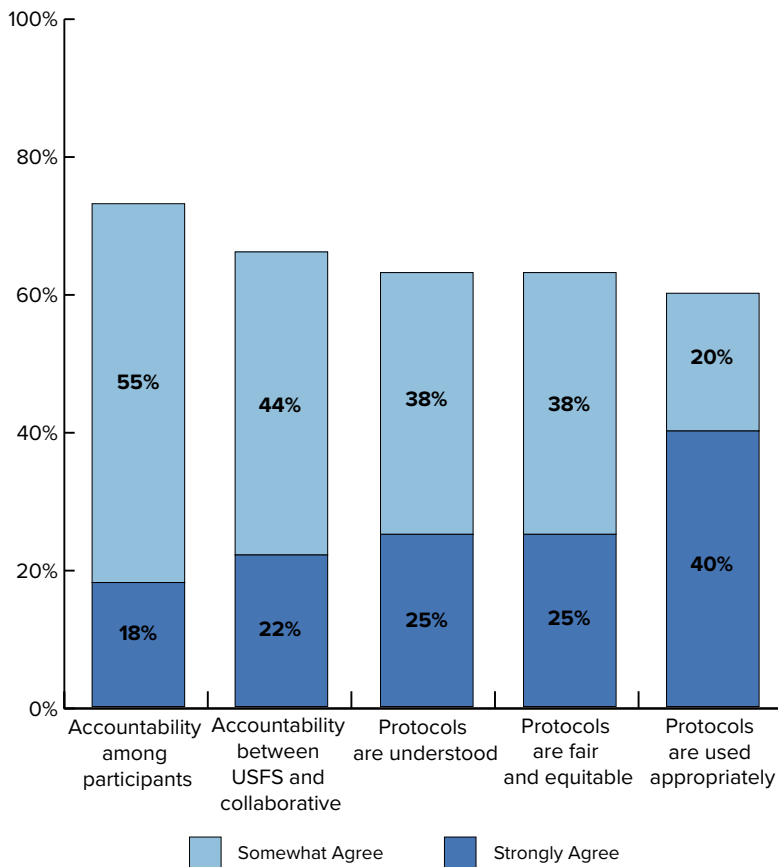**Capacity for joint action: process and accountability**

Figure 13: Percent of respondents who either "Somewhat Agree" or "Strongly Agree" that protocols promote accountability among participants, between USFS (Forest Service) and the collaborative, and that protocols are understood, fair and equitable, and are used appropriately.

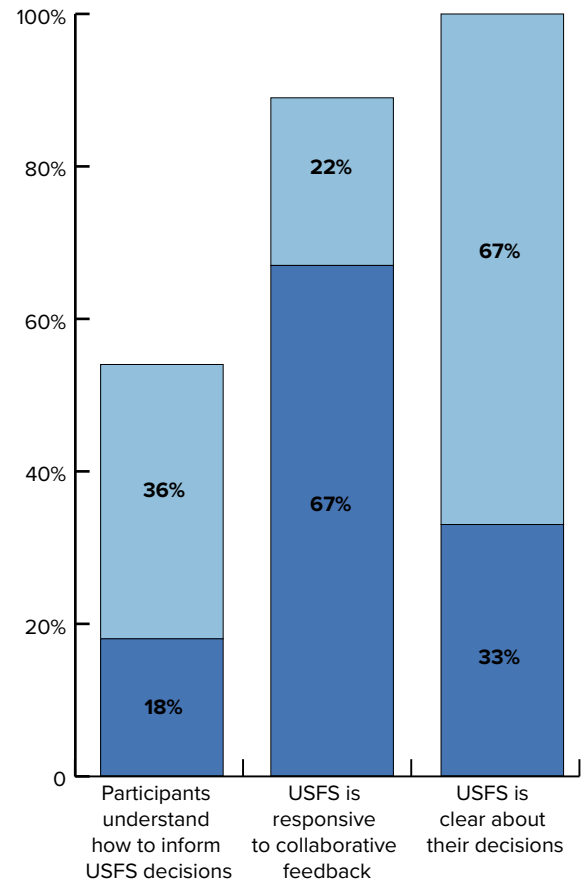**Capacity for joint action: USFS responsiveness and transparency**

Figure 14: Percent of respondents who either "Somewhat Agree" or "Strongly Agree" that they understand how to inform USFS (Forest Service) decisions, the USFS is responsive to feedback, and the USFS is clear about their decisions.
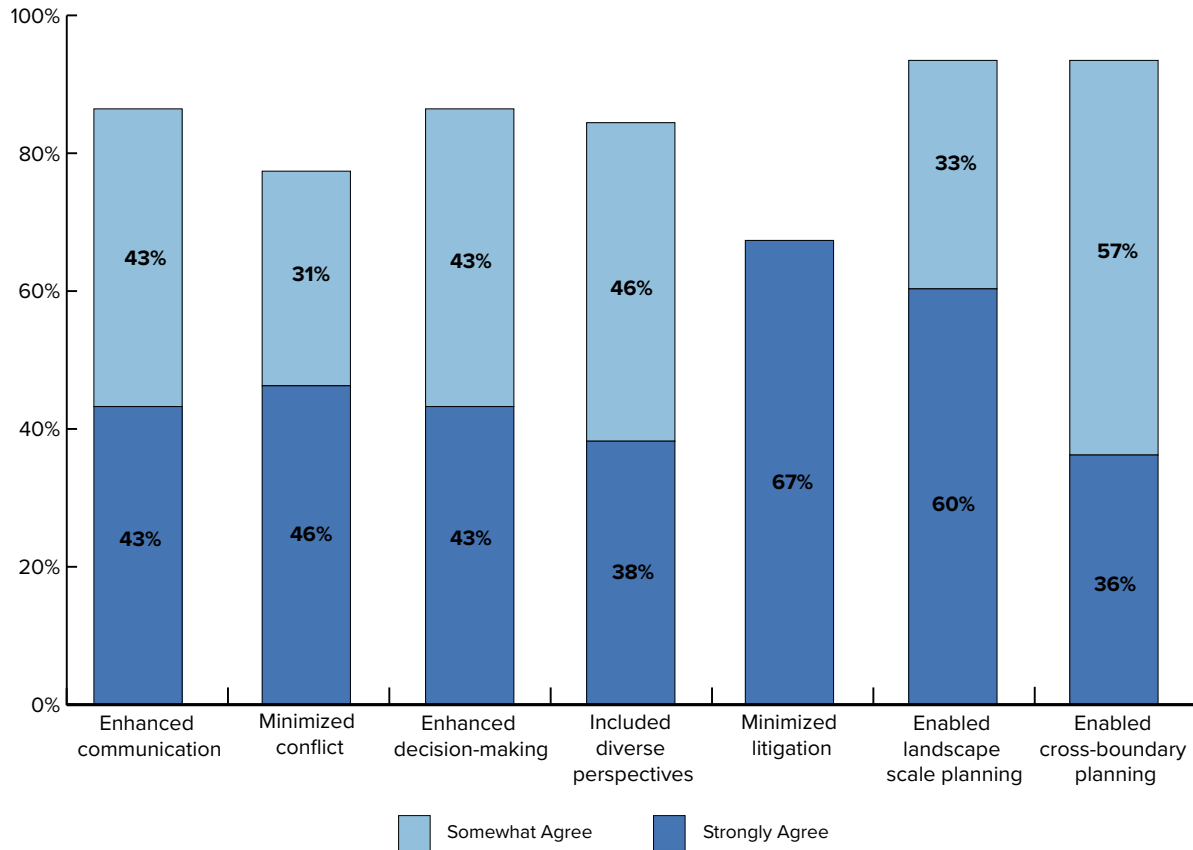
Perceived outcomes: collaborative process

Figure 15: Percent of respondents who either "Somewhat Agree" or "Strongly Agree" that the collaborative process has impacted the function and capacity of the collaborative.
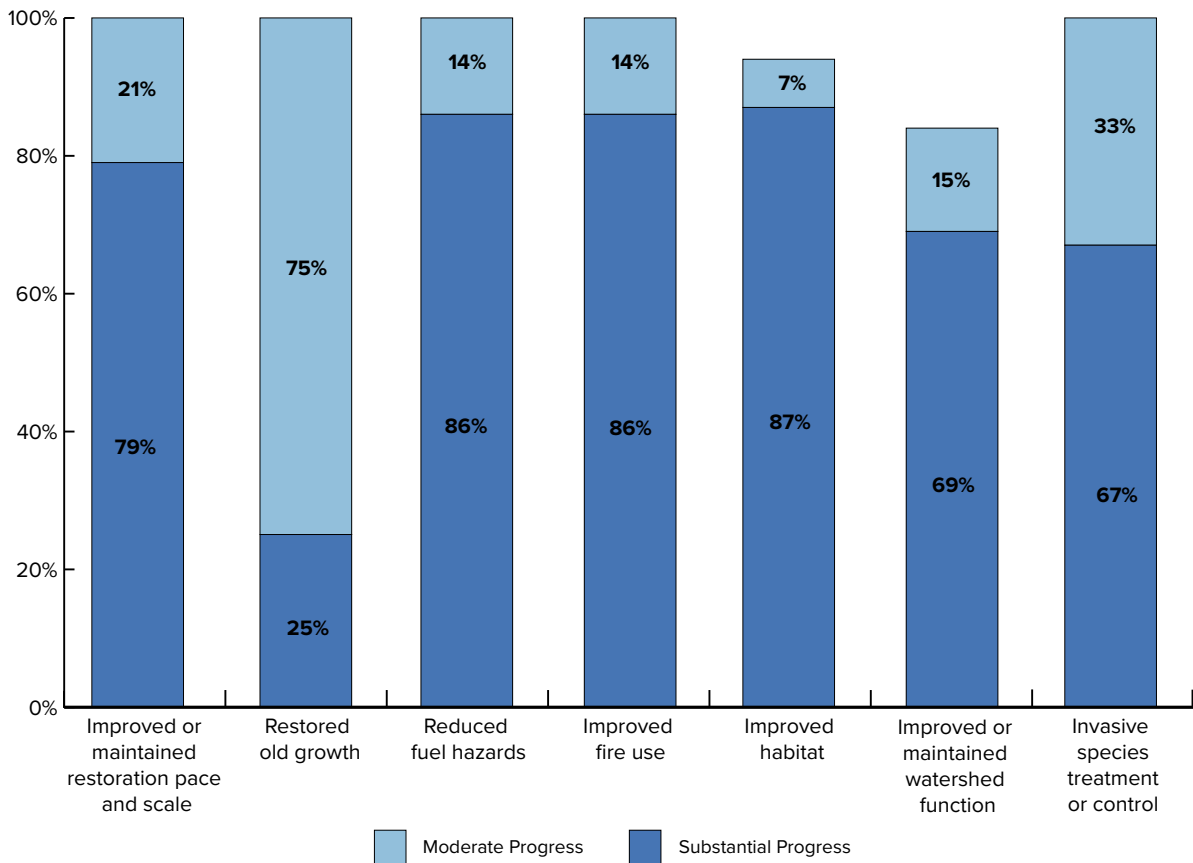
Perceived outcomes: ecological goals

Figure 16: Percent of respondents who reported "Moderate progress" or "Substantial progress" towards ecological goals.

Expansion of collaborative capacity, engagement, and research and monitoring focus

Respondents also recommended that the collaborative look for opportunities to expand its capacity, engagement, and research and monitoring foci. For instance, one respondent suggested that the collaborative consider expanding existing capacity by hiring a full-time coordinator, as these duties are currently assigned on top of the pre-existing workload of the program manager. This recommendation was echoed by 64% of respondents, who agreed that the collaborative should consider hiring a full-time coordinator (see Figure A3). Meanwhile, another respondent suggested that the collaborative could benefit by expanding opportunities for engagement with partners and the public to support communication and public awareness of project progress:

> An identified group of partners (including groups outside the CFLRP footprint) that meets periodically could help with consistent communication and public understanding.

Specific groups to engage with included the National Wild Turkey Federation and National Deer Association. Finally, one respondent recommended increasing

Perceived outcomes: socio-economic goals

Figure 17: Percent of respondents who reported "Moderate progress" or "Substantial progress" towards socio-economic goals.

research, monitoring, and engagement in aquatic systems with the United States Fish and Wildlife Service.

Discussion and Conclusions

The Southwest Ecological Restoration Institutes (SWERI) deployed an online survey to the Missouri Pine-Oak Woodland Restoration Project in the spring of 2023 to assess collaborative health, function, and resilience, as well as perceived outcomes of collaborative work. Specifically, we assessed: whether the CFLRP project exhibited characteristics generally associated with healthy, well-functioning, and resilient collaboratives; the extent to which the project has made progress on meeting process, socio-economic, and ecological outcomes; what challenges or disruptions affected collaborative performance and durability; and actionable recommendations to improve the collaborative process from respondents' perspectives. The assessment serves as the collaboration assessment for the CFLRP Common Monitoring Strategy (question #12).

The majority of respondents agreed the right people who had a stake in the issues and outcomes of the project were involved, and that there were opportunities to develop shared interests and concerns and discuss controversial issues. Most respondents indicated that they agreed about key problems that have impacted their landscape, strategies to solve problems, and the purpose of the Missouri Pine-Oak Woodland Restoration Project. The degree of collaboration between project participants and Mark Twain National Forest staff met respondents' expectations throughout planning, implementation, and monitoring. Also, respondents overwhelmingly agreed that the process has helped build trust, relationships, and mutual respect of others' positions and interests even when they are different from their own. All respondents agreed that they themselves, other organizations, and the U.S. Department of Agriculture Forest Service (Forest Service) were all committed to the process. Mutual commitment, especially among those with decision-making authority, is critical for collaborative durability. The Forest Service retains decision-making authority in treatment planning and implementation on Forest Service-managed land. The agency also gives substantial discretion in decision-making to local units; thus, it is often up to Forest Service unit-level line officers to make collaboration a priority by providing staff, resources, etc. (Beeton et al., 2022).

Survey respondents emphasized there were strong leaders who worked well across organizations and entities, communicated a collaborative vision, and motivated others to work together. Often, groups benefit from
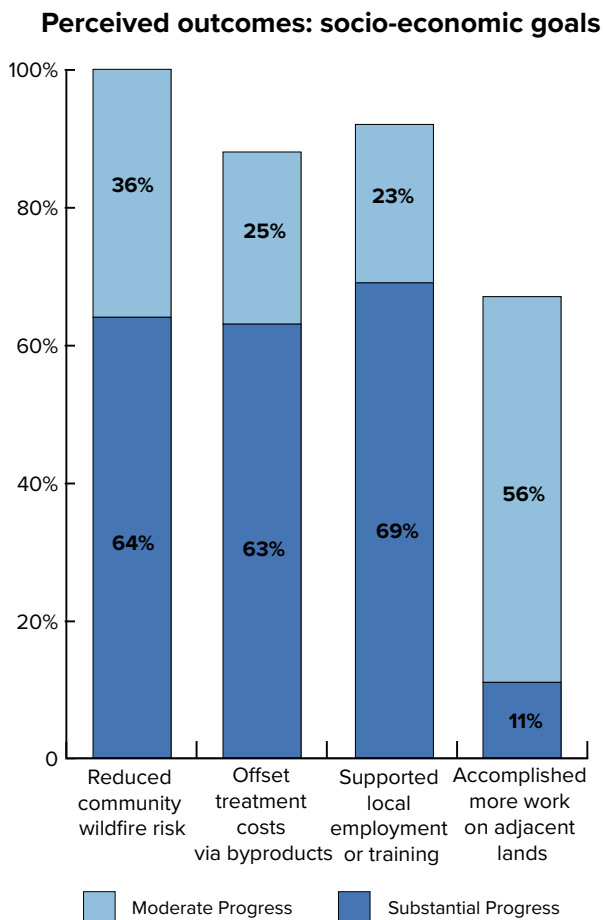
multiple collaborative leaders who represent a diversity of interests across organizational and institutional levels, and provide a variety of functions (e.g., coordination, expertise/experience) (Emerson and Gerlak, 2014; Ryan and Urgenson, 2019). Having diversity and redundancy in leadership roles is critical for continuity through personnel turnover.

Respondents felt the Missouri Pine-Oak Woodland Restoration Project had adequate facilitation skills, time, and technical expertise to carry out tasks and accomplish their work, and they generally agreed that the Forest Service was responsive to collaborative feedback and was clear about the decisions made on Forest Service-managed lands. A strong majority of respondents also agreed that participants worked together to co-generate knowledge and solve problems. Knowledge and information were reportedly shared equally among participants. A number of activities can be used by collaboratives to support social learning and co-development of knowledge, including field trips, multi-party monitoring, and joint fact-finding missions. Field trips are a critical component of social learning because

they provide opportunities for groups to let their guard down and come to common understandings. Field trips can help illustrate how restoration principles translate to operations on the ground and allow collaborative groups to provide feedback on restoration treatments. Joint fact-finding—where stakeholders work together to co-generate local knowledge and translate it into decision-making—provides opportunities to develop contextual understanding of local landscapes to support decisions. Documenting this learning and knowledge exchange is critical to maintaining transparency, equity, and institutional knowledge (Beeton et al., 2022; Cheng et al., 2015). Respondents agreed that the Missouri Pine-Oak Woodland Restoration Project was committed to adaptive management, and had flexibility to adapt when forest and collaborative conditions changed.

Survey results also indicated that the Missouri Pine-Oak Woodland Restoration Project had made moderate to substantial progress on a number of process, socio-economic, and ecological goals of the CFLRP. A majority of respondents reported enhanced communication, minimized conflict, enhanced decision-making, inclusion
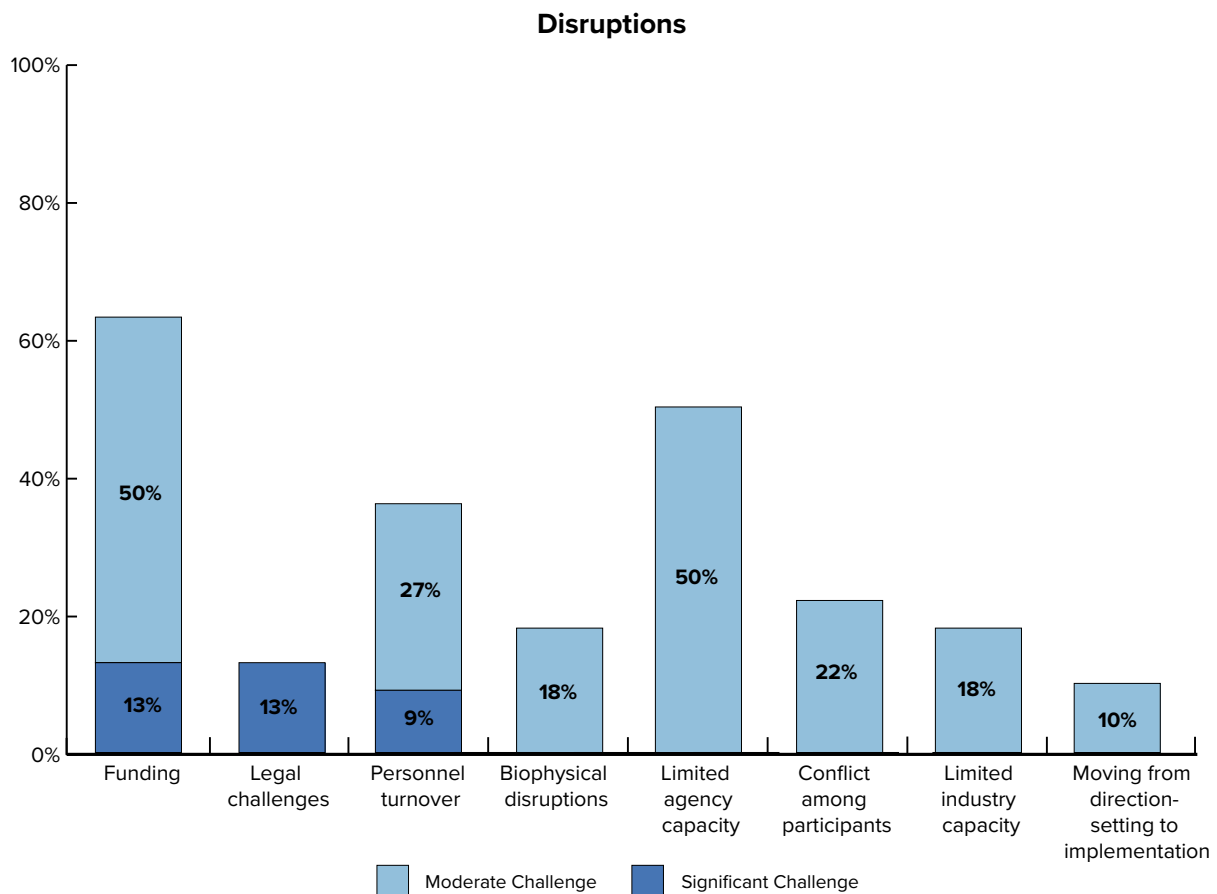

Figure 18: Percent of respondents who reported disruptions posed "Moderate challenges" or "Substantial challenges" to collaborative performance and durability.

of diverse perspectives, increased landscape-scale planning, and enhanced planning across boundaries. A majority of respondents also reported progress on all five of the ecological goals, including: improved or maintained the pace and scale of restoration, reduced fuel hazards, improved fire use, improved habitat, and restored old growth. Respondents perceived the least amount of progress was made towards restored old growth (75% indicated moderate progress). Finally, a strong majority reported moderate to substantial progress on reducing community wildfire risk, offsetting treatment costs with byproducts, and supporting local employment or training. Fewer respondents agreed that progress had been made on accomplishing work on adjacent landscapes (i.e., non-Forest Service lands).

Respondents reported few disruptions that have impacted their collaborative process and performance. The most commonly reported disruptions were the timing and amount of funding, limited agency capacity, and personnel turnover. Turnover can undermine relationships and trust, slow progress, and lead to lost institutional knowledge (Beeton et al., 2022; Coleman et al., 2020). Collaborative engagement is often not part of primary job duties for agency staff; when combined with vacant positions and multiple, sometimes conflicting mandates and priorities, agency staff may not have the capacity to engage to the extent that stakeholders expect or desire (Beeton et al., 2022). Unpredictable amount and timing of funding was most disruptive for the collaborative. The Missouri Pine-Oak Woodland Restoration Project responded to these disruptions by drawing on funds from previous timber sales to fill needed funding gaps and added new hires to increase personnel capacity.

However, there were several areas for improvement. Compared to high levels of agreement in response to other survey questions, fewer respondents agreed there were mechanisms for accountability between the Forest Service and non-Forest Service partners. Similarly, a majority of respondents agreed that protocols were well understood, were fair and equitable, and were used appropriately, but the majority was not as strong as in responses about other aspects of the collaborative process, i.e., 30-40% were neutral or disagreed. In the same vein, only a slight majority agreed that participants clearly understand how to inform Forest Service decisions. Transparent, fair, and equitable institutional arrangements are components of good governance (Gupta et al. 2010). Being clear and transparent about decision authority and allowable decision space is critical for collaborative durability (Beeton et al. 2020). Respondents recommended the following to improve the collaborative process and performance: 1) maintain collaborative flexibility and

informal structure; and 2) expand collaborative capacity, engagement, and research and monitoring. Flexibility and authority to try out different management actions under change or in different contexts is a critical component of collaborative resilience, and the degree of group formality should reflect collaborative history, relationships, and priorities.

This report provided a baseline assessment of collaborative health and performance among Missouri Pine-Oak Woodland Restoration Project. Collaboratives are dynamic - they continue to adapt and evolve as needs or priorities change, and in response to internal and external disruptions (Imperial et al., 2016). Thus, it is important to continue to self-assess collaborative progress, durability, and resilience, so that groups can identify what is working well, what may need some work, and what support and/or guidance is needed to address challenges to maintain performance. The SWERI will continue to engage in assessing collaborative health and performance of CFLRP projects. There will be multiple opportunities locally, regionally, and nationally for peer-networking and learning events to share successes and challenges and learn together about how to encourage healthy, durable, and resilient collaboration.

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Appendix 1. Appended questions for the Missouri Pine-Oak Woodland Restoration Project

The results to the following questions reported here were developed in coordination with local CFLRP project staff, coordinators, and partners affiliated with the Missouri Pine-Oak Woodland Restoration Project. These questions are not part of the CFLRP Common Monitoring Strategy.

Collaborative structure

Survey respondents were involved in a number of efforts with the Missouri Pine-Oak Woodland Restoration Project and/or other collaboration with the Mark Twain National Forest (MTNF). Respondents were most predominantly involved in efforts related to resource protection and restoration, wildlife, and science or monitoring, though several were also involved in prescribed fire and timber resources (Figure A1).

Respondents were asked to reflect on whether the existing CFLRP work group structure should continue. Six respondents felt the work group structure was sufficient and effective; however, others felt existing work groups could be modified, new work groups may be needed, and some work groups needed additional participation, capacity, and resources in order to be effective (Figure A2). In response to what, if any, additional work groups

should be added, respondents (n=6) suggested that Implementation, Monitoring, and Outreach/Education focused work groups would be beneficial. Relatedly, a couple of respondents noted a general workgroup need for more partners to be fully involved, and to "increase consistent feedback loops and engagement among partners/stakeholders."

A majority of respondents suggested a full-time coordinator or facilitator should be hired (Figure A3). A respondent in an open-ended response emphasized this as currently a program manager is responsible for coordination support as an additional duty to job requirements.

Participation and Engagement

Respondents were divided equally (n=6) on their perspective of whether collaborative engagement opportunities were just right or not frequent enough. This may be a point to address jointly to determine expectations for collaborative engagement types and venues (Figure A4).
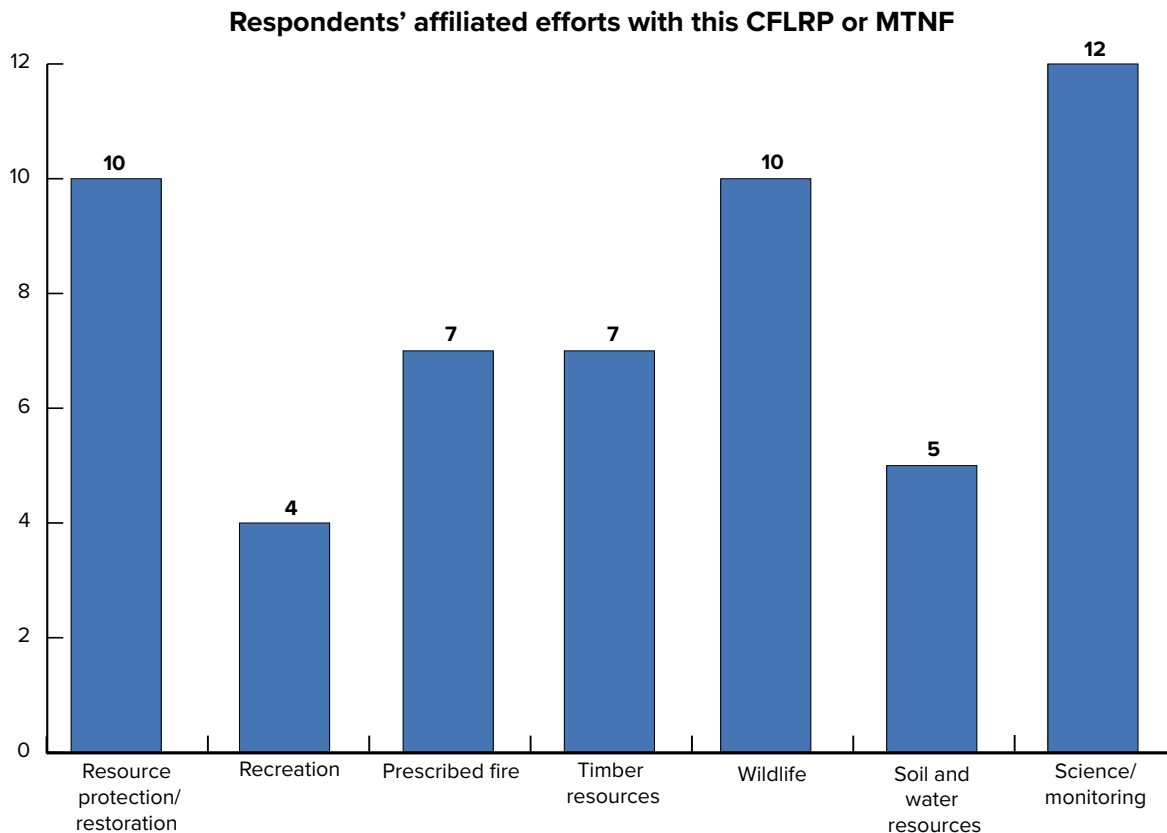

Figure A1: The efforts that respondents are affiliated with in the CFLRP project or other collaboration with the Mark Twain National Forest (MTNF).

A strong majority of participants (87%) indicated they plan to continue participating in the Missouri Pine-Oak Woodland Restoration Project, while 13% were unsure, and none reported they won't continue to participate (Figure A5).

The majority of respondents indicated they (or their organization) could commit 1-5 hours per month to keep the Missouri Pine-Oak Woodland Restoration Project going (n=15). One-fifth of respondents indicated they could commit 6-10 or more than 15 hours per month, while 7% said they could commit 11-14 hours per month to keep the project going (Figure A6).

A majority of respondents indicated they could contribute personnel time (n=13) to the Missouri Pine-Oak Woodland Restoration Project. Six respondents suggested they could contribute direct financial support and/or other in-kind resources, and one respondent indicated they could contribute other resources (Figure A7). Other in-kind resources included Supplemental Project Agreements, timber sale receipts, cross-boundary work, and other work with on-the-ground projects. Another respondent indicated they could contribute resources in planning,

management, evaluation, and research-related activities. In reference to other general resources available to contribute to the collaborative, a single respondent noted that such resources depend on future objectives on the CFLRP, therefore, they were unable to identify concrete resources at this time.
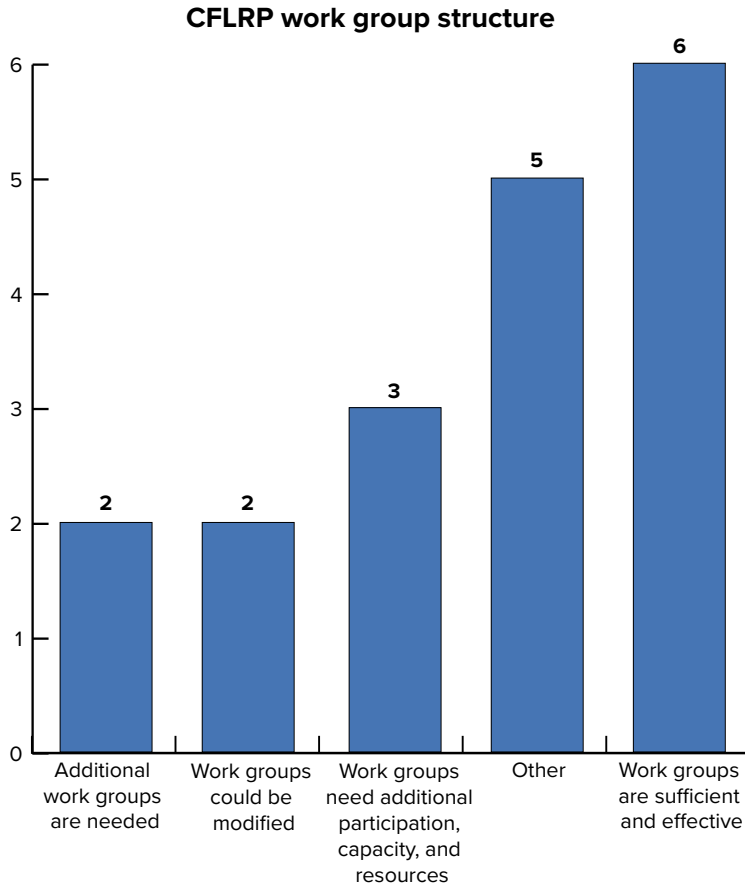
Hiring full-time coordinator or facilitator
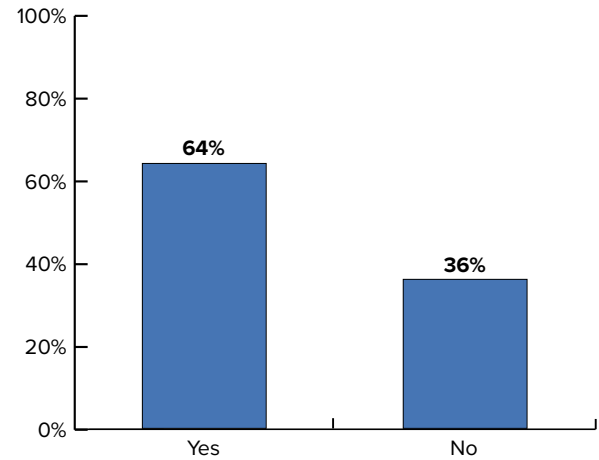
Figure A3: Respondents' preference for hiring a full-time coordinator or facilitator.

CFLRP work group structure

Figure A2: The number of respondents who reported a preference for work group structure.
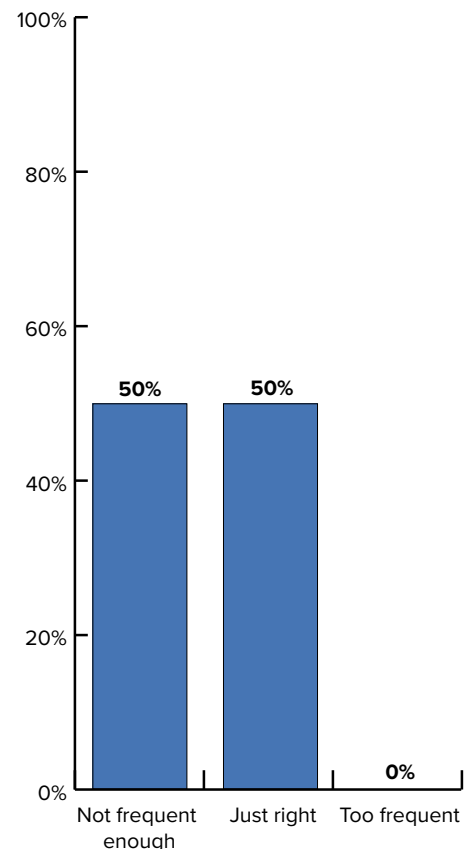
Frequency of engagement opportunities

Figure A4: Percent of respondents who reported this project has "Not frequent enough," "Just right," or "Too frequent" engagement opportunities.

We asked participants what other organizations should be included in the Missouri Pine-Oak Woodland Restoration Project. While few respondents answered the question (n=4), one respondent suggested all interested parties should be included, stating:

> *anyone with interests in the landscape should be included in communications to build understanding and then those directly benefiting/impacted should be at the table discussing vision, planning, implementation.*

Another respondent noted that industry representatives should be more involved within the collaborative as well.

General expectations, successes, and challenges

A strong majority of participants (73%) agreed to strongly agreed that the Missouri Pine-Oak Woodland Restoration Project had met their expectations. Notably one participant strongly disagreed. Respondents were asked to elaborate on how the CFLRP project collaborative process has or has not met their expectations (n=7 responses to open ended question).

Available time to commit

Figure A6: The number of hours respondents (or their organization) can commit each month to keep the CFLRP project going.
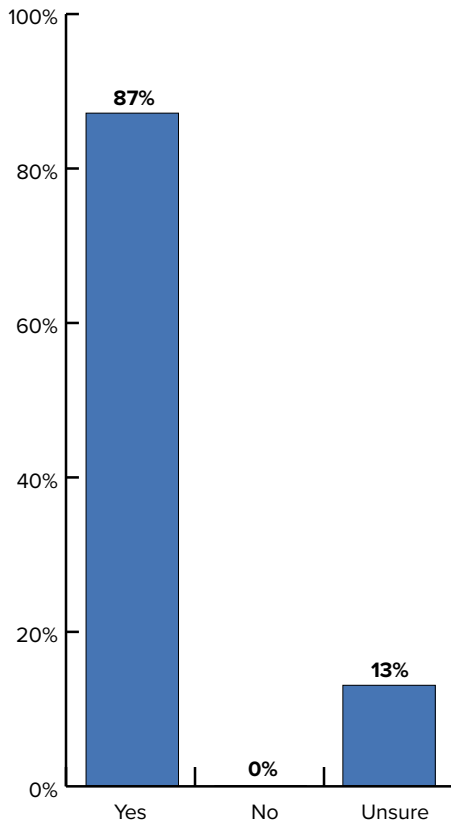
Future project engagement

Figure A5: Percent of respondents who reported that they planned, did not plan, or were unsure if they would participate in future project engagements.
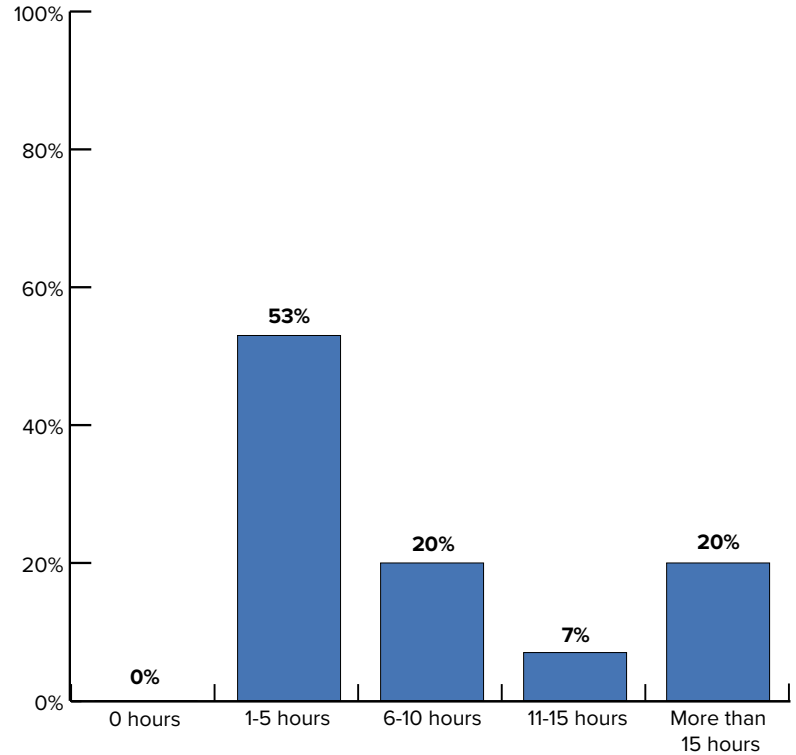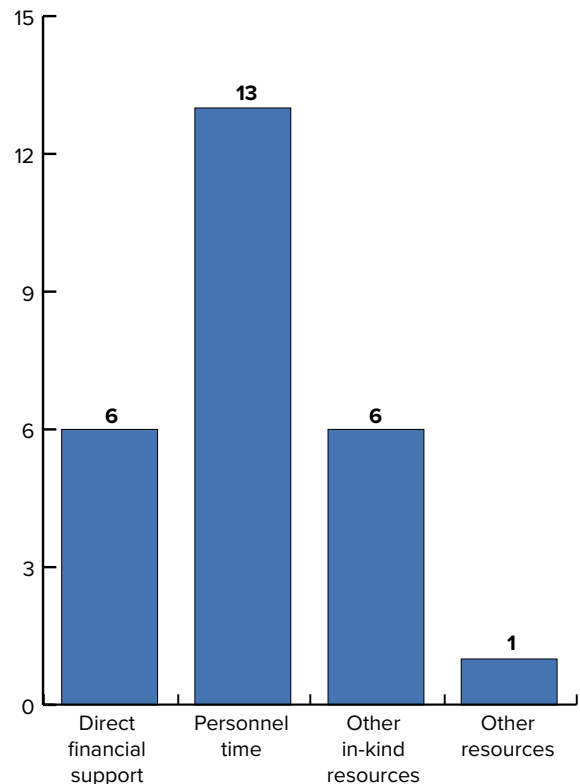
Available resources to contribute

Figure A7: Count of respondents who reported they, or their organization, could contribute "Direct financial support," "Personnel time," "Other in-kind" resources, or "Other" resources to this CLFRP project.

We identified that implementation of on-the-ground work was a prominent theme to how respondents' expectations were met. Specifically, a few respondents articulated how implementation of restoration work had resulted in major successes. For instance, one respondent noted:

> They've put a ton of pine woodland habitat on the ground in the area and that means increased nesting habitat for declining savanna/woodland-nesting birds that require disturbance like thinning and fire. Bring on more pine and oak woodlands in the area! While we can't manage for one species alone, opening up new pine woodland habitat blocks contiguous with existing blocks will encourage and allow for dispersal of brown-headed nuthatch in the area.

Another indicated the CFLRP project helped increase the pace and scale of restoration and meet Land Management Plan goals and objectives:

> It has accelerated the pace and scale of pine and pine-oak restoration on the MTNF. It has allowed the Forest to meet its FP goals and objectives related to MA within the CFLR project area.

In addition, respondents emphasized strong commitment among Forest Service staff and multi-agency problem solving were key to meeting collaborative expectations. Although the majority of respondents indicated their expectations were met, it was suggested that the Missouri Pine-Oak Woodland Restoration Project needs to work towards increasing additional stakeholder involvement and implementation. A couple groups mentioned in particular were the National Wildlife Turkey Federation and the National Deer Association.

Respondents were also asked to identify what factors, if any, have contributed to the success of the CFLRP collaborative process (n=6 responses). A couple respondents indicated partner support was critical for their success. Key partners included State agencies, Central Hardwood Joint Venture, and the University of Missouri. Partner support was particularly important when dealing with contentious issues, as one respondent noted:

> Support from non-agency experts, researchers, and partners during times of controversy and concern from the public over landscape scale fire.

Respondents also attributed successes of the Missouri Pine-Oak Woodland Restoration Project to

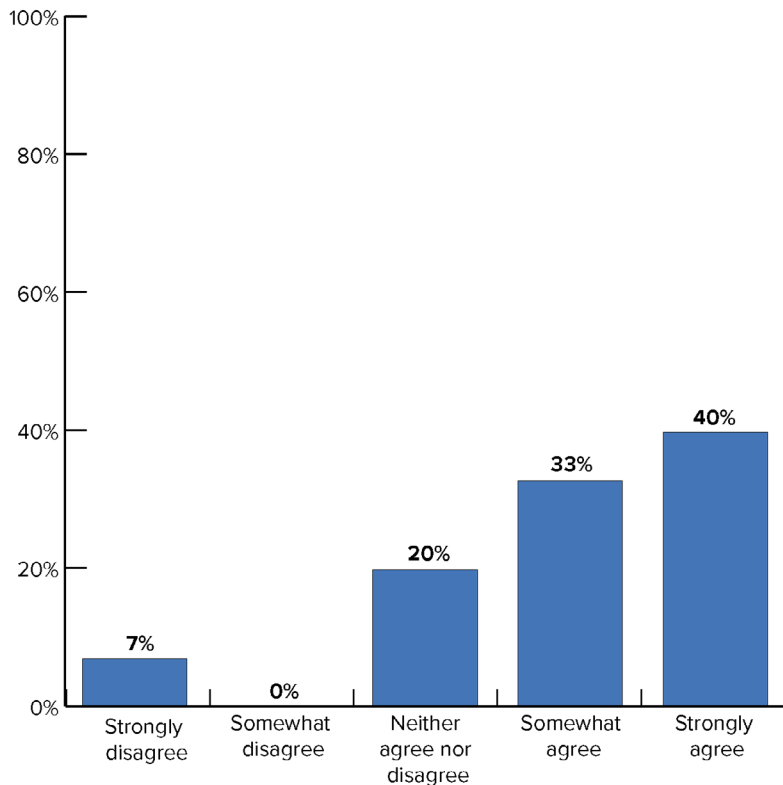**This CFLRP project has met expectations**

Figure A8: Percent of respondents who reported that this CFLRP has met their expectations.
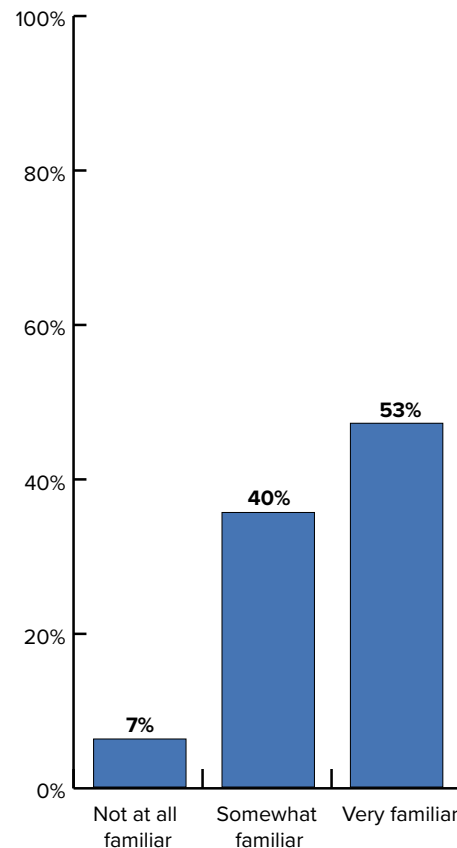
Familiarity with MTNF Forest Plan

Figure A9: Respondents' familiarity with the goals and objectives of the MTNF Forest Plan.

interpersonal characteristics such as hard work and good communication. The consistent presence of a program manager was recognized for contributing to the success of the CFLRP collaborative process. Partners emphasized the leadership and support of the MTNF helped demonstrate restoration outcomes and success was achievable.

Land Management Emphasis

93% of respondents were somewhat to very familiar with the MTNF Land Management Plan (Figure A9).

Respondents were asked what resource management issues the MTNF should focus on with future CFLRP projects. The most frequently reported management issues to focus on included: forest health, restoration and enhancement of natural communities, invasive species, species of conservation concern, climate change resilience, and wildlife habitat. These and others are listed in Figure A10.

When asked what area of the MTNF respondents were interested in pursuing in future CLFRP projects, respondents (n=7) identified several areas of interest, including: the historic SLP range, Salem, Eleven Point, St. Francois Mountains, Current River Pinery, Potosi/

Fredericktown units, and Tier 1 and Tier 2 priority areas in the Missouri Comprehensive Conservation Strategy. There was also an interest in building a network of Motus wildlife-tracking stations across the MTNF to fill gaps. One participant suggested that while the current CFLRP footprint should continue to be a priority, the Missouri Pine-Oak Woodland Restoration Project might consider expanding the boundary:

Expansion of the current CFLRP footprint (keep moving forward with planning and implementation in the current footprint, but expand the effort from the created core) to engage more partner lands and align with partner priorities.

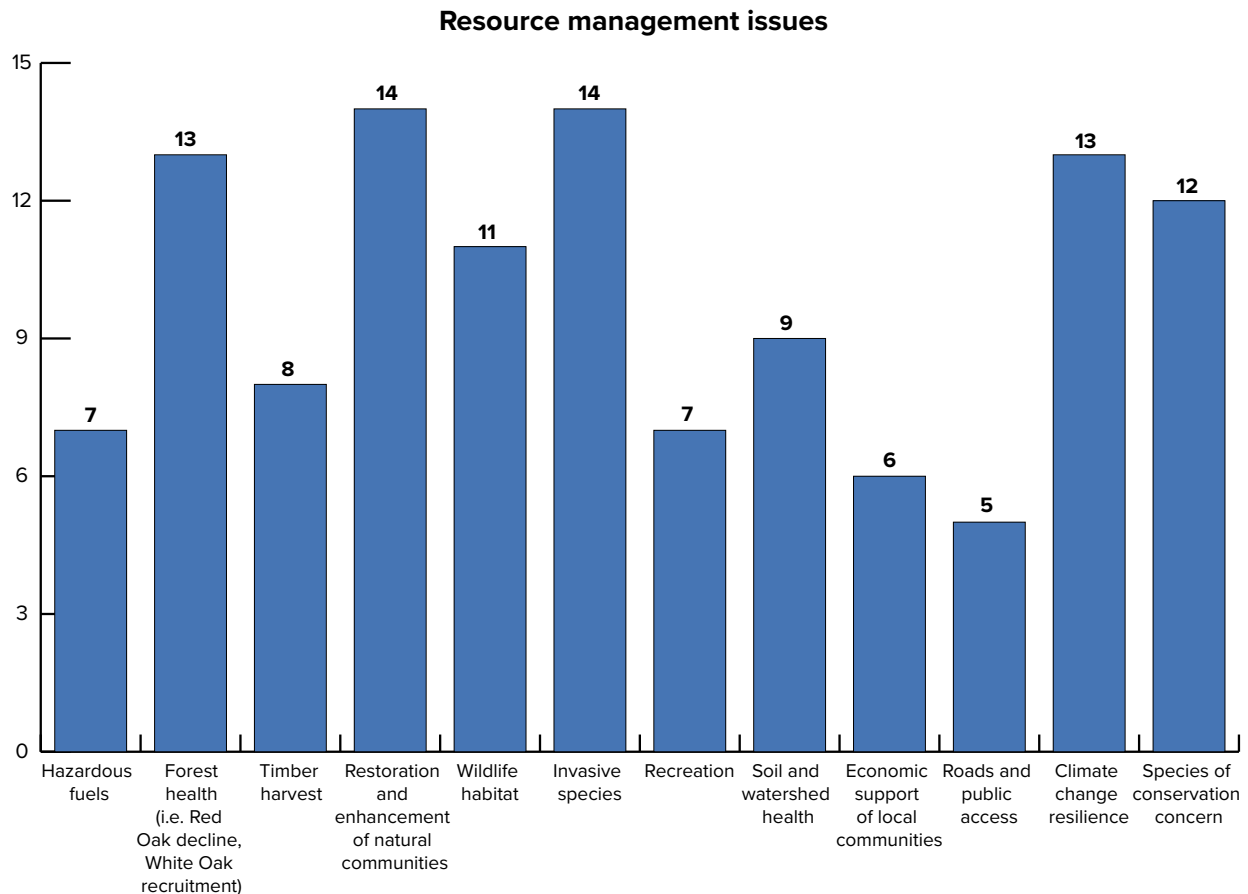**Resource management issues**

Figure A10: Resource management issues that respondents believe the MTNF should focus on with future CFLRP projects. Respondents could pick multiple management issues.