forests

MDPI

Article

Exploring the Composition of Forest Collaboratives in Northeastern Oregon

Lee K. Cerveny [1,*], Rebecca J. McLain [2] and Kristen Wright [2]

[1] US Forest Service, Pacific Northwest Research Station, Seattle, WA 98103, USA
[2] National Policy Consensus Center, Portland State University, Portland, OR 97201, USA; mclainrj@pdx.edu (R.J.M.); kjwright@pdx.edu (K.W.)
* Correspondence: lee.cerveny@usda.gov

Abstract: Community-based collaboration has been touted as an effective model for forest governance because it promotes democratized decision-making and stakeholder engagement to address landscape-scale problems. Forest collaboratives are assumed to be heterogeneous, consisting of stakeholders with a diverse range of interests. Few studies have systematically explored variables associated with collaborative composition. We identify six elements of collaborative composition for investigation: size, stakeholder diversity, balance, locality–diversity, core attendance, and cross-participation. This exploratory study examines five forest collaborative groups in eastern Oregon (USA). We analyzed meeting minutes over an 18-month period to track attendance and evaluate who shows up and at what frequency. While forest collaboratives vary in size, larger collaboratives are more heterogeneous, reflecting greater diversity in terms of stakeholders represented, and have a higher proportion of high-frequency ('core') attendees. Core attendees and attendees who participated across multiple forest collaboratives regionwide represent a much narrower set of stakeholder interests. Collaboratives' attendees reflected a mix of local and non-local organizations. The results raise questions about whether collaborative groups represent the array of public interests in planning for forest management.

Keywords: collaborative governance; public participation; representation; resource management

Academic Editor: David Ellison

Received: 3 May 2025
Revised: 11 June 2025
Accepted: 11 June 2025
Published: 18 June 2025

Citation: Cerveny, L.K.; McLain, R.J.; Wright, K. Exploring the Composition of Forest Collaboratives in Northeastern Oregon. *Forests* **2025**, *16*, 1022. https://doi.org/10.3390/f16061022

1. Introduction

Since the early 2000s, forest managers globally have embraced collaborative approaches to planning and decision-making [1]. Globally, collaborative governance has been promoted in various contexts, such as the European Union's Forest strategies [2,3], India's state forests [4], and the International Union for Conservation of Nature's co-management frameworks [5]. In the western U.S., forest collaboratives emerged to address complex ecological challenges occurring across multiple landownerships and jurisdictional boundaries [6–9]. Collaboration is practiced by federal land management agencies, such as the U.S. Forest Service, which sanctioned collaboration as a standard means of public engagement in the 2012 U.S. Forest Service Planning Rule (36 CFR Part 219) [10]. Collaboration has been incentivized for many elements of public lands management, including forest restoration and wildfire protection, as well as management of watersheds, wildlife, and rangelands [11–15]. Collaboration has also been endorsed by state governments, which provide funding, technical support, and training in hopes that it will produce decisions with broad public support [16].

Collaboration is defined as a problem-solving approach in which a diverse group of interdependent stakeholders addresses common issues and resolves environmental disputes through deliberation, consensus-building, co-learning, and generating solutions [17]. Collaborative approaches are particularly useful in addressing complex problems that transcend jurisdictional boundaries and involve multiple land management agencies [18]. The social bonds that form over time are important for establishing group synergy, building trust, and creating an efficient process while respecting diverse opinions [19–21]. By creating multi-stakeholder ownership of forest management challenges, new solutions and synergies are possible [13]. Collaborative processes often combine professional knowledge from public agency natural resource managers with local and traditional knowledge from resource users to inform management outcomes [22,23].

Collaborative success depends on organizational structure, yet much of the previous research on collaborative governance has focused on process and outcomes [9,24,25]. Increasingly, however, researchers have documented that collaborative success depends on the diversity of participation among stakeholders and their level of engagement [26]. There is a common assumption that by allowing a forum for many entities to participate, collaborative groups are highly representative of the diversity of interests [27]. Collaborative size does not necessarily mean broad representation [28]. Recent studies have implied that collaborative groups may appear to represent diverse stakeholders but that actual participation and active engagement are often led by a handful of members [29]. Moreover, a collaborative group that appears on paper to reflect a balance of diverse interests may be dominated by a smaller set of interests [26,27,30,31]. Recognizing that it is important to know how stakeholders influence collaborative decisions, Koski et al. identified two types of representation [32]. Descriptive representation addresses which stakeholder categories serve as collaborative members. Substantive representation describes how stakeholders actively participate in the deliberative process and the degree to which their concerns are reflected in outcomes [32].

Less is known about the extent to which representation in forest collaboratives is held by a diversity of local and non-local interests [30,31]. As Margerum (2007) notes, authentic collaboration necessitates a cross-section of interests with a balance of local and non-local participation [28]. The inability to scale a collaborative at a level consistent with the geographic extent of the problem can be detrimental to policy [30]. Yet, participation from organizations operating at a broader regional scale or scope can present challenges that are both practical (travel time, distance, and familiarity) and philosophical (whose voice matters most). Active engagement from a large group of geographically dispersed stakeholders takes time and is fraught with intra-group challenges [30].

This study focuses on five forest collaboratives in northeastern Oregon, an area that includes four national forests. The proliferation of collaborative forest management groups has been particularly extensive in Oregon [33], where there is a long history of support for collaborative governance in multiple sectors [15]. Between 2014 and 2019, the Oregon Department of Forestry invested USD 1.4 million to build the capacity of Oregon's forest collaboratives [34]. Federal land management agencies also endorsed Oregon collaboratives at regional and local scales [33]. In 2019, at least 25 forest collaboratives existed statewide [34], covering all 11 national forests in Oregon and many other public forests and grasslands.

This paper examines five collaboratives in northeastern Oregon to address questions about collaborative composition. By studying multiple collaboratives within the same eco-region and operating within the same period, we can better understand the variations in collaborative composition. Building from Koski et al.'s concept of 'descriptive representation' [32], we use descriptive analysis to explore collaborative composition to assess

the representativeness of stakeholder categories and to establish whether certain stakeholders may dominate based on the frequency of participation. We propose six elements of collaborative group composition for investigation: size, stakeholder diversity, balance, locality–diversity, core attendance, and cross-participation (Table 1).

Table 1. Conceptual framework for collaborative composition.

Element	Description
Size	The total number of organizations whose representatives attended at least one meeting of the collaborative over the study period.
Stakeholder diversity	The proportion of stakeholder categories represented in the collaborative.
Balance	The relative frequency of organizations within each stakeholder category that attended a collaborative meeting over the study period.
Locality–diversity	The number of organizations attending collaborative meetings from local, regional (non-local, within state), and external (non-local, out of state) divided by the total number of organizations.
Core attendance	Percentage of organizations whose representatives attended 50 percent or more collaborative meetings over the study period.
Cross-participation	Percentage of organizations that attended meetings of multiple (two or more) collaborative groups within the study region over the study period.

By identifying and measuring these elements, we gain insights into collaborative diversity, leading to important questions about representativeness and whether collaboratives reflect local needs and interests. In this context, we aim to address the following broad research questions for collaborative groups in the study region of eastern Oregon:

1. Do collaboratives with a larger number of attending organizations have a lower attendance rate?
2. How does collaborative size affect stakeholder diversity among all attendees and core attendees? Are larger collaboratives more heterogeneous?
3. Is greater stakeholder diversity associated with balanced representation among regular and core attendees?
4. How diverse are collaboratives in terms of the locality of attending organizations, and does locality vary by collaborative size?
5. What stakeholder types attend meetings of multiple forest collaborative groups?

Our results provide descriptive information about aspects of collaborative composition that contribute to the literature on collaborative forest governance. We identify important collaborative composition variables that can be explored in future studies with attention to their effects on outcomes and effectiveness. Our approach to assessing collaborative composition using attendance records is designed to be useful to collaborative leaders in identifying gaps in stakeholder categories.

2. Literature

Collaborative governance has emerged as an important emphasis in the management of forest systems globally [1]. In the United States, collaboration is an integral part of the U.S. Forest Service's (USFS) dialogue with the public [35]. Forest collaboratives play an important role in fleshing out project details and specifications, establishing zones of agreement, and providing feedback on actions [36]. This movement toward collaboration and participatory approaches is driven by multiple factors: (a) recognition of the importance of public involvement in natural resource decision-making [21]; (b) recognition of cross-boundary issues that require multi-jurisdictional management approaches [6];

(c) acknowledgment of the value of local knowledge and Indigenous knowledge in resource management [37,38]; (d) a desire to expand the collective capacity of governmental agencies and organizations to address shared concerns [6,39]. In the case of large-scale forest restoration, collaboration is often seen as a tool for reducing the burden of environmental assessment requirements and decreasing the potential for litigation or appeal [8,40]. Collaboration occurs at multiple scales, from the local (watershed planning groups and resource advisory committees) [41] to the landscape scale [25,42].

The extensive literature on collaborative governance suggests that the design of collaborative processes affects both their functionality and durability. Key design features that researchers have identified as affecting collaborative processes include group size [43,44], participant diversity [43,45], balance of interests within the group [26,27], and level of participation [29,30].

Research on collaborative size and its relationship to successful collaborative processes is inconclusive. Agrawal and Goyal (2001) found that both small (10 or fewer members) and large (more than 100 members) forest councils struggled to monitor community forests, whereas medium-sized councils (11 to 100 members) proved to be the most effective [46]. Poteete and Ostrom (2004) found a trade-off between group size and effectiveness: larger forest management groups had greater access to resources and knowledge, but trust, a key ingredient for successful collaboration, was more difficult for larger groups to establish and maintain [43]. Scott and Merton (2021) found that inter-agency collaborations with smaller subsets of highly engaged agencies were the most successful in achieving desired outcomes [44]. Ostrom (1999) attributes the discrepancies in findings regarding the impact of group size on collaborative processes to changes in other key variables, such as heterogeneity, as group sizes expand [47]. Margerum (2007) acknowledges that a large collaborative is not necessarily an indicator of stakeholder diversity [17].

Studies of stakeholder diversity in a forest collaborative have identified several positive aspects associated with greater participant heterogeneity. Research on watershed groups in Ohio found that groups with a mix of public and private partners were engaged more successfully in broader issues compared with groups composed solely of public agencies or private groups [48]. A study of watershed councils in Oregon indicated that councils with a greater diversity of stakeholders as members were better able to resolve disputes and develop plans than groups with a narrower set of stakeholders. However, the less diverse groups were more effective at project implementation, suggesting that a trade-off exists between diversity and the capacity to engage in collective action [30,41]. Davis et al. (2019) found that the inclusion of diverse stakeholder interests in Oregon's forest collaboratives enabled the groups to focus on a broader array of resource values, as well as a greater diversity of habitats and management goals [34]. Scott's (2015) research on watershed collaboratives in Washington, however, found that sectoral and stakeholder representation diversity did not impact on-the-ground outcomes [49]. Drawing on thirty-nine case studies from five countries, Ansell et al. (2020) documented that tensions exist between the advantages of including diverse stakeholders, such as more diverse knowledge, more resources, and broader-based legitimacy of decisions, and the transaction costs associated with having more people engaged [45]. Siddiki et al. (2017) refer to this tension as the unity/diversity paradox, with homogeneity and heterogeneity each providing both benefits and challenges [50].

More recent studies seek to understand how different types of collaborative diversity affect outcomes, such as social learning [50]. Siddiki et al. (2017) [50] found that members of marine aquaculture groups whose participants held more diverse beliefs were more likely to report that they had developed new professional relationships or gained a better understanding of other stakeholders' concerns. However, in groups with less diversity in

affiliations, members were more likely to report that they had developed new professional relationships or acquired a better understanding of other stakeholders' views [50].

A few studies highlight the importance of balanced representation within collaborative processes. In other words, a collaborative may have a variety of stakeholder groups represented, but if there are ten members representing one set of stakeholders and two members representing another set, the collaborative would be imbalanced. Swette et al.'s (2023) study of collaboration in the western U.S. explores whether stakeholders perceive groups to be sufficiently balanced across predominant interests [26]. In this study, the perception among some stakeholders that the process was dominated by environmental interests and that communities and natural resource interests were under-represented led to the formation of an alternative collaborative group, which halted the planning process [26]. This suggests that an unbalanced collaborative can lead to discord and abandonment of the process.

Studies have found that gaps exist between collaborative membership rosters and attendance records [32,51]. Koski et al. (2018) justified using attendance as one measure of participation on the grounds that "attendance is critical in understanding descriptive versus substantive representation", given that "participation in a collaborative governance organization ostensibly occurs by members sitting at the table" [32]. In their study, membership was relatively balanced across stakeholder categories, but elected officials showed up much more frequently at meetings. Carboni et al. (2017) used the attendance records of a food policy council to develop a social network analysis, which provides a graphical representation of the gap between descriptive and substantive participation for different stakeholder categories [29]. They note that the advantage of using attendance records as a proxy for representation is their availability.

One dimension of diversity that researchers suggest is important for cross-scale collaborative governance is locality or scalar diversity [30]. Locality–diversity has to do with inclusion from multiple governance scales (i.e., local, regional, national, or international) [35]. Jamal and Stronza (2009) emphasized the importance of locality–diversity in the management of a protected area in Bolivia, which benefited from the different types of knowledge held by stakeholders at international and local scales [52]. Collaboratives operating at the landscape scale are especially attuned to locality–diversity, and lack of locality-based diversity has been viewed as one important barrier to success [53]. Swette et al.'s (2023) study of forest planning tensions described community members as perceiving that non-local environmental organizations dominated the collaborative process, although their locality remains unclear [26]. The question of locality–diversity and balance in collaborative processes seems to be important, particularly in the natural resource management sector, but has not been systematically explored in the literature.

A common thread in studies of cross-scalar collaborative governance is the key role that bridging organizations play in enabling interaction between multiple governance scales [30]. Bridging organizations serve as connectors or intermediaries among stakeholders and may participate in multiple collaborative processes [54]. In their study of watershed organizations in Quebec, Medema et al. (2017) found that bridging organizations can advance their interests across a larger geographic scale by coordinating and aligning with similar organizations, sharing information, consolidating resources, and streamlining efforts [54]. How bridging organizations can influence regional policy by participating in multiple forest collaboratives is a topic ripe for exploration.

While collaborative governance processes in the U.S. have been widely studied, less attention has been given to collaborative composition [19]. Moreover, few studies have systematically explored the composition of forest collaboratives with attention to who is represented, who is missing, and who shows up (and how often). Our study

examines these elements across five forest collaboratives in northeastern Oregon, looking specifically at variations in size, stakeholder diversity, balance of representation, locality, and cross-participation. Our work contributes to the growing interest in understanding collaborative composition, which has implications for collaborative function, durability, and effectiveness.

3. Materials and Methods

3.1. Study Context

The study area includes four national forests: Wallowa–Whitman, Umatilla, Malheur, and Ochoco (Figure 1). These four national forests share common biophysical characteristics, notably the predominance of dry, sub-alpine pine forests, and encompass eleven counties in Oregon and portions of two counties in Washington, an area equivalent to the U.S. state of Pennsylvania. The region is the ancestral home of the Nimiipuu (Nez Perce), Nuumu (Northern Paiute), Cayuse, Umatilla, Walla Walla, Lemhi Shoshone, and Shoshone Bannock. Today, the area includes the Umatilla Reservation to the northeast, the Confederated Tribes of Warm Springs to the west, and the Burns–Paiute Indian Colony to the south.

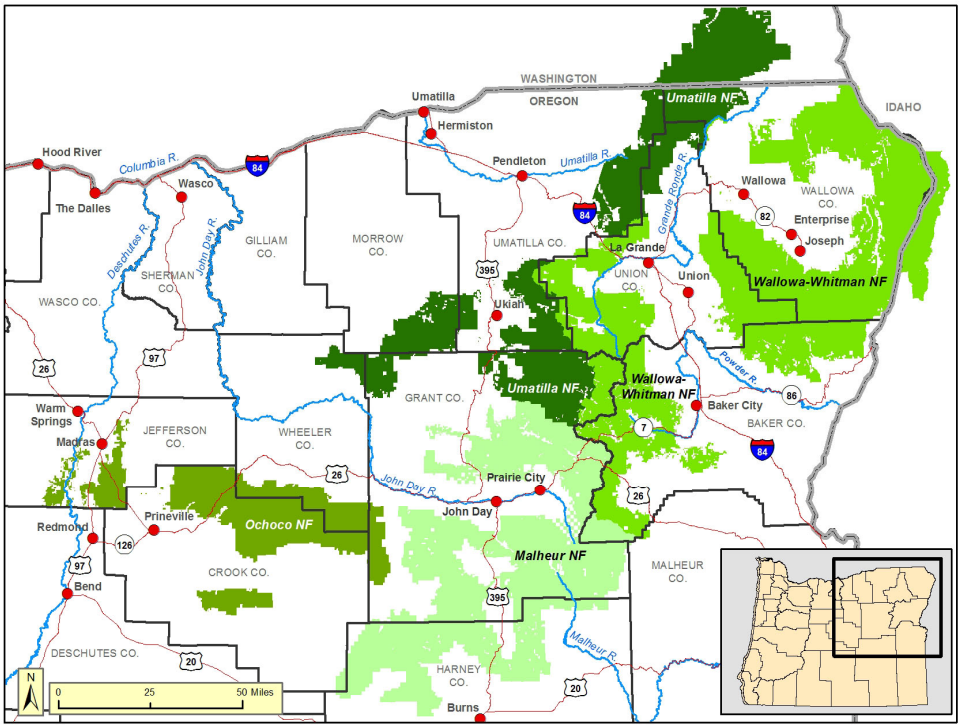

Figure 1. Map of the study region in northeastern eastern Oregon and southeastern Washington (USA).

The area is sparsely populated, with each of the five largest cities (Pendleton, Hermiston, La Grande, Baker City, and Prineville) having fewer than 20,000 residents [55]. Communities in the area are geographically dispersed, many separated by mountain passes. Ranching, farming, mining, and logging have been important economic activities since the late 1800s [56]. Declining timber production beginning in the 1990s led to mill closures and a reduction in forest industry employment [57]. The area's scenic qualities have attracted in-migrants and visitors, resulting in a regional economy based increasingly on services and amenity-based development [57].

At the time of this study, five community-based forest collaboratives were active in the region. These collaboratives focused on forest restoration and ecosystem and community resilience. The collaboratives met throughout the year to discuss potential projects, identify

obstacles, deliberate forest restoration strategies and specifications, provide feedback on proposed restoration projects and monitor restoration results. Two collaboratives focused their attention on the Malheur National Forest: the Blue Mountain Forest Partners (BMFP), founded in 2006, based in John Day, OR, and the Harney County Restoration Collaborative (HCRC), formed in 2008 in Burns, OR. The remaining collaboratives were formed partially in response to the Oregon Board of Forestry's 2009 call for collaborative forest governance. The Umatilla Forest Collaborative Group (UFCG) based in Pendleton, OR, was established in 2011 and focused its activities primarily on the Umatilla National Forest and shared an interest in the Wallowa–Whitman National Forest with the Wallowa–Whitman Forest Collaborative (WWFC), founded in 2012 in LaGrande, OR. (These groups later combined to form the Northern Blues Forest Collaborative.) Finally, the Ochoco Forest Restoration Collaborative (OFRC) began in 2012 in Prineville, OR, to support restoration in the Ochoco National Forest.

The five collaboratives shared many characteristics but varied in project scope and the degree to which they were formalized [34,58]. BMFP and HCRC were part of the nationwide Collaborative Forest Landscape Restoration (CFLR) network and received support through that program. All five forests worked on environmental impact assessment and planning for forest restoration projects. BMFP and WWFC dealt with forest restoration on a mix of public and private lands, whereas the others primarily focused on public lands. BMFP was the most diverse in function, focusing on stewardship contracting multi-party monitoring. At the time of data collection, few options for virtual conferences existed, and all collaborative meetings were held in person. For many participants, this meant long drives over difficult terrain in this sparsely populated region.

3.2. Data Collection

We used attendance records from collaborative meetings and field tours (hereafter, we refer to these collectively as "events") held over an 18-month period to explore the structural characteristics of the five collaboratives. We focused on organizations rather than individuals (c.f., Carboni et al., 2017 [29]). Attendance records were used to identify the number of organizations present at the collaboratives' events and determine the frequency with which organizations attended collaborative events, thereby providing an indication of the overall size of the 'working collaborative'.

3.3. Measures

The following elements of collaborative composition were investigated in our analysis. Key terms are operationalized below.

- Collaborative size determined by the number of organizations whose representatives attended at least one meeting of the collaborative over the 18-month period. [This assumes that one person attended a meeting representing one organization.] We categorized collaboratives into three sizes: small (<35 organizations), medium (35–50 organizations), and large (>50 organizations).
- Stakeholder diversity is determined by examining the attendance of representing organizations across the 11 stakeholder categories (Table 2). To determine the categories, we studied organizational websites and public documents. Because of the predominant role of the USFS, we placed that agency in its own category. We recognize that some organizations may have multiple functions and that there could be different perceptions as to the category into which a group should be placed. Using the diversity ratio (the number of stakeholders represented divided by total possible stakeholders), we categorized each collaborative based on low diversity (7 or fewer stakeholders), medium diversity (8 to 9 stakeholders), and high diversity (10 or more).

Table 2. Categories of stakeholders attending forest collaboratives.

Stakeholder Category	Description
Community development	Entity focused on economic or community development.
Conservation	Non-governmental organization focused on natural resource protection, conservation, or clean energy.
Forest industry	Firm or entity involved in timber harvest, milling, or other forms of production or forest restoration.
Local, regional, and state agencies	Non-federal government agencies not focused on natural resource management (e.g., housing, health, and social services).
Public natural resource agency	Governmental agency focused on natural resources or environmental management (excludes USFS).
Ranching	Group engaged in livestock production or processing, grazing.
Recreation or access	Group focused on outdoor recreation, motorized/nonmotorized.
Research, education, extension	Group conducting science, education, or extension, including universities and state extension units.
Tribal agency	Federally recognized and non-federally recognized tribes.
U.S. Forest Service (USFS)	USFS participants from all levels of the agency.
Other	Groups representing other interests.

- Balance is determined by comparing the number of organizations within each stakeholder category that attended at least one collaborative meeting. For example, a collaborative group would be 'well-balanced' if it had 3 or more organizations representing each of the 11 stakeholder categories that attended at least one meeting over the 18 month period. A collaborative group would be 'imbalanced' if there were some stakeholder categories with one or fewer organizations attending at least one meeting and other stakeholder categories with five or more organizations attending at least one meeting.
- Locality–diversity was determined based on the location of the organization's headquarters within the study area. We grouped organizations into three categories: local, non-local in Oregon, and non-local outside Oregon (out-of-state). 'Local organizations' are those organizations with an office in one of the counties associated with the collaborative group. For BMFP and HCFC, the local counties were Grant and Harney. For UFCG, the local counties were Umatilla, Grant, Wheeler, and Union. For OFRC, the local counties were Crook, Wheeler, and Grant. For WWFC, the local counties were Wallowa, Baker, and Union. Regional organizations are organizations with offices elsewhere in Oregon. 'External' organizations constituted those organizations whose headquarters and operations were based outside Oregon. In cases when an organization's headquarters was non-local, but a branch office existed in one of the local counties, we categorized the organization as local.
- Core attendance is determined based on an organizational representative attending 50% or more of the collaborative's organized events over an 18 month period. Organizations whose representatives are frequent attendees at collaborative meetings and events suggest active participation and enhanced ability to influence outcomes.
- Cross-participation was determined by examining organizations that attended multiple (two or more) collaborative group meetings over the 18-month period.

3.4. Data Limitations

Analyzing collaborative composition and attendance based on data obtained from recorded documents has several noteworthy limitations. Undocumented meetings, missing minutes, and gaps in the minutes may limit the extent to which a complete picture of collaborative attendance can be provided. We are not able to calculate a completion

rate based on incomplete information provided by our collaborative contacts about the complete set of possible meetings. Instead, we could only analyze the minutes in our possession or those that were publicly available. We must account for possible mistakes in the minutes. Some meeting minutes inadvertently may have omitted attendee names. Not all meeting minutes included data on attendees' organizational affiliation. We tracked down affiliations for most individuals, and those with unknown affiliations were omitted from the analysis. Attendees ascribed to one organization could have represented multiple organizations. However, unless these were noted in the minutes, their additional affiliations were unknown.

Attendance records and meeting minutes measure the frequency of attendance but do not allow us to evaluate the level, frequency, quality, or type of participation during the meetings. In other words, attendance records are useful for understanding descriptive representation but not substantive representation [32]. Some stakeholders may be more actively engaged or influential during deliberations than others. More observational and qualitative approaches are needed to explore the influence of stakeholders during collaborative processes. For these reasons, our study results should be interpreted cautiously.

4. Results

4.1. Collaborative Size, Event Frequency, and Attendance

Collaboratives varied in overall size based on the number of organizations that attended the collaborative meeting (Table 3). Collaborative size ranged from 31 organizations to 57 organizations, with an average of 41 organizations. Based on our categorical assessment, two are considered 'small' (BMFP, HCRC), two are considered medium (UFCG, OFRC), and one is considered large (WWFC).

Event frequency and the average number of attendees varied among the five collaboratives. The variation in event frequency was considerable: over 18 months, BMFP met twenty-three times, and HCRC met five times. Three of the five collaboratives (OFRC, UFCG, and WWFC) met slightly less than once monthly. Some of the events were facilitated meetings, while others were field trips. Average attendance per event varied, ranging from 12 to 25 attendees (average: 18). BMFP (the smallest collaborative with 31 attendees) held the most events and had the lowest attendance (12), but their ratio of attendance was higher (39%) than WWFC, the largest collaborative, which also averaged 12 attendees per event, but had a lower attendance ratio (21%). In contrast, HCRC had far fewer events but much higher attendance, with an attendance ratio of 60%. On average, the attendance ratio was 44%.

Table 3. Collaborative events, organizations, and attendees over the 18 month study period [1].

Characteristic	BMFP	HCRC	UFCG	OFRC	WWFC	Average
Total number of events held (meetings, field trips)	23	5	13	16	14	14
Average number of attendees per event	12	20	25	21	12	18
Attendees (attended at least one event)	31	33	42	43	57	41
Attendance ratio (attendees per event based on total attendees)	39%	60%	60%	49%	21%	44%
Core attendees-attended at least 50% of collaborative events (percent of total attendees)	5 (16%)	9 (27%)	12 (29%)	18 (42%)	20 (35%)	13 (32%)

[1] Blue Mountain Forest Partners (BMFP); Harney County Restoration Collaborative (HCRC); Ochoco Forest Restoration Collaborative (OFRC); Umatilla Forest Collaborative Group (UFCG); Wallowa–Whitman Forest Collaborative (WWFC).

We assessed the rate of core attendance in each collaborative, defined as attendees who were present at 50% or more of a collaborative's scheduled events in the 18 month study period. Core attendees ranged from 5 to 20 across collaboratives (13 on average, or 32%). OFRC had the highest percentage of core attendees (42%). BMFP, the smallest collaborative, had the lowest rate of core attendees (16%), followed by HCRC, with 27% of core attendees.

4.2. Stakeholder Diversity

Eleven stakeholder categories were identified. (See Table 1 for descriptions of each category.) The number of stakeholder categories represented by organizations attending collaborative events ranged from 7 to 11, with a mean of 9 (Table 4). We categorized each collaborative group as 'low,' 'medium,' or 'high' diversity based on the diversity ratio (number of stakeholders represented per total possible stakeholders). Collaborative size is shown across each collaborative group to allow comparison. One collaborative with 'high' diversity was also categorized as 'large' (WWFC). Two collaboratives with medium diversity were also of medium size (UFCG, OFRC), and one collaborative with low diversity was classified as 'small' (BMFP). HCRC was small and high in diversity.

Table 4. Collaborative diversity based on stakeholder attendance.

Collaborative Group	Number of Stakeholder Categories	Diversity Ratio	Diversity Category	Total Attendees	Size Category
BMFP	7	0.64	Low	31	Small
HCRC	10	0.91	High	33	Small
UFCG	9	0.82	Medium	42	Medium
OFRC	9	0.82	Medium	43	Medium
WWFC	11	1.00	High	57	Large
Average	9	0.82		41	

Collectively, the stakeholder categories most likely to have a presence at the collaboratives' events were the USFS, forest industry, public natural resource agency, and conservation (Table 5). We observed variation across the collaboratives. In all but one collaborative (BMFP), the USFS was the most frequent attendee. Public natural resource agencies were prevalent in three of the five collaboratives. Forest industry representatives were frequent participants in two collaboratives. Conservation organizations were especially prominent on the OFRC. Ranchers and Tribal governments were present in nearly all collaboratives. On average, the most common stakeholder groups represented were USFS (23%), forest industry (16%), public natural resource agency (15%), and conservation (12%) (Figure 2).

Table 5. Number of attendees at any collaborative event by stakeholder type.

Stakeholder Category	BMFP	HCRC	UFCG	OFRC	WWFC
US Forest Service	7 (23%)	8 (24%)	10 (24%)	11 (25%)	11(19%)
Public natural resource agency	4 (13%)	6 (18%)	8 (19%)	4 (9%)	9 (16%)
Local, regional, and state agencies	2 (6%)	2 (6%)	7 (17%)	5 (11%)	6 (11%)
Tribal agency	0 (0%)	1 (3%)	1 (2%)	1 (2%)	2 (4%)
Research, education, extension	5 (16%)	2 (6%)	3 (7%)	6 (14%)	7 (12%)

Table 5. *Cont.*

Stakeholder Category	BMFP	HCRC	UFCG	OFRC	WWFC
Forest industry	8 (26%)	7 (21%)	5 (12%)	6 (14%)	7 (12%)
Conservation	4 (13%)	4 (12%)	5 (12%)	8 (18%)	3 (5%)
Ranching	1 (3%)	1 (3%)	1 (2%)	2 (5%)	4 (7%)
Community development	0 (0%)	1 (3%)	2 (5%)	0 (0%)	4 (7%)
Recreation, access	0 (0%)	1 (3%)	0 (0%)	0 (0%)	2 (4%)
Other	0 (0%)	0 (0%)	0 (0%)	1 (2%)	2 (4%)
Total	31 (100%)	33 (100%)	42 (100%)	44 (100%)	57 (100%)

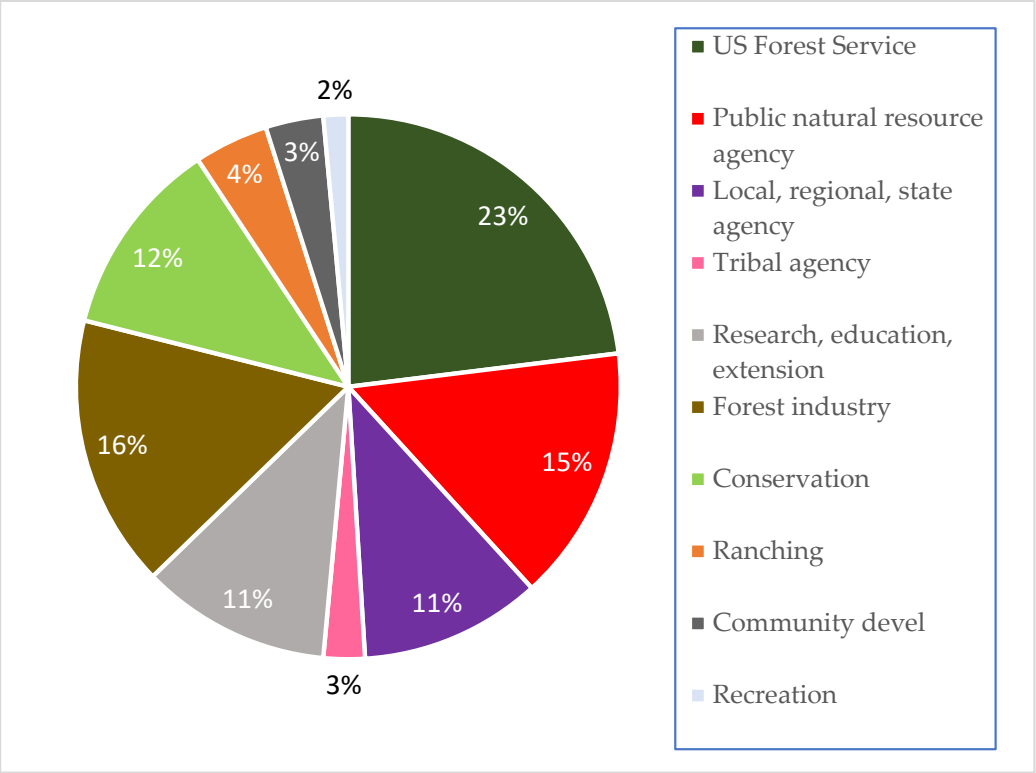

Figure 2. Proportion of stakeholder attendees averaged across five collaboratives (n = 131).

We examined 'core attendees' with a focus on stakeholder diversity (Table 6). While some collaboratives had a relatively even distribution of core attendees by stakeholder type, others were less balanced. For example, BMFP, the smallest collaborative, had three types of stakeholders represented in its core group. WWFC, the largest collaborative, had eight stakeholder types in its core group. For the five collaboratives combined, core attendees were represented by the forest industry (22%), USFS (20%), public land agencies (17%), and conservation organizations (16%) (Figure 3).

Table 6. Core attendees by stakeholder type (n = 64).

Stakeholder Category	BMFP	HCRC	UFCG	OFRC	WWFC
US Forest Service	1	3	2	5	2
Public natural resource agency	0	2	3	3	3
Local, regional, and state agencies	0	0	1	3	3
Tribal agency	0	0	0	0	0
Research, education, extension	0	0	0	1	2

Table 6. *Cont.*

Stakeholder Category	BMFP	HCRC	UFCG	OFRC	WWFC
Forest industry	3	1	4	1	5
Conservation	1	1	2	3	3
Ranching	0	1	0	1	1
Community development	0	0	0	0	1
Recreation, access	0	1	0	0	0
Other	0	0	0	1	0
Total	5	9	12	18	20

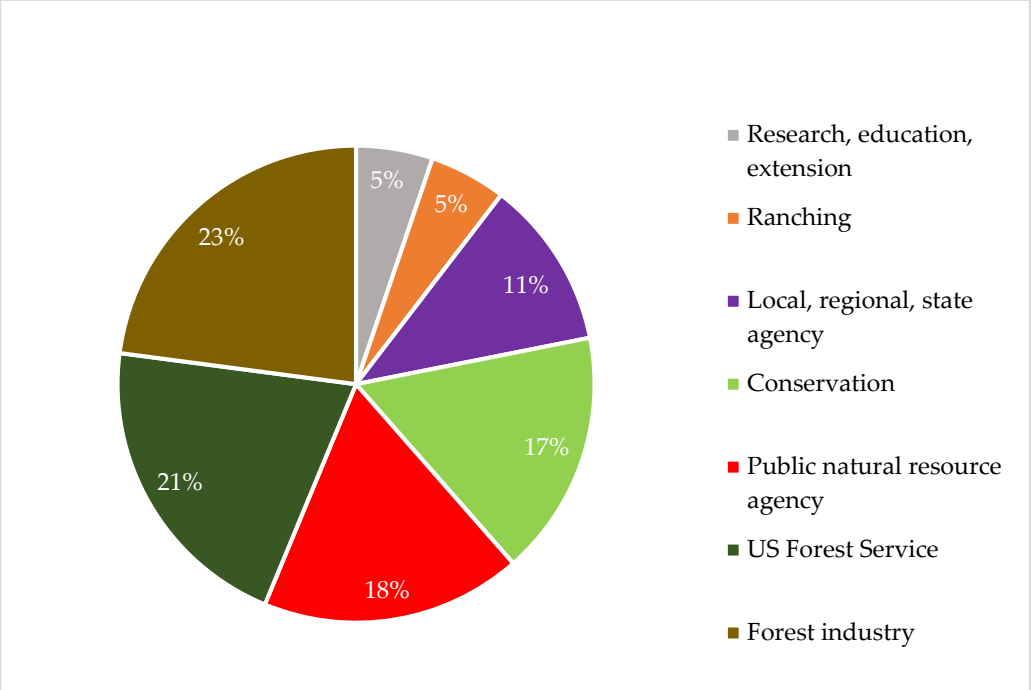

Figure 3. Core attendees by stakeholder type across five collaboratives (n = 64).

4.3. Collaborative Balance Across Stakeholder Categories

To understand collaborative balance, we examined the number of stakeholder categories and the proportion of core attendees represented (Figure 4). For each of the five collaborative groups, the number and diversity of attendees are depicted across stakeholder categories (distinguished by color). Core attendees are indicated by large-sized circles and can be viewed within each stakeholder category. This figure provides insights regarding collaborative balance or the degree to which stakeholders are represented by individual organizations. In this figure, WWFC and OFRC show larger numbers of core attendees across multiple categories. Forestry industry groups are the dominant core attendees within BMFP and UFCG, while the USFS is common among core attendees in OFRC and HCRC. BMFP, the smallest collaborative, had the fewest categories represented among its core attendees.

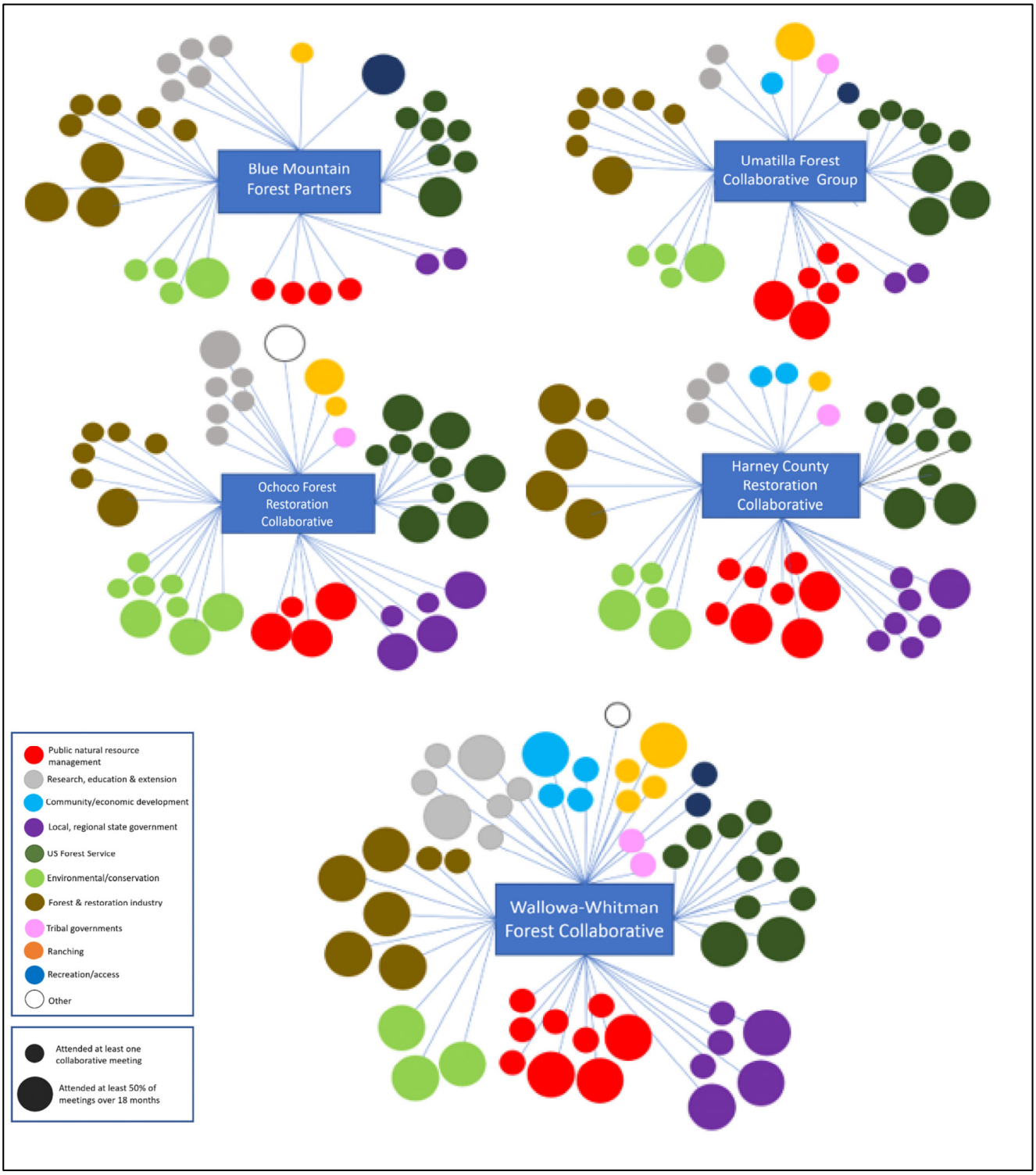

Figure 4. Visual depiction of each forest collaborative for all attending organizations by category.

4.4. Participation by Locality

We measured the percentage of organizations based on locality across the five collaborative groups (Figure 5). The percentage of attendees who represented local organizations varied from a low of 44% (BMFP) to a high of 74% (UFCG), with an overall average of 58% for all collaboratives combined. The proportion of organizations categorized as 'regional' (non-local based in Oregon) ranged from a low of 22% (UFCG) to a high of 47% (OFRC). Few organizations (9%) were 'external' (based solely outside of Oregon). The proportion of

local organizations did not always coincide with collaborative size. BMFP was the smallest group and had fewer than 50% of local groups attending. However, HCRC also was a small group and was attended by 68% local organizations, which was a similar proportion to the largest group, WWFC (61%).

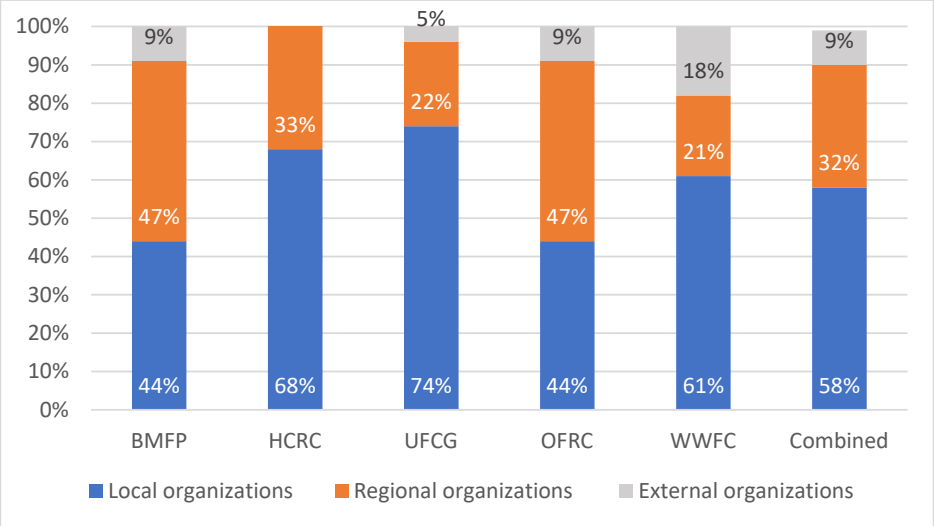

Figure 5. Percentage of organizations attending collaborative events based on locality of headquarters.

4.5. Collaborative Cross-Participation

Some collaborative attendees represented organizations that engaged with multiple collaboratives. Representatives from 131 organizations attended at least one collaborative event in the region (all collaboratives combined) over the 18 month period. Representatives from 42 organizations (32%) attended at least one meeting of two or more collaboratives in the region (Figure 6). We examined the types of organizations that attended meetings in multiple collaborative groups. Among those 42 organizations, the most prominent were the forest industry (21%), the USFS (17%), and public natural resource agencies (17%).

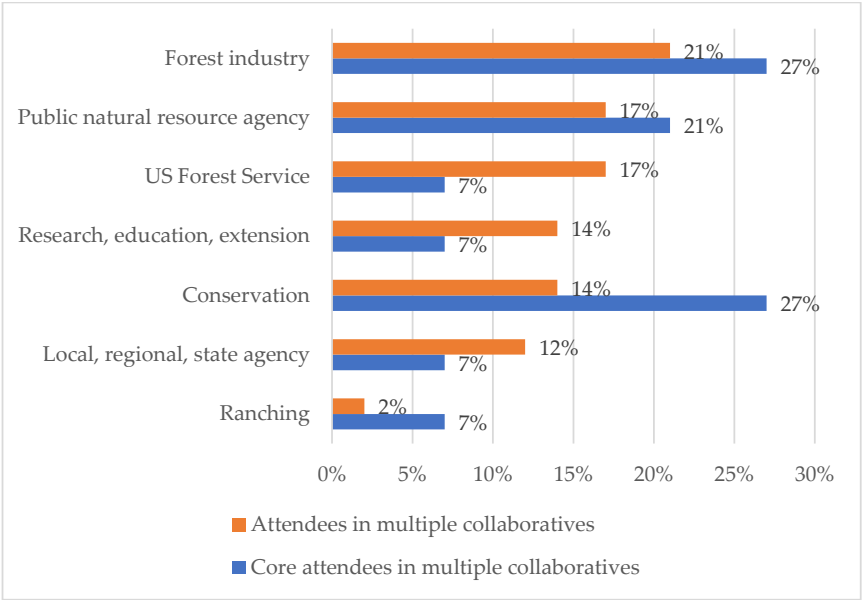

Figure 6. Types of attendees present at events of multiple (2 or more) collaboratives. Note: Tribal agencies, community economic development agencies, and recreation access agencies had one or fewer organizations in these categories and are not shown in this figure.

We found that 15 organizations (11% of total organizations) were 'core attendees' (attended 50% of events) in two or more collaboratives. Of these, the forest industry (27%) and conservation organizations (27%) were the most frequent. None of the organizations categorized as community development or recreation/access attended multiple collaborative groups. One ranching organization attended events of multiple collaboratives and was a core member of one collaborative. One Tribal agency representative attended events of multiple collaboratives. While seven USFS units had representatives who attended events of multiple collaboratives, only one representative was a core attendee in multiple collaboratives.

5. Discussion

Our literature review on group composition in collaborative governance contexts revealed several factors important to consider when assessing collaborative compositions: size, stakeholder diversity, balance, locality–diversity, and cross-participation (the extent to which organization representatives attend events of multiple collaboratives). We examined how those factors manifested themselves with respect to the five forest collaboratives in northeastern Oregon. Our approach was designed to be implementable by collaborative leaders interested in self-assessment to determine gaps and redundancies in participation based on organization type, frequency of participation, or geography.

5.1. Collaborative Size and Attendance Patterns

We first set out to understand the relationship between collaborative size and attendance patterns, especially core attendance. Our data showed that there did not appear to be a direct link between collaborative size and attendance ratios (average attendees per event), although mid-sized collaboratives appeared to have higher ratios than both small and larger collaboratives. Others have found that smaller collaboratives may gain in efficiency [43] and may be able to reach consensus more easily because it is easier to build trust and strengthen bonds [42]. Larger collaboratives may contain more voices or have greater collective knowledge but can be unwieldy [42]. More investigation is needed to understand the effect of collaborative size, productivity, and impact, which was not studied here but has been explored by others [49].

A challenge many collaboratives face is maintaining continuity in participation [42]. The forest collaboratives in our study were no exception, with one-third of organizations attending at least half the events of a collaborative. This supports Koski et al.'s (2018) and Carboni et al.'s (2017) findings of a gap between those included as members and the extent to which different members attend collaborative events [29,32]. The size of the core group relative to the larger collaborative can be indicative of how work is being accomplished and by whom. Our findings suggest that larger collaboratives have higher participation from core attendees compared with smaller collaboratives. Thinking about those smaller groups, the potential for a handful of organizations influencing the work of the collaborative is great. When the burden of work falls on a smaller proportion of collaborative members, the collaborative may suffer from burnout [42]. Collaboratives with a higher proportion of core attendees may spread the burden more evenly or may have greater capacity for building institutional memory, trust, and shared experiences that improve efficiency [20,50].

5.2. Stakeholder Diversity Across Forest Collaboratives

Next, we explored stakeholder diversity in terms of organizational interests represented. All five collaboratives displayed heterogeneity when looking at overall attendance by stakeholder category. The larger-sized collaboratives tended to have greater stakeholder diversity. This may not be surprising since more attendees would suggest a greater

representation of a variety of interests. Smaller forest collaboratives may need to assess whether sets of interests are missing and invest in outreach. Of the stakeholder categories we studied, 4 of the 11 were well-established across the five collaboratives: USFS, public natural resource agencies, forest industry, and conservation. Collectively, these four groups made up two-thirds (66%) of total attendance. When we look only at core attendance, these same four stakeholder categories represent 79% of the total. This suggests that while collaboratives may appear diverse in terms of attendance or membership, the team that shows up most often reflects a narrow range of interests.

Some groups were not well represented in our sample. Tribal governments are powerful actors in this region yet were largely absent in collaborative events, which suggests a potential for capacity constraints, barriers to access, or a preference for other forms of engagement. The lower-than-expected attendance of community development groups, ranchers, and recreation organizations raises questions about how well the collaboratives were able to incorporate their interests in resource management and economic development. Collaborative forest management benefits from the inclusion of multiple knowledge systems, which can enhance resilience [5]. The exclusion of stakeholders reduces the knowledge available to the group for informing their decisions, potentially leading to decisions based on less robust knowledge of local conditions.

Low stakeholder diversity raises questions about representation as well as efficiency and impact. While our study did not explore collaborative output, others have found that a more heterogeneous group may possess a greater range of perspectives to debate critical issues in forest management [40]. On the one hand, diverse perspectives in deliberations can help collaboratives develop creative and synergistic solutions that allow restoration projects to be initiated without opposition. On the other hand, a wide range of opinions may make it difficult to reach an agreement on proposed actions, thereby inhibiting the collaborative's ability to achieve key objectives [45].

5.3. Collaborative Balance

The balance of interests represented also may factor in the ability of collaboratives to function effectively [59]. Among our collaboratives sampled, for some collaboratives, just one or two organizations in attendance represented a stakeholder category, while in other collaboratives, an abundance of representatives attended on behalf of a stakeholder category. For example, HCRC had a high stakeholder diversity of overall attendees, with 10 out of 11 possible stakeholder categories. However, 6 of the 10 stakeholder categories were represented by two or fewer organizations. In contrast, all 11 stakeholder categories were present at WWFC events, and seven of those categories had at least three different organizations in attendance. It is also important to consider balance in terms of core attendance. HCRC had six stakeholder categories represented in its core group of nine. WWFC had eight stakeholder categories reflected in its core group of 20, but one stakeholder category, the forest industry, had five organizations that were core attendees.

Stakeholder categories present in higher numbers may have more opportunities to communicate their interests, foster alliances, share the burden of participation, and negotiate their positions [42]. Moreover, over-represented stakeholder categories may dominate discussions and negotiations, which could discourage others from engaging. Underrepresentation of stakeholders can lead to decisions that reflect the interests of dominant stakeholders [26], raising questions about fairness in outcomes [59]. An imbalanced collaborative could also result in a loss of trust [60,61], undermining the social legitimacy of collaborative outcomes and the potential for decisions to be challenged or ignored [18]. For example, conservation organizations eventually withdrew participation from two collaboratives in our study, claiming that their voices had been overpowered by forest

restoration and logging interests [62,63]. This raises questions about representativeness and the ability of those collaboratives to embrace diverse perspectives. Others have observed that collaboratives dominated by a subset of interests may cause some attendees to abandon the collaborative process and turn toward other strategies, such as litigation or appeal [10]. While we have not explored the relationship between balance and litigation in this study, this is a potential area for future investigation.

5.4. Locality–Diversity

Our analysis suggests that local interests predominated in each of the five collaboratives. On average, 58 percent of the organizations with a presence at collaborative events had local offices or branches. Most of the other organizations were based elsewhere in Oregon, with very few groups having offices only outside of Oregon. A locally based entity with a regional focus, such as a conservation organization or forest industry firm, may have different interests from its national counterparts but may also have different viewpoints from local organizations that do not have to satisfy a statewide or national constituency. While the dominant presence of local organizations in the collaboratives studied here may indicate that national forests in the area are benefiting from the input of people who reside closest to the resources, an argument could be made that national interests associated with these national forests are under-represented. The issue of locality is very sensitive and is a topic often raised when community-based collaboratives feel that they are being controlled by outside interests [23,26]. Our findings suggest the need for additional research to explore how collaboratives balance local and non-local interests and to assess whether challenges exist for national organizations with local chapters that participate in collaboratives.

5.5. Cross-Participation and Bridging Organizations

Organizational attendance at events of multiple collaboratives did occur but was not common. Because this study occurred prior to the ready availability of video conference technology, attending meetings in distant communities required in-person participation. Roughly one-third of organizations in our sample were present at the events of at least two collaborative groups. Organizations with representatives able to attend meetings of multiple collaboratives arguably are those with resources to travel, available staff, and time to attend. While conservation organizations were less often 'core' attendees in the five collaboratives, they were among the groups most likely to attend meetings of multiple collaboratives. These findings raise new questions about an organization's motivations to participate at this spatial scale and whether other organizations face barriers in extending their reach beyond a single collaborative. Some organizations may conceptualize resource management concerns at a grander spatial scale or have responsibilities, investments, and interests that extend across multiple jurisdictions [64]. In future research, it will be important to investigate trends in cross-participation now that virtual conferences are commonplace. We anticipate increased cross-collaboration attendance and an increase in core attendance rates across the organizational categories.

Organizations attending multiple collaboratives may serve as "bridging organizations" that share information among collaboratives, including both substantive knowledge about forest restoration and skills associated with collaborative deliberation [54,65]. Bridging organizations may have the potential to expand their power base through professional networks and access to resources unavailable to groups that engage in a single collaborative. Future research on motivations for cross-participation would shine a light on their potential to serve as bridging organizations.

5.6. Management Implications

Our findings about collaborative size, stakeholder diversity, balance, locality–diversity, and cross-participation raise important questions useful for collaborative facilitators, government agencies that support collaboratives, and participants themselves. We found that collaboratives exist in a range of sizes and formations. For a governmental agency awarding grants or allocating resources, it may be useful to evaluate a collaborative based on stakeholder diversity of regular and core attendees. Governmental agencies also may benefit from understanding how factors such as stakeholder diversity, balance, and locality–diversity can affect collaborative longevity. Collaboratives that rely on a few members to do the bulk of work or that have alienated sub-groups may not be well-positioned to provide the type of public engagement required.

Our assessment of collaborative composition based on analysis of attendance records is one that can be adopted easily by collaborative leaders who seek to reflect on whether the composition of their collaborative reflects the range of forest management interests locally and regionally. Once gaps have been identified, leaders can then assess whether those gaps matter and develop outreach strategies to enlist those not currently at the collaborative table. For some collaboratives, it might be important to recruit missing stakeholder categories to function effectively. Others may want to bolster the number of organizations per stakeholder category. Solo representatives of a stakeholder category may face pressure to represent all the voices not in attendance. A lack of allies at the table may inhibit a collaborative group's ability to build strong bonds. While there is no 'ideal' proportion of local to non-local participants, collaborative leaders may also find it helpful to reflect on what constitutes an equitable proportion of local or non-local interests and whether they need to recruit more voices of a particular type.

5.7. Study Limitations and Future Research

Our study was designed to focus on collaborative composition based on a simple measure: attendance records. An important limitation of this approach is that we are unable to know the quality or extent of participation by stakeholders in attendance. To understand more about the frequency, duration, value, or impact of contributions to collaborative deliberation, an observational approach to meetings or analysis of transcribed minutes would be needed. In addition, some of the work of collaboratives happens outside of organized meetings. Interviews with collaborative members would be needed for a holistic picture. Based solely on attendance records, our true understanding of collaborative deliberations and outcomes is limited. More sophisticated approaches, such as social network analysis, could be used to explore the direction and depth of relationships among representing organizations and how this affects collaborative impact. We recognize this as a study limitation in our investigation.

We recommend that future research explore the relationship between collaborative composition (using the six elements) and collaborative impact or effectiveness, including ecological outcomes. Such work would benefit from a mixed-methods design that includes qualitative and longitudinal data. Another important area for future research is to identify enablers and constraints to becoming a core attendee or cross-participant. Empirical research based on surveys and interviews could yield discoveries about why some groups are not at the collaborative table. We found that some collaboratives, while diverse in stakeholder composition, were imbalanced in representation. Research is needed to investigate the relationship between balance and longevity of collaboratives and whether video-conference technology has impacted attendance.

6. Conclusions

The intent of this paper was to deepen our understanding of collaborative forest governance based on a study in northeastern Oregon. Using publicly available attendance records and meeting minutes, we defined six elements of collaborative composition: size, stakeholder diversity, balance, locality–diversity, core attendance, and cross-participation. Across five collaboratives, we explored (1) variation in attendance rates based on collaborative size; (2) the effects of collaborative size on stakeholder diversity for all attendees and core (high-frequency) attendees; (3) whether collaboratives with high stakeholder diversity are also balanced; (4) the relationship between locality–diversity and collaborative size; (5) to what extent organizations participate in multiple forest collaboratives across the region. We found that larger collaboratives appeared to have greater stakeholder diversity and more core attendees. Core attendees and cross-participants (organizations involved in multiple collaborative groups) were far less diverse in terms of stakeholder categories represented. Our method of assessing collaborative composition may be used by collaborative leaders to guide future outreach and recruitment efforts.

Author Contributions: Conceptualization, L.K.C. and R.J.M.; methodology, L.K.C., R.J.M. and K.W.; formal analysis, L.K.C., R.J.M. and K.W.; investigation, R.J.M. and K.W.; resources, L.K.C. and R.J.M.; data curation, R.J.M. and K.W.; writing—original draft preparation, L.K.C. and R.J.M.; writing—review and editing, L.K.C., R.J.M. and K.W.; visualization, K.W.; supervision, R.J.M.; project administration, L.K.C.; funding acquisition, L.K.C. All authors have read and agreed to the published version of the manuscript.

Funding: The project was funded through a cost-reimbursable agreement with the U.S. Forest Service, Pacific Northwest Research Station. Agreement # 17-CR-11261985-091.

Data Availability Statement: This study relied on meeting minutes that were publicly available on collaborative group websites, except for the Harney County Restoration Collaborative, whose leader shared records upon request. Our data summaries are available upon request.

Acknowledgments: We acknowledge Diane Besser, who created the map in Figure 1. We also acknowledge Chris Grant, who produced the initial social network diagrams. We thank members of the four collaboratives who helped us track down attendance data and meeting minutes that were not publicly posted, particularly Jack Southworth of the Harney County Restoration Collaborative.

Conflicts of Interest: The authors declare no conflicts of interest.

Abbreviations

The following abbreviations are used in this manuscript:

USFS	United States Forest Service
CFLR	Collaborative Forest Landscape Restoration
BMFP	Blue Mountain Forest Partners
WWFC	Wallowa–Whitman Forest Collaborative
UFCG	Umatilla Forest Collaborative Group
HCRC	Harney County Restoration Collaborative
OFRC	Ochoco Forest Restoration Collaborative

References

1. Petheram, R.J.; Stephen, P.; Gilmour, D. Collaborative forest management: A review. *Aust. For.* **2004**, *67*, 137–146. [CrossRef]
2. European Commission. *A New EU Forest Strategy: For Forests and the Forest-Based Sector*; European Commission: Brussels, Belgium, 2013; COM, 659 final; Available online: https://eur-lex.europa.eu/resource.html?uri=cellar:21b27c38-21fb-11e3-8d1c-01aa75ed71a1.0022.01/DOC_1&format=PDF (accessed on 17 June 2025).
3. Lazdinis, M.; Angelstam, P.; Pülzl, H. Towards sustainable forest management in the European Union through polycentric forest governance and an integrated landscape approach. *Landsc. Ecol.* **2019**, *34*, 1737–1749. [CrossRef]

4. Bhatia, N.K.; Yousuf, M. Reassuring livelihood functions of the forests to their dependents: Adoption of collaborative forest management system over Joint forest management regime in India. *Ann. For. Res.* **2013**, *56*, 377–388.
5. Borrini, G.; Kothari, A.; Oviedo, G. *Indigenous and Local Communities and Protected Areas*; Towards equity and enhanced conservation: Guidance on policy and practice for co-managed protected areas and community conserved areas; IUCN: Gland, Switzerland, 2004. Available online: https://ceeto-network.eu/content/iucn_indigenous_and_local_communities_and_protected_areas_towards_equity_and_enhanced_conservation_2004.pdf (accessed on 17 June 2025).
6. Jacobs, K. Teams at their core: Implementing an ALL LANDS approach to conservation requires focusing on relationships, teamwork process, and communications. *Forests* **2017**, *8*, 246. [CrossRef]
7. Butler, W.H.; Monroe, A.; McCaffrey, S. Collaborative implementation for ecological restoration on US public lands: Implications for legal context, accountability, and adaptive management. *Environ. Manag.* **2015**, *55*, 564–577. [CrossRef]
8. McIntyre, K.B.; Schultz, C.A. Facilitating collaboration in forest management: Assessing the benefits of collaborative policy innovations. *Land Use Policy* **2020**, *96*, 104683. [CrossRef]
9. Wilkins, K.; Pejchar, L.; Carroll, S.L.; Jones, M.S.; Walker, S.E.; Shinbrot, X.A.; Huayhuaca, C.A.; Fernandez-Gimenez, M.E.; Reid, R.S. Collaborative conservation in the United States: A review of motivations, goals, and outcomes. *Biodivers. Conserv.* **2021**, *259*, 109165. [CrossRef]
10. Nie, M. The Forest Service's 2012 Planning Rule and its implementation: Federal advisory committee member perspectives. *J. For.* **2018**, *117*, 64–71. [CrossRef]
11. Monroe, A.S.; Butler, W.H. Responding to a policy mandate to collaborate: Structuring collaboration in the collaborative forest landscape restoration program. *J. Environ. Plan Manag.* **2016**, *59*, 1054–1072. [CrossRef]
12. Fernández-Giménez, M.E.; Augustine, D.J.; Porensky, L.M.; Wilmer, H.; Derner, J.D.; Briske, D.D.; Stewart, M.O. Complexity fosters learning in collaborative adaptive management. *Ecol. Soc.* **2019**, *24*, 21. [CrossRef]
13. Beeton, T.A.; Cheng, A.S.; Colavito, M.M. Cultivating collaborative resilience to social and ecological change: An assessment of adaptive capacity, actions, and barriers among collaborative forest restoration groups in the United States. *J. For.* **2022**, *120*, 316–335. [CrossRef]
14. Koontz, T.M.; Newig, J. From planning to implementation: Top-down and bottom-up approaches for collaborative watershed management. *Policy Stud. J.* **2014**, *42*, 416–442. [CrossRef]
15. Mattor, K.M.; Cheng, A.S.; Kittler, B.; McDonough, M. Assessing collaborative governance outcomes and indicators across spatial and temporal scales: Stewardship contract implementation by the United States Forest Service. *Soc. Nat. Resour.* **2020**, *33*, 484–503. [CrossRef]
16. Yoon, N.; Fields, K.; Cochran, B.; Nabatchi, T. Collaborative governance at scale: Examining the regimes, platforms, and system in the state of Oregon. *Am. Rev. Public Adm.* **2022**, *52*, 439–456. [CrossRef]
17. Margerum, R.D. *Beyond Consensus: Improving Collaborative Planning and Management*; MIT Press: Cambridge, MA, USA, 2011.
18. Ansell, C.; Gash, A. Collaborative governance in theory and practice. *J. Public Adm. Res. Theory* **2008**, *18*, 543–571. [CrossRef]
19. Bodin, Ö.; Sandström, A.; Crona, B. Collaborative networks for effective ecosystem-based management: A set of working hypotheses. *Policy Stud. J.* **2017**, *45*, 289–314. [CrossRef]
20. Coleman, K.; Stern, M.J. Exploring the functions of different forms of trust in collaborative natural resource management. *Soc. Nat. Resour.* **2018**, *31*, 21–38. [CrossRef]
21. Davis, E.J.; Cerveny, L.K.; Ulrich, D.R.; Nuss, M.L. Making and breaking trust in forest collaborative groups. *Humboldt J. Soc. Relat.* **2018**, *40*, 211–231. [CrossRef]
22. Burgos, A.; Mertens, F. Collaborative governance networks: Exploring governance success in large-scale conservation. *Ambiente Soc.* **2022**, *25*, e0110. [CrossRef]
23. Wyborn, C.; Bixler, R.P. Collaboration and nested environmental governance: Scale dependency, scale framing, and cross-scale interactions in collaborative conservation. *J. Environ. Manag.* **2013**, *15*, 58–67. [CrossRef]
24. Abrams, J.; Davis, E.J.; Moseley, C. Community-based organizations and institutional work in the remote rural west. *Rev. Policy Res.* **2015**, *32*, 675–698. [CrossRef]
25. McIver, C.P.; Becker, D.R. An empirical evaluation of the impact of collaboration on the pace and scale of national forest management in Idaho. *For. Sci.* **2021**, *67*, 49–59. [CrossRef]
26. Swette, B.; Huntsinger, L.; Lambin, E.F. Collaboration in a polarized context: Lessons from public forest governance in the American West. *Ecol. Soc.* **2023**, *28*, 29. [CrossRef]
27. Dobbin, K.B.; Kuo, M.; Lubell, M.; Bostic, D.; Mendoza, J.; Echeveste, E. Drivers of (in) equity in collaborative environmental governance. *Policy Stud. J.* **2023**, *51*, 375–395. [CrossRef]
28. Margerum, R.D. Overcoming locally based collaboration constraints. *Soc. Nat. Resour.* **2007**, *20*, 135–152. [CrossRef]
29. Carboni, J.L.; Siddiki, S.; Koski, C.; Sadiq, A. Using network analysis to identify key actors in collaborative governance processes. *Nonprofit Policy Forum* **2017**, *8*, 133–145. [CrossRef]
30. Ansell, C.; Torfing, J. How does collaborative governance scale? *Policy Politics* **2015**, *43*, 315–329. [CrossRef]

31. Orth, P.B.; Cheng, A.S. Who's in charge? The role of power in collaborative governance and forest management. *Humboldt J. Soc. Relat.* **2018**, *1*, 191–210. [CrossRef]
32. Koski, C.; Siddiki, S.; Sadiq, A.-A.; Carboni, J. Representation in collaborative governance: A case study of a food policy council. *Am. Rev. Public Adm.* **2018**, *48*, 359–373. [CrossRef]
33. Davis, E.J.; White, E.M.; Cerveny, L.K.; Seesholtz, D.; Nuss, M.L.; Ulrich, D.R. Comparison of USDA Forest Service and stakeholder motivations and experiences in collaborative federal forest governance in the western United States. *Environ. Manag.* **2017**, *60*, 908–921. [CrossRef]
34. Davis, E.J.; Santo, A.; White, E.M. Collaborative capacity and outcomes from Oregon's Federal Forest Restoration Program. Ecosystem Workforce Program Working Paper Number 92. 2019, University of Oregon and Oregon State University. Available online: https://www.oregon.gov/odf/working/Documents/collaborative-capacity-outcomes-from-oregon-ffr.pdf (accessed on 1 May 2025).
35. Abrams, J. The emergence of network governance in US National Forest Administration: Causal factors and propositions for future research. *For. Policy Econ.* **2019**, *106*, 101977. [CrossRef]
36. Fernandez-Gimenez, M.E.; Ballard, H.L.; Sturtevant, V.E. Adaptive management and social learning in collaborative and community-based monitoring: A study of five community-based forestry organizations in the western USA. *Ecol. Soc.* **2008**, *13*, 22. [CrossRef]
37. Buuren, A. Knowledge for governance, governance of knowledge: Inclusive knowledge management in collaborative governance processes. *Int. Public Manag. J.* **2009**, *12*, 208–235. [CrossRef]
38. Adade Williams, P.; Sikutshwa, L.; Shackleton, S. Acknowledging indigenous and local knowledge to facilitate collaboration in landscape approaches—Lessons from a systematic review. *Land* **2020**, *9*, 331. [CrossRef]
39. Cheng, A.S.; Sturtevant, V.E. A Framework for Assessing Collaborative Capacity in Community-Based Public Forest Management. *Environ. Manag.* **2012**, *49*, 675–689. [CrossRef]
40. Goldstein, B.E.; Butler, W.H. Expanding the scope and impact of collaborative planning. *J. Am. Plan. Assoc.* **2010**, *76*, 238–249. [CrossRef]
41. Bidwell, R.D.; Ryan, C.M. Collaborative partnership design: The implications of organizational affiliation for watershed partnerships. *Soc. Nat. Resour.* **2009**, *19*, 827–843. [CrossRef]
42. Urgenson, L.S.; Ryan, C.M.; Halpern, C.B.; Bakker, J.D.; Belote, R.T.; Franklin, J.F.; Haugo, R.D.; Nelson, C.R.; Waltz, A.E. Visions of restoration in fire-adapted forest landscapes: Lessons from the Collaborative Forest Landscape Restoration Program. *Environ. Manag.* **2017**, *59*, 338–353. [CrossRef]
43. Poteete, A.R.; Ostrom, E. Heterogeneity, group size and collective action: The role of institutions in forest management. *Dev. Change* **2004**, *35*, 435–461. [CrossRef]
44. Scott, R.J.; Merton, E.R. When the going gets tough, the goal-committed get going: Overcoming the transaction costs of inter-agency collaborative governance. *Public Manag. Rev.* **2021**, *23*, 1640–1663. [CrossRef]
45. Ansell, C.; Doberstein, C.; Henderson, H.; Siddiki, S.; 't Hart, P. Understanding inclusion in collaborative governance: A mixed methods approach. *Policy Soc.* **2020**, *39*, 570–591. [CrossRef]
46. Agrawal, A.; Goyal, S. Group size and collective action: Third-party monitoring in common-pool resources. *Comp. Political Stud.* **2001**, *34*, 63–93. [CrossRef]
47. Ostrom, E. *Self-Governance and Forest Resources*; CIFOR Occasional Paper Number 20; Center for International Forestry Research: Bogor, Indonesia, 1999. Available online: https://dlc.dlib.indiana.edu/dlcrest/api/core/bitstreams/1725cc01-fcbf-4293-8198-d528ee9fab0a/content (accessed on 1 May 2025).
48. Koontz, T.M.; Johnson, E.M. One size does not fit all: Matching breadth of stakeholder participation to watershed group accomplishments. *Policy Sci.* **2004**, *37*, 185–204. [CrossRef]
49. Scott, T. Does collaboration make any difference? Linking collaborative governance to environmental outcomes. *J. Policy Anal. Manag.* **2015**, *34*, 537–566. [CrossRef]
50. Siddiki, S.; Kim, J.; Leach, W.D. Diversity, trust, and social learning in collaborative governance. *Public Adm. Rev.* **2017**, *77*, 863–874. [CrossRef]
51. Siddiki, S.; Ambrose, G. Evaluating change in representation and coordination in collaborative governance over time: A study of environmental justice councils. *Environ. Manag.* **2022**, *71*, 620–640. [CrossRef]
52. Jamal, T.; Stronza, A. Collaboration theory and tourism practice in protected areas: Stakeholders, structuring and sustainability. *J. Sustain. Tour.* **2009**, *17*, 169–189. [CrossRef]
53. Schultz, C.A.; Jedd, T.; Beam, R.D. The Collaborative Forest Landscape Restoration Program: A history and overview of the first projects. *J. For.* **2012**, *110*, 381–391. [CrossRef]
54. Medema, W.; Adamowski, J.; Orr, C.; Furber, A.; Wals, A.; Milot, N. Building a foundation for knowledge co-creation in collaborative water governance: Dimensions of stakeholder networks facilitated through bridging organizations. *Water* **2017**, *9*, 60. [CrossRef]
55. U.S. Census Bureau. Quick Facts. 2021. Available online: https://www.census.gov/quickfacts/ (accessed on 1 May 2025).

56. Hibbard, M.; Senkyr, L.; Webb, M. Multifunctional rural regional development: Evidence from the John Day watershed in Oregon. *J. Plan. Educ. Res.* **2015**, *35*, 51–62. [CrossRef]
57. Hamilton, L.C.; Hartter, J.; Safford, T.G.; Stevens, F.R. Rural environmental concern: Effects of position, partisanship, and place. *Rural. Sociol.* **2014**, *79*, 257–281. [CrossRef]
58. Oregon Solutions. Oregon Forest Collaboratives: Statewide Inventory. Prepared for the Federal Forestlands Advisory Committee–Implementation Working Group of the Oregon Board of Forestry. 2013. Available online: https://orsolutions.org/wp-content/uploads/2011/08/OFCSI_Draft_February_20131.pdf (accessed on 1 May 2025).
59. Emerson, K.; Nabatchi, T.; Balogh, S. An integrative framework for collaborative governance. *J. Public Adm. Res. Theory* **2012**, *22*, 1–29. [CrossRef]
60. Coleman, K.J.; Butler, W.H.; Stern, M.J.; Beck, S.L. They're Constantly Cycling Through: Lessons about Turnover and Collaborative Forest Planning. *J. For.* **2021**, *119*, 1–12. [CrossRef]
61. Lockwood, M.; Davidson, J.; Curtis, A.; Stratford, E.; Griffith, R. Governance principles for natural resource management. *Soc. Nat. Resour.* **2010**, *23*, 986–1001. [CrossRef]
62. Bishop, E.M. Enviro Groups Withdraw from Forest Collaborative. Wallowa County Chieftain. 24 June 2020. Available online: https://www.union-bulletin.com/news/enviro-groups-withdraw-from-forest-collaborative/article_0aaaa1c1-1728-531f-a142-ee58011adb7b.html (accessed on 1 May 2025).
63. Gbadebo, B. Oregon Wild, Sierra Club Withdraw from Ochoco Forest Restoration Collaborative. KTVZ News. 2022, 9 March 2022. Available online: https://ktvz.com/news/environment/2022/03/09/oregon-wild-sierra-club-withdraw-from-ochoco-forest-restoration-collaborative-cite-concerns/ (accessed on 1 May 2025).
64. Lee, J.; Baggio, J. Promises and limits of community-based organizations in bridging mismatches of scale: A case study on collaborative governance on federal lands. *Ecol. Soc.* **2021**, *26*, 7. [CrossRef]
65. Stewart, J.; Tyler, M.E. Bridging organizations and strategic bridging functions in environmental governance and management. *Int. J. Water Resour. Dev.* **2019**, *35*, 71–94. [CrossRef]