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Institutional, Individual, and Socio-Cultural Domains of Partnerships: A Typology of USDA Forest Service Recreation Partners

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Abstract Federal land management agencies, such as the USDA Forest Service, have expanded the role of recreation partners reflecting constrained growth in appropriations and broader societal trends towards civic environmental governance. Partnerships with individual volunteers, service groups, commercial outfitters, and other government agencies provide the USDA Forest Service with the resources necessary to complete projects and meet goals under fiscal constraints. Existing partnership typologies typically focus on collaborative or strategic alliances and highlight organizational dimensions (e.g., structure and process) defined by researchers. This paper presents a partner typology constructed from USDA Forest Service partnership practitioners' conceptualizations of 35 common partner types. Multidimensional scaling of data from unconstrained pile sorts identified 3 distinct cultural dimensions of recreation partners—specifically, partnership character, partner impact, and partner motivations—that represent institutional, individual, and socio-cultural cognitive domains. A hierarchical agglomerative cluster analysis provides further insight into the various domains of agency personnel's conceptualizations. While three dimensions with high reliability (RSQ = 0.83) and corresponding hierarchical clusters illustrate commonality between agency personnel's partnership suppositions, this study also reveals variance in personnel's familiarity and affinity for specific partnership types. This real-world perspective on partner types highlights that agency practitioners not only make strategic choices when selecting and cultivating partnerships to accomplish critical task, but also elect to work with partners for the primary purpose of providing public service and fostering land stewardship.

Keywords Natural resources management · Cognitive mapping · Pile sort method · Partnership typology · Multidimensional scaling · Motivations

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Introduction

Since the 1980s, recreation managers of the USDA Forest Service (hereafter "Forest Service") lands have faced constrained appropriations, limiting their capacity to administer recreation programs, facilities, and services. Responding to these challenges, the agency has periodically issued policies (e.g., the 1987 National Recreation Strategies, the 2000 Recreation Agenda, the 2004 E-Gov Recreation One-Stop Initiative, the 2005 Recreation Facility Analysis) that prioritize recreation services, stretch and leverage federal dollars, and outsource core recreation functions. Although partnering with the public has been a traditional agency role, these more recent strategies emphasize the enhancement of financial sustainability through partnerships. The expanding involvement of partners in the management of natural resources in recent years reflects a surge of grassroots environmental movements with groups seeking greater engagement in resource management decisions (Weber 1998). The upswing in partnerships also reflects strategic decisions of federal institutions to nurture these relationships as a means to strengthen local ties or leverage dwindling resources

(Koontz and others 2004). Accordingly, recreation managers increasingly rely on external partners to provide recreation services (e.g., concessionaires who oversee campgrounds, volunteer groups who work on trail maintenance projects, and collaborative task forces who assist in planning).

Despite this reliance on recreation partnerships to meet targets, research on agency partnerships has primarily explored collaborative planning and watershed management. The prevalence of research specific to recreation partnerships focuses on identifying the best steps to implement partnerships (Darrow and Vaske 1995; Decker and Mattfeld 1995; Uhlik 1995) and the instruments of successful or effective partnerships (e.g., James 1999; Selin and Chavez 1994; Selin and Myers 1995). Although much of this research presents case or anecdotal evidence of success (Mowen and Kersetter 2006), the research clearly indicates the existence of many different partnership "types." As an agency, the Forest Service typically characterizes partnerships based on the type of *structure* (e.g., cooperative ventures, inter-organizational agreements, alliances, coalitions, collaborations, commissions, consortiums, networks, workforces, and task forces) and the type of *involvement* (e.g., networking, coordination, cooperation, endorsement, sponsorship, and collaboration) (National Forest Foundation 2005). These categorizations are meaningful for purposes of administering partnerships, but may not necessarily reflect how partnership practitioners actually think about and organize these partners from an operational or organizational context. In other words, they may not reflect the cultural domain, or conceptual lens, of agency personnel engaged in partner relations (Weller and Romney 1988).

Partnerships can assume many forms. Understanding how practitioners cognitively classify the types of partners with whom they engage (i.e., theory-in-use) provides the opportunity to determine if on-the-ground application of partnerships align with existing organizational mechanisms for partnership administration (i.e., espoused theory; see Baum 1994). If differences arise between agency-documented partnership typology and personnel's tacit, normative partnership typology, then personnel may not receive adequate institutional support to implement or maintain a vibrant partnership culture. Therefore, by understanding more about how agency personnel conceptualize partners, we offer insights on the nature and diversity of structural relationships that can help the Forest Service meet their goals while enhancing the sustained viability of its partners.

The purpose of this paper is to examine how types of recreation partners are conceptualized by individuals who are implementing partnerships and directly working with partners. We use data from unconstrained pile sorts—that is, sorting a list of partner types based on affinity—collected during interviews with Forest Service personnel between 2008 and 2009. This paper presents a typology of recreation partners developed from a non-metric multidimensional analysis. By understanding how public agency personnel actually think about and organize their approach to partners, we may gain valuable insights to agency motivations for working with partners, the benefits and challenges of partner relations, and why partners want to work with the agency. In effect, our paper produces a cognitive map of agency personnel operating in an era of partnerships.

Partnership Dimensions

Partnership typologies are organizational frameworks that visually illustrate the similarities and differences among various partnerships by mapping them along specified dimensions (Selin 1999; Waddock 1989). Informed by the organizational development literature (for a review, see Brinkerhoff 2002), partnership typologies have been developed in a variety of disciplines, including social policy (Waddock 1991), public policy (Jacobs 2000), tourism (Selin 1999), community health (Mitchell and Shortell 2000), community development (Frank and Smith 2000; McQuaid 2000), watershed management (Margerum 2008; Moore and Koontz 2003), and education (Smith and Wohlstetter 2006). A review of this literature highlights 6 dimensions common among the various typologies: composition, structure, scope, function, process, and outcome.

Most prevalent are dimensions that emphasize the *composition* of a partnership, which categorize partnerships by the make-up, organizational diversity, and the number of organizations involved (Frank and Smith 2000; Jacobs 2000; Mitchell and Shortell 2000; Moore and Koontz 2003; Selin 1999). Also commonly identified in the literature on partnerships are categorizations that highlight partnership *structure*. This dimension describes the type or form of partner arrangements, such as the level of formality or legal basis in the partnership agreement, the institutional setting, or the degree of coordination and integration among partners (Brinkerhoff 2002; Frank and Smith 2000; McQuaid 2000; Mitchell and Shortell 2000; Moore and Koontz 2003; Selin 1999; Smith and Wohlstetter 2006; Waddock 1991). The *scope* of a partnership describes the nature and significance of the problem to be addressed in terms of the geographical scale, the size of the population or community, the focus of the partnership activities (public, private, or mixed), and the duration of the arrangement (Margerum 2008; McQuaid 2000; Mitchell and Shortell 2000; Selin 1999). Partnership *function* relates to what the partnership was designed to accomplish (Frank and Smith 2000; McQuaid 2000; Moore and Koontz 2003), how the

arrangement was initiated (origin; Smith and Wohlstetter 2006), the number of activities or services provided (Mitchell and Shortell 2000), and the resources-funding mix (Margerum 2008; Mitchell and Shortell 2000). The *process* dimension characterizes how the partnership goals are achieved (Frank and Smith 2000), including: the level of participation and decision-making (locus of control; Selin 1999); the degree of integration of relationships (mutuality; Brinkerhoff 2002; political competition; Jacobs 2000; interdependence; Waddock 1991); the mechanisms in which the activities are carried out (implementation; McQuaid 2000); the interactions among an organization's strategy, structure, capabilities and the external environment (alignment; Mitchell and Shortell 2000); the internal and external mechanisms employed to justify actions and policies (accountability; Mitchell and Shortell 2000); and, the importance and influence of partnership within the organization and partnership (centrality; Mitchell and Shortell 2000). The *outcome* of a partnership focuses on its content and accomplishments (Long and Arnold 1995; Waddock, 1991); that is, whether the outcome is a product or a process.

These dimensions have informed the classification of various partnership types (e.g., Waddock 1991) and serve as the building blocks of partnership theory (Margerum 2008; Moore and Koontz 2003). However, the context of these typologies focus on collaborative alliances and groups, and researchers note that the term 'partnership' is too broadly used (Cousens and others 2006; Segil and others 2003). James (1999) explicitly calls for distinctions to be made between collaborations and partnerships. According to James (1999), a "partnership" indicates a relationship where the needs and goals of various partners are transparent and readily understood at the onset of engagement. Meanwhile, "collaboration" involves a relationship among institutions where the objectives are less clear and the needs and outcomes are emergent. Because of the greater emphasis on achieving mutual, definable goals in partnerships, we suggest that additional factors may differentiate partnerships from collaborations, including governance structure, power relations, and outcomes. Under partnerships, issue identification and decision-making often reflect the norms of the federal agency involved; whereas, collaborations emphasize joint issue identification and decision-making. In the context of Forest Service recreation management, this distinction seems particularly relevant. For example, the agency increasingly relies on partners to meet service-related tasks (e.g., trail or campground maintenance) in which decision-making authority is not shared and products (e.g., number of trails maintained) are the outcome. Conversely, primary goals of collaborative recreation planning are shared decision-making and an emergent process that is guided by participants (i.e., the planning process itself is one of the outcomes). Additionally, the dimensions common within partnership research were primarily informed by examining case study research, survey research, and interview data. Therefore, these conceptualizations, though informed by practitioners, were not developed by partnership practitioners.

Cultural Domain Analysis

One way to develop a typology is to ask agency personnel how they categorize partners, or in other words, determine the *cultural domain* of agency personnel with regard to partners. Cultural domain analysis (CDA) has its roots in cognitive anthropology and has proven useful in applied social analysis (Borgatti 1998). A cultural domain is a set of items, behaviors, beliefs or events defined by a group or organization as belonging to the same category of things; it is a basic unit of meaning that shapes how a group of people (such as the Forest Service) conceptually organize their world (Borgatti 1998; Weller and Romney 1988). Cultural domain analysis stresses an 'emic' approach to knowledge, which emphasizes explanations that are meaningful to the research participants, as opposed to 'etic' approaches which provide explanation using theories postulated by the scientific community (Harris 2001). A cultural domain consists of items identified by group members as belonging to that group. For example, the cultural domain of 'sports' might include baseball, football, basketball, and volleyball, among others. Most cultural domains are flexible and malleable, with variation among groups (cultures) and within groups. In other words, there is not always agreement about what items make up that domain. The purpose of a cultural domain analysis is to understand the world from the point of view of partnership practitioners, not to impose a conceptual model of partners from the researcher viewpoint.

A cultural domain analysis typically begins with *free-listing*, a technique that requires participants to identify all of the different items in a domain, such as all of the types of partners they have encountered in recreation management (Borgatti 1998). In this study, the question asked of key informants was 'What types of partners does the Forest Service work with for recreation?' Once an exhaustive list of items (partner types) has been established, participants can organize these groups by affinity, a process known as *pile-sorting* (Borgatti 1998). Unlike the Q methodology (or Q-sorting method), which has participants rank statements to capture the way they think about specific ideas in relation to other ideas (McKeown and Thomas 1988), the pile sort method allows participants to make unconstrained similarity judgments by sorting terms according to whatever criterion makes sense to them (Bernard 2006).

Analysis of pile sort data produces a *cognitive map*, a display that illustrates how people organize their thinking about a particular cultural domain. In our study, the cultural domain would be recreation partners working with a public land management agency.

To address potential limitations of previously constructed partnership typologies and their applicability to recreation partnerships, the objectives of this paper are two-fold. First, we expand the context of partnership typologies beyond collaborative alliances to include partnerships in which decision-making authority is retained by one partner (i.e., with the Forest Service). Second, we shift the focus of theoretically-derived partnership typologies by partnership researchers to one that is methodologically-derived by partnership practitioners based on their cognitive domain. To meet these objectives, the context of the typology was modified from general partnerships to specific partners, as pile sorts identify the classification of items (i.e., partners) to explore the relationships among items in a cognitive domain (Ryan and Bernard 2000). The agency's recent investment in partnerships and the long term emphasis on recreation as a core management function makes this a fruitful area of inquiry.

Partnership Context

We focused on recreation partners in the Forest Service, a federal land management agency responsible for administration of 155 national forests and 20 national grasslands across the United States. In the Forest Service, partnerships are defined as "arrangements that are voluntary, mutually beneficial, and entered into for the purpose of mutually agreed upon objectives" (Outka-Perkins 2009, p. 9). From this broad definition, Forest Service partnerships expand beyond collaborative alliances by not only including process-as-outcome arrangements but also product-as-outcome arrangements.

The Forest Service enters into partnerships with others to achieve common goals aligned with the agency's mission. There are many types of partnering agencies, groups and individuals who work together with agency staff, including: volunteer work groups, natural resource foundations, scouts, service organizations, university outing clubs, corporations, state and federal agencies, federal work programs, and many others. In some cases, partners approach Forest Service personnel with specific ideas for projects, such as repairing a campground or maintaining a trail network. In other instances, agency personnel identify a need and seek partners to collaborate or fulfill a role. Partnerships are coordinated by individual resource staff, such as a recreation manager, who pursue these relations as a part of doing business, or they may be instigated and promoted by partnership coordinators, whose primary function is facilitating partnerships (Seekamp and Cerveny 2010). We identify these individuals as 'partnership practitioners,' a term that refers to any agency personnel (e.g., recreation staff, wildlife biologists) engaged in partnerships as part of their everyday duties, as well as partnership coordinators, whose role is to promote partner relations at various levels of the agency.

Partnerships may take many structural forms, including memorandums of understanding, joint venture agreements, or short-term contracts (National Forest Foundation 2005). The National Partnership Office provides information and support to partnership coordinators at many levels of the Forest Service. While the agency provides guidance on the structure of partnerships, less information is available about how to actually build partner relations and manage partnerships over the life of a project. This paper emphasizes practitioner perceptions of partners, rather than partnerships. In other words, how do agency personnel make sense of the vast array of potential partners and how do they organize their relations with these partners to achieve important tasks for the public good?

Methodology

The pile sort is a technique which allows researchers to determine the cultural domain of a particular group or organization relevant to some particular problem, phenomenon, or context (Borgatti 1998). Cognitive maps are subsequently created using pile sort data through multidimensional scaling (MDS) of the relationships among compared items (Ryan and Bernard 2000). Specifically, our objective was to map specific partner types along relevant dimensions defined by Forest Service partnership practitioners, in order to identify the cultural domains of recreation partnerships. To meet this objective, we needed to: (1) generate a list of partner types; (2) conduct pile sorts with a diverse set of agency personnel; (3) identify the conceptual lenses (latent content analysis) through which personnel sorted partner types; (4) interpret the resulting dimensions of the pile sort analysis (MDS) using the conceptual lenses identified; (5) construct a dendrogram of aggregate pile sort results (hierarchical agglomerative cluster analysis) to identify the emergent partner clusters; and (6) identify the cultural domains of recreation partnerships by collectively considering all study results and creating a partner typology (Fig. 1).

In our study, a list of 35 types of recreation partners (Table 1) was generated through a free-listing task (Weller and Romney 1988) in a pilot test of the interview guide that included nonspecific prompting and reading back the list of free-listed items (see Brewer 2002) with an upper-level recreation manager with over 30 years of service and a

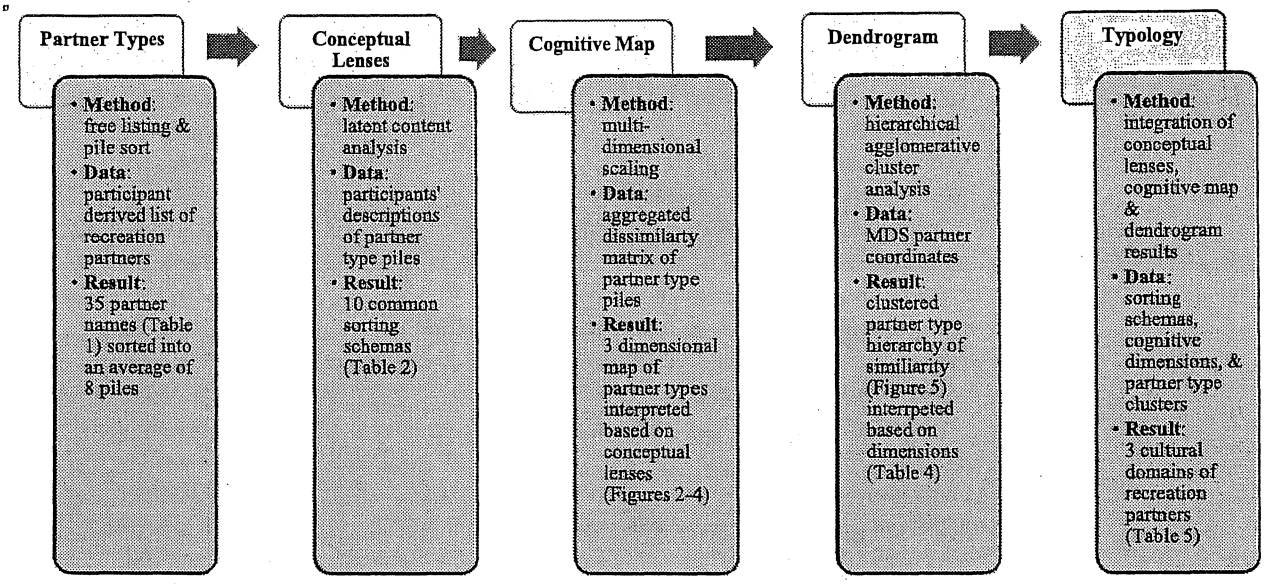

Fig. 1 Analytical approach to typology development

long history of partnerships. This list was later augmented during key informant interviews, when other partner types were identified. Further pilot interviews confirmed that this list, which was generated by early informants appeared to be exhaustive. We also confirmed by comparing our list to examples found in the literature, in Forest Service documents, and on agency websites, including the National Partnership Office.

In subsequent interviews, participants were asked to sort the 35 partner types—each listed on a separate index card—into as many or as few piles based on similarities or affinities. We used an *unconstrained* pile sort approach, where there were no limitations on the number of items in a pile or the number of piles (Weller and Romney 1988). One primary advantage of pile sort data is that reliability coefficients of 0.90 can be achieved with as few as 30 participants (Weller and Romney 1988).

After piles were constructed, participants were asked to give each pile a name and describe how the types of partners in each pile were similar. Detailed notes were taken on the piles, the pile names, and the similarities between partner types. These notes were thematically analyzed for latent content (Boyatzis 1998) to determine the conceptual lens through which participants sorted the partner types. By conceptual lens, we mean how the participant was thinking about the ways that partners can be grouped. For example, they may have grouped partners based on the ease of administering these partner relations or by the type of work in which the partner engaged. We also asked participants to list additional partnership types that were not included on the cards. When these were mentioned, we asked them to identify which of the existing piles might contain the omitted partnership types, or whether a new category was needed. We systematically analyzed the labeling systems used to sort partners to develop these conceptual lenses. The quality of this analysis was enhanced through insider peer-debriefing (Spillett 2003), in which the 3 project researchers, identified, negotiated and agreed upon the lenses. These themes assisted in interpretation of the subsequent MDS results. Specifically, we visually inspected the spatial maps produced by the MDS analysis "to look for patterns in the attributes of stimuli [partner types] clustered around one end of a dimension's continuum to those at the other end" (Pinkley and others 2005, p. 87).

Data were analyzed using SPSS 16.0 using the ALSCAL procedure (Takane and others 1977) for non-metric multidimensional scaling. In general terms, this procedure treats items in a pile as similar (i.e., proximate to other items in a pile) and items in different piles as dissimilar (i.e., distal to items in other piles). Distal distance (dissimilarity) scores are calculated for the items in each participant's piles until an aggregate of dissimilarity scores between items produce final MDS solution. Technically, this procedure uses matrices of pairwise dissimilarity measures between items to determine the coordinates for the items in a n-dimensional space (Giguère 2007). Matrices consist of n rows of samples (i.e., piles) and p columns of variables (i.e., partner types). The matrices are determined through an algorithm that "finds a set of orthogonal vector dimensions in an iterative fashion, slowly transforming the space to reduce the discrepancies between the inter-object distances in the proposed space, and the corresponding scaled original pairwise dissimilarities between these objects" (Giguère 2007, p. 26).

Table 1 Types of USDA Forest Service recreation partners and corresponding abbreviations

Partnership type	Abbreviation
Academic & university researchers	University researcher
AmeriCorps & VISTA	VISTA
Campground host	Host
Civic groups (Rotary, Elks, garden club)	Civic
Concessionaire (campgrounds, e.g., Cradle of Forestry)	Concessionaire
Corporate sponsor	Sponsor
Court-ordered community service	Community service
Education groups (schools, environmental education, camps)	Education
Forest Service contractors	Contractor
Forest Service research scientists	FS researcher
"Friends of" group	Friends of
Guides	Guide
Individual volunteer	Volunteer
Interagency groups (task forces, round-tables)	Interagency
JobCorps	JobCorps
Local & regional recreation groups (hiking clubs, mountain biking, equestrian, ATV, sportsman/hunting, birding)	Local recreation
Local businesses (lumber yard, equipment rental, nursery)	Local business
Local governments (city or county departments)	Local gov't
National foundations (Ford Foundation, National Forest Foundation)	Foundation
National groups (Sierra Club, Nature Conservancy, Rails-to-Trails, IMBA, Backcountry Horsemen)	National group
Other federal agencies	Federal agency
Other Forest Service units (roads, fire, timber)	FS unit
Outdoor leadership organizations (NOLS, Outward Bound)	Leadership
Outfitters	Outfitter
Political leaders	Politician
Prisoners	Prisoner
Private & non-profit data collection or monitoring firms	Private data
Private donors	Donor
Religious groups	Religious
Senior Community Service Employment Program (SCSEP)	SCSEP
State agencies (parks, forests, resource & conservation districts)	State agency
Trail associations	Trail
University groups (outing clubs, fraternities, sororities)	University
Youth Conservation Corps (YCC)	YCC
Youth groups (scouts, 4-H)	Youth

Model iterations continue until convergence is reached, which occurs either when a set maximum number of iterations occur or when the improvement of fit (S-stress) is less than a set value.

For these ordinal data, Euclidean distance scores were calculated, a minimum of 2-dimension and a maximum of 4-dimension models were generated, maximum iterations were set to 30, and the convergence criterion was set to 0.001. Stress (Kruskal's stress formula 1) and squared correlation (RSQ) in distances were calculated to determine the best model. RSQ values are the proportion of variance of the matrix disparities that is accounted for by their corresponding distances. The output of the MDS is a set of coordinates for each partner type that—when plotted along the number of dimensions providing the best fitting solution—produce the aggregate cognitive map of agency personnel's cultural domain of recreation partners. These coordinates were also used as the data for a Ward's minimum variance method hierarchical agglomerative cluster analysis (Afifi and others 2004). This analysis was used to

produce a dendrogram of cluster solutions that illustrates partner type groups similar along all dimensions, representing the emergent partner typology.

Study Sample

The data presented here was generated as part of a larger research project exploring recreation partnerships within the Forest Service. During informant interviews conducted between 2008 and 2009, select participants in the larger study (i.e., 29 of 66 participants) were asked to participate in a pile sorting exercise when ample time allowed for the pile sort during interviews. Purposive (Kerlinger and Lee 2000) and convenience (Ferber 1977) sampling were used to identify all forest units in the study. To create maximum variation (Patton 2003) between units, purposeful sampling criteria included: agency personnel working with partners at various administration levels, in multiple regions, with differing access to a partnership base (i.e., urban, amenity, and rural populations), and with varying internal commitment to partnerships (i.e., presence or absence of forest-level partnership coordinator). Additionally, some units were selected based on convenience of in-person interviews (i.e., located within a day's drive of researchers' offices or places of travel for other business). Chain-referral sampling (Goodman 1961) was also employed when personnel serving as key contacts recommended interviewing other personnel from their forest who work closely with partners. Seven pile sorts were conducted via telephone, as site-visits were either constrained by project funding or personnel availability. A general description of the method was discussed with these seven informants and then sets of partner type cards were mailed in sealed containers to be opened when instructed during the interview. Procedures for the unconstrained pile sort were explained to all informants in the same fashion. In total, pile sorts were conducted in 7 of the 9 Forest Service regions with 29 personnel (at different levels of the agency).

Results

The total number of piles entered into the MDS was 245. On average, participants sorted the 35 partner types into 8 piles, with the number of piles ranging from 3 to 14. In reviewing labels assigned to piles, several patterns emerged. Some participants labeled piles as 'non-partners,' as partners with whom their unit (national forest or district) 'does not engage,' or as partners with whom the participant had 'limited experience' working (11 of the 245 piles). The contents of these 'non-partner' piles varied (i.e., 23 partner types were so classified), but no one partner type was included in more than 3 of the 11 piles. Therefore, these 11 piles were excluded from analysis, resulting in a total of 234 piles included in the MDS.

Conceptual Lenses

Once the 'non-partner' piles were removed, 9 themes, or conceptual lenses, emerged from a content analysis of the pile names and their descriptions provided by participants (Table 2). The conceptual lens refers to the sorting system (i.e., schema) used by the participant to integrate cards and categorize piles, which we identified through latent content analysis (Neuendorf 2002) of the compiled list of pile names and descriptions. For a few participants, a conceptional lens was an overall sorting system with subcategories (e.g., a functional lens, with 1 pile representing human resource programs, 1 pile representing recreation service providers, 1 pile representing partners providing mission critical work, 1 pile representing funding sources, and 1 pile representing partners with whom the agency coordinates). However, in most cases, participants used multiple conceptual lenses when they sorted their piles (e.g., piles based on functional, financial, relational, and institutional lenses), indicating complex cognitive domains. The number of conceptual lenses applied to the sorting task ranged from 2 to 8 ($\mu = 4$).

The most common (nearly 70% of participants) conceptual lens used by participants was a *financial lens*, which involved sorting partners based on provision of revenue or partners that profit from the agency. Other frequently used conceptual lenses included: a *functional* lens, which emphasized the partner's primary role or duty (55%), and a *relational* lens, which suggests commonality based on the degree of trust, shared goals, or motivations of the partner (55%). Participants also used the following lenses to frame the sorting task: relationship type, institution size or type, partnership frequency and duration, benefits received by partners, the project focus or scope (i.e., geographical area or project-type), the degree of supervision or management required, and the necessity of work provided. As stated above, many participants sorted the cards using multiple conceptual lenses; however, it is important to note that participants may not always be explicitly aware of the rationale they are using to group piles.

Multidimensional Scaling

Iteration history, stress values, and RSQ for the 2-, 3-, and 4-dimensional solutions are listed in Table 3. Results indicate a substantial reduction in the stress value, which is intuitive given that stress decreases as the number of

Table 2 Participants' conceptual lenses

Conceptual lens	Description	Frequency
Financial	Sorted based on partners' relationship with money (e.g., "public" versus "private") and whether they got paid to do a specific job	20
Functional	Sorted based on the partners role or function (e.g., what they provide or what they offer or bring to the table)	16
Relational	Sorted based on degree of trust, shared goals/values, kinship, or desire of partner to make a difference	16
Institutional	Sorted based on the type of agency or institution (e.g., legal, government, private, non-governmental organization). Sorting also included an emphasis on size/scope or magnitude of organization	14
Structural	Sorted by the type of contractual agreement (e.g., memorandum of agreement, contract, joint venture, handshake)	13
Temporal	Sorted based on frequency of partnership (i.e., how often they are partners), familiarity (i.e., how common these partners are), or duration (e.g., long-term, spurious, or potential for future partnership)	13
Partner benefits	Sorted based on outcomes or benefits for partners and volunteers, such as the service provided to partners (e.g., stewardship, education, job training)	9
Locality	Sorted based on geographical or project focus (i.e., local versus non-local, or emphasis on a particular place or project versus a more general interest)	9
Intensity	Sorted based on level of supervision or management required	6
Centrality	Sorted based on necessity of work performed to achieve agency mission	6

Table 3 Multi-dimensional scaling results

Model	Number of iterations	Stress value	RSQ
2-Dimensions	4	0.26	0.62
3-Dimensions	5	0.15	0.83
4-Dimensions	6	0.11	0.87

dimensions increases. Yet, it is important to note that as the number of dimensions increase, interpreting the results becomes more difficult. Results also illustrate a substantial increase in RSQ from the 2-dimensional model to the 3-dimensional model. However, the improvements from the 3-dimensional model to the 4-dimensional model are less substantial. Additionally, analysis of the partner type coordinates along 4-dimensions did not increase clarity of interpretation; whereas, interpretations of the partner type coordinates along 3-dimensions were clearer, illustrated nuances, and were less simplistic than emerged for the 2-dimensional solution. Therefore, the 3-dimensional solution was selected as the best solution for the MDS analyses (Figs. 1, 2, 3). In this section, we substantiate our decisions about dimension attributes using descriptors provided by participants in the pile sort activities. These descriptors appear in quotations.

Dimension 1: Character

Dimension 1 classifies partners based on their essential character or constitution (Figs. 2, 3). This dimension encompasses structural, institutional, and relational lenses and represents a continuum of partnership agreements, with institutional type and level of mutuality (i.e., shared goals) defining the clusters. On one end of the continuum are state agencies, federal agencies, local governments, political leader, and other Forest Service units. Study participants described these entities as "government" organizations with whom the forest has "formal interaction" because of a "political reason for involvement." These partners were also described as "people the agency coordinate with," "works towards similar goals," "works in concert with to maintain resource," shares "common goals/objectives," and has "similar interests." These partnerships are associated with shared decision-making and are conceived as groups with "cooperative interest" and "no personal investment," who "represent the public," serve as "advisors," and "provide each other support."

At the other end of the continuum are trail associations, local recreation groups, education groups, and university groups. Participants described these partners as "service-providing groups" with a "direct interest on national forest," who are specifically "interested in projects" and have "volunteer agreements." These partners were also described as being "there to work" and as groups who the agency

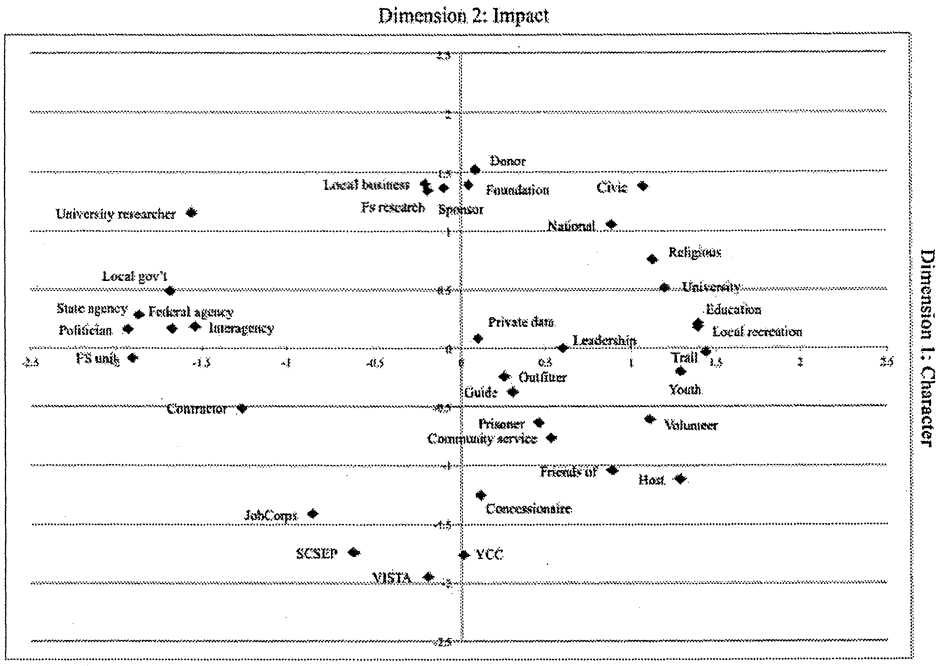

Fig. 2 3-Dimensional model solution illustrating coordinates for Dimensions 1 (*x*-axis) and 2 (*y*-axis)

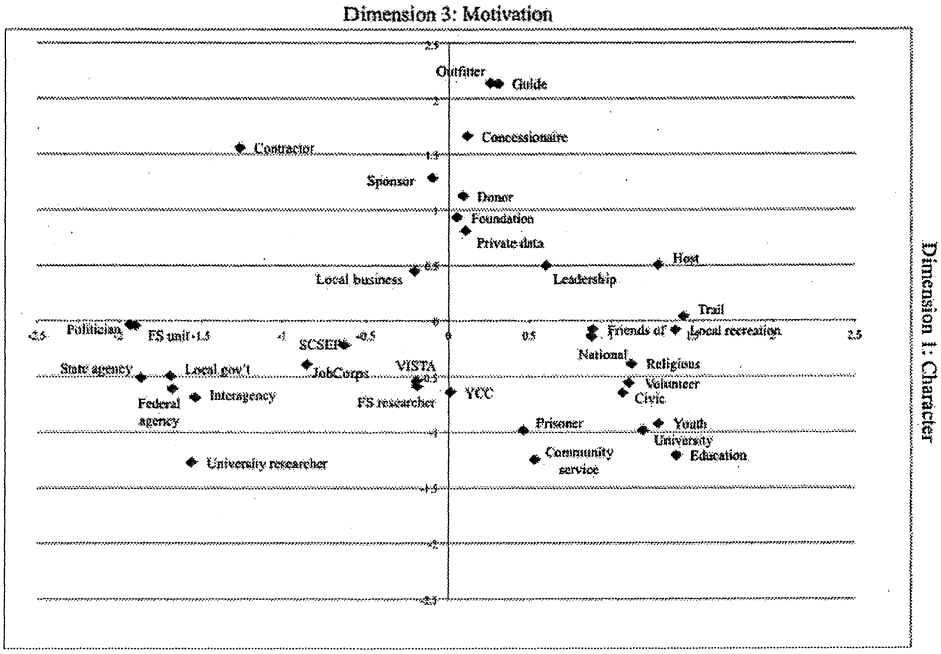

Fig. 3 3-Dimensional model solution illustrating coordinates for Dimensions 1 (*x*-axis) and 3 (*y*-axis)

works with to promote "stewardship" and a "love of the outdoors" because, despite their "narrow focus," they "want to make a difference" and that shared value "fits with Forest Service mission."

Dimension 2: Impact

Dimension 2 describes the nature and extent (i.e., impact) of work performed by agency partners (Figs. 2, 4). It appears to depict partners based on a functional lens (i.e., the partner role or what the partner brings to the table), which often is refined by both a temporal lens (i.e., frequency and duration) and a centrality lens (i.e., necessity of work performed). Specifically, this dimension represents a continuum of partners from essential, consistent and long-lasting collaborators and workforces at one end, to less essential and sporadic collaborators and workforces at the other end. For example, AmeriCorps/VISTA, Youth Conservation Corp (YCC), concessionaires, campground hosts, and 'friends of' groups were described by participants as

"running facilities and operations," "people who get our work done" or they are "how we do work," "people we can't get along without and need to get work done," and a "supplemental workforce." This cluster was also described to have durability or an "interest on the forest that isn't passing."

On the other end of the continuum, private donors, corporate sponsors, civic groups, local businesses, Forest Service research scientists, university researchers, national groups and national foundations were described as "special interest" groups typically consisting of "one-time events" or groups that are "harder to access." Participants also indicated that these partners are "worked with less closely and often than should" but that they "can help or hinder the agency from doing its job." Additionally, these partners were described as having "sporadic interest or a fleeting relationship."

Dimension 3: Motivation

Dimension 3 classifies partners based on the motivations of partner organizations (Figs. 3, 4). Partners in this dimension were viewed through a financial lens as well as a 'benefit to the partner' lens (i.e., to what extent the partner benefits from the relationship with the Forest Service). One end of the dimension represents partners seeking to gain a profit from the agency or to donate financial resources, while the other represents partners receiving nonfinancial benefits. On the financial end of the dimension, outfitters, guides, concessionaires and contractors were labeled as "for-profit partners," "paid service providers," "business relationships," "contractual relations," and "private ventures," who are "money-driven" because of "commercial interests" and use the "federal land to make a living." Additionally, private donors, corporate sponsors, local businesses and national foundations were described as "funders," "sources of revenue," "financial support groups," "philanthropic and egalitarian support," "sponsors," "contributors," and groups that "donate time or money to receive recognition."

At the other end of the dimension, youth, university and educational groups were described as "activity and fun motivated" and "intrinsically motivated" groups with whom the agency partners to "promote future stewardship" and develop a "conservation ethic." These partners were also described as "tangential" because meeting group goals are more important than meeting agency goals; that is, the agency is more concerned about serving these groups needs (e.g., providing a hands-on experience in a natural environment to build group cohesion) than completing a specific task (e.g., building a high quality trail). Court-ordered community service, prisoners, JobCorps, and YCC were described as "job training partners" or "program-driven assistance" and "government-sponsored" programs that provide "free labor" (i.e., "paid by someone else") that "builds skills and pride." University researchers, Forest Service research scientists, interagency groups, and state agencies were described as "information providers" interested in "solving problems" whose focus is on "providing more tools to the agency," and "broad projects or issues of a more complex nature."

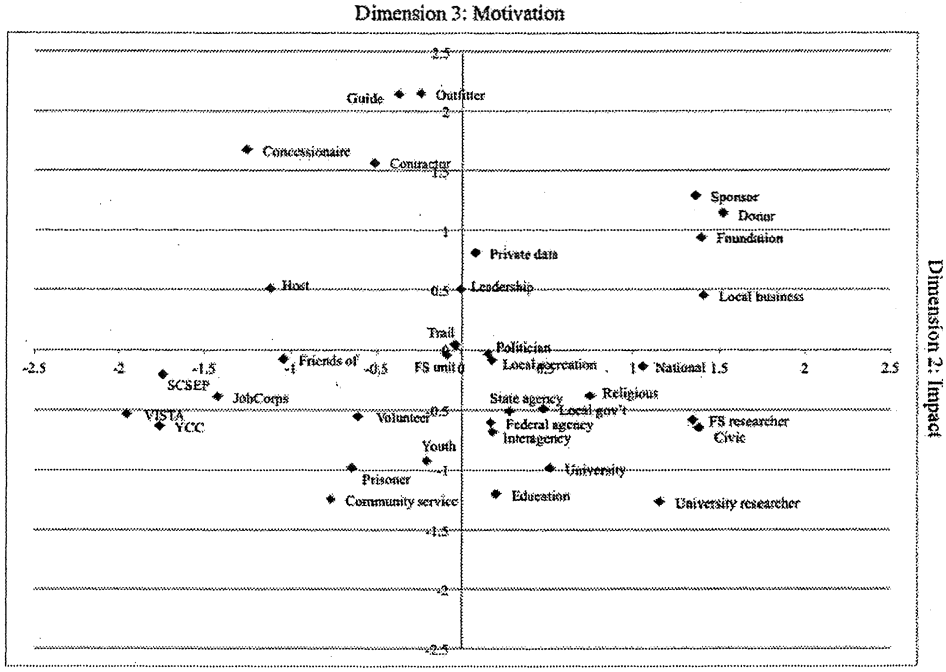

Fig. 4 3-Dimensional model solution illustrating coordinates for Dimensions 2 (*x*-axis) and 3 (*y*-axis)

Other Partner Types

At the conclusion of the pile sort, partners were asked to identify any missing recreation partners from the data set. Eight participants indicated that there were missing partner types. Missing partners identified included:

- tribal governments (similar to long-term government partners who pool resources);
- local commissions (a type of government partner);
- 'service tourism' groups or nonprofit groups with community service projects in which the volunteers pay to participate (travel and service motivated with a conservation ethic);
- university interns (part of a supplemental workforce, such as the Student Conservation Association interns);
- historical societies (generate local knowledge);
- interpretative associations (assist with visitor services);
- large special permit holders (commercial interests, such as ski areas);
- utility companies (often provide recreation services such as camping or trails);
- adjacent private commercial organizations (e.g., private ranches and timber corporations);
- neighborhood and community associations (e.g., urban neighborhoods, rural communities, and residential developments); and,
- participants who attend planning meetings (noted to be part of the political arena).

The diversity of missing partner types suggests limitations to our study, but does provide an important finding: there are numerous types of partners and the constellations of partners with whom a forest works may vary by region, by administrative level of personnel (e.g., ranger district, national forest, or regional office), and the external environment (e.g., urban, amenity, or rural populations) of a particular forest. Despite this limitation, the conceptual lenses through which these missing partner types were described represent the dimensions found from the MDS (i.e., the nature of partnerships, impact of partnerships, and the motivations of partners).

Hierarchical Agglomerative Cluster Analysis

The matrix coordinates of the 3-dimensional MDS results were used as the input for the Ward method hierarchical agglomerative cluster analysis. The dendrogram (Fig. 5) indicated 2 clusters at the highest-ordered hierarchical level and 11 clusters of partner types at the lowest-ordered hierarchical level. The 2 broadest clusters can be described as "supporters" (external entities) and "catalysts" (on-the-ground workers). The supporters are comprised of fiscal partners and collaborators who provide resources to get work done. The fiscal partners are further divided into partners who donate money or partners who earn income from their work in national forests. The catalysts, who provide a volunteer labor force to get work done in the national forests, are comprised of two types of labor sources: government-sponsored and non-governmental. Additionally, the non-governmental catalysts are further divided into partners who are skill-oriented or activity-oriented. When examined along each of the 3 dimensions, these 7 categories produced the best hierarchical cluster solution (Table 4). Although some clusters are more intuitive (e.g., outfitters, guides, concessionaires, and contractors) than others (e.g., community service, prisoners, volunteers, and youth groups), the clusters are distinct when described by their characteristics, impact, and motivations.

Discussion

Although the 35 partner types identified during the free-listing task in the pilot test interview and through examination of partnership literature (including agency websites) were substantiated in subsequent interviews, we discovered that the list of partner types is broad and deep—more exhaustive than originally conceptualized. We also found that the types of partners employed vary widely among national forests. Future research should explore both regional and administrative differences in partnership conceptualization and utilization, as well as differences in the external environment of national forests (i.e., access to specific volunteer bases). We also suggest performing the pile sort with an expanded or modified list of partner types that includes the new partner types we discovered and possibly discard some types that were not widely utilized. This will help to 'flesh out' some nuances of partner type clusters (e.g., differences between community service, prisoners, volunteers, and youth groups). Additionally, the role agency culture plays in how practitioners develop their cognitive maps of partners is an area ripe for exploration. Cross-agency comparative studies using similar pile sorting methods may elicit important similarities and differences among institutions. Despite these limitations, we feel confident about the partner dimensions and clusters emerging from our data—particularly, given the high reliability in matrix disparities for the 3-dimensional solution—and believe that our results present new information regarding the organizational culture of the Forest Service.

By integrating sorting schemas, cognitive dimensions, and partner type clusters (see Fig. 1), we created a partner typology that is not only influenced administratively but also operationally, reinforcing differences suggested by

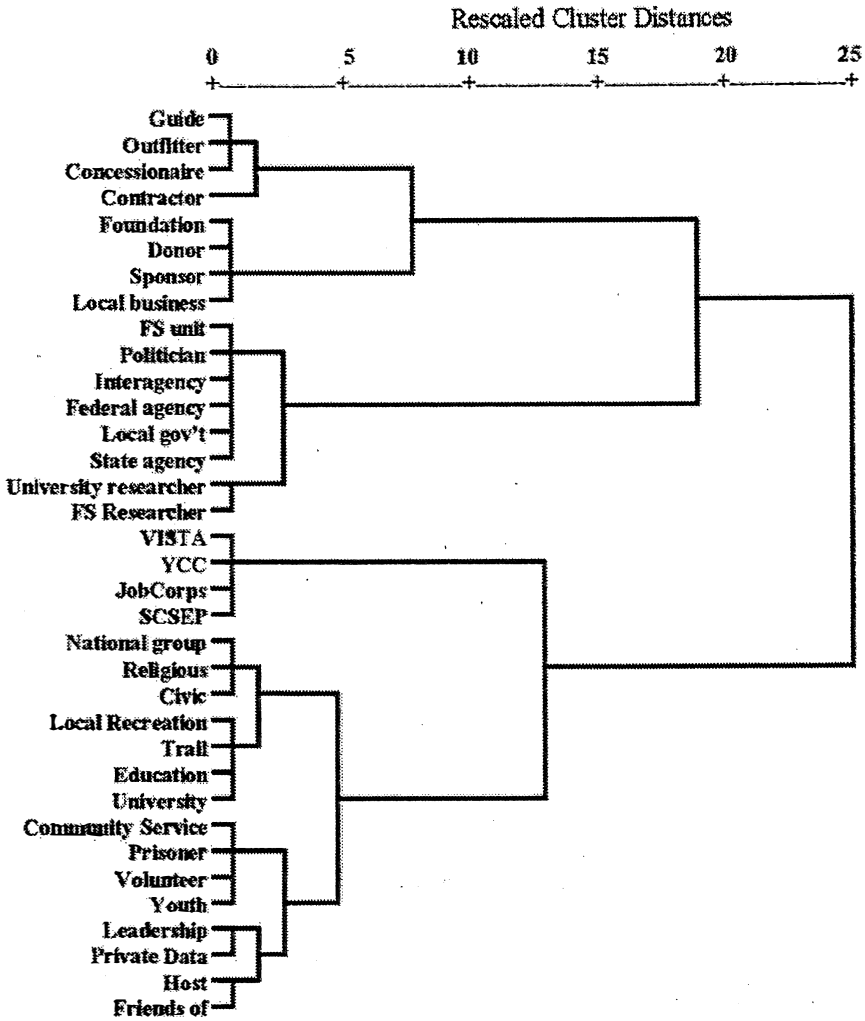

Fig. 5 Dendrogram of hierarchical clusters

Baum's (1994) notion of espoused versus in-use theories. The typology (Table 5) derived from Forest Service personnel perspectives reveals that partners are not simply evaluated and considered based on the structural arrangement that partnerships embody, as agency literature suggests (e.g., National Forest Foundation 2005). Rather, practitioners expand this institutional domain to include relational issues (shared values, trust), institutional arrangements (type and size), functional aspects (work to be performed), centrality factors (necessity of task performed), and financial and non-financial benefits to the partner (partners' motivation).

These data suggest that agency personnel weigh a broad range of factors when thinking about partners, not simply the efficacy of managing the relationship or selecting the appropriate structural form. It seems that flexibility in partnership arrangements is needed to accommodate on-the-ground partnership execution; a finding that mirrors Wondolleck and Yaffee's (2000) call for flexibility in collaborative alliances. Moreover, these results present a glimpse of how practitioners perceive and respond to partners on the ground by capturing domains that encompass prioritizing partner impacts on individual units (e.g., amount and quality of trails maintained) and serving the motivations of partners (e.g., skill development or environmental stewardship). Therefore, this typology represents institutional, individual, and socio-cultural domains of recreation partners (Table 5).

The Institutional Domain

Institutionally, the conceptual lenses represented in the partnership character dimension share the most similarities with the dimensions identified in previous partnership typologies, yet blurs conceptual distinctions between structure and process dimensions. For Forest Service recreation practitioners, the type and formality of agreements are not conceptually distinct from the resources-funding mix (i.e.,

Table 4 Partnership type cluster groups

	Partner type cluster	Dimension 1: character	Dimension 2: impact	Dimension 3: motivation
1	Guide Outfitter Concessionaire Contractor	Private contracts, low mutuality	Sporadic to consistent, external workforce	Financial gain
2	Foundation Donor Sponsor Local business	Private contributors, low mutuality	Sporadic, special interest projects	Philanthropic recognition
3	FS unit Politician Interagency Federal agency Local government State agency University researcher FS researcher	Governmental joint venture agreements, high mutuality	Sporadic to consistent, general interest projects	Collaborative management
4	VISTA YCC JobCorps SCSEP	Government-funded programs, moderate mutuality	Consistent, supplemental workforce	Skill acquisition
5	National group Religious group Civic group Local recreation Trail association Education group University group	Nongovernmental volunteer agreements, moderate mutuality	Consistent, special interest workforce	Ensure access, provide service
6	Community service Prisoner Volunteer Youth group	Volunteer agreements, moderate mutuality	Consistent, task-specific, supplemental workforce	Nature connection, skill acquisition
7	Outdoor leadership organization Private Data Host Friends of	Private contracts, high mutuality	Consistent, resource- or place-specific, supplemental workforce	Stewardship

supporters and catalysts), as suggested by Mitchell and Shortell (2000), and the degree of mutuality and interdependence (i.e., shared values and goals), which were considered distinct process characteristics by Brinkerhoff (2002) and Waddock (1991), respectively. Furthermore, this domain also incorporated Selin's (1999) locus of control dimension (i.e., level of shared decision-making authority), which is likely related to the inclusion of both product and process as outcomes (Long and Arnold 1995; Waddock 1991) partner types in this study. That is, most of the partner clusters (see Table 4) represented task-oriented catalysts where decision making authority is ultimately held by the agency and only one partner cluster included collaborative alliances (e.g., interagency planning teams) that typically have shared-decision making authority. Thus, this institutional domain—specifically, partner character—represents an amalgamation of previously documented partnership structure and process characteristics.

The Individual Domain

In terms of partnership scope, the duration of the arrangement (Selin 1999) or stability over time (a structural characteristic, according to Waddock 1991) emerged as

Table 5 USDA Forest Service recreation typology

Cultural domain	Dimension	Conceptual lenses	Previous partnership typology dimensions
Institutional	Character	Structural	Structure
		Relational	Type & formality of agreement (Mitchell and Shortell 2000)
			Function
			Resources-funding mix (Mitchell and Shortell 2000)
			Process
			Mutuality & interdependence (Brinkerhoff 2002; Waddock 1991)
			Locus of control (Selin 1999)
Individual	Impact	Temporal	Scope
		Centrality	Duration of arrangement (Selin 1999)
			Structure
			Stability over time (Waddock 1991)
			Process
			Centrality (Mitchell and Shortell 2000)
Socio-cultural	Motivation	Financial	
		Partner benefits	

more central than the locality or geographic scale of a partnership or a project (Margerum 2008; Selin 1999) and the size of the partner organization (Mitchell and Shortell 2000). Instead, this temporal perspective was considered simultaneously with the importance or necessity of the worked performed to achieve the agency's mission (i.e., the process characteristic centrality; Mitchell and Shortell 2000). This complex cognitive domain is particularly relevant to partnership administration of individual management units (i.e., a national forest or a forest district), especially in times of fiscal constraint. To sustain the recreational services and opportunities the Forest Service provides, the impact of partnerships (i.e., the importance and extent of work performed) is clearly an important partner dimension.

The Socio-Cultural Domain

Although the individual domain encompasses the impact of specific partner types, we expected the outcome of a partnership (i.e., process or product; Waddock 1991) would be more differentiated. Rather, the benefits that partners received emerged as a unique domain. These motivational outcomes of partnering with the agency encompassed a financial component (e.g., monetary gains and notoriety from donations) and an achievement component (e.g., knowledge, skills, and enjoyment). This socio-cultural cognitive domain, which has not been identified in previous partnership typologies, reflects one of the agency's critical missions: a public service provider.

Another surprising difference between this study's typology and previous typologies is the notion of partnership composition, which is the most prevalent dimension in partnership literature. Our informants did not classify recreation partner types based on organizational diversity or composition. This distinction appears to be related to the expansion of this typology beyond collaborative alliances. That is, the Forest Service typically accomplishes specific recreation-related tasks with a single partner or group of individual volunteers. In typical process-based partnerships, multiple organizations negotiate the partnership terms (e.g., Selin 1999; Moore and Koontz 2003); whereas, the agency defines the partnership terms in recreational product-based partnerships (e.g., a specific trail to be maintained to specific standards of quality while meeting specific safety guidelines).

Implications

As the policy of fiscal constraint persists in federal government, the Forest Service increasingly relies on partnerships to achieve their mission and meet management objectives. Greater insight about how agency personnel organize and perceive the broad array of partners with whom they work contributes to understanding the true nature of partnership operations and partner relations. This study shows that agency personnel work with numerous partners and that there is considerable variation in the partner types employed by a given forest. Partnership practitioners make cognitive choices about the partners they recruit, the projects they prioritize, and the relationships they cultivate. Exploring the cultural domains of partnerships from US Forest Service practitioners' perspectives fosters understanding about the choices of

projects and partners, particularly, the institutional, individual, or societal factors that shape these decisions.

Research on recreation partners demonstrates that effective partner relations are instrumental in the success of specific projects (e.g., James 1999; Selin and Chavez 1994; Selin and Myers 1995). Greater understanding of real-world partner typologies augments this knowledge that may contribute to effective partnership management for recreation, as well as for other resource management (e.g., fire and hazardous fuels, restoration, range, and watersheds). This study illustrates that agency personnel can and should be strategic in their prioritization of and solicitation of projects to meet specific institutional, individual, and socio-cultural goals. Different partner types provide different results: some enhance collaborative and cooperative management across political boundaries, others perform mission critical tasks, and still others foster a public stewardship ethic. For public land managers, partnering does not necessarily equate to synergistic task-accomplishment as is the case of successful collaborative alliances. However, the tangential needs that public land agencies provide through partnerships (e.g., skill acquisition and civic engagement) are no less important than the continued provision of desired resources (e.g., recreation opportunities). The skills, services and ethics provided by public land partnerships may be fundamental to building the constituency of public land supporters needed to ensure the longevity of public lands.

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