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Collaborative governance networks: exploring governance success in large-scale conservation

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Abstract: Inclusive and equitable collaboration of actors has increasingly been recognized as an essential element for successful governance in large-scale biodiversity conservation. However, there is still limited empirical evidence of the role of collaboration arrangements in establishing and maintaining governance, especially in megadiverse tropical landscapes. Social network analysis was applied to map the collaborative network between the actors involved in the governance of a mosaic of protected areas in Brazil and test whether the network displayed relational patterns favorable to good governance. The network is dense and diversified, containing a variety of actors and horizontal collaboration arrangements between groups. These structural aspects are consistent with a network promoting inclusive and equitable engagement. The analysis also identified some risks and challenges that provide useful information to improve governance effectiveness.

Keywords: Social network analysis; protected areas; good governance; collaboration; Espinhaço; integrated landscape management.

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1. Introduction

The nature conservation strategy based on the creation of protected areas such as islands administered in isolation within a fragmented landscape has proved to be insufficient for species conservation in the long term and for the maintenance of ecosystem processes and services (BUTCHART et al., 2010; SCOLOZZI et al., 2014). Extensive and connected areas are necessary to maintain ecological functions and biodiversity, especially in the current context of increasingly rapid and intense environmental changes (RAYFIELD et al., 2011; SANTINI et al., 2016). The need to promote connectivity between fragments of natural ecosystems in order to improve biodiversity and ecosystem services has motivated large-scale conservation approaches based on networks of protected areas and landscape connectivity (WORBOYS et al., 2010; LOCKE, 2011).

In Brazil, large-scale conservation approaches take the form of mosaics of protected areas. These instruments aim at integrating landscape connectivity and sustainable management of natural habitats as strategies to promote ecosystem functioning and human well-being (BRASIL, 2000). These mosaics generally cover large geographical areas and are composed of several protected areas, under various protection regimes, and a surrounding matrix with different forms of land use.

Large-scale conservation initiatives require dialogue and collaboration between various actors involved in the use and management of natural resources (WYBORN; BIXLER, 2013; GUERRERO et al., 2015). The concept of collaborative governance networks embraces this idea and proposes the various actors' inclusive and equitable involvement as a key principle of governance to achieve landscapes that integrate productive activities and biodiversity conservation and meet actors' multiple perspectives and priorities (LOCKWOOD, 2010; SAYER et al., 2013; REED et al., 2020). Analyzing the structure and functioning of collaborative governance networks, as a process that influences conservation outcomes, became then a central issue in large-scale conservation studies.

The Espinhaço: Alto Jequitinhonha-Serra do Cabral Mosaic is a large-scale conservation initiative located in the state of Minas Gerais, southeastern Brazil, officially created in 2010. The Espinhaço Mosaic covers a region of extreme ecological relevance, because it integrates areas of the Cerrado and Atlantic Forest biomes, both considered world biodiversity hotspots (MYERS et al., 2000; MITTERMEIER et al., 2005), in addition to extensive grasslands (campos rupestres in Portuguese) that offer habitats for many endemic species (FERNANDES et al., 2020). Due to its biological, geomorphological, and sociocultural importance, this region became part of the Biosphere Reserve of Serra do Espinhaço (https://reservasdabiosfera.org.br/reserva/rb-serra-do-espinhaco/). Despite the threats to which the region's protected areas are exposed, several studies have pointed out that the Espinhaço Mosaic has had positive impacts on the conservation of ecosystems and habitats that are important for biodiversity maintenance (IEF, 2012; ANDRADE et al., 2015; BARATA et al., 2016). Overall, the Espinhaço Mosaic presented advances in the effectivity of management of protected areas that, despite the lack of human and financial resources, contributed to strengthen conservation (ÁVILA, 2014; LIMA, 2019).

Here we integrate quantitative and qualitative data to map the collaborative gov-

ernance network among actors of the Espinhaço Mosaic. Using social network analysis (SNA), the article aims to: (i) characterize the diversity of actors involved in the collaborative governance network of the Espinhaço Mosaic; (ii) verify if the collaboration patterns in the network contribute to the various actors' inclusive and equitable involvement in the governance process; and (iii) contribute theoretically and methodologically to the challenge of understanding the role of collaborative governance networks in the effectiveness of large-scale conservation initiatives.

2. Literature review

The actors' inclusive and equitable involvement in collaborative governance networks can be evaluated by two key aspects that will be examined in this article: the diversity of actors and the horizontality of the collaborative process among the actor groups.

2.1. Actor diversity

How actor diversity in social networks affects individual and collective behavior is an important area of SNA (WELLMAN, 1988). The participation of several actors in collaborative governance networks ensures the expression of the plurality of perspectives and priorities articulated around proposals that reconcile conservation and productive activities (BRONDIZIO; LE TOURNEAU, 2016). A greater actor diversity can also potentially favor social inclusion and the exercise of citizenship, especially for minority or vulnerable groups that usually have little voice in the participatory and deliberative spaces (REED et al., 2016). Likewise, the involvement of several actors in decision-making can favor the ability of networks to adapt and helps to expand social support for conservation (BORRINI-FEYERABEND et al., 2013).

Studies in many socio-environmental and geographic contexts analyzed the role of actor diversity in collaborative governance networks. Several studies have sought to understand how actor diversity has contributed to giving minorities a voice and minimizing the marginalization of certain groups. We can mention studies that relied on methods to analyze equity in the representation of rural communities and local authorities in the participatory management of a protected area in the United Kingdom (PRELL et al., 2009); on promoting inclusive collaborations of racial and ethnic minorities and low-income groups in the planning of a protected area in the United States (MAKOPONDO, 2006); or even on the integration of local and scientific knowledge by collaborative community teams of researchers-facilitators for the conservation of large pastoral ecosystems in East Africa (REID et al., 2016). Empirical studies of natural resource governance have also shown that involving a wide range of actors from government agencies, as well as representatives of interest groups, citizens, business leaders, educators, and researchers, contributes to increasing the actors' belief in collaborative action itself, improving confidence in governance processes and expanding the ability to resolve conflicts (e.g., SCHNEIDER et al., 2003; LAUBER et al., 2008; PRELL et al., 2011). At the same time, an increasing number of studies showed how the participation of various actors in col-

laborative networks creates an inclusive forum to increase awareness and legitimacy of conservation practices (e.g., MORENO-SANCHEZ; MALDONADO, 2010; ENQVIST et al., 2014; SANDSTRÖM; LUNDMARK, 2016). The involvement of various actors in collaborative governance networks, such as landowners and land managers, employees of different levels of government, scientists, activists, and representatives of non-governmental organizations (NGOs), private organizations, and community groups, also improves the effectiveness of large-scale conservation efforts by enabling actions adapted to stakeholder preferences and landscape-level conservation needs (e.g., WYBORN, 2010. BIXLER, 2013; GUERRERO et al., 2015). In addition to these studies, quantitative investigations in different coastal, semi-urban, and rural regions revealed that collective action in governance benefits from collaborations between actors with different points of view and interests (e.g., local actors, entrepreneurs, public administration representatives, non-profit organizations, farmers, fishermen, in addition to several other society sectors), contributing to overcoming unfavorable conditions for the management of ecosystems (HAHN et al., 2006; HIRSCHI, 2010; SANDSTRÖM; ROVA, 2010).

2.2. Horizontality of the collaborative process

The collaborative governance network is considered horizontal when the various categories of actors can be heard and effectively perform. The horizontality between the actor groups promotes spaces and articulations that can contribute to developing best management practices and natural resource conservation (BOWN et al., 2013) and more sustainable, equitable, and efficient results (PRETTY, 2003; MARIN; BERKES, 2010). In a collaborative network, horizontal links between the actor groups can be characterized as two different types of social links: (1) bonding, which involves strong links between actors with similar characteristics; and (2) bridging, which represents weaker links between actors with different characteristics (PRETTY, 2003; MERTENS et al., 2011). Collaborative arrangements based on bonding and bridging can strengthen large-scale conservation projects (RAMIREZ-SANCHEZ; PINKERTON, 2009; GARCÍA-AMADO et al., 2012). Some authors also argue that the balance between these two types of social links is important to generate knowledge and promote actions that respond to the various actors' concerns and priorities and can be used to formulate public policies (BODIN; CRONA, 2009; BRONDIZIO et al., 2009; MERTENS et al., 2011).

Many empirical studies have shown the effects of horizontality among actors in collaborative governance networks for natural resource management and biodiversity conservation. For example, a high proportion of collaborative links between different categories of fishermen has shown, given the attributes of education, main occupation, fishing practice, and ethnic group, a potential to contribute significantly to the sustainable community management of fishing resources in the Brazilian Amazon (MERTENS et al., 2015), the co-management of coastal benthic resources in Chile (MARÍN et al., 2012), and the spread of sustainable behaviors to prevent the accidental capture of sharks in Hawaii (BARNES et al., 2016). Other studies have shown how horizontal collaboration between actors from different types of organization (e.g., cooperative, NGO, manage-

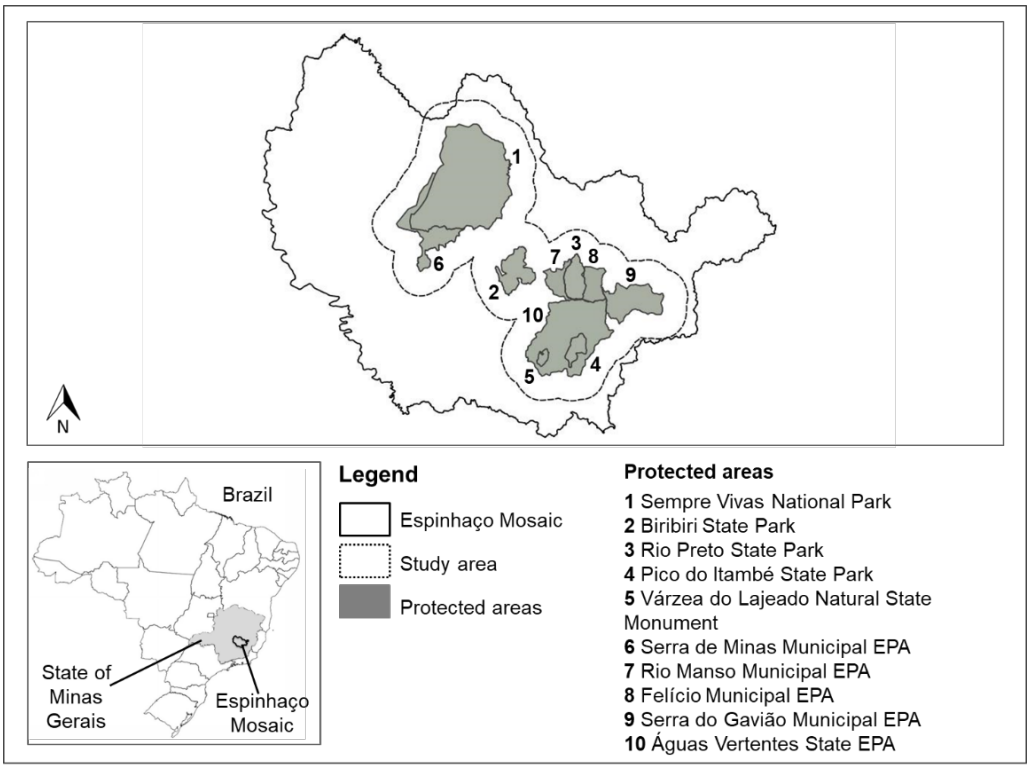
ment, governmental, intergovernmental, academic, private, local, regional) working in ecologically connected areas is important in key areas for biodiversity conservation or ecosystem service maintenance, such as in the context of lionfish invasion in a network of marine reserves in Jamaica (ALEXANDER et al., 2017) or the restoration of an estuary for salmon recovery in the United States (SAYLES; BAGGIO, 2017). Horizontal networks between actor groups also favored learning and environmental sustainability in different governance contexts such as water (COSTA; MERTENS, 2015), common forest-based resources (GARCÍA-AMADO et al., 2012), and community-based tourism (BURGOS; MERTENS, 2017). Finally, some studies conducted in different fishing communities in Kenya (BODIN; CRONA, 2008), Hawaii (BARNES-MAUTHE et al., 2013), Brazil (MERTENS et al., 2005), and Mexico (RAMIREZ-SANCHEZ; PINKERTON, 2009) also showed how imbalances between bonding and bridging ties contribute to marginalization and lack of adaptability, in addition to limiting the network's access to technological innovations and scientific information.

3. Methods

3.1. Study area

We defined as the study area the central part of the Espinhaço Mosaic (Figure 1). This area consists of five strictly protected conservation areas, five sustainable use conservation areas, and the surrounding matrix. The former protected areas do not allow human intervention. On the other hand, the latter protected areas correspond to the Environmental Protection Area (EPA) category and admit the sustainable use of a part of the natural resources.

Figure 1 – Study area within the Espinhaço Mosaic, in the state of Minas Gerais, Brazil



Source: Authors (2022).

3.2. Participating population

The collaborative governance network was defined from the identification of a set of individuals who self-declared to have a significant role in the use and management of natural resources in the study area. We used a snowball sampling method, where each interviewee was asked to name other potential participants. We started the process from an initial list of 43 actors who were identified by consulting key informants, including advisors from the Espinhaço Mosaic and protected areas of the study area, researchers, and NGO members. In total, five new actors identified during the fieldwork were added to the initial list, totaling 48 individuals. The snowball method allowed 234 new actors to be identified and was conducted until the mention of new names was minimal, leading to a total of 282 actors identified.

3.3. Data collection

Data collection on the participants' characteristics and collaboration was performed from September to December 2016 via semi-structured interviews. Most of the actors identified (n=199) were interviewed face-to-face by the first author. When a meeting

was not possible, the interviews were conducted by videoconference (n=12) or by a questionnaire adapted to be answered via email (n=19). A total of 52 individuals who could not be contacted or who did not respond to the invitation were not interviewed. These individuals were not included in the analyses.

The participants (n=230) were characterized according to different attributes used to group the actors based on common characteristics (see Table 1). *Gender*, using gender binary. *Education*, represented by the number of years of formal schooling. *Occupation*, such as the participants' professional activities related, directly or indirectly, to the use and management of natural resources. Five groups were defined: individuals responsible for the formal management of protected areas (i.e., managers, environmental analysts, forest rangers, and environmental monitors); technicians who perform tasks such as consultancy and specialized assistance for the use and management of natural resources; community and environmental leadership and socioenvironmental activists; researchers associated with research and extension projects in the region; and rural producers, as a category formed by family farmers and local collectors (e.g., flower pickers). *Managed area,* geographical space where participants use and manage natural resources. Three groups were defined according to the spatial level of activity: local (e.g., patches of forest, locality, individual protected area), micro-regional (e.g., set of protected areas, watershed, small mountainous area), and regional (i.e., Espinhaço Mosaic as a whole). *Pro-environmental activities*, categorized into six groups that reflect their main actions or environmental interventions in the Espinhaço Mosaic. *Participation in associations*, consisting of six groups (see Table 1).

Collaboration between the actors was characterized by the question "with whom do you collaborate or work with in activities related to the use and management of natural resources in the Espinhaço Mosaic?". A collaboration between two individuals was considered when at least one of them reported collaborating with the other.

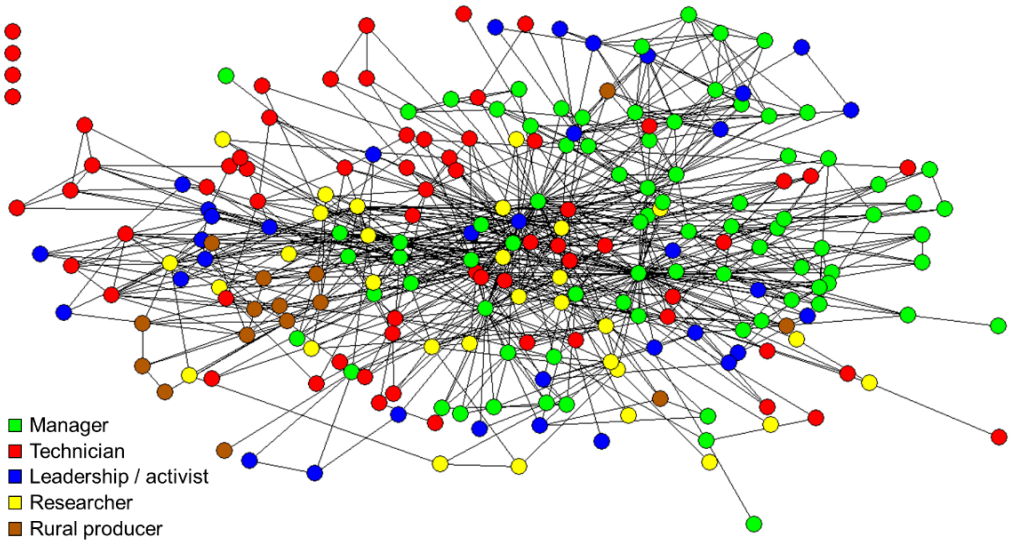
3.4. Data analysis

Network structure was visualized using the NetDraw software (BORGATTI, 2002). The diversity of actors participating in the collaborative network was evaluated by the attributes selected to define the actor groups. Horizontality of the collaboration in the network was evaluated for each attribute used to characterize the participants, by mapping the collaboration between the actors belonging to the same group (bonding) and between the actors of different groups (bridging), using the UCINET software (BORGATTI et al., 2002). The UCINET *collapse* function was used to group individuals according to their shared attributes and to estimate the mean number of collaborative relationships (MNCR) within and among groups.

4. Results

The governance network was composed of 230 individuals connected by a total of 1784 collaborations (mean of 7.8 ties per actor). Most network members (n=226) form a large interconnected collaborative group (Figure 2). Four isolated actors did not mention any collaborative partners or were nominated by others.

Figure 2 – Collaborative governance network in the study region (n=230) per occupation



Source: Authors (2022).

4.1. Actor diversity

Table 1 shows for each attribute the diversity of the groups involved in the collaborative network. The network is composed of more than twice as many men (71%) as women (29%). More than half of the individuals have higher education, at undergraduate (37%) and graduate (22%) levels. More than a third of the members of the collaborative network are responsible for the formal management of protected areas. About 30% of individuals perform technical activities. Other members of the network act as leaderships and activists (15%), researchers (14%), and, to a lesser extent, rural producers (6%). Most individuals (73%) perform their activities at the local spatial level. Some individuals (17%) have scope of use and management at the micro-regional level, whereas very few (10%) perform their activities at the regional level. About 70% of the network members carry out pro-environmental activities: environmental education to raise society awareness about the environmental issues of the Espinhaço Mosaic; supervision for control, protection, and prevention of environmental impacts; mobilization aiming at strengthening and structuring social organization; preservation oriented to environmental recovery and

management; and mediation for the understanding and resolution of socio-environmental conflicts in the Espinhaço Mosaic. However, almost 25% of the interviewees stated that they did not perform any pro-environmental activity in the Espinhaço Mosaic. Regarding participation in associations, 37% of the individuals are members of advisory councils of protected areas of the study region. A smaller percentage of interviewees are affiliated with non-profit organizations, including unions, foundations, municipalities, professional colleges, and study centers. Some interviewees are members of community associations (e.g., residents, religious or rural producers' associations). Besides, only a few individuals participate in the Espinhaço Mosaic Advisory Board. Similarly, only a small percentage of interviewees are simultaneously involved in more than one of the forms of association mentioned above and 34% of the interviewees stated that they did not participate in any association.

Table 1 – Characteristics of study participants (%), 2016

Characteristics	TOTAL (N=230)
Gender	
Men	70.9
Women	29.1
Level of education (years)	
0-5	10.0
6-9	18.7
10-12	12.2
13-17	37.4
18 +	21.7
Occupation	
Manager	35.7
Technician	28.7
Leadership / activist	15.2
Researcher	13.9
Rural producer	6.5
Managed area	
Local	72.6
Micro-regional	17.4
Regional	10.0
Pro-environmental activities	
Environmental education	24.3

Surveillance	17.4
Mobilization	15.2
Preservation	14.8
Mediation	3.5
None	24.8
Participation in associations	
Protected area Advisory Board	37.0
Non-profit organization	14.3
Community association	5.2
Espinhaço Mosaic Advisory Board	3.5
Multiple associations	5.7
None	34.3
TOTAL	100.0

Source: Authors (2022).

4.2. Horizontality of the collaborative process

Figure 3 shows the patterns of collaboration within and among the actor groups. MNCR values of the bonding/bridging ties for all groups are available in the supplementary material.

Gender

Men (MNCR = 8.1) and women (MNCR = 6.8) are actively collaborating on the network (Figure 3(a)). Both men (77%) and women (65%) collaborate preferably with men.

Education

The groups defined according to the level of formal education are all connected to each other, but not evenly (Figure 3(b)). Individuals with higher levels of education (i.e., undergraduate and graduate level) concentrate the highest number of relationships, with MNCR of 8.4 and 9.9, respectively. These relationships correspond mainly to collaborations within each of these two groups and among them. The other three groups, with lower educational levels, are less involved in collaboration.

Occupation

Collaboration patterns differ between the groups defined by occupation (Figure 3(c)). The group of those responsible for the formal management of protected areas presented a higher MNCR compared to the other groups. Despite collaborating intensively with members of their own group (i.e., 66% of the relationships correspond to internal

collaborations), this group also has numerous ties of collaboration with other groups, namely with leaders, researchers, and technicians. Technicians, researchers, and, to a lesser extent, rural producers also showed a strong internal collaboration (45%, 38%, and 37%, respectively). Rural production is the least common activity among the network members, and the individuals who carry out this activity, together with the technicians, constitute the groups with the lowest MNCR.

Managed area

Network members who use or manage natural resources at broader spatial levels (i.e., micro-regional and regional) are more involved in collaborations than those who work at the local level (Figure 3(d)). However, these two groups collaborate more intensively with the group linked to the local spatial level than with each other or with members of their own group. The local level group is the largest group (72% of the study population) and also that which develops more internal collaborations (73% of the relationships).

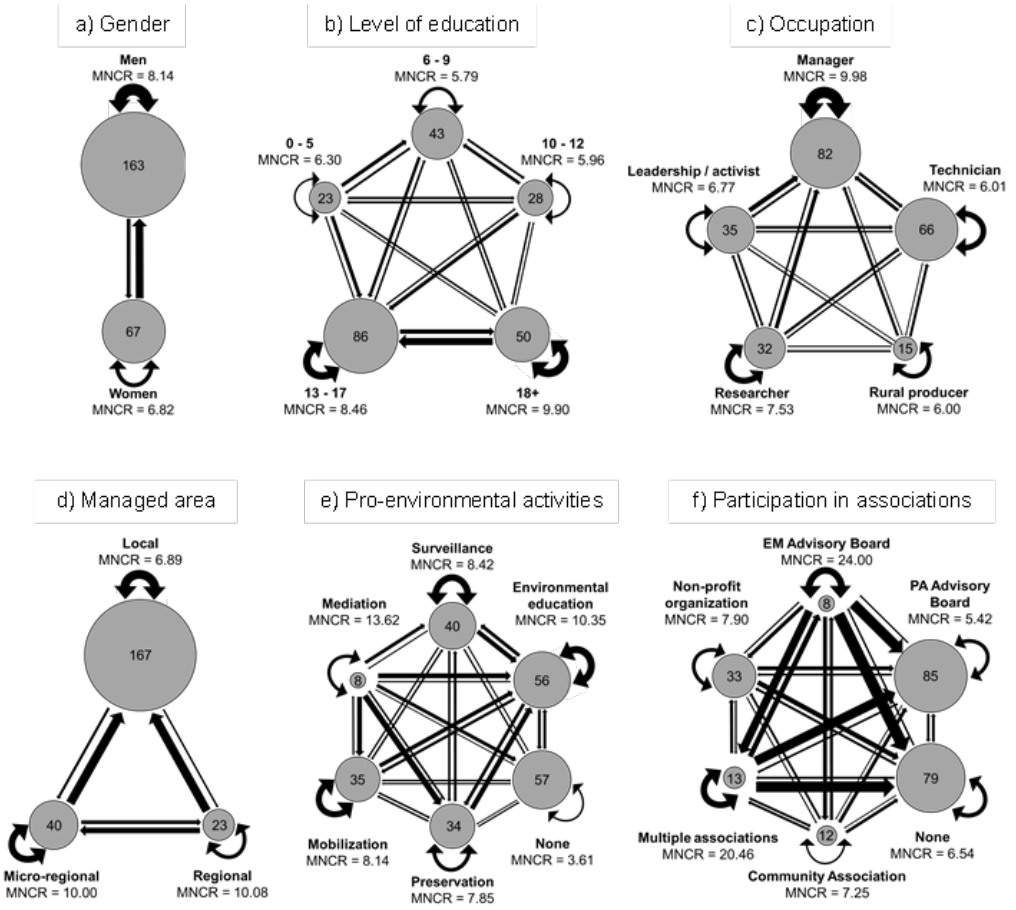
Pro-environmental activities

The small group of individuals committed to the mediation of environmental conflicts has the largest MNCR and collaborates intensely with all other groups defined according to their pro-environmental activities (Figure 3(e)), namely with the people involved in preservation actions, but also with the members of the network involved in environmental education and social mobilization. At the other extreme, the largest group, formed by individuals who do not engage in any pro-environmental activity (mainly men who work as municipal technicians and rural producers), is also the group with the lowest MNCR.

Participation in associations

Differences were noted in the collaboration between groups established according to their participation in associations (Figure 3(f)). People who are involved only in the Espinhaço Mosaic Advisory Board or who are simultaneously involved in various associations have, on average, more collaborative relationships than the rest of the groups (MNCR of 24 and 20, respectively). Although the internal relations of these two groups are considerable, the thickness of the directional arrows indicates that the collaborations were established mainly with people who do not participate in any association in the region, but also with members of the protected areas' councils. Individuals participating in some non-profit organization or community association are also actively involved in the collaborative governance network.

Figure 3 – Distribution of relationships in the collaborative governance network within and between groups defined according to gender (a), level of education (b), occupation (c), managed area (d), pro-environmental activities (e), participation in associations (f)



Source: Authors (2022).

Note: The circle areas are proportional to the number of individuals in each group. The mean number of collaboration relationships (MNCR) within and between actor groups is represented by arrows whose thickness is proportional to their value. EM = Espinhaço Mosaic; PA = Protected area.

5. Discussion

Our study explores the collaborative governance network in the central part of the Espinhaço Mosaic and offers clues about its performance, as well as large-scale conservation objectives. The integrated set of analyses, based on the diversity of actors and the horizontality of the collaborative process, contributes to show that the network has

a structure compatible with the advances and positive results for conservation observed in the study region.

The governance network is dense and diversified, involving a variety of actors with diverse experiences, interests, and ideas. This diversity allows different views and opinions to be recognized and discussed in natural resource management projects developed in the study region. It also reduces the risk of knowledge and experience homogenization and thus provides a particularly favorable "social mosaic" to rethink the conservation actions implemented to adapt them to the specific needs and conditions of the moment, increasing their effectiveness. Connection patterns between the groups according to each personal attribute revealed horizontal collaboration arrangements that integrate bonding and bridging ties. Our analyses allowed us to test the role of this collaborative network structure in the inclusive and equitable engagement of actors as key elements for the success of governance in large-scale conservation. For example, the fact that all education and occupation groups are connected in the network contributes to the expansion of knowledge favorable to the development of appropriate governance strategies, since it is difficult for any group to have all the knowledge necessary for large-scale conservation. Actions that are being developed in the study region, such as community-based fire management, recovery of degraded areas, agroecology promotion, and ecotourism planning and structuring, are some examples of incipient and sporadic partnerships that bring together research/technical assistance and particular experiences of local communities. These actions would benefit from a dialogue between technical-scientific knowledge and traditional knowledge anchored in the study region for the creation of integrated solutions around conservation priorities.

The interactions in the governance network also favor an integrated view of the Espinhaço Mosaic, especially important if we consider that governance in large-scale conservation requires a "connectivity thinking" (WORBOYS et al., 2010), with coordinated landscape-scale responses and management strategies that should cross the boundaries of protected areas in the surrounding matrix. Likewise, diversified and integrated collaborations between all groups of pro-environmental activities provide a scenario of desirable complementarity to respond to the complexity of the Espinhaço Mosaic and catalyze synergies for governance. For example, this pattern allows better dealing with pressure and backpressure in the study region regarding land use and ownership and enables efficiency gain in management, especially in areas that are not fully implemented and have structural and managerial problems. The results of our analyses show a governance system with the potential to favor the efficiency and coordination of activities, allowing different actors to address shared conservation problems in a concerted way, minimizing network imbalances, strengthening their adaptability, and promoting integrative decision-making. In short, the overall connectivity of the network and its diversity are favorable characteristics for the success of governance in the study region, with positive effects for conservation in the Espinhaço Mosaic.

However, there are important risks and governance challenges to be faced by the collaborative network to integrate the conservation and sustainable use of ecosystems,

aiming at a more effective large-scale conservation project. We highlight the three main challenges. First, there is low representativeness and engagement of women and rural producers, as well as the absence of other actors present in the study region who, in general, depend more on the natural resources of the landscape matrix (e.g., people who work in the agribusiness, mining, forestry, and charcoal production sectors, as well as owners of private domain protected areas). This can cause imbalances and segregation in the network and create management blocks, because such social groups cannot legitimize the decision-making process. Second, results showed an "elite" group, formed by actors with a higher level of education —mainly researchers, managers, and technicians —, outweighing the voice of people with less formal education. And third, lack of pro-environmental activities by many individuals due to a free-riding behavior or widespread ignorance about which practices are environmentally beneficial, may weaken the conservation imperatives of the Espinhaço Mosaic. Network analysis allowed us to identify these potentially negative impacts on the effectiveness of the collaborative network in achieving its objectives. This identification may be the first step to develop incentive plans in the Espinhaço Mosaic to minimize adverse effects on governance, for example, promoting the particular involvement in participatory processes of excluded and/or "non-active" actors.

We point that network perspective has the potential to evaluate whether large-scale conservation strategies and projects follow some of the principles of good governance. More specifically, we claim that analyzing structural aspects of collaborative governance networks helps determine if large-scale conservation initiatives, such as mosaics of protected areas, are a legitimate instrument of this conservation paradigm, ensuring inclusive and equitable participation. We also believe that the social network approach is useful to examine the factors contributing to the involvement of actors in governance processes in large-scale conservation, with special attention to the role of personal attributes.

Finally, we recognize that this study is subject to two important methodological limitations that should be considered and/or deepened in future research. First, the use of the snowball sampling to map the collaborative governance network is likely to overestimate the overall connectivity of the network and to artificially increase the number of connections of the individuals of the list used to initiate the interviews. This bias could partially explain the weak participation of natural resource user (e.g., farmers, agricultural workers, mining and forest entrepreneurs) in the collaborative governance network of the Espinhaço Mosaic, as the snowball sampling was initiated with people with an active role in conservation. The second limitation of the study is that data were collected at a single point in time, in late 2016, before the strengthening of some agribusiness groups, which benefited from the support of President Jair Bolsonaro and contributed to environmental setbacks in Brazil (see, e.g., FERRANTE; FEARNSIDE, 2019; OC, 2022). Data from various monitoring systems (e.g., INPE, 2022; SEEG/OC, 2022; SISEMA, 2022), as well as recent conversations with some key actors of the network, indicate that ever since 2019 destructive processes of natural resources have intensified in the study region. Among these processes, we highlight the advance of the mineral extractive frontier and eucalyptus monoculture, as well as increased occupations of protected areas, deforestation, and large-scale fires affecting native areas. Developing longitudinal

studies of the governance network would allow us to analyze the possible impacts of the dismantlement of environmental agencies on the organization and the collective action of the wide set of actors involved in large-scale conservation and sustainable development of the Espinhaço Mosaic.

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AMBIENTE & SOCIEDADE 25 anos 25 años 25 years

SciELO

Redes de governança colaborativa: explorando o sucesso da governança na conservação em larga escala

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Frédéric Mertens

Resumo: A colaboração inclusiva e equitativa dos atores tem sido cada vez mais reconhecida como elemento essencial para o sucesso da governança na conservação da biodiversidade em larga escala. No entanto, as evidências empíricas sobre o papel dos arranjos de colaboração no estabelecimento e manutenção da governança são ainda limitadas, especialmente em paisagens tropicais megadiversas. Aplicou-se a análise de redes sociais para mapear a rede colaborativa entre os atores envolvidos na governança de um mosaico de áreas protegidas no Brasil e testar se a rede apresentava padrões relacionais favoráveis à boa governança. A rede é densa e diversificada, contendo variedade de atores e arranjos de colaboração horizontal entre os grupos. Esses aspectos estruturais são consistentes com uma rede que promove o engajamento inclusivo e equitativo. A análise também identificou alguns riscos e desafios que oferecem informações úteis para melhorar a eficácia da governança.

Palavras-chave: Análise de redes sociais; áreas protegidas; boa governança; colaboração; Espinhaço; gestão integrada da paisagem.

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Artigo Original

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SciELO

Redes de gobernanza colaborativa: explorando el éxito de la gobernanza en la conservación a gran escala

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Artículo Original

Resumen: La colaboración inclusiva y equitativa de los actores está siendo cada vez más reconocida como elemento esencial para el éxito de la gobernanza en la conservación de la biodiversidad a gran escala. Sin embargo, las evidencias empíricas sobre el papel de los arreglos colaborativos en el establecimiento y mantenimiento de la gobernanza son aún limitadas, especialmente en paisajes tropicales megadiversos. Se aplicó el análisis de redes sociales para mapear la red colaborativa entre los actores involucrados en la gobernanza de un mosaico de áreas protegidas en Brasil y probar si la red presentaba patrones relacionales favorables a la buena gobernanza. La red es densa y diversificada, englobando diferentes actores y arreglos de colaboración horizontal entre grupos. Estos aspectos estructurales son consistentes con una red que promueve la participación inclusiva y equitativa. El análisis también identificó algunos riesgos y desafíos que ofrecen informaciones útiles para mejorar la eficacia de la gobernanza.

Palabras-clave: Análisis de redes sociales; áreas protegidas; buena gobernanza; colaboración; Espinhaço; gestión integrada del paisaje.